



FCC CFR47 PART 15 SUBPART C

**BLUETOOTH
C2PC CERTIFICATION TEST REPORT**

FOR

GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC

MODEL NUMBER: LG-H791, LGH791, H791, LG-H791F, LGH791F, H791F

FCC ID: ZNFH791

REPORT NUMBER: 15I21552-E2V1

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Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC
1000 SYLVAN AVENUE

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Date	Revisions	Revised By
--	8/27/15	Initial issue (C2PC)	C.S.OOI

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION: GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC
MODEL(S): LG-H791, LGH791, H791, LG-H791F, LGH791F, H791F
SERIAL NUMBER: Conducted(21YFY), Radiated(21YG3)
DATE TESTED: JULY 13 -21, 2015

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

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Tested By:



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CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL VERIFICATION SERVICES INC

ROLLY ALEGRE
CONSUMER TECHNOLOGY DIVISION
WISE 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, DA 00-705, ANSI C63.10-2009 for FCC.

ANSI C63.10-2009 Deviation

Radiated spurious emission above 1GHz was performed with the EUT elevated at 1.5m instead of 0.8m. 1.5m is the required height in ANSI C63.10:2013 as referenced by RSS GEN issue 4.

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
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> 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:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	9.73	9.40
2402 - 2480	Enhanced 8PSK	9.14	8.20

Note: GFSK, Pi/4-DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on this mode to showing compliance. For average power data please refer to section 8.6.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.71dBi.

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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-N04WS	SA560000030	DoC
Earphone	LG	-	-	

I/O CABLES

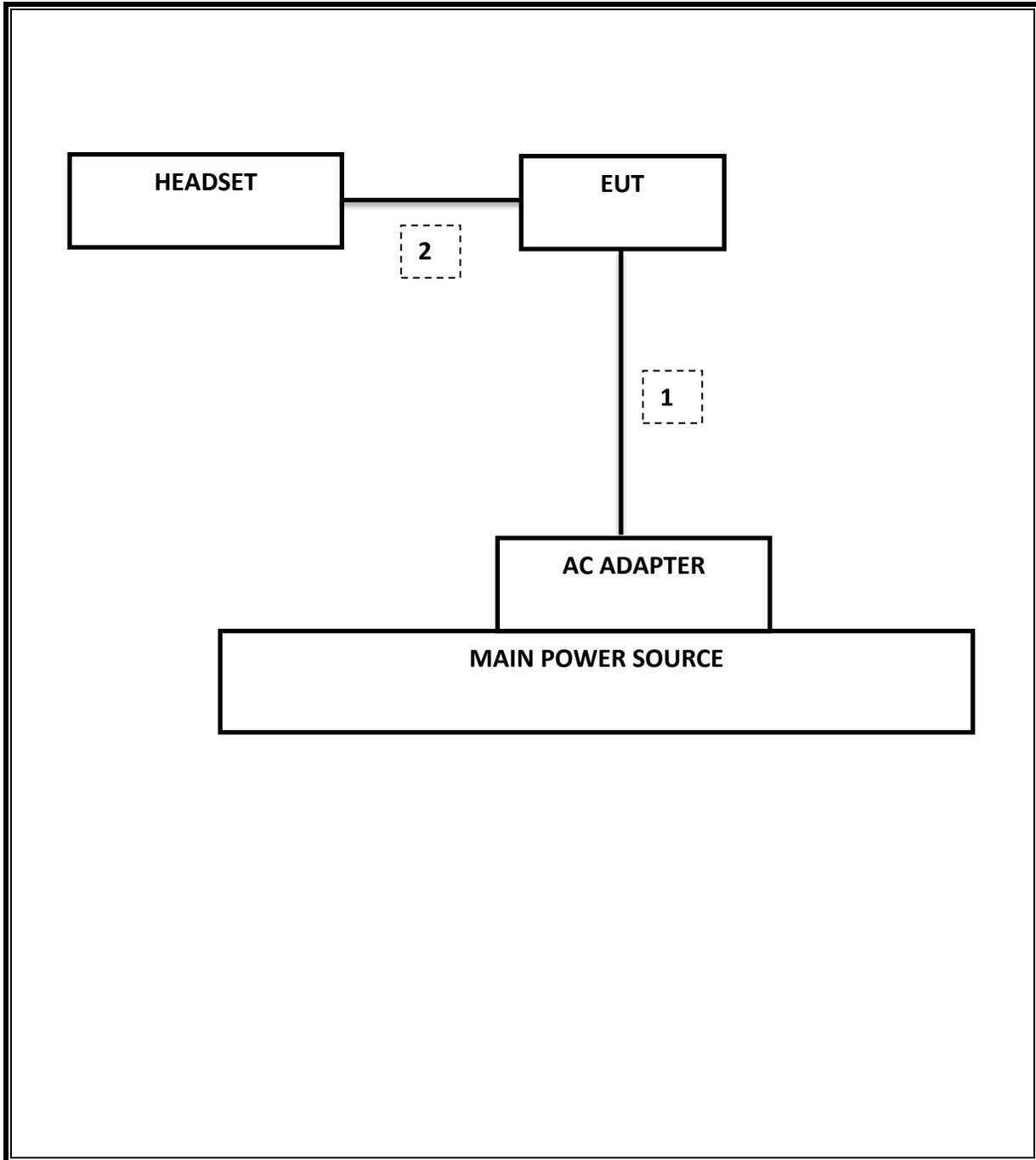
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

The EUT is continuously communicating to the Bluetooth tester during the tests.

EUT was set in the Hidden menu mode to enable BT communications.

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
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/16
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/16
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
CBT Bluetooth Tester	R & S	CBT	None	06/30/16
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/16
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR
Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012	
CLT Software	UL	UL RF	Ver 1.0, Feb 2 2015	
Antenna Port Software	UL	UL RF	Ver 2.1.1.1, Jan 20 2015	

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	RSS-GEN 4.6	Occupied Band width (99%)	N/A	Conducted	Pass	1.197 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-48.51 dBm
15.247 (b)(1)	RSS-247 5.4.2	TX conducted output power	<21dBm		Pass	9.73 dBm
15.247 (a)(1)	RSS-247 5.1.2	Hopping frequency separation	> 25KHz		Pass	1 MHz
15.247 (a)(1)(iii)	RSS-247 5.1.4	Number of Hopping channels	More than 15 non-overlapping channels		Pass	79
15.247 (a)(1)(iii)	RSS-247 5.1.4	Avg Time of Occupancy	< 0.4sec		Pass	0.3179 sec
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	40.31 dBuV/m

8. ANTENNA PORT TEST RESULTS

8.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to \geq RBW. The sweep time is coupled.

RESULTS

8.1.1. BASIC DATA RATE GFSK MODULATION

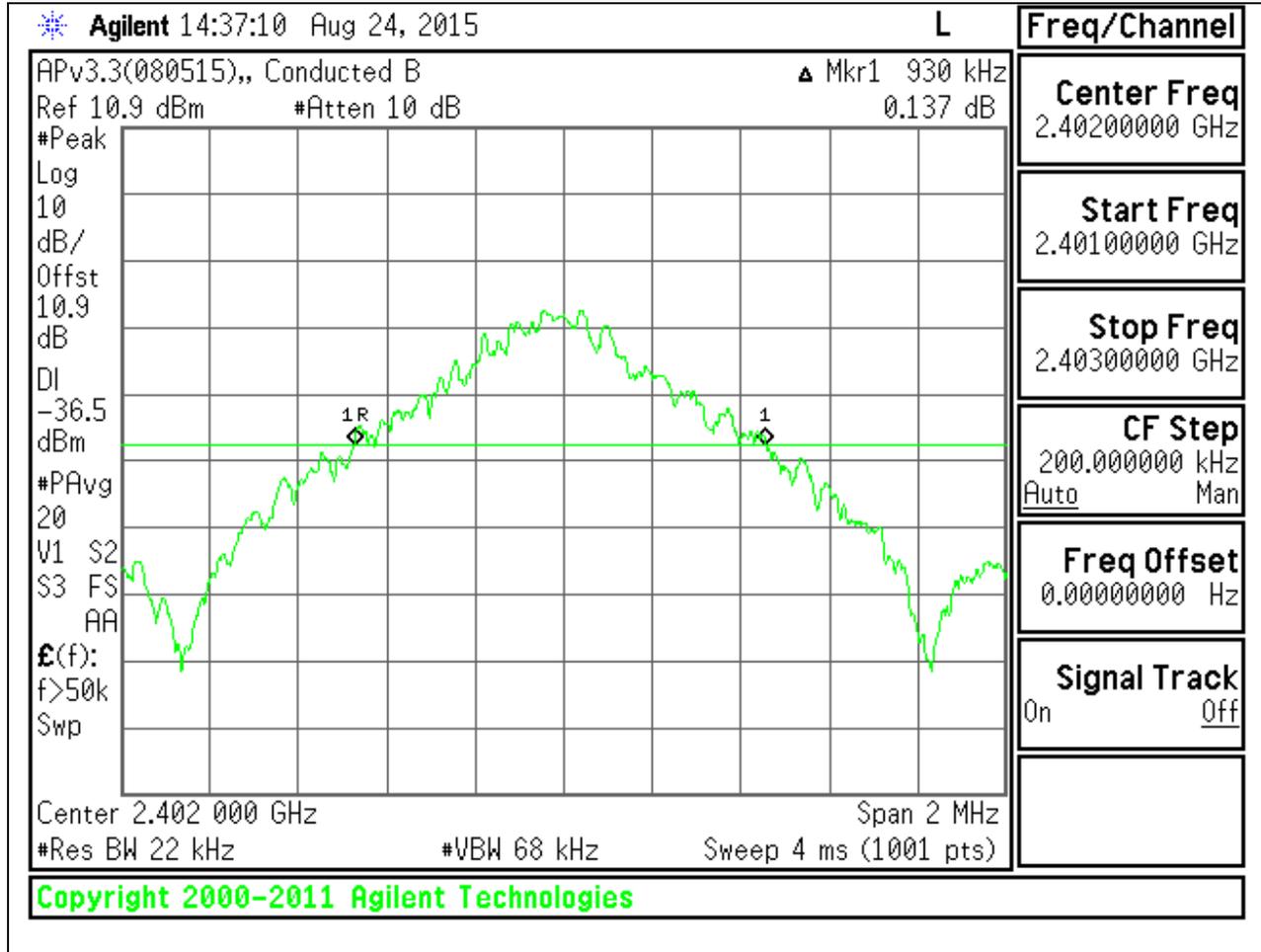
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	0.930	0.899
Middle	2441	0.936	0.906
High	2480	0.946	0.906
Worst		0.946	0.906

8.1.2. ENHANCED DATA RATE 8PSK MODULATION

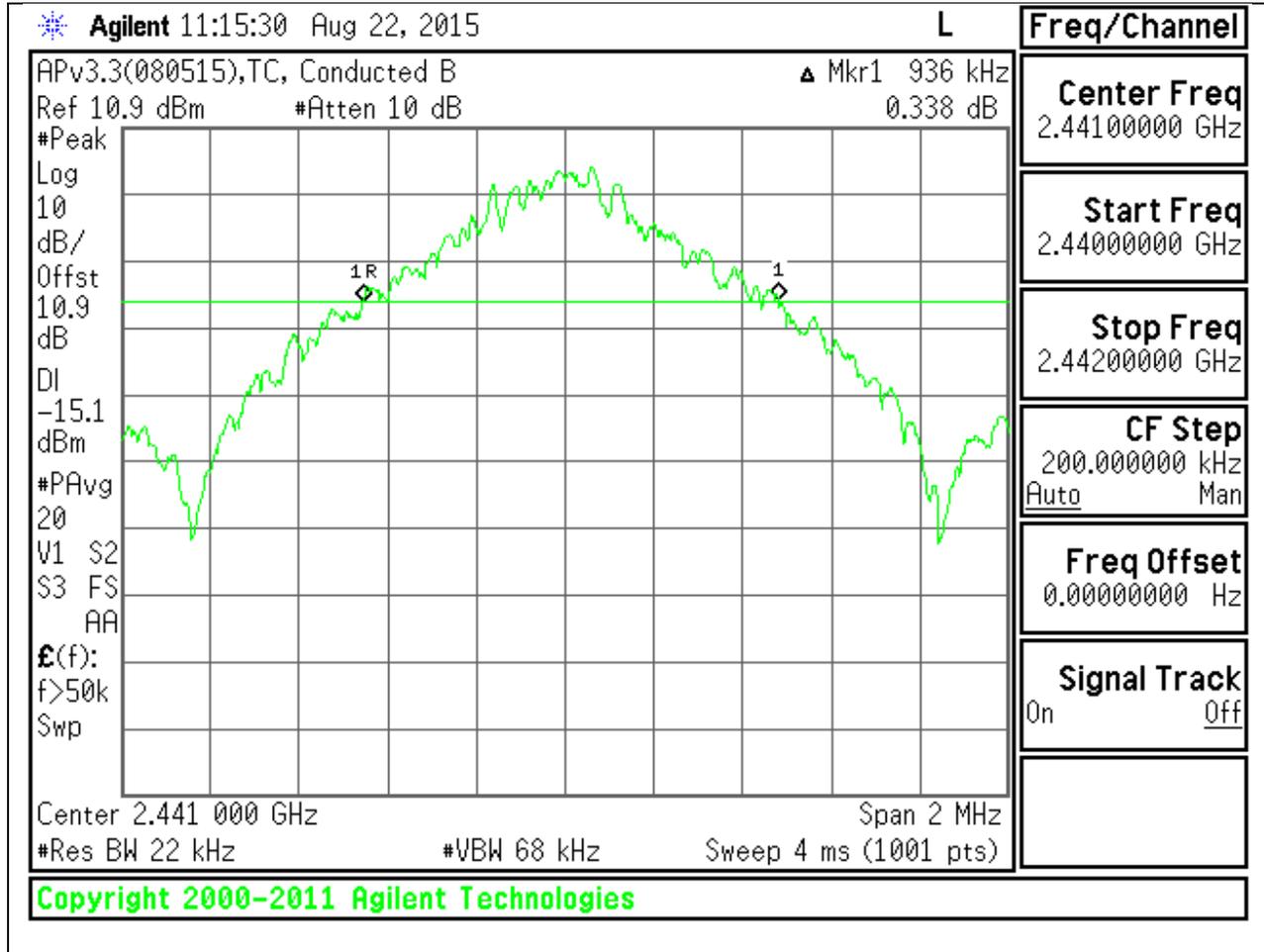
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.296	1.193
Middle	2441	1.293	1.197
High	2480	1.338	1.197
Worst		1.338	1.197

8.1.3. 20 dB AND 99% BANDWIDTH PLOTS

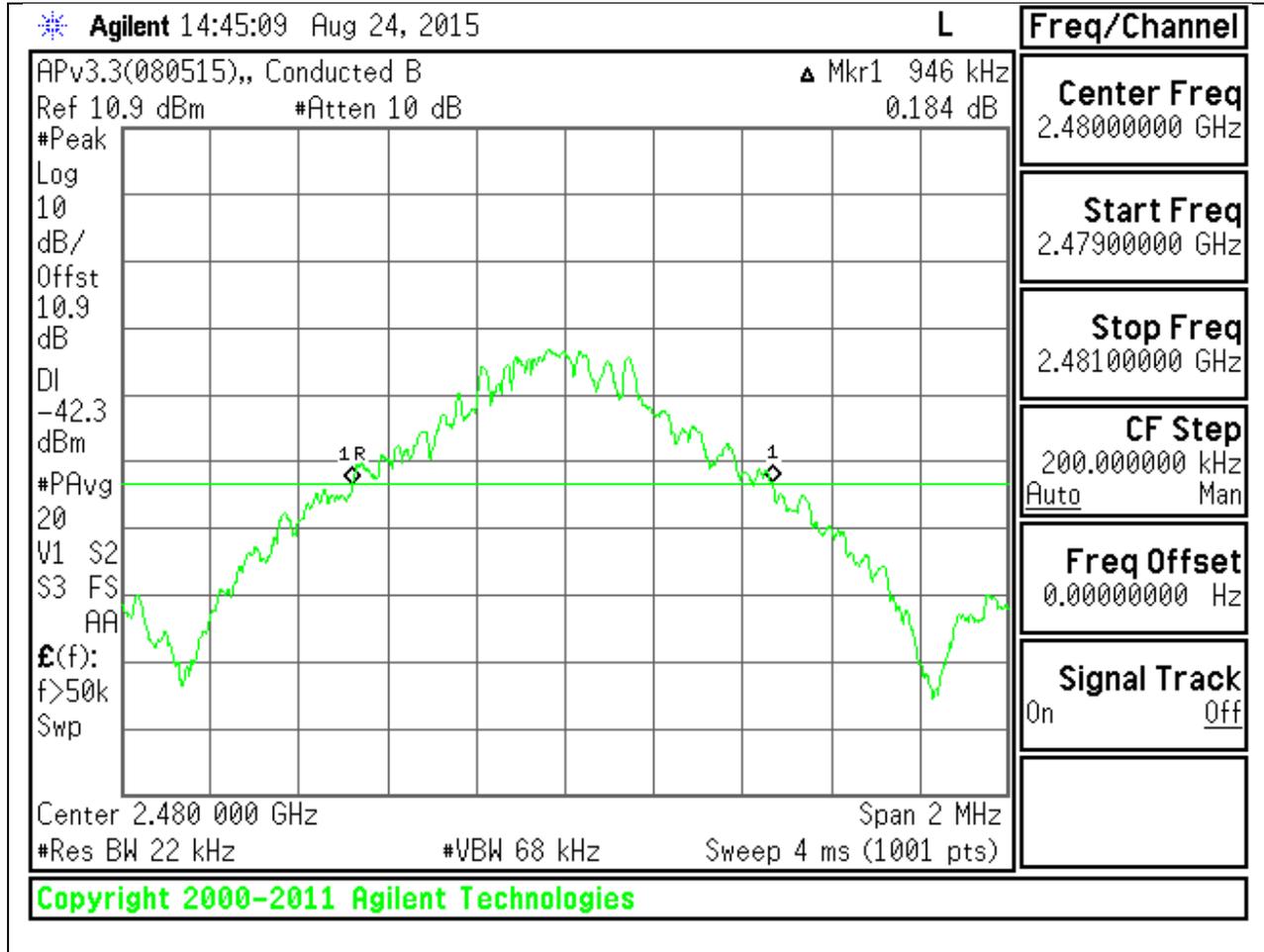
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

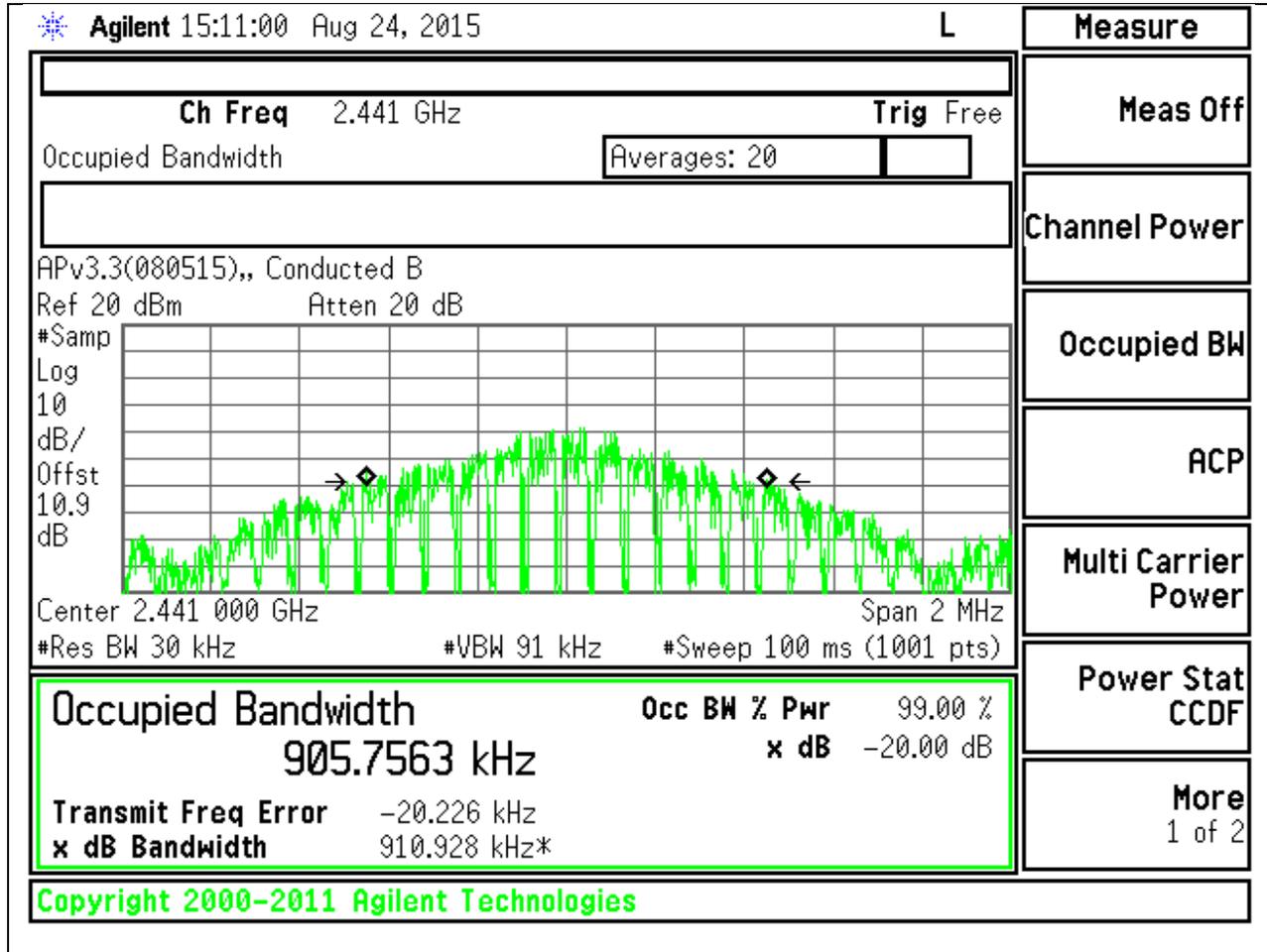


GFSK 99% BANDWIDTH

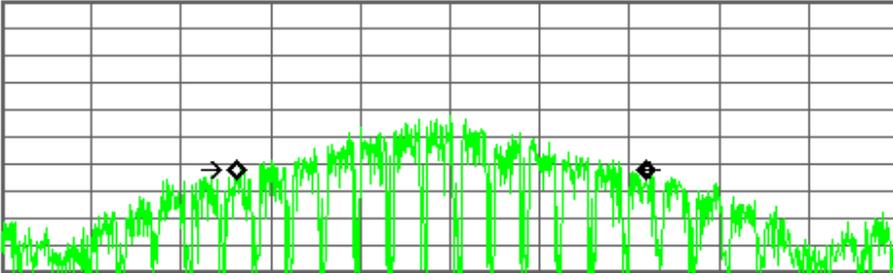
LOW CHANNEL

Agilent 14:37:46 Aug 24, 2015 L		Measure
Ch Freq 2.402 GHz Trig Free Occupied Bandwidth Averages: 20		Meas Off
APv3.3(080515),, Conducted B Ref 20 dBm Atten 20 dB		Channel Power
#Samp Log 10 dB/ Offst 10.9 dB		Occupied BW
		ACP
Center 2.402 000 GHz Span 2 MHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms (1001 pts)		Multi Carrier Power
Occupied Bandwidth Occ BW % Pwr 99.00 % x dB -20.00 dB 898.8497 kHz		Power Stat CCDF
Transmit Freq Error -15.157 kHz x dB Bandwidth 903.421 kHz*		More 1 of 2
Copyright 2000-2011 Agilent Technologies		

MID CHANNEL

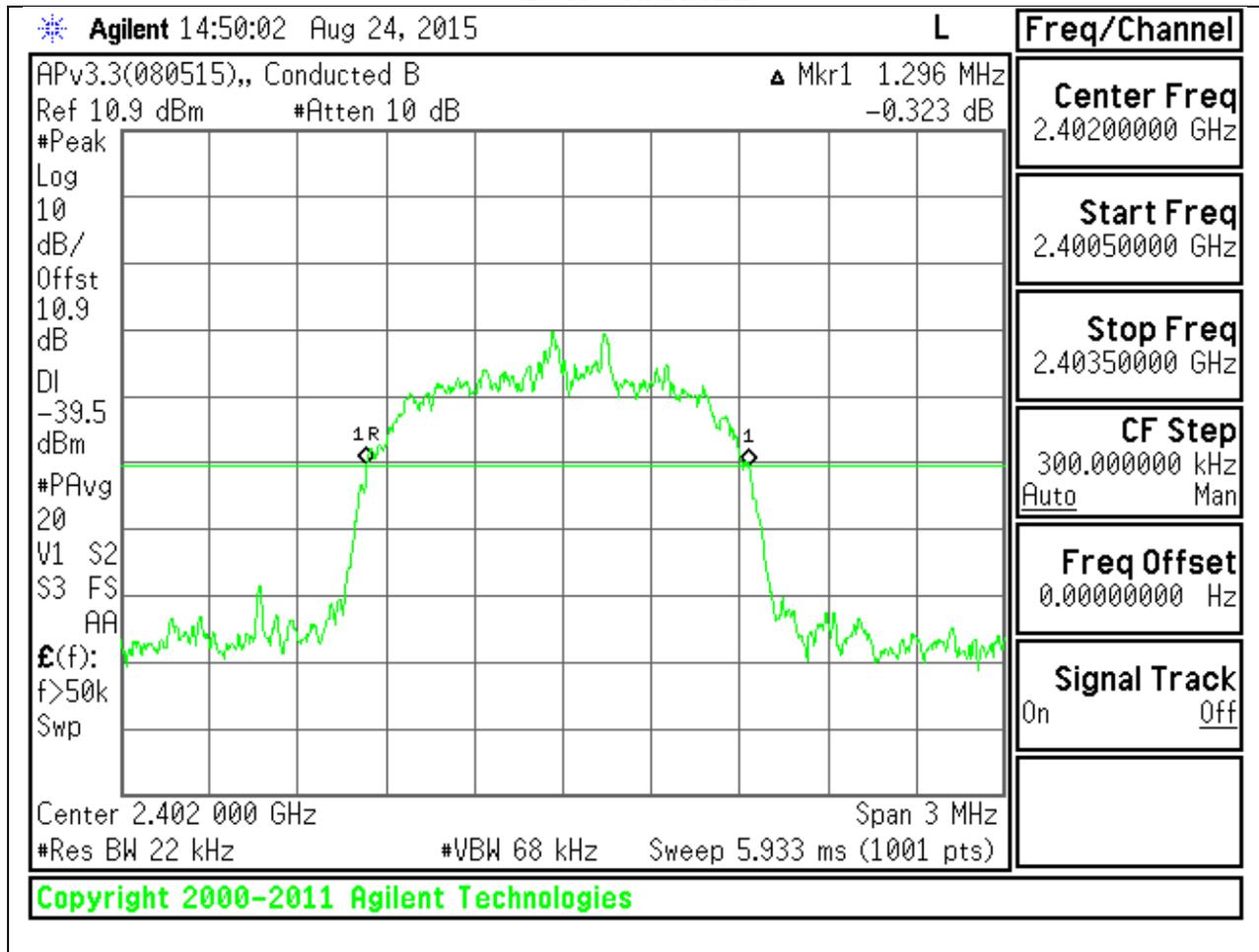


HIGH CHANNEL

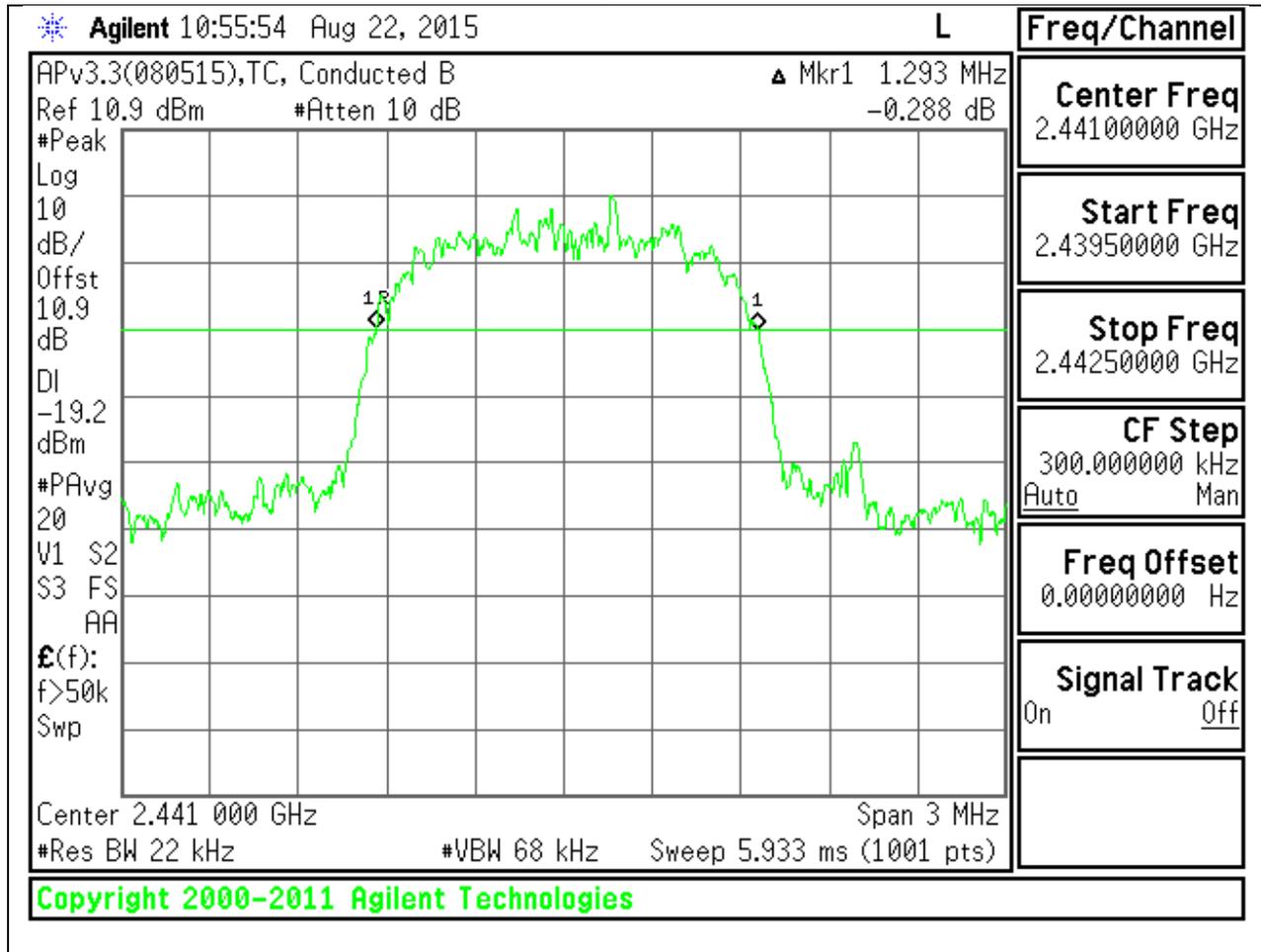
<p>Agilent 14:46:40 Aug 24, 2015 L</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;">Ch Freq 2.48 GHz Trig Free</p> <p>Occupied Bandwidth Averages: 20</p> </div> <p>APv3.3(080515),, Conducted B Ref 20 dBm Atten 20 dB</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>#Samp Log 10 dB/ Offst 10.9 dB</p>  <p style="text-align: center;">Center 2.480 000 GHz Span 2 MHz</p> <p>#Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms (1001 pts)</p> </div> <div style="border: 2px solid green; padding: 5px; margin-bottom: 5px;"> <p style="font-size: 1.2em;">Occupied Bandwidth Occ BW % Pwr 99.00 %</p> <p style="font-size: 1.2em; text-align: center;">905.5171 kHz x dB -20.00 dB</p> <p>Transmit Freq Error -17.005 kHz</p> <p>x dB Bandwidth 928.102 kHz*</p> </div> <p style="color: green; font-weight: bold;">Copyright 2000-2011 Agilent Technologies</p>	<p style="text-align: center; border: 1px solid black; padding: 5px;">Measure</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">Meas Off</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">Channel Power</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">Occupied BW</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">ACP</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">Multi Carrier Power</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">Power Stat CCDF</p> <p style="text-align: center; border: 1px solid black; padding: 5px;">More 1 of 2</p>
--	--

8PSK 20 dB BANDWIDTH

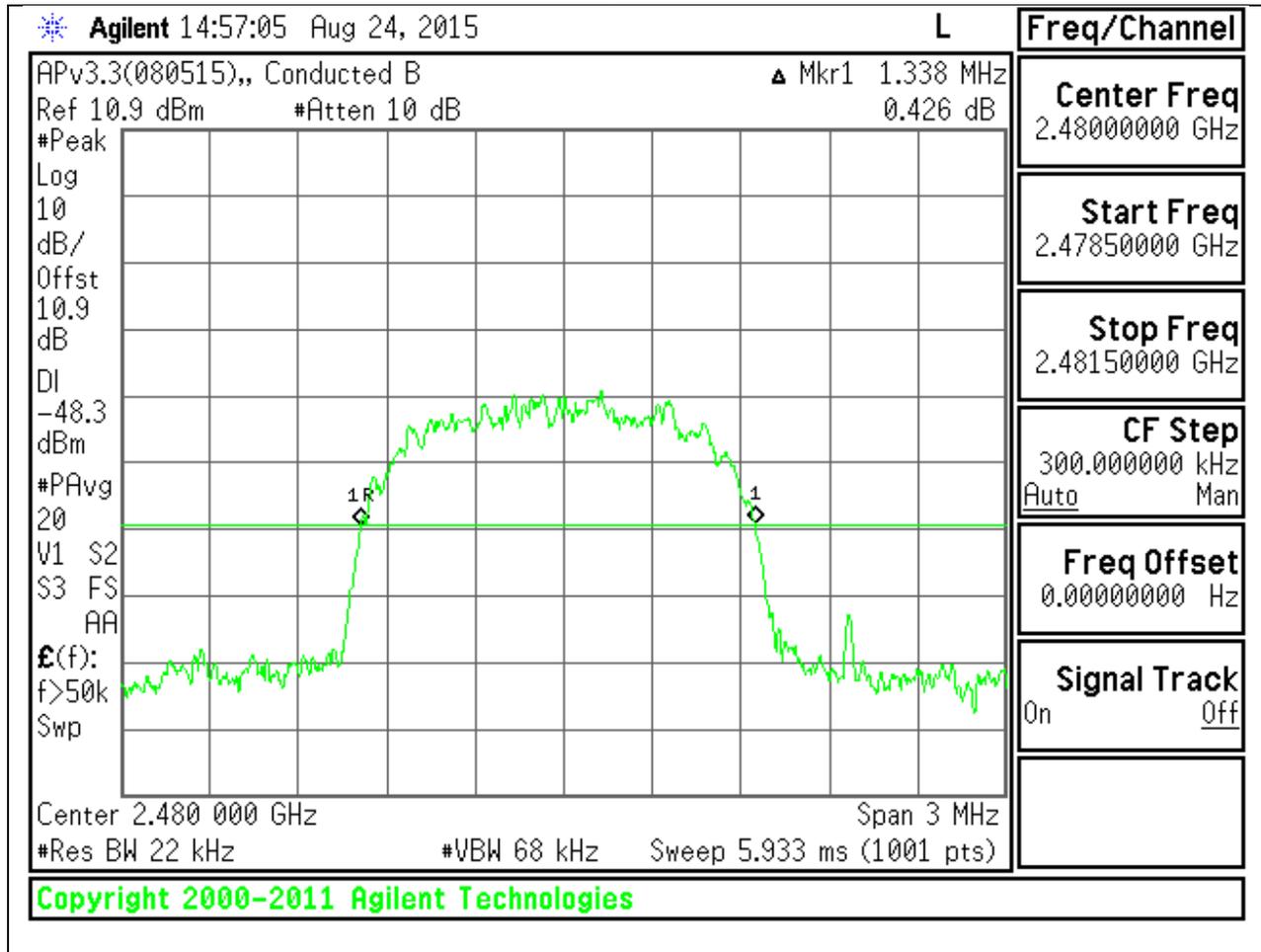
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8PSK 99% BANDWIDTH

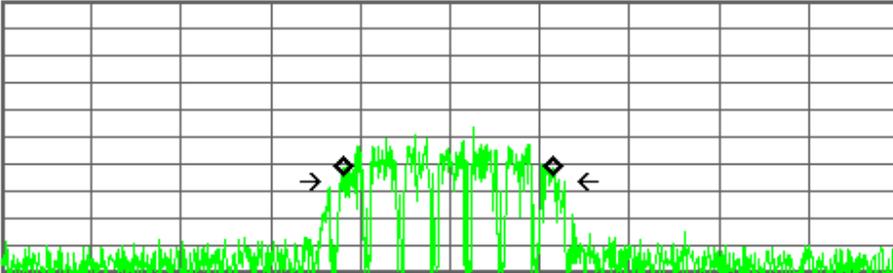
LOW CHANNEL

Agilent 14:50:32 Aug 24, 2015 L		Measure								
Ch Freq 2.402 GHz Trig Free Occupied Bandwidth Averages: 20		Meas Off								
APv3.3(080515),, Conducted B Ref 20 dBm Atten 20 dB		Channel Power								
#Samp Log 10 dB/ Offst 10.9 dB		Occupied BW								
		ACP								
Center 2.402 000 GHz Span 5 MHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms (1001 pts)		Multi Carrier Power								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Occupied Bandwidth</td> <td style="padding: 5px;">Occ BW % Pwr 99.00 %</td> </tr> <tr> <td style="padding: 5px;">1.1928 MHz</td> <td style="padding: 5px;">x dB -20.00 dB</td> </tr> <tr> <td style="padding: 5px;">Transmit Freq Error -14.038 kHz</td> <td></td> </tr> <tr> <td style="padding: 5px;">x dB Bandwidth 1.278 MHz*</td> <td></td> </tr> </table>		Occupied Bandwidth	Occ BW % Pwr 99.00 %	1.1928 MHz	x dB -20.00 dB	Transmit Freq Error -14.038 kHz		x dB Bandwidth 1.278 MHz*		Power Stat CCDF
Occupied Bandwidth	Occ BW % Pwr 99.00 %									
1.1928 MHz	x dB -20.00 dB									
Transmit Freq Error -14.038 kHz										
x dB Bandwidth 1.278 MHz*										
		More 1 of 2								
Copyright 2000-2011 Agilent Technologies										

MID CHANNEL

Agilent 15:14:03 Aug 24, 2015 L		Measure								
Ch Freq 2.441 GHz Trig Free		Meas Off								
Occupied Bandwidth Averages: 20		Channel Power								
APv3.3(080515),, Conducted B Ref 20 dBm Atten 20 dB		Occupied BW								
#Samp Log 10 dB/ Offst 10.9 dB		ACP								
		Multi Carrier Power								
Center 2.441 000 GHz Span 5 MHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms (1001 pts)		Power Stat								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Occupied Bandwidth</td> <td style="padding: 5px;">Occ BW % Pwr 99.00 %</td> </tr> <tr> <td style="padding: 5px; text-align: center;">1.1966 MHz</td> <td style="padding: 5px; text-align: center;">x dB -20.00 dB</td> </tr> <tr> <td style="padding: 5px;">Transmit Freq Error -22.761 kHz</td> <td></td> </tr> <tr> <td style="padding: 5px;">x dB Bandwidth 1.277 MHz*</td> <td></td> </tr> </table>		Occupied Bandwidth	Occ BW % Pwr 99.00 %	1.1966 MHz	x dB -20.00 dB	Transmit Freq Error -22.761 kHz		x dB Bandwidth 1.277 MHz*		CCDF
Occupied Bandwidth	Occ BW % Pwr 99.00 %									
1.1966 MHz	x dB -20.00 dB									
Transmit Freq Error -22.761 kHz										
x dB Bandwidth 1.277 MHz*										
		More 1 of 2								
Copyright 2000-2011 Agilent Technologies										

HIGH CHANNEL

* Agilent 14:57:34 Aug 24, 2015 L		Measure
Ch Freq 2.48 GHz Trig Free		Meas Off
Occupied Bandwidth Averages: 20		Channel Power
APv3.3(080515),, Conducted B Ref 20 dBm Atten 20 dB		Occupied BW
#Samp Log 10 dB/ Offst 10.9 dB		ACP
		Multi Carrier Power
Center 2.480 000 GHz Span 5 MHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms (1001 pts)		Power Stat CCDF
Occupied Bandwidth Occ BW % Pwr 99.00 % 1.1967 MHz x dB -20.00 dB		More
Transmit Freq Error -18.873 kHz x dB Bandwidth 1.269 MHz*		1 of 2
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8.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

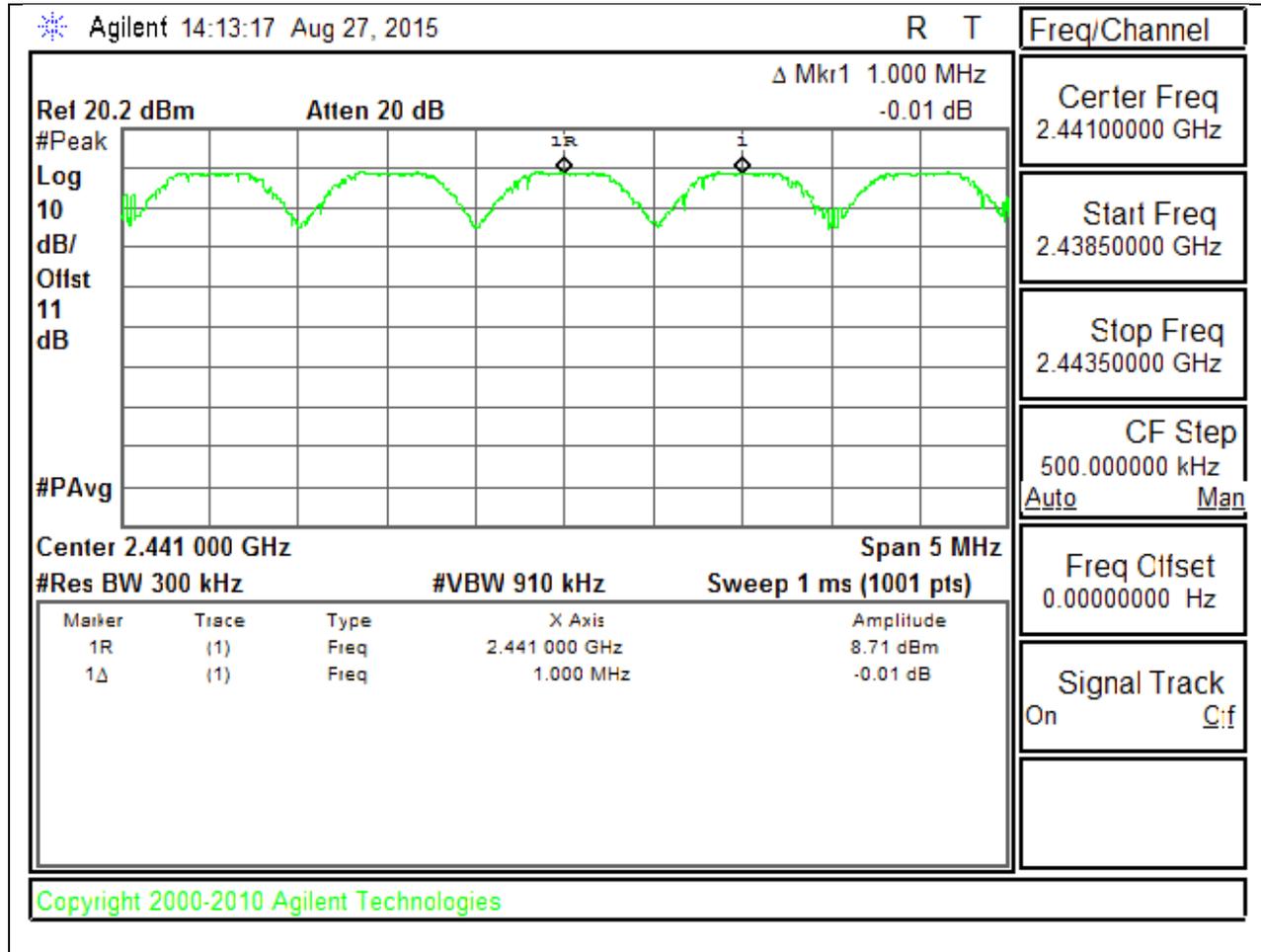
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS



8.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

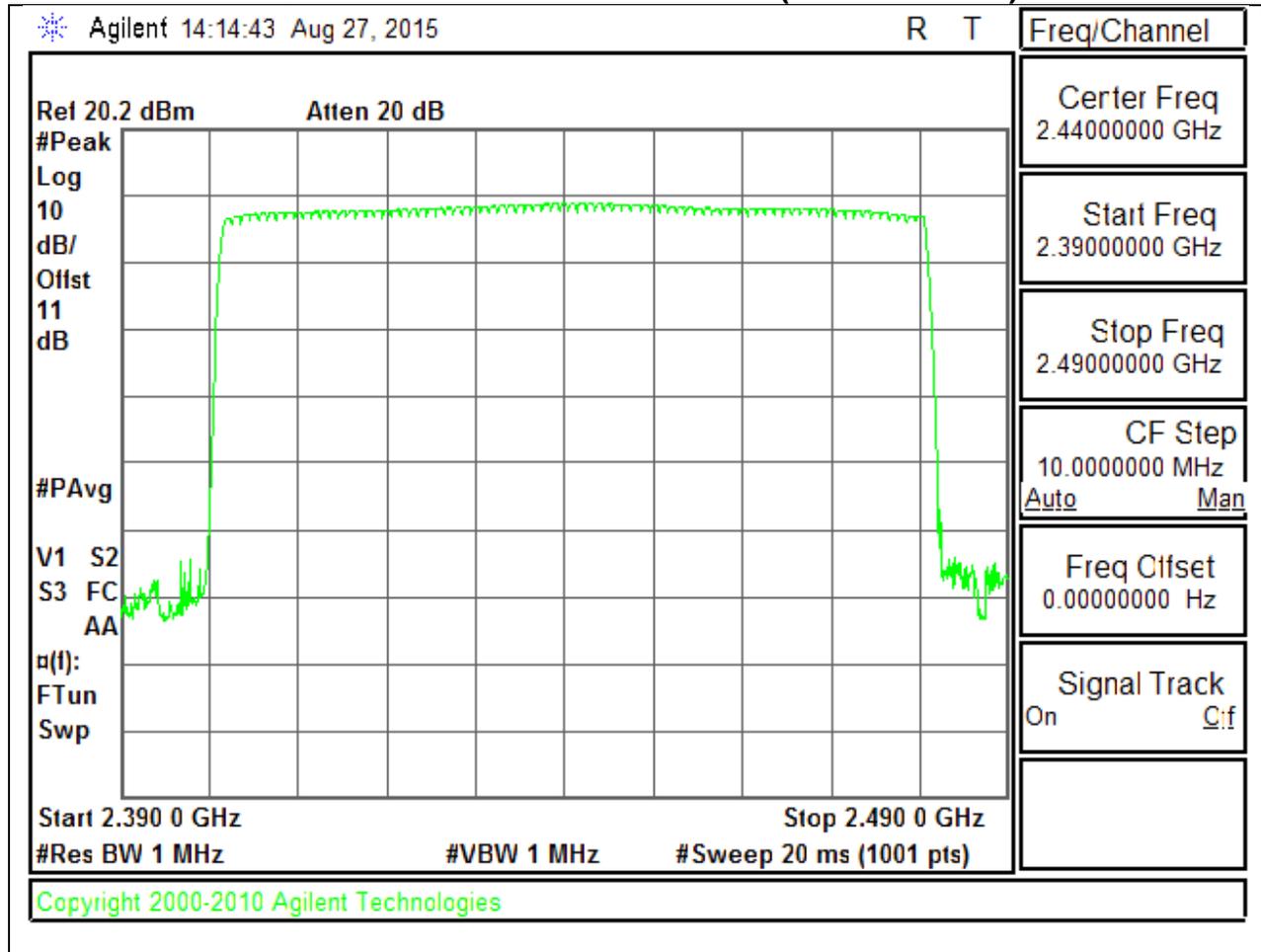
TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

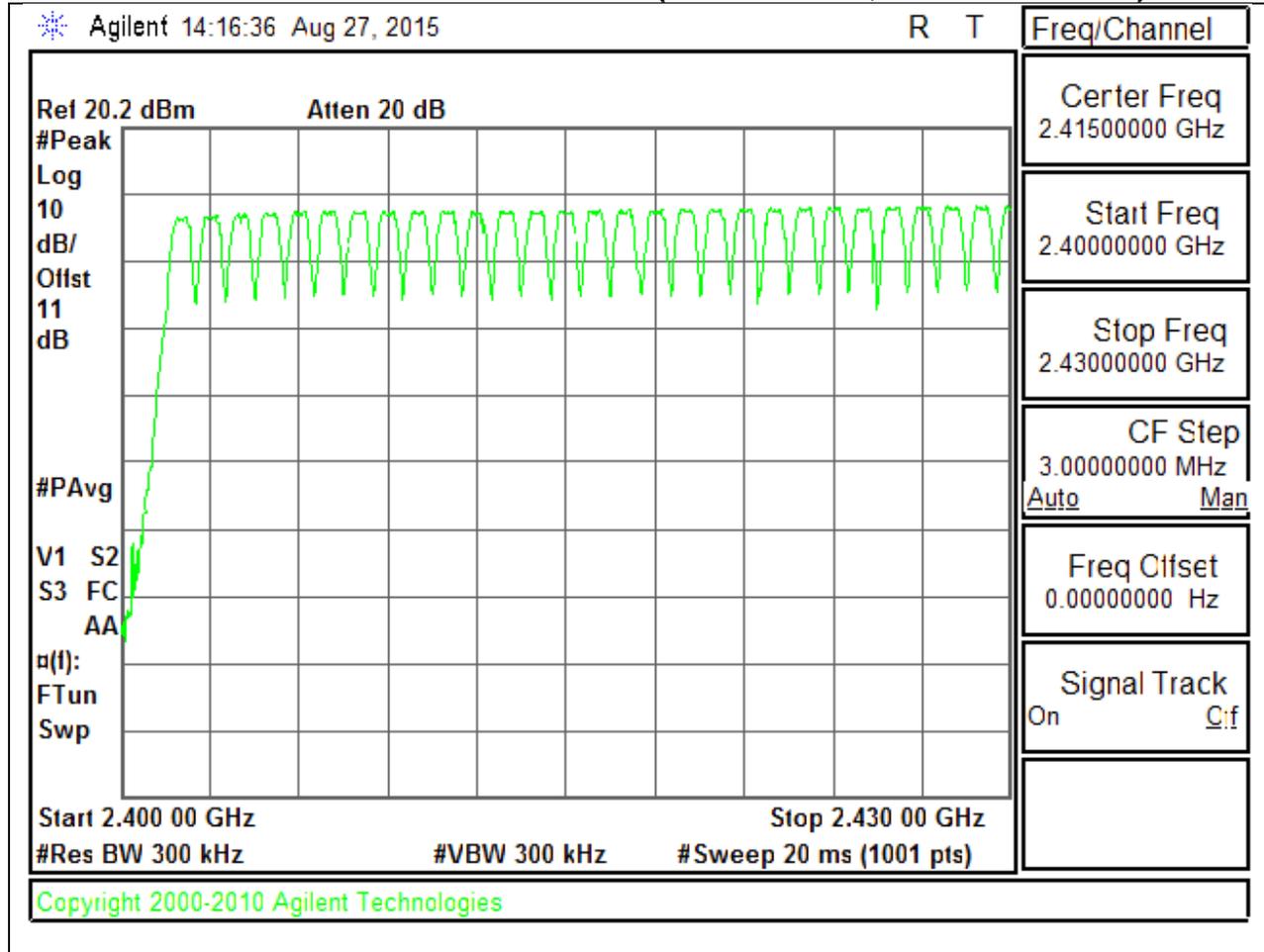
RESULTS

Normal Mode: 79 Channels observed.

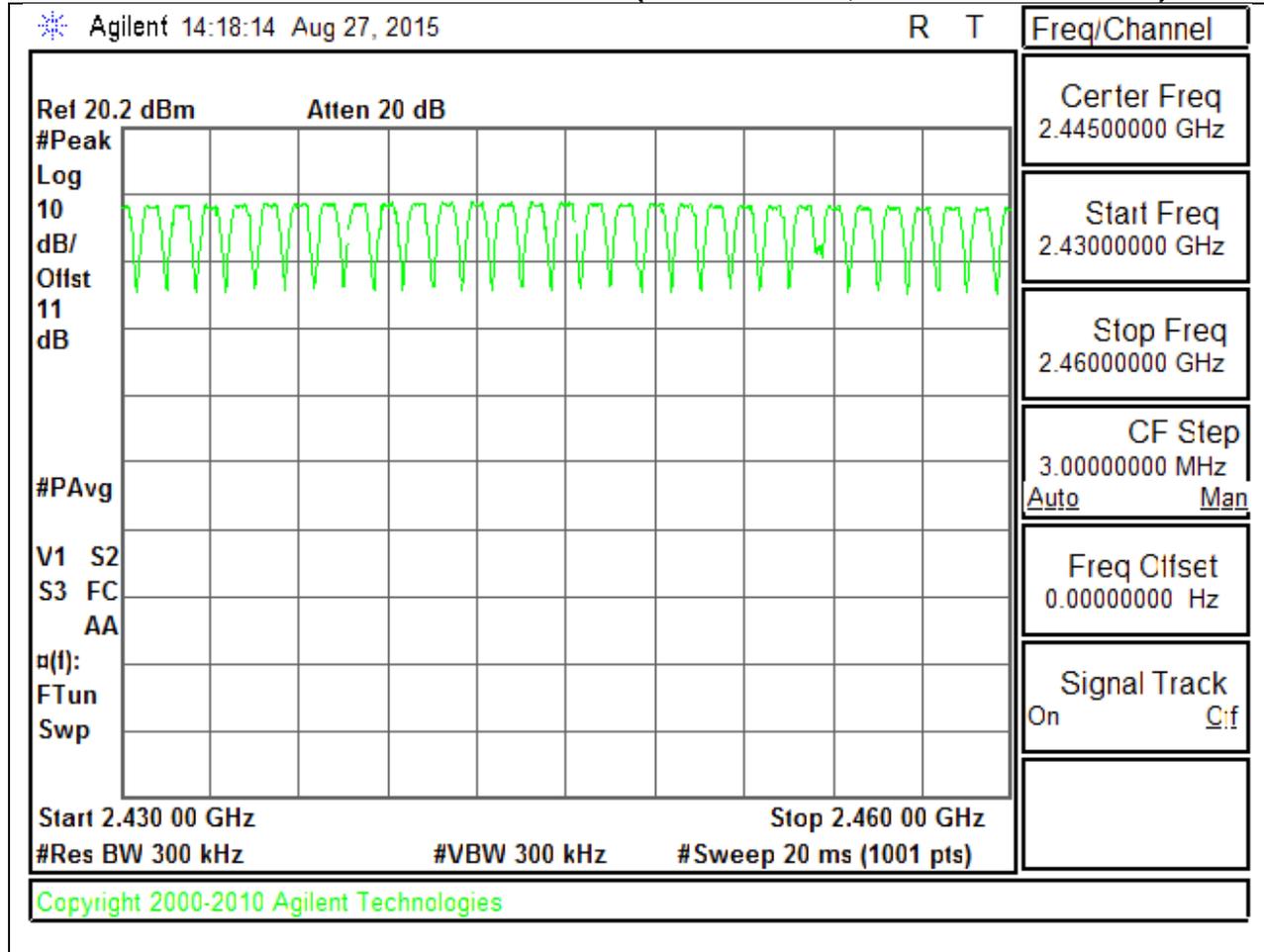
NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)



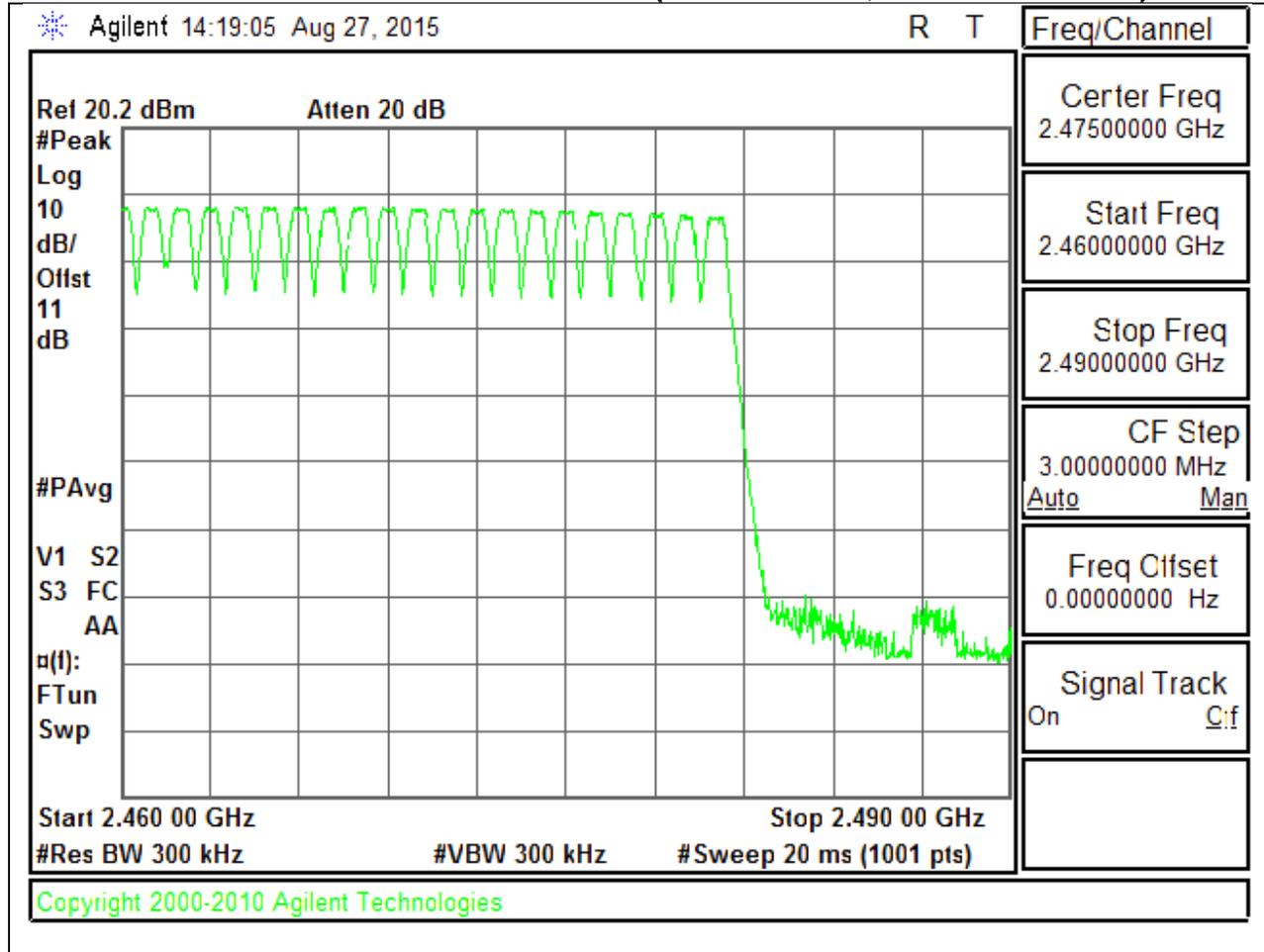
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)



NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, SECOND SEGMENT)



NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, THIRD SEGMENT)



8.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

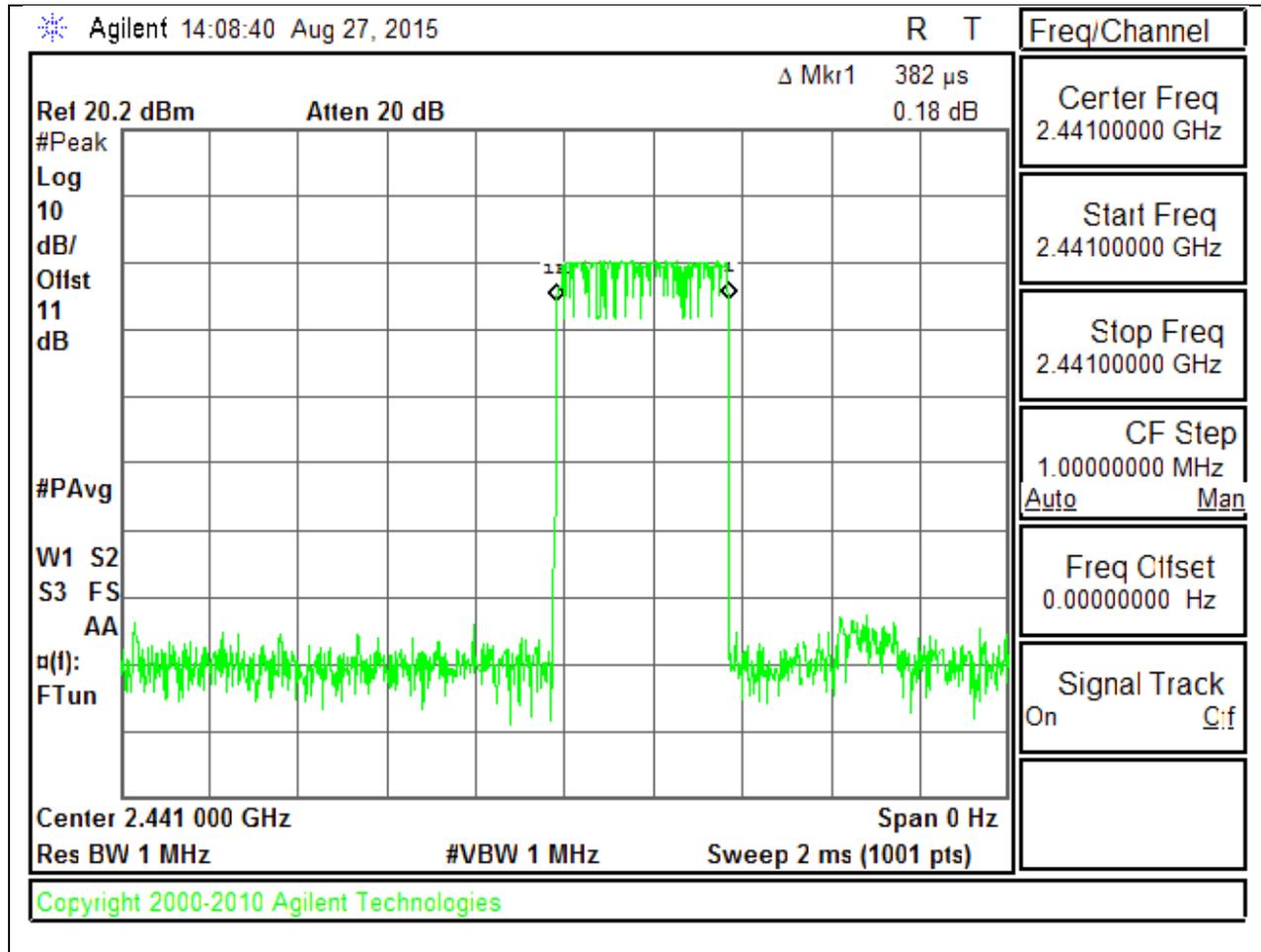
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{ pulse width}$.

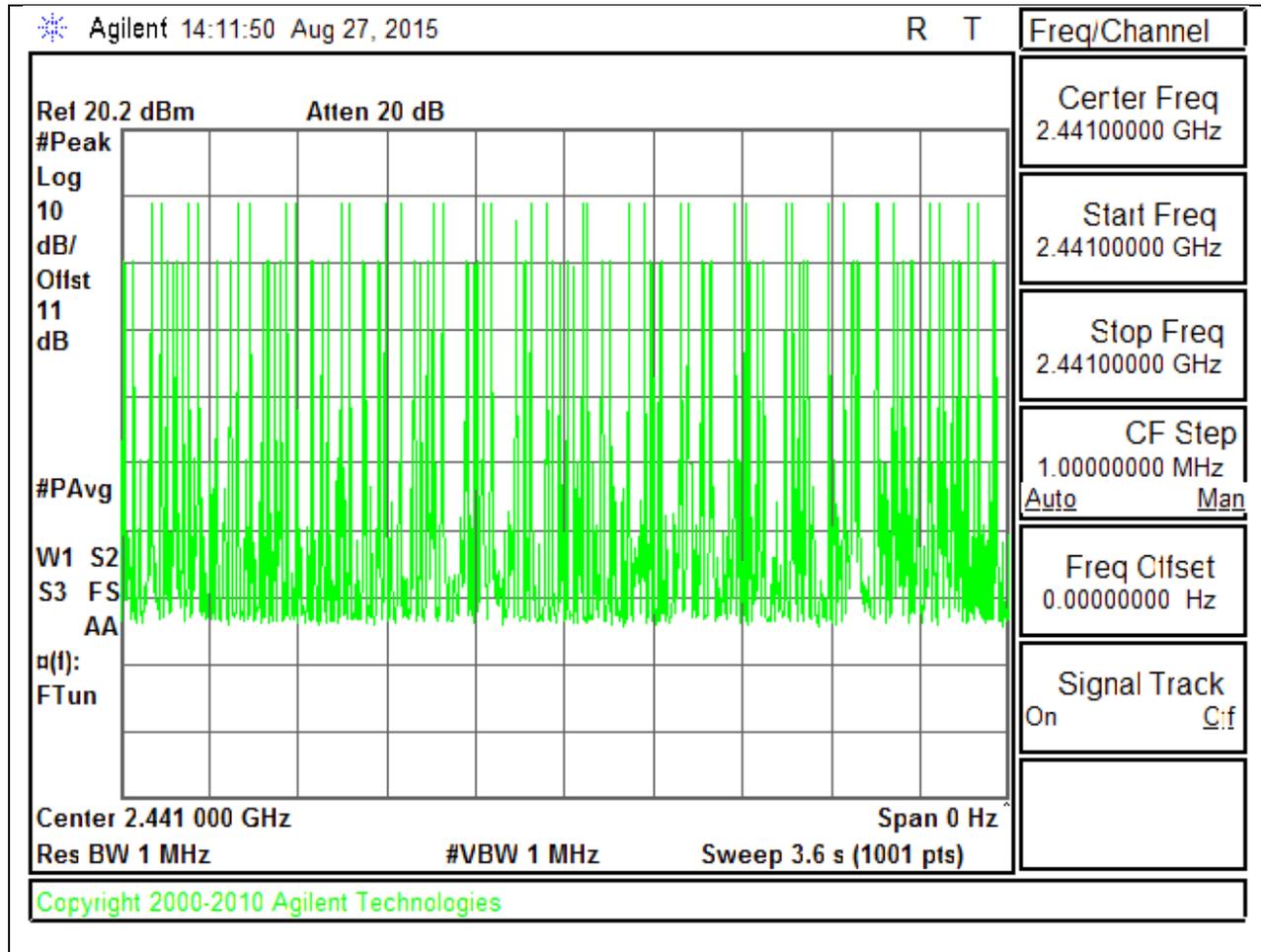
RESULTS

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.382	35	0.1337	0.4	-0.2663
DH3	1.635	15	0.24525	0.4	-0.15475
DH5	2.89	11	0.3179	0.4	-0.0821
DH Packet					
	Pulse Width (msec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.382	8.75	0.033425	0.4	-0.36658
DH3	1.635	3.75	0.0613125	0.4	-0.33869
DH5	2.89	2.75	0.079475	0.4	-0.32053

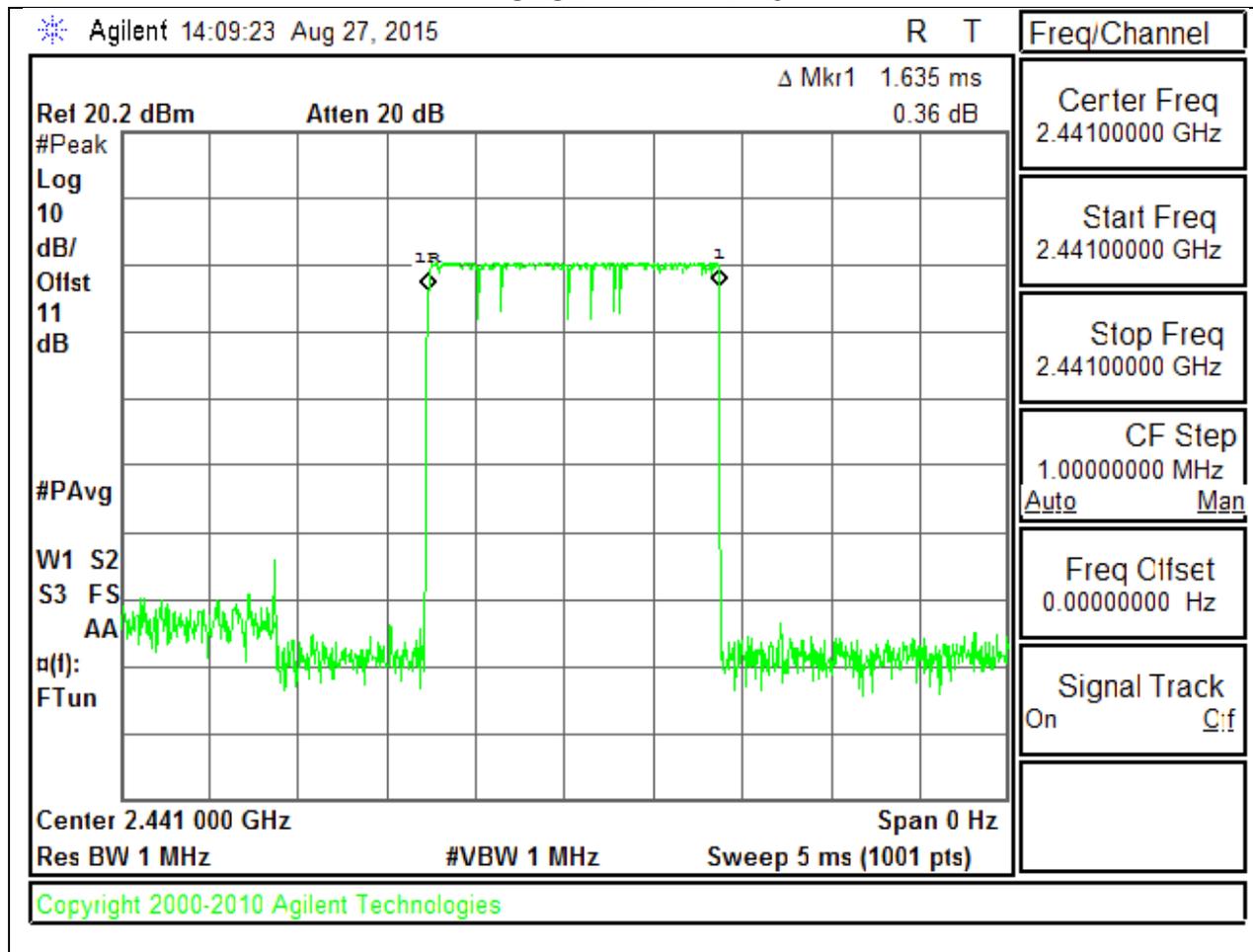
PULSE WIDTH - DH1



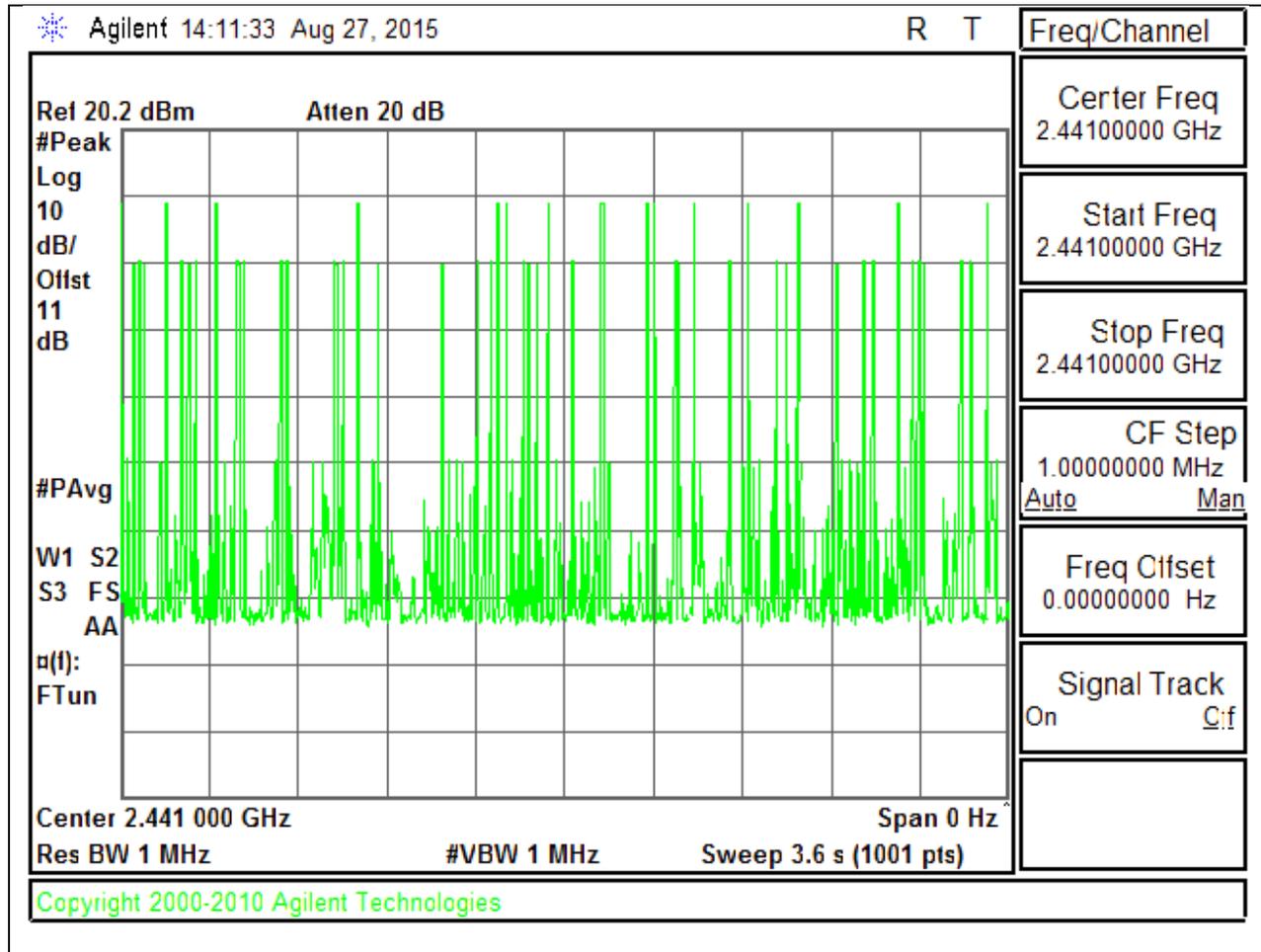
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH1



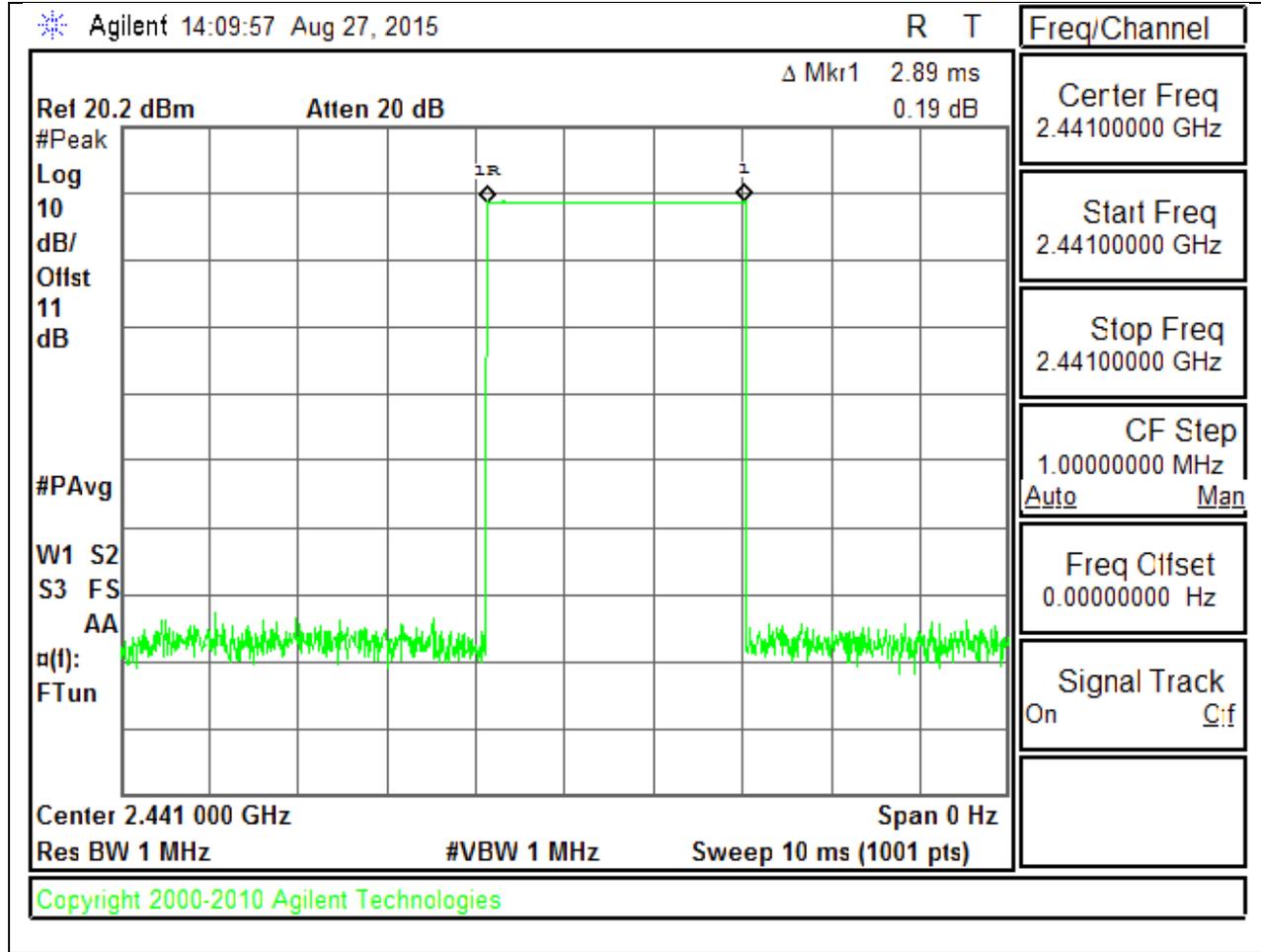
PULSE WIDTH - DH3



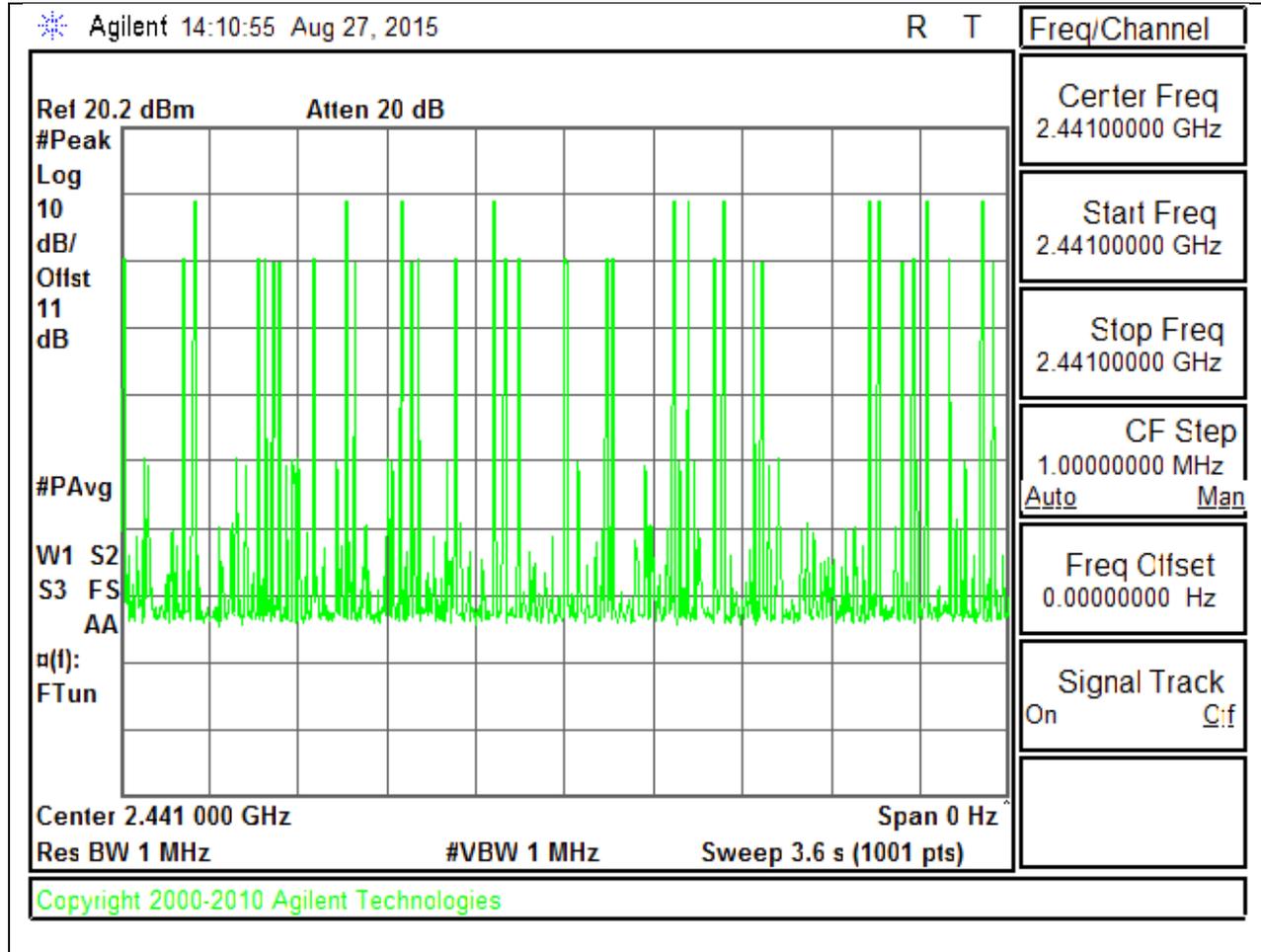
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH3



PULSE WIDTH - DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH5



8.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

The maximum antenna gain is less than 6 dBi, therefore the limit is 21 dBm.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

8.5.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.55	21	-13.45
Middle	2441	9.73	21	-11.27
High	2480	7.79	21	-13.21
Worst		9.73		-11.27

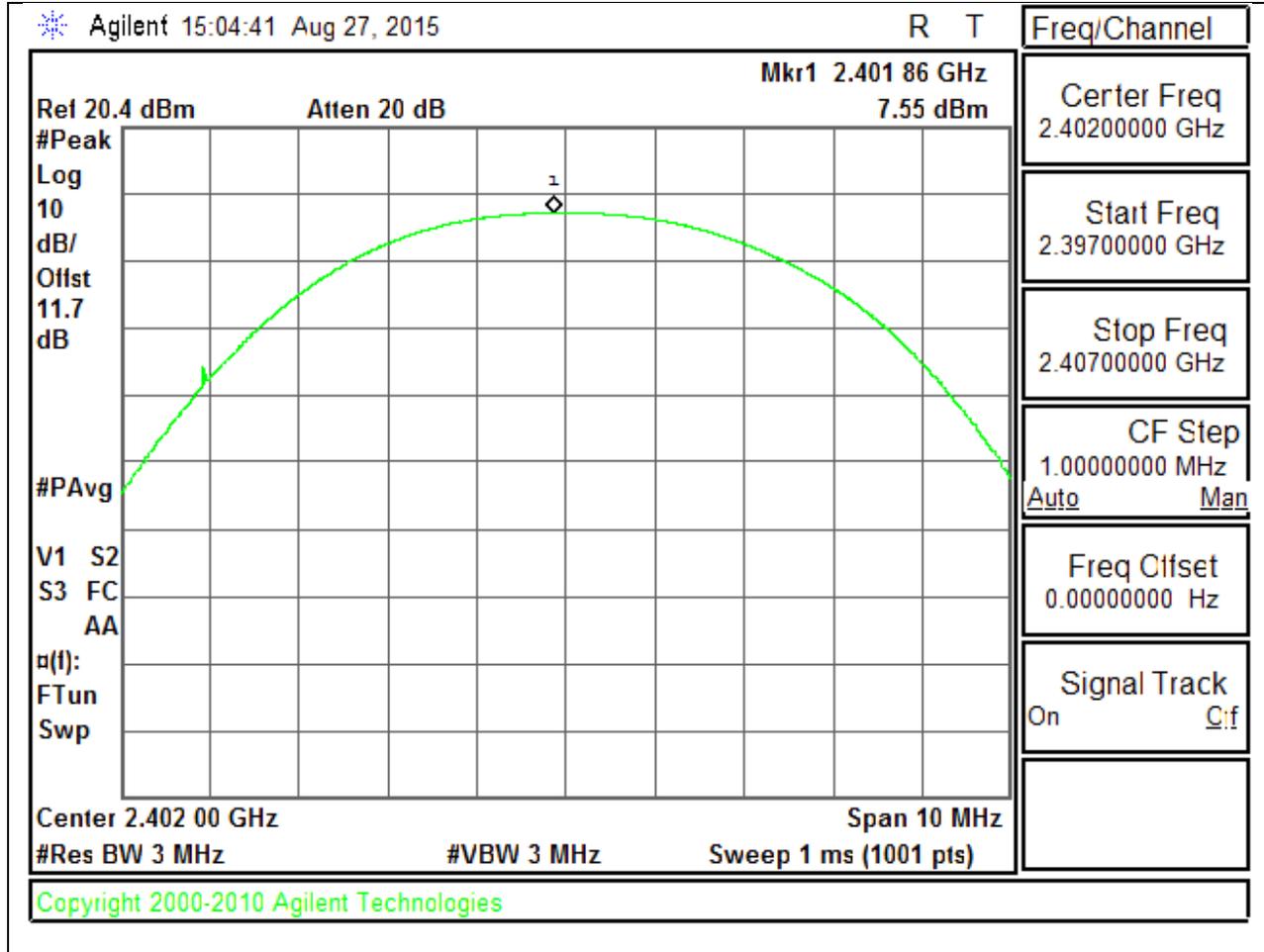
8.5.2. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	6.92	21	-14.08
Middle	2441	9.14	21	-11.86
High	2480	7.16	21	-13.84
Worst		9.14		-11.86

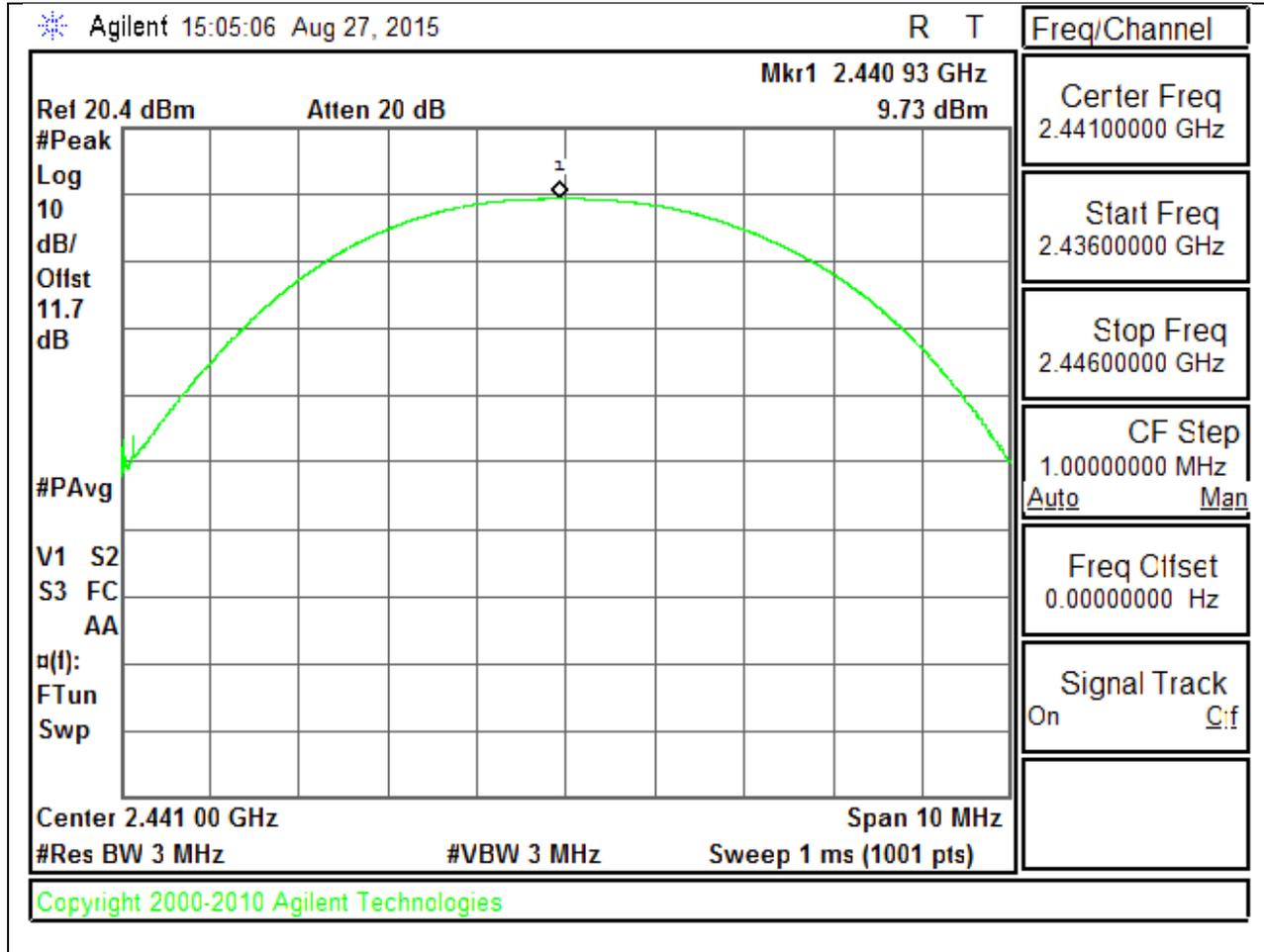
8.5.3. OUTPUT POWER PLOTS

GFSK OUTPUT POWER

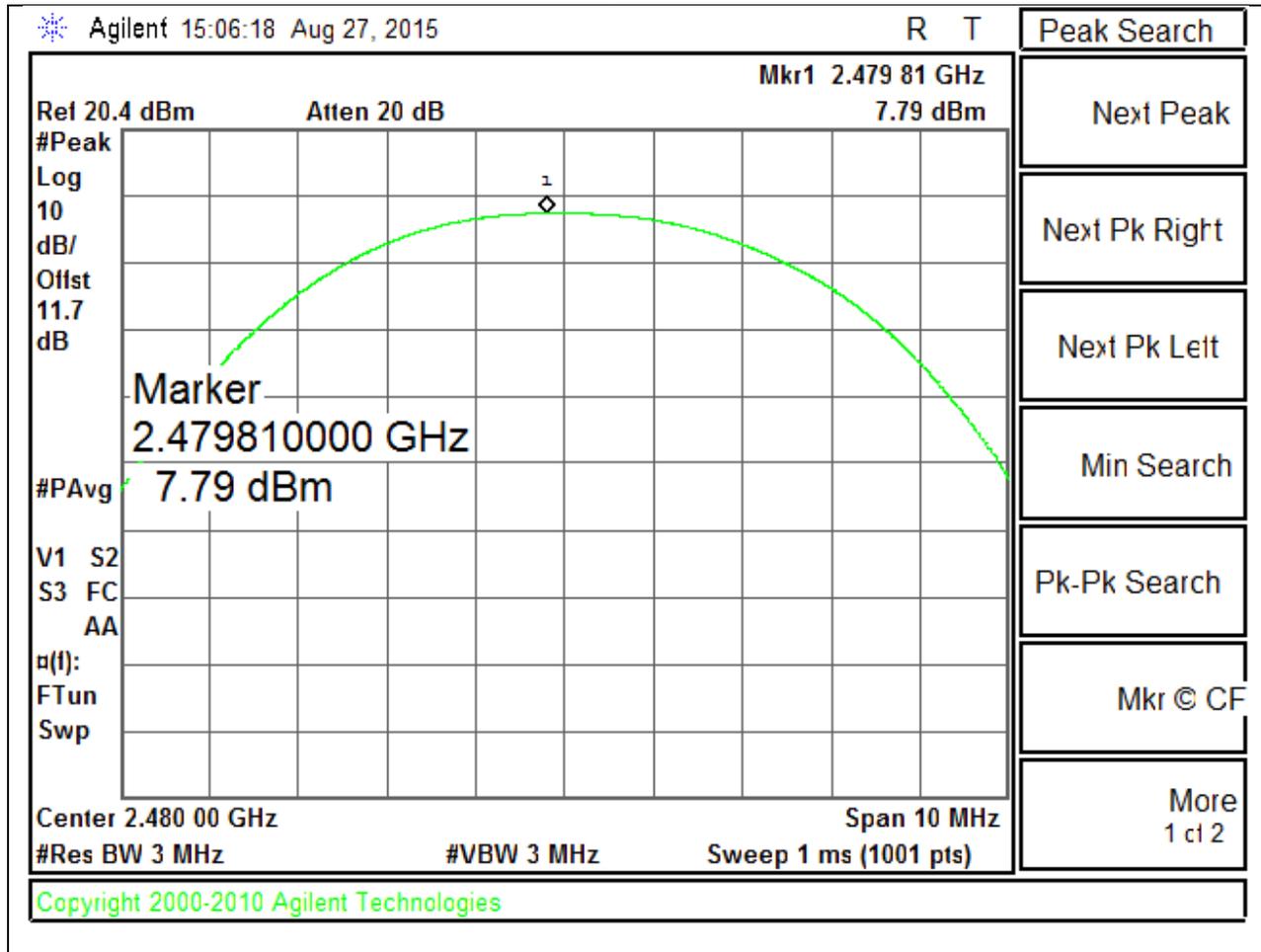
LOW CHANNEL



MID CHANNEL

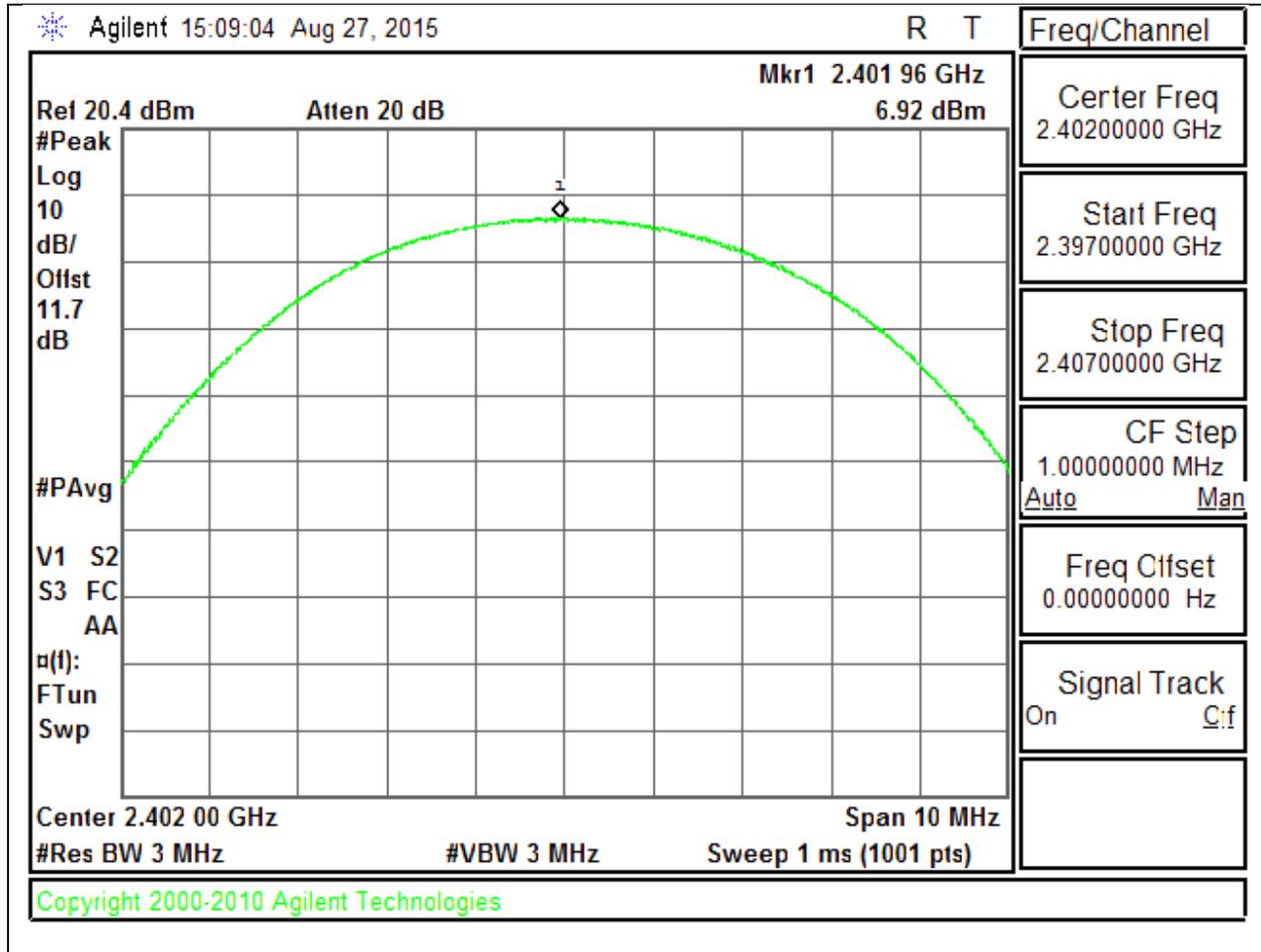


HIGH CHANNEL

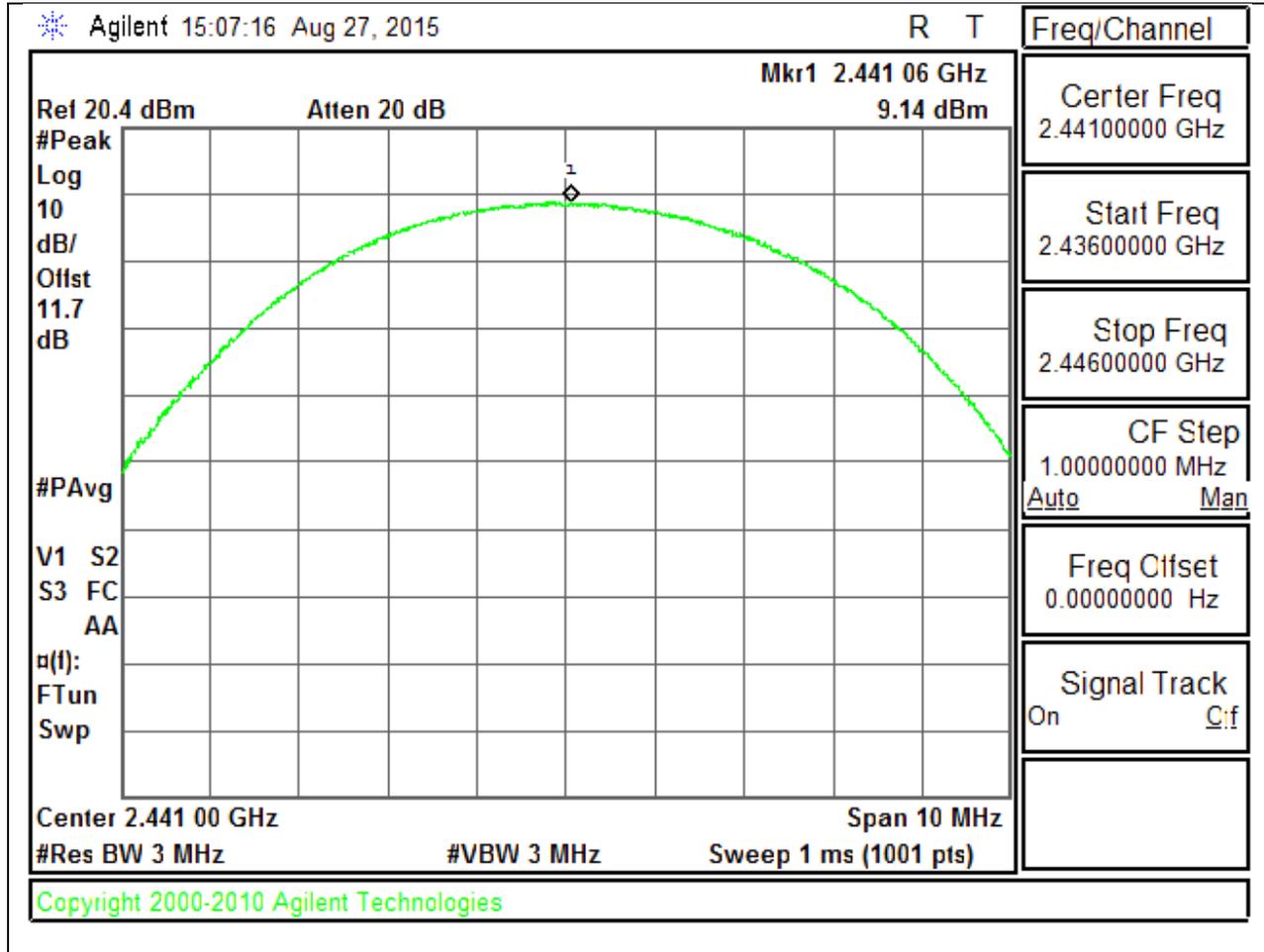


8PSK OUTPUT POWER

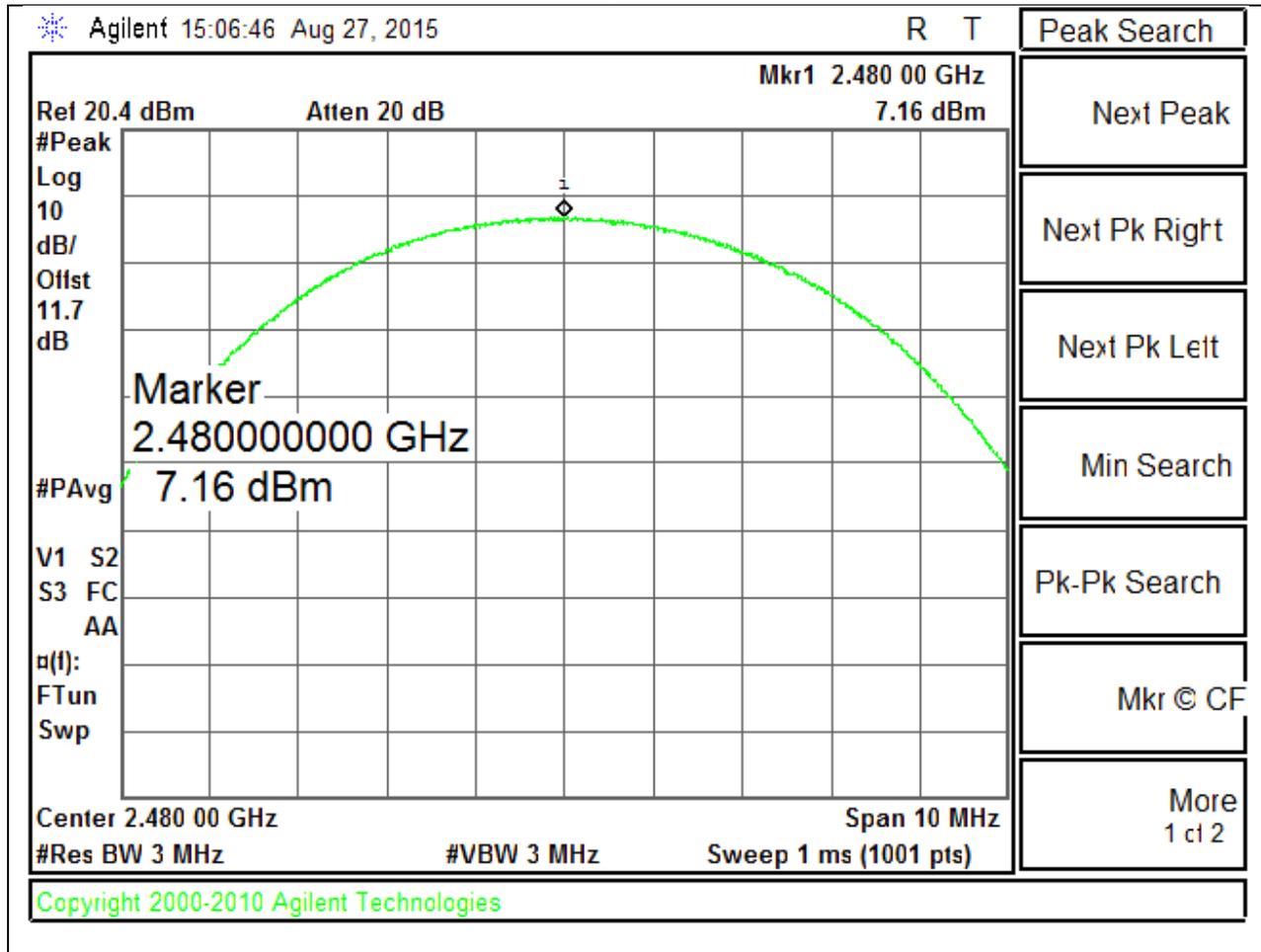
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



8.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

8.6.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	6.9
Middle	2441	9.4
High	2480	7.7
Worst		9.4

8.6.2. DATA RATE PI/4-DQPSK MODULATION

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	3.8
Middle	2441	6.2
High	2480	4.3
Worst		6.2

8.6.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	3.6
Middle	2441	6.2
High	2480	4.5
Worst		6.2

8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

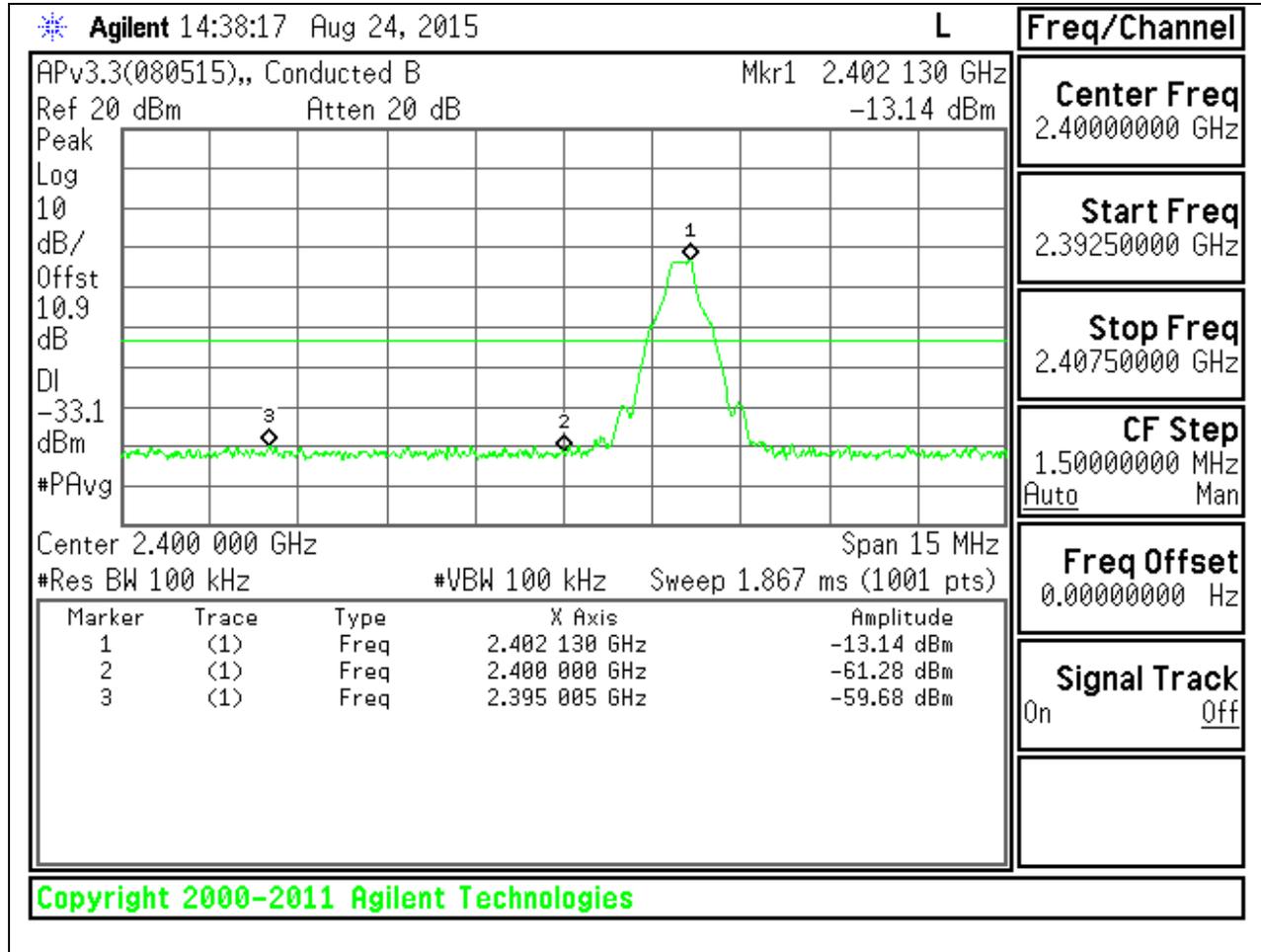
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

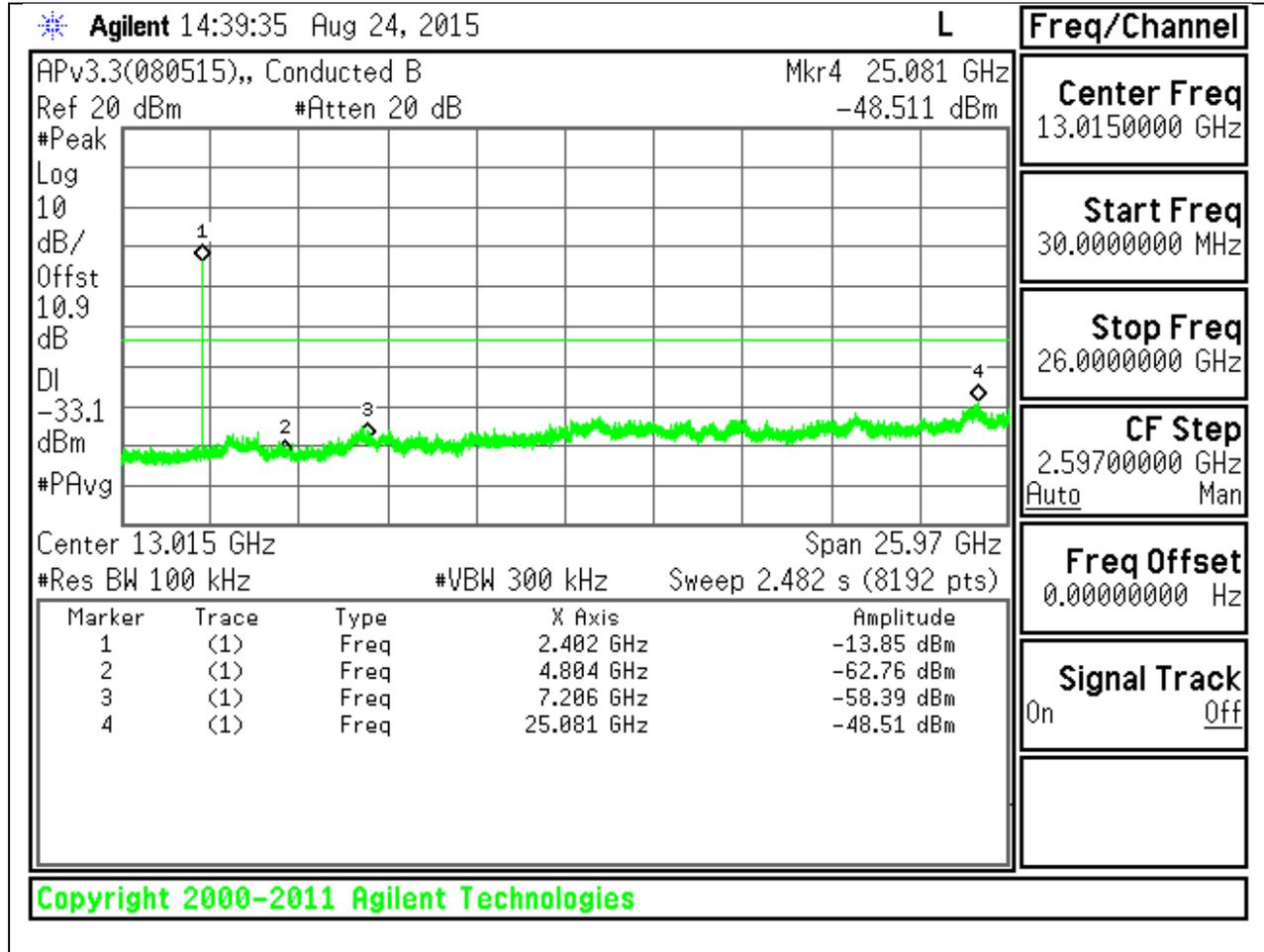
8.7.1. BASIC DATA RATE GFSK MODULATION

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE

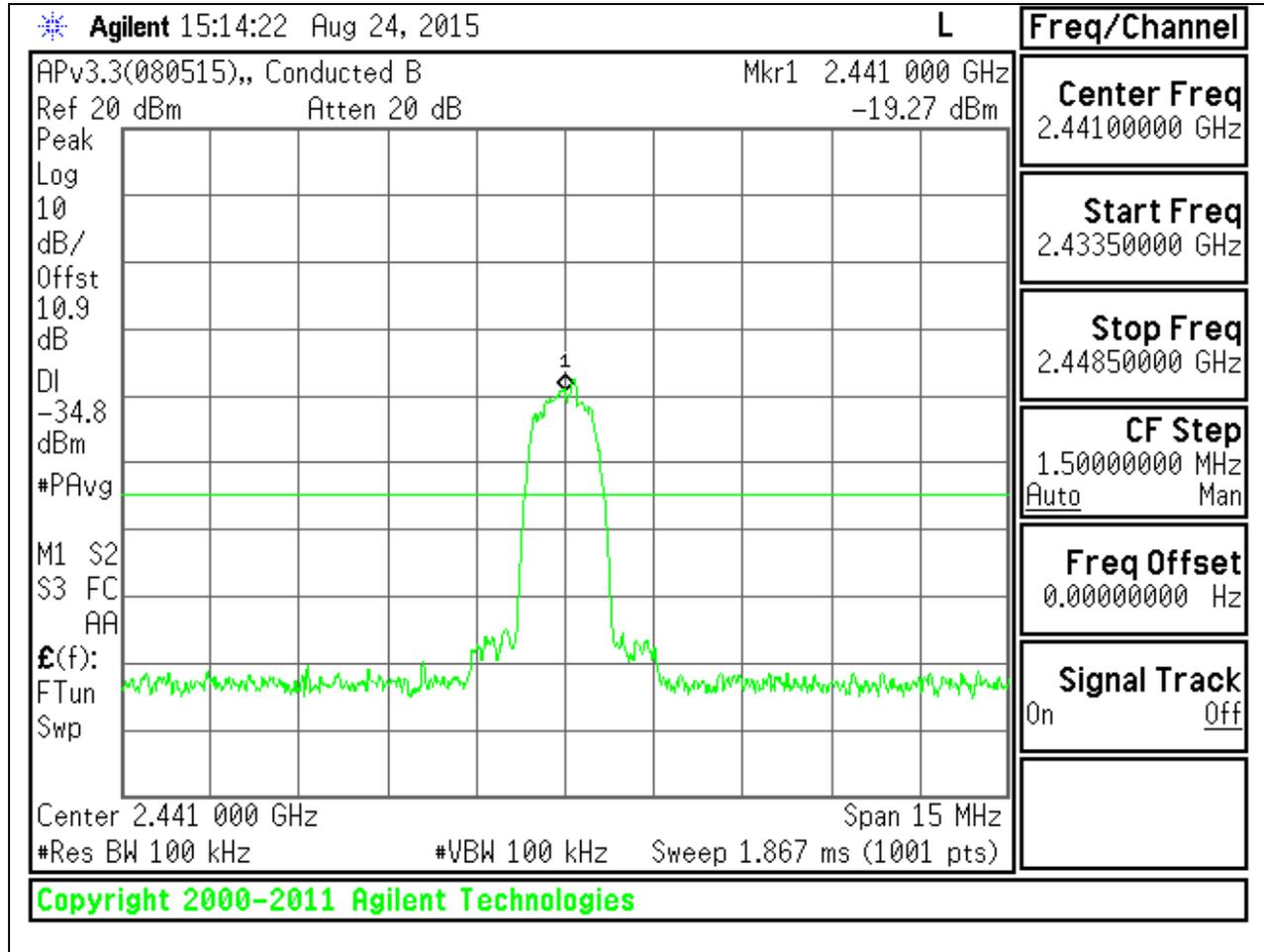


LOW CHANNEL SPURIOUS

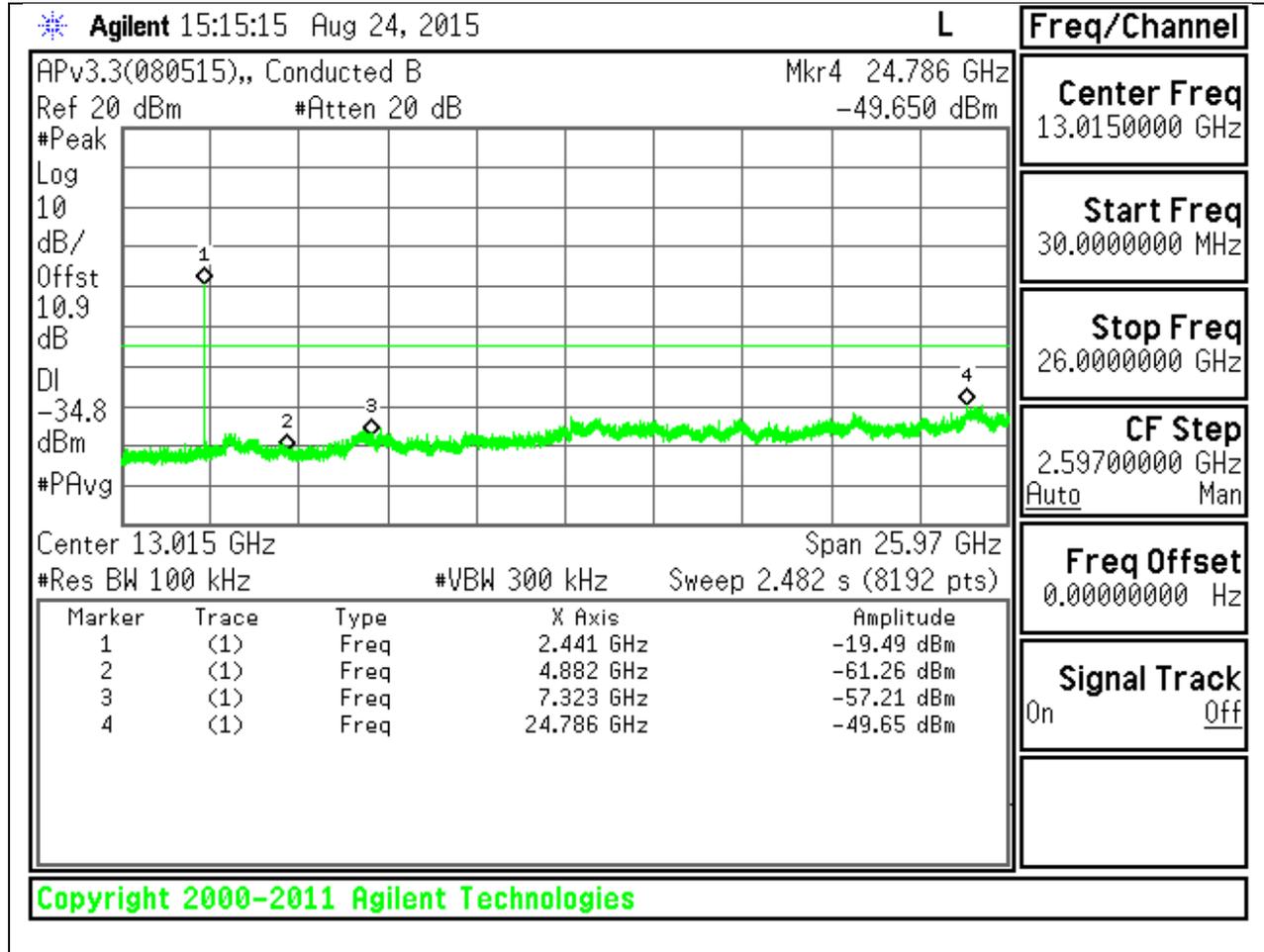


SPURIOUS EMISSIONS, MID CHANNEL

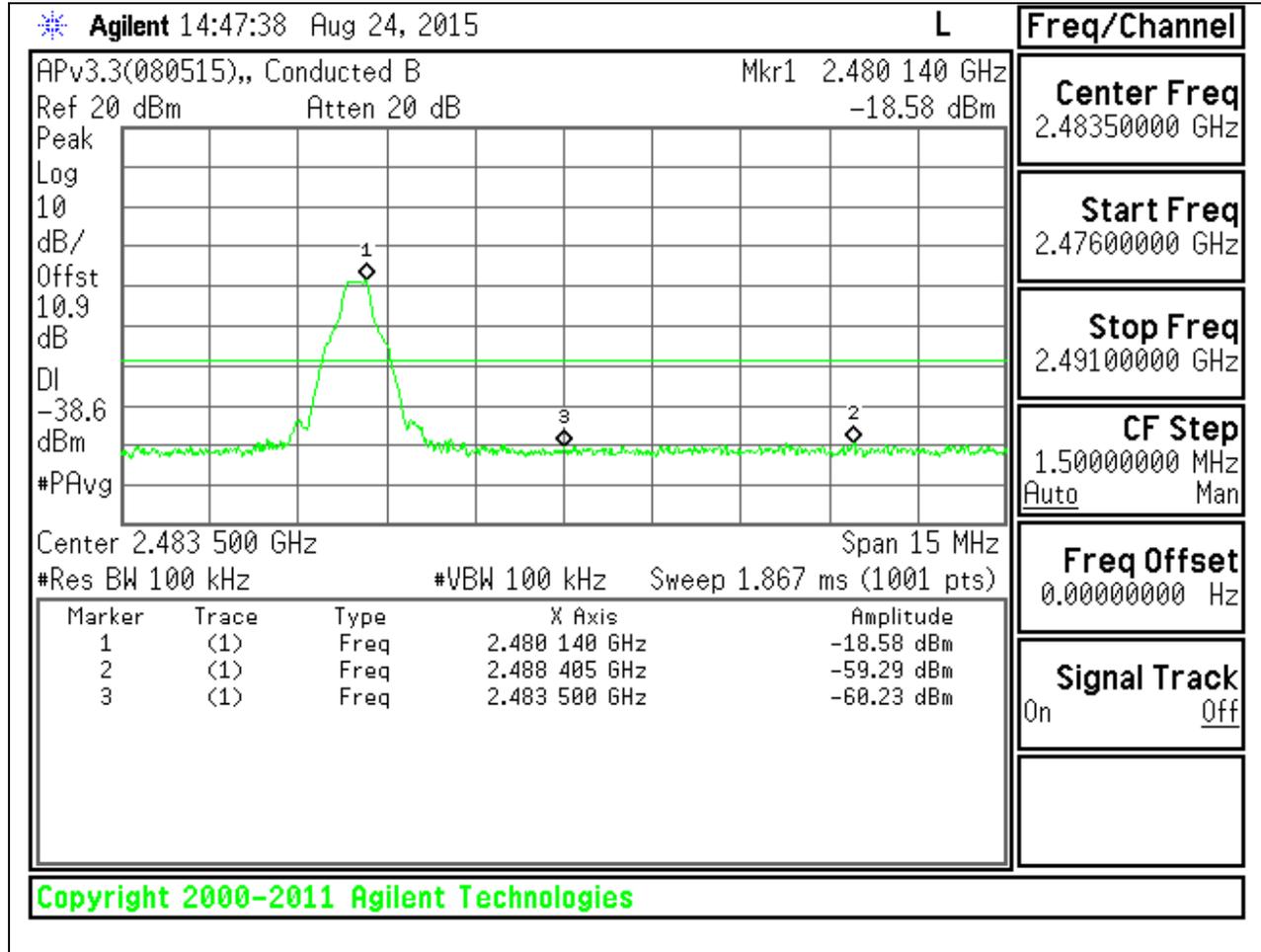
MID CHANNEL BANDEDGE



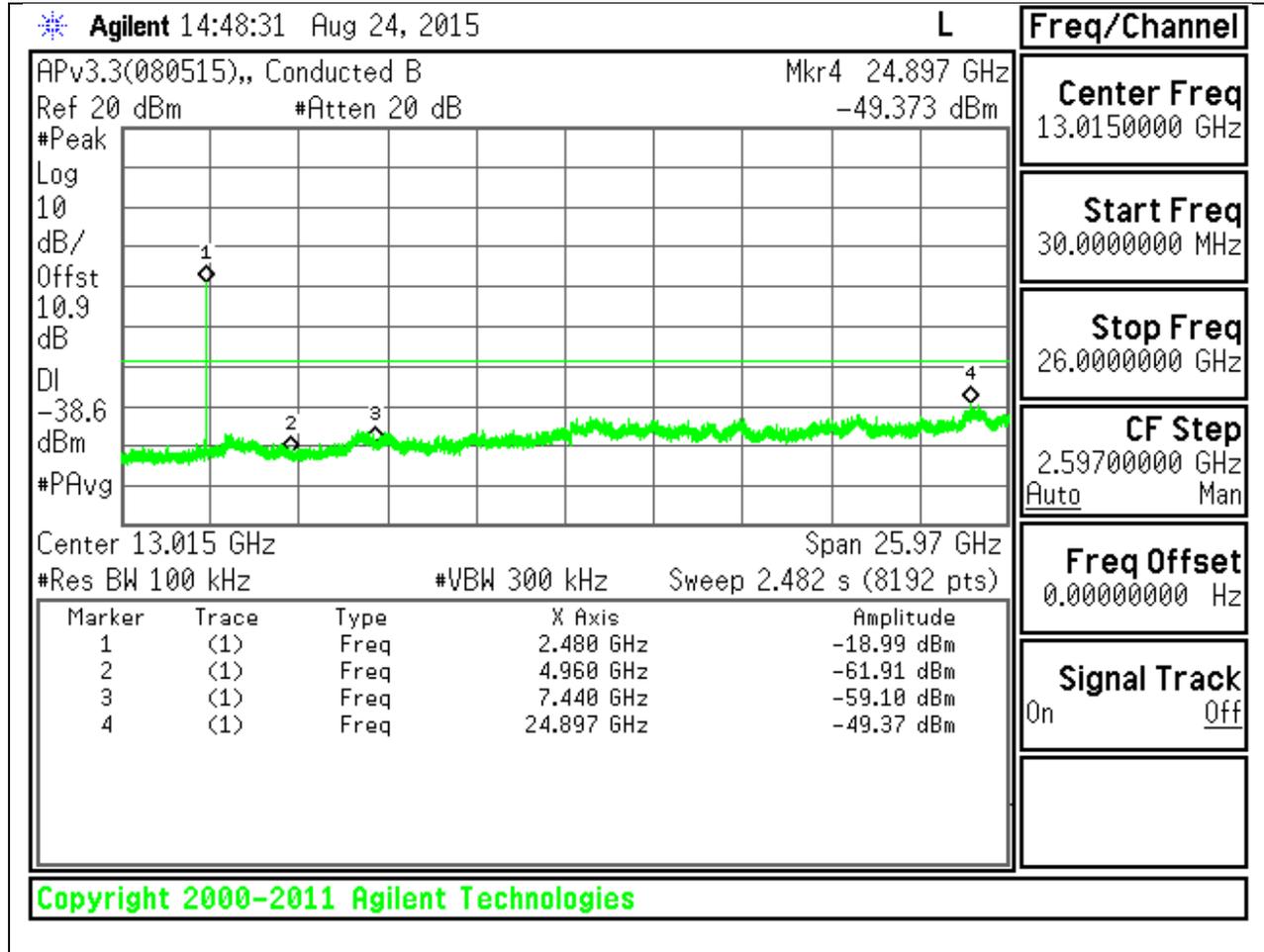
MID CHANNEL SPURIOUS



HIGH CHANNEL BANDEDGE

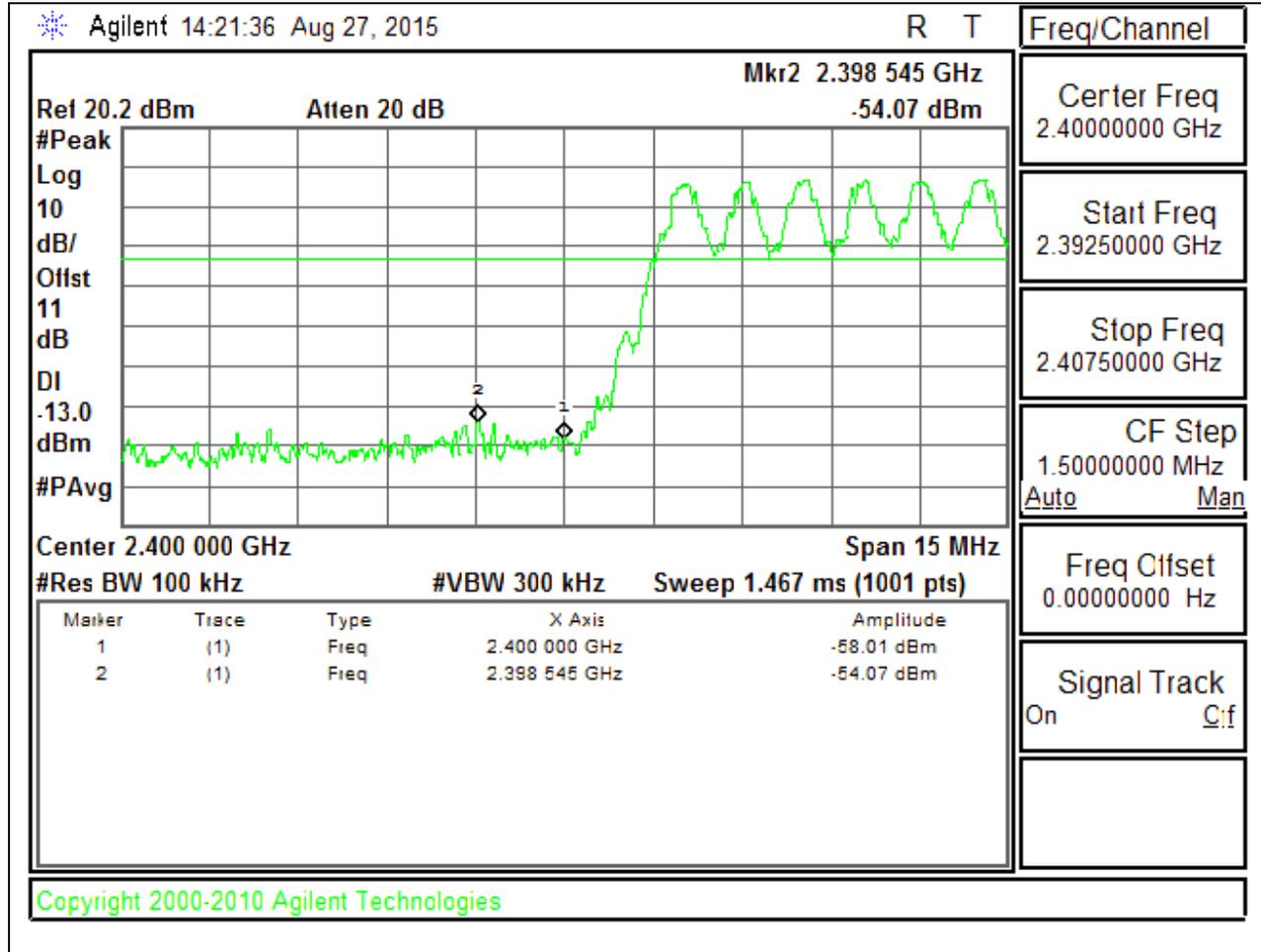


HIGH CHANNEL SPURIOUS

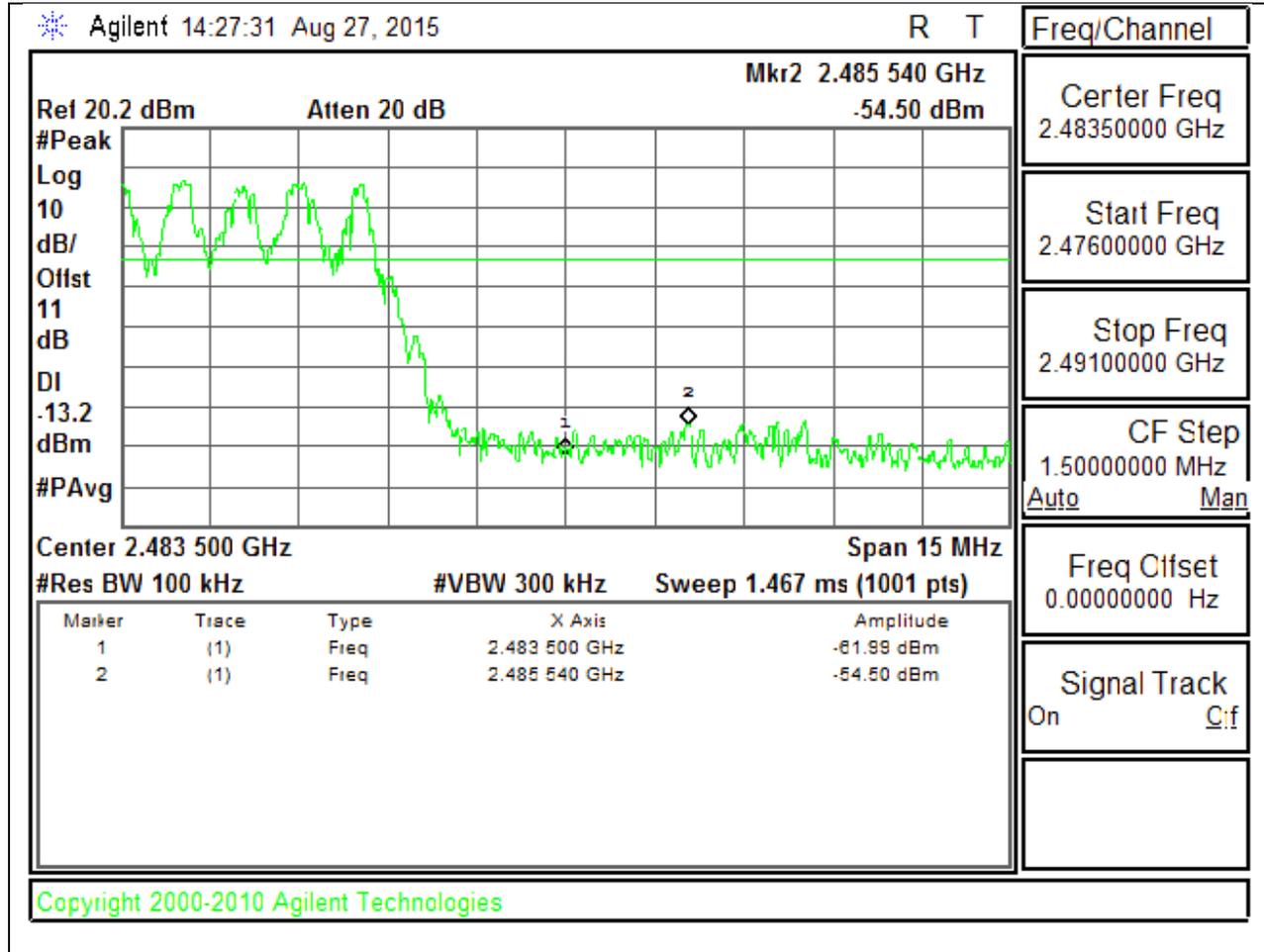


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



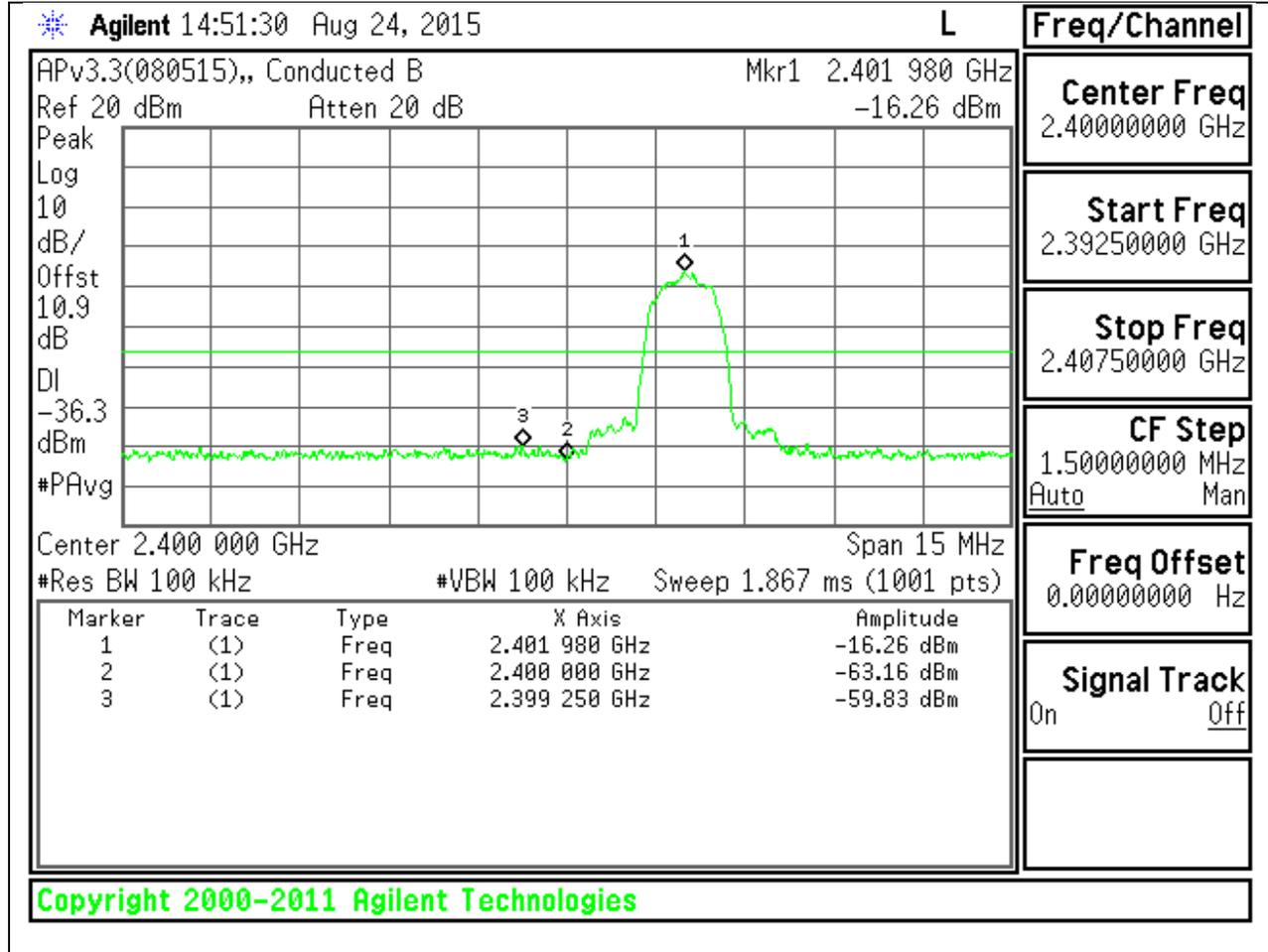
HIGH BANDEGE WITH HOPPING ON



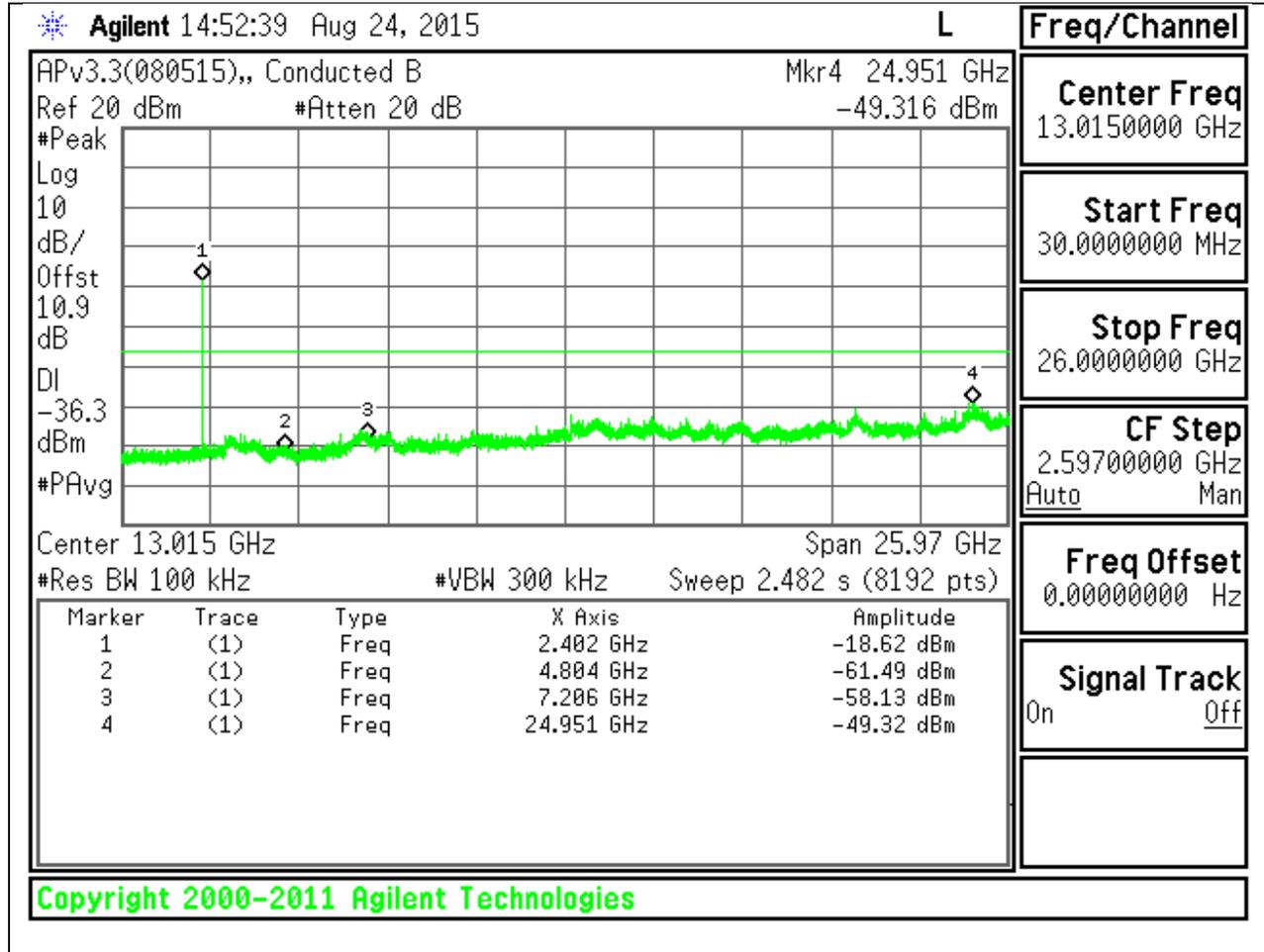
8.7.2. ENHANCED DATA RATE 8PSK MODULATION

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE

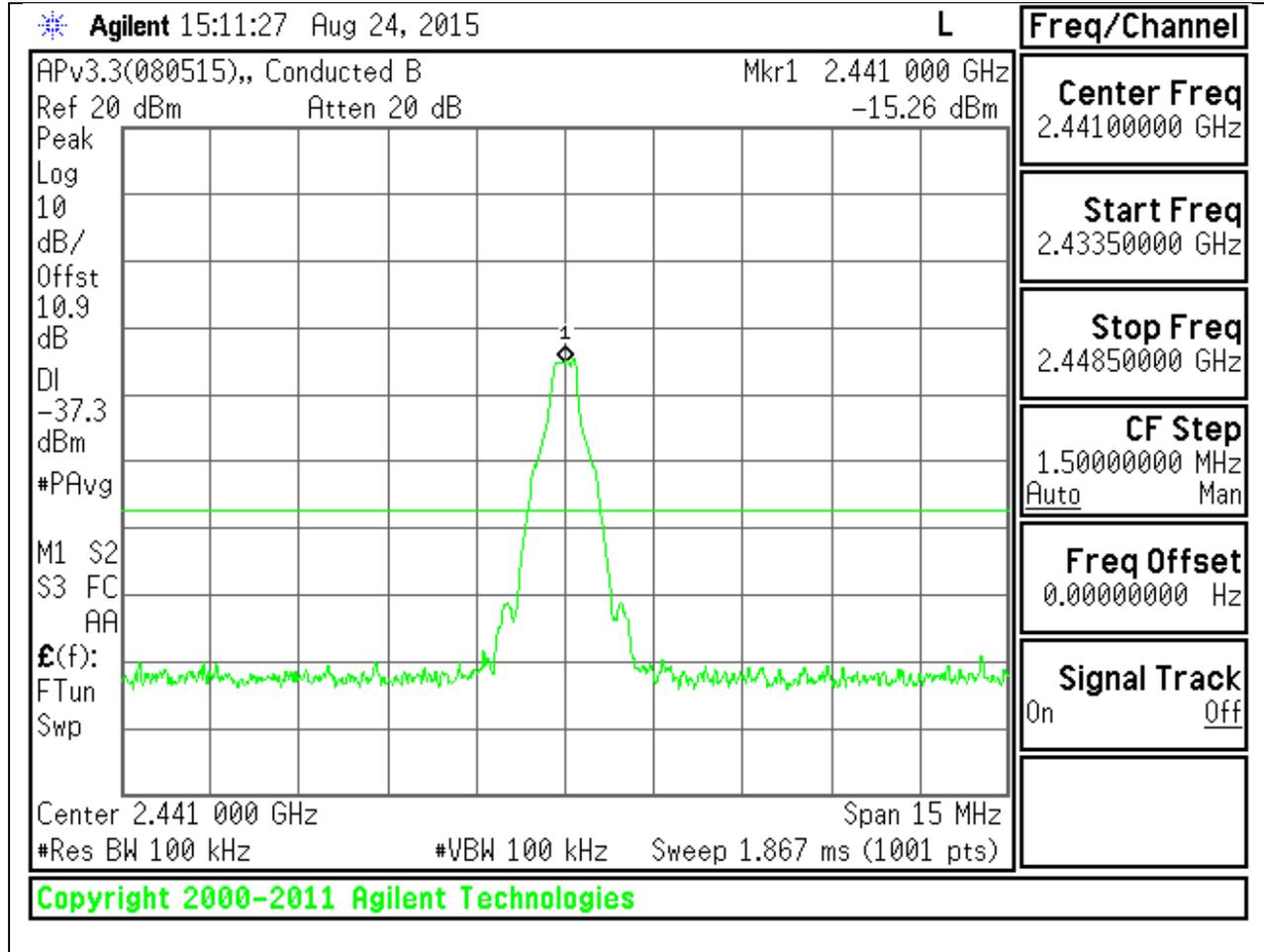


LOW CHANNEL SPURIOUS

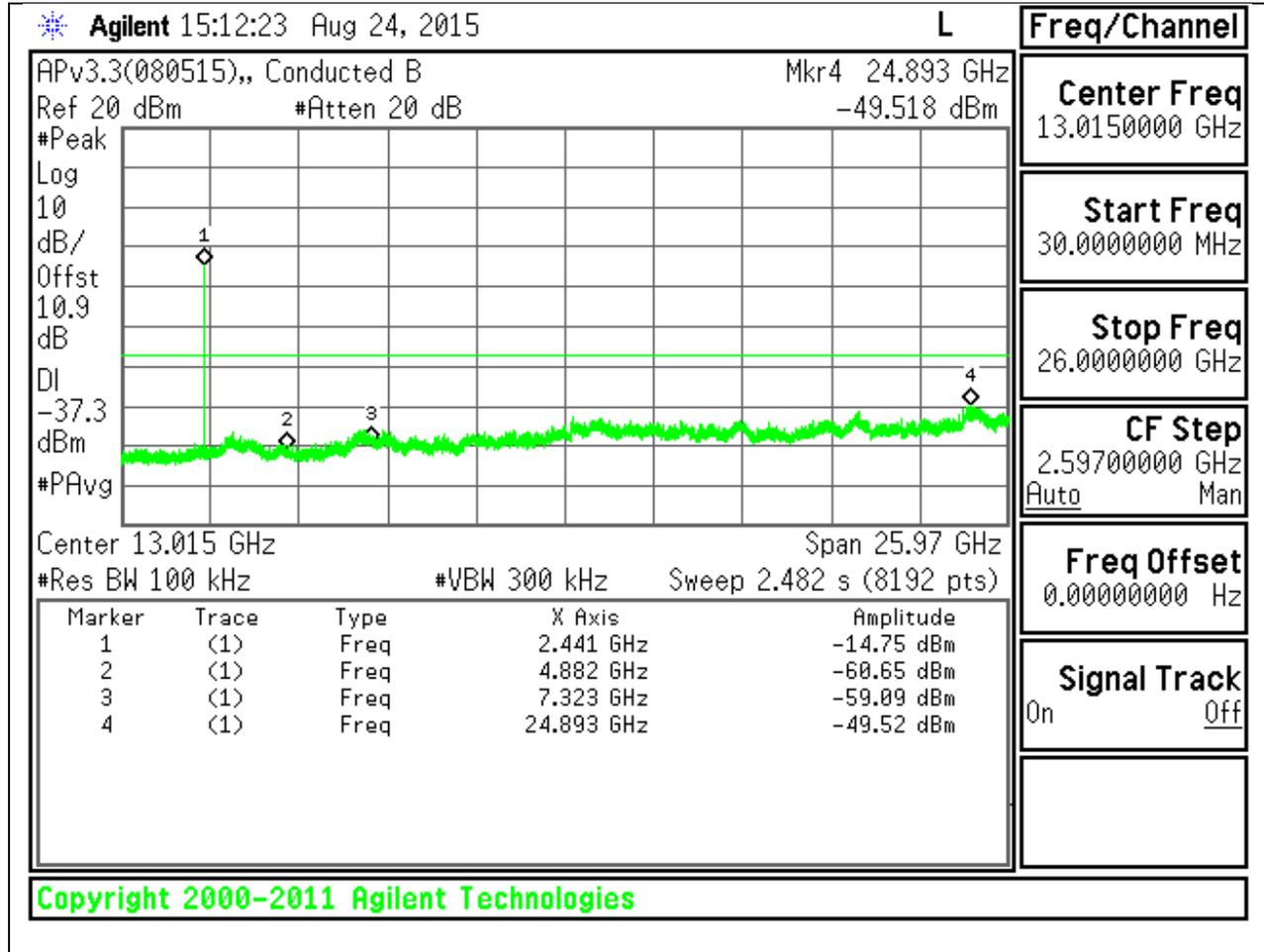


SPURIOUS EMISSIONS, MID CHANNEL

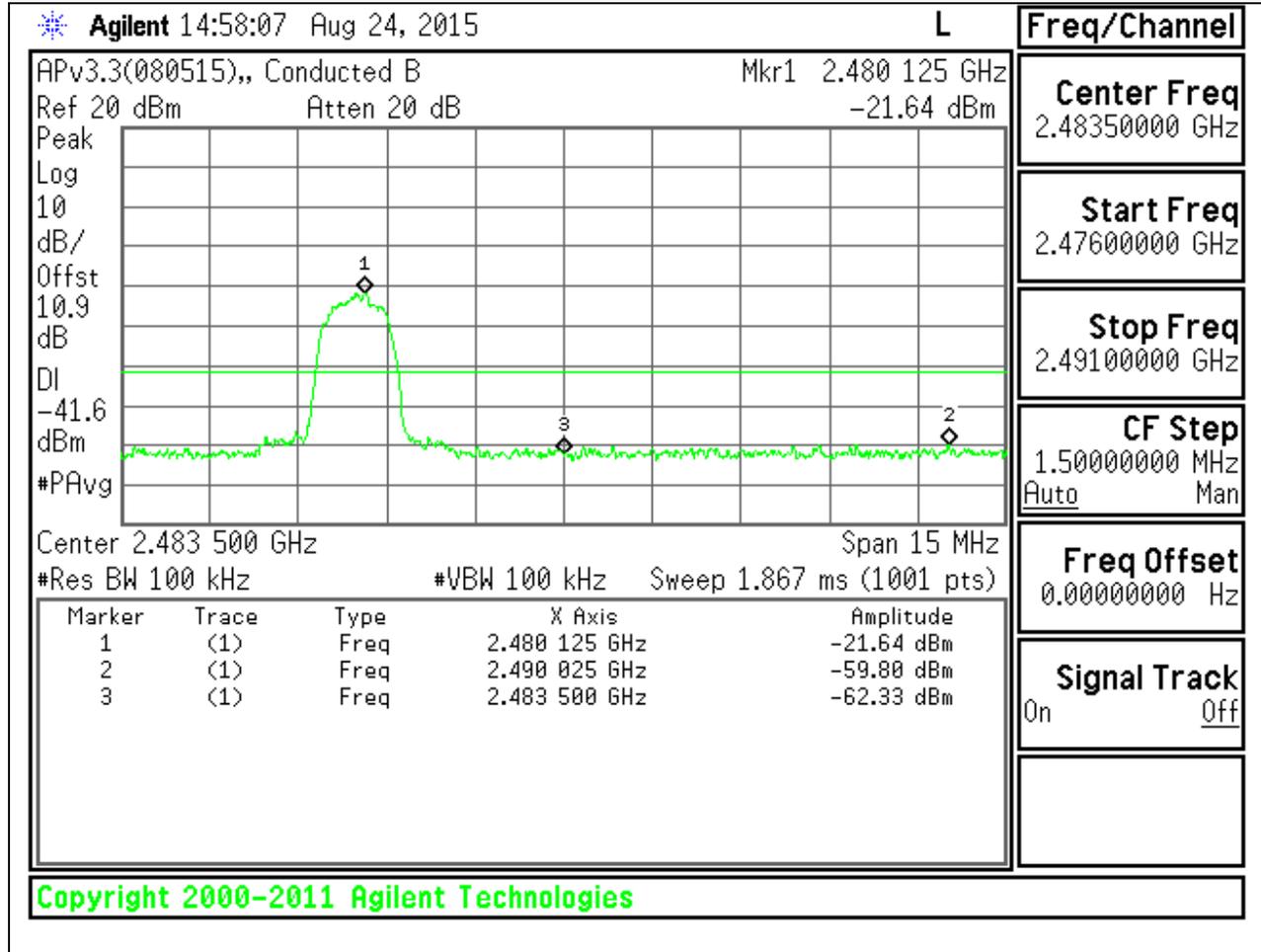
MID CHANNEL BANDEDGE



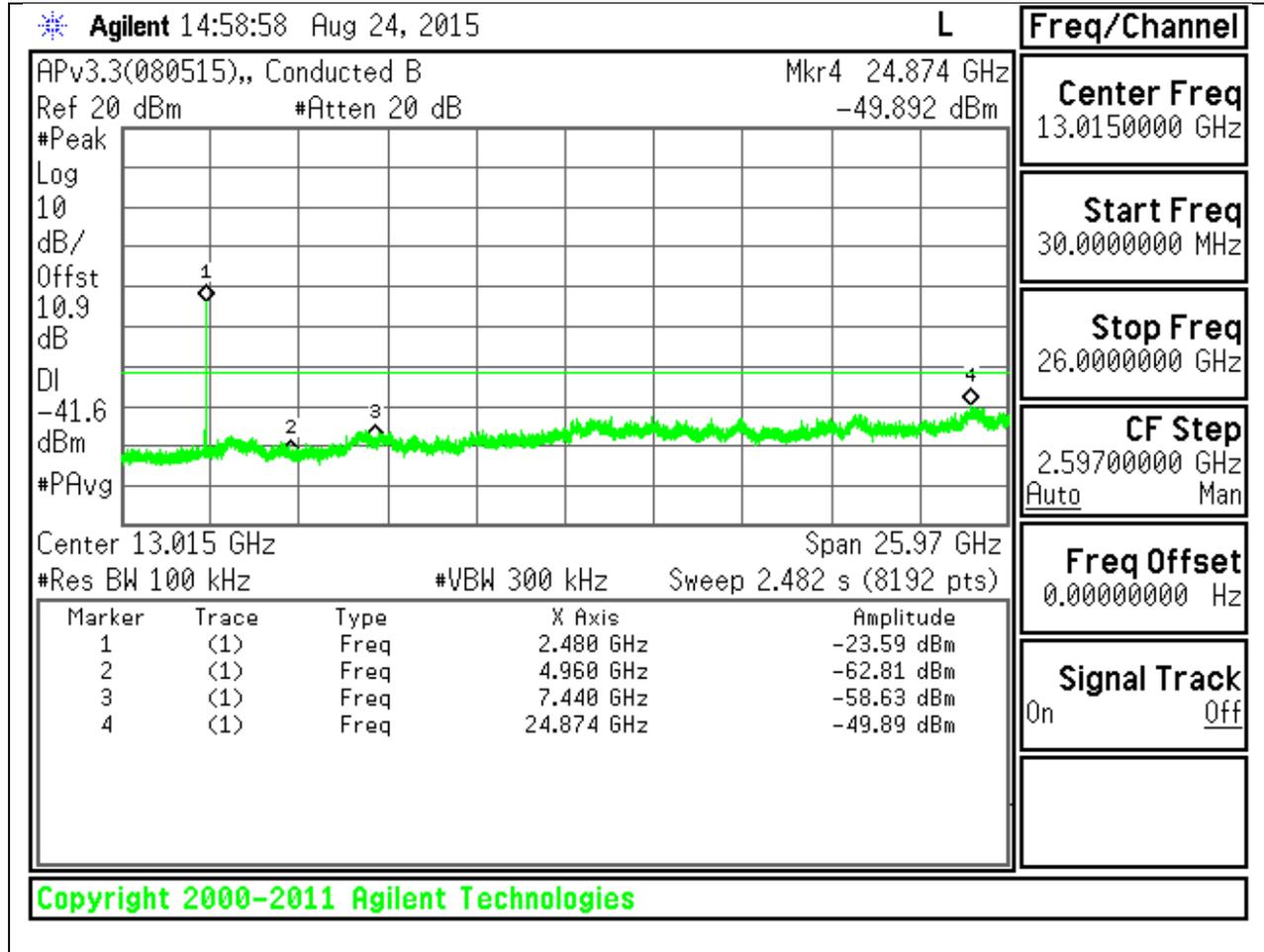
MID CHANNEL SPURIOUS



HIGH CHANNEL BANDEDGE

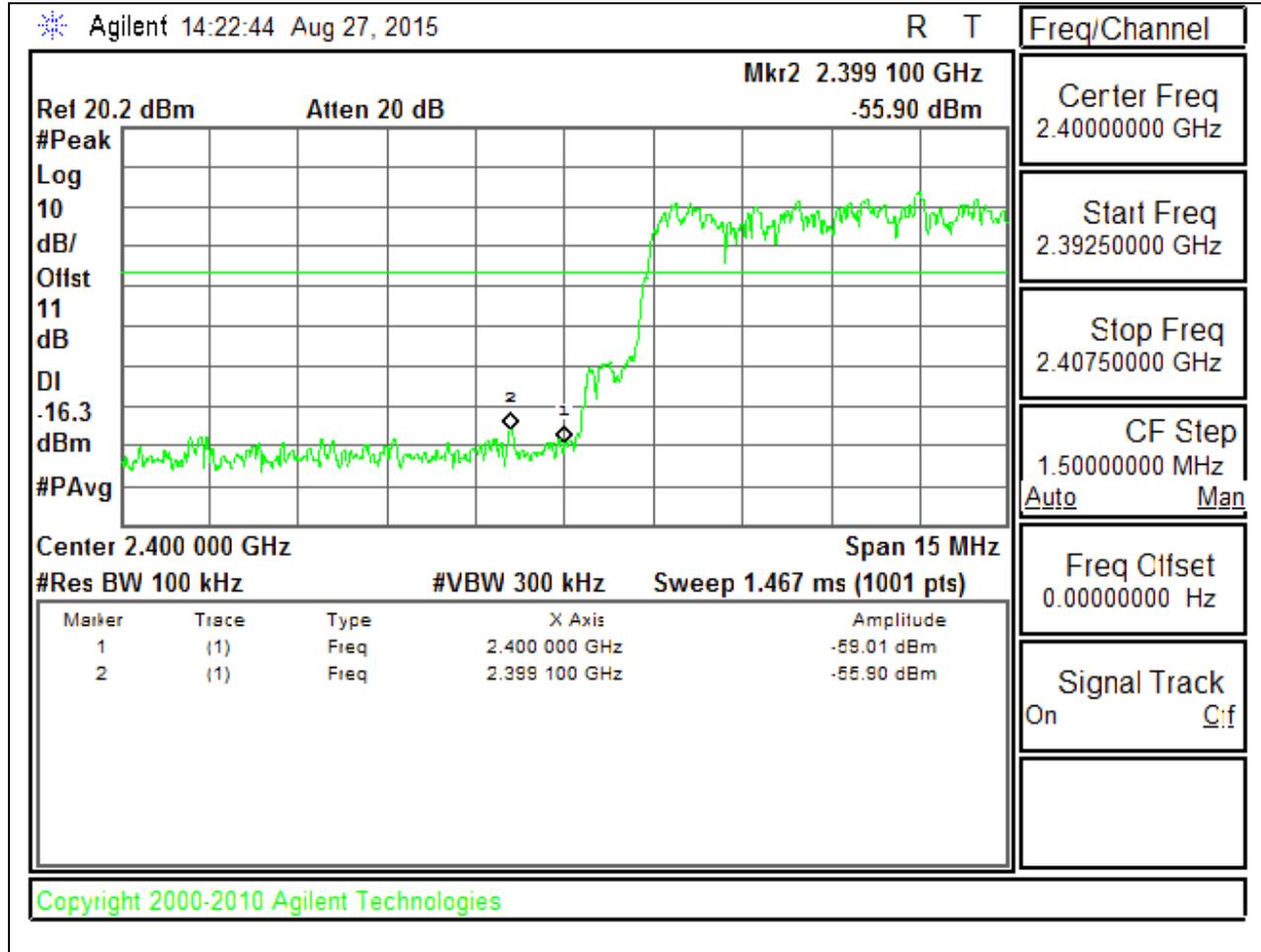


HIGH CHANNEL SPURIOUS

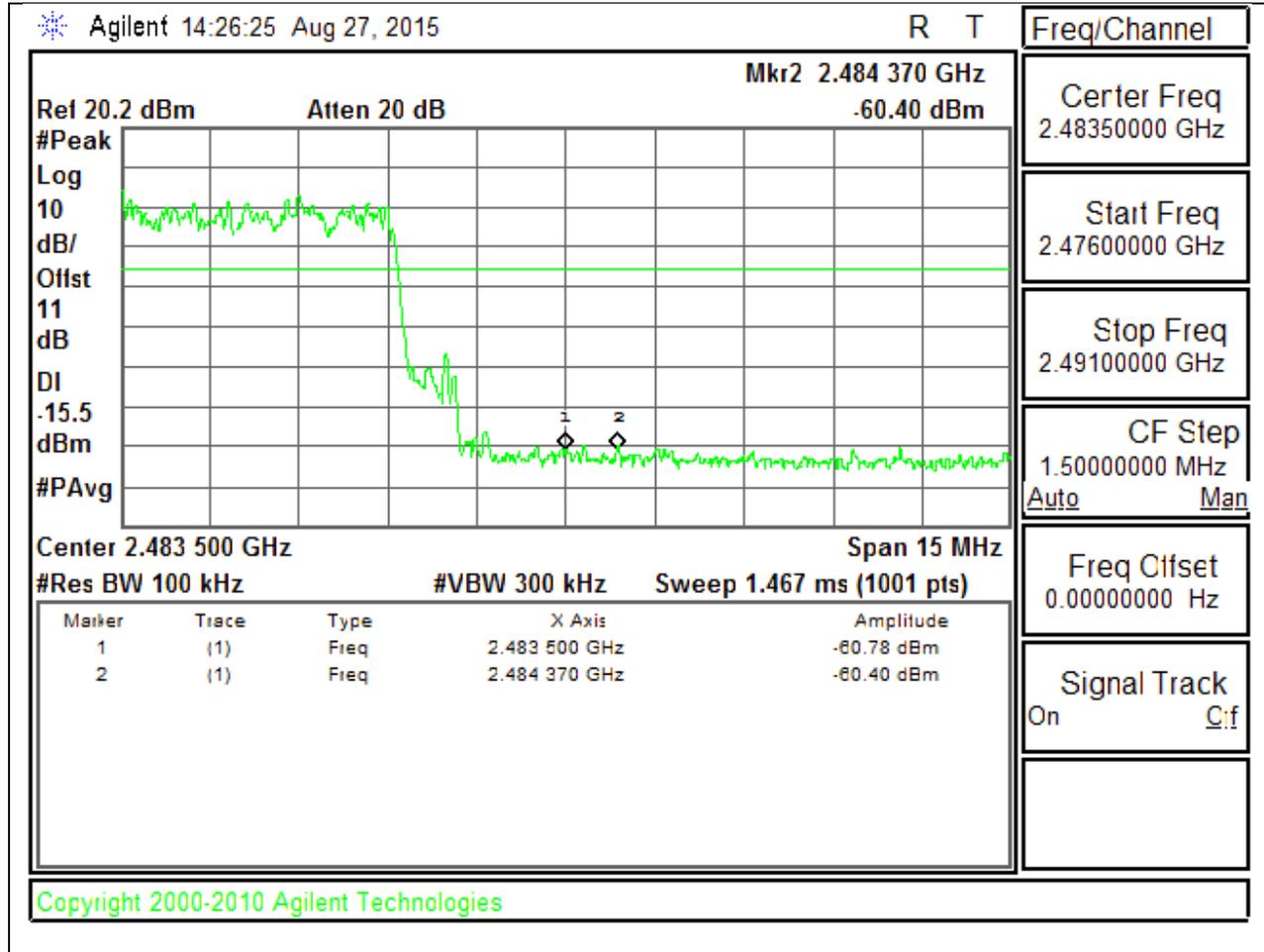


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEGE WITH HOPPING ON



9. RADIATED TEST RESULTS

9.1. 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. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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 band edge measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 1/T (on time) for average measurement.
 $GFSK = 1/T = 1 / 0.0029S = 360Hz.$

The spectrum from 1GHzHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

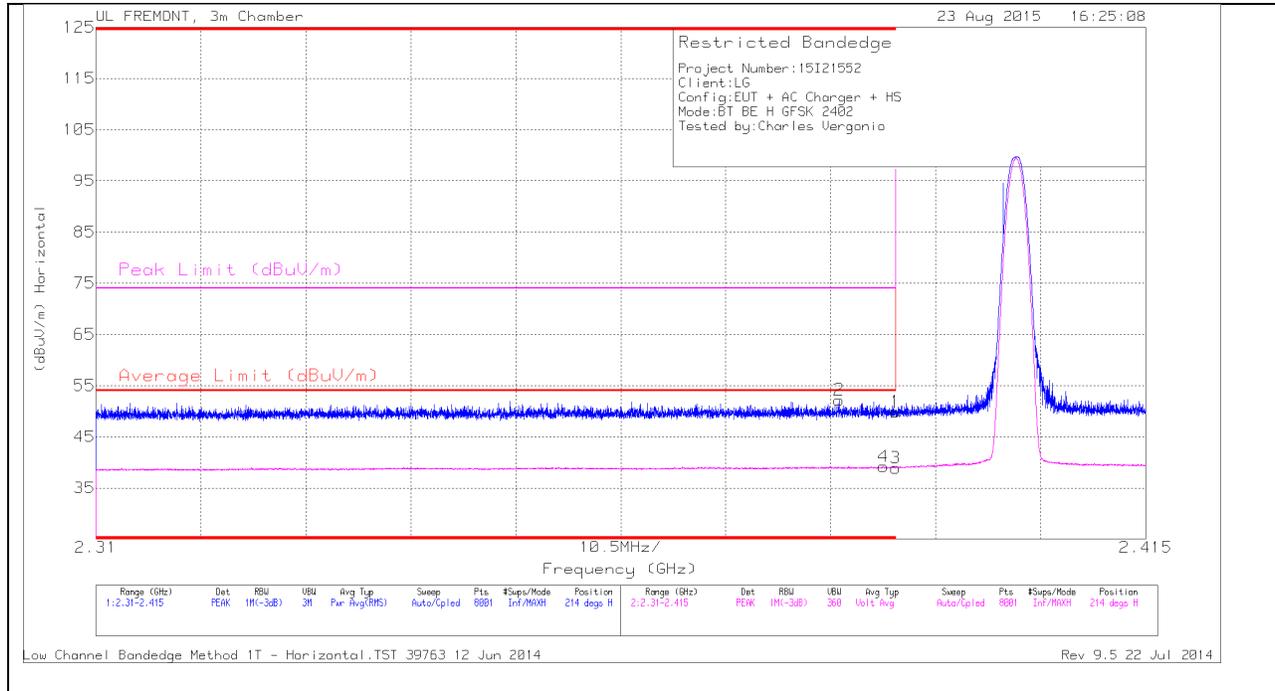
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

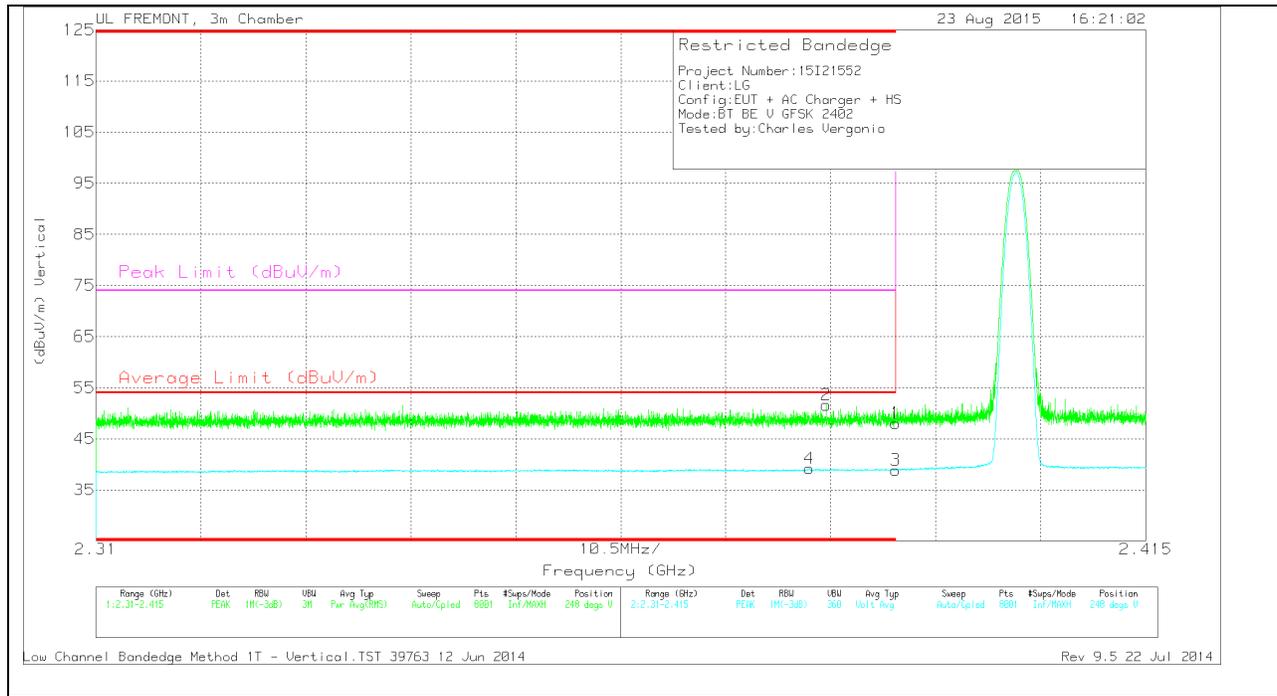
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.26	PK	32	-22.4	49.86	-	-	74	-24.14	214	339	H
2	* 2.384	42.59	PK	32	-22.4	52.19	-	-	74	-21.81	214	339	H
3	* 2.39	29.32	VB1T	32	-22.4	38.92	54	-15.08	-	-	214	339	H
4	* 2.389	29.6	VB1T	32	-22.4	39.2	54	-14.8	-	-	214	339	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

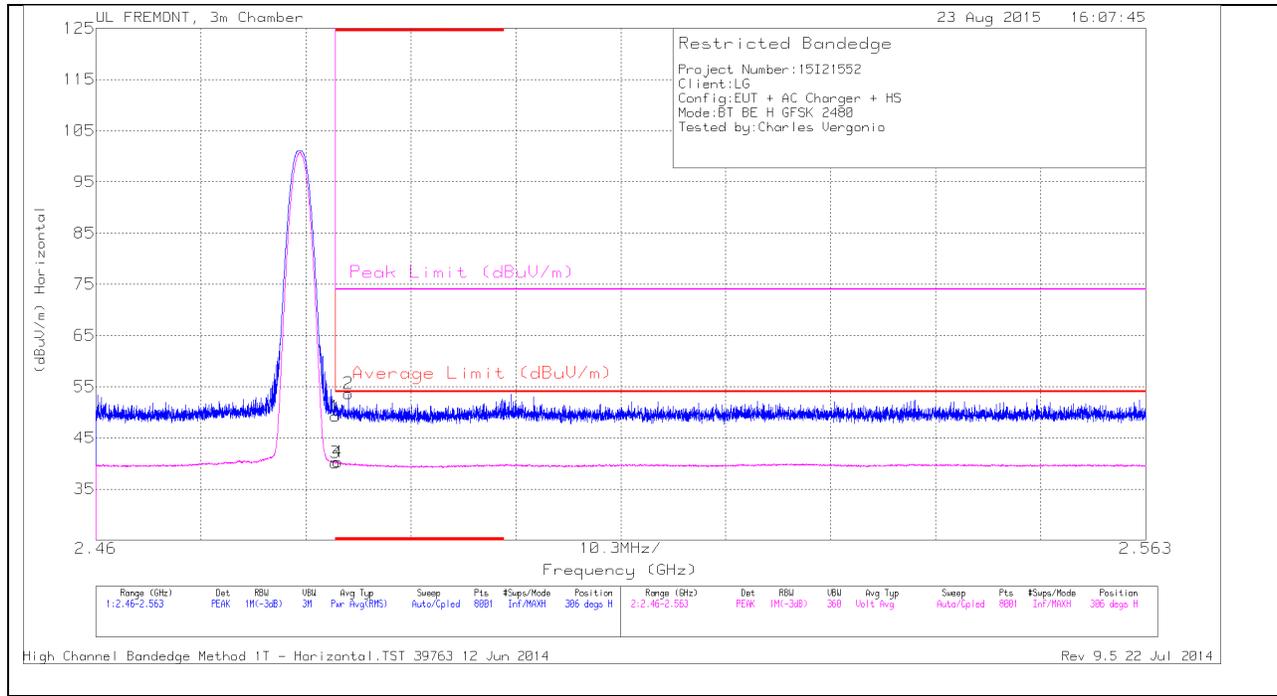
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.43	PK	32	-22.4	48.03	-	-	74	-25.97	248	334	V
2	* 2.383	42.02	PK	32	-22.4	51.62	-	-	74	-22.38	248	334	V
3	* 2.39	29.29	VB1T	32	-22.4	38.89	54	-15.11	-	-	248	334	V
4	* 2.381	29.58	VB1T	32	-22.4	39.18	54	-14.82	-	-	248	334	V

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

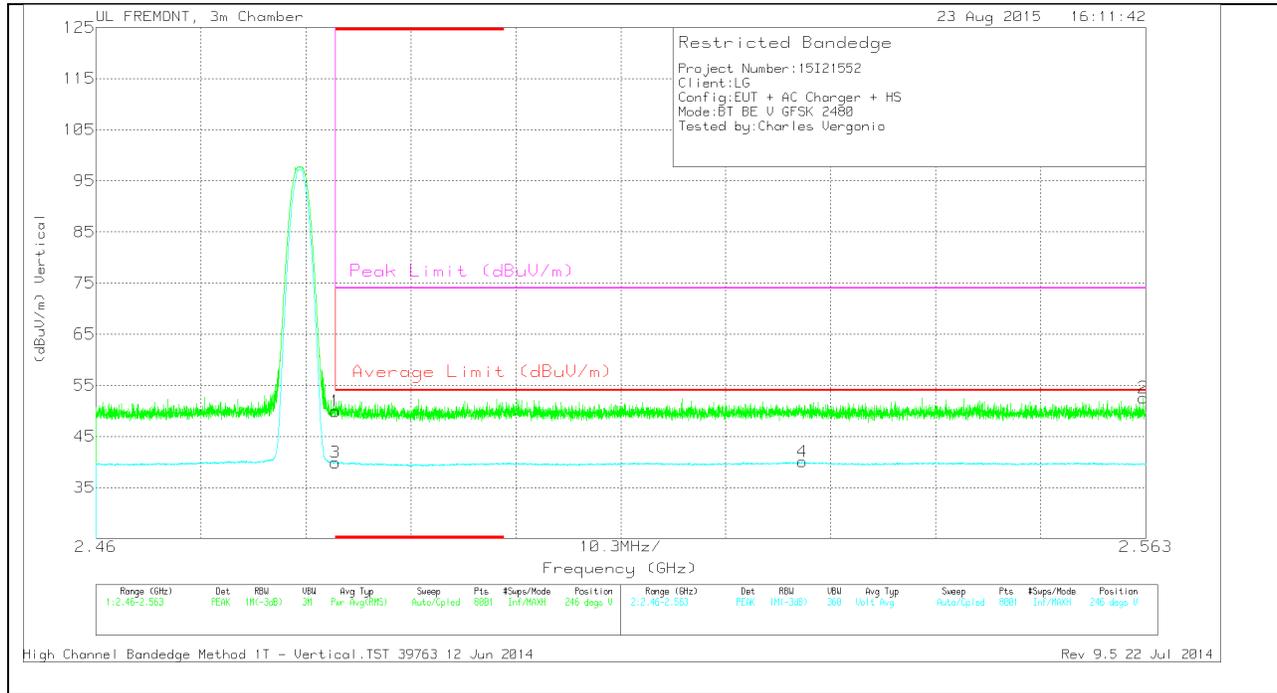
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.03	PK	32.3	-22.1	49.23	-	-	74	-24.77	306	275	H
2	* 2.485	43.45	PK	32.3	-22.1	53.65	-	-	74	-20.35	306	275	H
3	* 2.484	29.93	VB1T	32.3	-22.1	40.13	54	-13.87	-	-	306	275	H
4	* 2.484	30.11	VB1T	32.3	-22.1	40.31	54	-13.69	-	-	306	275	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/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	39.71	PK	32.3	-22.1	49.91	-	-	74	-24.09	246	276	V
3	* 2.484	29.7	VB1T	32.3	-22.1	39.9	54	-14.1	-	-	246	276	V
4	2.529	29.63	VB1T	32.4	-22	40.03	54	-13.97	-	-	246	276	V
2	2.563	42.14	PK	32.4	-22	52.54	-	-	74	-21.46	246	276	V

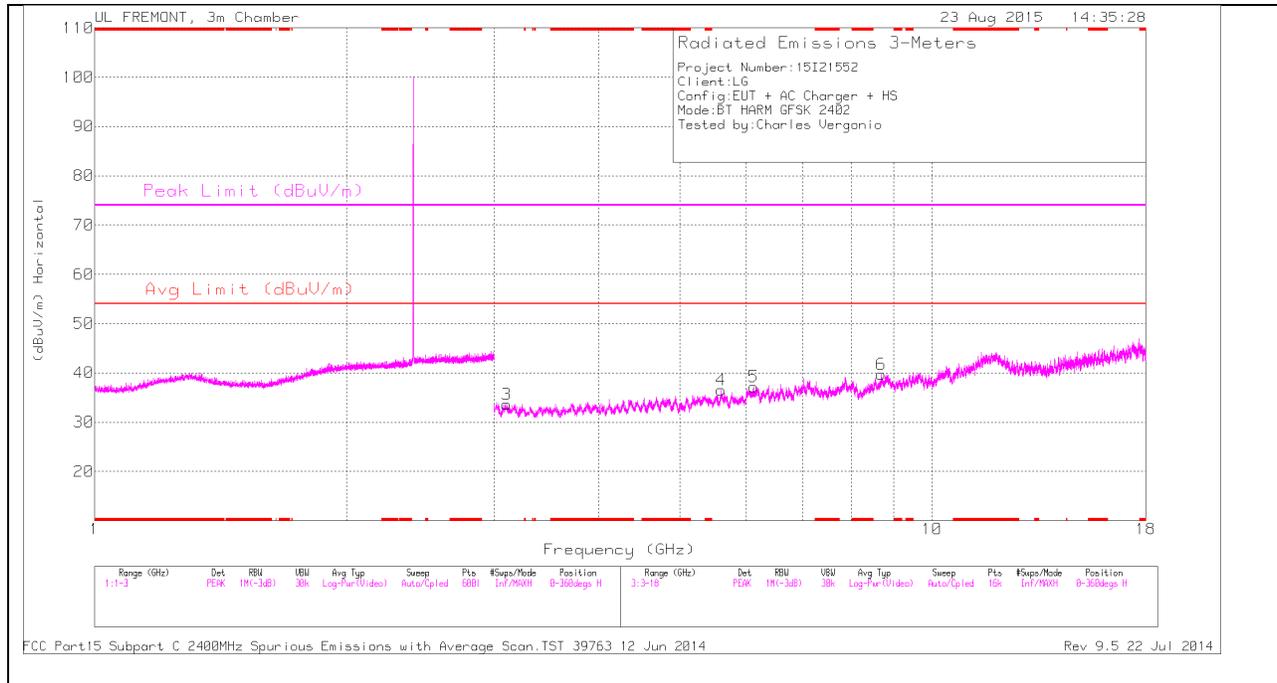
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

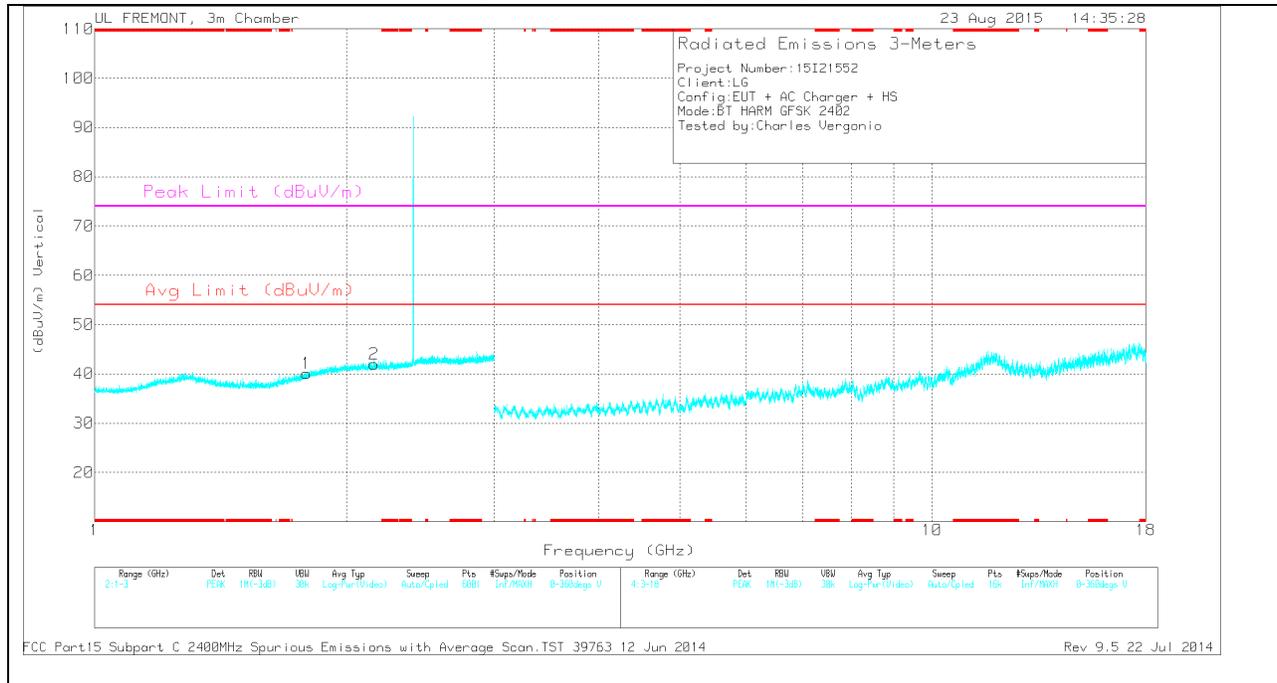
HARMONICS AND SPURIOUS EMISSIONS

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.79	32.66	PK	30.1	-22.7	40.06	-	-	-	-	0-360	200	V
2	2.158	32.57	PK	31.5	-22.1	41.97	-	-	-	-	0-360	100	V
3	3.104	31.64	PK	32.8	-30.8	33.64	-	-	-	-	0-360	200	H
4	5.6	30.38	PK	34.6	-28.4	36.58	-	-	-	-	0-360	100	H
5	6.119	30.33	PK	35.2	-28.3	37.23	-	-	-	-	0-360	200	H
6	8.699	30.09	PK	35.9	-26.3	39.69	-	-	-	-	0-360	200	H

PK - Peak detector

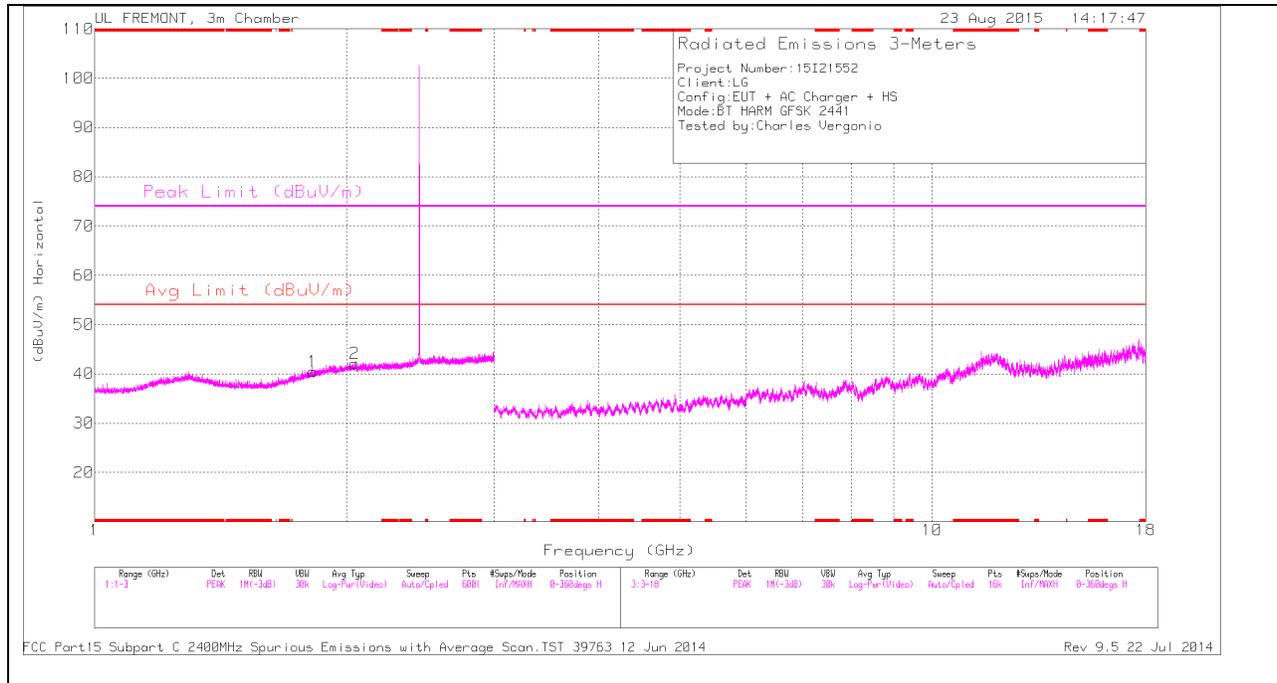
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.789	42.36	PK3	30.1	-22.7	49.76	-	-	-	-	360	200	V
1.79	29.63	VB1T	30.1	-22.7	37.03	-	-	-	-	360	200	V
2.157	43.05	PK3	31.5	-22.2	52.35	-	-	-	-	360	100	V
2.157	29.49	VB1T	31.5	-22.2	38.79	-	-	-	-	360	100	V
3.102	28.34	VB1T	32.8	-30.9	30.24	-	-	-	-	360	200	H
3.103	40.66	PK3	32.8	-30.9	42.56	-	-	-	-	360	200	H
5.6	26.83	VB1T	34.6	-28.4	33.03	-	-	-	-	360	100	H
5.601	39.28	PK3	34.6	-28.4	45.48	-	-	-	-	360	100	H
6.12	39.18	PK3	35.2	-28.3	46.08	-	-	-	-	360	200	H
6.121	26.38	VB1T	35.2	-28.3	33.28	-	-	-	-	360	200	H
8.7	37.66	PK3	35.9	-26.3	47.26	-	-	-	-	360	200	H
8.7	25.25	VB1T	35.9	-26.2	34.95	-	-	-	-	360	200	H

PK3 - FHSS Method: Maximum Peak

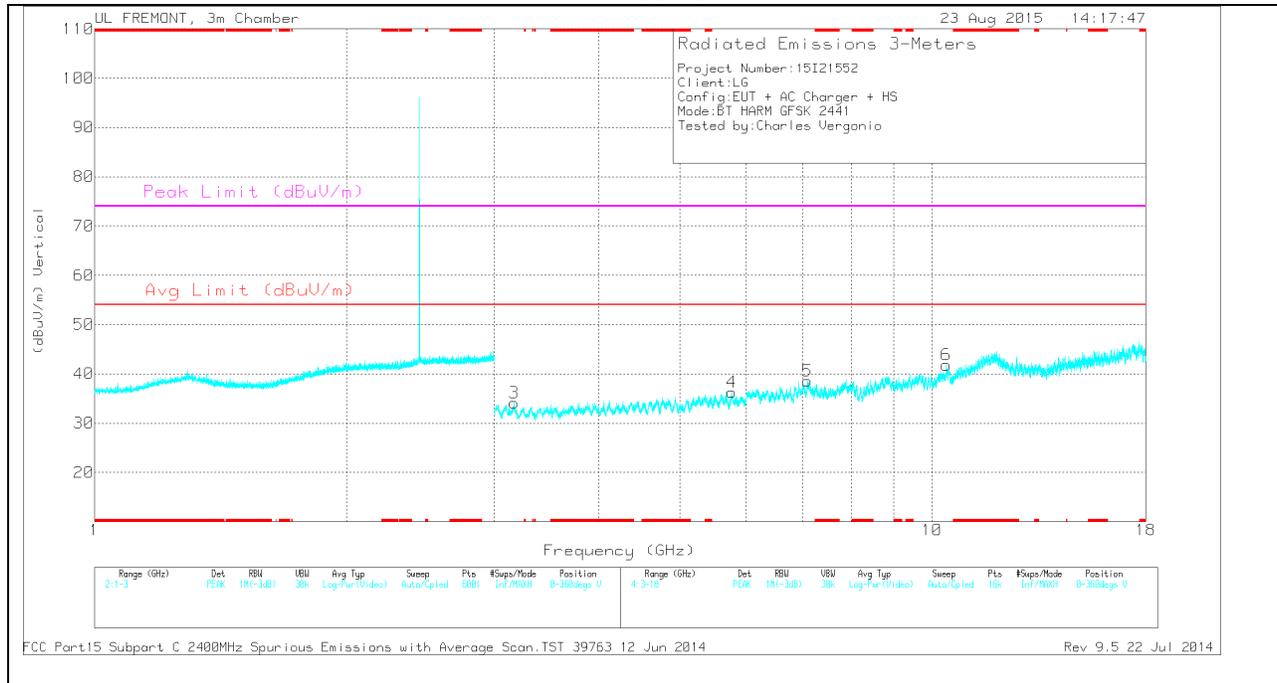
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.823	32.74	PK	30.4	-22.7	40.44	-	-	-	-	0-360	100	H
2	2.046	33.18	PK	31.5	-22.5	42.18	-	-	-	-	0-360	100	H
3	3.169	31.86	PK	32.7	-30.4	34.16	-	-	-	-	0-360	200	V
4	5.769	30.94	PK	34.8	-29.5	36.24	-	-	-	-	0-360	200	V
5	7.102	29.84	PK	35.6	-26.9	38.54	-	-	-	-	0-360	200	V
6	10.405	28.31	PK	37.3	-23.8	41.81	-	-	-	-	0-360	200	V

PK - Peak detector

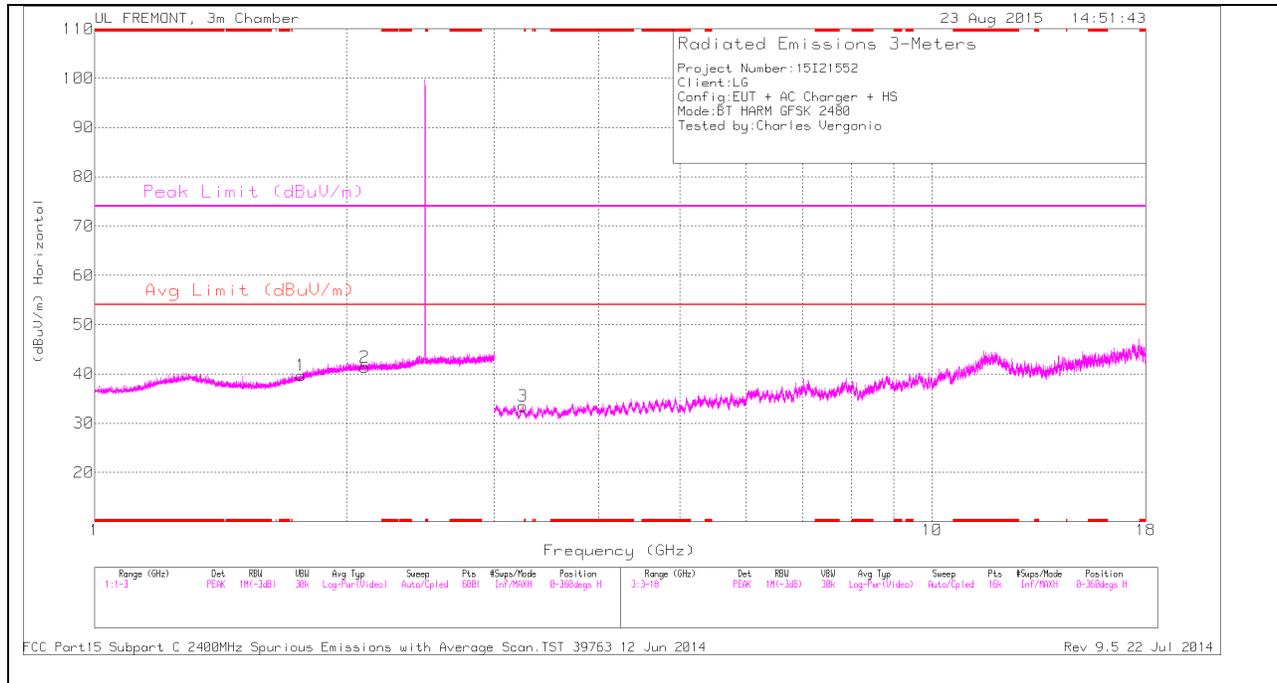
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.824	43.17	PK3	30.4	-22.7	50.87	-	-	-	-	360	100	H
1.824	29.55	VB1T	30.4	-22.7	37.25	-	-	-	-	360	100	H
2.046	42.24	PK3	31.5	-22.5	51.24	-	-	-	-	360	100	H
2.046	29.53	VB1T	31.5	-22.5	38.53	-	-	-	-	360	100	H
3.168	28.36	VB1T	32.7	-30.4	30.66	-	-	-	-	360	200	V
3.169	41.03	PK3	32.7	-30.4	43.33	-	-	-	-	360	200	V
5.767	27.99	VB1T	34.8	-29.5	33.29	-	-	-	-	360	200	V
5.768	40.94	PK3	34.8	-29.5	46.24	-	-	-	-	360	200	V
7.104	38.73	PK3	35.6	-26.9	47.43	-	-	-	-	360	200	V
7.104	26.12	VB1T	35.6	-26.9	34.82	-	-	-	-	360	200	V
10.405	36.54	PK3	37.3	-23.7	50.14	-	-	-	-	360	200	V
10.406	23.71	VB1T	37.3	-23.7	37.31	-	-	-	-	360	200	V

PK3 - FHSS Method: Maximum Peak

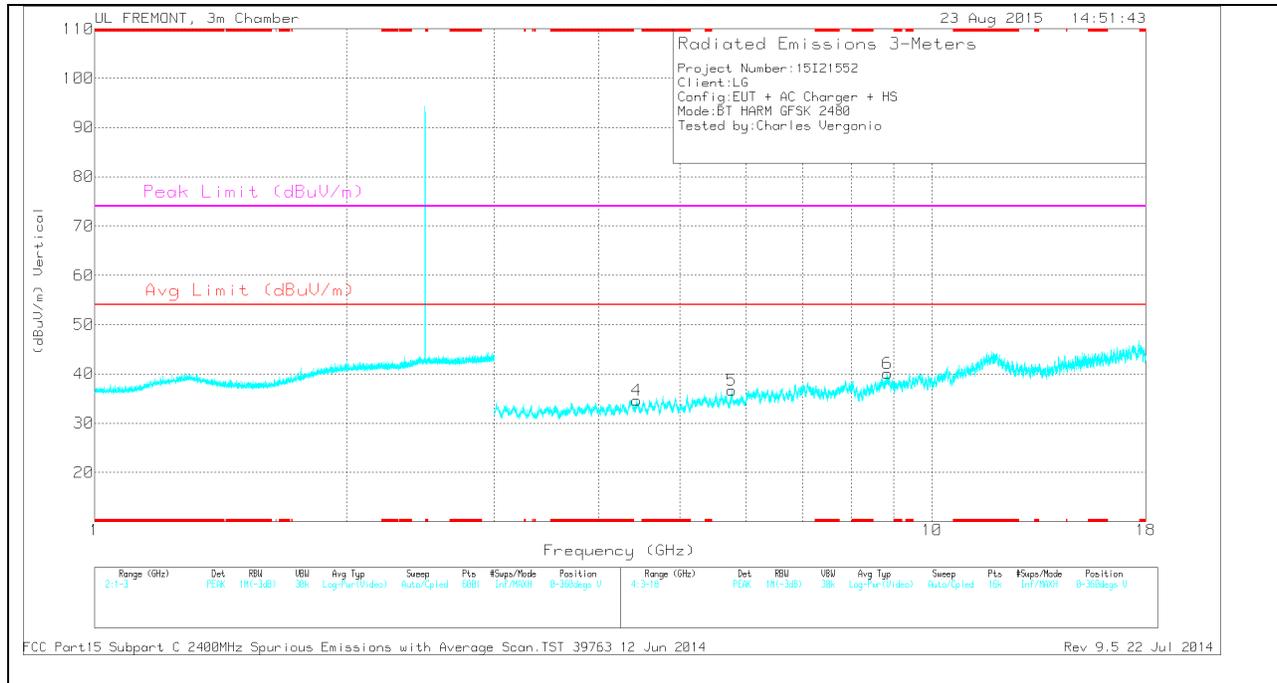
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.762	32.7	PK	29.7	-22.7	39.7	-	-	-	-	0-360	200	H
2	2.1	32.21	PK	31.5	-22.3	41.41	-	-	-	-	0-360	200	H
3	3.247	31.82	PK	32.6	-30.9	33.52	-	-	-	-	0-360	200	H
4	4.44	30.84	PK	33.7	-29.9	34.64	-	-	-	-	0-360	100	V
5	5.765	31.38	PK	34.8	-29.5	36.68	-	-	-	-	0-360	100	V
6	8.847	29.13	PK	35.9	-24.9	40.13	-	-	-	-	0-360	200	V

PK - Peak detector

Radiated Emissions

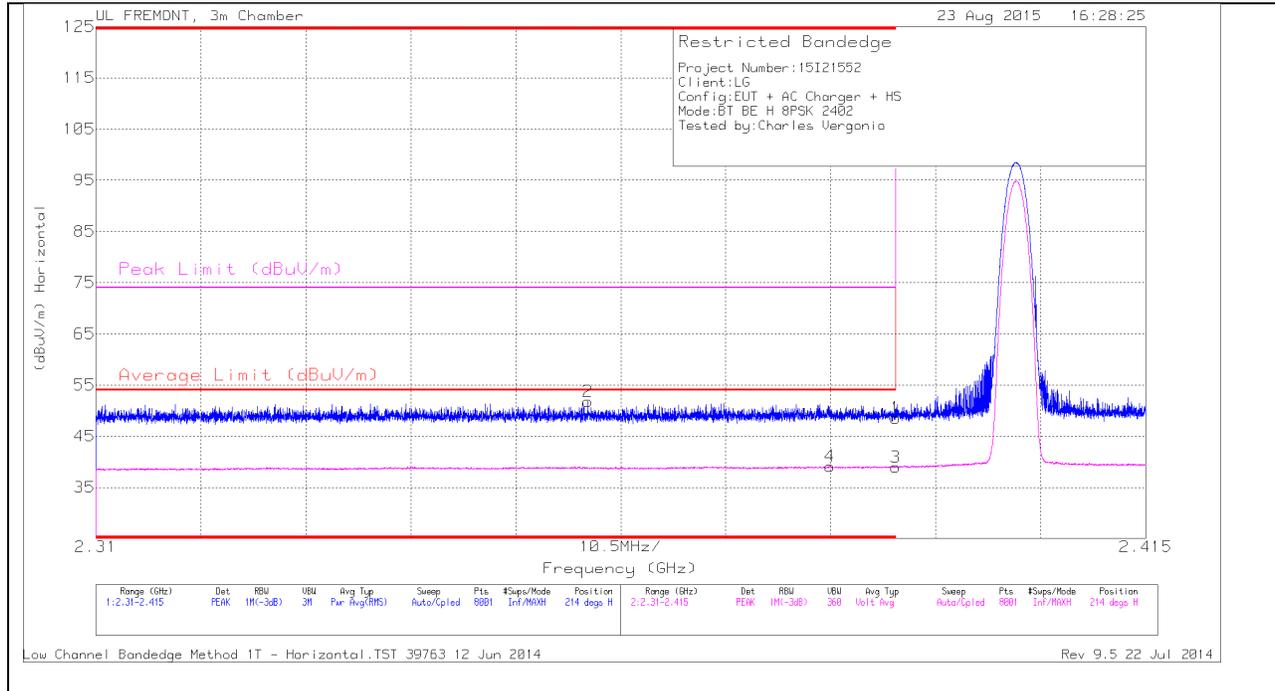
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.762	42.48	PK3	29.8	-22.7	49.58	-	-	-	-	360	200	H
1.762	29.59	VB1T	29.8	-22.7	36.69	-	-	-	-	360	200	H
2.099	42.92	PK3	31.5	-22.3	52.12	-	-	-	-	360	200	H
2.099	29.37	VB1T	31.5	-22.3	38.57	-	-	-	-	360	200	H
3.246	28.36	VB1T	32.6	-30.9	30.06	-	-	-	-	360	200	H
3.247	41.35	PK3	32.6	-30.9	43.05	-	-	-	-	360	200	H
4.438	39.69	PK3	33.7	-29.9	43.49	-	-	-	-	360	100	V
4.439	27.34	VB1T	33.7	-29.9	31.14	-	-	-	-	360	100	V
5.763	28.01	VB1T	34.8	-29.6	33.21	-	-	-	-	360	100	V
5.767	41.13	PK3	34.8	-29.5	46.43	-	-	-	-	360	100	V
8.845	37.33	PK3	35.9	-24.9	48.33	-	-	-	-	360	200	V
8.849	24.38	VB1T	35.9	-25	35.28	-	-	-	-	360	200	V

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

9.2.2. ENHANCED DATA RATE 8PSK MODULATION RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

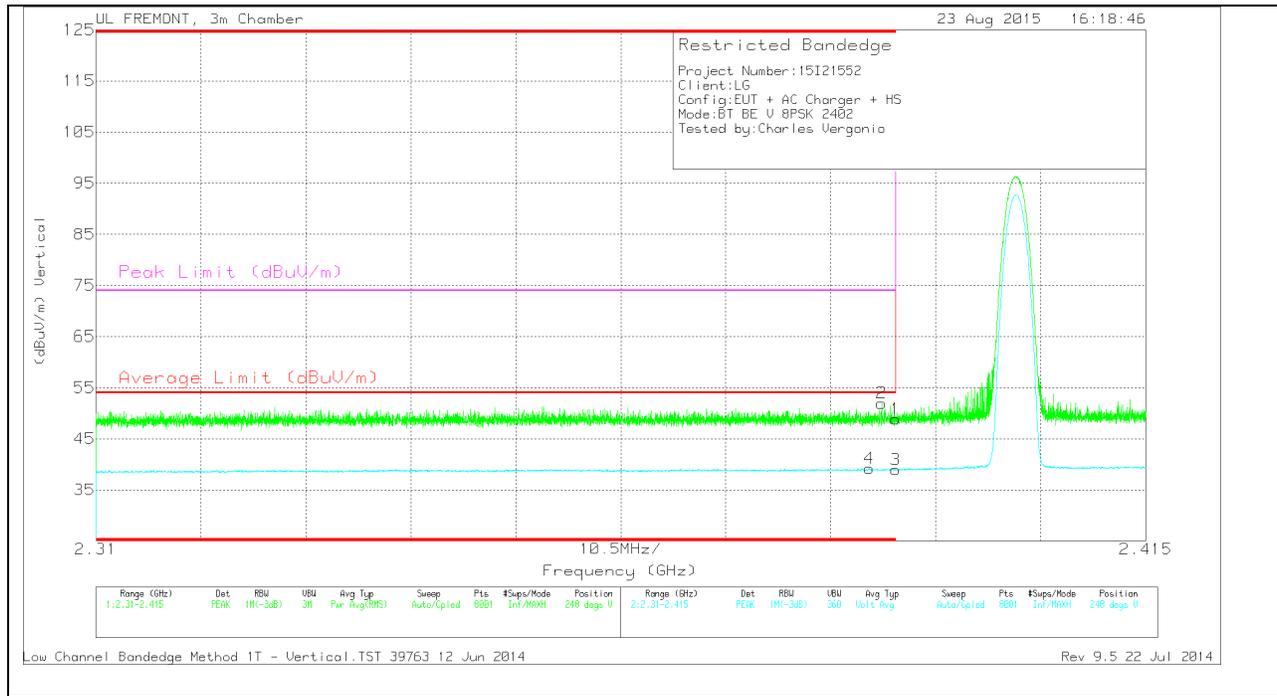
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.97	PK	32	-22.4	48.57	-	-	74	-25.43	214	339	H
2	* 2.359	42.27	PK	31.9	-22.4	51.77	-	-	74	-22.23	214	339	H
3	* 2.39	29.35	VB1T	32	-22.4	38.95	54	-15.05	-	-	214	339	H
4	* 2.383	29.52	VB1T	32	-22.4	39.12	54	-14.88	-	-	214	339	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

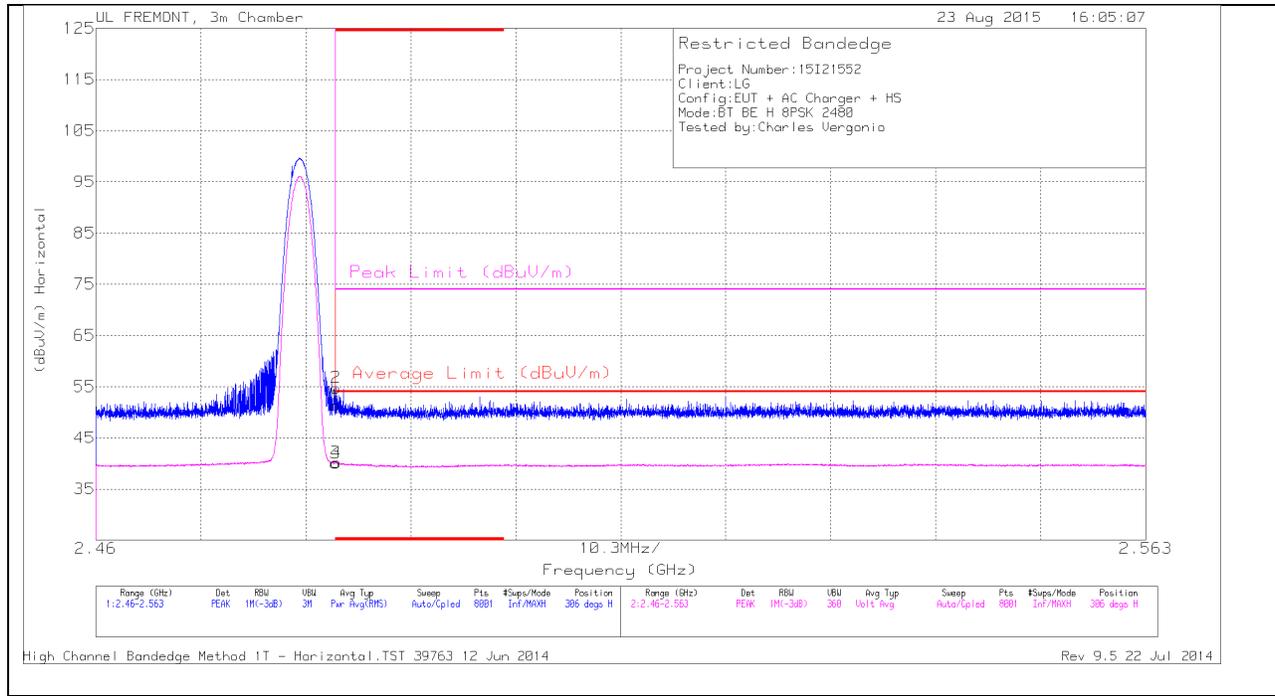
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.23	PK	32	-22.4	48.83	-	-	74	-25.17	248	334	V
2	* 2.389	42.37	PK	32	-22.4	51.97	-	-	74	-22.03	248	334	V
3	* 2.39	29.33	VB1T	32	-22.4	38.93	54	-15.07	-	-	248	334	V
4	* 2.387	29.6	VB1T	32	-22.4	39.2	54	-14.8	-	-	248	334	V

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

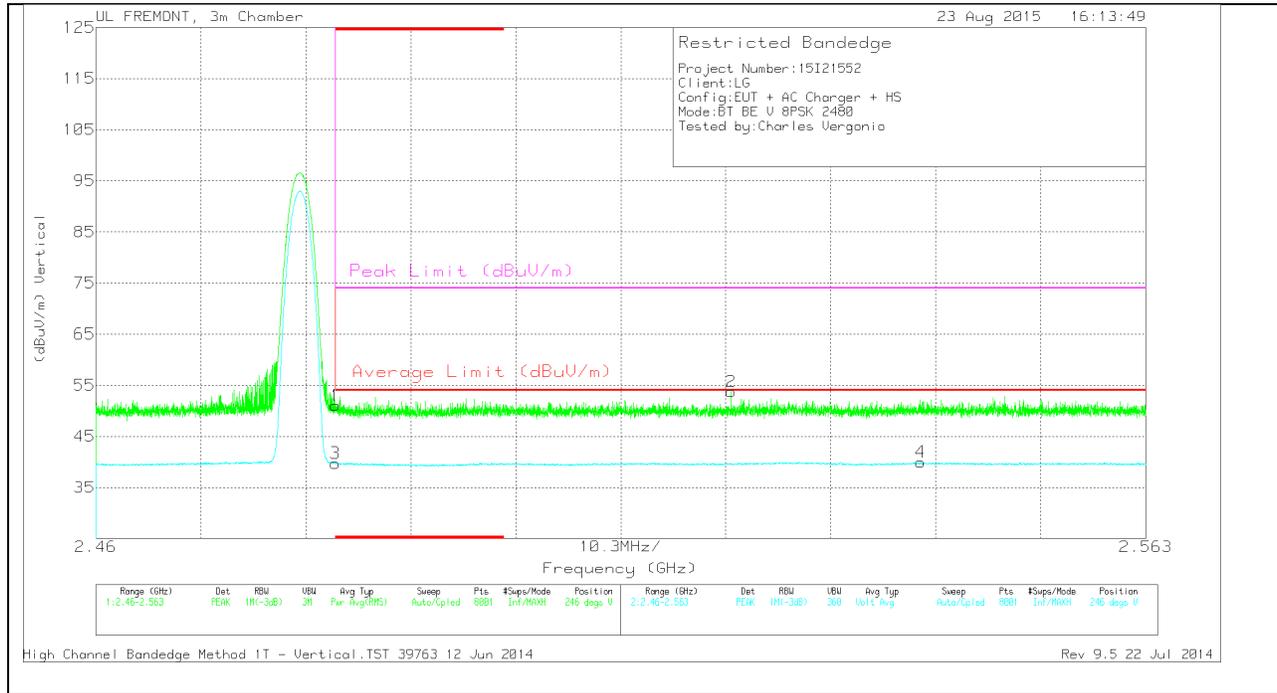
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.12	PK	32.3	-22.1	51.32	-	-	74	-22.68	306	275	H
2	* 2.484	44.59	PK	32.3	-22.1	54.79	-	-	74	-19.21	306	275	H
3	* 2.484	29.9	VB1T	32.3	-22.1	40.1	54	-13.9	-	-	306	275	H
4	* 2.484	29.96	VB1T	32.3	-22.1	40.16	54	-13.84	-	-	306	275	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.83	PK	32.3	-22.1	51.03	-	-	74	-22.97	246	276	V
3	* 2.484	29.52	VB1T	32.3	-22.1	39.72	54	-14.28	-	-	246	276	V
2	2.522	43.42	PK	32.4	-22.1	53.72	-	-	74	-20.28	246	276	V
4	2.541	29.47	VB1T	32.4	-21.9	39.97	54	-14.03	-	-	246	276	V

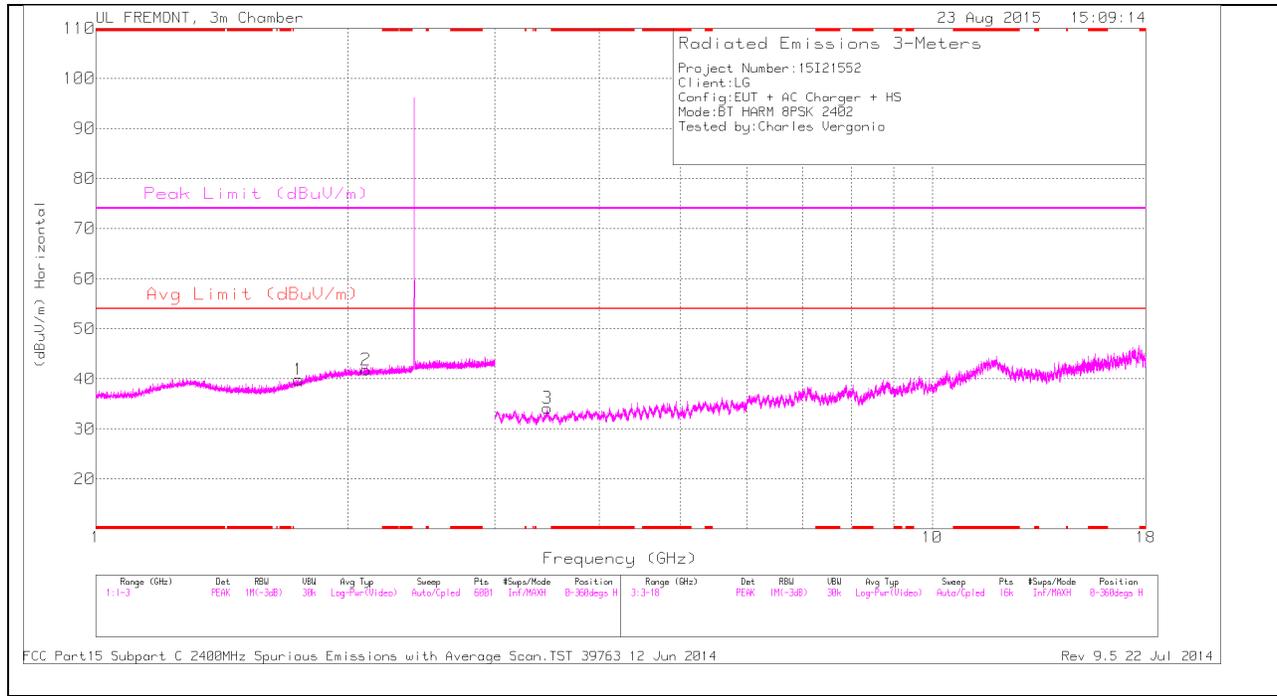
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

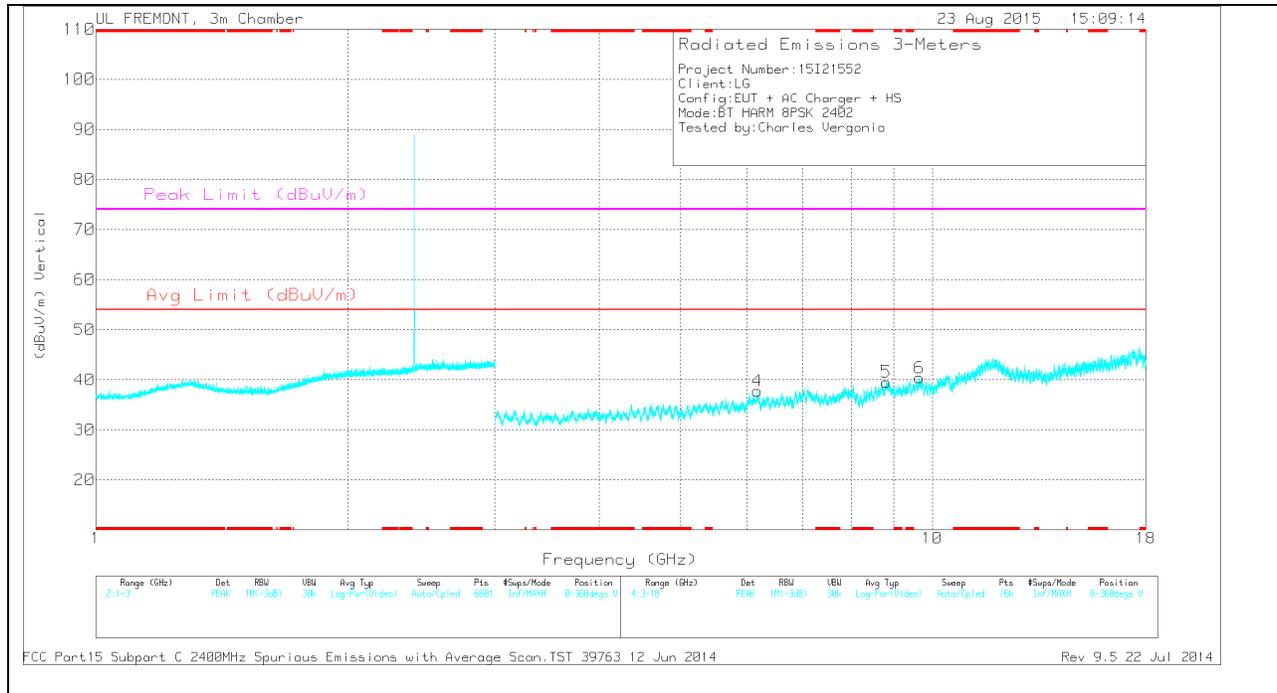
HARMONICS AND SPURIOUS EMISSIONS

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.748	32.95	PK	29.6	-22.7	39.85	-	-	-	-	0-360	100	H
2	2.105	32.61	PK	31.5	-22.3	41.81	-	-	-	-	0-360	200	H
3	3.466	31.77	PK	32.8	-30.4	34.17	-	-	-	-	0-360	200	H
4	6.184	31.75	PK	35.3	-29.3	37.75	-	-	-	-	0-360	200	V
5	8.812	29.16	PK	35.9	-25.5	39.56	-	-	-	-	0-360	200	V
6	9.654	27.57	PK	36.8	-24	40.37	-	-	-	-	0-360	200	V

PK - Peak detector

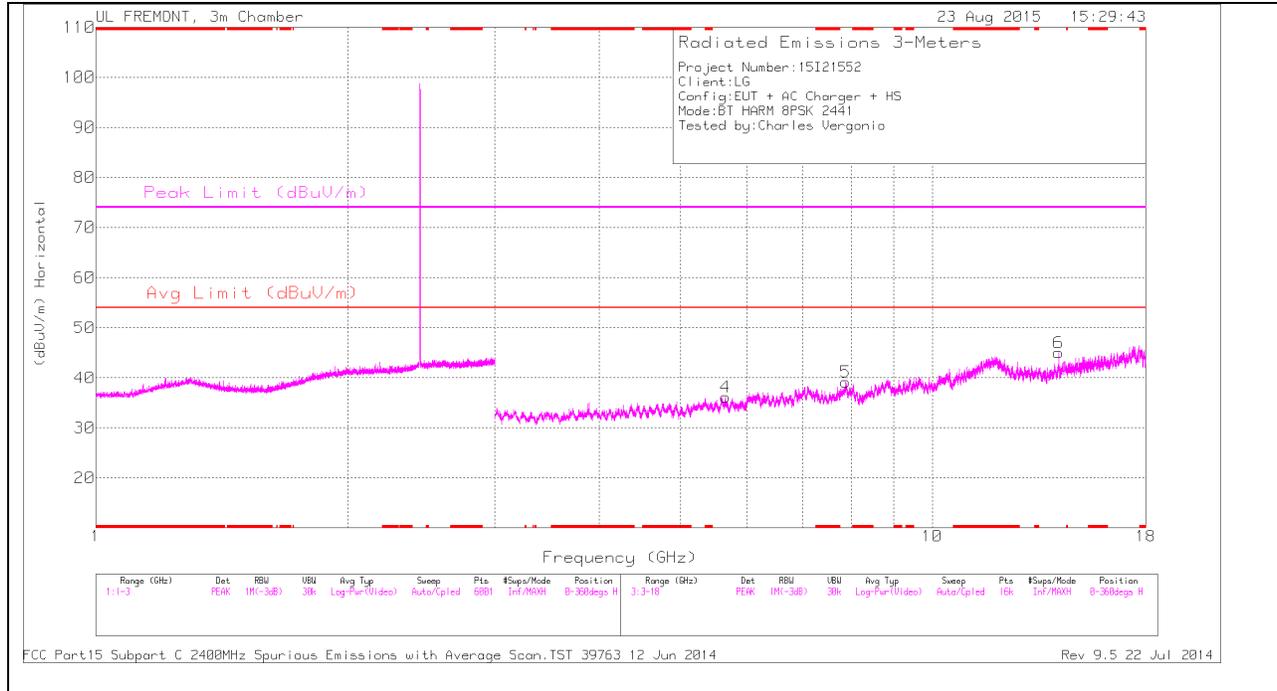
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.748	42.76	PK3	29.6	-22.7	49.66	-	-	-	-	360	100	H
1.75	29.54	VB1T	29.6	-22.7	36.44	-	-	-	-	360	100	H
2.103	29.32	VB1T	31.5	-22.3	38.52	-	-	-	-	360	200	H
2.104	42.22	PK3	31.5	-22.3	51.42	-	-	-	-	360	200	H
3.464	28.04	VB1T	32.8	-30.4	30.44	-	-	-	-	360	200	H
3.467	41.04	PK3	32.8	-30.4	43.44	-	-	-	-	360	200	H
6.182	40.16	PK3	35.3	-29.3	46.16	-	-	-	-	360	200	V
6.185	27.47	VB1T	35.3	-29.3	33.47	-	-	-	-	360	200	V
8.814	37.69	PK3	35.9	-25.5	48.09	-	-	-	-	360	200	V
8.814	24.77	VB1T	35.9	-25.5	35.17	-	-	-	-	360	200	V
9.655	36.46	PK3	36.8	-24	49.26	-	-	-	-	360	200	V
9.656	23.73	VB1T	36.8	-24	36.53	-	-	-	-	360	200	V

PK3 - FHSS Method: Maximum Peak

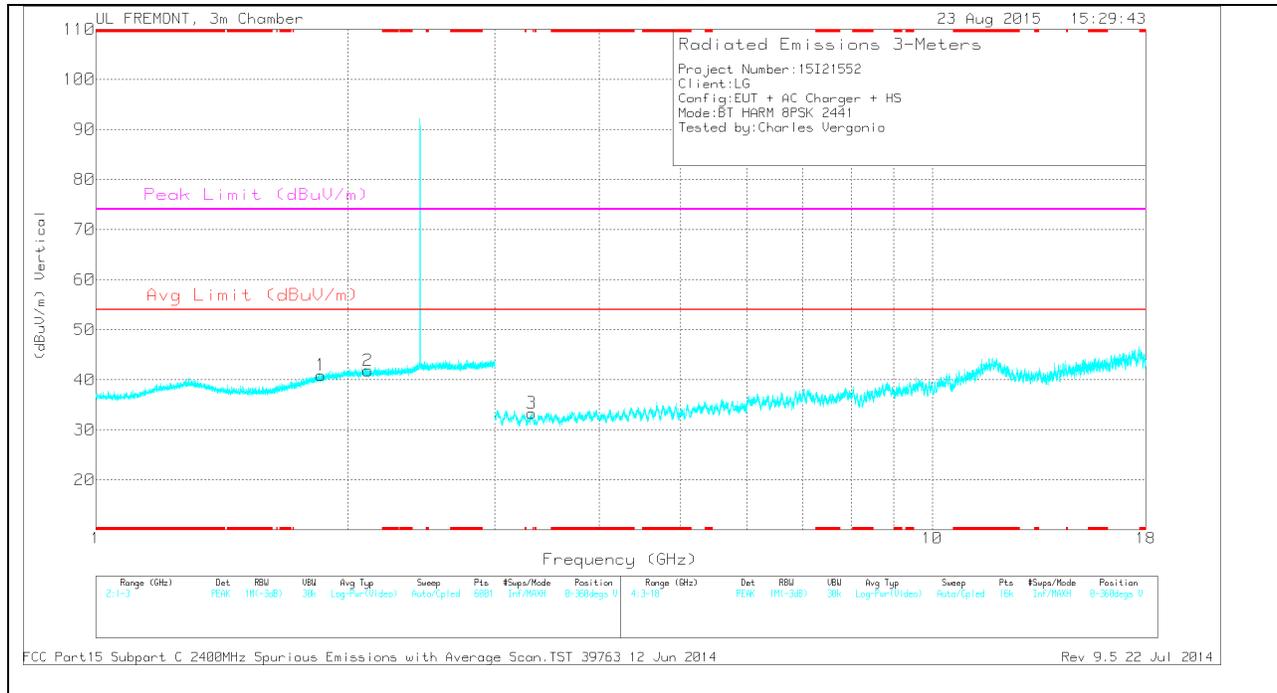
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.86	32.84	PK	30.7	-22.6	40.94	-	-	-	-	0-360	100	V
2	2.115	32.65	PK	31.5	-22.3	41.85	-	-	-	-	0-360	100	V
3	3.319	31.53	PK	32.6	-30.8	33.33	-	-	-	-	0-360	100	V
4	5.658	30.46	PK	34.7	-29	36.16	-	-	-	-	0-360	200	H
5	7.877	29.65	PK	35.8	-26.3	39.15	-	-	-	-	0-360	100	H
6	14.156	31.82	PK	39.1	-25.9	45.02	-	-	-	-	0-360	200	H

PK - Peak detector

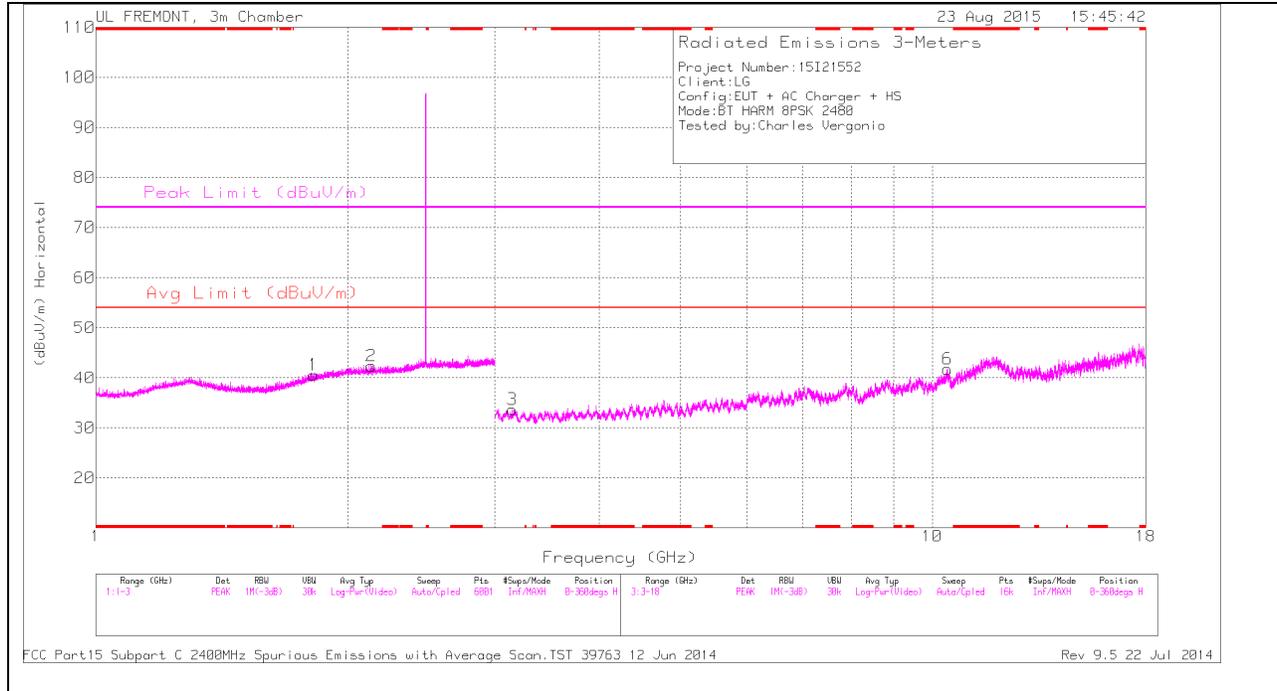
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.858	29.49	VB1T	30.7	-22.6	37.59	-	-	-	-	360	100	V
1.86	42.75	PK3	30.8	-22.6	50.95	-	-	-	-	360	100	V
2.114	29.38	VB1T	31.5	-22.3	38.58	-	-	-	-	360	100	V
2.116	42.4	PK3	31.5	-22.3	51.6	-	-	-	-	360	100	V
3.317	41.19	PK3	32.6	-30.8	42.99	-	-	-	-	360	100	V
3.317	28.35	VB1T	32.6	-30.8	30.15	-	-	-	-	360	100	V
5.657	39.22	PK3	34.7	-29	44.92	-	-	-	-	360	200	H
5.658	26.75	VB1T	34.7	-29	32.45	-	-	-	-	360	200	H
7.878	37.57	PK3	35.8	-26.2	47.17	-	-	-	-	360	100	H
7.878	25.09	VB1T	35.8	-26.2	34.69	-	-	-	-	360	100	H
14.155	39.51	PK3	39	-26	52.51	-	-	-	-	360	200	H
14.155	27.18	VB1T	39	-26	40.18	-	-	-	-	360	200	H

PK3 - FHSS Method: Maximum Peak

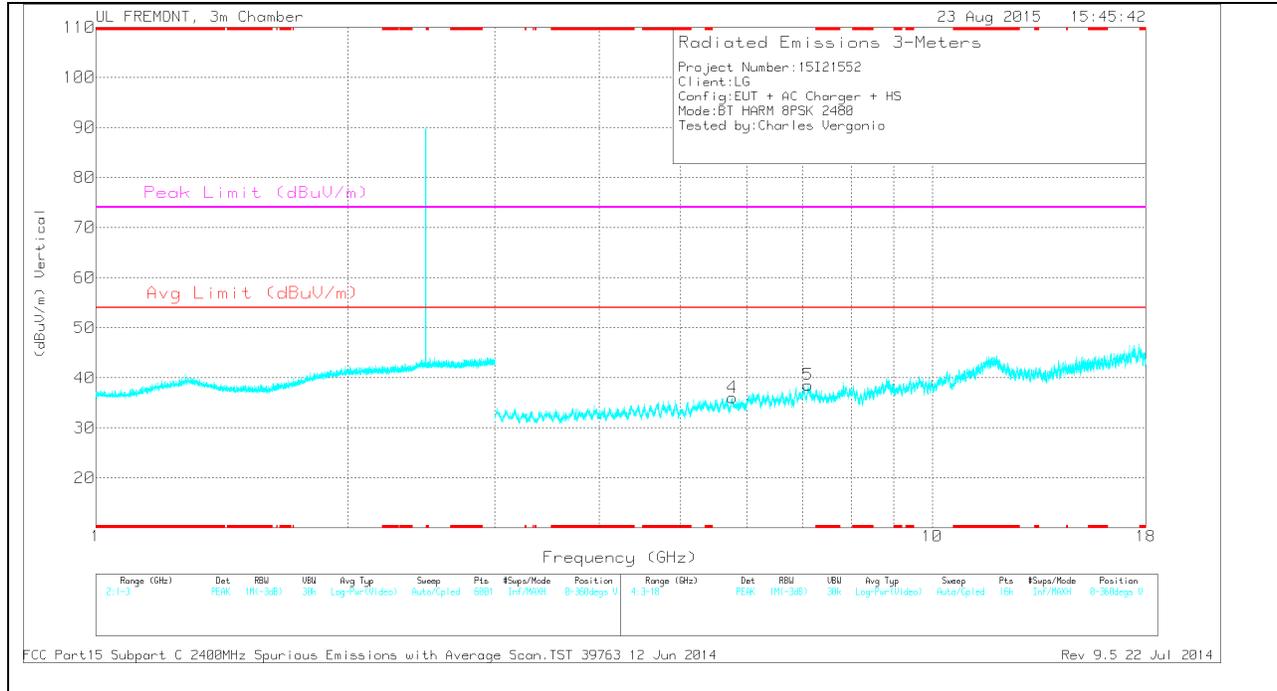
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.82	32.88	PK	30.4	-22.7	40.58	-	-	-	-	0-360	100	H
2	2.135	33.15	PK	31.5	-22.3	42.35	-	-	-	-	0-360	100	H
3	3.149	31.38	PK	32.7	-30.4	33.68	-	-	-	-	0-360	100	H
4	5.765	30.77	PK	34.8	-29.5	36.07	-	-	-	-	0-360	100	V
5	7.105	29.99	PK	35.6	-27	38.59	-	-	-	-	0-360	200	V
6	10.424	27.82	PK	37.3	-23.4	41.72	-	-	-	-	0-360	100	H

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.819	42.24	PK3	30.4	-22.6	50.04	-	-	-	-	360	100	H
1.822	29.56	VB1T	30.4	-22.7	37.26	-	-	-	-	360	100	H
2.136	29.4	VB1T	31.5	-22.3	38.6	-	-	-	-	360	100	H
2.137	42.19	PK3	31.5	-22.3	51.39	-	-	-	-	360	100	H
3.148	40.13	PK3	32.7	-30.4	42.43	-	-	-	-	360	100	H
3.149	27.63	VB1T	32.7	-30.4	29.93	-	-	-	-	360	100	H
5.764	27.96	VB1T	34.8	-29.5	33.26	-	-	-	-	360	100	V
5.765	42.67	PK3	34.8	-29.5	47.97	-	-	-	-	360	100	V
7.104	38.36	PK3	35.6	-26.9	47.06	-	-	-	-	360	200	V
7.106	25.97	VB1T	35.6	-27	34.57	-	-	-	-	360	200	V
10.425	35.69	PK3	37.3	-23.4	49.59	-	-	-	-	360	100	H
10.425	23.06	VB1T	37.3	-23.4	36.96	-	-	-	-	360	100	H

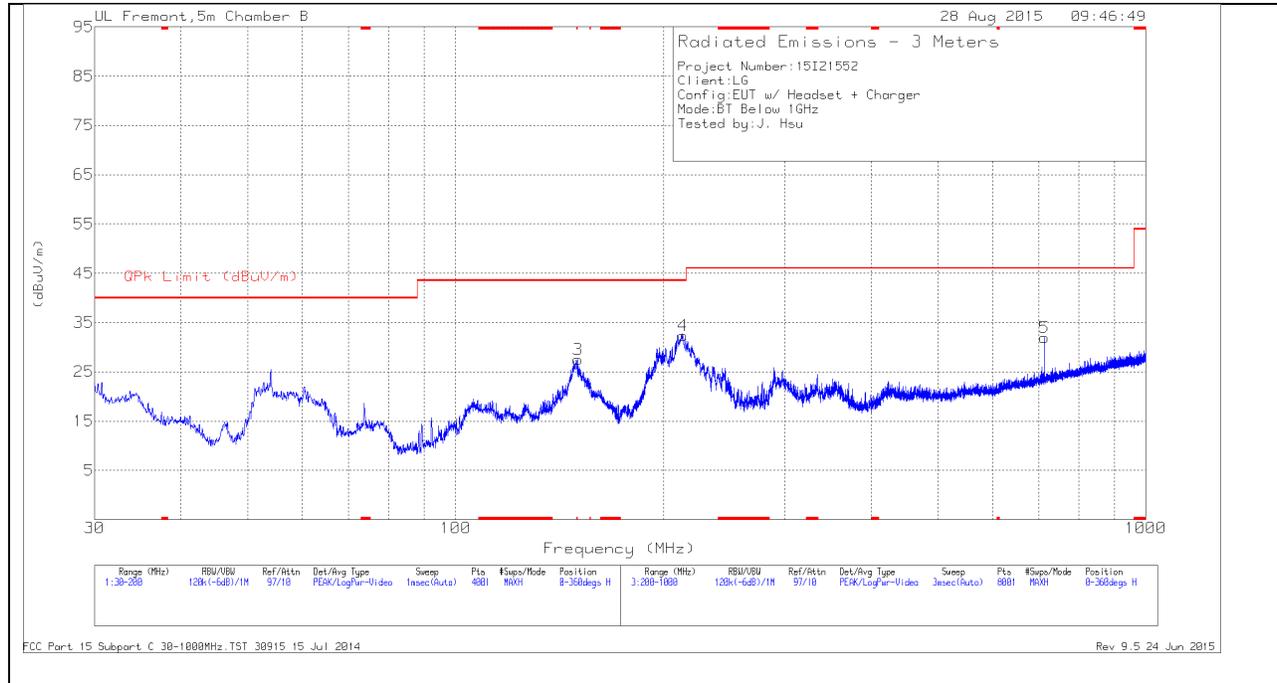
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

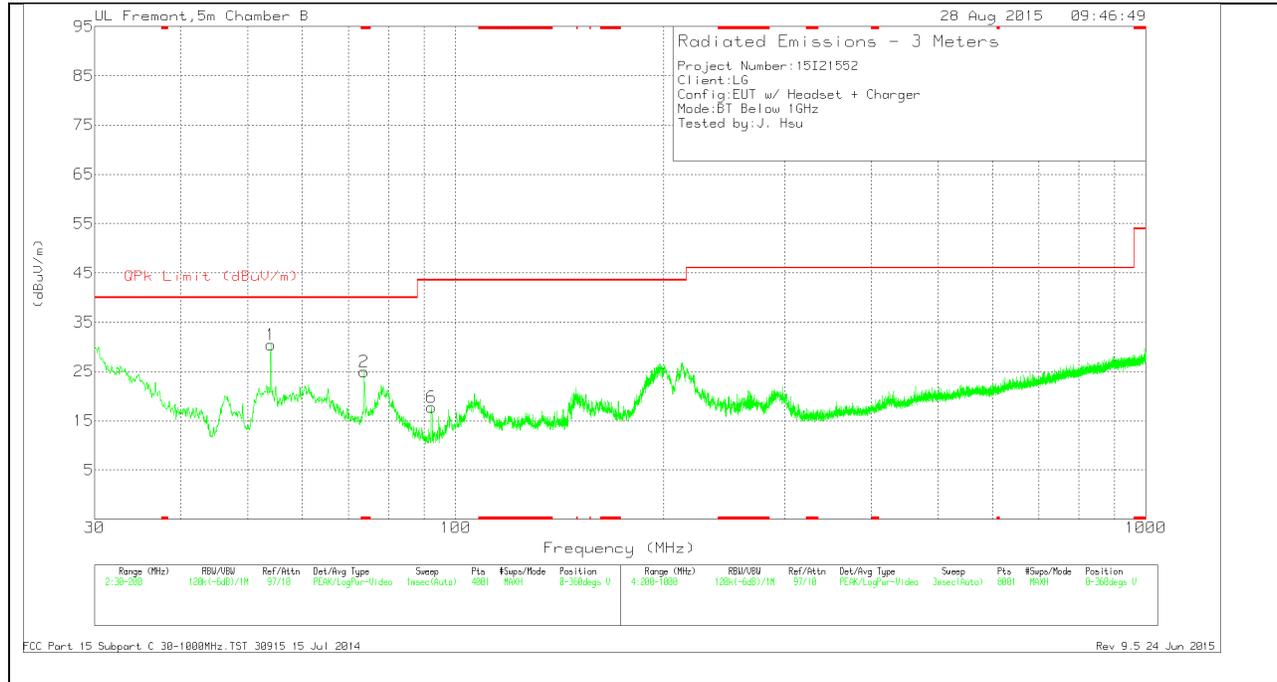
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 73.7325	45.25	Pk	8	-28.3	24.95	40	-15.05	0-360	101	V
1	54.0125	51.57	Pk	7.4	-28.5	30.47	40	-9.53	0-360	101	V
6	92.3475	37.7	Pk	8.2	-28.2	17.7	43.52	-25.82	0-360	101	V
3	150.4025	42.45	Pk	12.5	-27.5	27.45	43.52	-16.07	0-360	199	H
4	213.7	48.78	Pk	10.5	-26.9	32.38	43.52	-11.14	0-360	101	H
5	713.4	36.77	Pk	20.4	-25.2	31.97	46.02	-14.05	0-360	399	H

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

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 73.7488	43.59	Qp	8	-28.3	23.29	40	-16.71	205	106	V

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

Qp - Quasi-Peak detector