



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: SM-A7000

FCC ID: A3LSMA7000

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Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
129 Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, 443-742, Korea**

Prepared by

**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
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, WLAN DTS/UNII a/b/g/n, & ANT+

MODEL: SM-A7000

SERIAL NUMBER: c899c6eb (RADIATED); c89fc6f6 (CONDUCTED)

DATE TESTED: NOVEMBER 7-13, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released
For UL Verification Services Inc. By:



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

Tested By:



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

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.4-2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 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(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

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 & ANT+.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	17.2	52.48
2412 - 2462	802.11g	13.8	23.99
2412 - 2462	802.11n HT20	11.8	15.14

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2.32 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	EP-TA50CBC	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

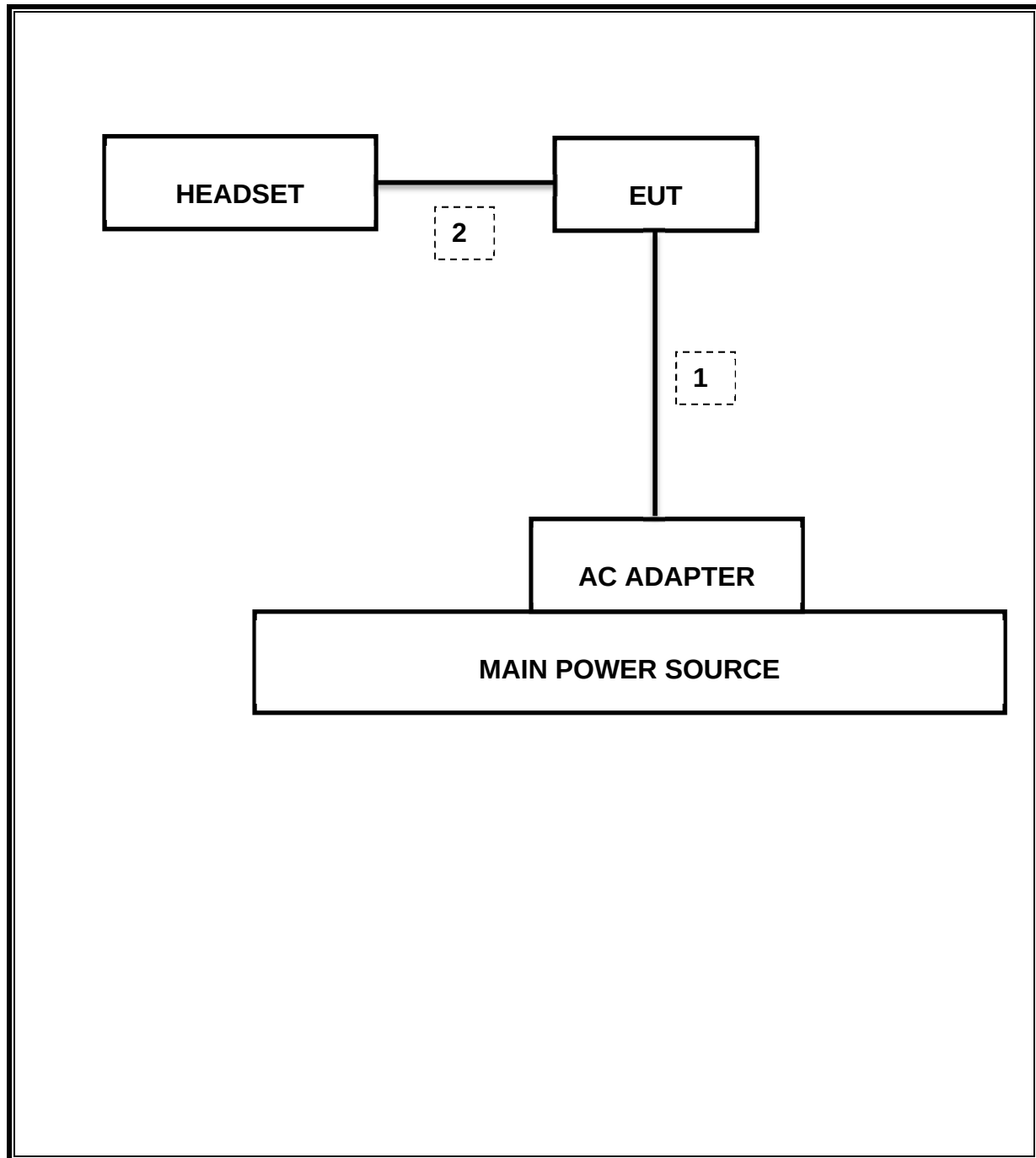
I/O CABLES

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. EUT was set in the Samsung Keystoring menu mode to exercise 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	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
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	08/20/15
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	9.60MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-28.35dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	17.20dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-13.22dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	56.92dBuV(PK)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	44.60dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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 100KHz, 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 Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	9.60	0.5
Mid	2437	10.11	0.5
High	2462	10.07	0.5
Worst		9.60	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

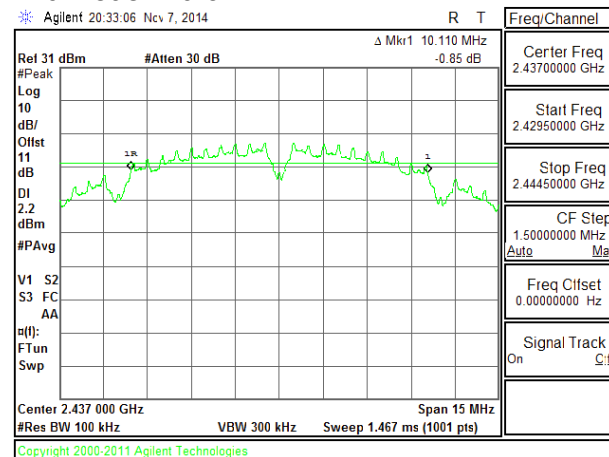
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.43	0.5
Mid	2437	16.48	0.5
High	2462	16.45	0.5
Worst		16.43	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

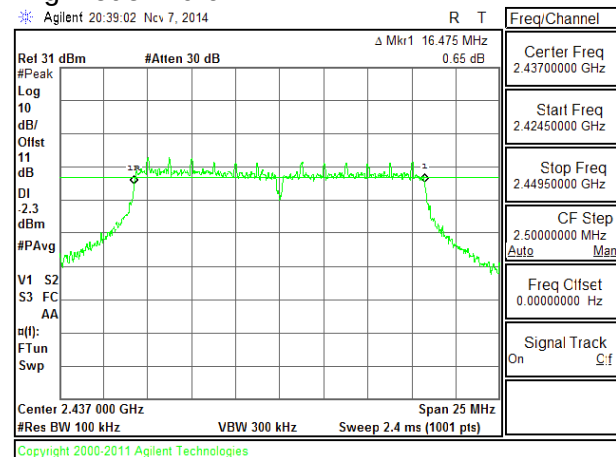
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.66	0.5
Mid	2437	17.71	0.5
High	2462	17.66	0.5
Worst		17.66	

9.1.4. 6 dB BANDWIDTH MID CH PLOTS

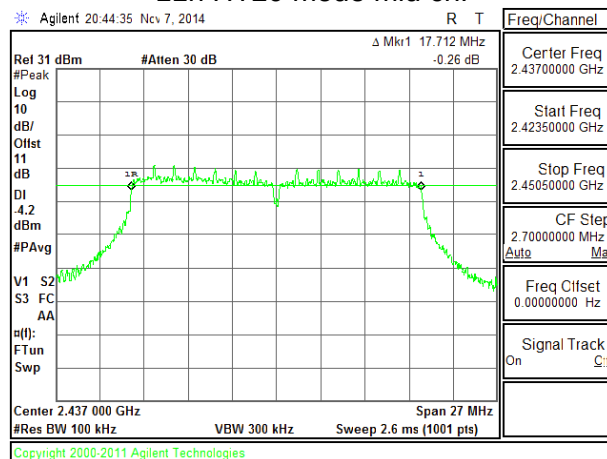
11b mode mid ch.



11g mode mid ch.



11n HT20 mode mid ch.



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.43
Mid	2437	13.60
High	2462	13.47
Worst		13.60

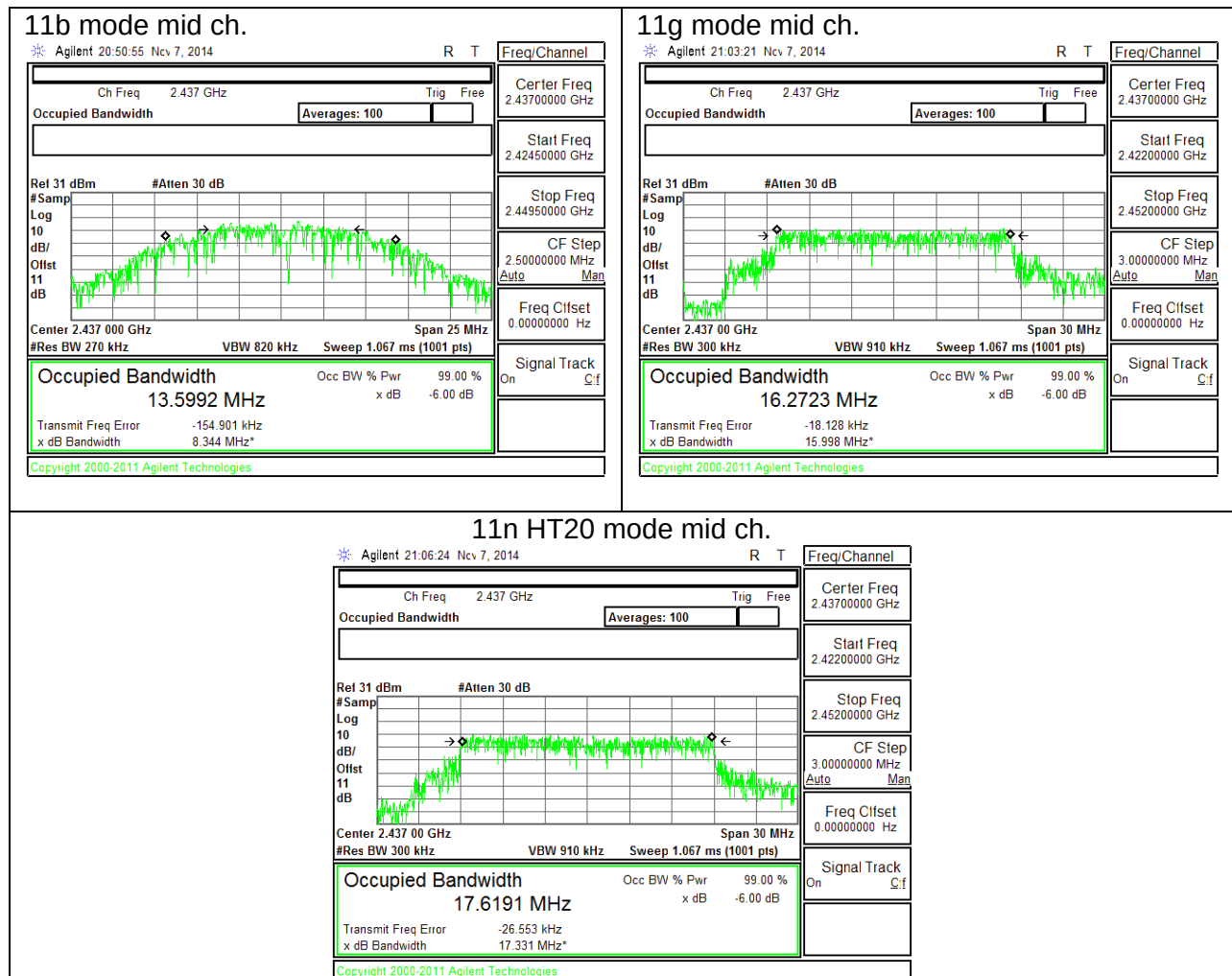
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.40
Mid	2437	16.27
High	2462	16.23
Worst		16.40

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.55
Mid	2437	17.62
High	2462	17.55
Worst		17.62

9.2.4. 99% BANDWIDTH MID CH PLOTS



9.3. OUTPUT POWER

LIMITS

FCC §15.247

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-2.32	30.00	30	36	30.00
Mid	2437	-2.32	30.00	30	36	30.00
High	2462	-2.32	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	16.30	16.30	30.00	-13.70
Mid	2437	16.40	16.40	30.00	-13.60
High	2462	17.20	17.20	30.00	-12.80
Worst			17.20		

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	-2.32	30.00	30	36	30.00
Mid	2437	-2.32	30.00	30	36	30.00
High	2462	-2.32	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	13.30	13.30	30.00	-16.70
Mid	2437	13.50	13.50	30.00	-16.50
High	2462	13.80	13.80	30.00	-16.20
Worst			13.80		

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	-2.32	30.00	30	36	30.00
Mid	2437	-2.32	30.00	30	36	30.00
High	2462	-2.32	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	11.60	11.60	30.00	-18.40
Mid	2437	11.80	11.80	30.00	-18.20
High	2462	11.80	11.80	30.00	-18.20
Worst			11.80		

9.4. PSD

LIMITS

FCC §15.247

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)	Limit (dBm)	Margin (dB)
Low	2412	-14.33	8.0	-22.3
Mid	2437	-13.90	8.0	-21.9
High	2462	-13.22	8.0	-21.2

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

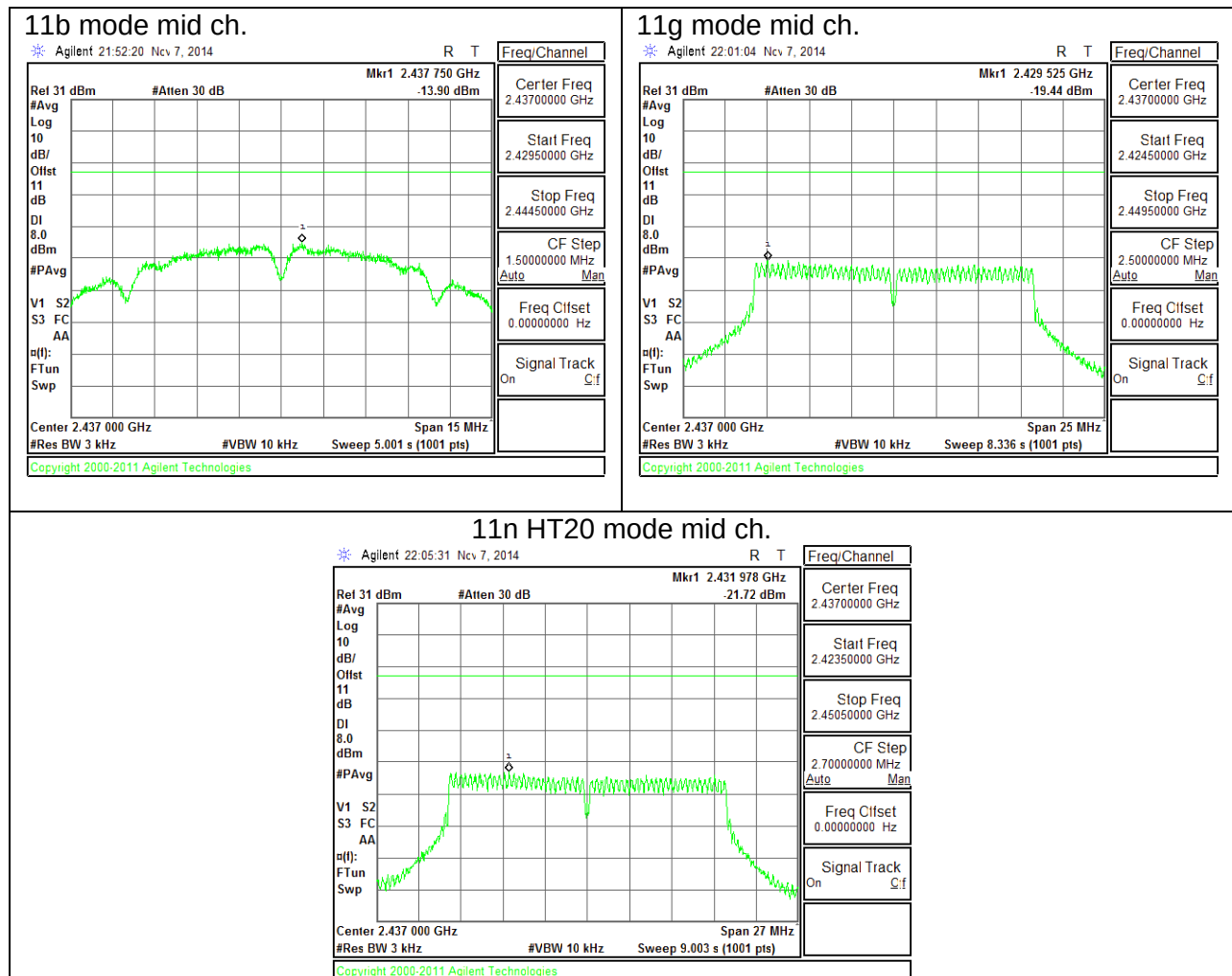
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-19.94	8.0	-27.9
Mid	2437	-19.44	8.0	-27.4
High	2462	-19.69	8.0	-27.7

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-21.62	8.0	-29.6
Mid	2437	-21.72	8.0	-29.7
High	2462	-21.95	8.0	-30.0

9.4.4. PSD Chain 0 MID CH PLOTS



9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

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.

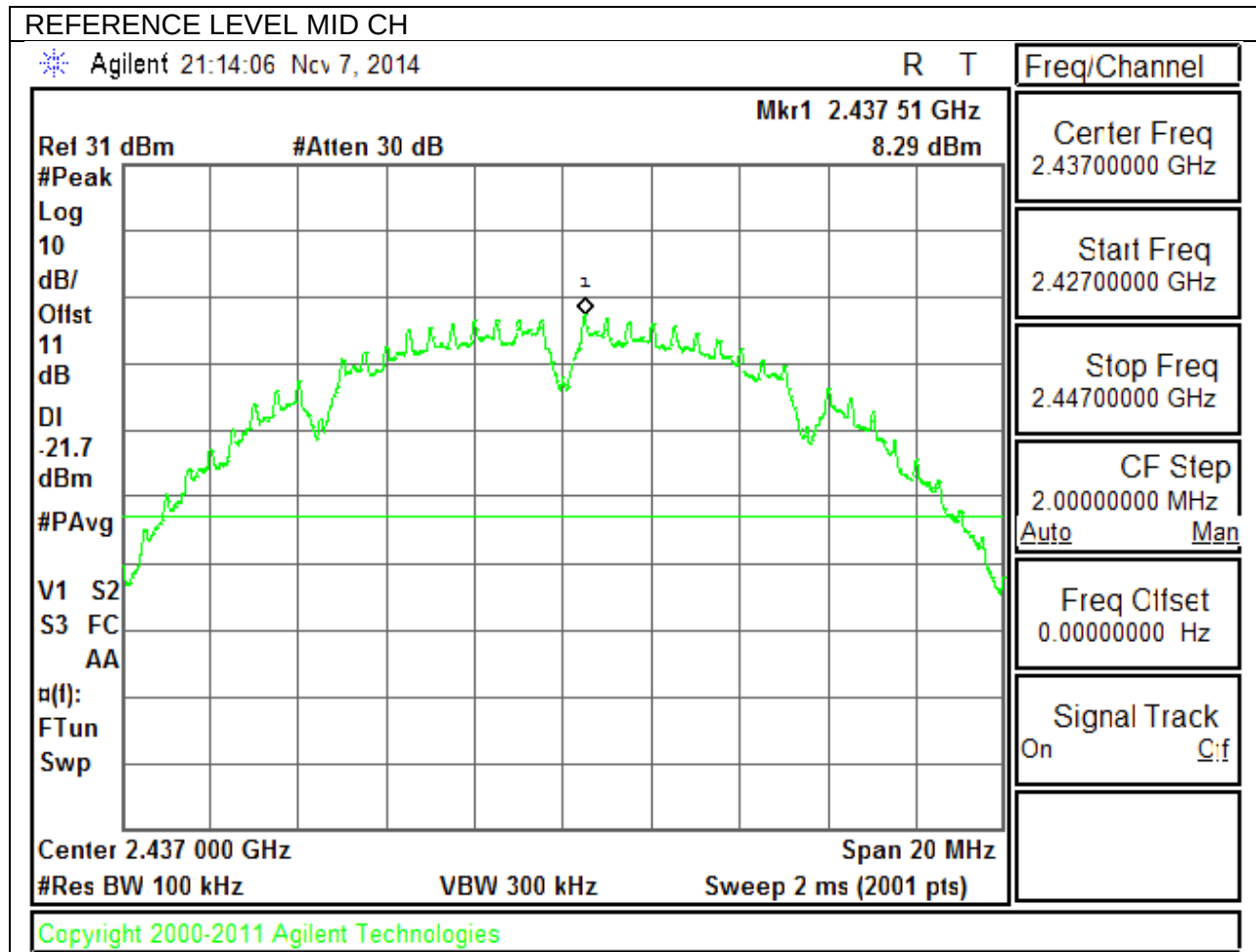
TEST PROCEDURE

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.

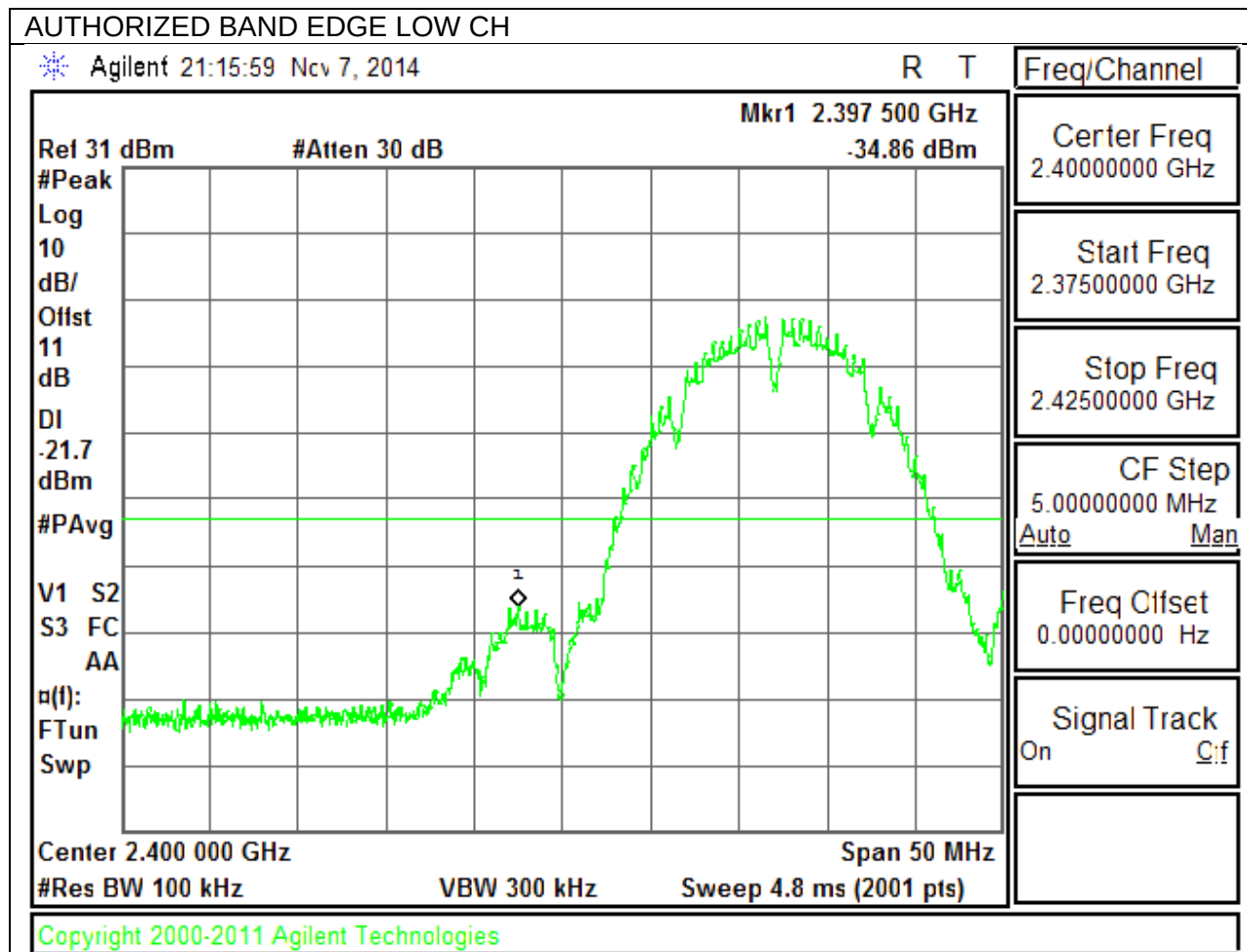
RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

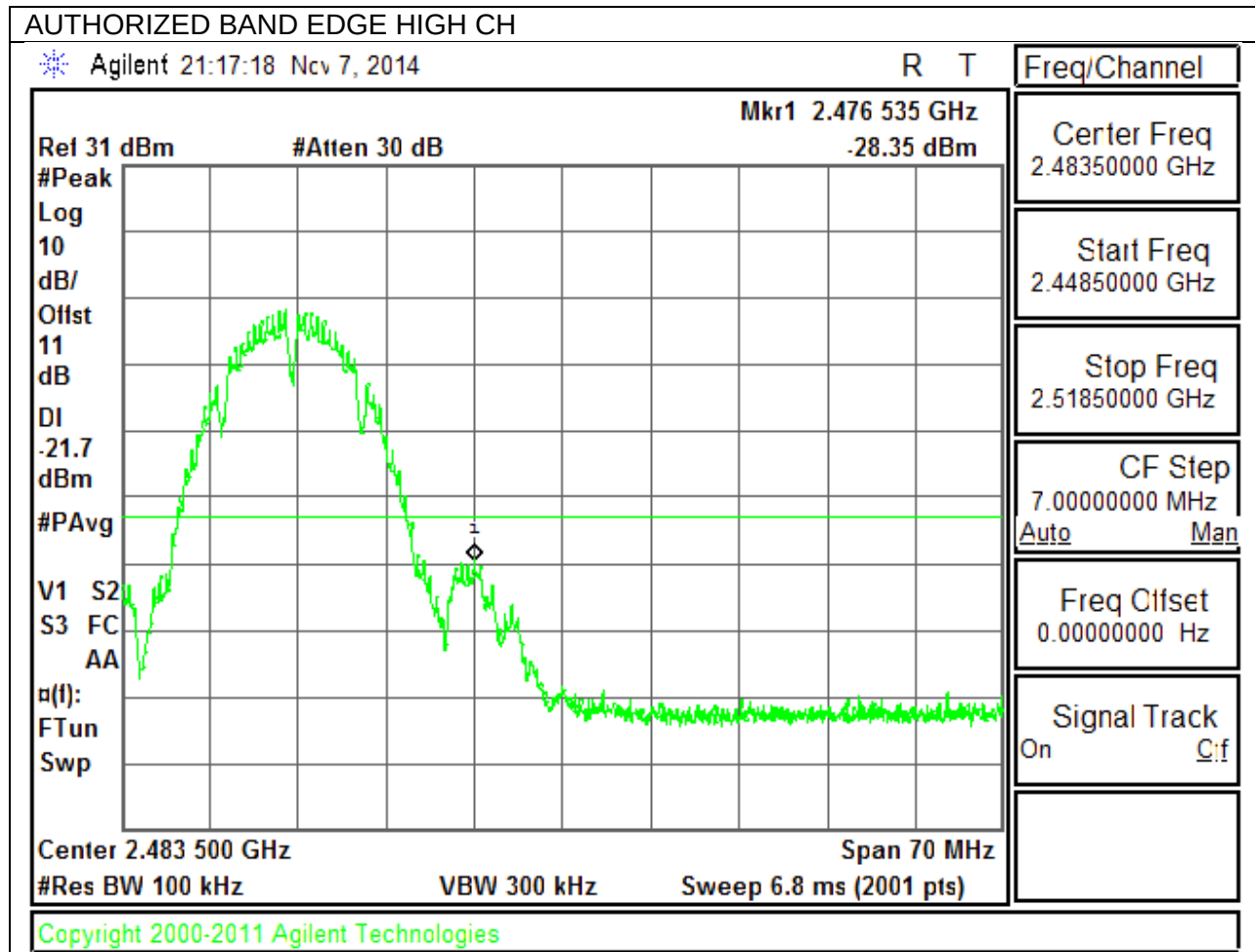
IN-BAND REFERENCE LEVEL



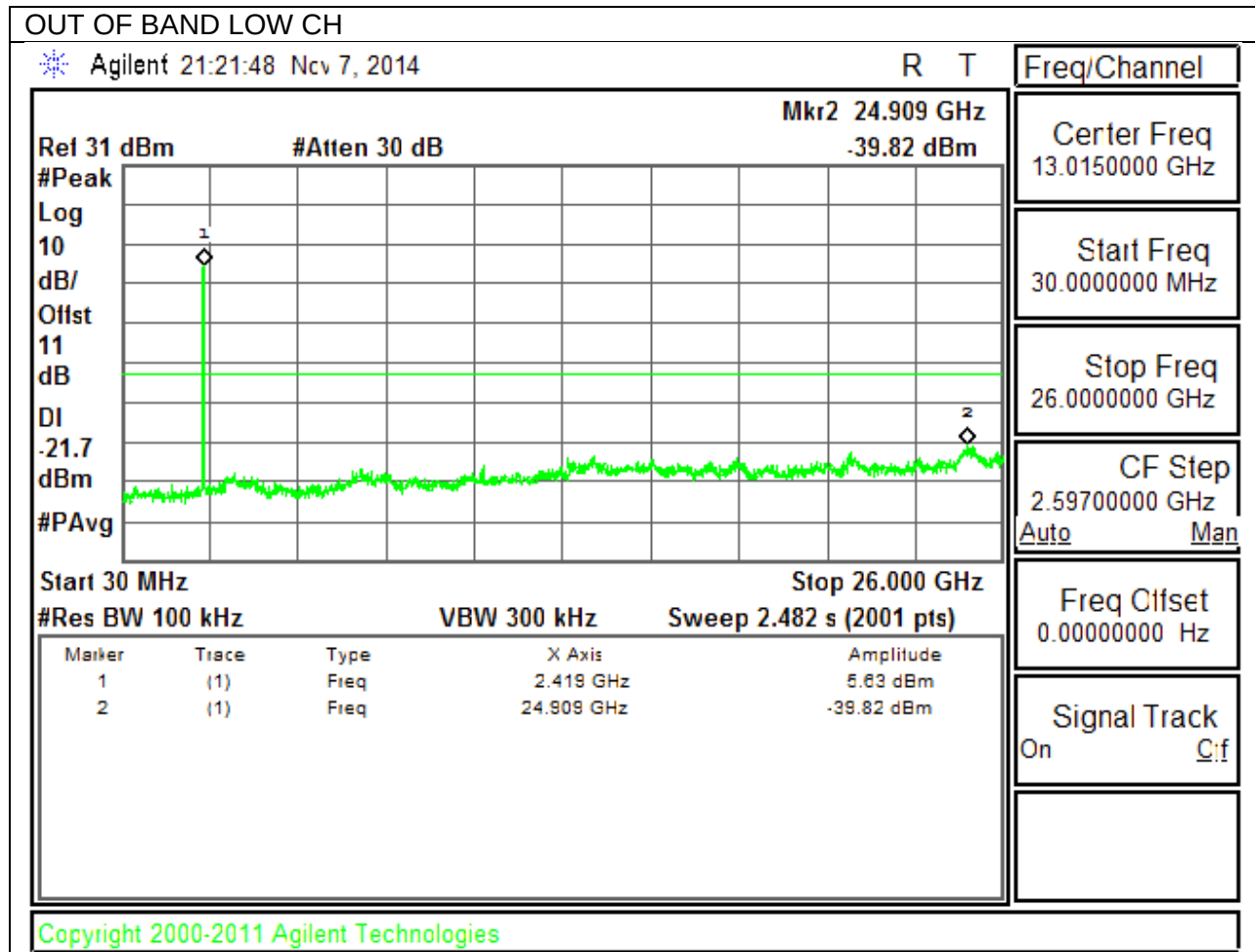
LOW CHANNEL BANDEDGE

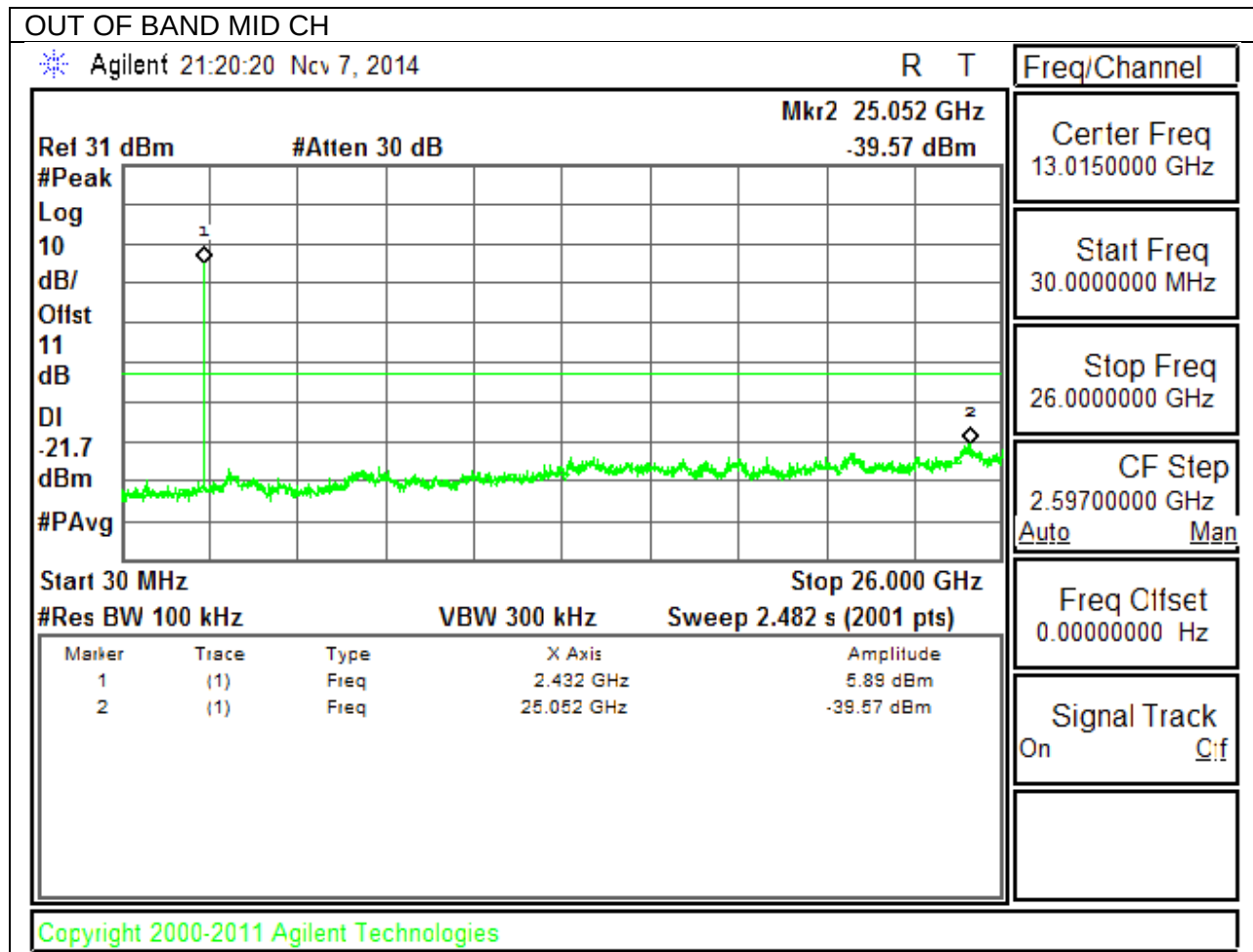


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



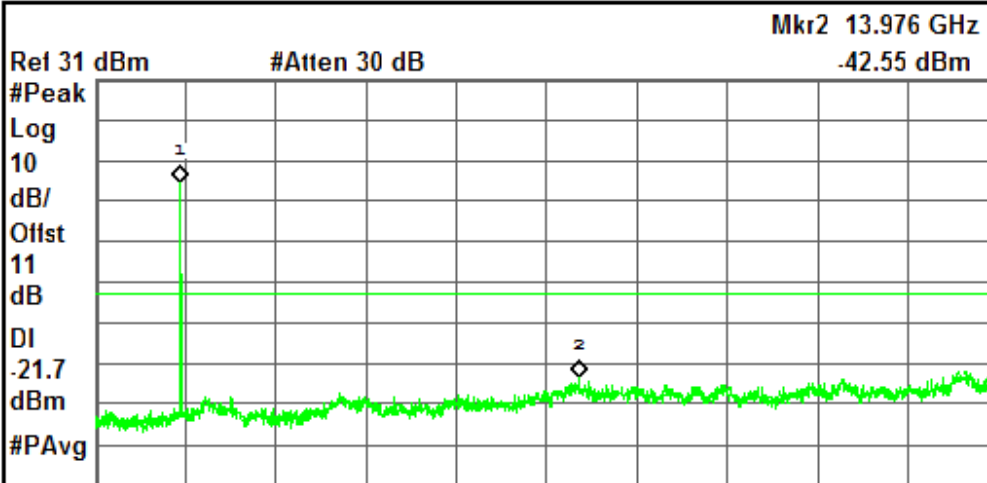


OUT OF BAND HIGH CH

Agilent 21:19:07 Nov 7, 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

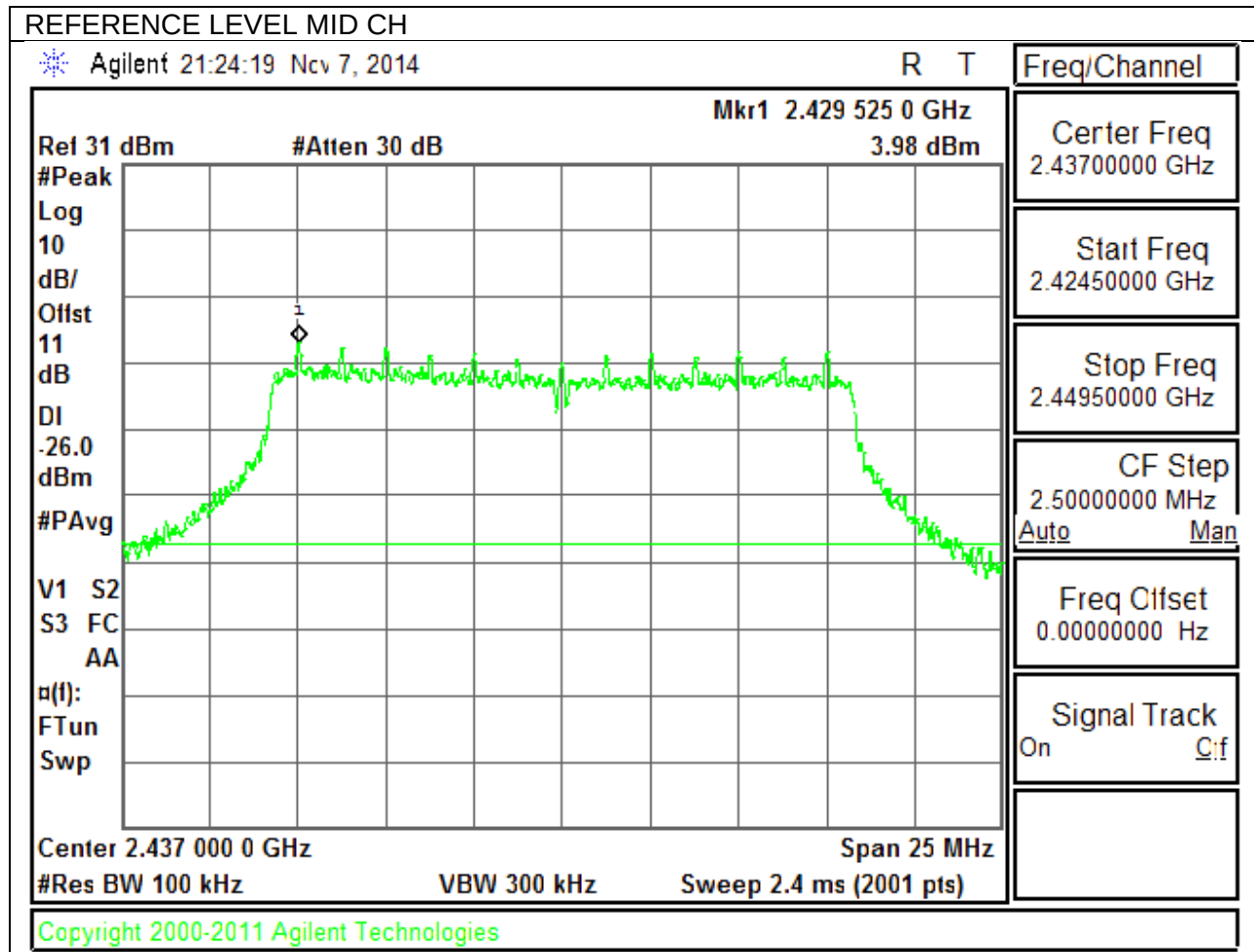
Signal Track
On Off

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.458 GHz	5.60 dBm
2	(1)	Freq	13.976 GHz	-42.55 dBm

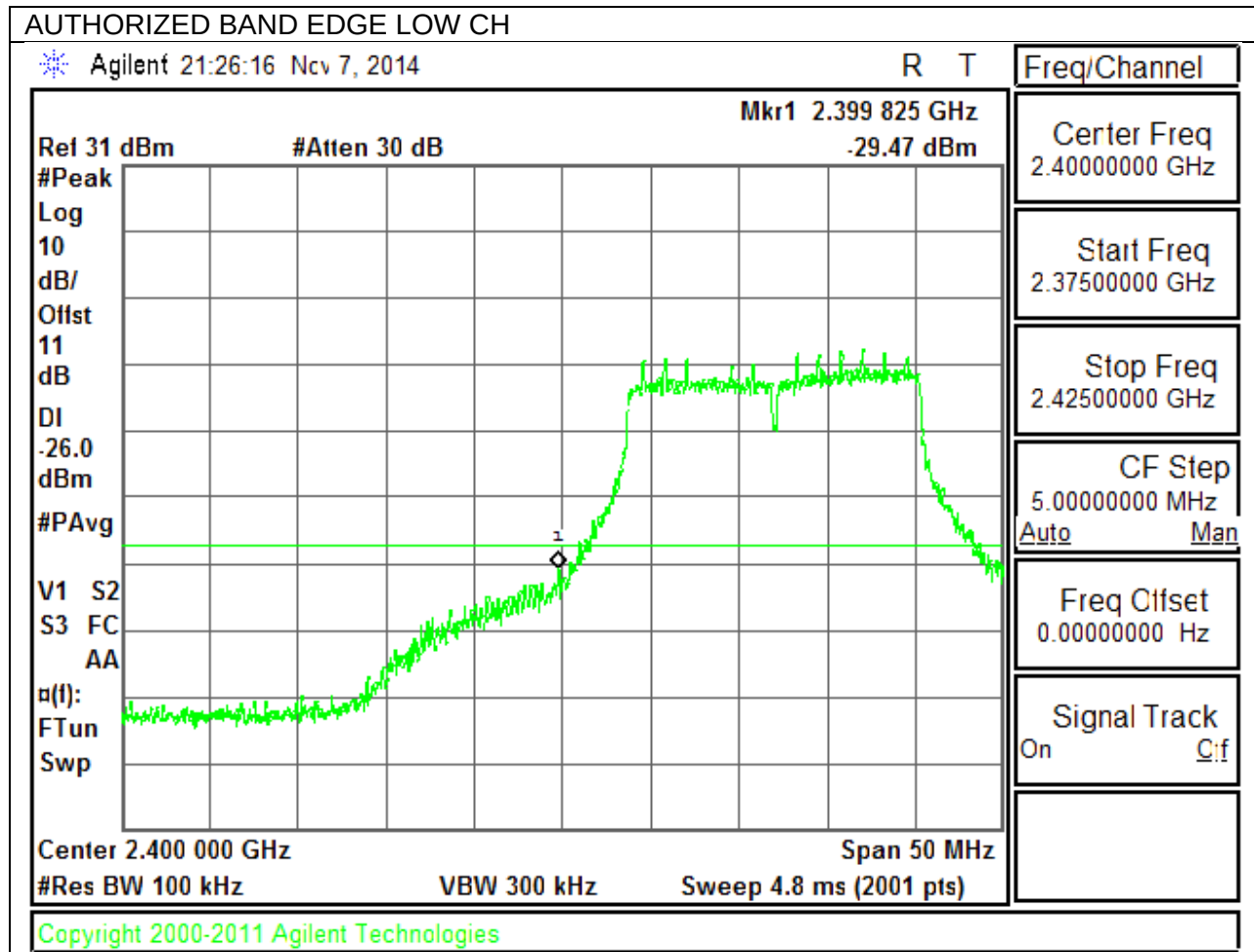
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9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

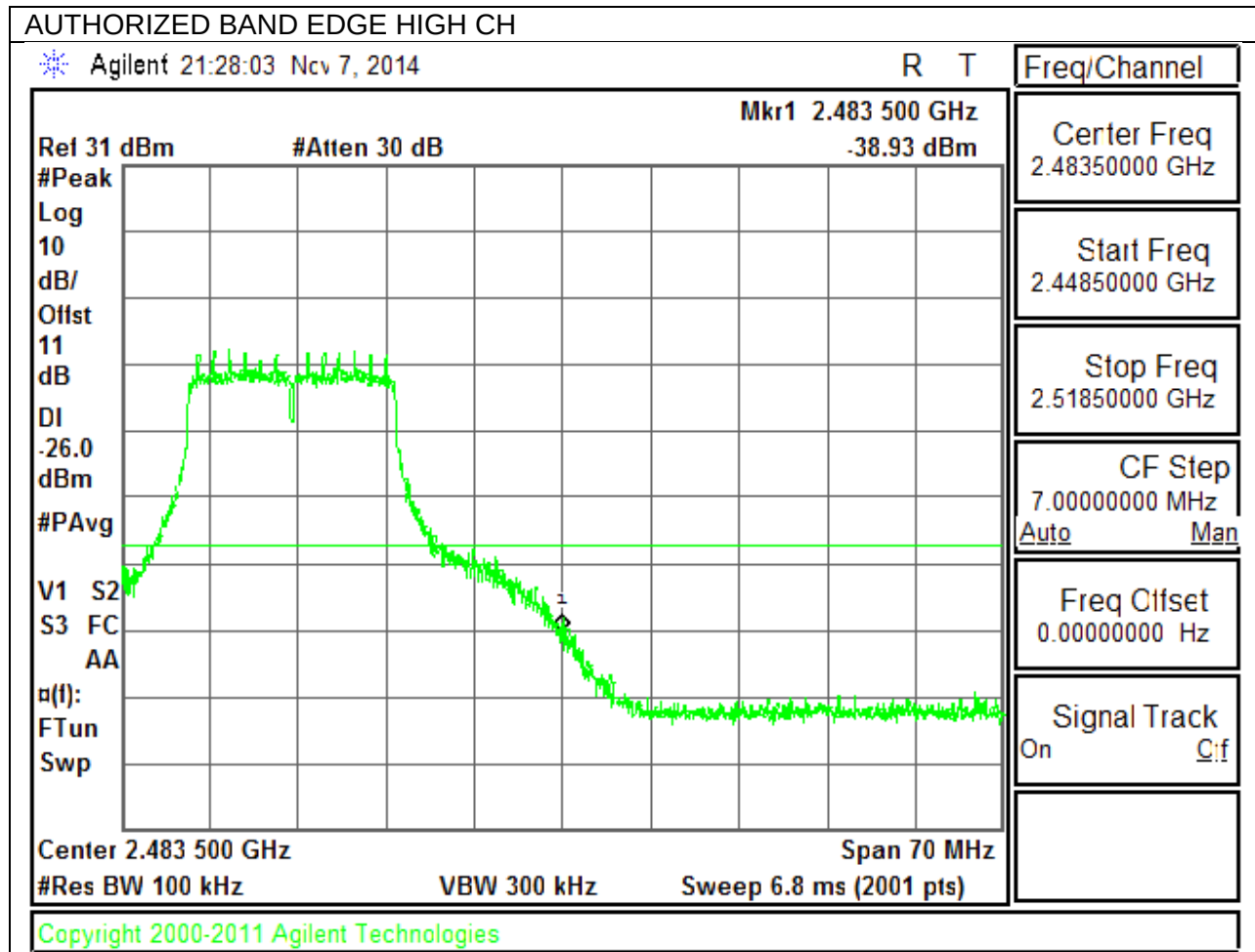
IN-BAND REFERENCE LEVEL



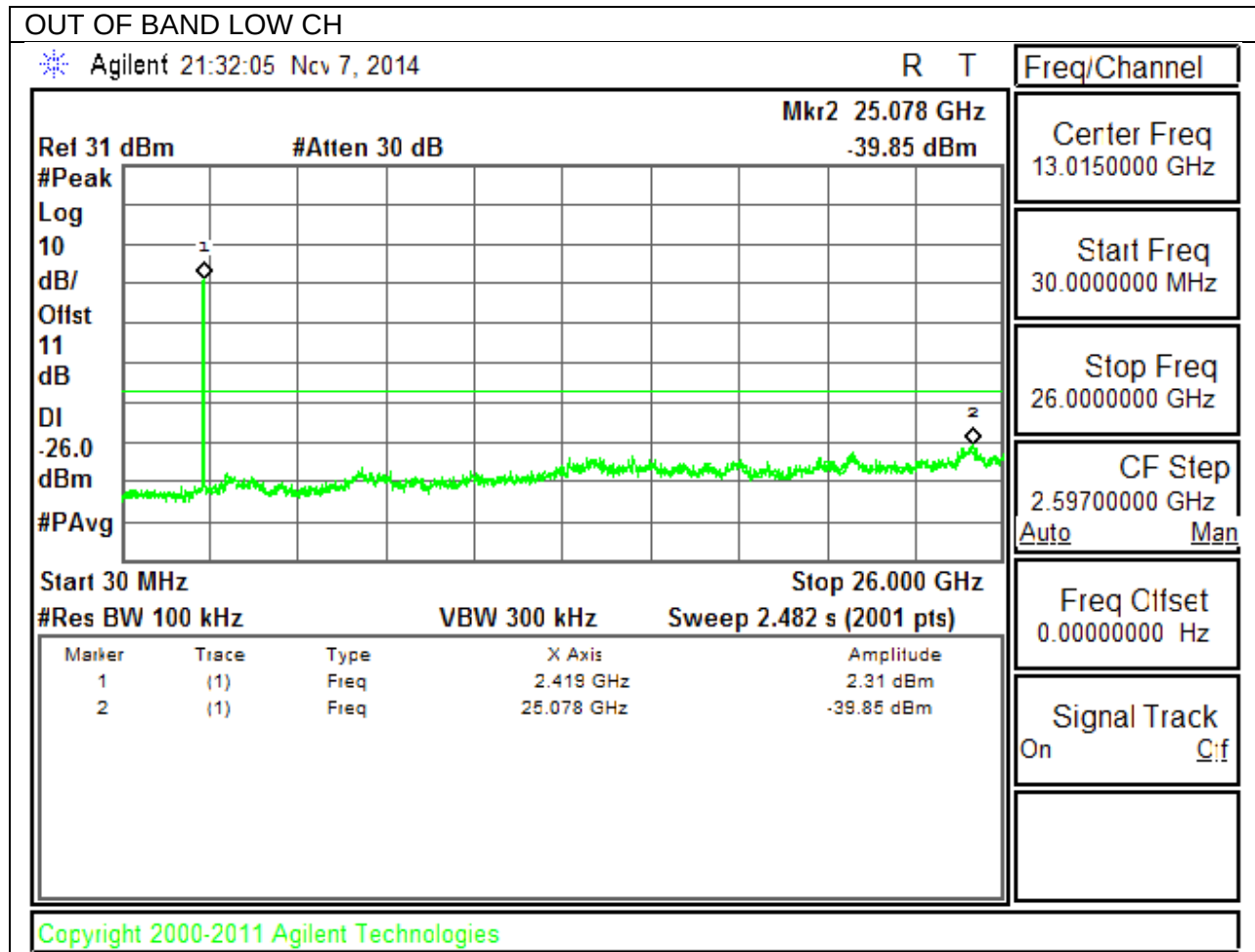
LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

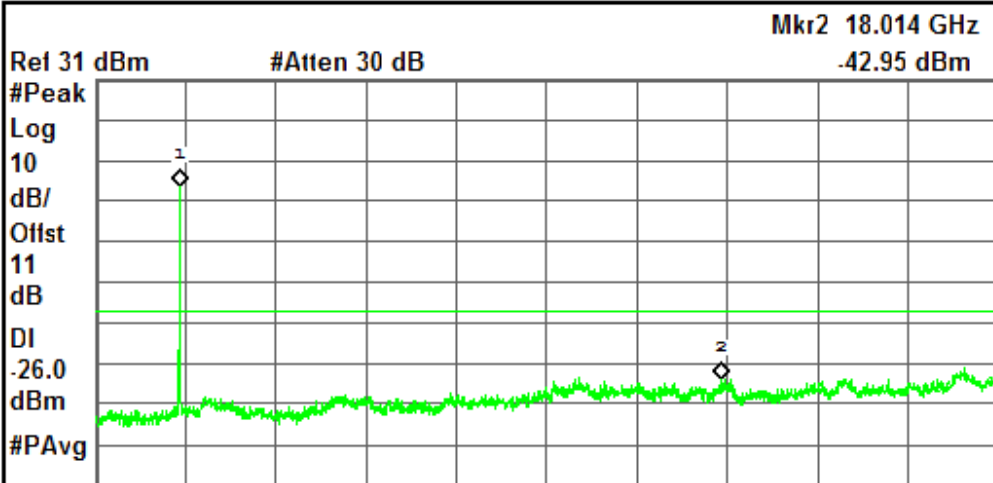


OUT OF BAND MID CH

Agilent 21:30:48 Nov 7, 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

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OUT OF BAND HIGH CH

Agilent 21:29:40 Nov 7, 2014

R T

Freq/Channel

Ref 31 dBm

#Atten 30 dB

Mkr2 24.844 GHz

-41.06 dBm

Center Freq
13.0150000 GHz

#Peak

Log

10

dB/

Offst

11

dB

DI

-26.0

dBm

#PAvg

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz

Auto Man

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

VBW 300 kHz

Sweep 2.482 s (2001 pts)

Freq Offset
0.00000000 Hz

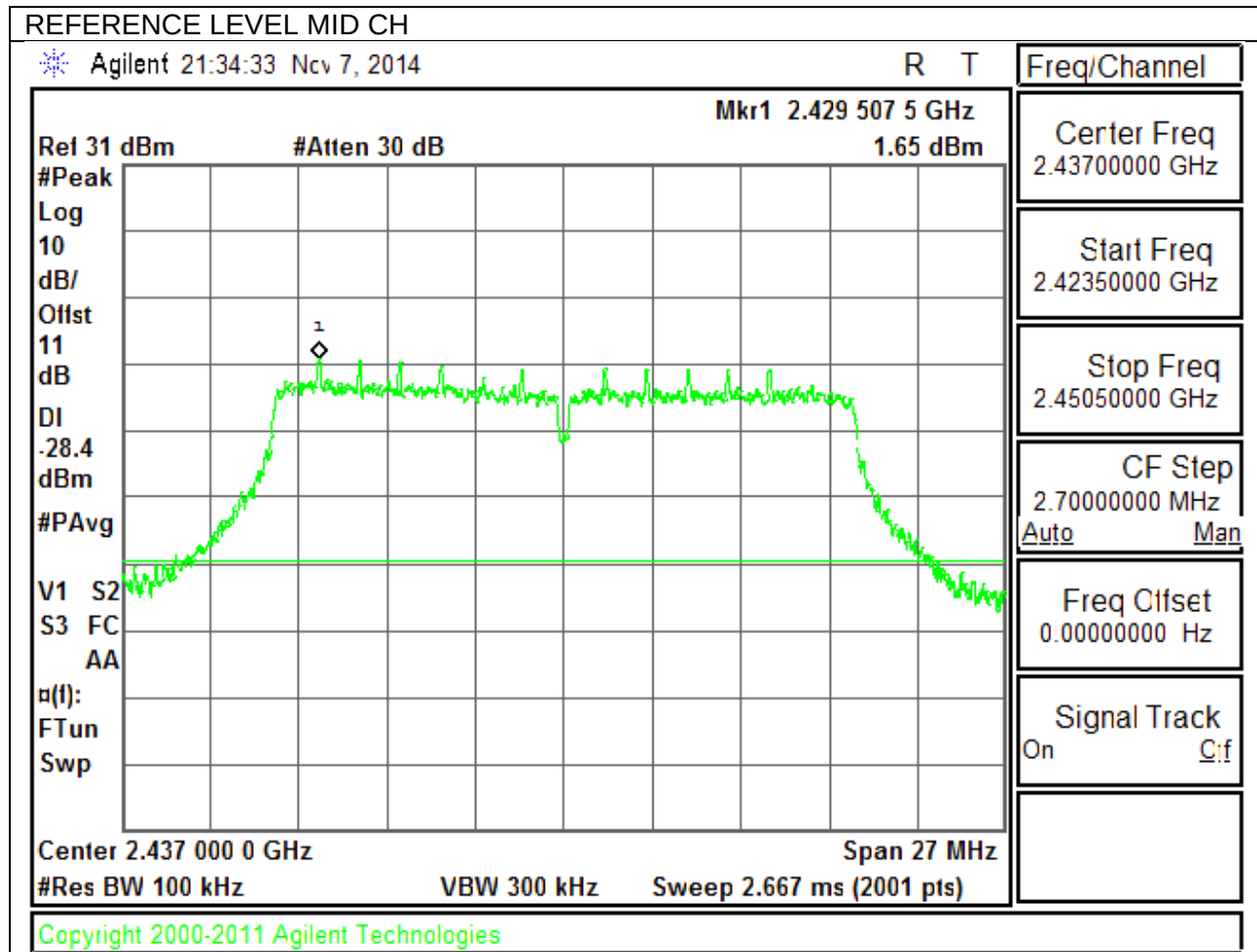
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.458 GHz	-1.33 dBm
2	(1)	Freq	24.844 GHz	-41.06 dBm

Signal Track
On Off

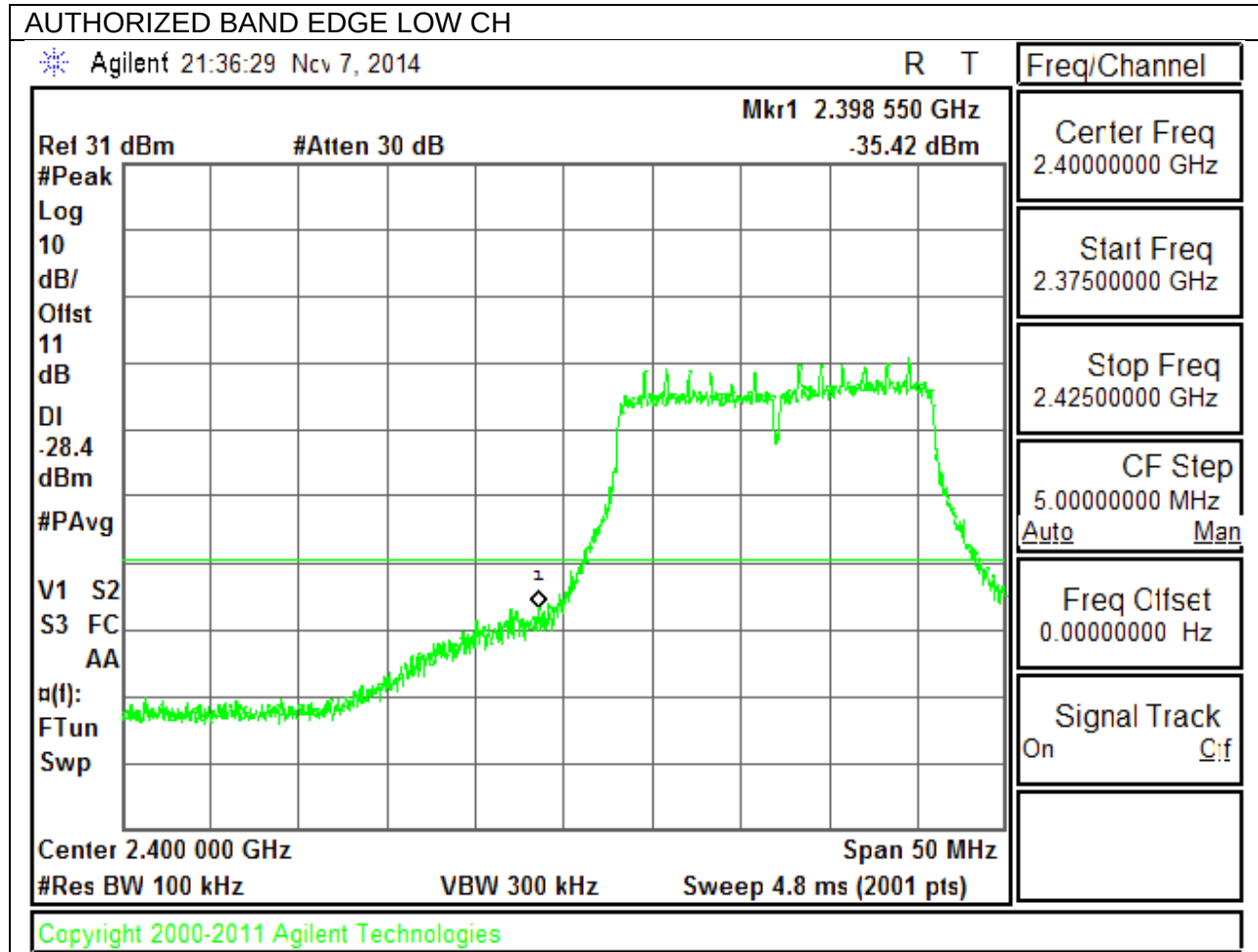
Copyright 2000-2011 Agilent Technologies

9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

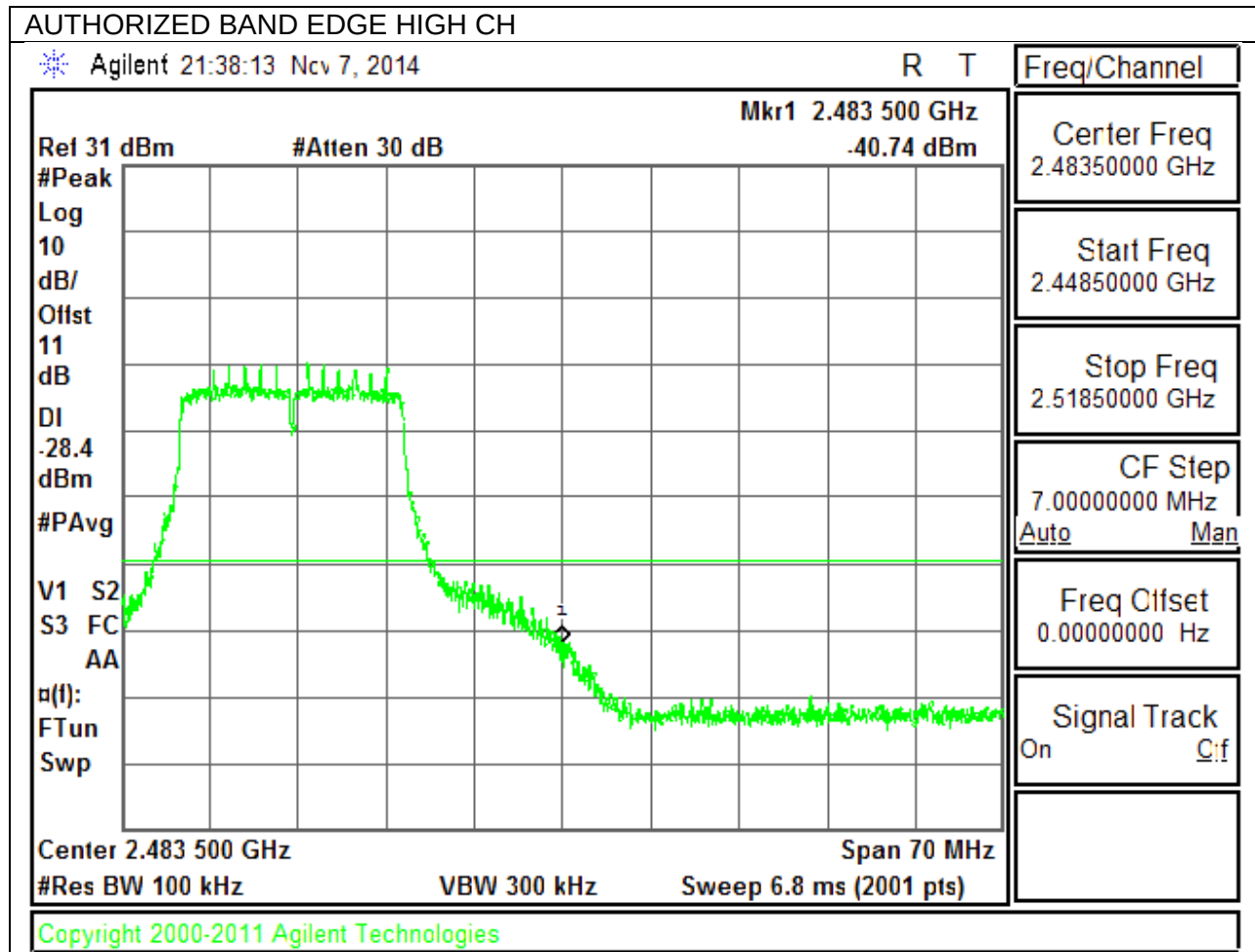
IN-BAND REFERENCE LEVEL



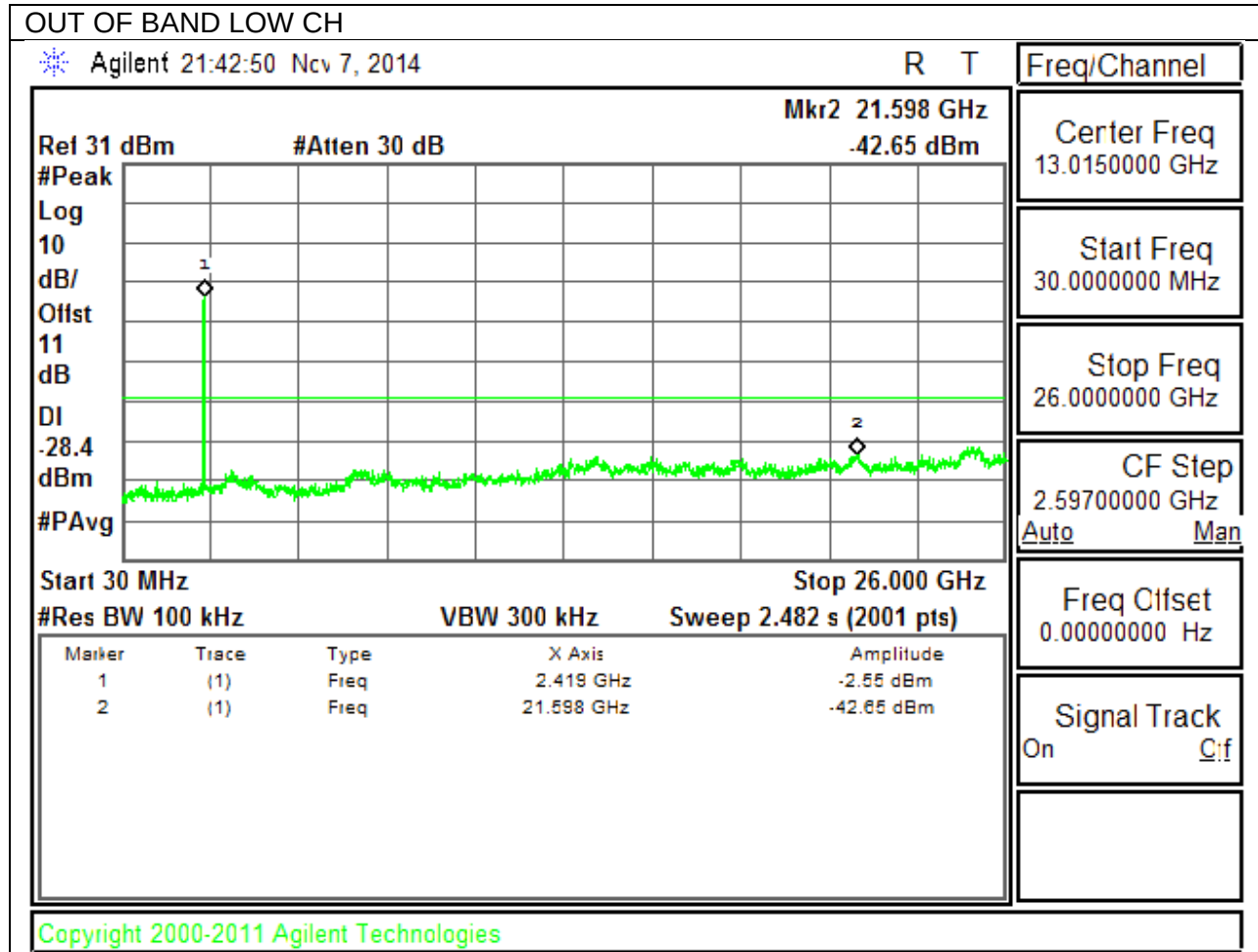
LOW CHANNEL BANDEDGE



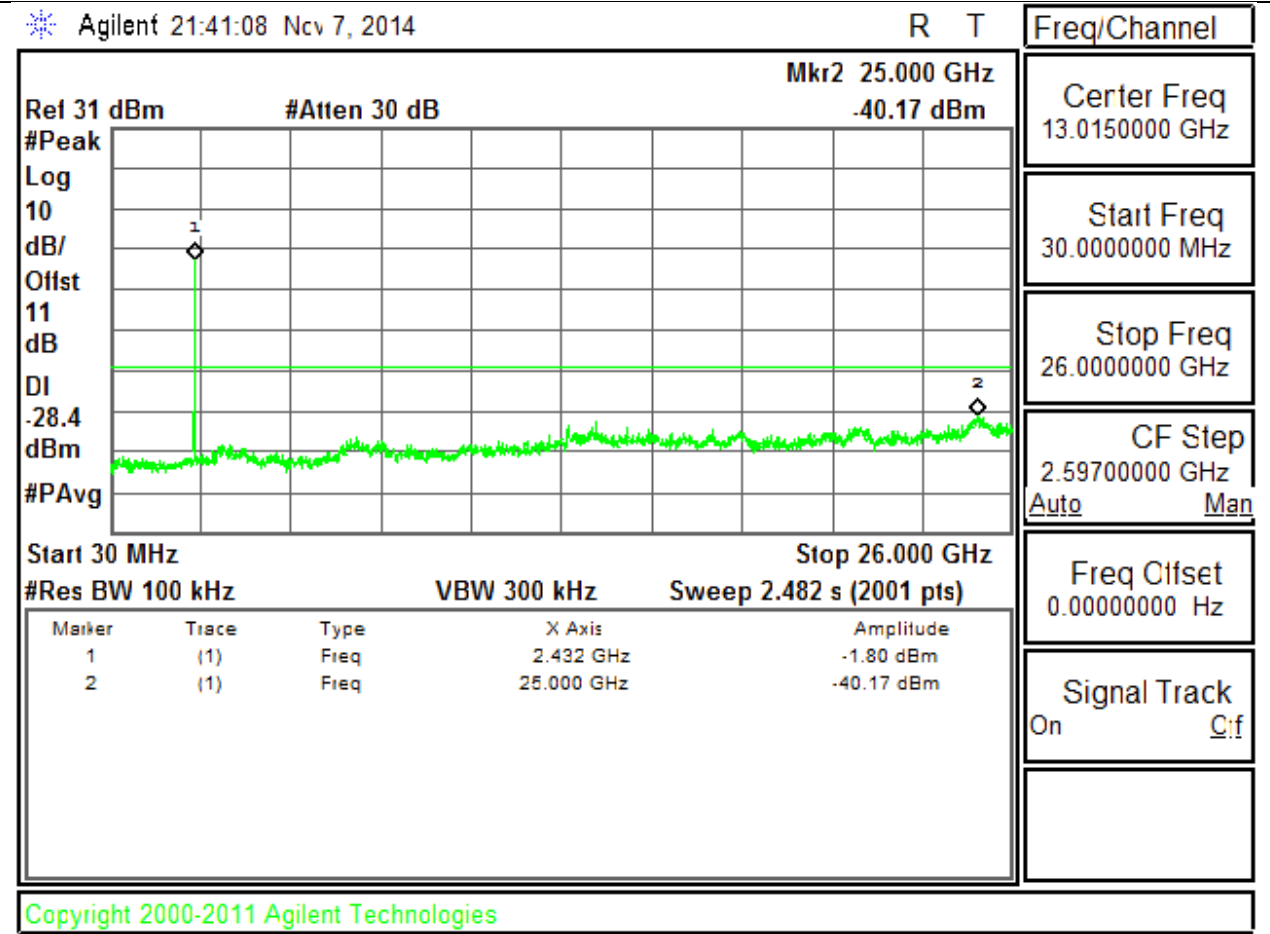
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH



OUT OF BAND HIGH CH

Agilent 21:39:57 Nov 7, 2014

R T

Freq/Channel

Ref 31 dBm

#Atten 30 dB

Mkr2 25.026 GHz

-39.54 dBm

Center Freq
13.0150000 GHz

#Peak

Log

10

dB/

Offst

11

dB

DI

-28.4

dBm

#PAvg

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz

Auto Man

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

VBW 300 kHz

Sweep 2.482 s (2001 pts)

Freq Offset
0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.458 GHz	-0.39 dBm
2	(1)	Freq	25.026 GHz	-39.54 dBm

Signal Track
On Off

Copyright 2000-2011 Agilent Technologies

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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= $10\log(1/x)$ for this sample B mode = 0dB (duty cycle >98%); G mode = 0.32dB; N mode = 0.36dB.

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.

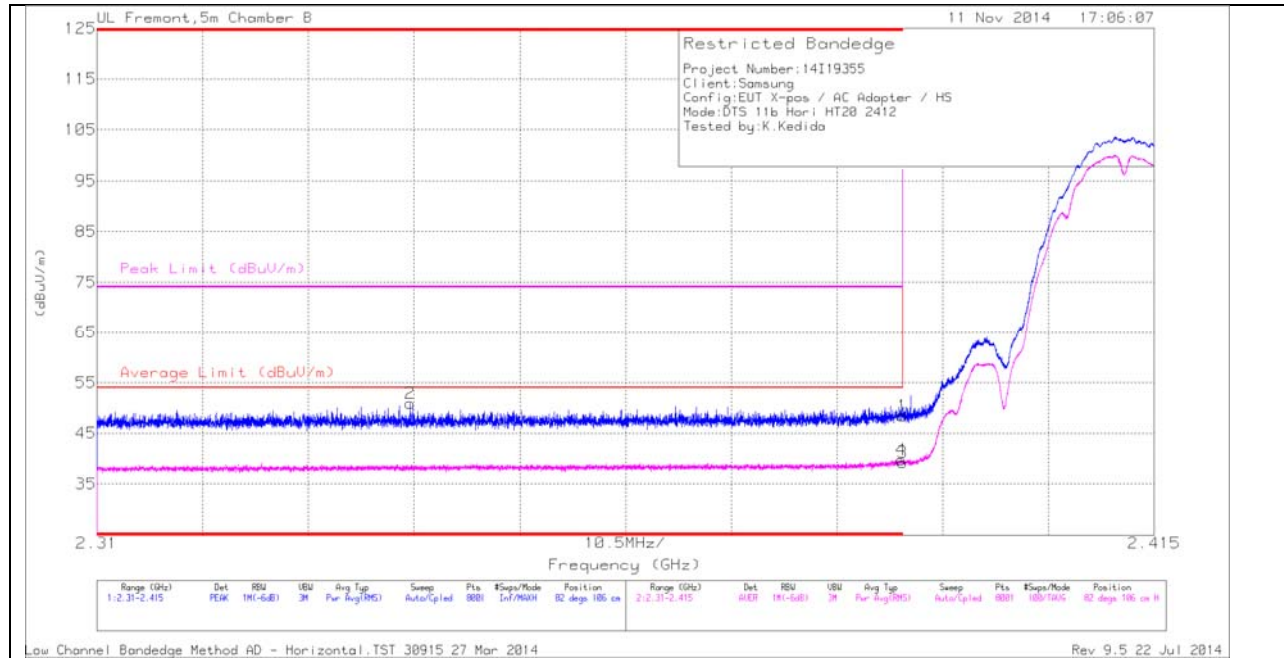
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

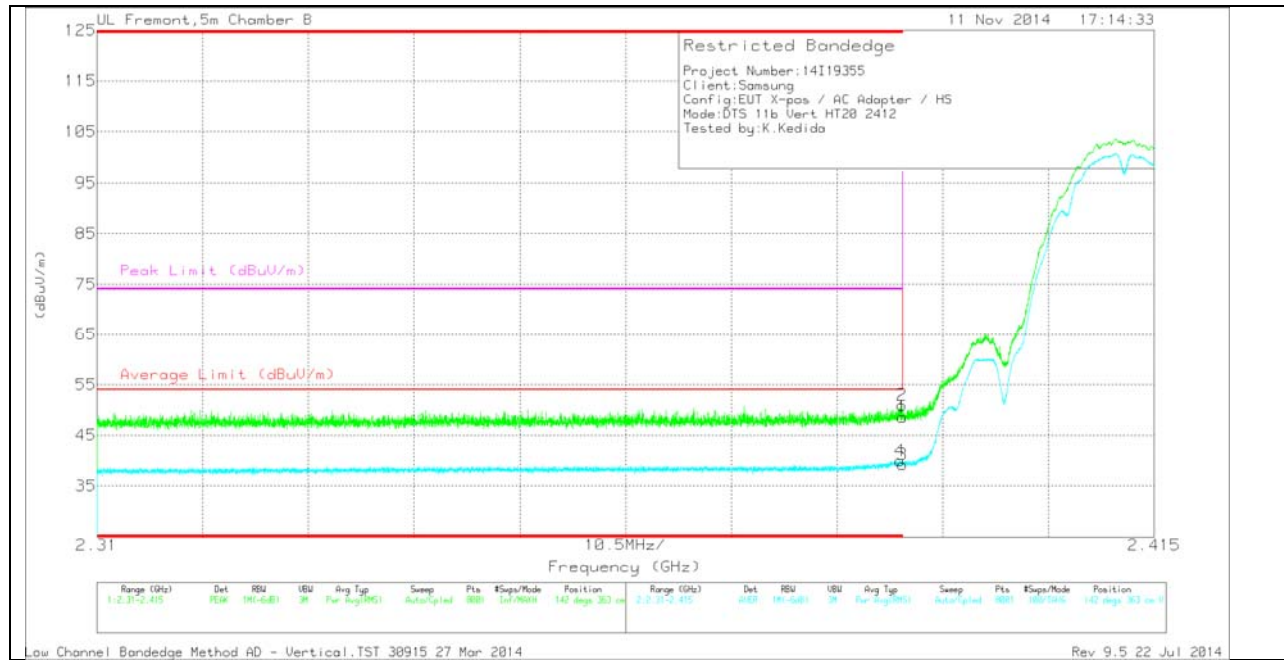
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (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	39.05	PK	32.1	-22.7	0	48.45	-	-	74	-25.55	82	106	H
2	* 2.341	41.93	PK	31.8	-22.8	0	50.93	-	-	74	-23.07	82	106	H
3	* 2.39	29.83	RMS	32.1	-22.7	0	39.23	54	-14.77	-	-	82	106	H
4	* 2.39	30.36	RMS	32.1	-22.7	0	39.76	54	-14.24	-	-	82	106	H

VERTICAL PEAK AND AVERAGE PLOT

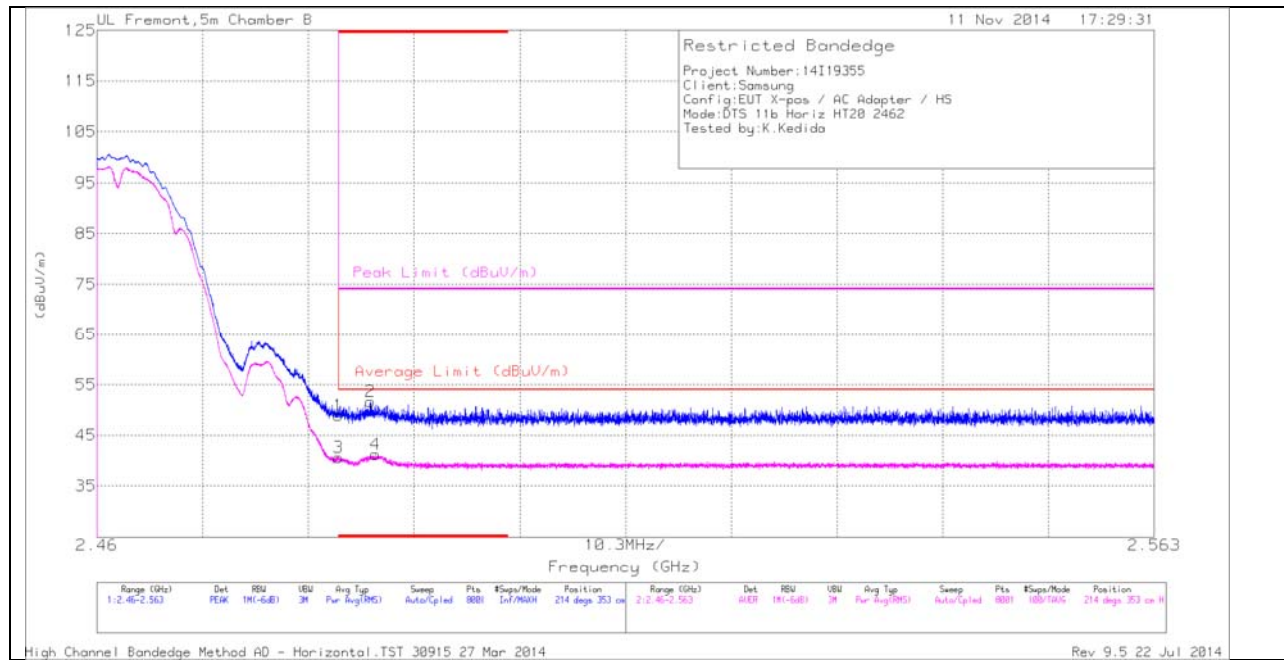


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (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	39.11	PK	32.1	-22.7	0	48.51	-	-	74	-25.49	142	363	V
2	* 2.39	41.57	PK	32.1	-22.7	0	50.97	-	-	74	-23.03	142	363	V
3	* 2.39	29.88	RMS	32.1	-22.7	0	39.28	54	-14.72	-	-	142	363	V
4	* 2.39	30.61	RMS	32.1	-22.7	0	40.01	54	-13.99	-	-	142	363	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



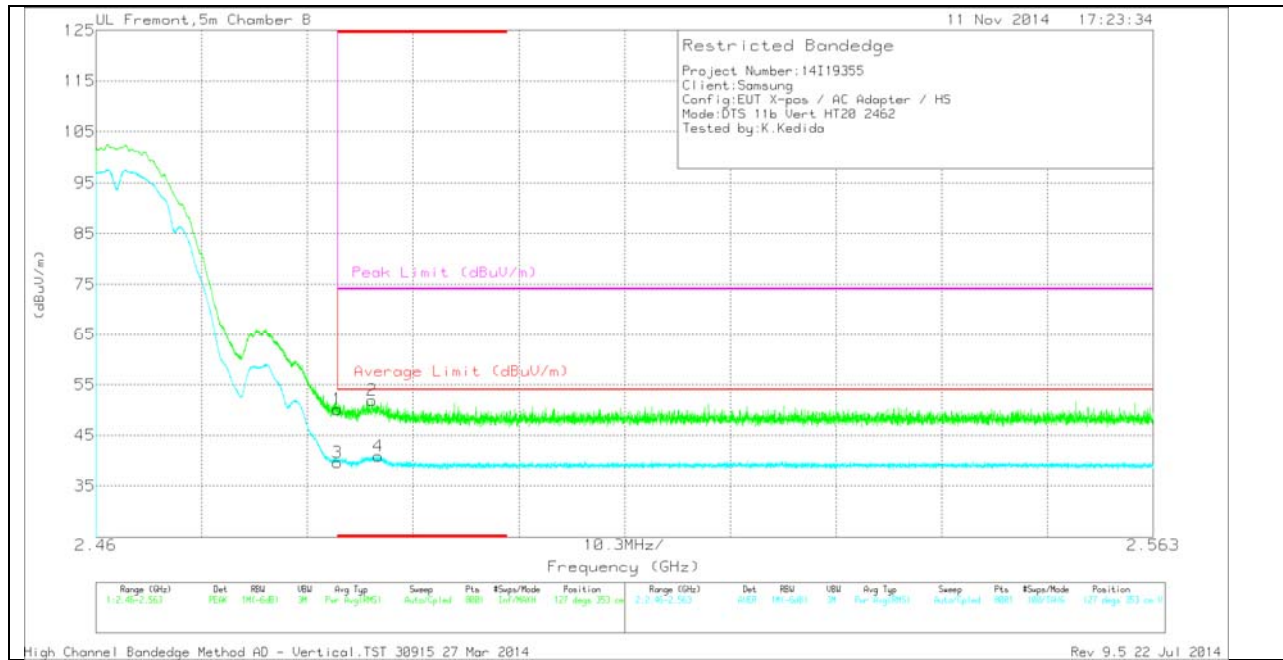
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT345 (dB/m)	Amp/Cb/Filter/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	39.09	PK	32.4	-22.6	0	48.89	-	-	74	-25.11	214	353	H
2	* 2.487	41.87	PK	32.4	-22.6	0	51.67	-	-	74	-22.33	214	353	H
3	* 2.484	30.77	RMS	32.4	-22.6	0	40.57	54	-13.43	-	-	214	353	H
4	* 2.487	31.43	RMS	32.4	-22.6	0	41.23	54	-12.77	-	-	214	353	H

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

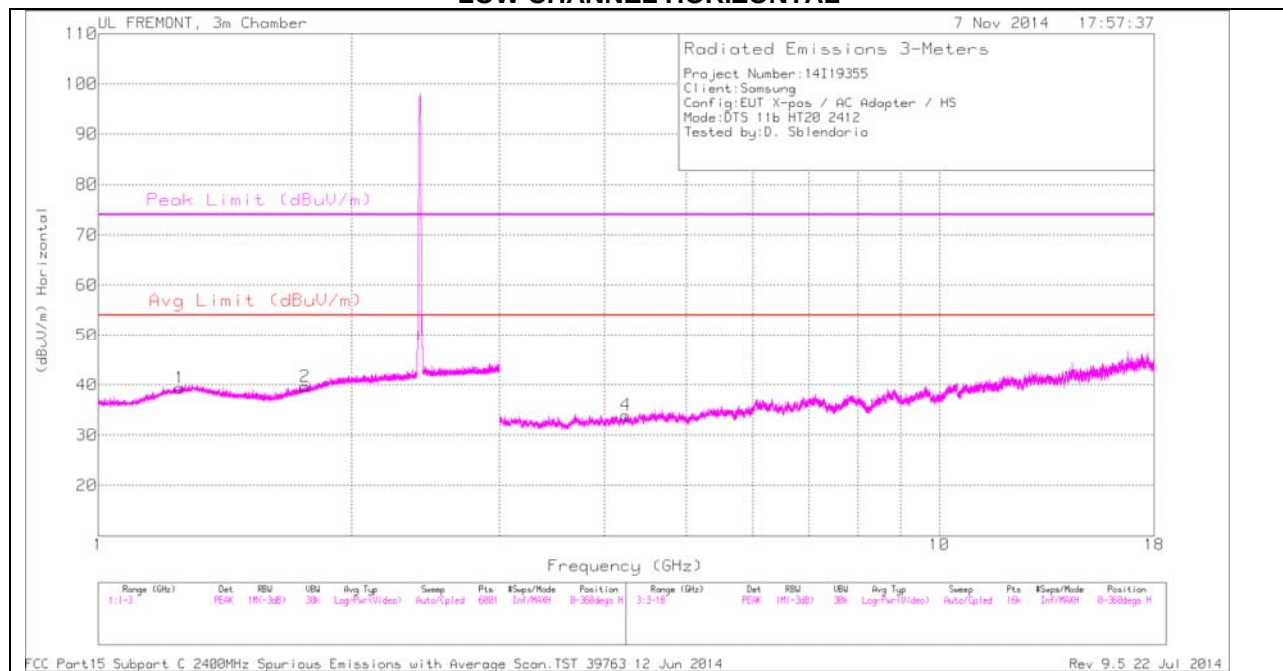
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.31	PK	32.4	-22.6	0	50.11	-	-	74	-23.89	127	353	V
2	* 2.487	42.12	PK	32.4	-22.6	0	51.92	-	-	74	-22.08	127	353	V
3	* 2.484	29.81	RMS	32.4	-22.6	0	39.61	54	-14.39	-	-	127	353	V
4	* 2.488	31	RMS	32.4	-22.6	0	40.8	54	-13.2	-	-	127	353	V

PK - Peak detector

RMS - RMS detection

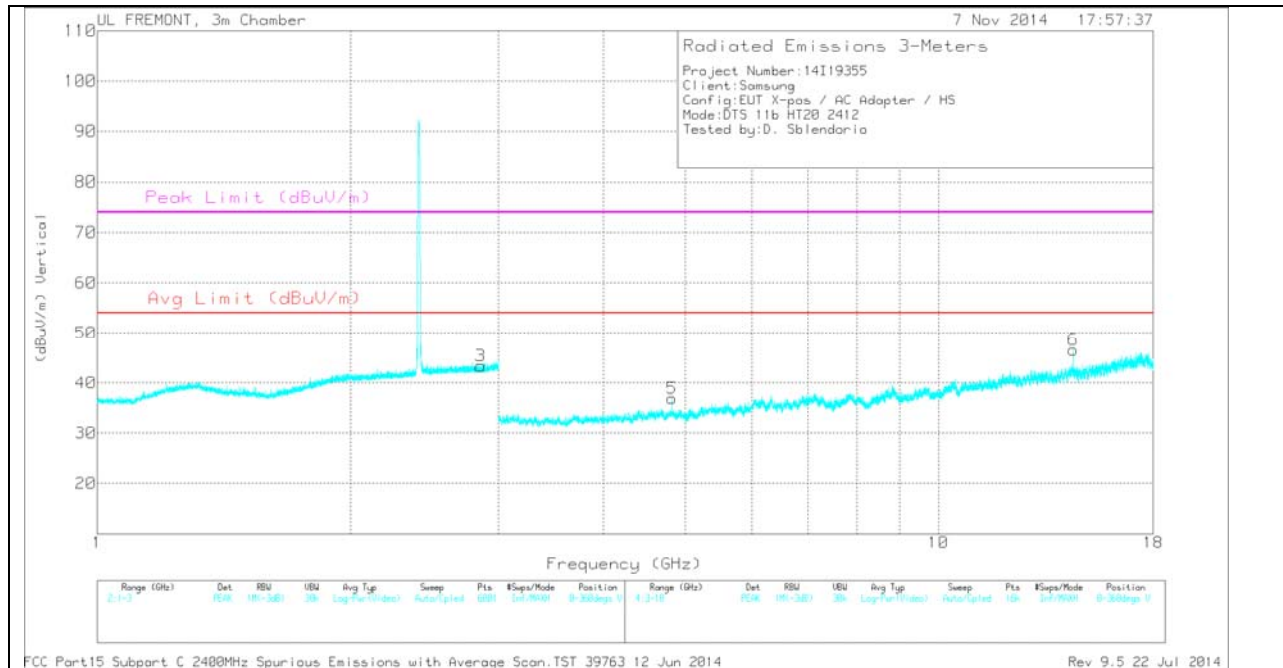
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /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	1.251	33.35	PK	29.8	-23.8	0	39.35	-	-	74	-34.65	0-360	100	H
2	1.763	33.32	PK	29.7	-23.4	0	39.62	-	-	-	-	0-360	200	H
3	2.856	33.45	PK	32.7	-22.8	0	43.35	-	-	74	-30.65	0-360	100	V
4	4.238	31.35	PK	33.5	-30.9	0	33.95	-	-	74	-40.05	0-360	200	H
5	4.824	33.1	PK	34	-30.2	0	36.9	-	-	74	-37.1	0-360	100	V
6	14.472	33.59	PK	39.6	-26.6	0	46.59	-	-	74	-27.41	0-360	200	V

PK - Peak detector

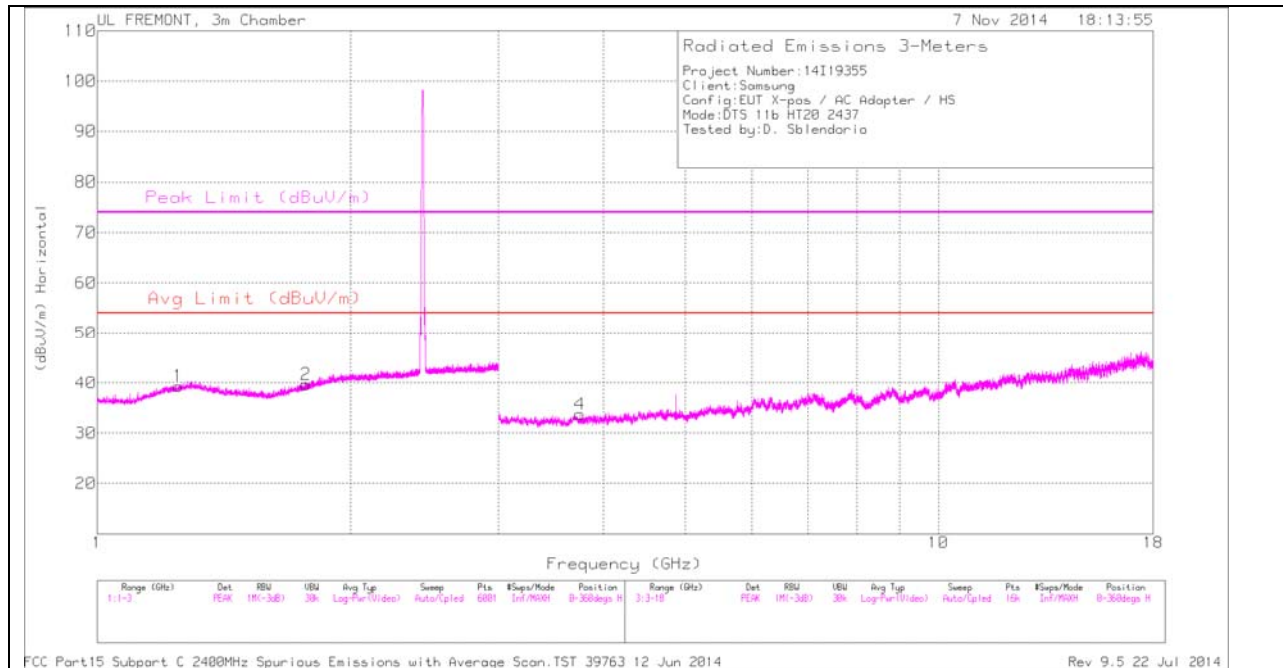
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /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
4.824	41.66	PK2	34	-30.3	0	45.36	-	-	74	-28.64	360	100	V
4.824	31.19	MAV1	34	-30.3	0	34.89	54	-19.11	-	-	360	100	V

PK2 - KDB558074 Method: Maximum Peak

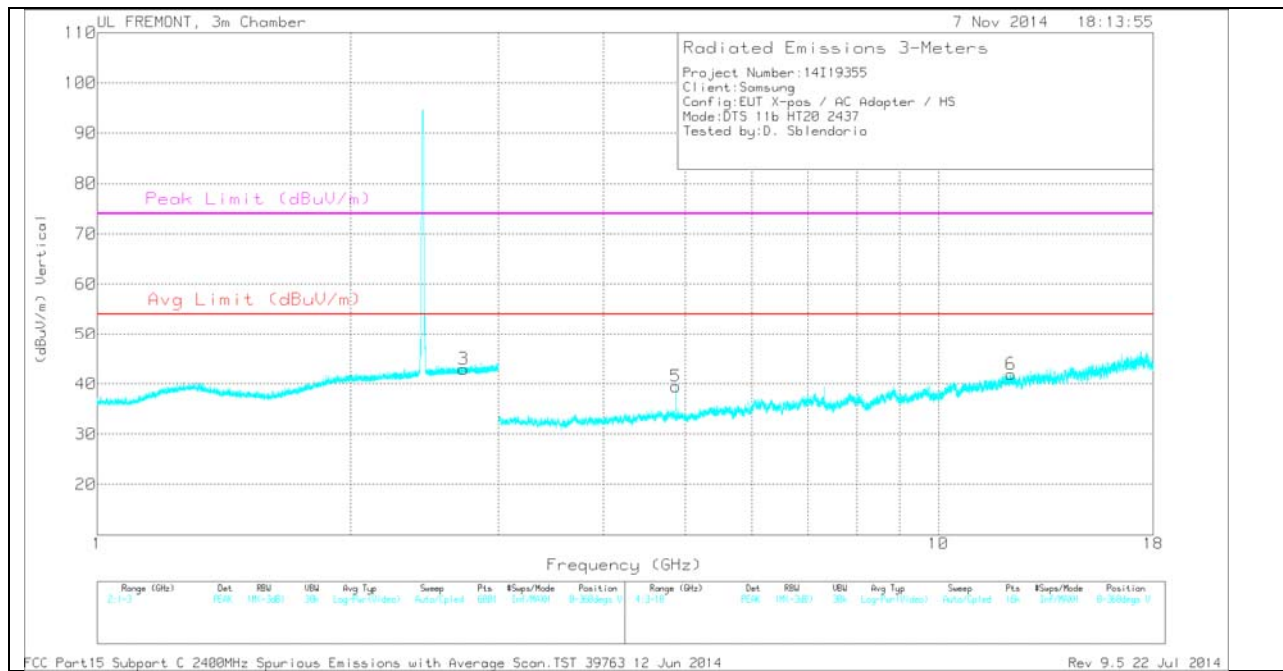
MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.249	33.43	PK	29.7	-23.8	0	39.33	-	-	74	-34.67	0-360	200	H
2	1.772	33.17	PK	29.8	-23.3	0	39.67	-	-	-	-	0-360	100	H
3	2.726	33.14	PK	32.6	-22.8	0	42.94	-	-	74	-31.06	0-360	100	V
4	3.749	31.68	PK	33.2	-31.1	0	33.78	-	-	74	-40.22	0-360	200	H
5	4.874	35.59	PK	34	-30.1	0	39.49	-	-	74	-34.51	0-360	100	V
6	12.202	29.23	PK	39.1	-26.4	0	41.93	-	-	74	-32.07	0-360	200	V

PK - Peak detector

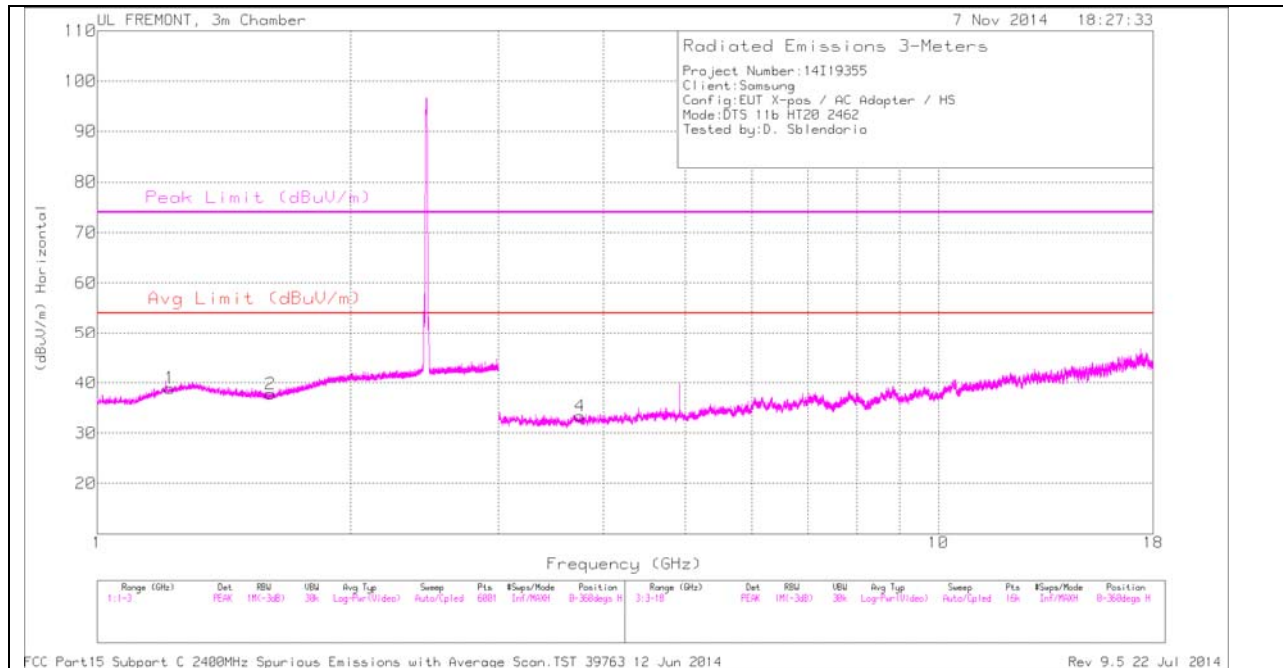
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/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
4.874	42.77	PK2	34	-30.1	0	46.67	-	-	74	-27.33	360	100	V
4.874	34.91	MAV1	34	-30.1	0	38.81	54	-15.19	-	-	360	100	V

PK2 - KDB558074 Method: Maximum Peak

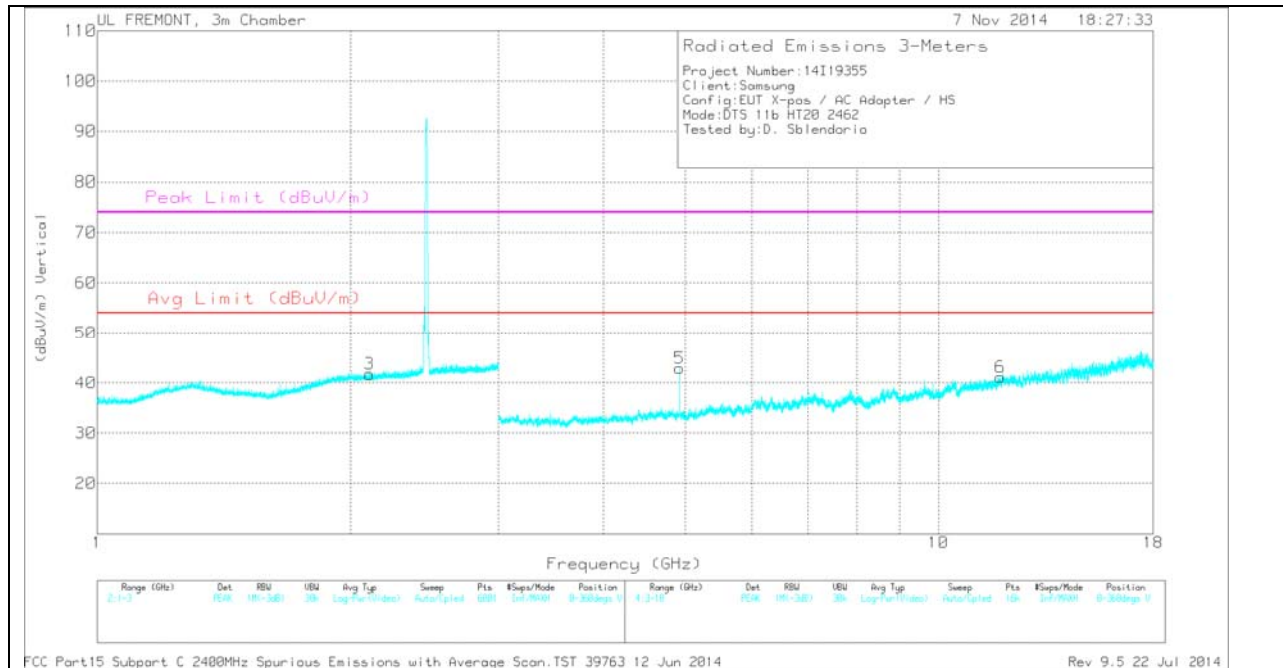
MAV1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.22	33.34	PK	29.4	-23.8	0	38.94	-	-	74	-35.06	0-360	200	H
2	1.607	33.09	PK	28.1	-23.4	0	37.79	-	-	74	-36.21	0-360	200	H
3	2.107	33.23	PK	31.5	-23	0	41.73	-	-	-	-	0-360	200	V
4	3.75	31.3	PK	33.2	-31.1	0	33.4	-	-	74	-40.6	0-360	200	H
5	4.924	39.27	PK	34	-30.4	0	42.87	-	-	74	-31.13	0-360	200	V
6	11.852	28.55	PK	38.9	-26.3	0	41.15	-	-	74	-32.85	0-360	100	V

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
4.924	44.64	PK2	34	-30.4	0	48.24	-	-	74	-25.76	360	200	V
4.924	38.74	MAV1	34	-30.4	0	42.34	54	-11.66	-	-	360	200	V

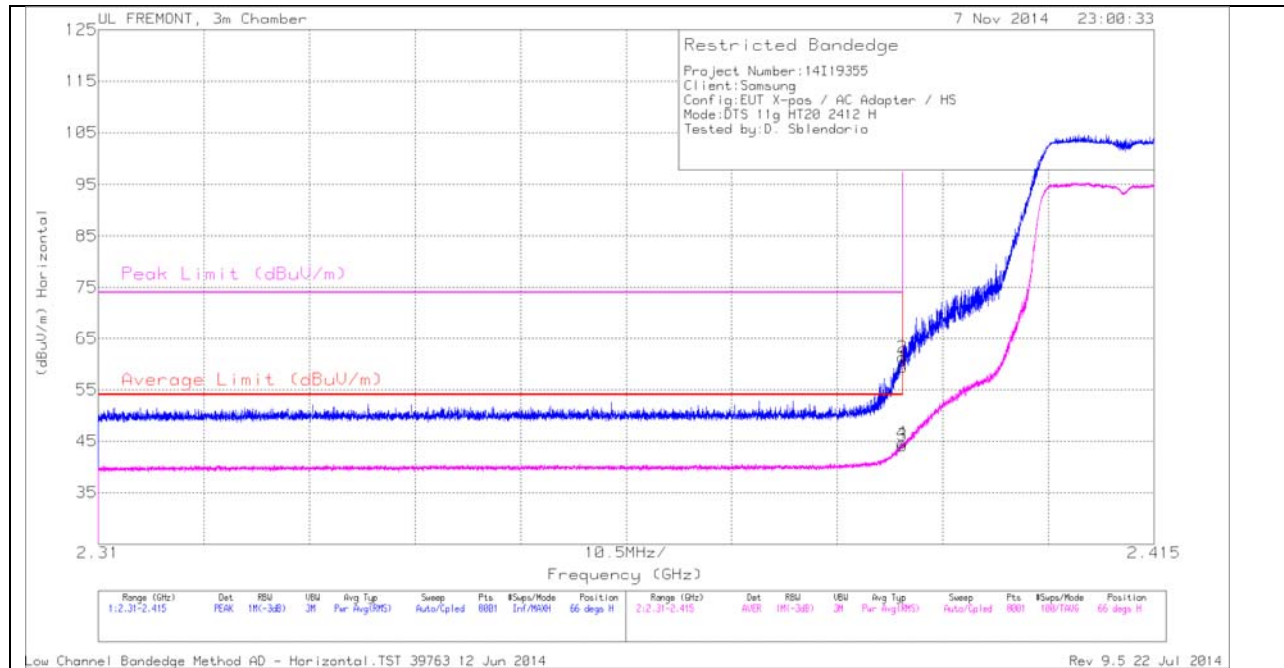
PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

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

RESTRICTED BANDEDGE (LOW CHANNEL)

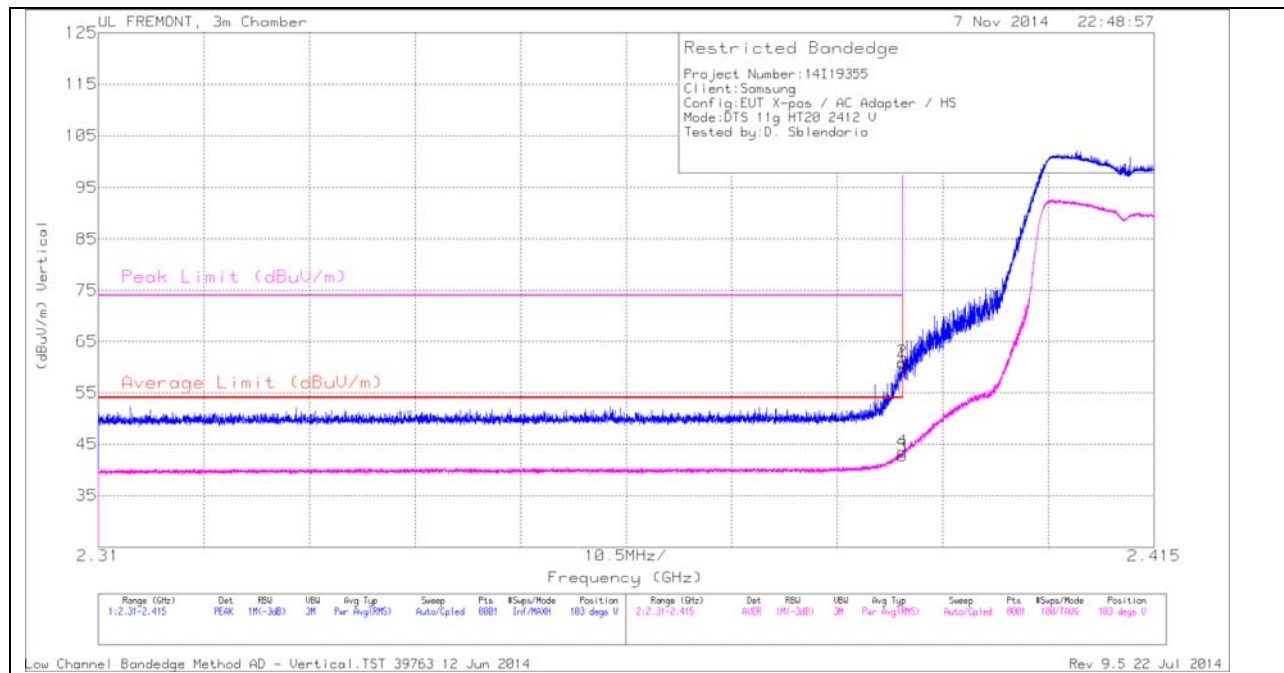
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	50.4	PK	32.1	-23.1	0	59.4	-	-	74	-14.6	66	391	H
2	2.39	52.33	PK	32.1	-23.1	0	61.33	-	-	74	-12.67	66	391	H
3	2.39	34.84	RMS	32.1	-23.1	-32	44.16	54	-9.84	-	-	66	391	H
4	2.39	35.28	RMS	32.1	-23.1	-32	44.6	54	-9.4	-	-	66	391	H

VERTICAL PEAK AND AVERAGE PLOT

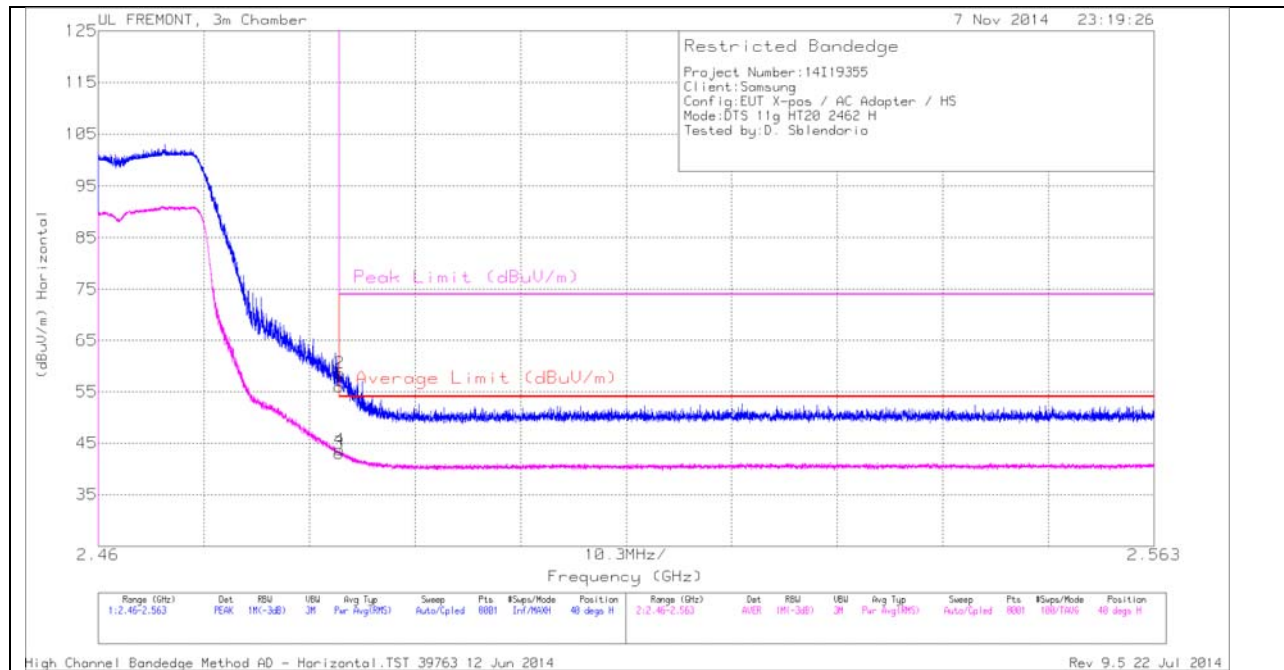


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	51.64	PK	32.1	-23.1	0	60.64	-	-	74	-13.36	103	397	V
2	2.39	52.02	PK	32.1	-23.1	0	61.02	-	-	74	-12.98	103	397	V
3	2.39	33.42	RMS	32.1	-23.1	.32	42.74	54	-11.26	-	-	103	397	V
4	2.39	34.2	RMS	32.1	-23.1	.32	43.52	54	-10.48	-	-	103	397	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

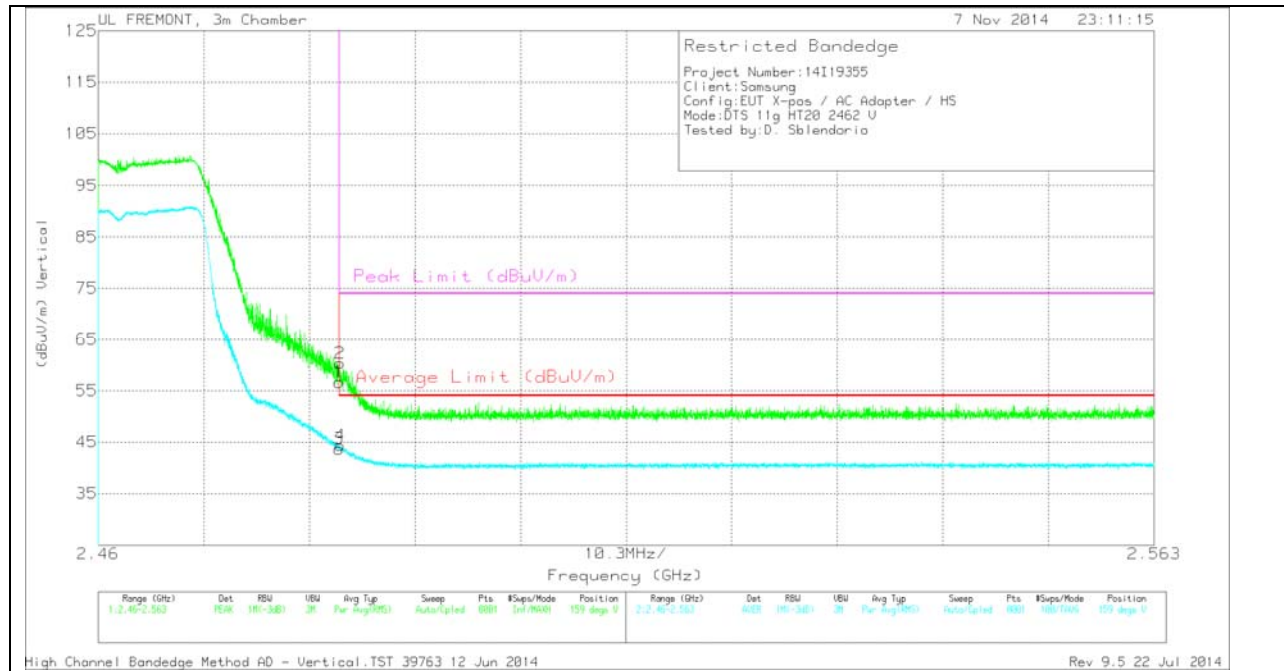
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/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	46.47	PK	32.3	-22.8	0	55.97	-	-	74	-18.03	40	379	H
2	2.484	49.14	PK	32.3	-22.8	0	58.64	-	-	74	-15.36	40	379	H
3	2.484	33.22	RMS	32.3	-22.8	.32	43.04	54	-10.96	-	-	40	379	H
4	2.484	33.89	RMS	32.3	-22.8	.32	43.71	54	-10.29	-	-	40	379	H

VERTICAL PEAK AND AVERAGE PLOT

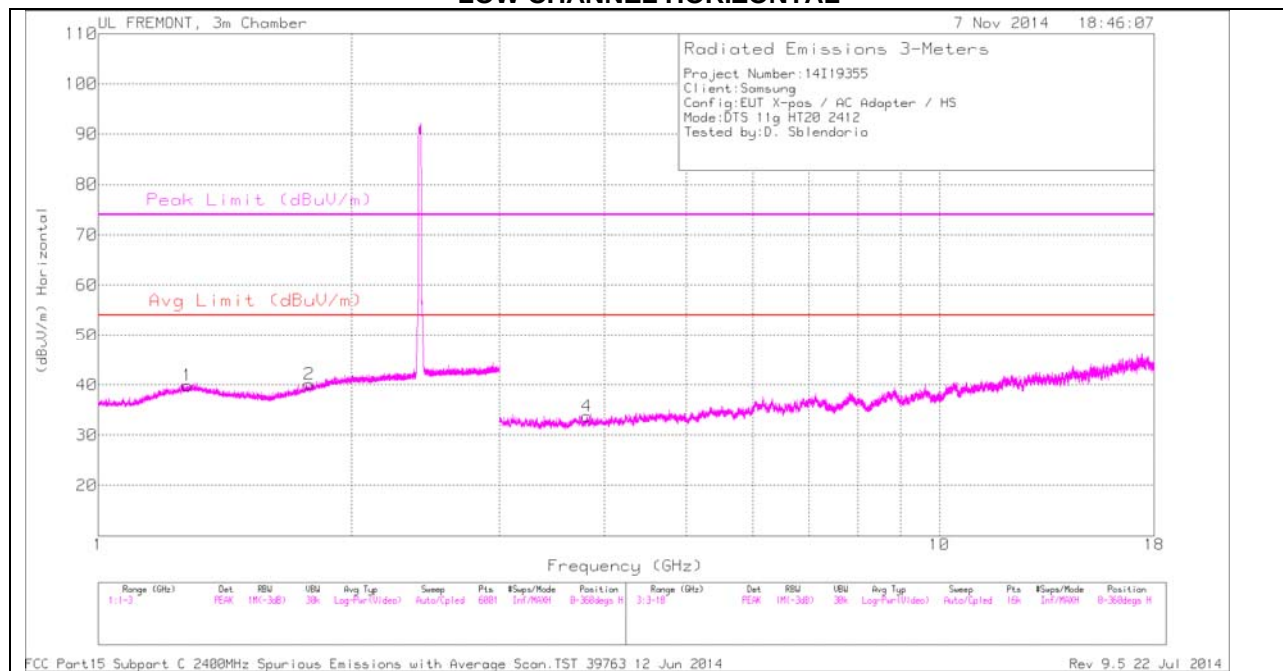


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (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	47.13	PK	32.3	-22.8	0	56.63	-	-	74	-17.37	159	387	V
2	2.484	50.82	PK	32.3	-22.8	0	60.32	-	-	74	-13.68	159	387	V
3	2.484	33.87	RMS	32.3	-22.8	.32	43.69	54	-10.31	-	-	159	387	V
4	2.484	34.51	RMS	32.3	-22.8	.32	44.33	54	-9.67	-	-	159	387	V

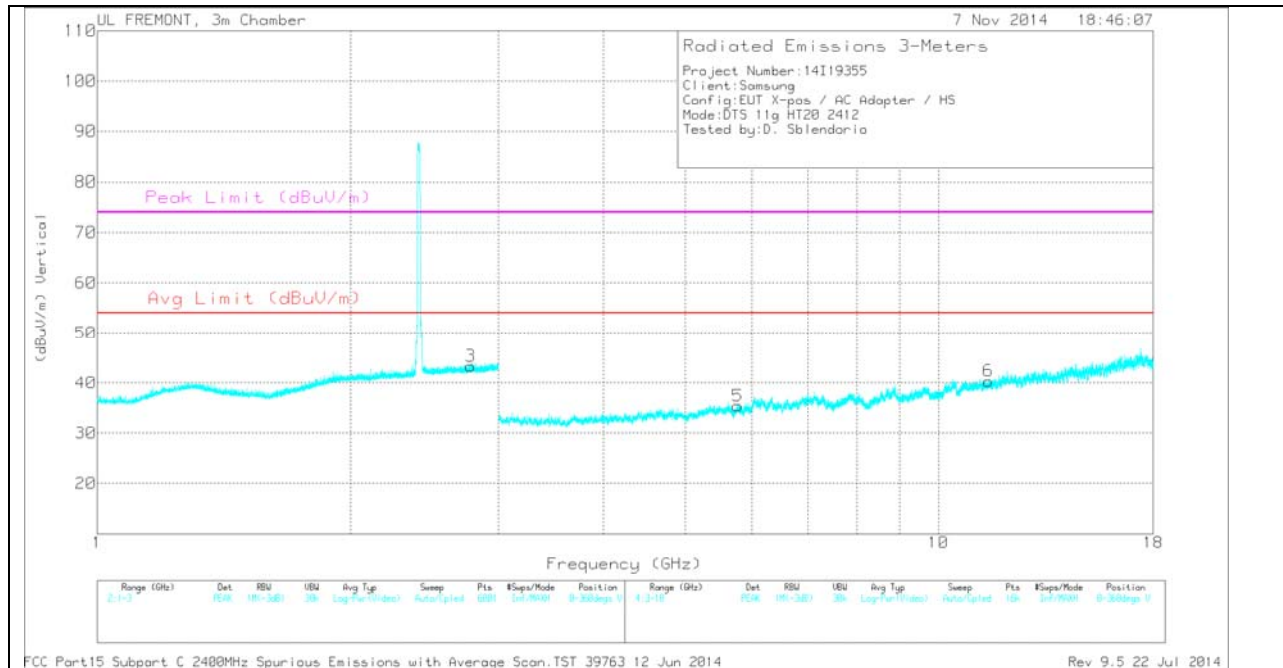
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.278	33.65	PK	30	-23.8	0	39.85	-	-	74	-34.15	0-360	200	H
2	1.782	33.54	PK	30	-23.4	0	40.14	-	-	-	-	0-360	200	H
3	2.782	33.42	PK	32.7	-22.8	0	43.32	-	-	74	-30.68	0-360	200	V
4	3.81	31.73	PK	33.2	-31.2	0	33.73	-	-	74	-40.27	0-360	200	H
5	5.774	30.79	PK	34.9	-30.3	0	35.39	-	-	-	-	0-360	200	V
6	11.467	27.64	PK	38.2	-25.5	0	40.34	-	-	74	-33.66	0-360	100	V

PK - Peak detector

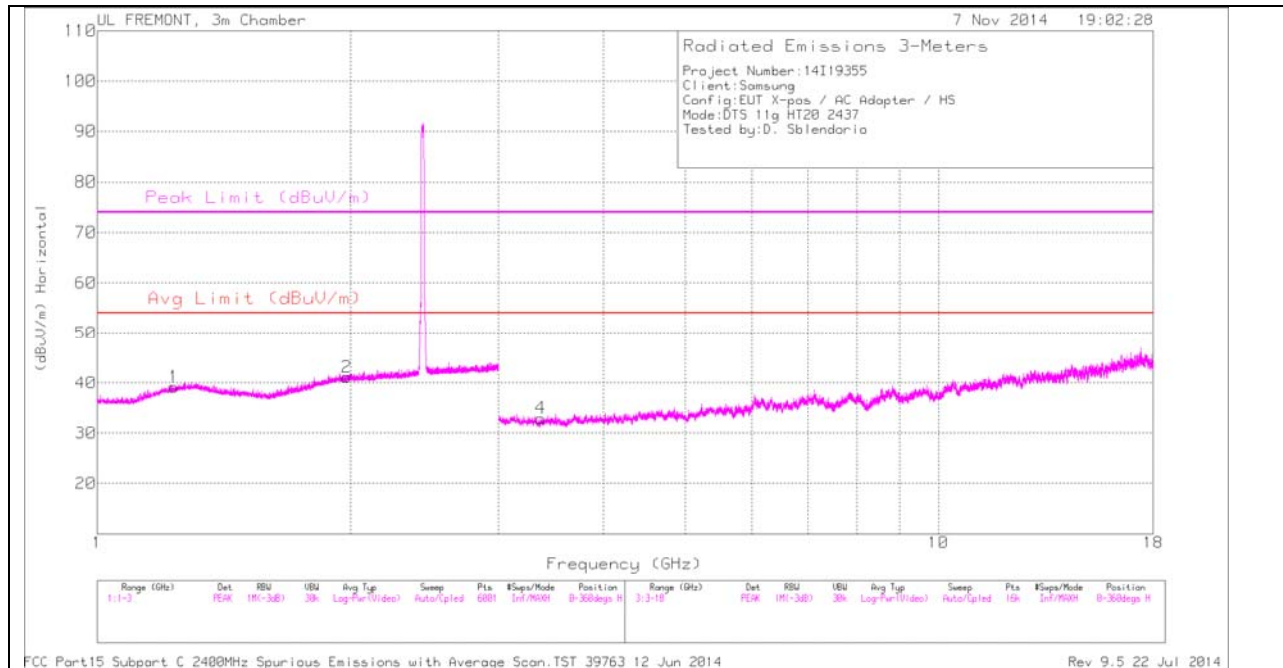
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
1.278	43.92	PK2	30	-23.8	0	50.12	-	-	74	-23.88	360	200	H
1.279	31.42	MAV1	30	-23.8	.32	37.94	54	-16.02	-	-	360	200	H

PK2 - KDB558074 Method: Maximum Peak

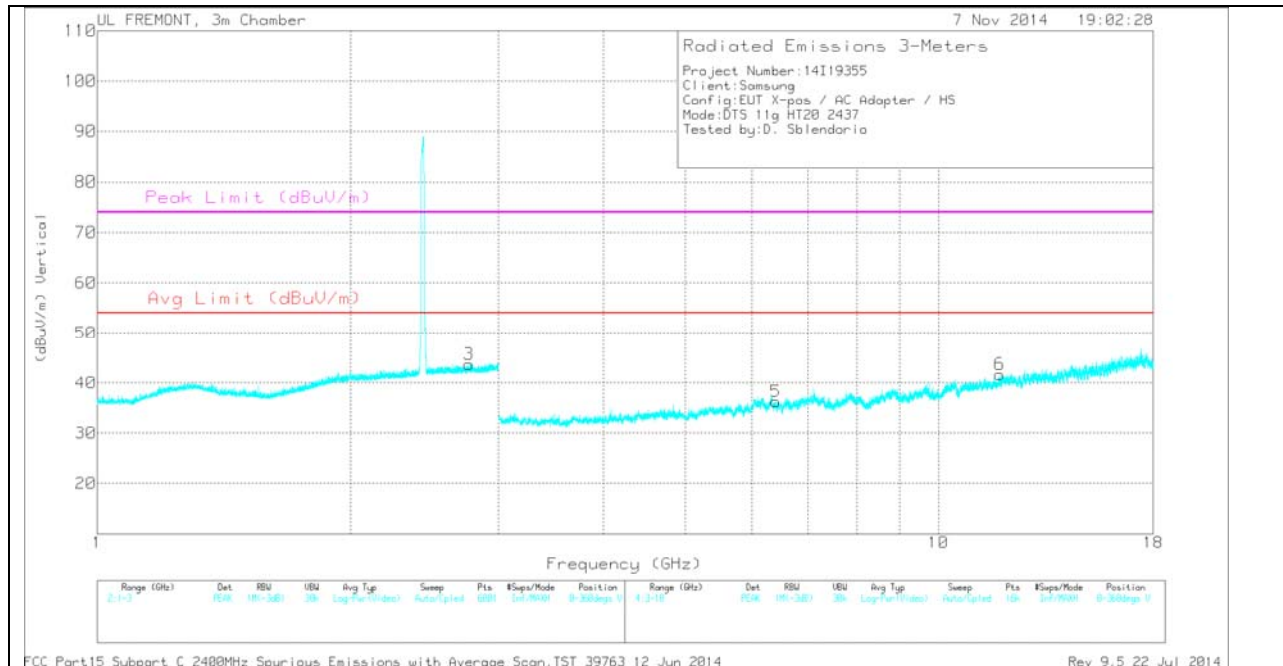
MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.234	33.37	PK	29.6	-23.8	0	39.17	-	-	74	-34.83	0-360	200	H
2	1.98	32.82	PK	31.5	-23.2	0	41.12	-	-	-	-	0-360	100	H
3	2.765	33.9	PK	32.7	-22.9	0	43.7	-	-	74	-30.3	0-360	100	V
4	3.368	31.65	PK	32.9	-31.6	0	32.95	-	-	-	-	0-360	200	H
5	6.405	30.25	PK	35.5	-29.5	0	36.25	-	-	-	-	0-360	100	V
6	11.827	28.99	PK	38.9	-26.2	0	41.69	-	-	74	-32.31	0-360	200	V

PK - Peak detector

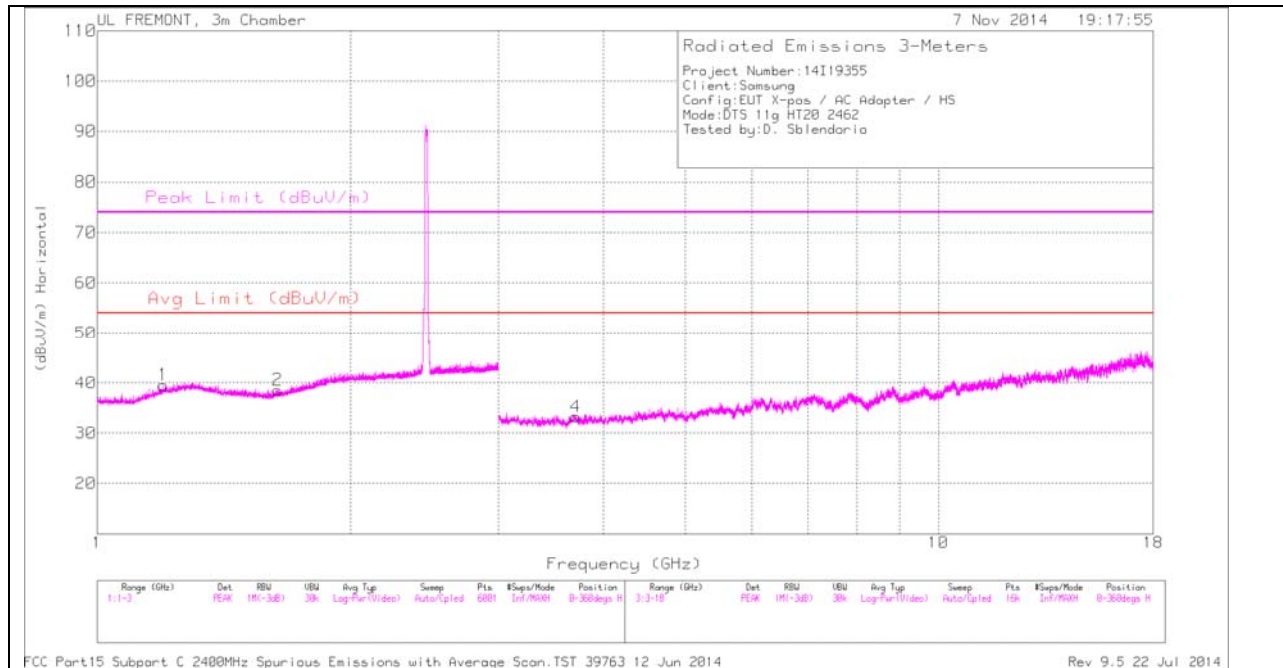
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
1.235	31.32	MAV1	29.6	-23.8	.32	37.44	54	-16.56	-	-	360	200	H
1.236	42.95	PK2	29.6	-23.8	0	48.75	-	-	74	-25.25	360	200	H

PK2 - KDB558074 Method: Maximum Peak

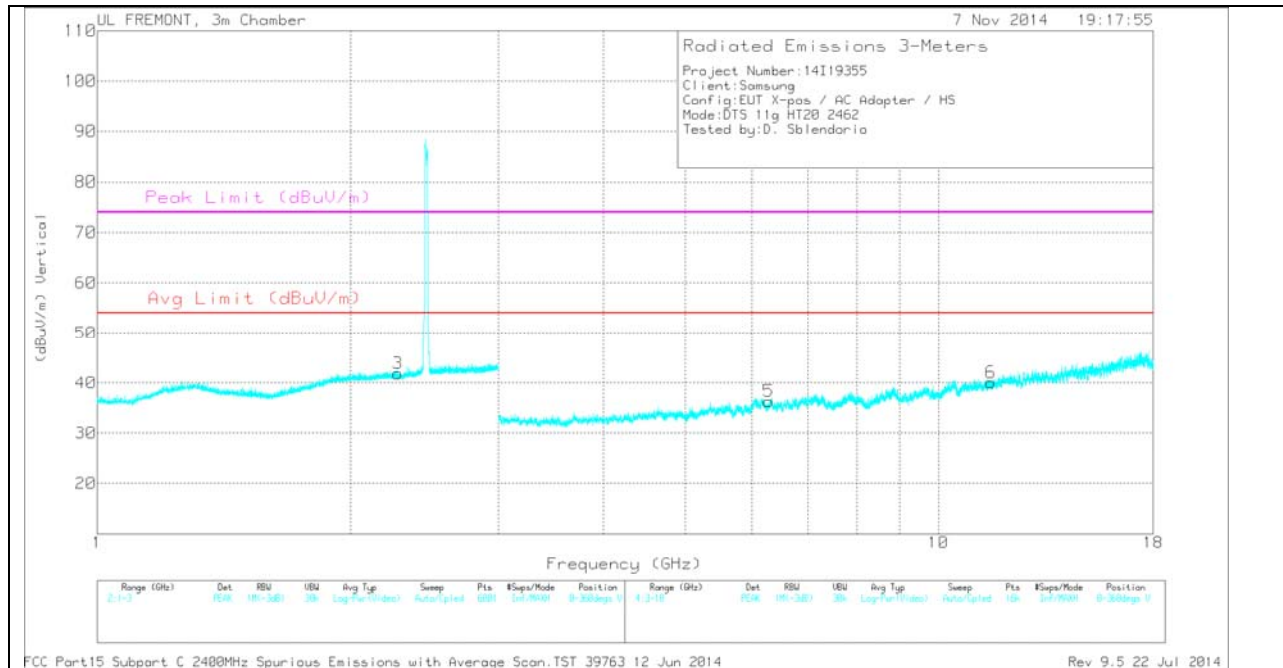
MAV1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.198	34.06	PK	29.2	-23.7	0	39.56	-	-	74	-34.44	0-360	100	H
2	1.639	33.57	PK	28.4	-23.4	0	38.57	-	-	-	-	0-360	100	H
3	2.278	33.15	PK	31.8	-23.1	0	41.85	-	-	74	-32.15	0-360	200	V
4	3.709	30.86	PK	33.2	-30.8	0	33.26	-	-	74	-40.74	0-360	200	H
5	6.283	31.13	PK	35.3	-30.1	0	36.33	-	-	-	-	0-360	200	V
6	11.547	27.65	PK	38.4	-26	0	40.05	-	-	74	-33.95	0-360	200	V

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
1.196	31.41	MAV1	29.2	-23.7	.32	37.23	54	-16.77	-	-	360	100	H
1.198	42.74	PK2	29.2	-23.7	0	48.24	-	-	74	-25.76	360	100	H

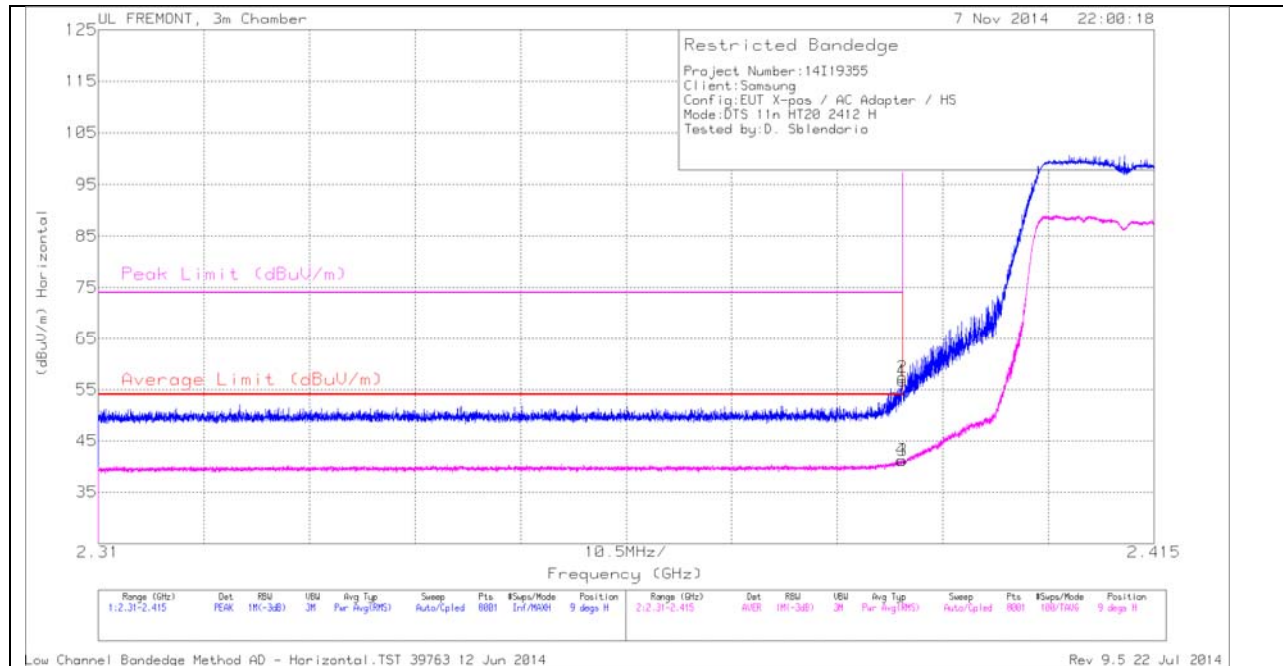
PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

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



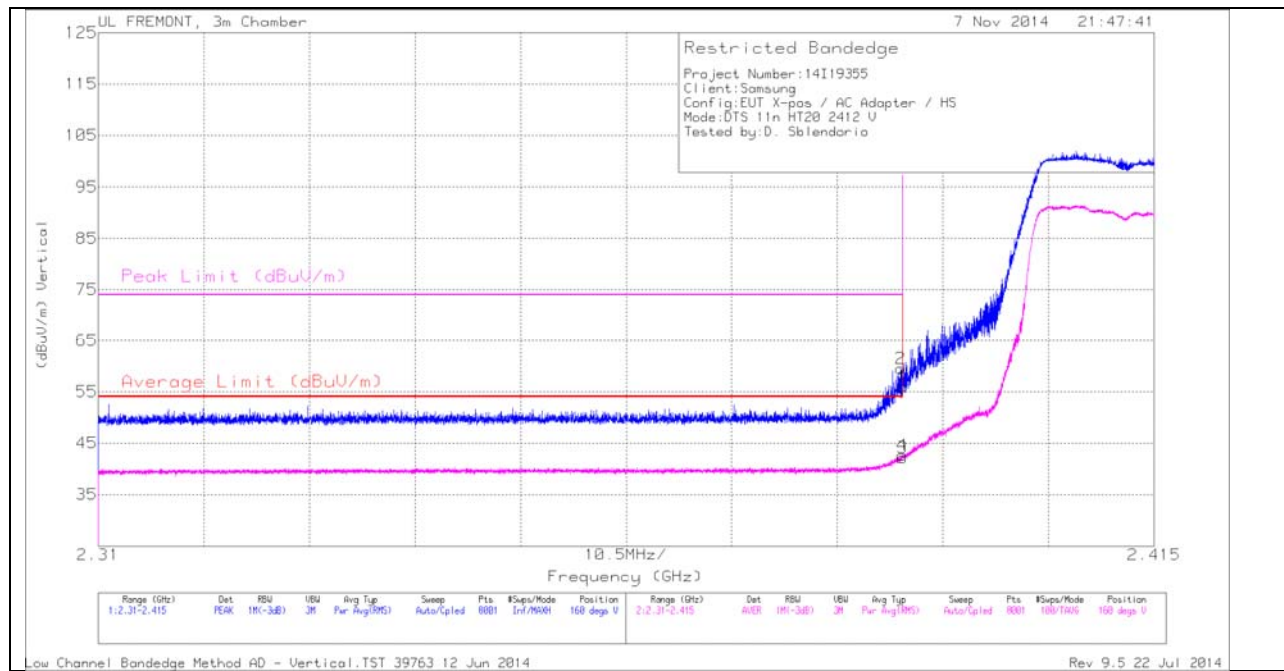
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cb/Filter/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	47.7	PK	32.1	-23.1	0	56.7	-	-	74	-17.3	9	397	H
2	2.39	48.36	PK	32.1	-23.1	0	57.36	-	-	74	-16.64	9	397	H
3	2.39	32.09	RMS	32.1	-23.1	.36	41.45	54	-12.55	-	-	9	397	H
4	2.39	32.12	RMS	32.1	-23.1	.36	41.48	54	-12.52	-	-	9	397	H

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

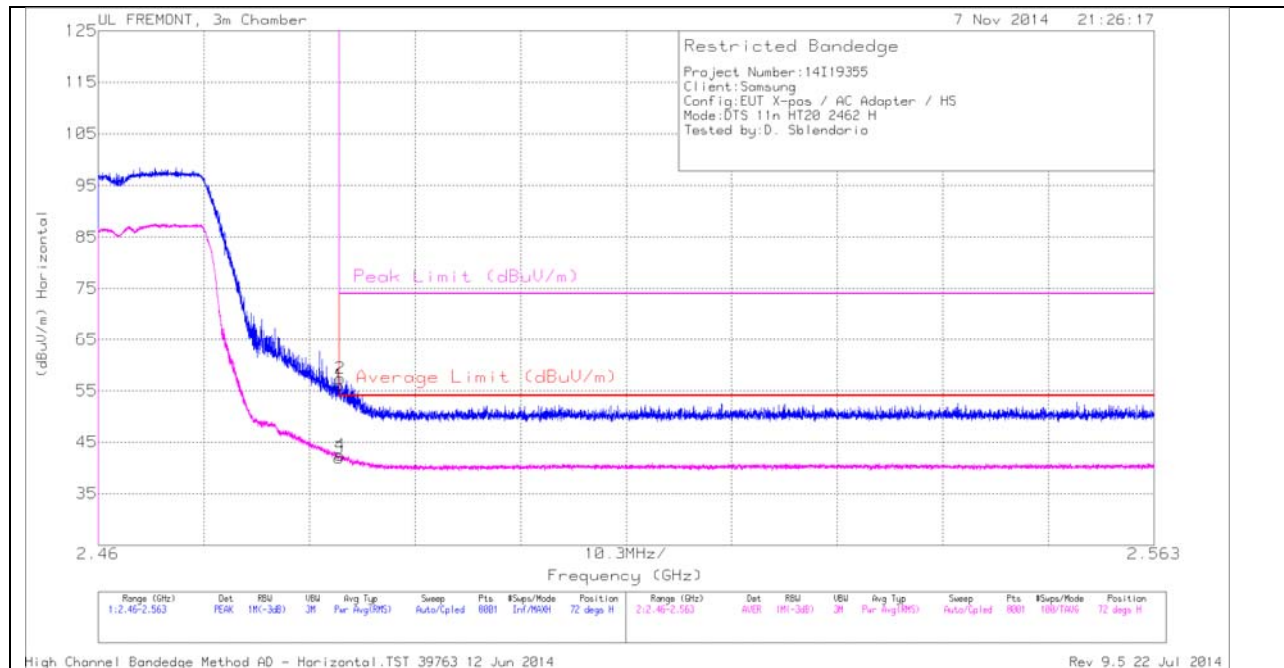
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	46.96	PK	32.1	-23.1	0	55.96	-	-	74	-18.04	160	334	V
2	2.39	50.5	PK	32.1	-23.1	0	59.5	-	-	74	-14.5	160	334	V
3	2.39	33.05	RMS	32.1	-23.1	.36	42.41	54	-11.59	-	-	160	334	V
4	2.39	33.53	RMS	32.1	-23.1	.36	42.89	54	-11.11	-	-	160	334	V

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



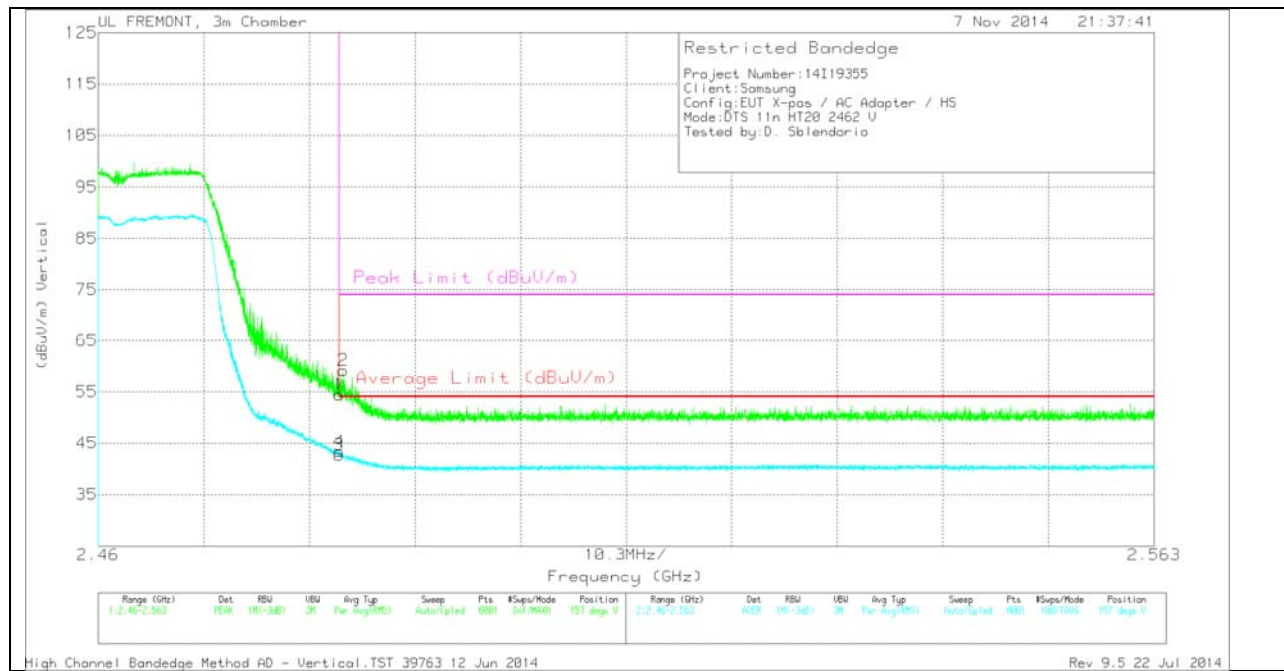
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cb/Filter/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	46.57	PK	32.3	-22.8	0	56.07	-	-	74	-17.93	72	310	H
2	2.484	47.87	PK	32.3	-22.8	0	57.37	-	-	74	-16.63	72	310	H
3	2.484	32.29	RMS	32.3	-22.8	.36	42.15	54	-11.85	-	-	72	310	H
4	2.484	32.82	RMS	32.3	-22.8	.36	42.68	54	-11.32	-	-	72	310	H

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

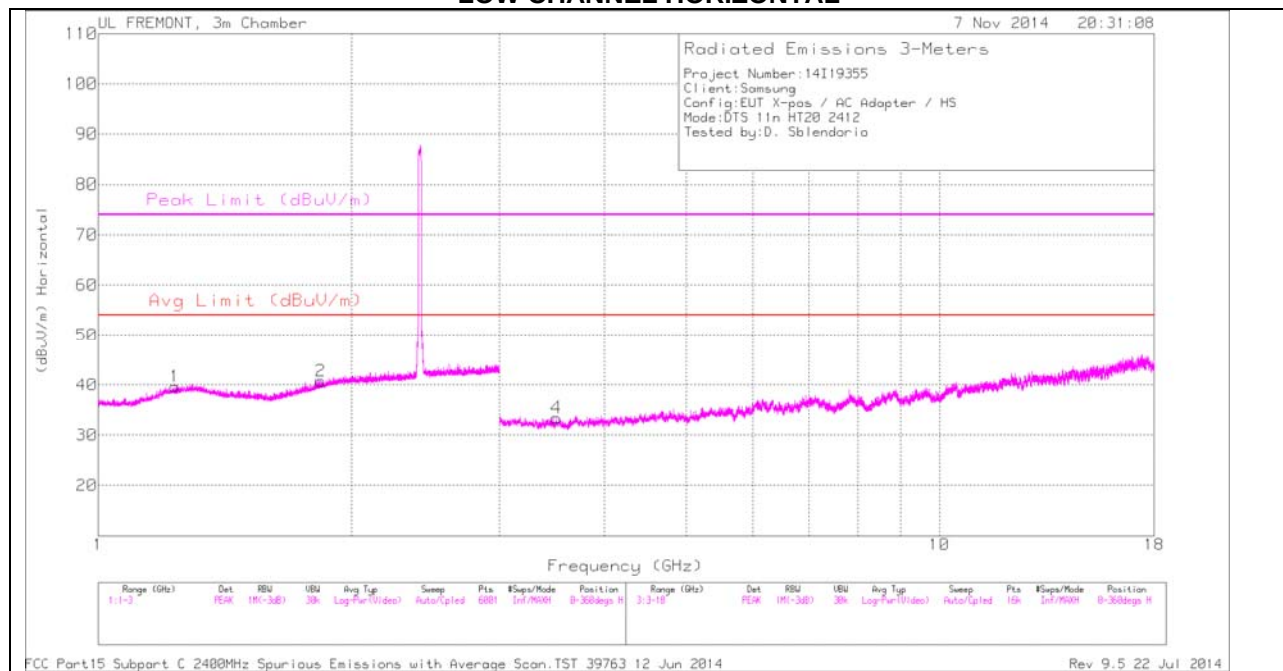
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	44.94	PK	32.3	-22.8	0	54.44	-	-	74	-19.56	157	315	V
2	2.484	49.64	PK	32.3	-22.8	0	59.14	-	-	74	-14.86	157	315	V
3	2.484	33.1	RMS	32.3	-22.8	.36	42.96	54	-11.04	-	-	157	315	V
4	2.484	33.77	RMS	32.3	-22.8	.36	43.63	54	-10.37	-	-	157	315	V

PK - Peak detector

RMS - RMS detection

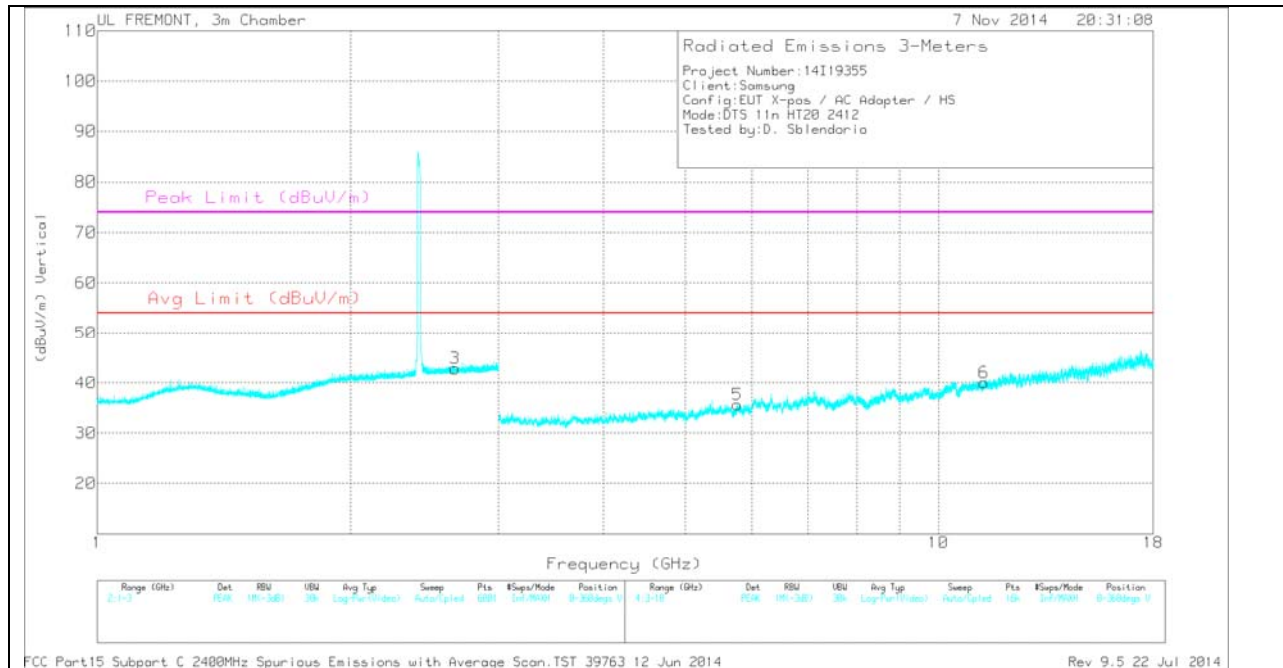
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.234	33.82	PK	29.6	-23.8	0	39.62	-	-	74	-34.38	0-360	100	H
2	1.841	33.43	PK	30.6	-23.3	0	40.73	-	-	-	-	0-360	100	H
3	2.662	32.96	PK	32.6	-22.7	0	42.86	-	-	74	-31.14	0-360	100	V
4	3.505	31.23	PK	33	-30.8	0	33.43	-	-	74	-40.57	0-360	200	H
5	5.767	31.14	PK	34.8	-30.3	0	35.64	-	-	-	-	0-360	200	V
6	11.331	27.93	PK	38	-25.9	0	40.03	-	-	74	-33.97	0-360	100	V

PK - Peak detector

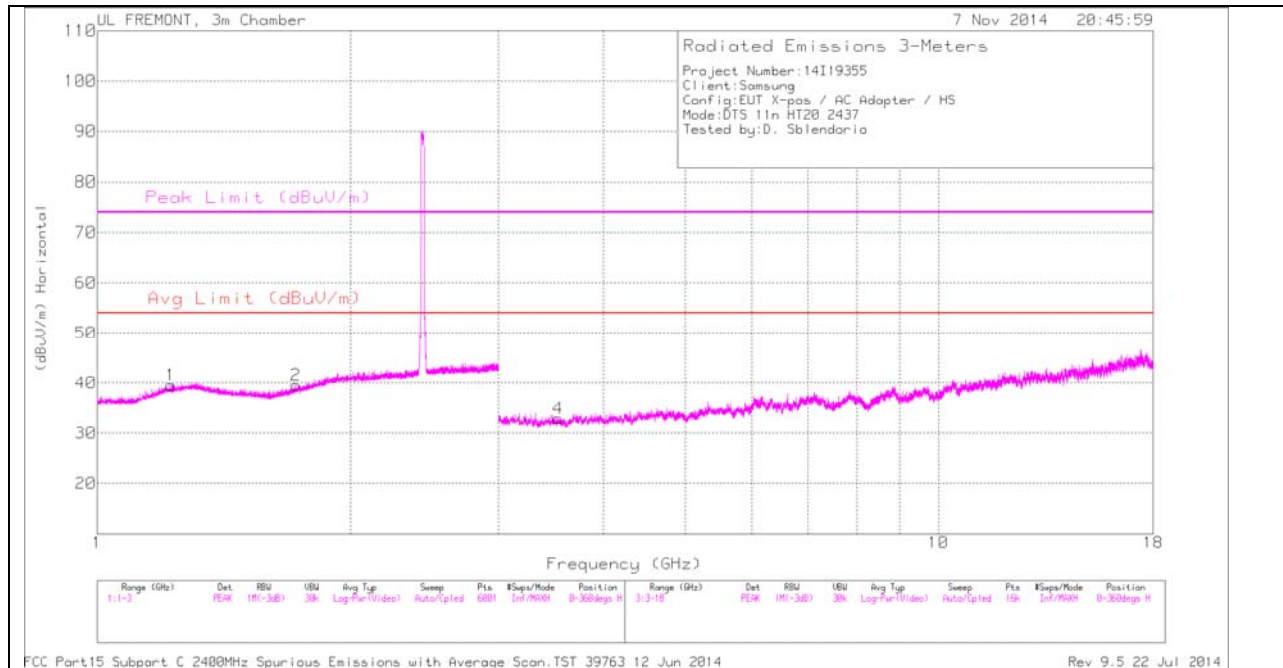
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
1.233	42.73	PK2	29.6	-23.8	0	48.53	-	-	74	-25.47	360	100	H
1.235	31.32	MAV1	29.6	-23.8	.36	37.48	54	-16.52	-	-	360	100	H

PK2 - KDB558074 Method: Maximum Peak

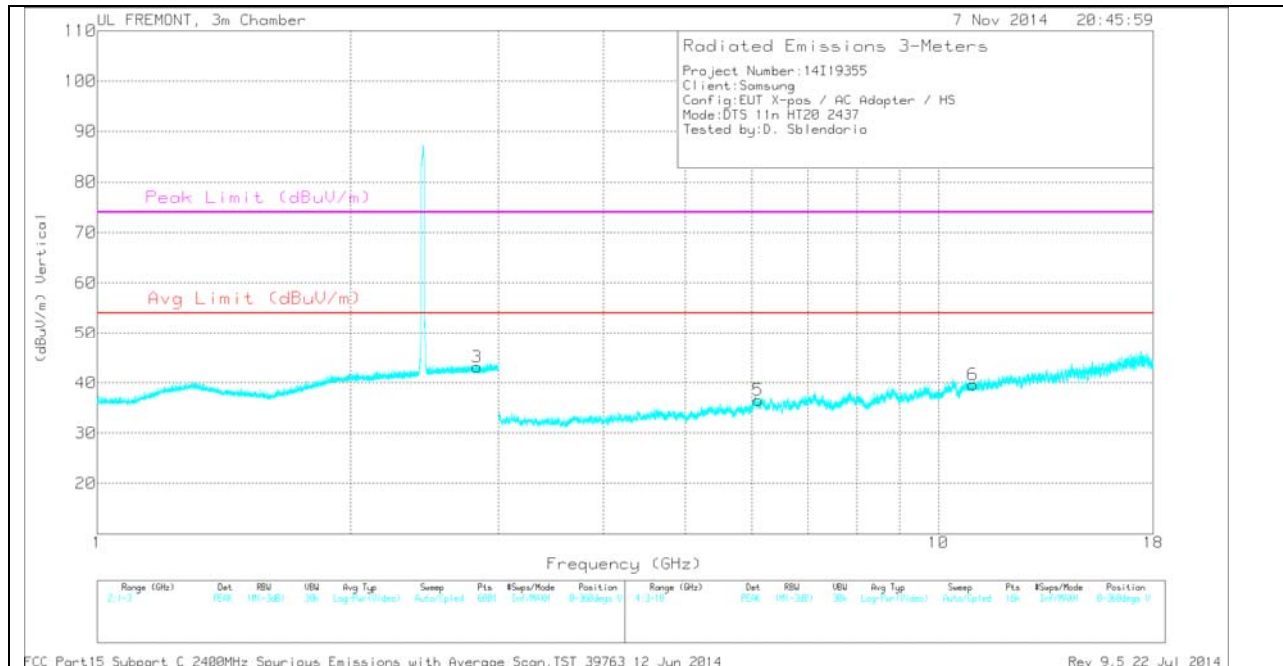
MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.224	33.82	PK	29.5	-23.8	0	39.52	-	-	74	-34.48	0-360	100	H
2	1.724	33.62	PK	29.3	-23.4	0	39.52	-	-	-	-	0-360	100	H
3	2.827	33.25	PK	32.7	-22.8	0	43.15	-	-	74	-30.85	0-360	100	V
4	3.534	31.01	PK	33	-31.1	0	32.91	-	-	74	-41.09	0-360	200	H
5	6.108	30.06	PK	35.3	-28.8	0	36.56	-	-	-	-	0-360	100	V
6	10.99	27.04	PK	37.9	-25.3	0	39.64	-	-	74	-34.36	0-360	200	V

PK - Peak detector

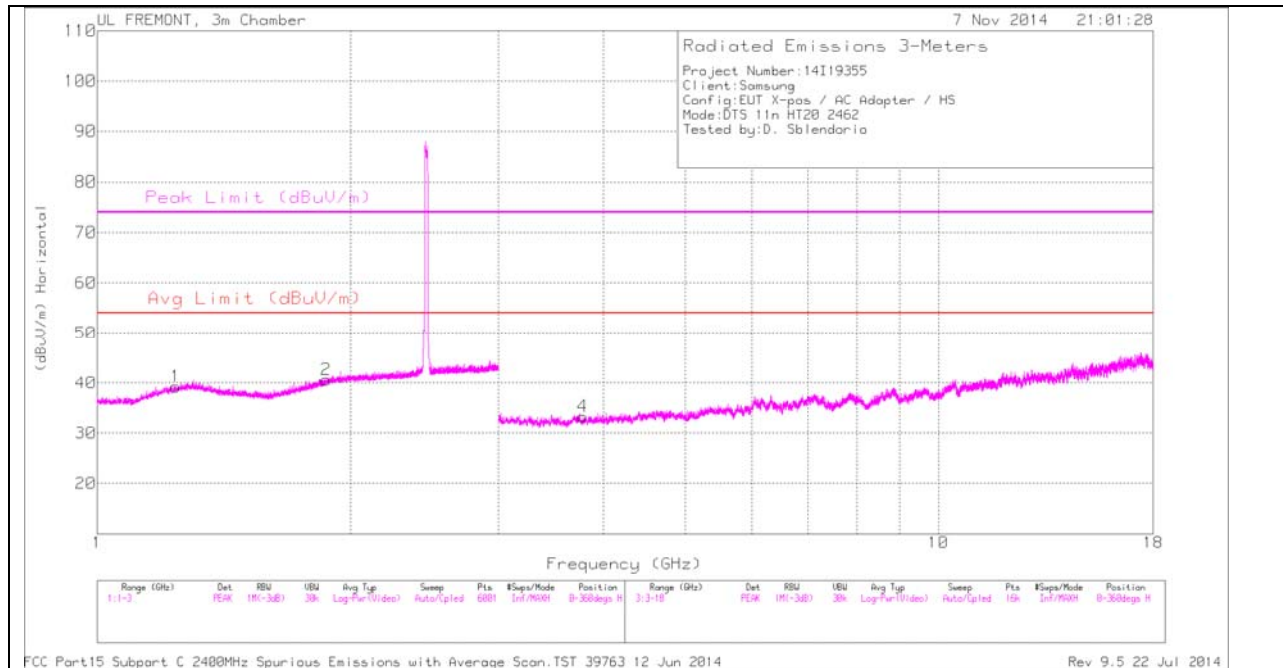
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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
1.225	42.96	PK2	29.5	-23.8	0	48.66	-	-	74	-25.34	360	100	H
1.226	31.36	MAV1	29.5	-23.8	.36	37.42	54	-16.58	-	-	360	100	H

PK2 - KDB558074 Method: Maximum Peak

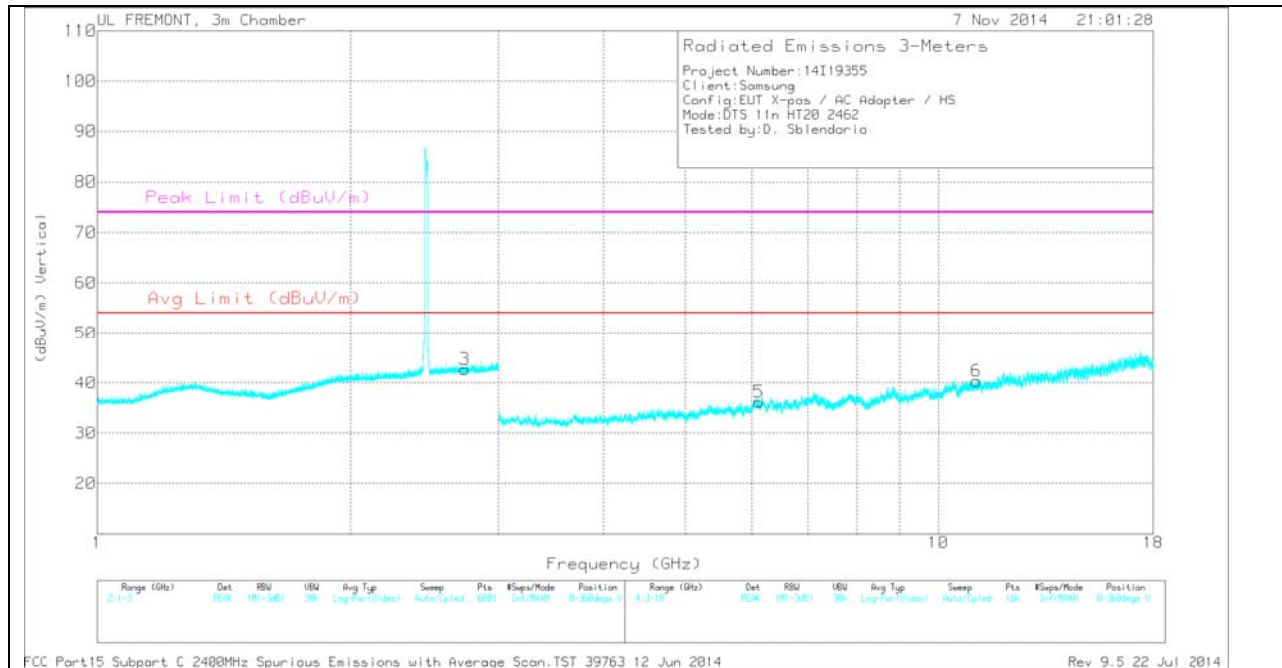
MAV1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /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	1.241	33.33	PK	29.7	-23.8	0	39.23	-	-	74	-34.77	0-360	100	H
2	1.871	33.01	PK	30.9	-23.3	0	40.61	-	-	-	-	0-360	200	H
3	2.736	32.8	PK	32.7	-22.8	0	42.7	-	-	74	-31.3	0-360	100	V
4	3.779	31.2	PK	33.2	-31.1	0	33.3	-	-	74	-40.7	0-360	100	H
5	6.119	29.99	PK	35.3	-29.1	0	36.19	-	-	-	-	0-360	100	V
6	11.099	28.15	PK	37.9	-25.7	0	40.35	-	-	74	-33.65	0-360	200	V

PK - Peak detector

Radiated Emissions

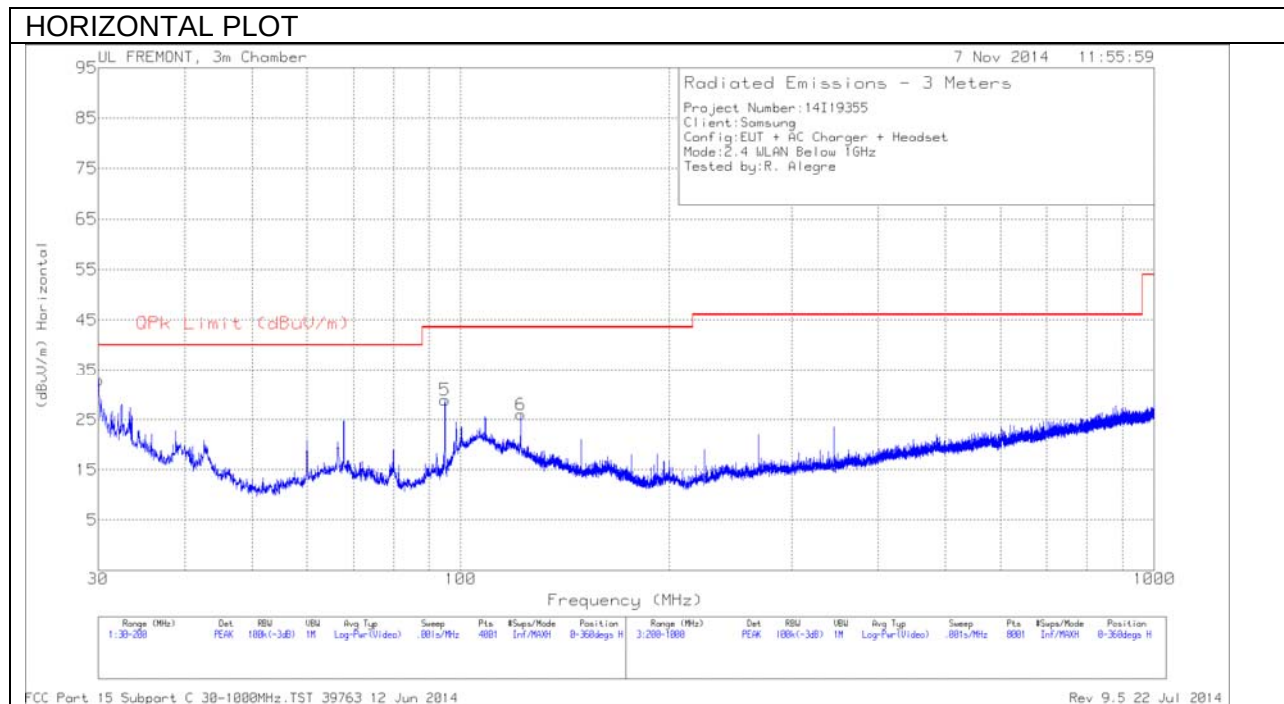
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.24	43.4	PK2	29.6	-23.8	0	49.2	-	-	74	-24.8	360	100	H
1.24	31.3	MAV1	29.6	-23.8	.36	37.46	54	-17.26	-	-	360	100	H

PK2 - KDB558074 Method: Maximum Peak

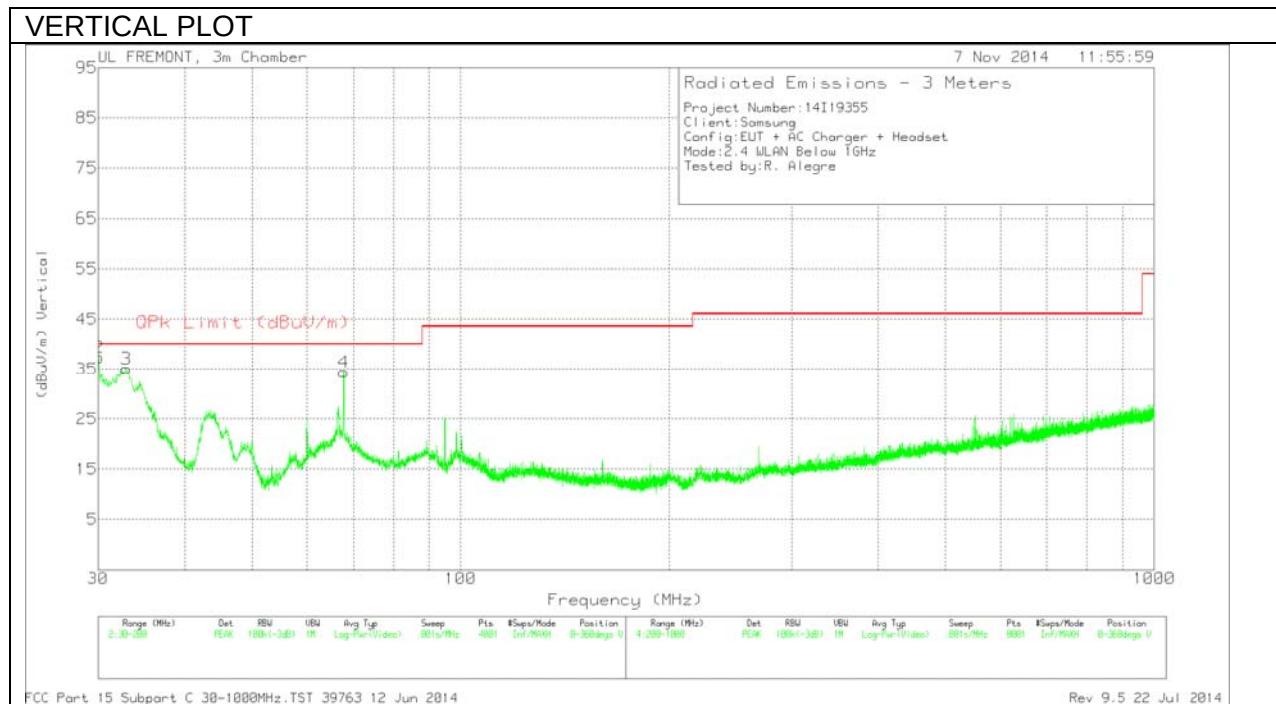
MAV1 - KDB558074 Option 1 Maximum RMS Average

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 T185 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.0425	39.42	PK	21	-27.5	32.92	40	-7.08	0-360	100	H
2	30.0425	43.84	PK	21	-27.5	37.34	40	-2.66	0-360	100	V
3	32.9325	43.65	PK	18.9	-27.5	35.05	40	-4.95	0-360	100	V
4	67.825	53.57	PK	7.9	-27.1	34.37	40	-5.63	0-360	100	V
5	94.94	47.13	PK	8.6	-26.8	28.93	43.52	-14.59	0-360	400	H
6	122.0125	38.7	PK	13.9	-26.6	26	43.52	-17.52	0-360	400	H

PK - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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.

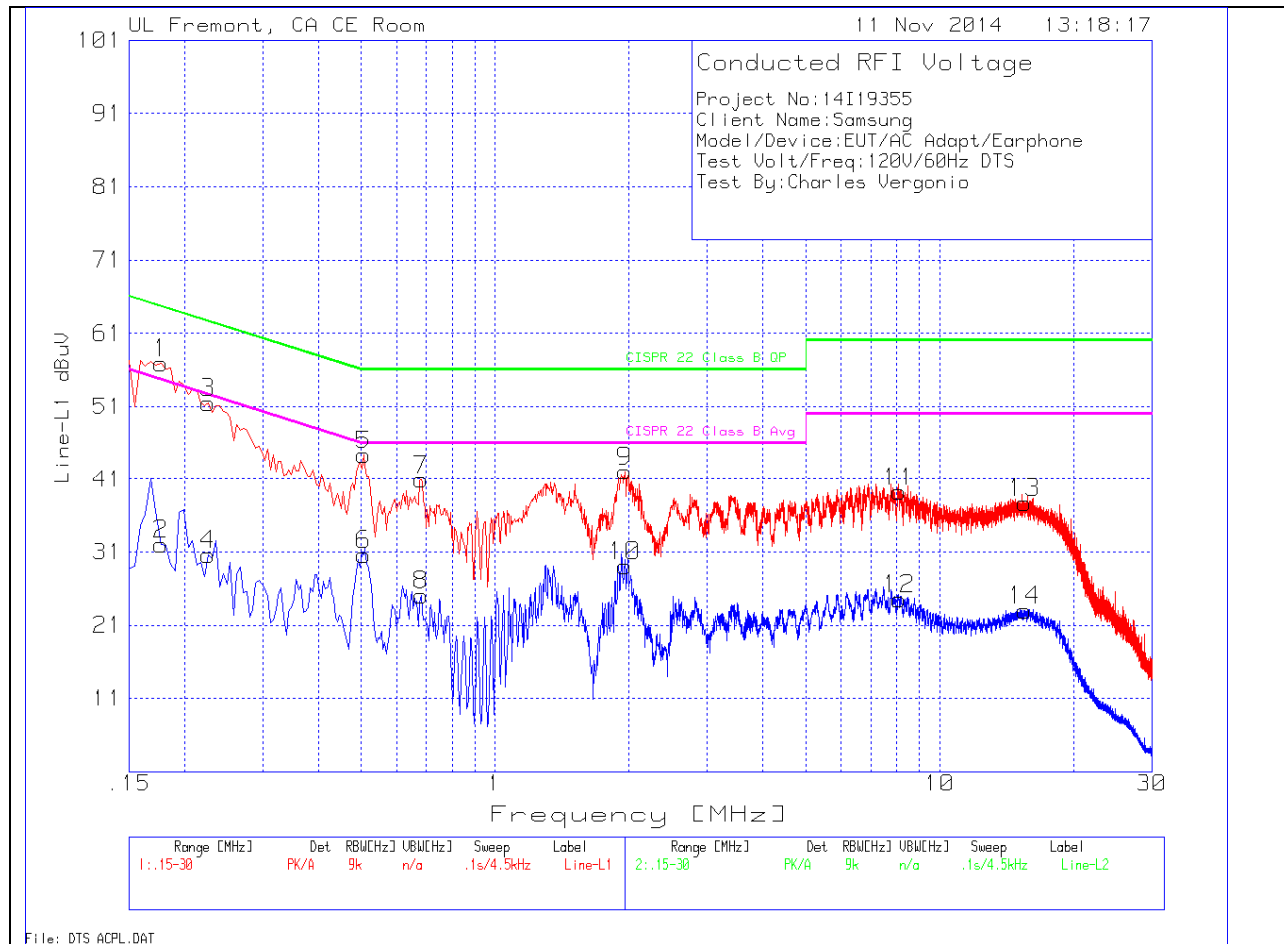
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT

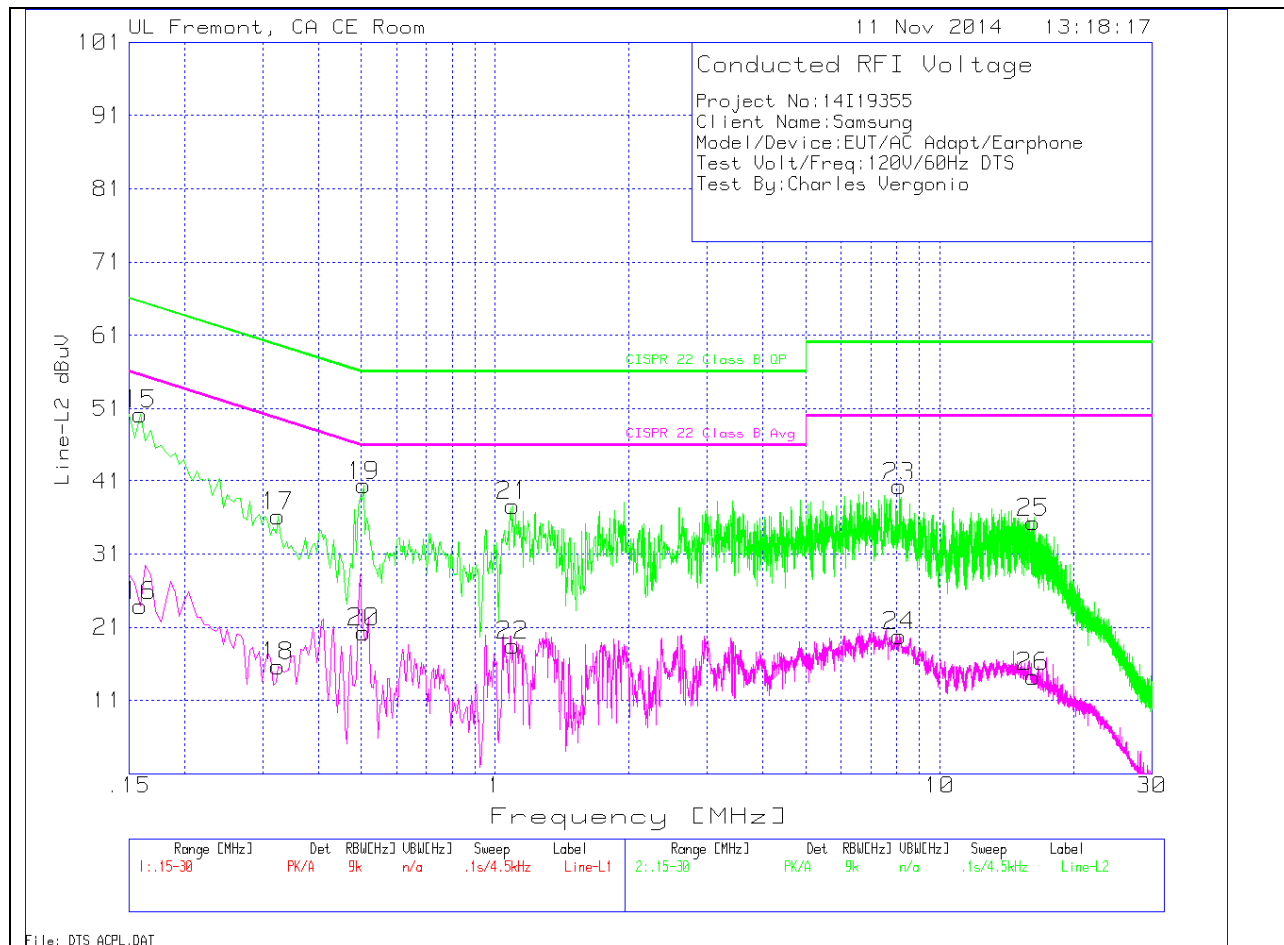


LINE 1 RESULTS

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	.177	55.82	PK	1.1	0	56.92	64.6	-7.68	-	-
2	.177	30.95	Av	1.1	0	32.05	-	-	54.6	-22.55
3	.2265	50.71	PK	.8	0	51.51	62.6	-11.09	-	-
4	.2265	29.78	Av	.8	0	30.58	-	-	52.6	-22.02
5	.5055	44.04	PK	.3	0	44.34	56	-11.66	-	-
6	.5055	30.34	Av	.3	0	30.64	-	-	46	-15.36
7	.681	40.65	PK	.3	0	40.95	56	-15.05	-	-
8	.681	24.71	Av	.3	0	25.01	-	-	46	-20.99
9	1.959	41.74	PK	.2	.1	42.04	56	-13.96	-	-
10	1.959	28.73	Av	.2	.1	29.03	-	-	46	-16.97
11	8.0925	38.89	PK	.2	.1	39.19	60	-20.81	-	-
12	8.0925	24.23	Av	.2	.1	24.53	-	-	50	-25.47
13	15.5085	37.24	PK	.3	.2	37.74	60	-22.26	-	-
14	15.5085	22.46	Av	.3	.2	22.96	-	-	50	-27.04

LINE 2 PLOT



LINE 2 RESULTS

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	.159	48.84	PK	1.4	0	50.24	65.5	-15.26	-	-
16	.159	22.48	Av	1.4	0	23.88	-	-	55.5	-31.62
17	.3255	35.6	PK	.5	0	36.1	59.6	-23.5	-	-
18	.3255	15.11	Av	.5	0	15.61	-	-	49.6	-33.99
19	.5055	40.06	PK	.4	0	40.46	56	-15.54	-	-
20	.5055	19.89	Av	.4	0	20.29	-	-	46	-25.71
21	1.095	37.29	PK	.3	0	37.59	56	-18.41	-	-
22	1.095	18.19	Av	.3	0	18.49	-	-	46	-27.51
23	8.124	39.99	PK	.2	.1	40.29	60	-19.71	-	-
24	8.124	19.44	Av	.2	.1	19.74	-	-	50	-30.26
25	16.1925	34.81	PK	.3	.2	35.31	60	-24.69	-	-
26	16.1925	13.79	Av	.3	.2	14.29	-	-	50	-35.71