FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1

CERTIFICATION TEST REPORT

FOR

WLAN 2X2 MIMO 802.11a/b/g/n/ac with BLUETOOTH

MODEL NUMBER: P2180

FCC ID: VOB-P2180
IC: 7361A-P2180

REPORT NUMBER: 15U21878-E1V2

ISSUE DATE: NOVEMBER 5, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/23/15	Initial Issue	
V2	11/5/15	Updated Section 8.8.1 & Section 8.8.2	C. Vergonio

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 6

4.1. MEASURING INSTRUMENT CALIBRATION 6

4.2. SAMPLE CALCULATION 6

4.3. MEASUREMENT UNCERTAINTY 6

5. EQUIPMENT UNDER TEST 7

5.1. DESCRIPTION OF EUT 7

5.2. MAXIMUM OUTPUT POWER 7

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 7

5.4. SOFTWARE AND FIRMWARE 7

5.5. WORST-CASE CONFIGURATION AND MODE 7

5.6. DESCRIPTION OF TEST SETUP 8

6. TEST AND MEASUREMENT EQUIPMENT 10

7. SUMMARY TABLE 11

8. ANTENNA PORT TEST RESULTS 12

8.1. ON TIME, DUTY CYCLE 12

8.2. 20 dB AND 99% BANDWIDTH 14

8.2.1. BASIC DATA RATE GFSK MODULATION 14

8.2.2. ENHANCED DATA RATE 8PSK MODULATION 14

20 dB AND 99% BANDWIDTH PLOTS 15

8.3. HOPPING FREQUENCY SEPARATION 27

8.4. NUMBER OF HOPPING CHANNELS 29

8.5. AVERAGE TIME OF OCCUPANCY 34

8.6. OUTPUT POWER 41

8.6.1. BASIC DATA RATE GFSK MODULATION 41

8.6.2. ENHANCED DATA RATE 8PSK MODULATION 41

8.6.1. OUTPUT POWER PLOTS 42

8.7. AVERAGE POWER 48

8.7.1. BASIC DATA RATE GFSK MODULATION 48

8.7.2. ENHANCED DATA RATE 8PSK MODULATION 48

8.8. CONDUCTED SPURIOUS EMISSIONS 49

8.8.1. BASIC DATA RATE GFSK MODULATION 50

8.8.2. ENHANCED DATA RATE 8PSK MODULATION 58

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9. RADIATED TEST RESULTS 66

9.1. LIMITS AND PROCEDURE 66

9.2. TRANSMITTER ABOVE 1 GHz 67

9.2.1. BASIC DATA RATE GFSK MODULATION 67

9.2.2. ENHANCED DATA RATE 8PSK MODULATION 80

9.3. WORST-CASE BELOW 1 GHz 93

10. AC POWER LINE CONDUCTED EMISSIONS 96

11. SETUP PHOTOS 99

12. EUT PHOTOS 101

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	NVIDIA CORP.
EUT DESCRIPTION:	WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth
MODEL:	P2180
SERIAL NUMBER:	333715030009, 333615050430, 333715030024, 333815010589
DATE TESTED:	OCTOBER 09 TO 19, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 ISSUE 1	Pass
INDUSTRY CANADA RSS-GEN ISSUE 4	Pass

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

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009 for FCC and ANSI C63.10-2013 for IC, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-247 Issue 1.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth

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	10.63	11.56
2402 - 2480	Enhanced 8PSK	9.97	9.93

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 8.5.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a dual band dipole antenna, with a maximum gain of 2.86 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Nvidia Rev. 7.10.RC 0.0

The EUT driver software installed during testing Nvidia Rev 7.35 2200 <r532988 wltest>

5.5. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three transmitting antenna degrees: 0, 45, and 90. It was determined that 90 degrees was the worst case antenna position; therefore all final radiated testing was performed with the antenna position at 90 degrees.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Base board	NVIDIA	P2597	333715040297	DoC
AC Adapter	Mean Well	GST90A19	EB58E32121	N/A
Laptop	Lenovo	T430	PFB1R5R	N/A

I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	US115V	Unshielded	0.5	
2	DC	1	19 Vdc	Unshielded	1	Ferrite Attached
3	USB	1	USB	Shielded	1.5	

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

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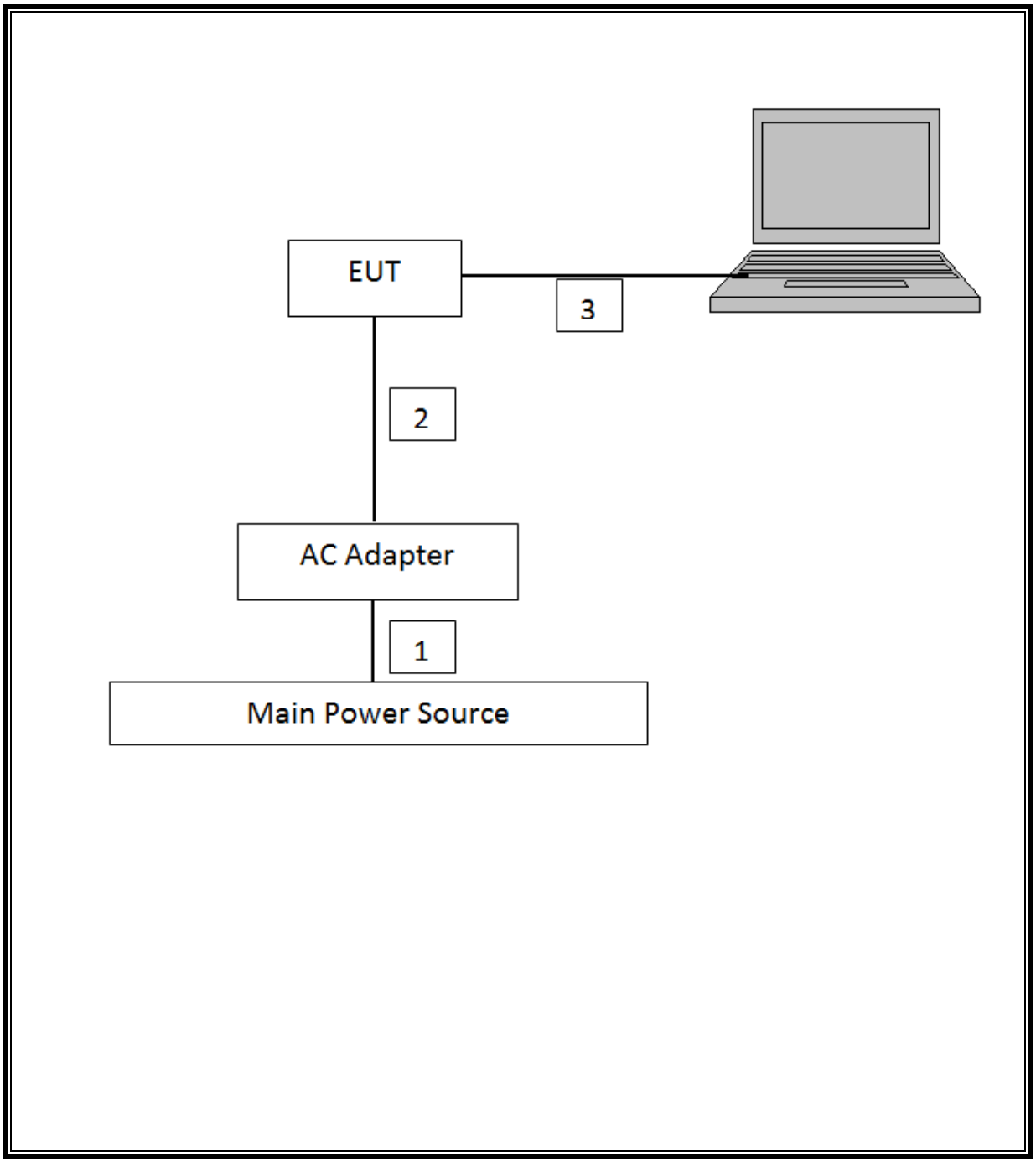
SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
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	06/27/15
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
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

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
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

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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	1.2012 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-50.37 dBm
15.247 (b)(1)	RSS-247 5.4.2	TX conducted output power	<21dBm		Pass	10.63 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	0.287 sec
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	34.28 dBuV(PK)
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	41.29 dBuV/m

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME, DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
GFSK	2.884	3.738	0.772	77.15%	1.13	0.347
8PSK	1.044	3.750	0.278	27.84%	5.55	0.958

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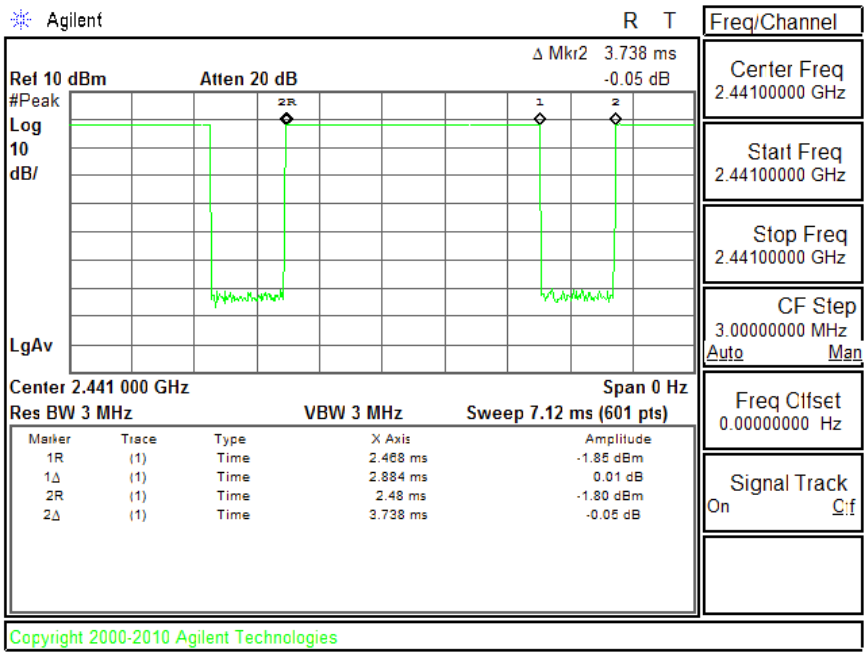
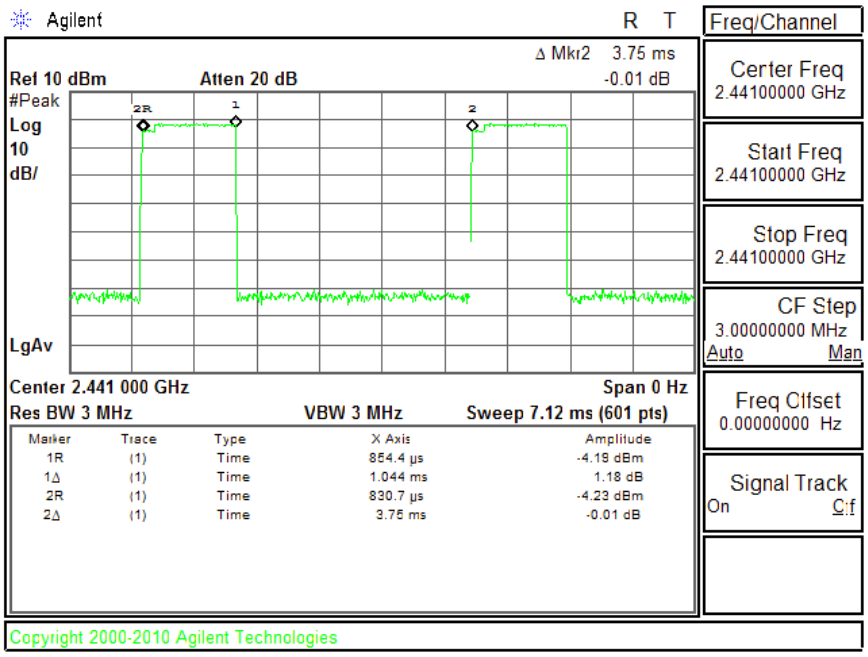
DUTY CYCLE PLOTS

DUTY CYCLE GFSK MODE



DUTY CYCLE 8PSK MODE



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8.2. 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 ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

RESULTS

8.2.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	0.928	0.8890
Middle	2441	0.948	0.8922
High	2480	0.938	0.8947
Worst		0.948	0.8947

8.2.2. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.344	1.2012
Middle	2441	1.371	1.1881
High	2480	1.305	1.1864
Worst		1.371	1.2012

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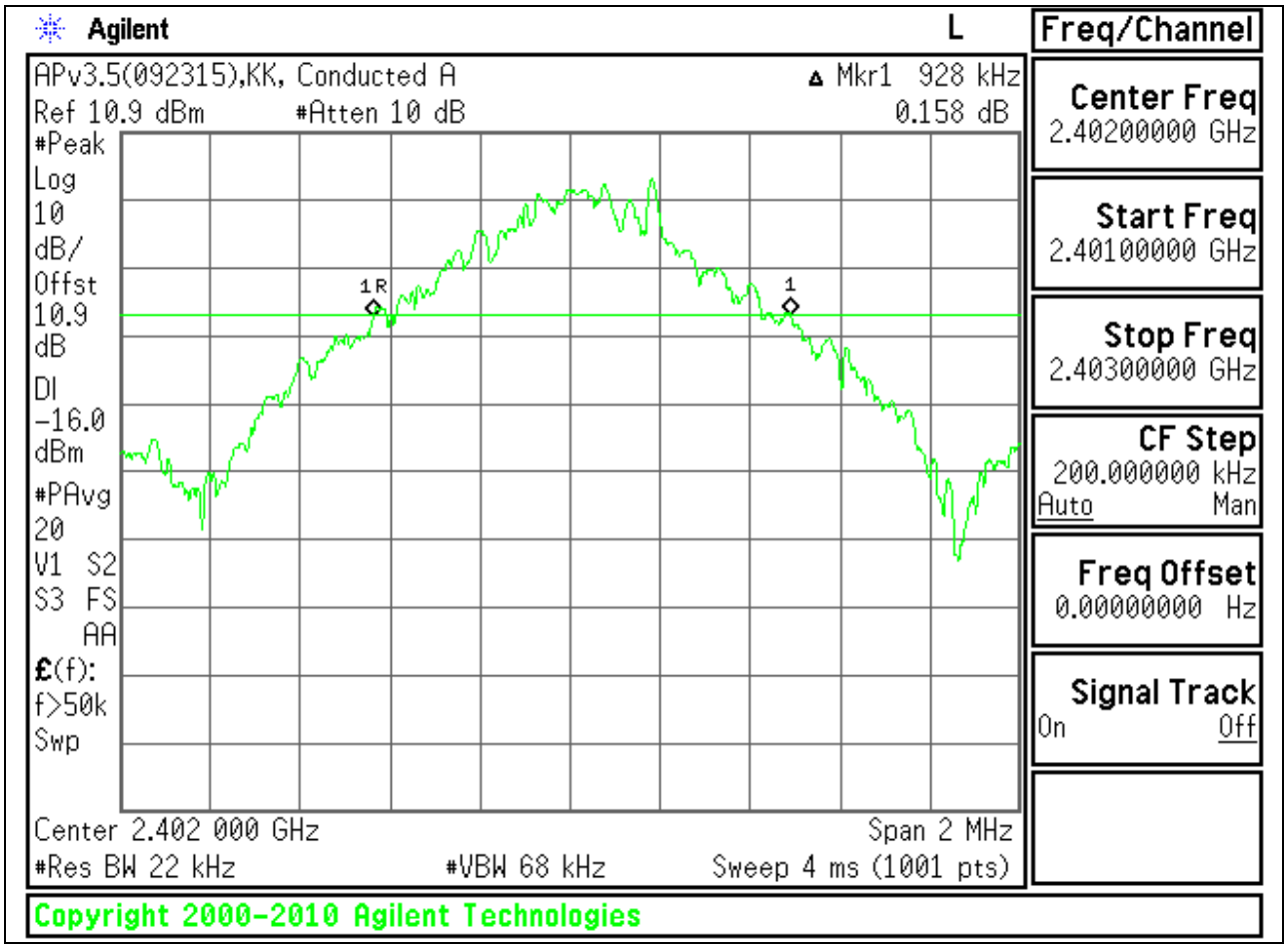
20 dB AND 99% BANDWIDTH PLOTS

GFSK 20 dB BANDWIDTH

LOW CHANNEL



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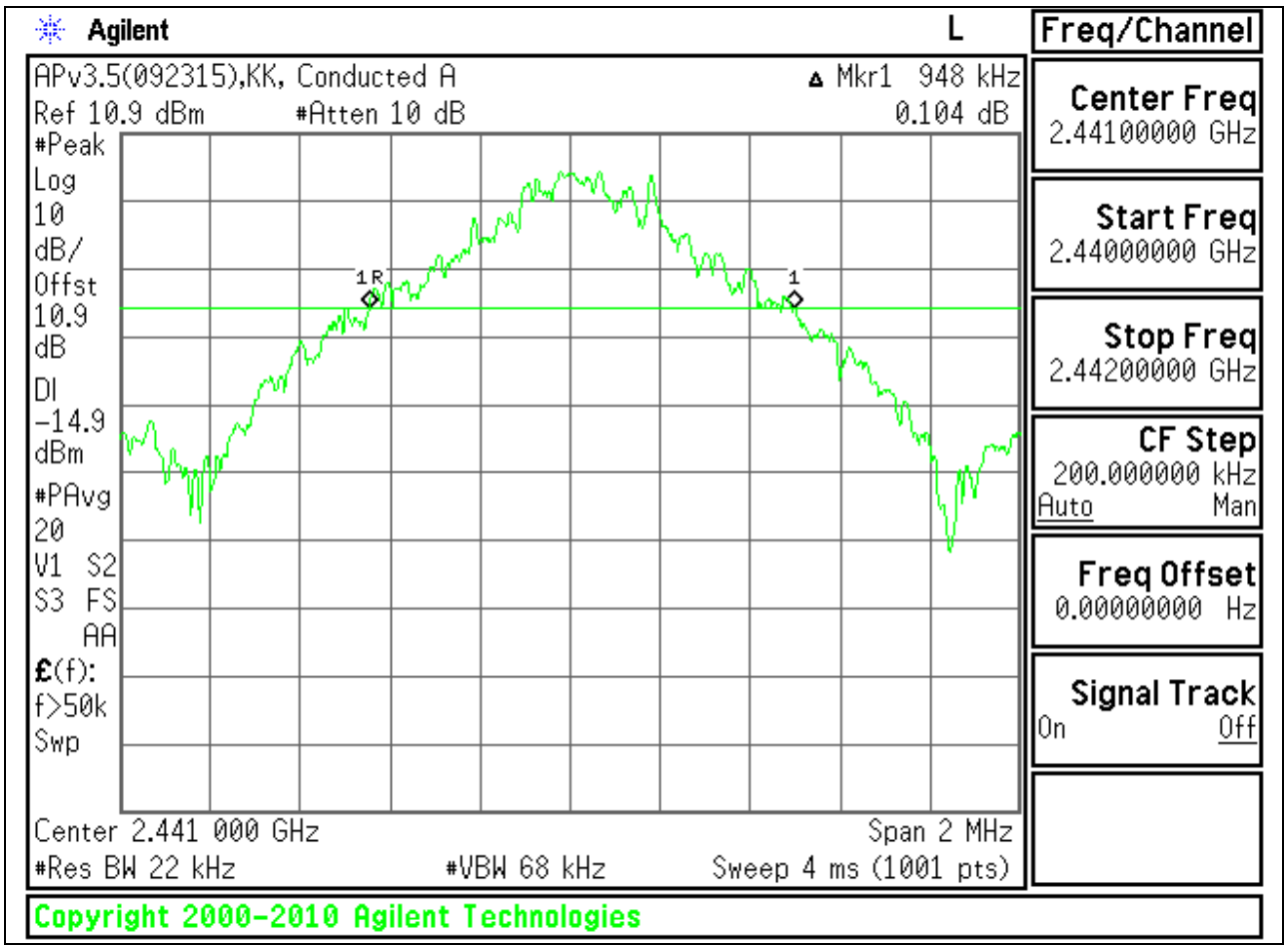
MID CHANNEL



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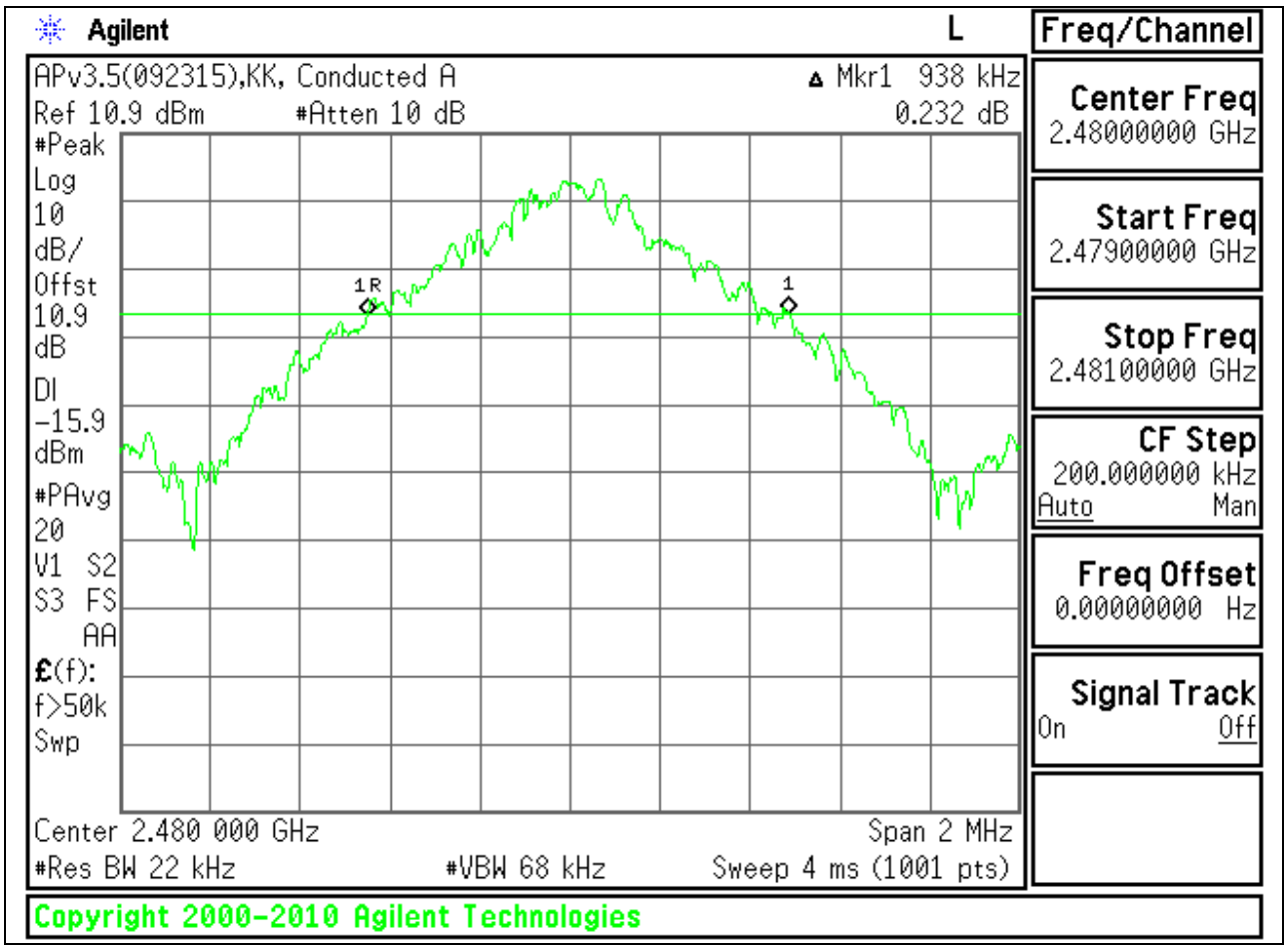
HIGH CHANNEL



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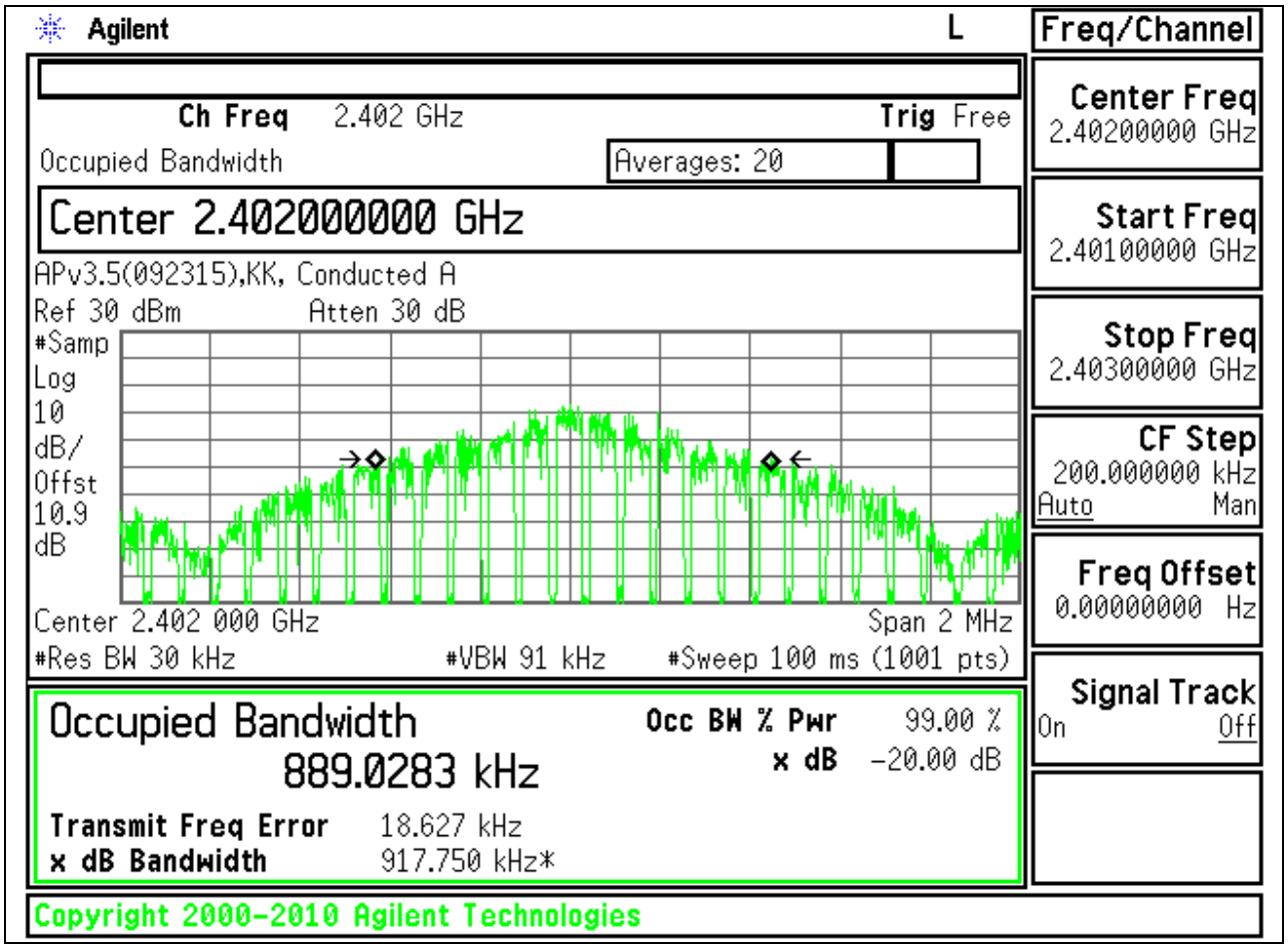
GFSK 99% BANDWIDTH

LOW CHANNEL



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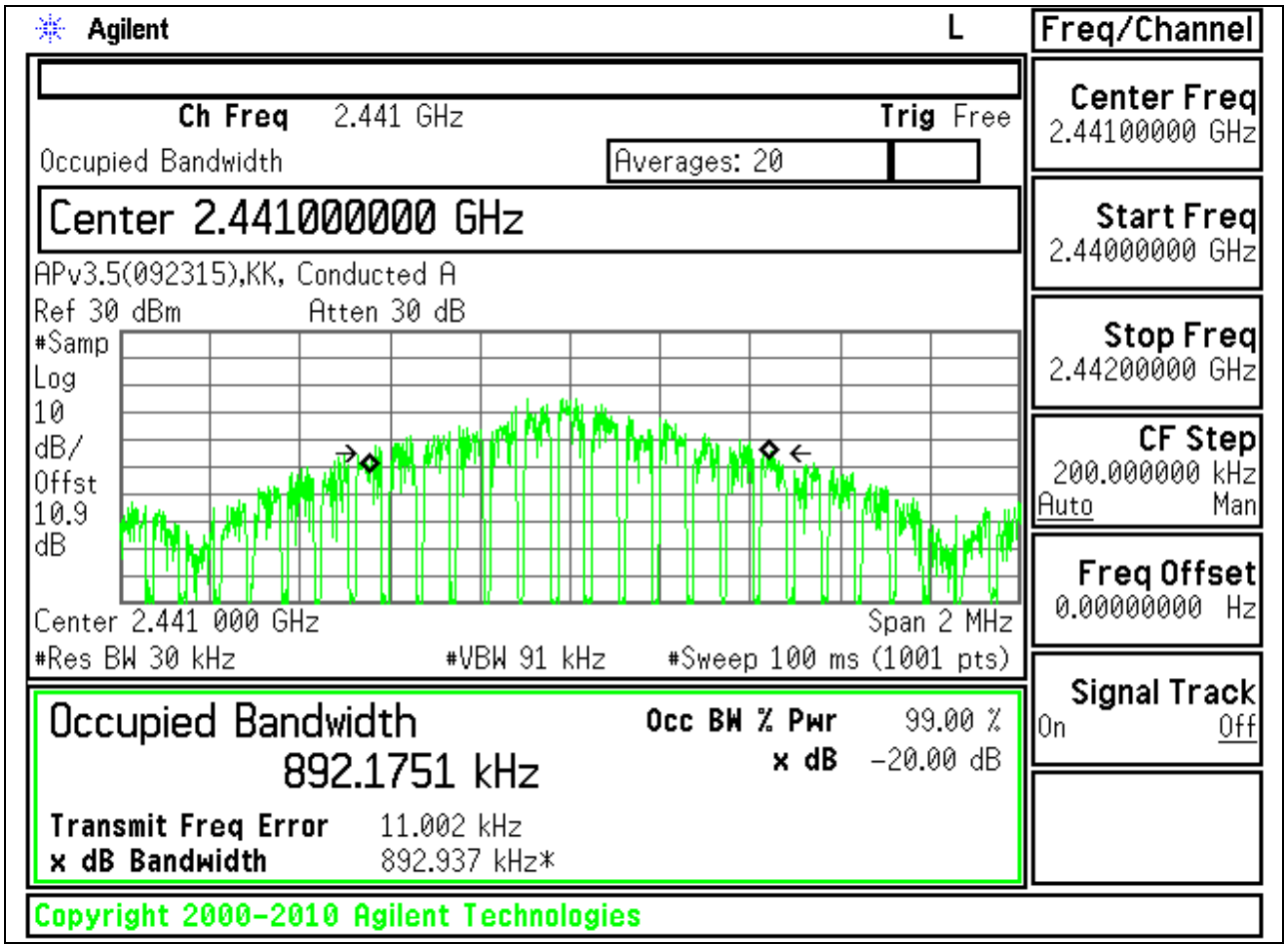
MID CHANNEL



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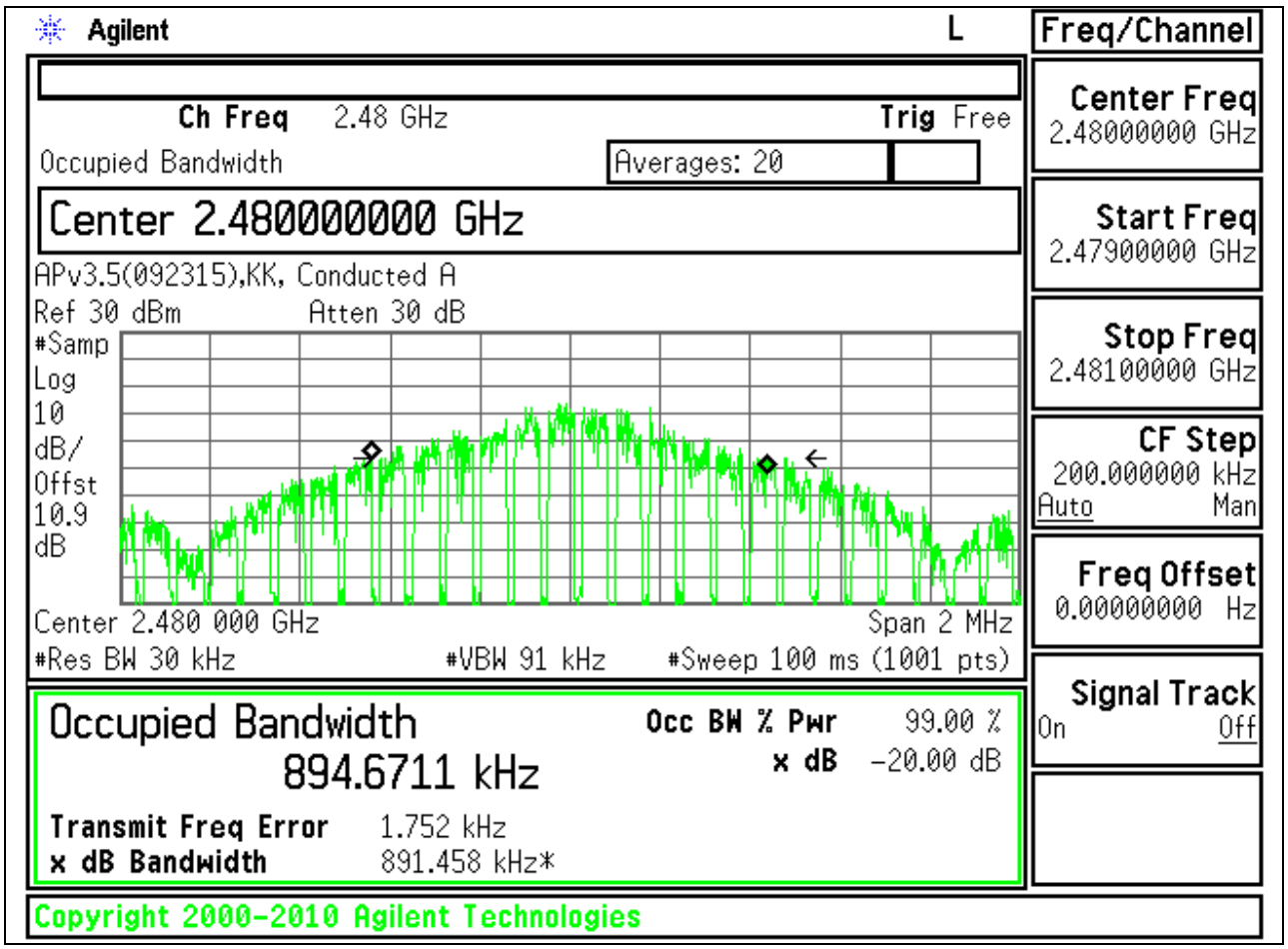
HIGH CHANNEL



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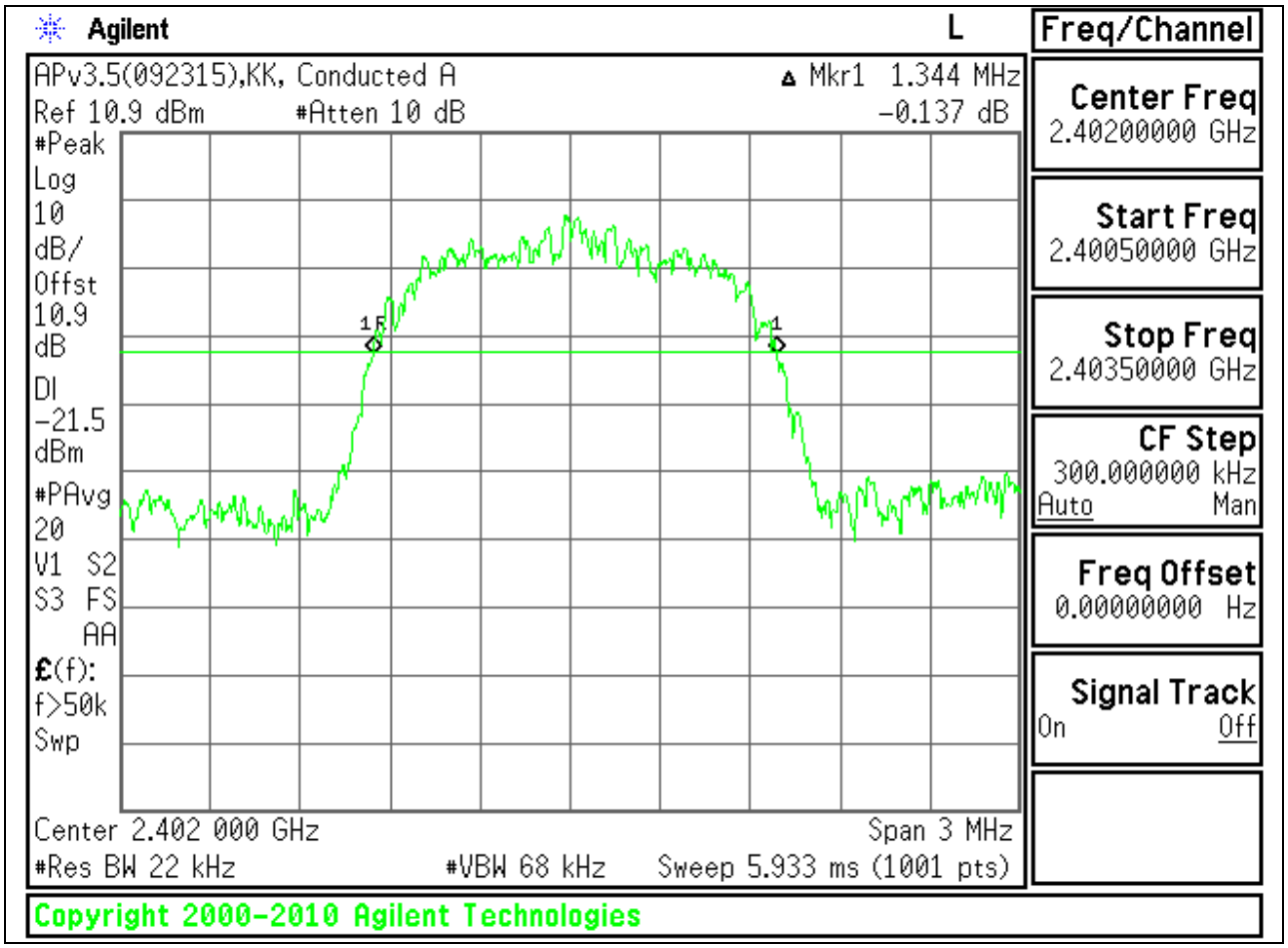
8PSK 20 dB BANDWIDTH

LOW CHANNEL



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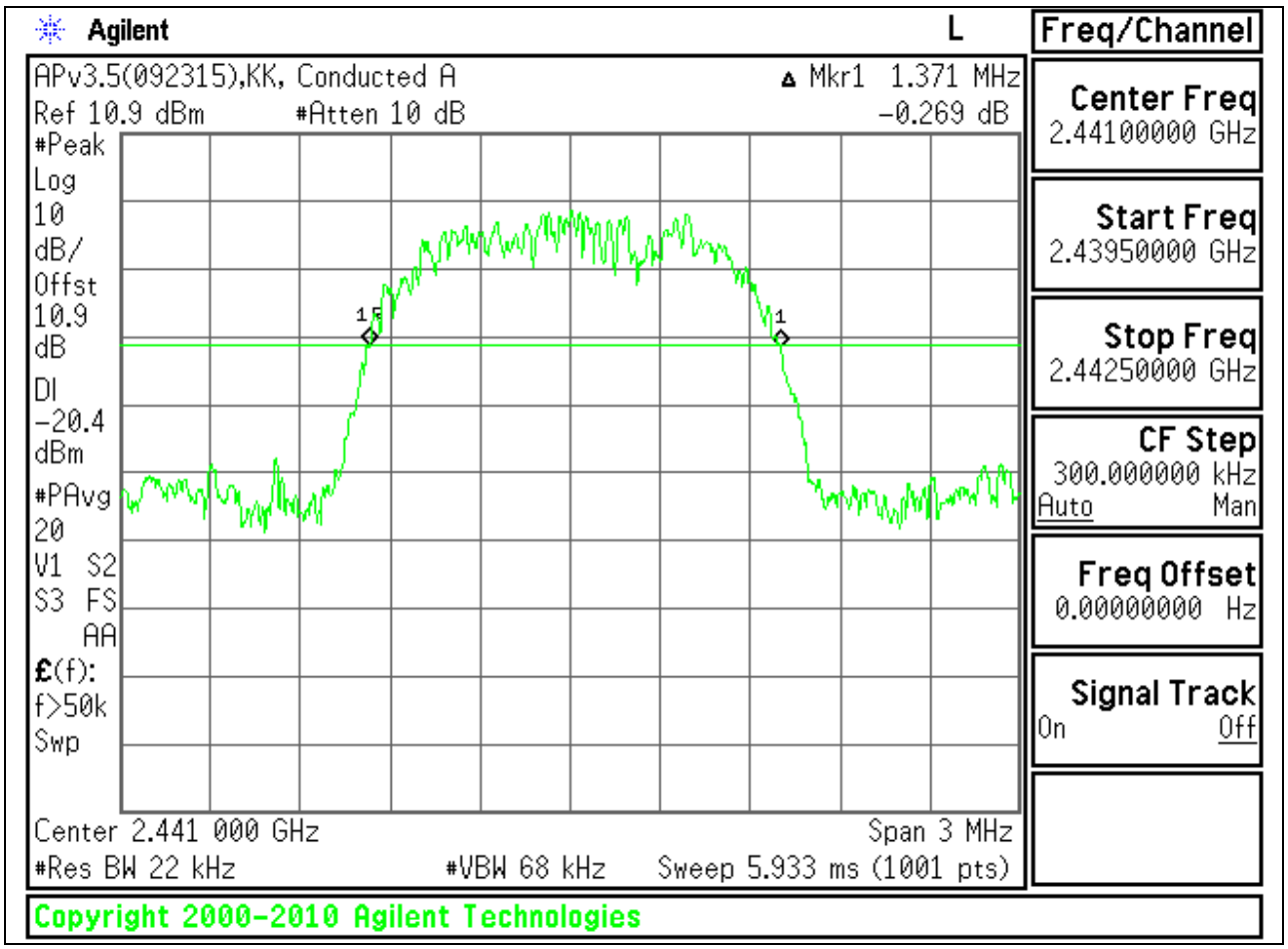
MID CHANNEL



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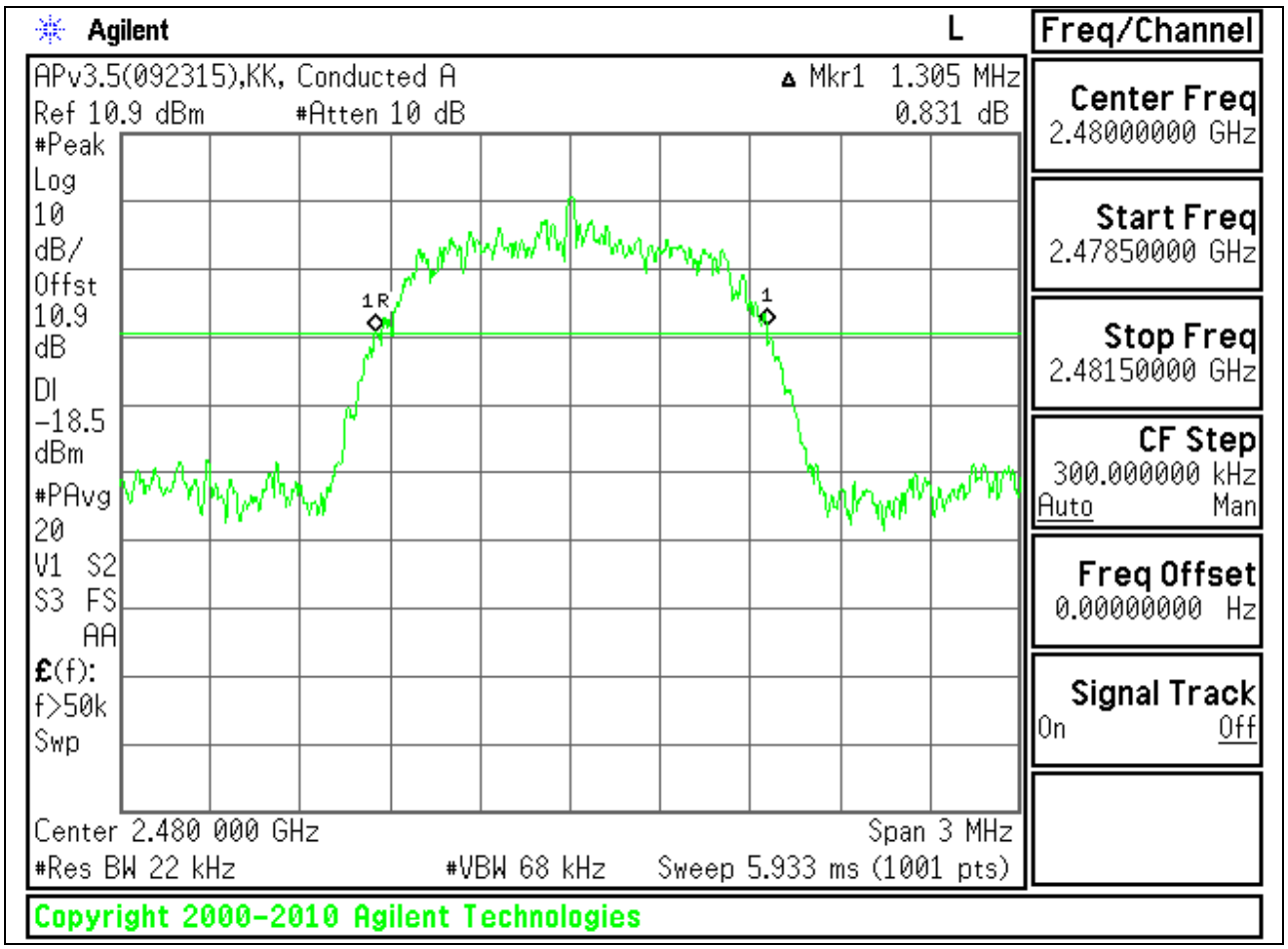
HIGH CHANNEL



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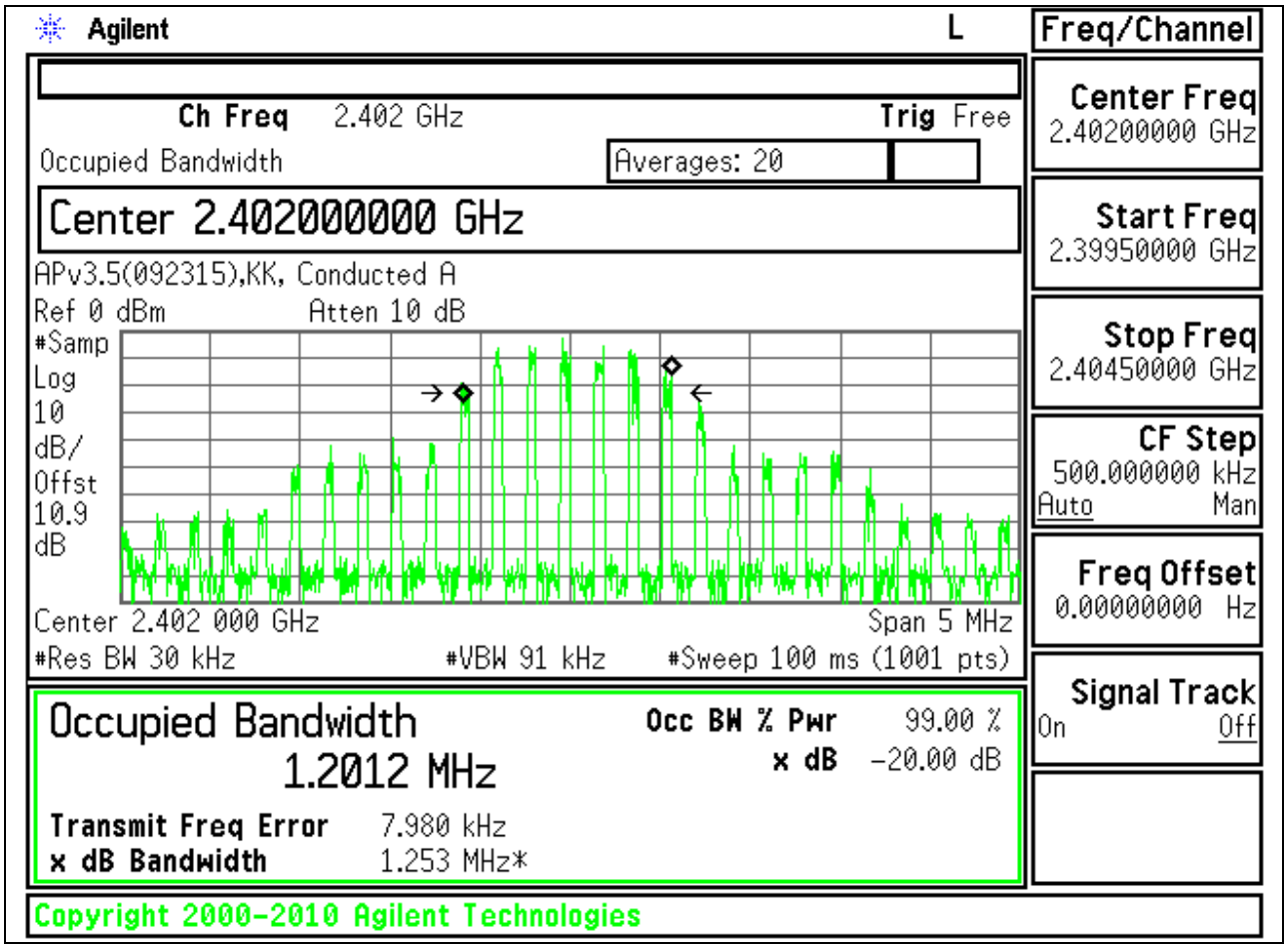
8PSK 99% BANDWIDTH

LOW CHANNEL



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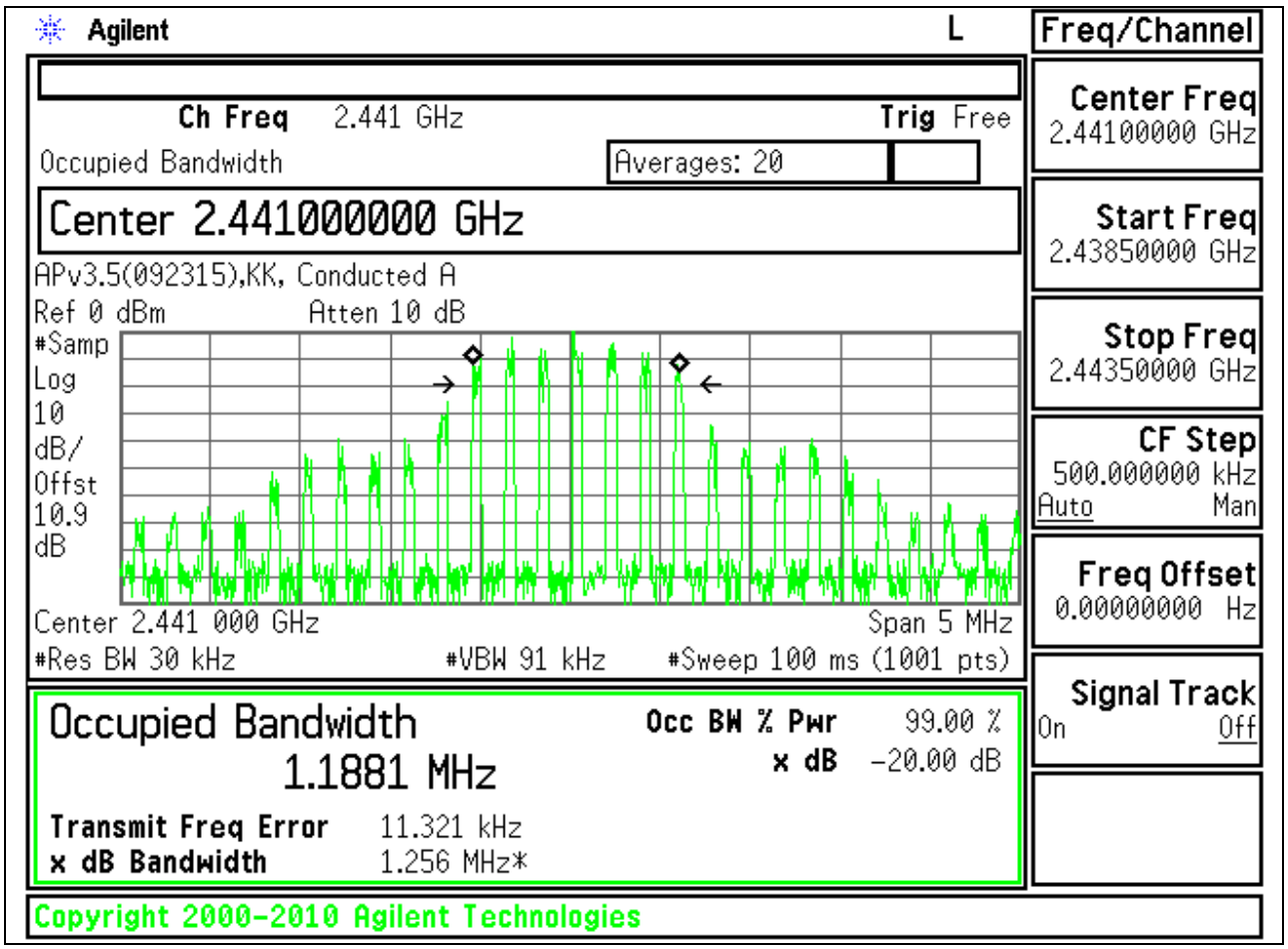
MID CHANNEL



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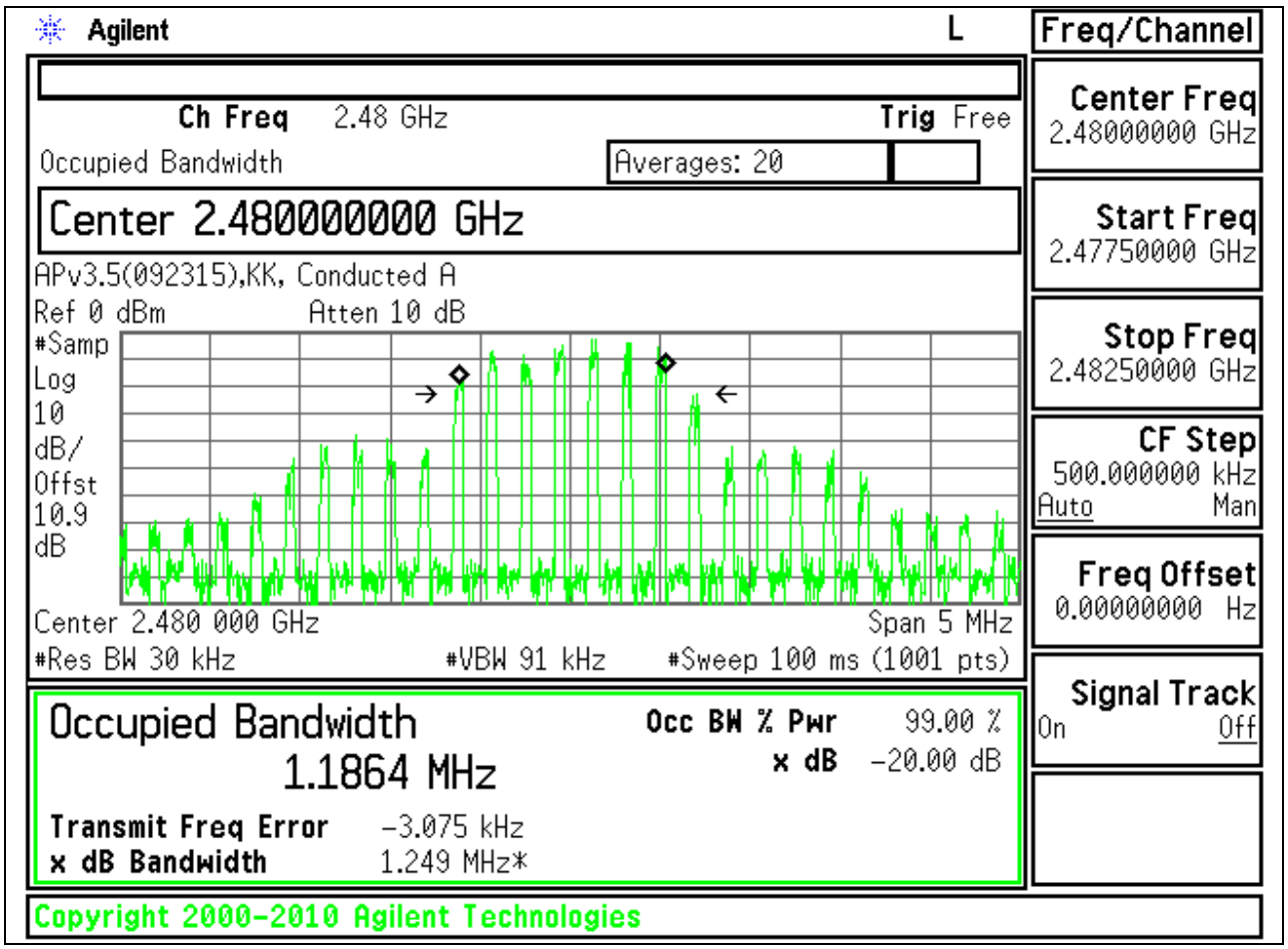
HIGH CHANNEL



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8.3. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-247 5.1.2

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping 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

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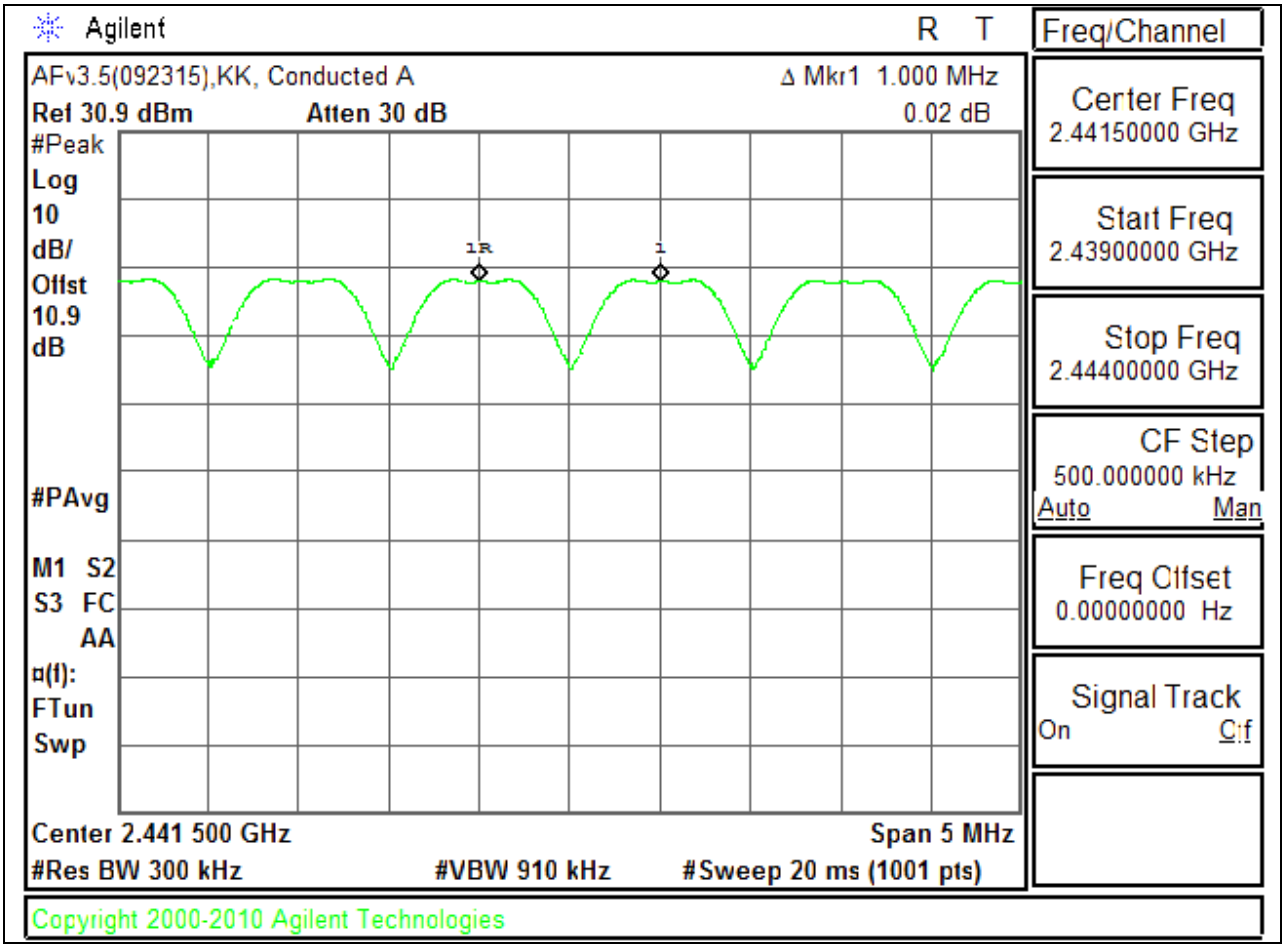
HOPPING FREQUENCY SEPARATION PLOT



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8.4. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-247 5.1.4

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.

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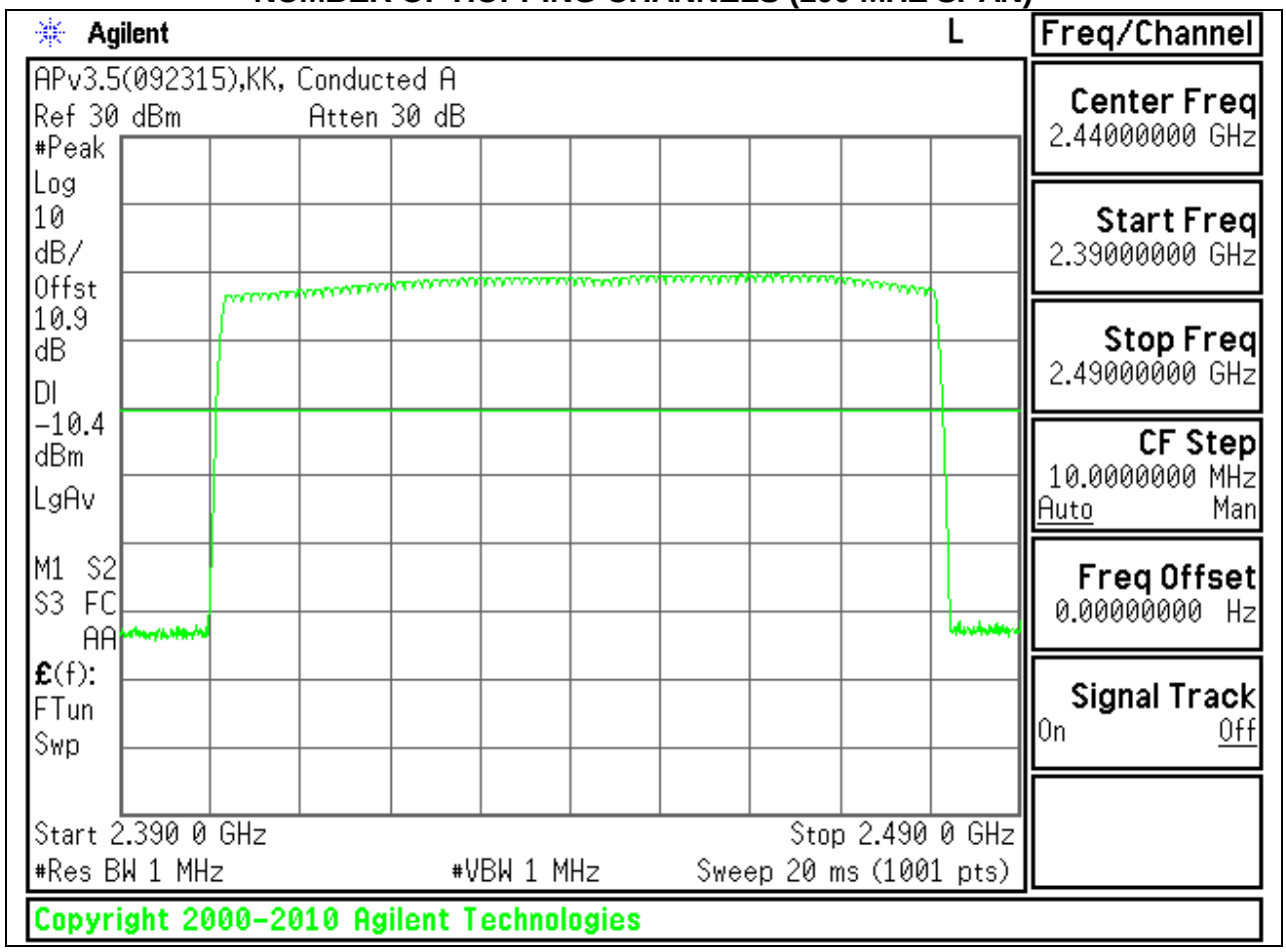
NUMBER OF HOPPING CHANNELS PLOTS

NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)



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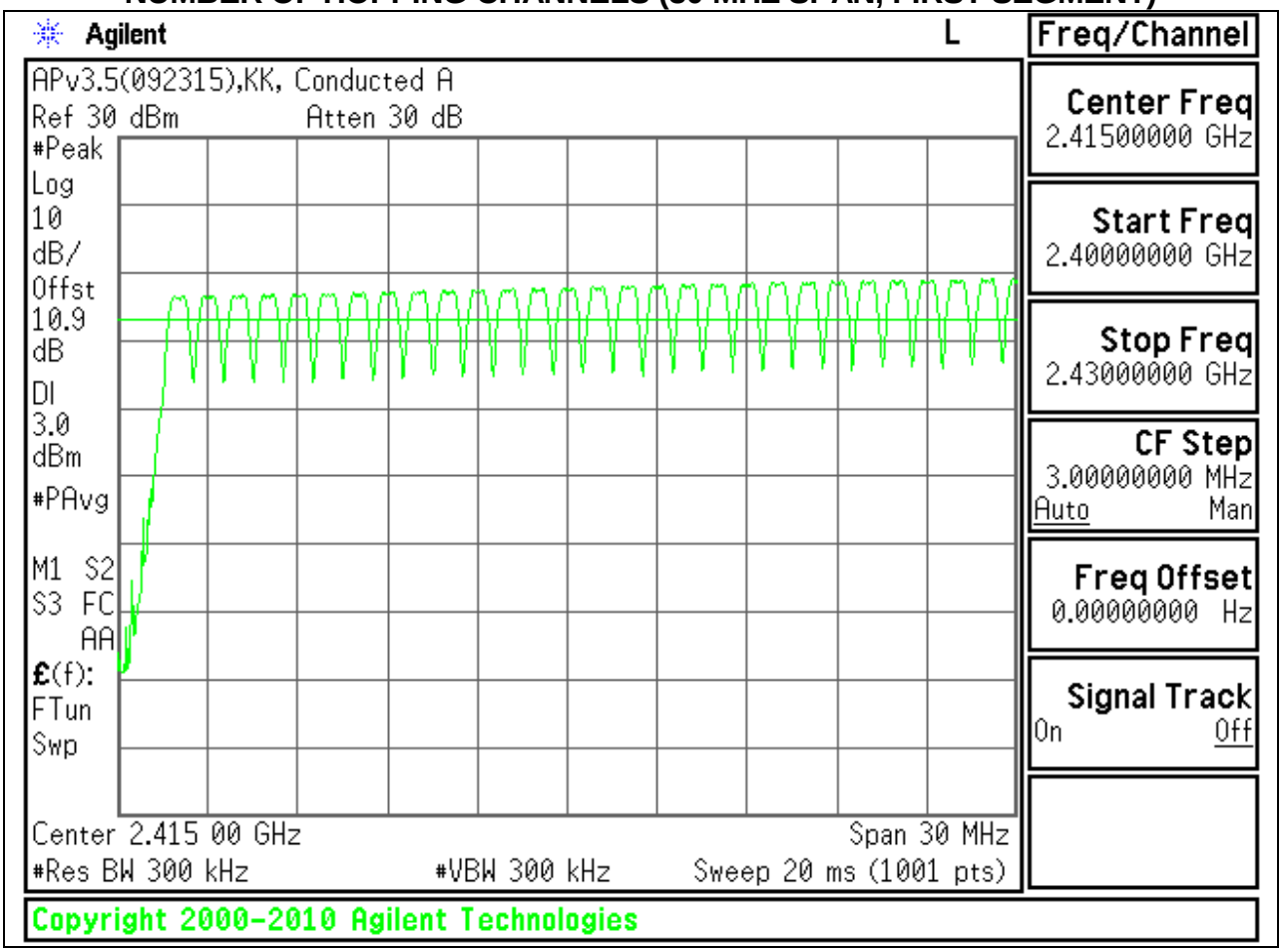
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)



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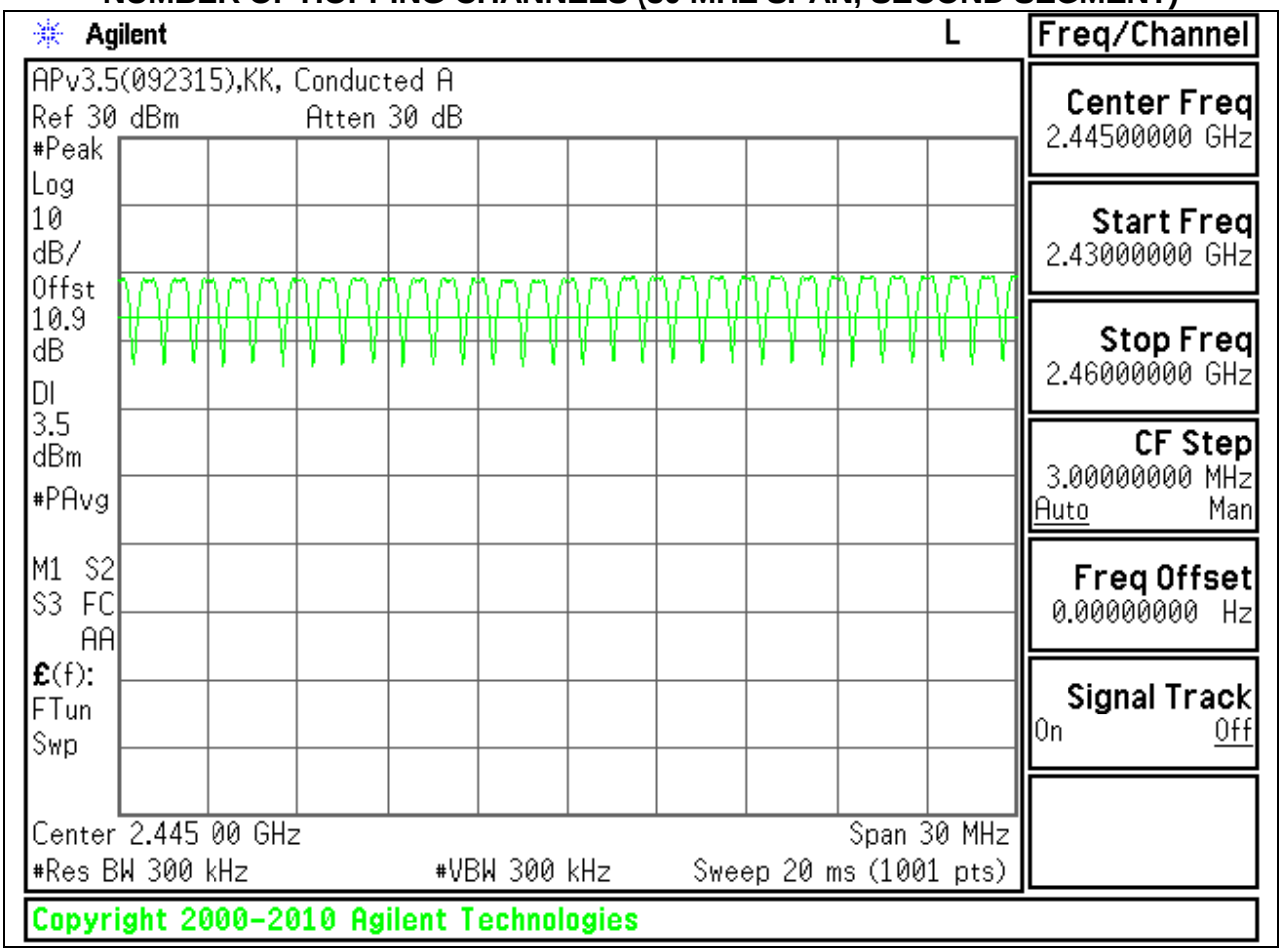
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, SECOND SEGMENT)



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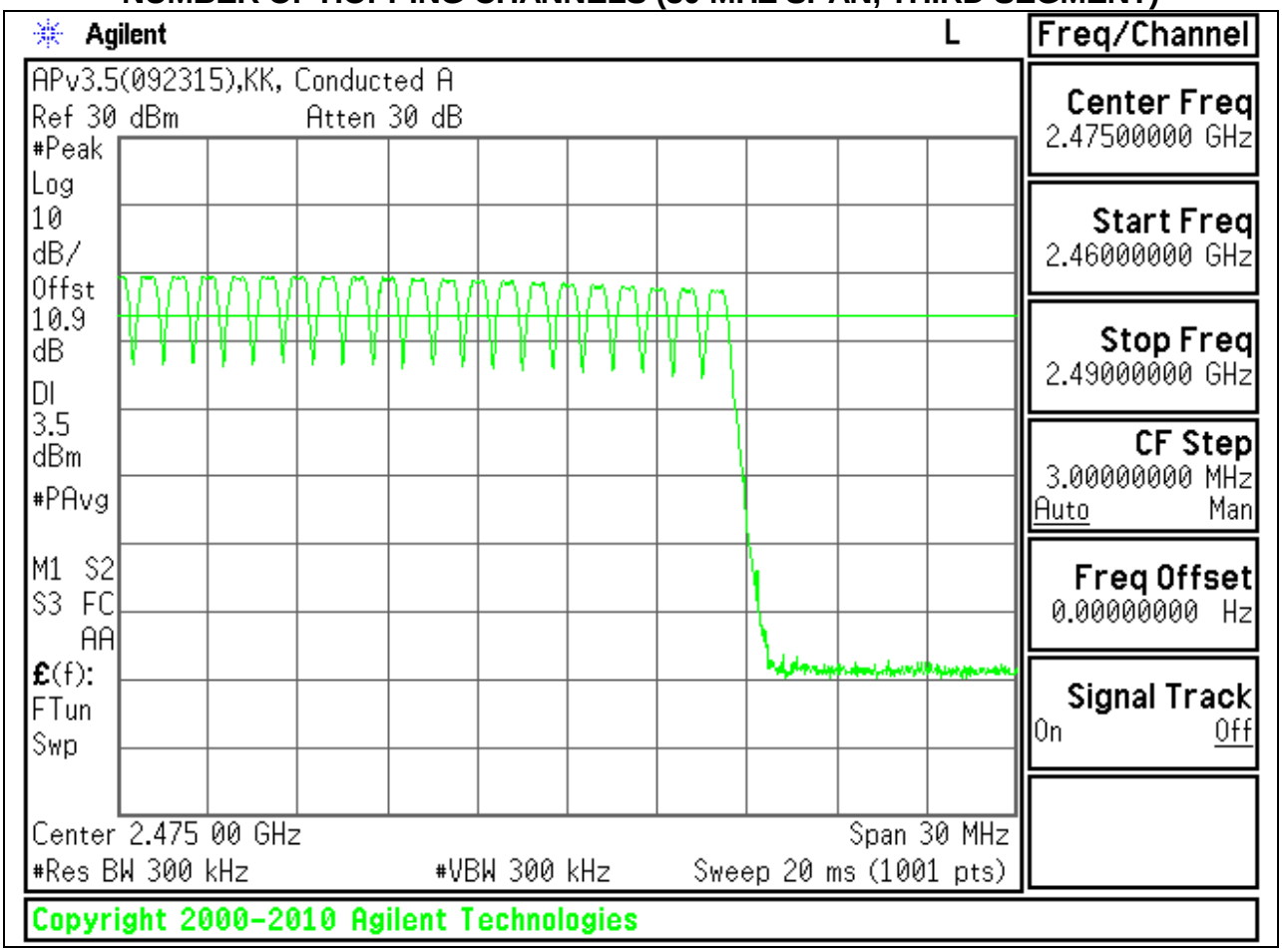
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, THIRD SEGMENT)



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8.5. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-247 5.1.4

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 * (# of pulses in 3.16 s) * 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 * (# of pulses in 0.8 s) * 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	0.3818	32	0.122176	0.4	-0.27782
DH3	1.677	14	0.23478	0.4	-0.16522
DH5	2.87	10	0.287	0.4	-0.113
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	0.3818	8	0.030544	0.4	-0.36946
DH3	1.677	3.5	0.058695	0.4	-0.34131
DH5	2.87	2.5	0.07175	0.4	-0.32825

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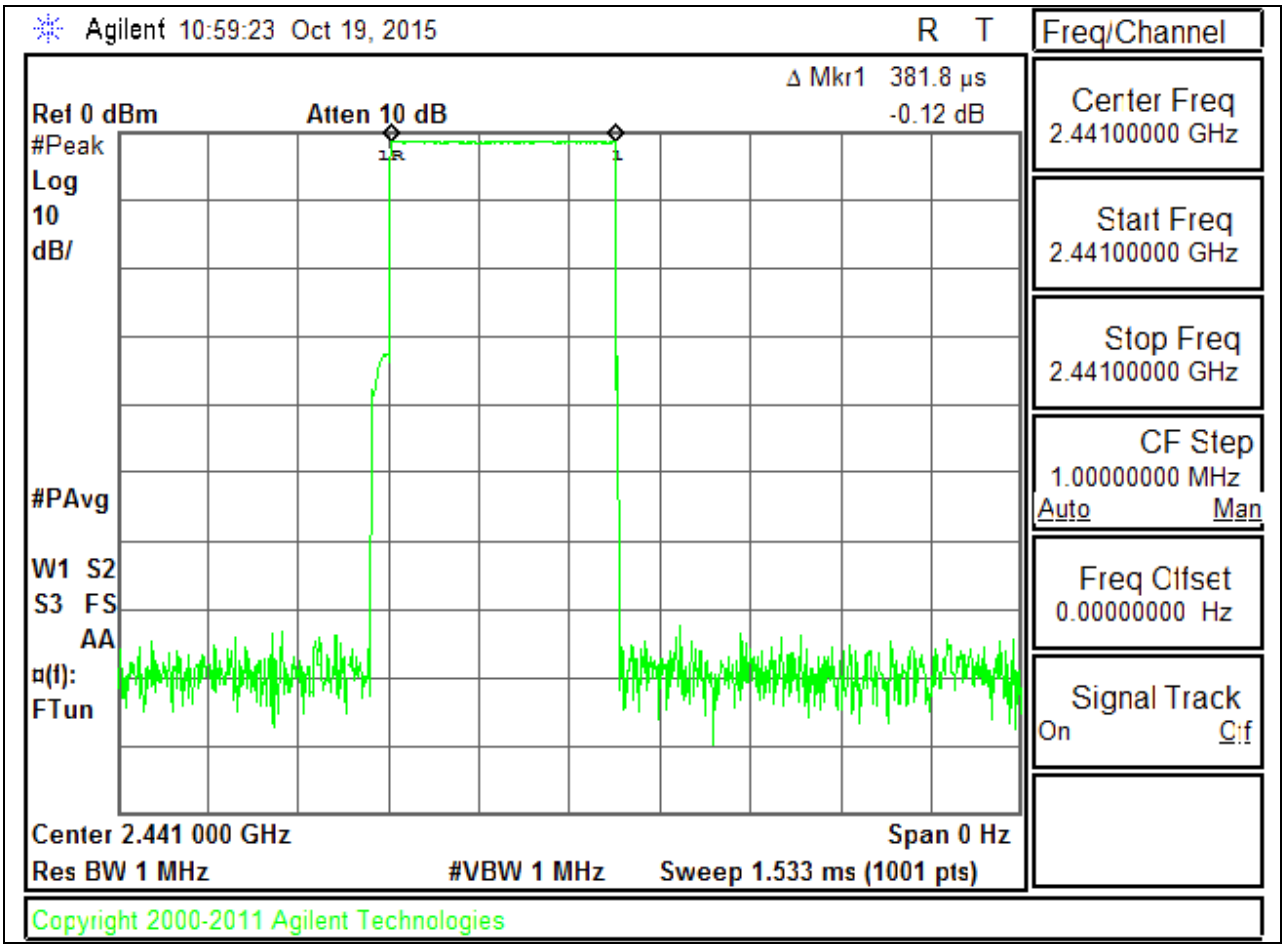
PULSE WIDTH - DH1



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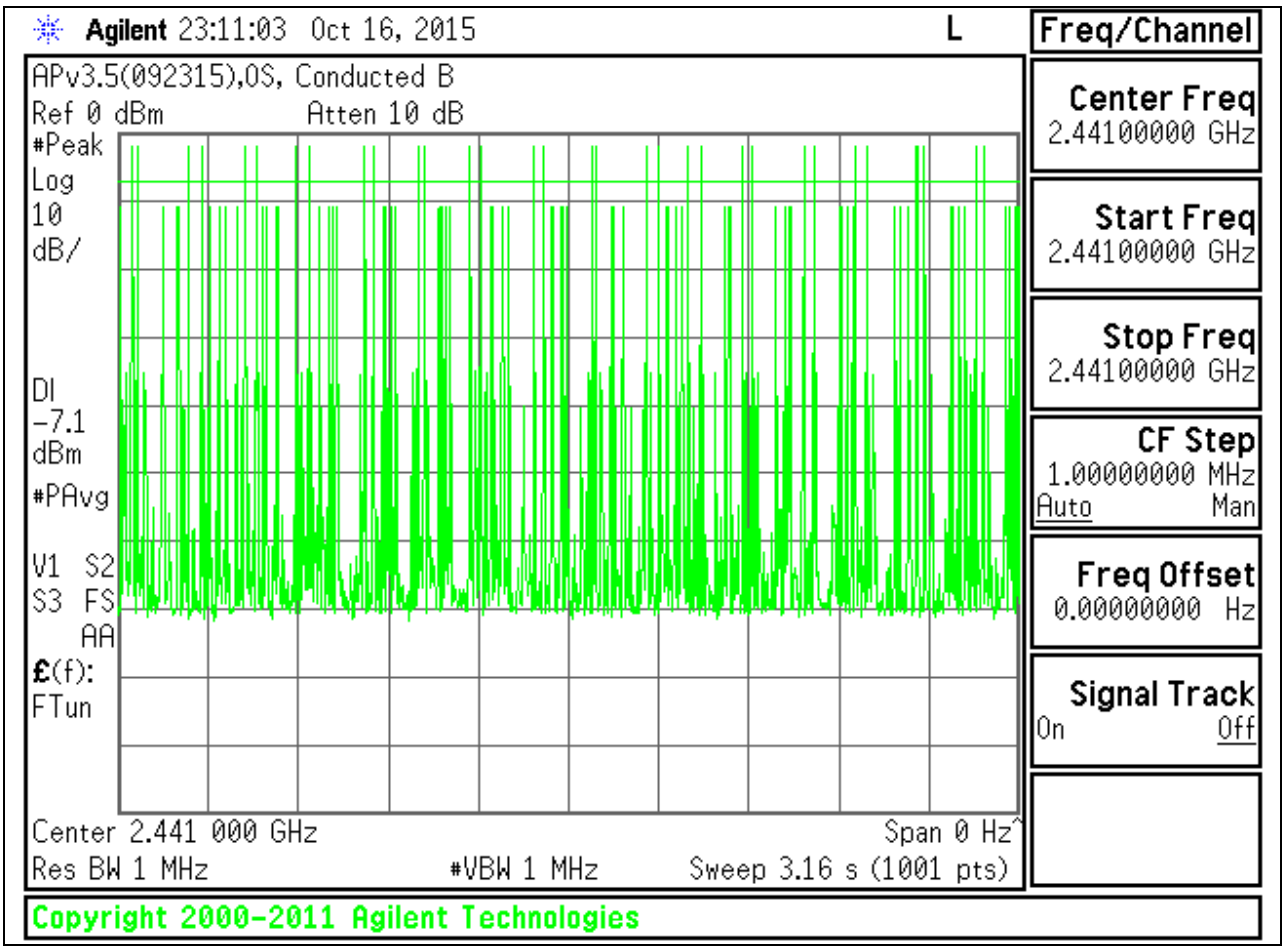
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH1



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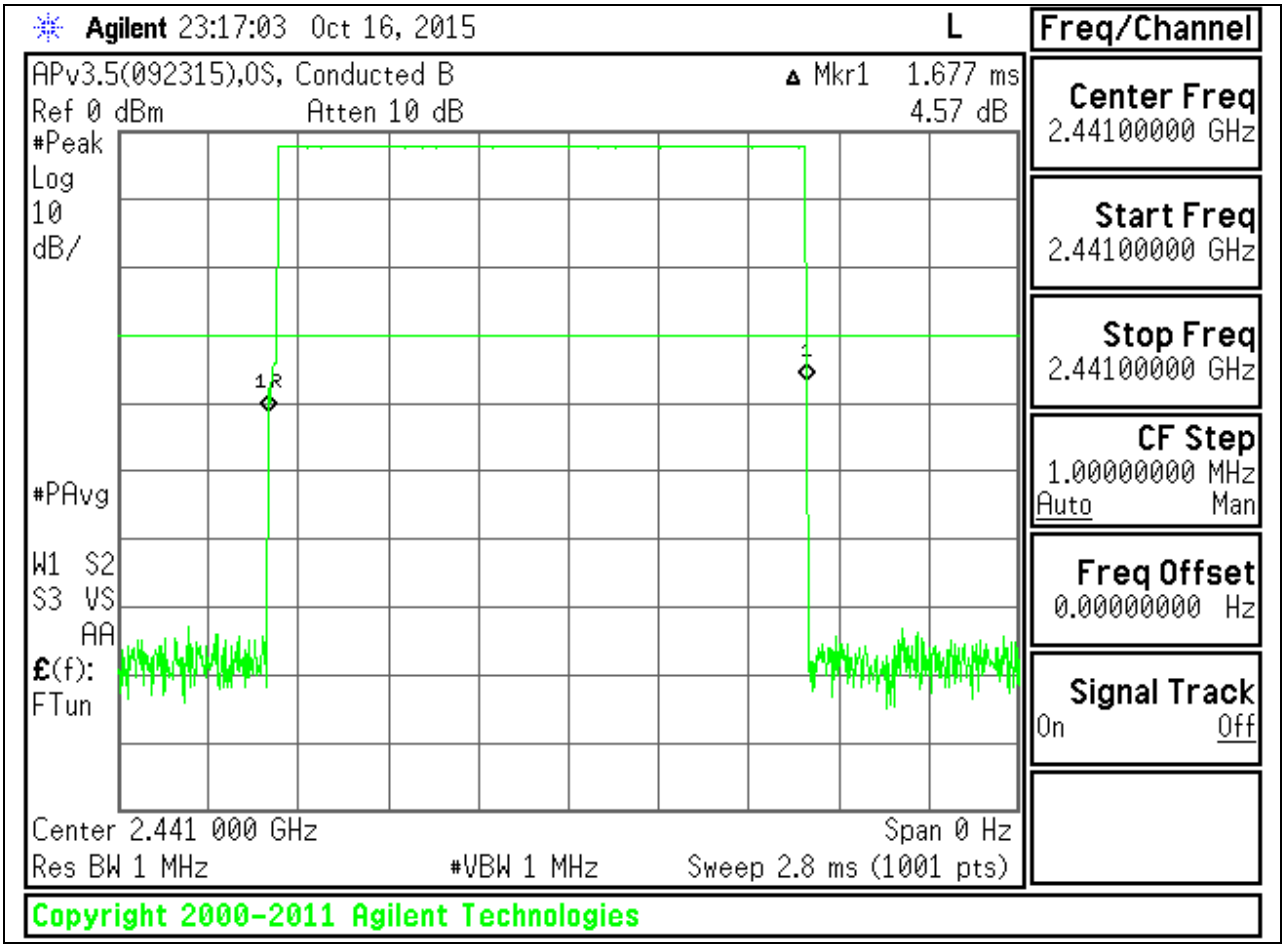
PULSE WIDTH - DH3



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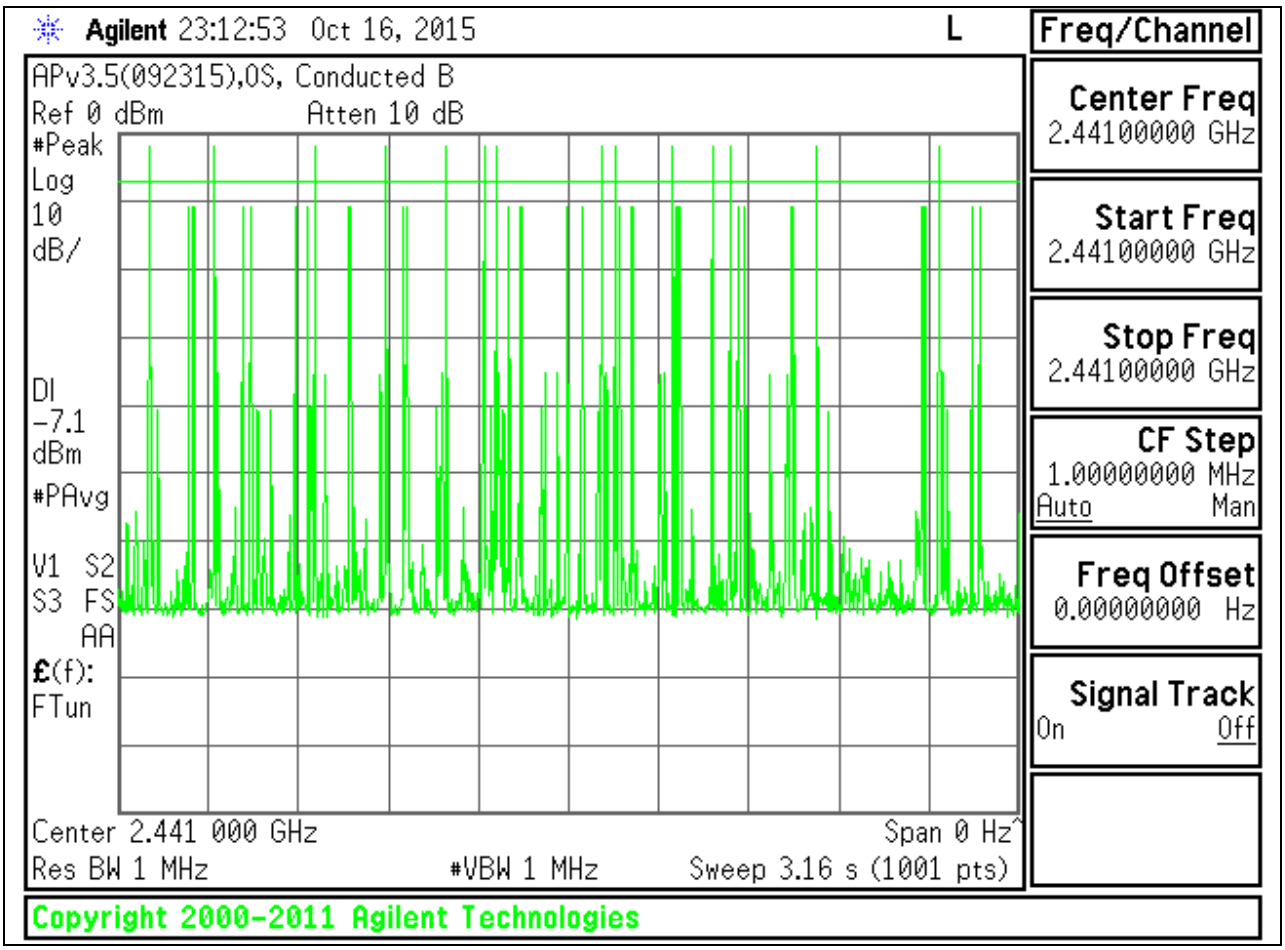
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH3



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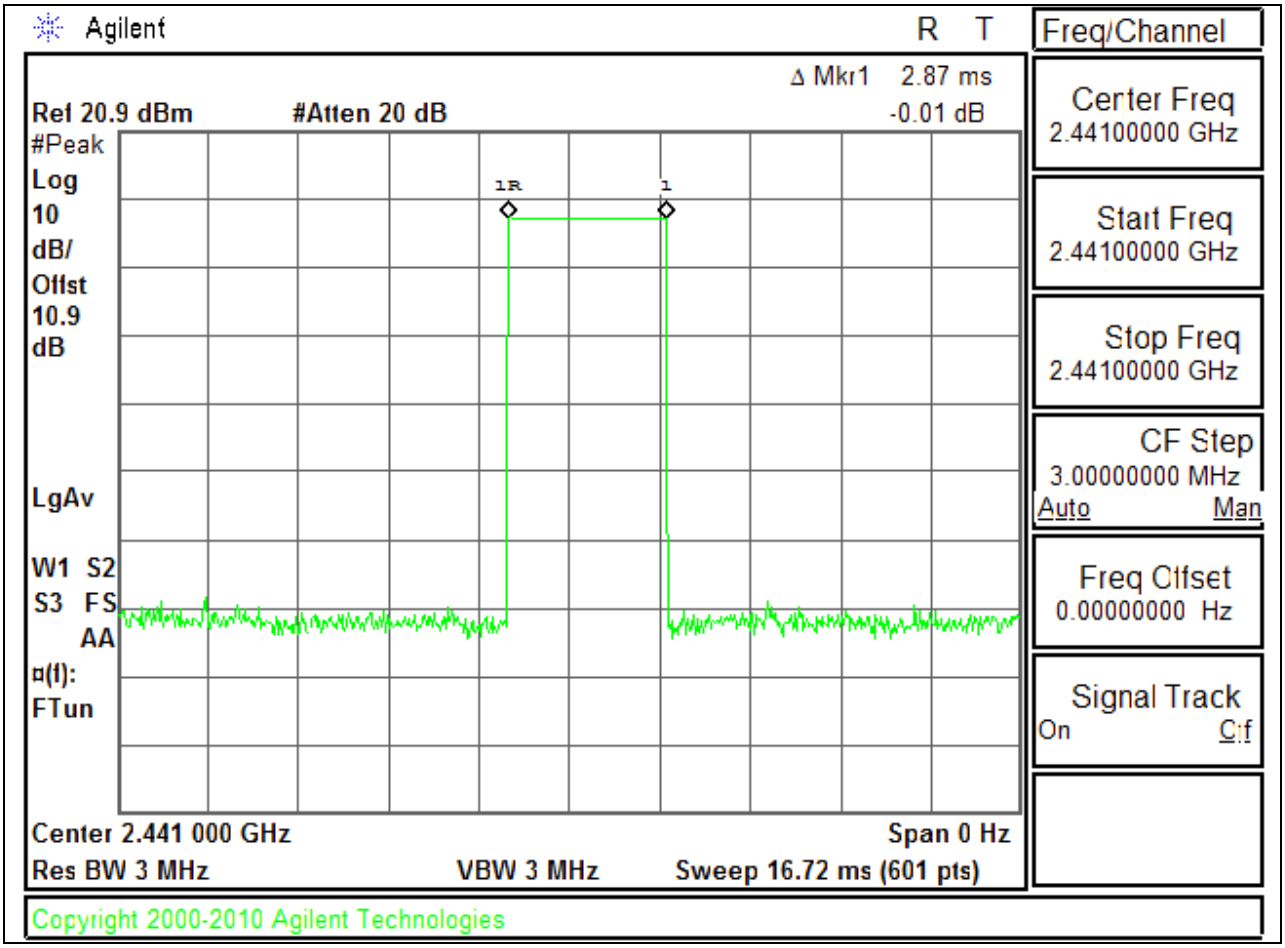
PULSE WIDTH - DH5



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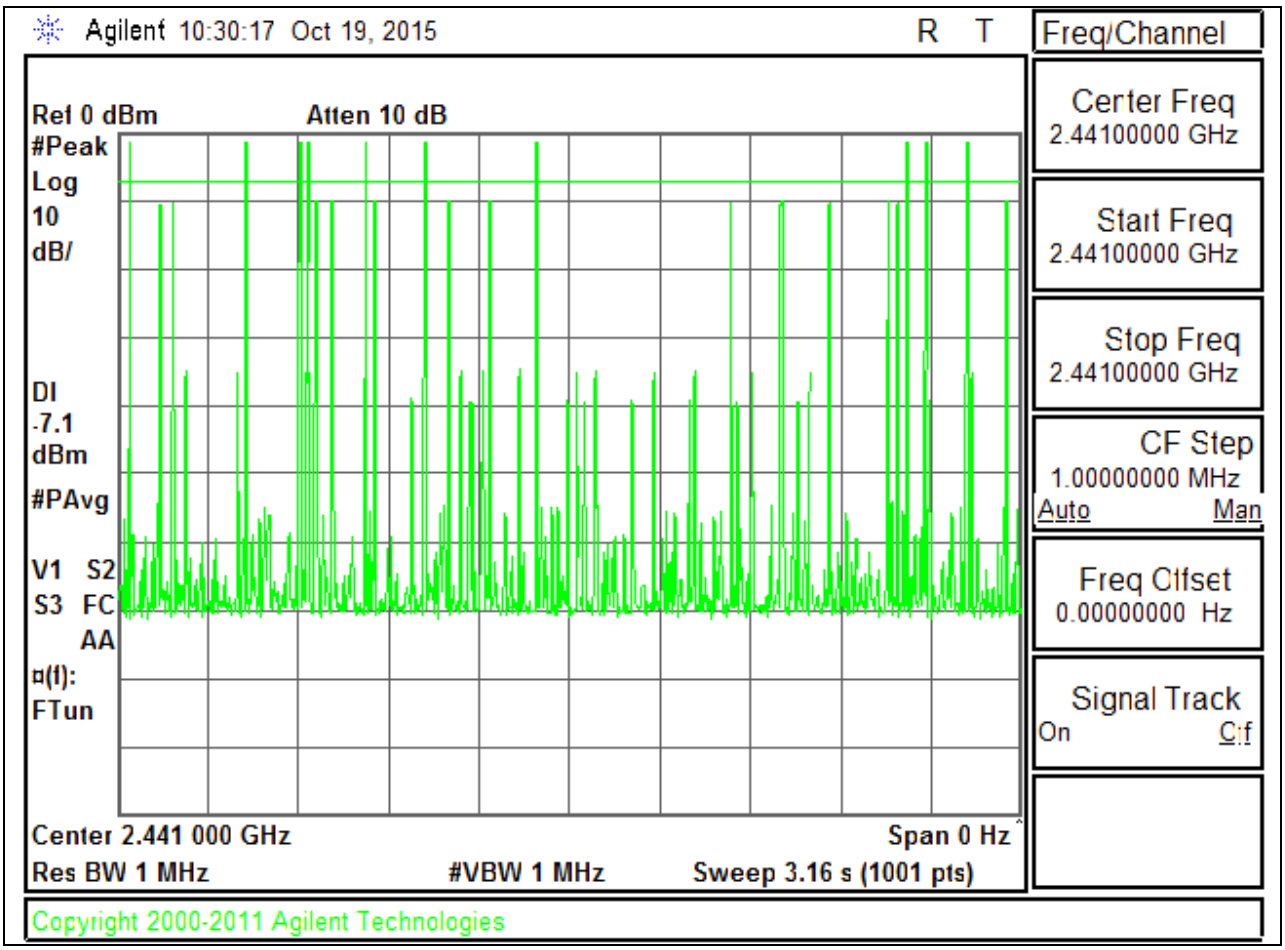
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH5



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8.6. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-247 5.4.2

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

8.6.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.21	21	-13.79
Middle	2441	10.63	21	-10.37
High	2480	9.29	21	-11.71
Worst		10.63		-10.37

8.6.2. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	6.92	21	-14.08
Middle	2441	9.97	21	-11.03
High	2480	8.99	21	-12.01
Worst		9.97		-11.03

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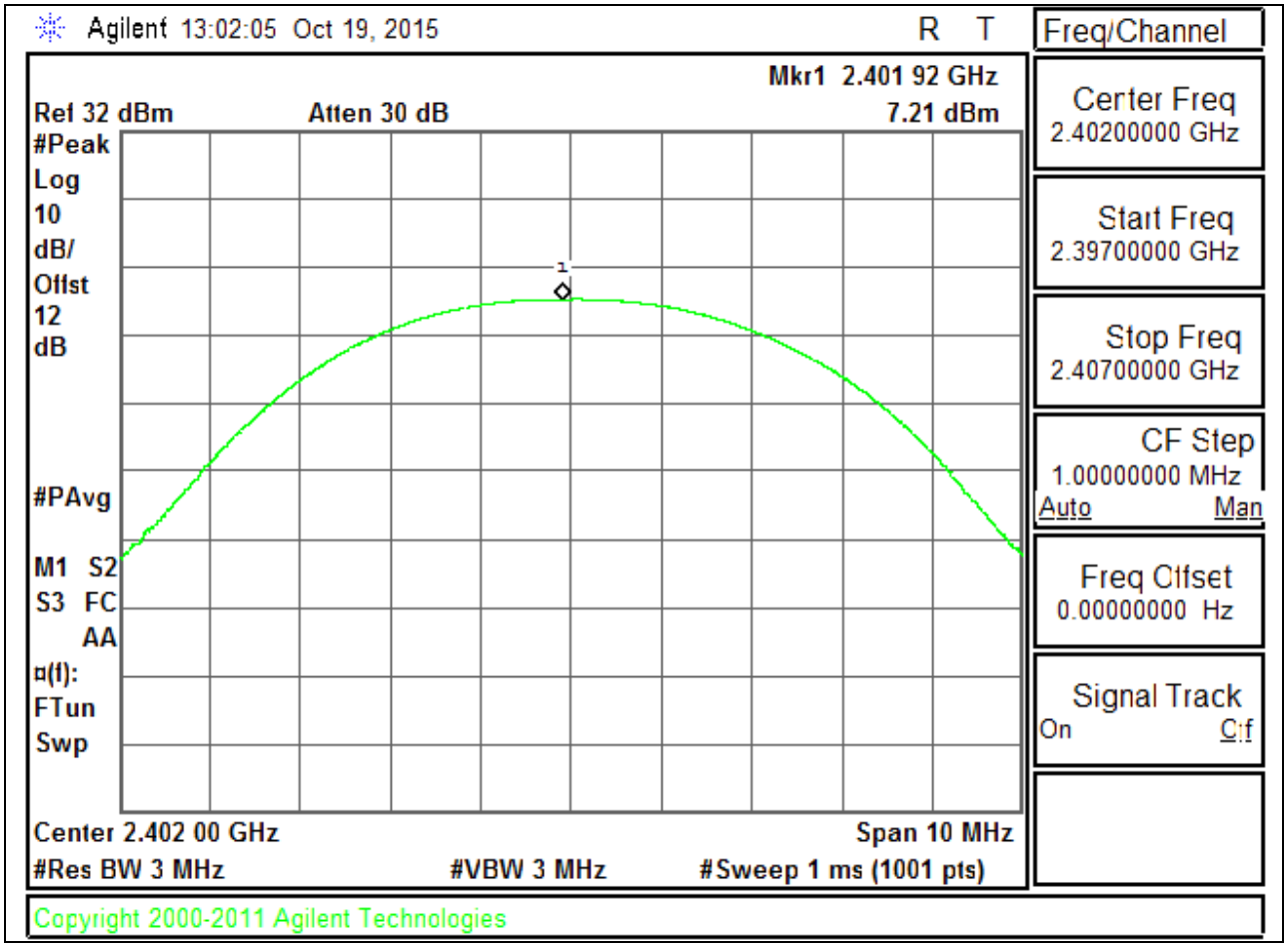
8.6.1. OUTPUT POWER PLOTS

GFSK OUTPUT POWER

LOW CHANNEL



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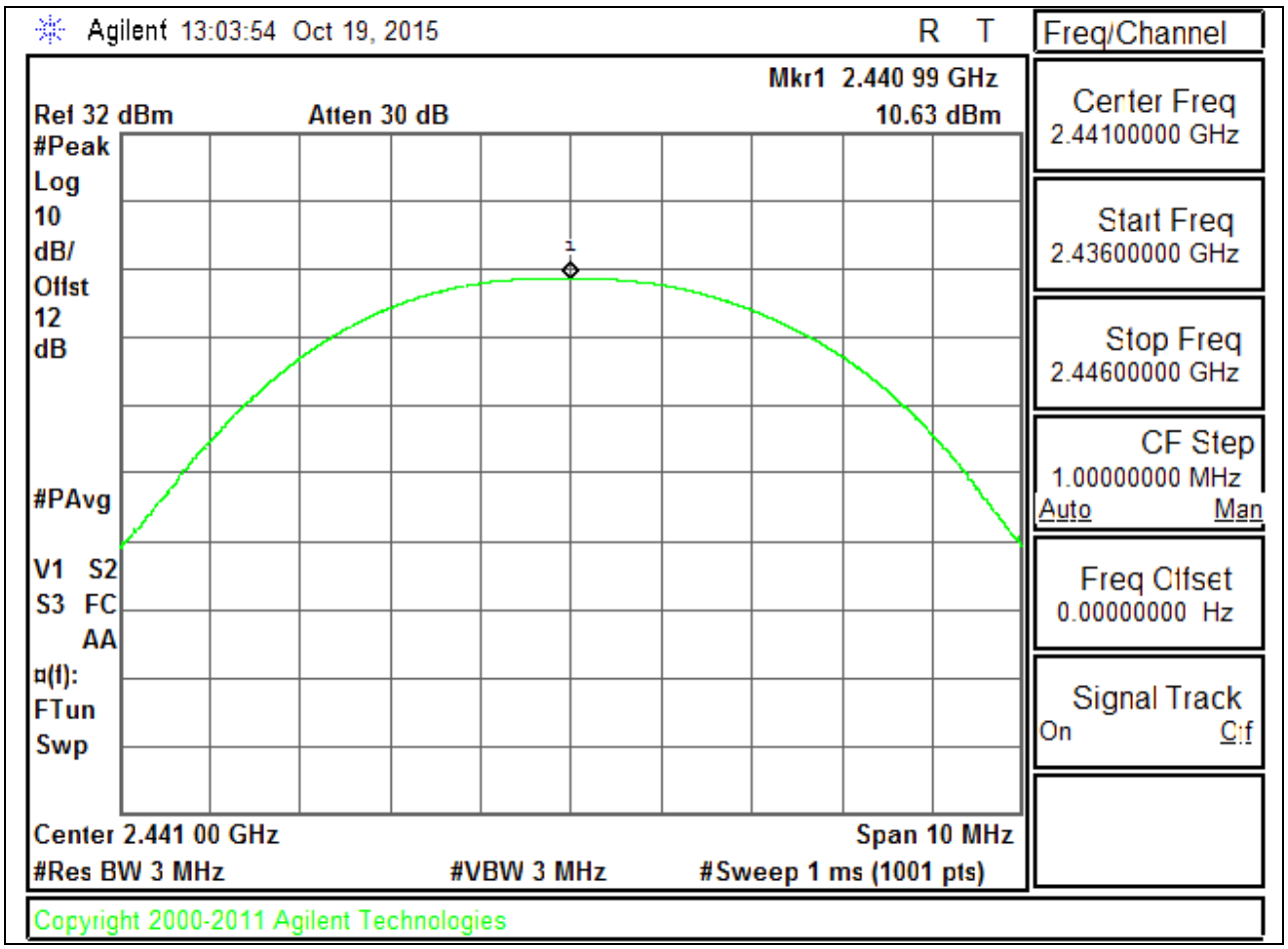
MID CHANNEL



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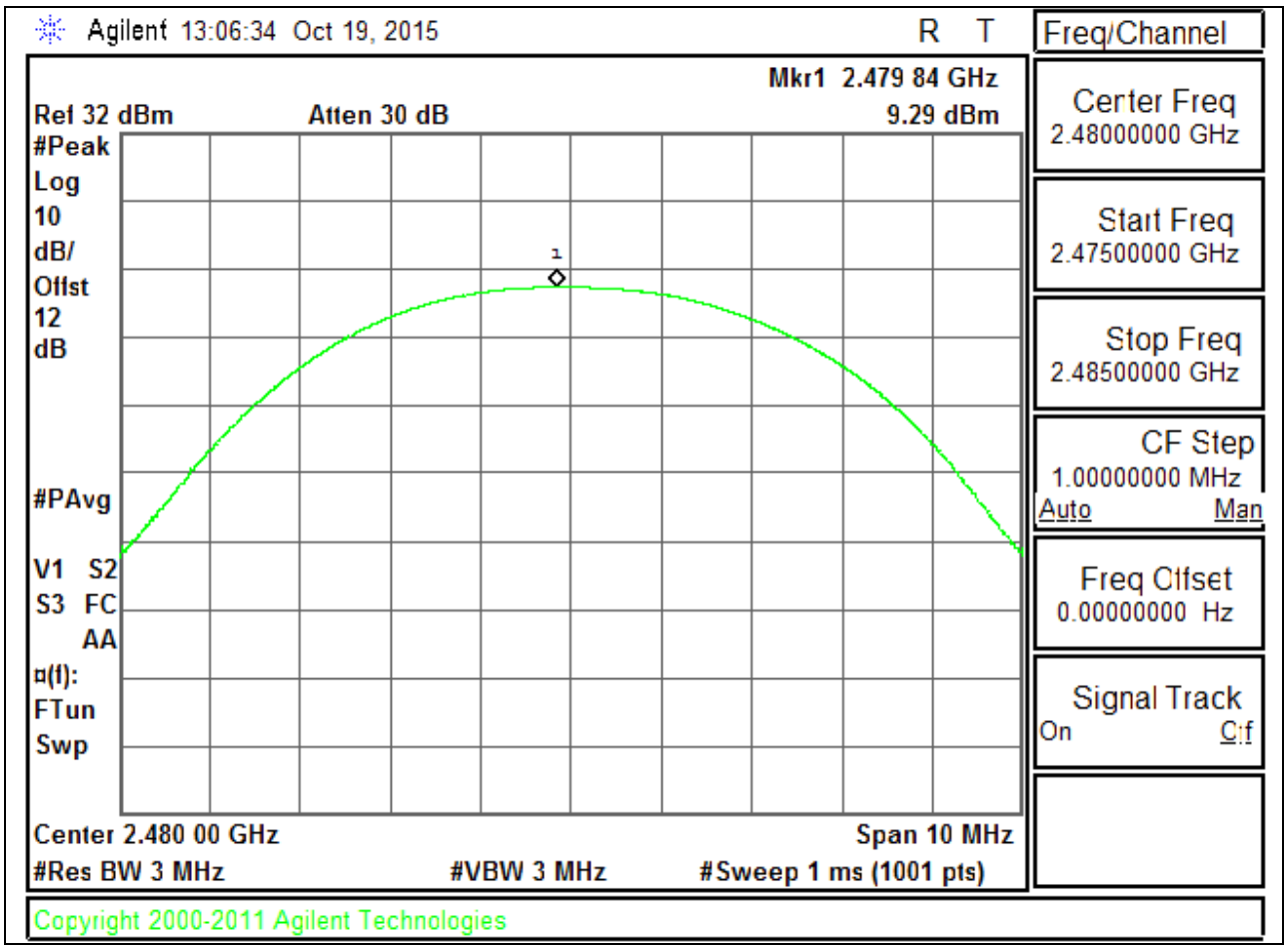
HIGH CHANNEL



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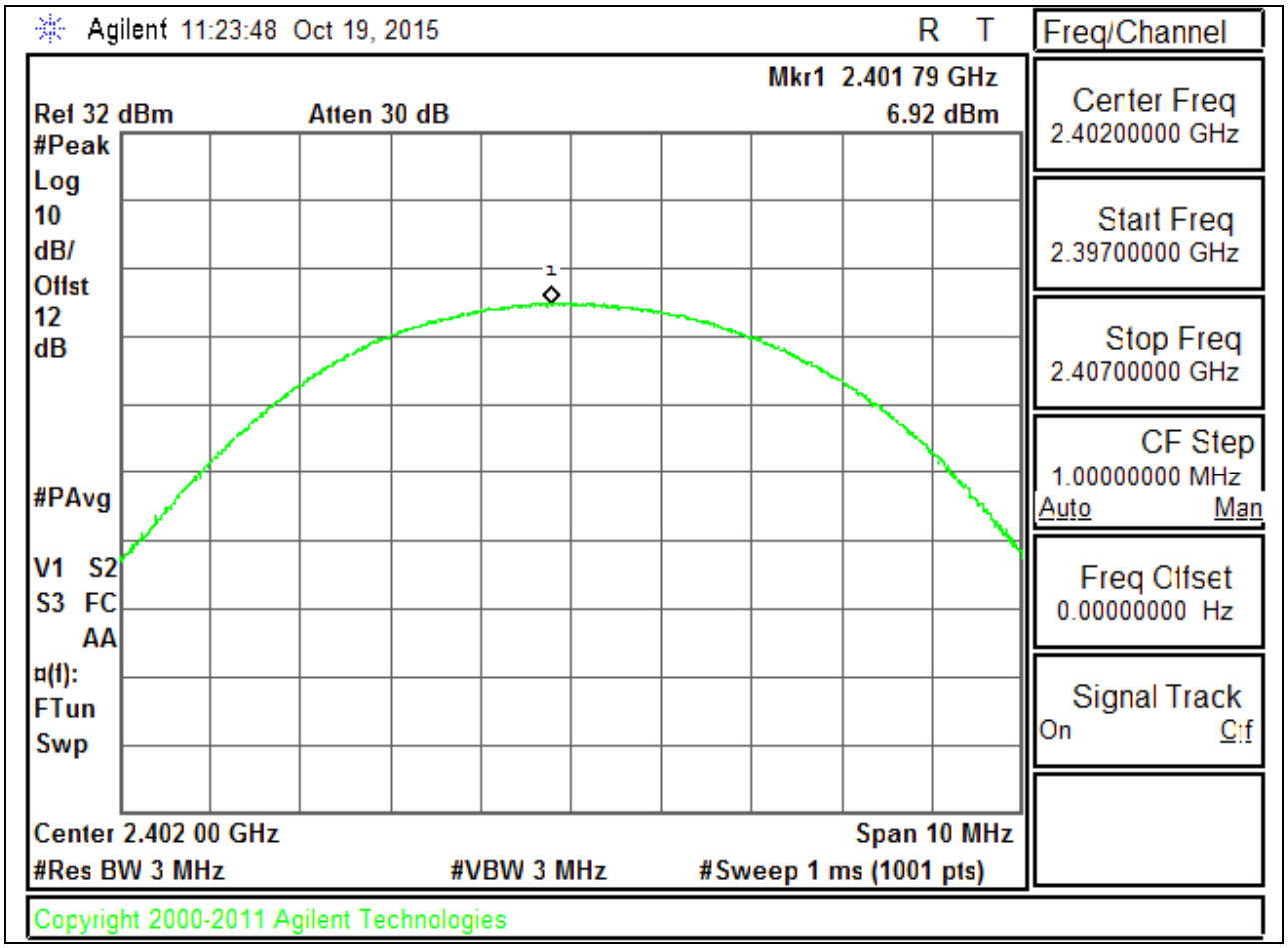
8PSK OUTPUT POWER

LOW CHANNEL



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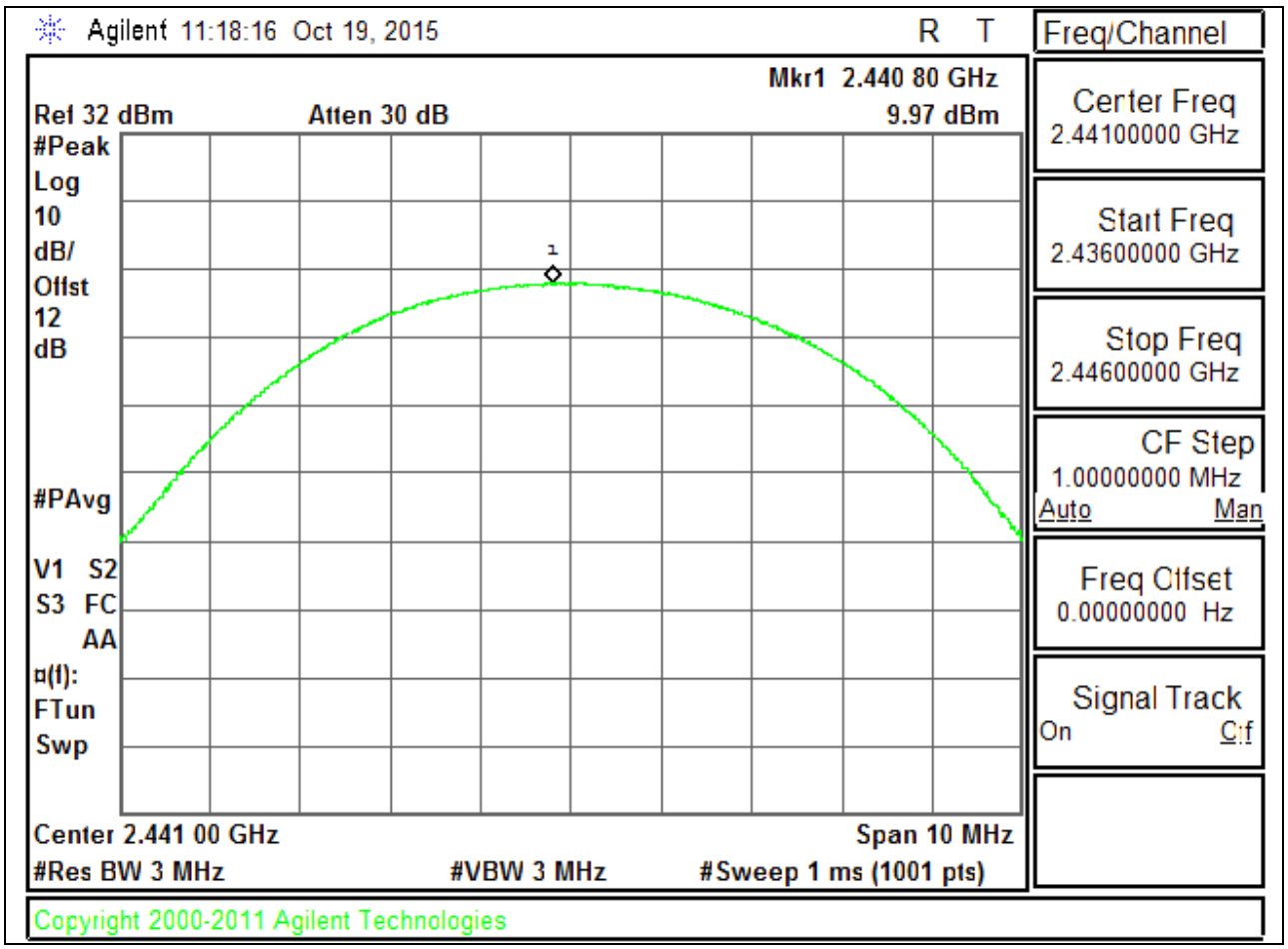
MID CHANNEL



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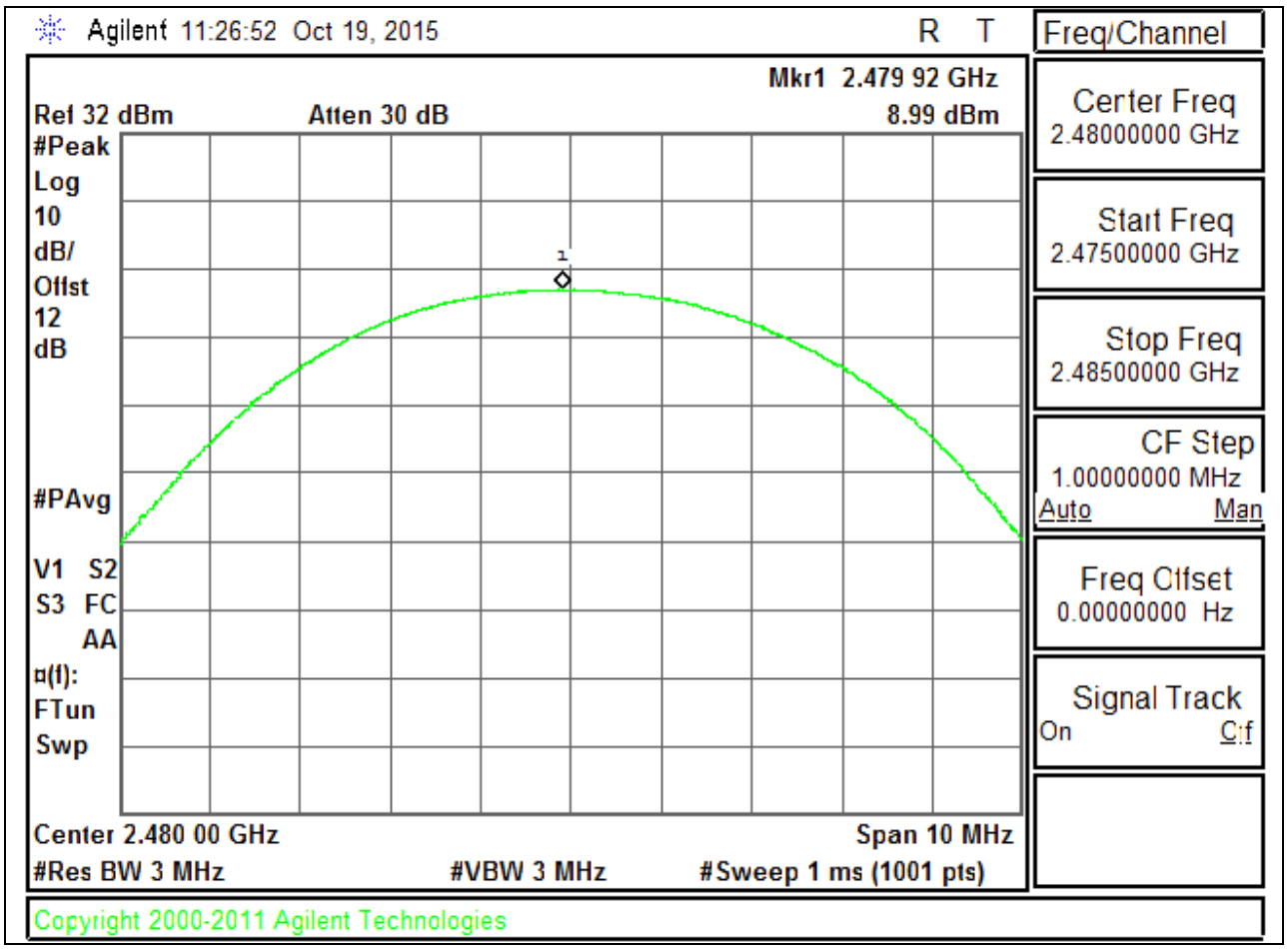
HIGH CHANNEL



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8.7. 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.

8.7.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	6.30
Middle	2441	8.90
High	2480	7.21
Worst		8.90

8.7.2. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	3.50
Middle	2441	6.50
High	2480	4.90
Worst		6.50

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8.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 5.5

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

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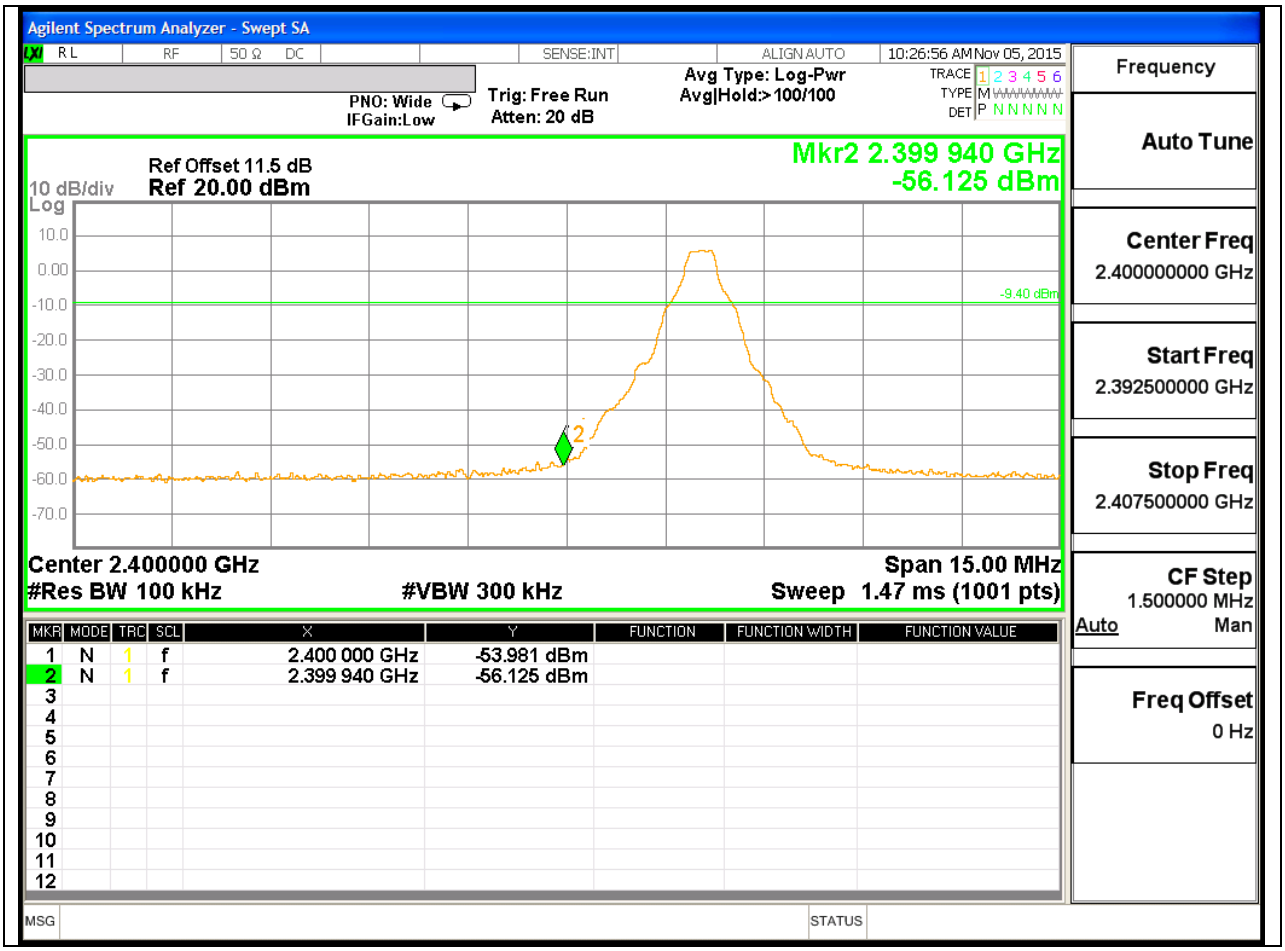
8.8.1. BASIC DATA RATE GFSK MODULATION

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE



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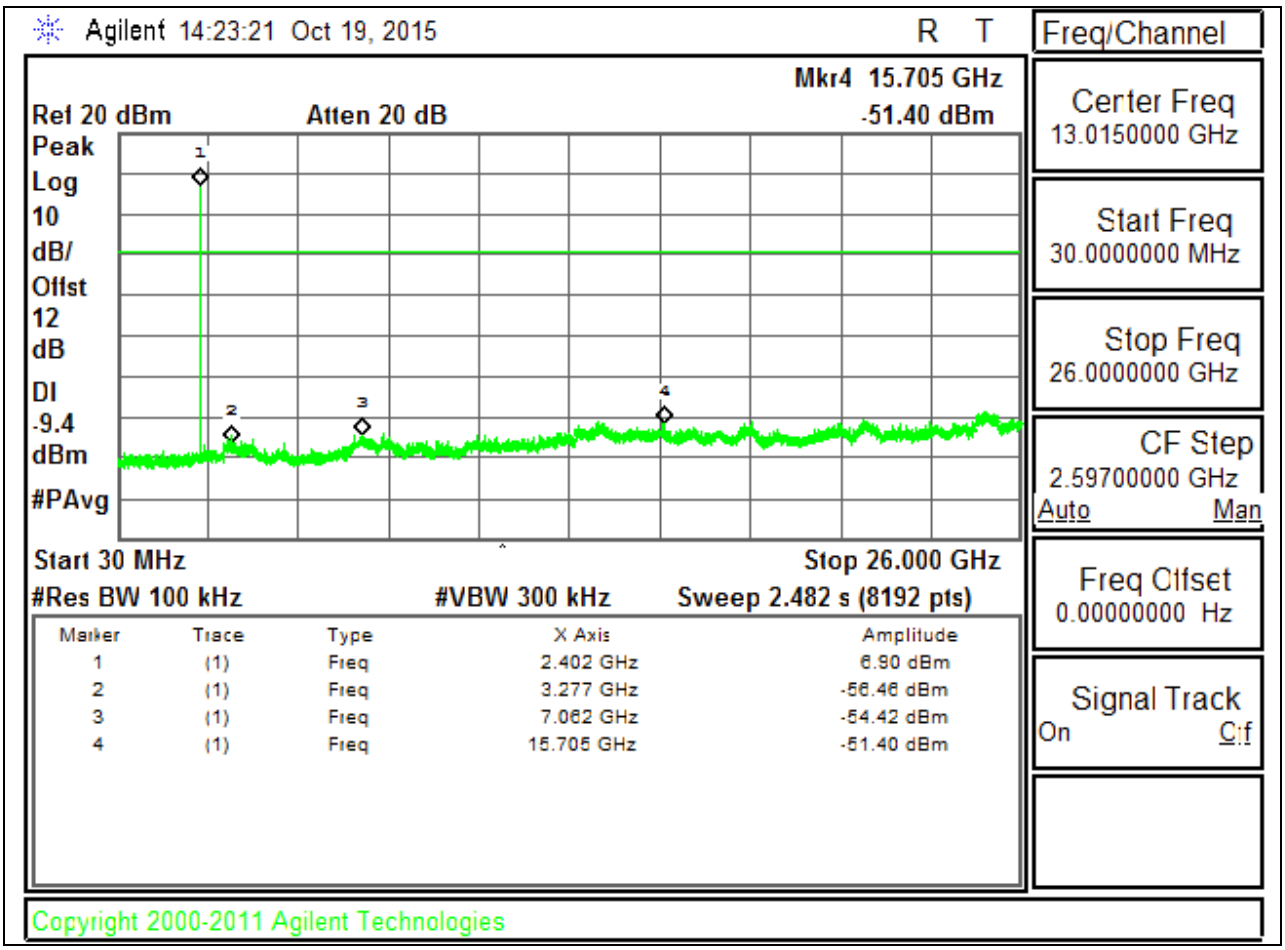
LOW CHANNEL SPURIOUS



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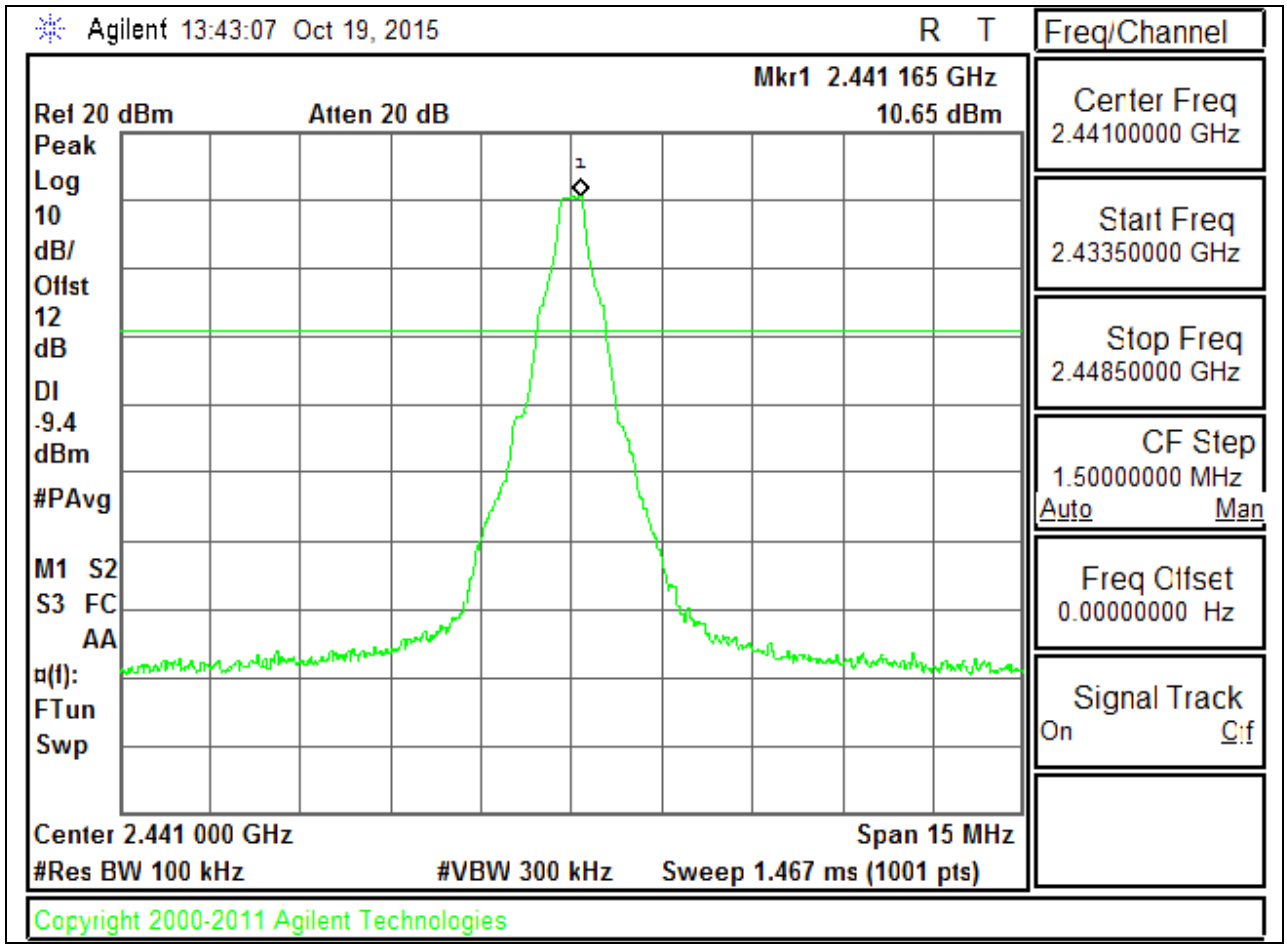
SPURIOUS EMISSIONS, MID CHANNEL

MID CHANNEL BANDEDGE



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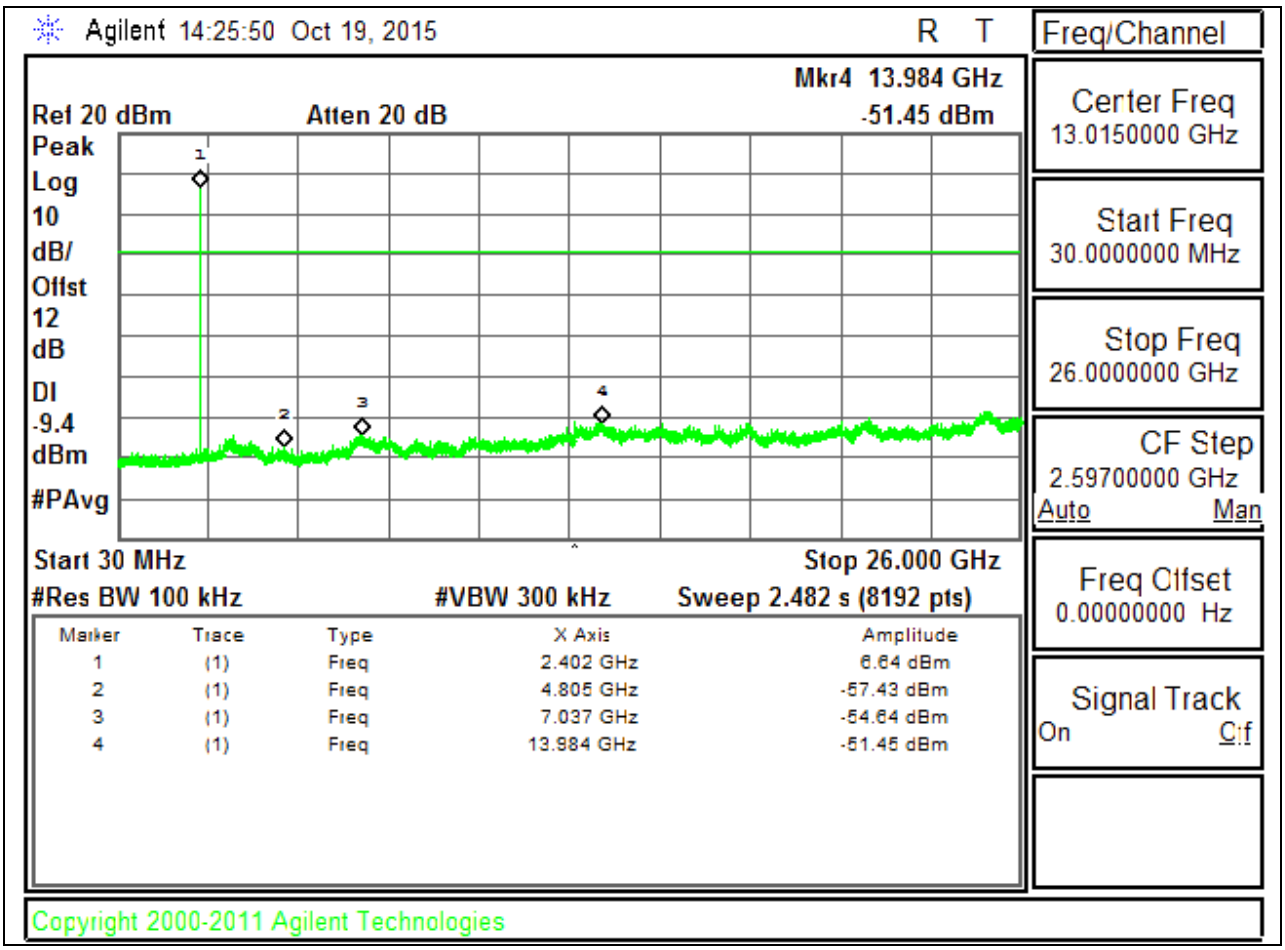
MID CHANNEL SPURIOUS



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.402 GHz	6.64 dBm
2	(1)	Freq	4.805 GHz	-57.43 dBm
3	(1)	Freq	7.037 GHz	-54.64 dBm
4	(1)	Freq	13.984 GHz	-51.45 dBm

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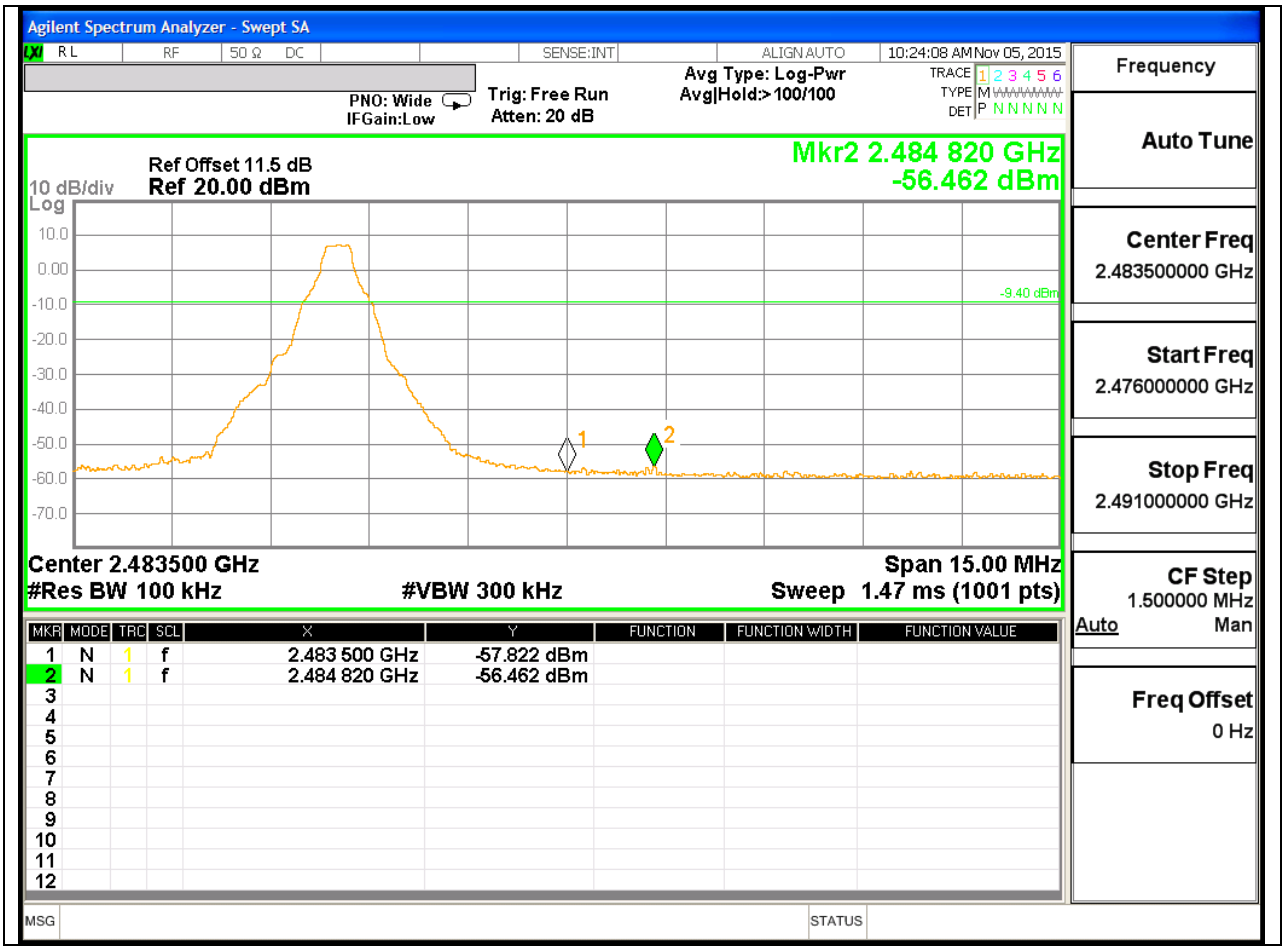
SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE



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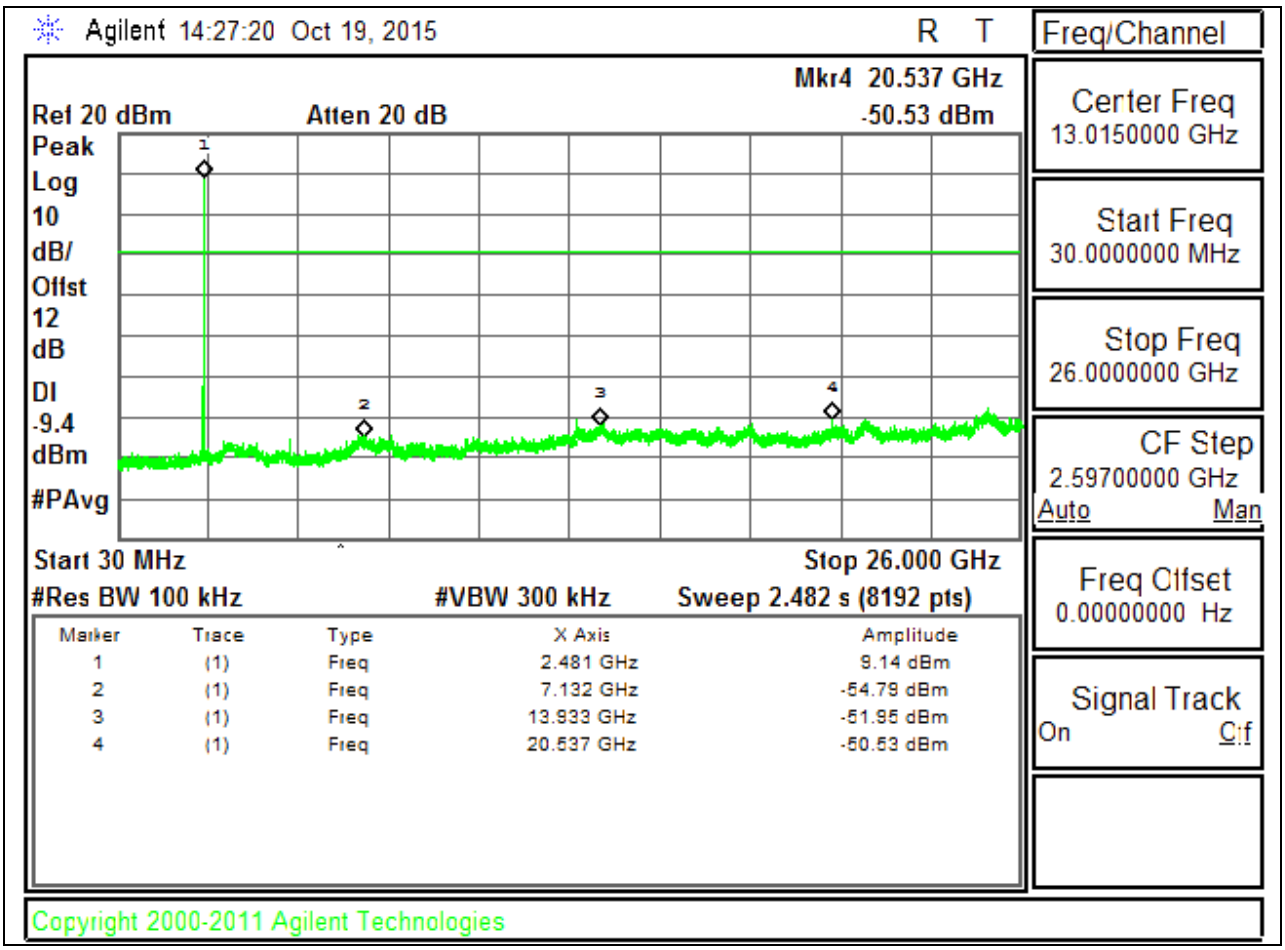
HIGH CHANNEL SPURIOUS



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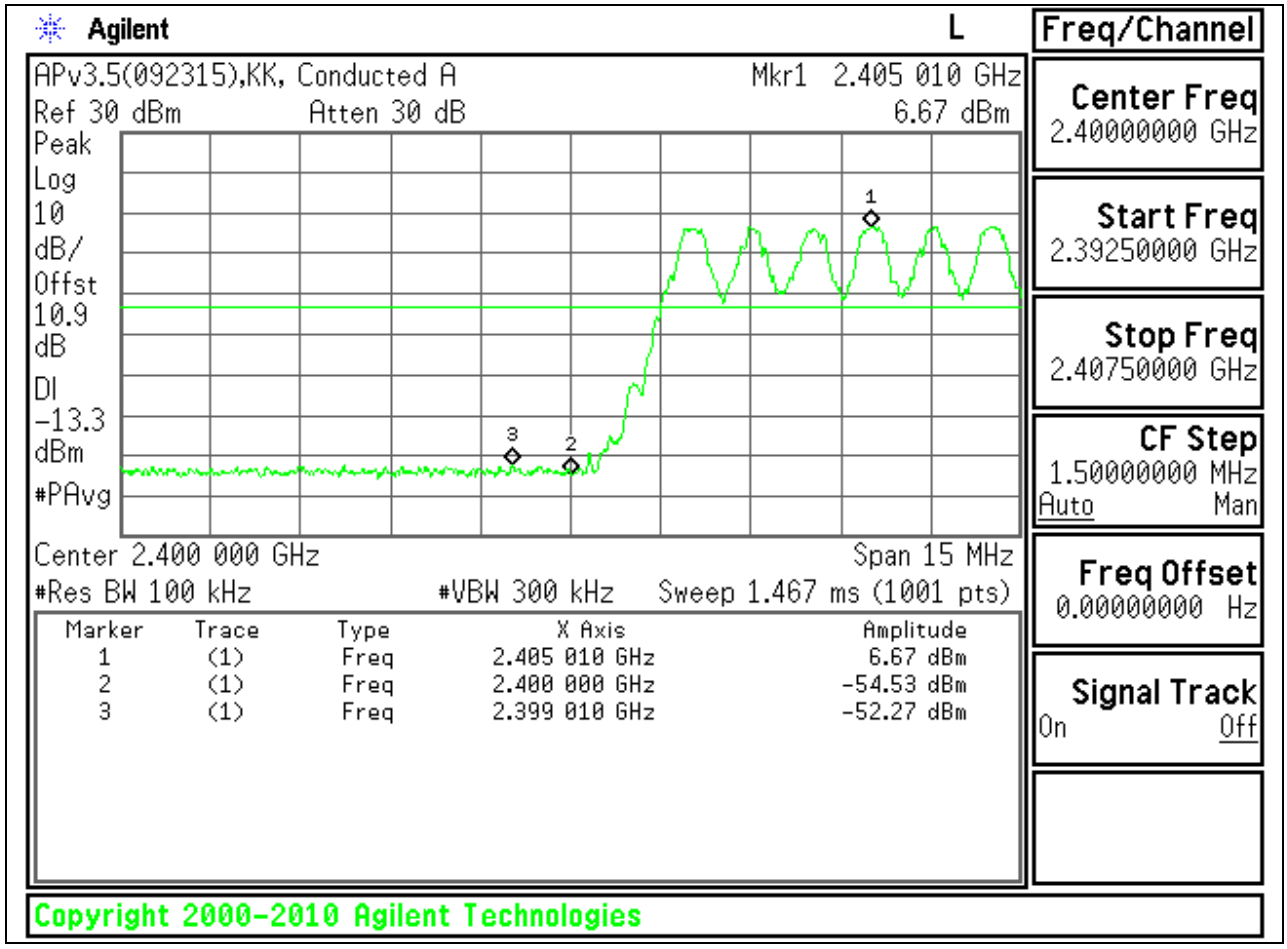
SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



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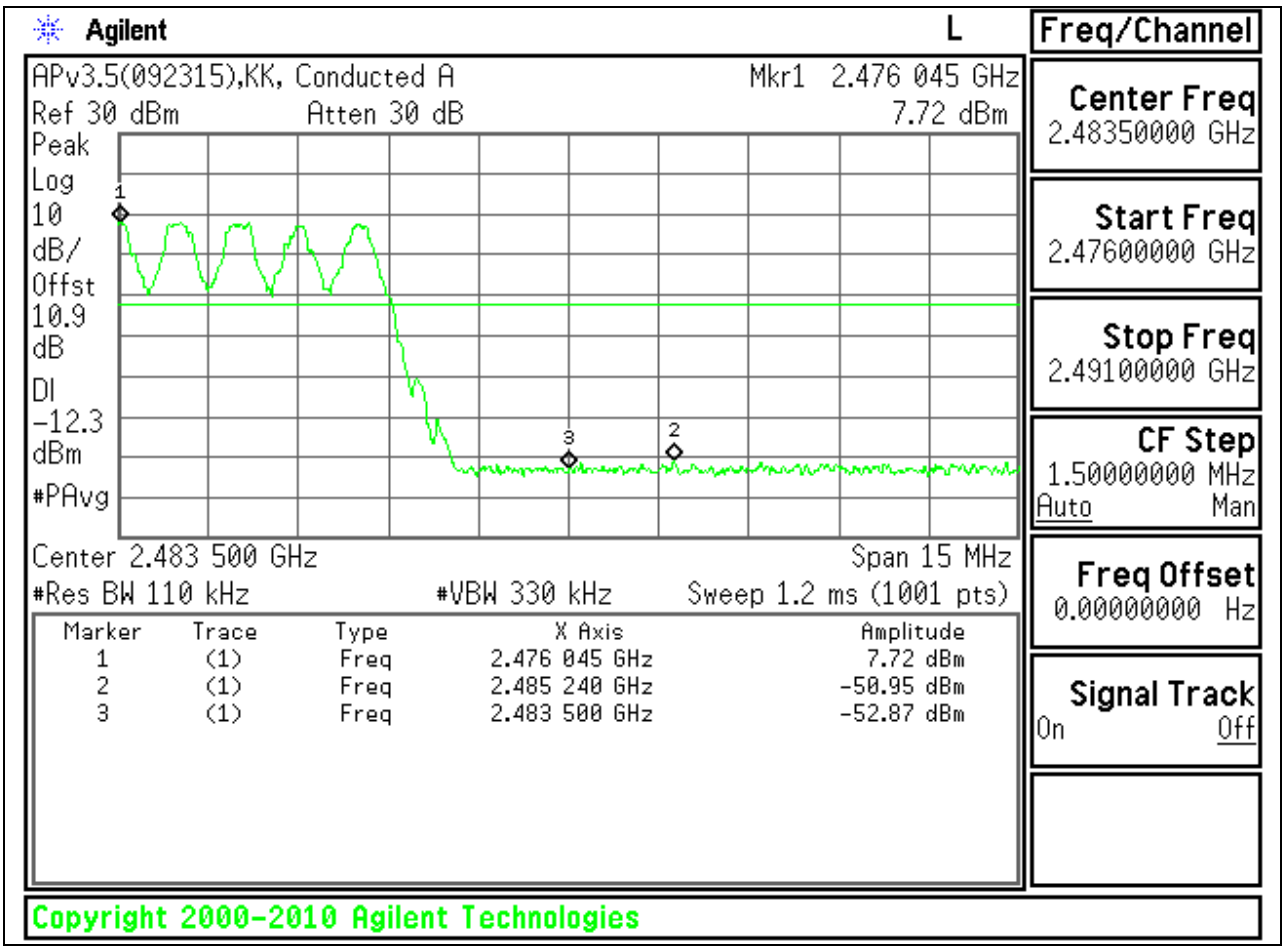
HIGH BANDEDGE WITH HOPPING ON



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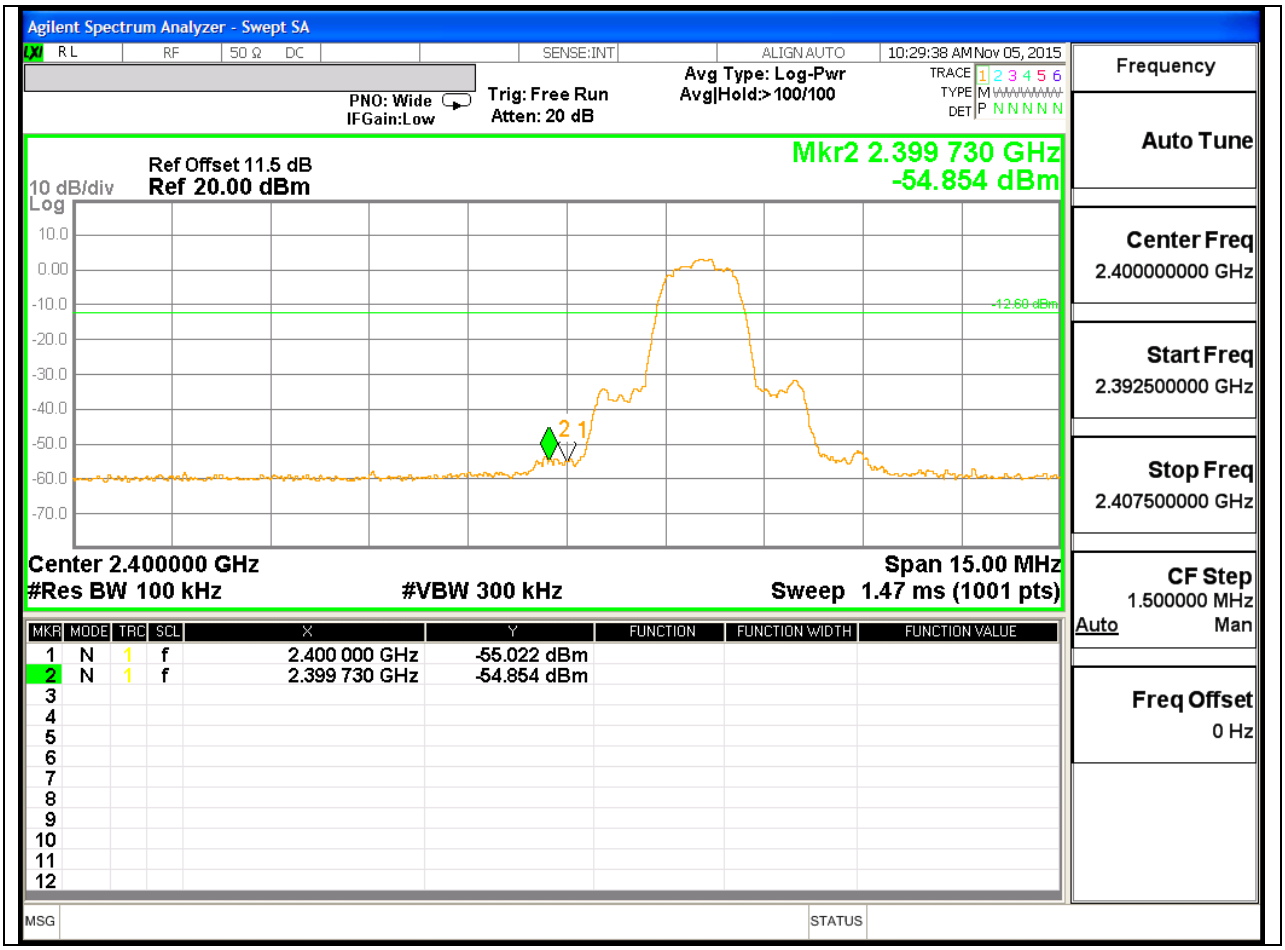
8.8.2. ENHANCED DATA RATE 8PSK MODULATION

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE



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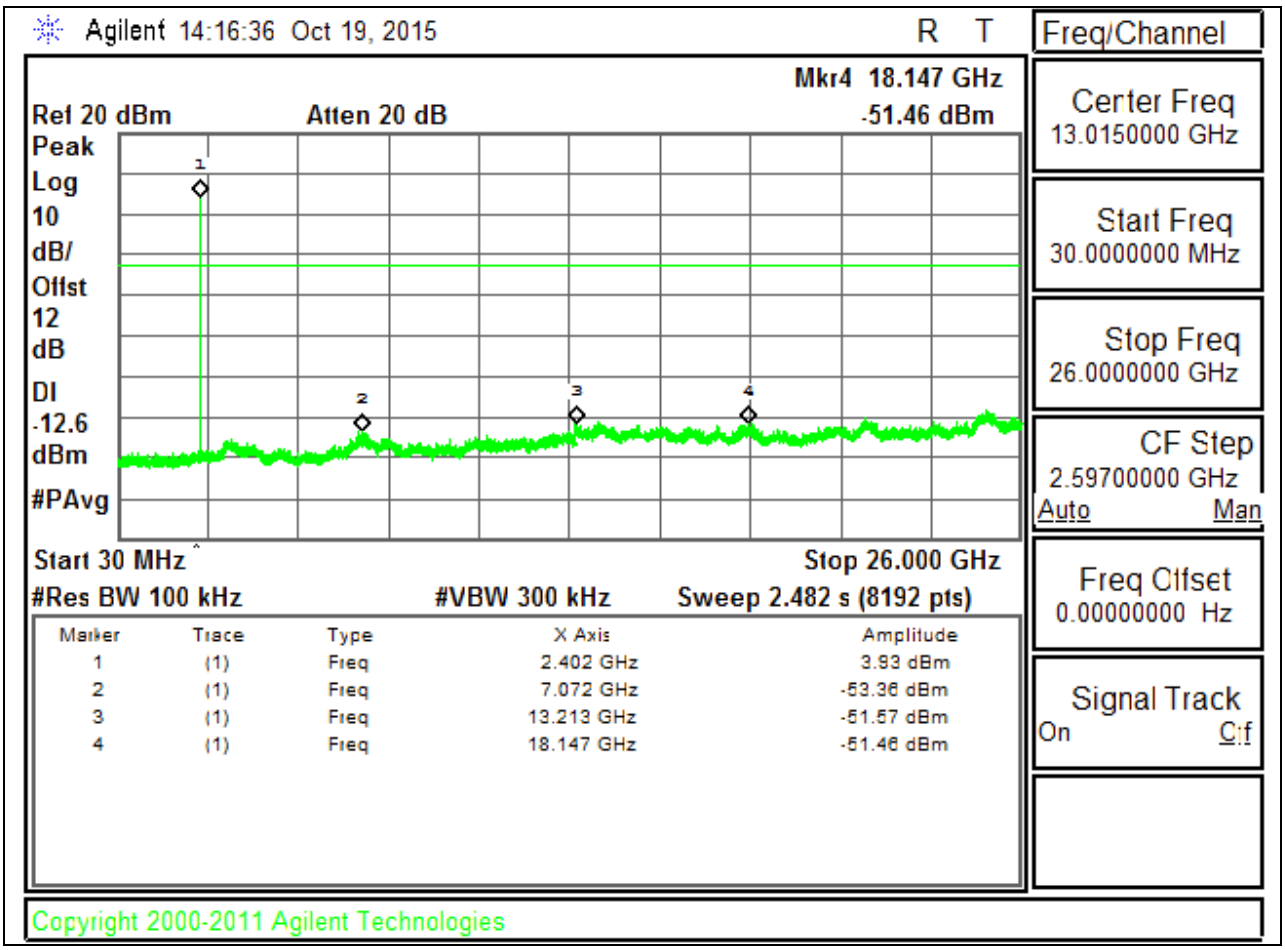
LOW CHANNEL SPURIOUS



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.402 GHz	3.93 dBm
2	(1)	Freq	7.072 GHz	-53.36 dBm
3	(1)	Freq	13.213 GHz	-51.57 dBm
4	(1)	Freq	18.147 GHz	-51.46 dBm

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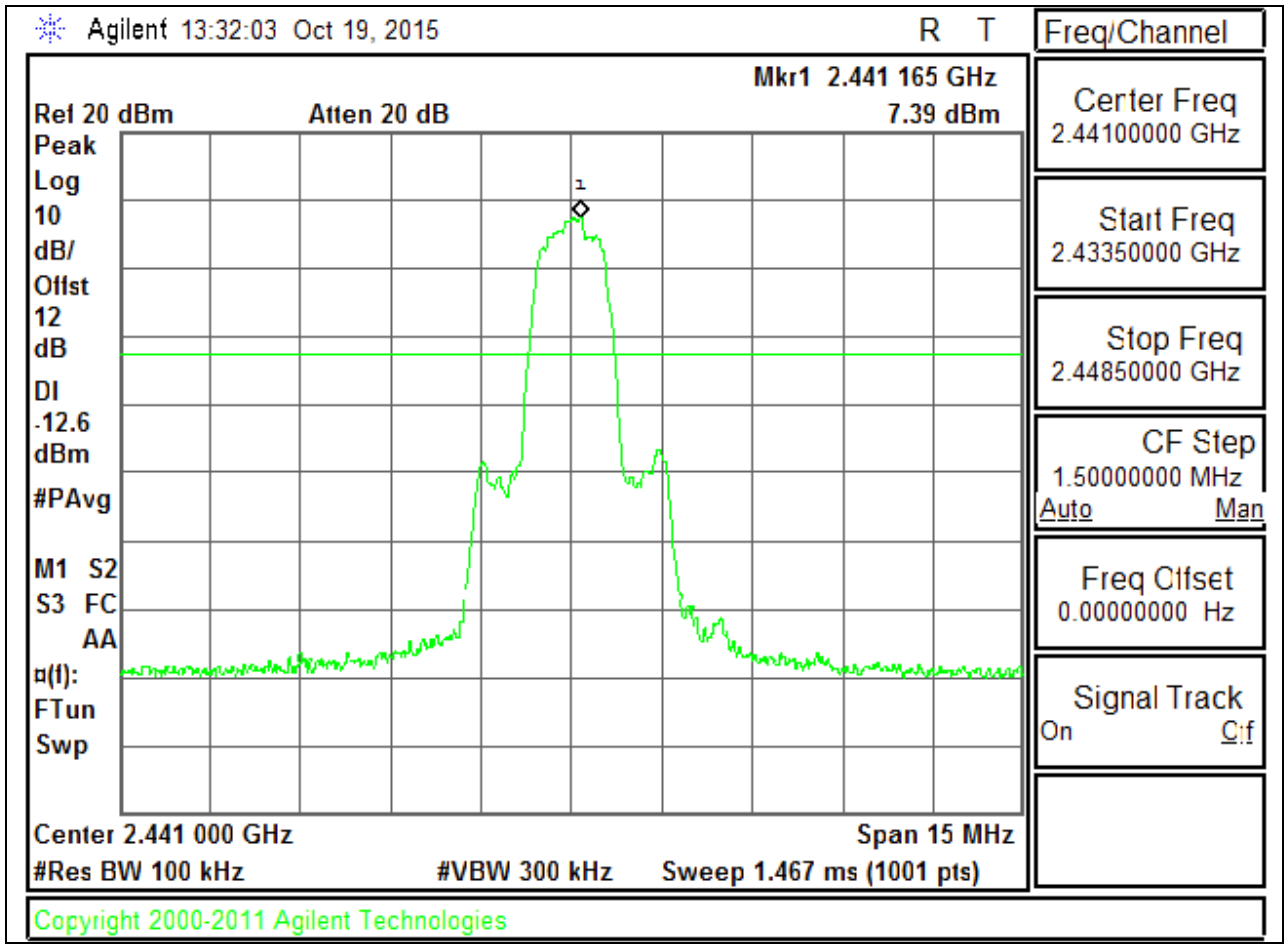
SPURIOUS EMISSIONS, MID CHANNEL

MID CHANNEL BANDEDGE



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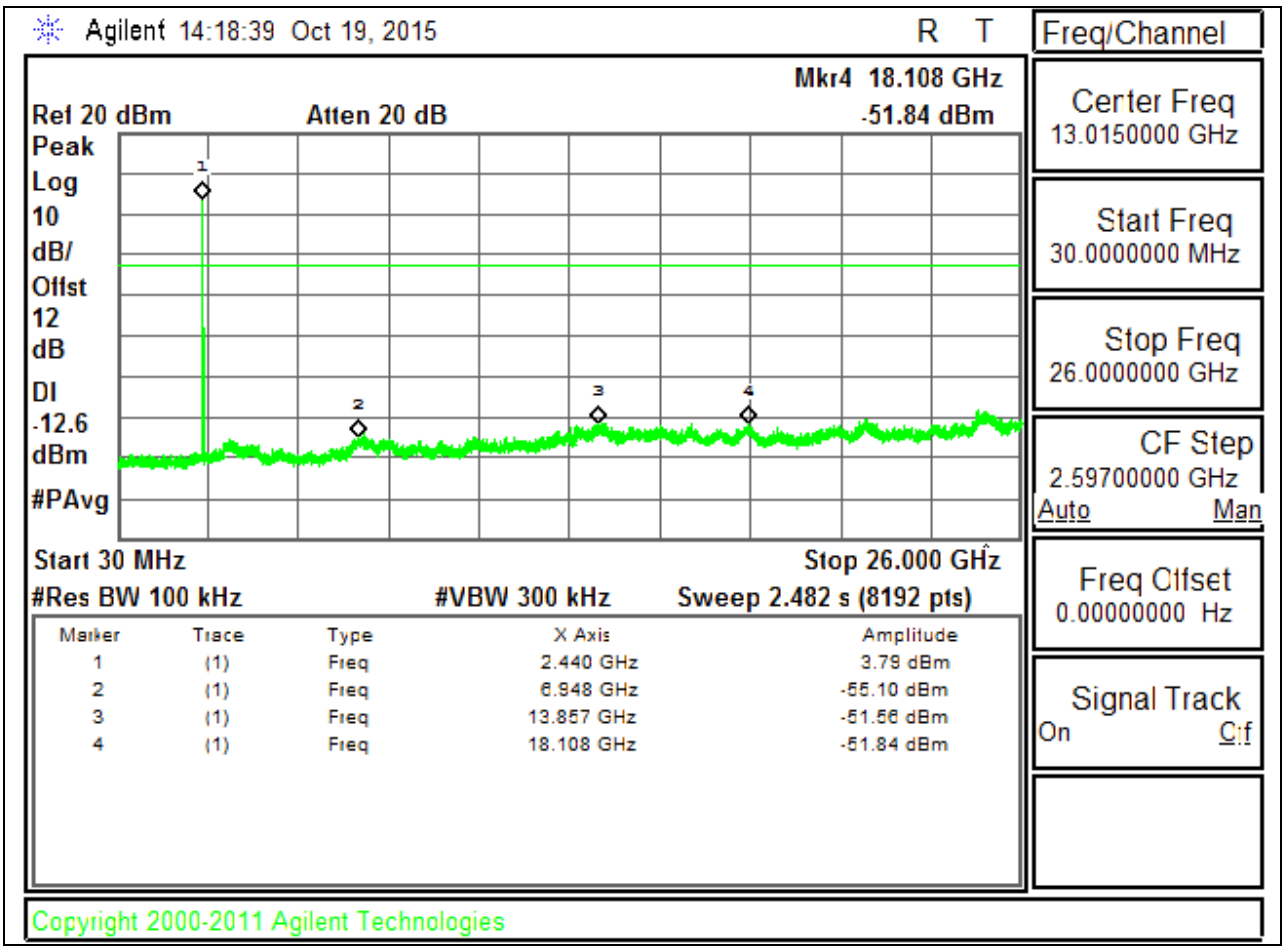
MID CHANNEL SPURIOUS



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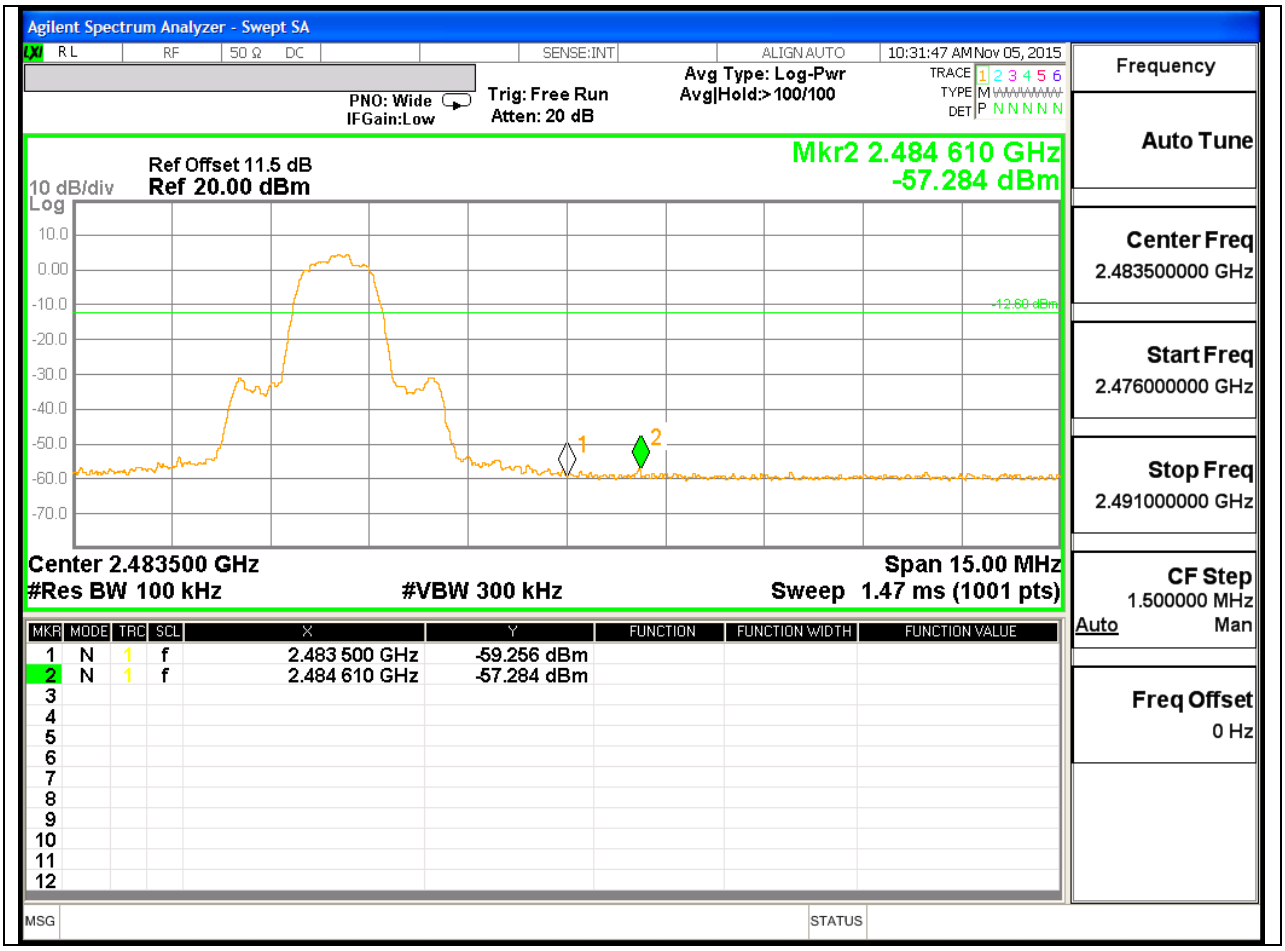
SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE



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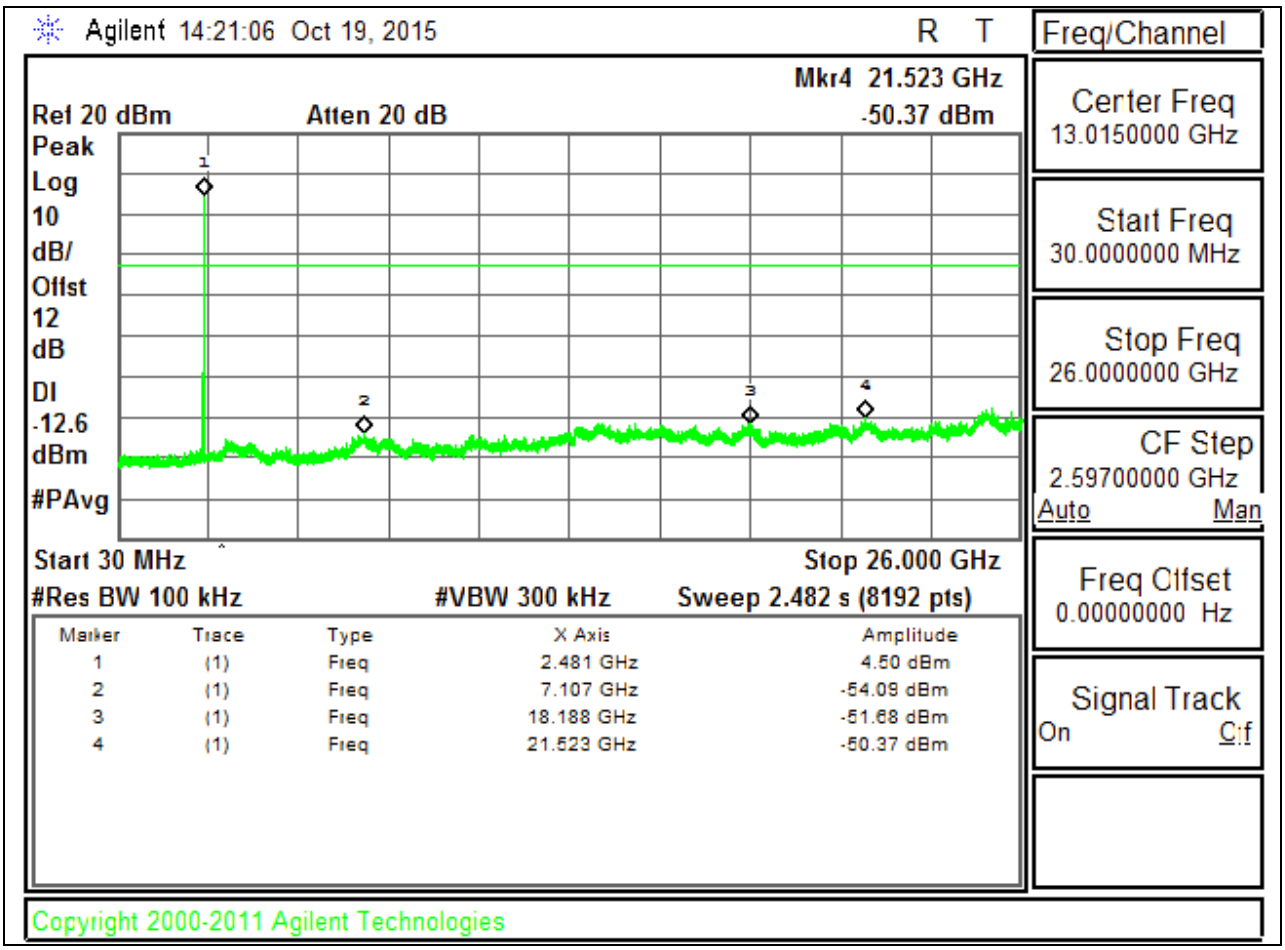
HIGH CHANNEL SPURIOUS



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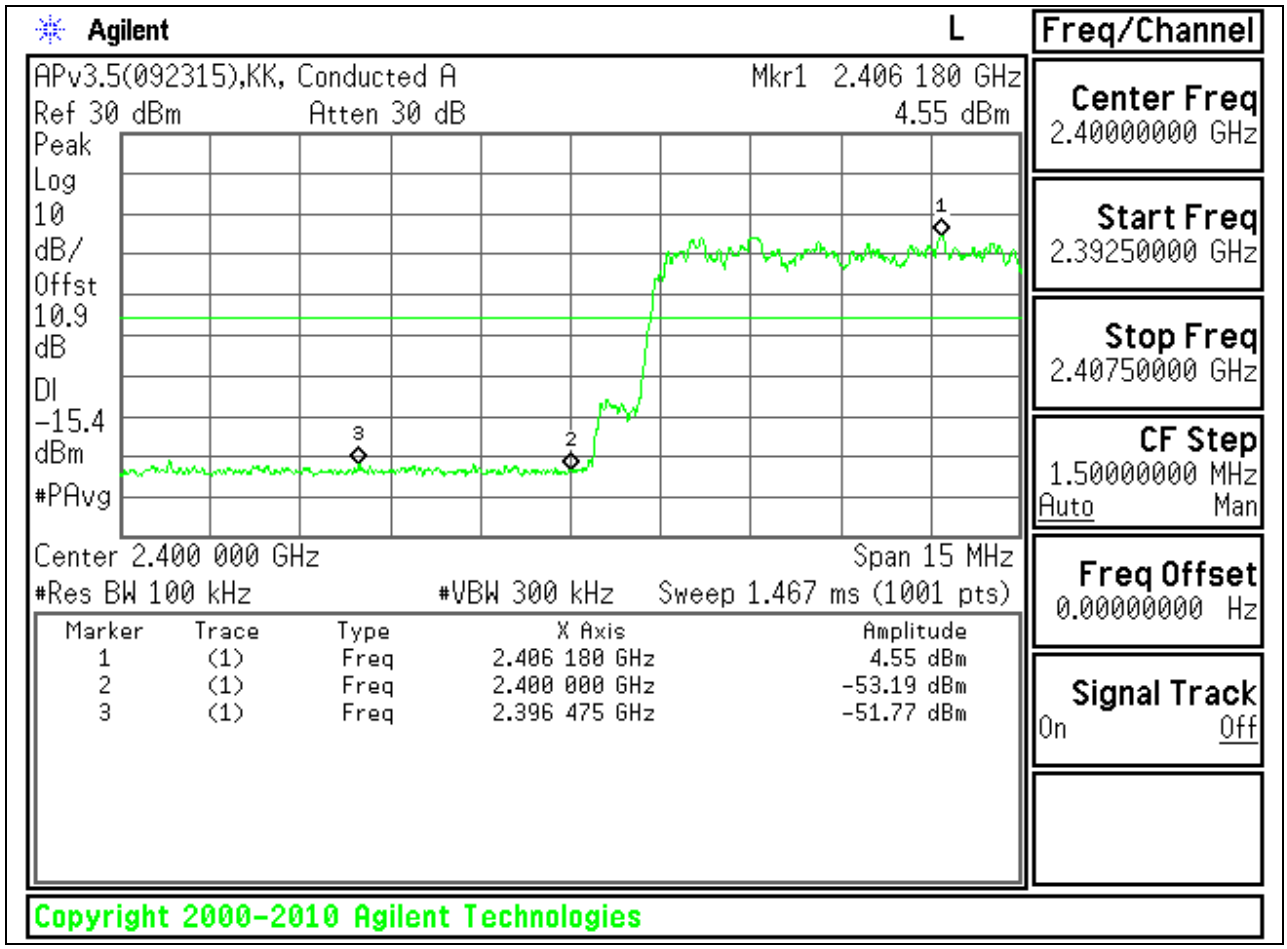
SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



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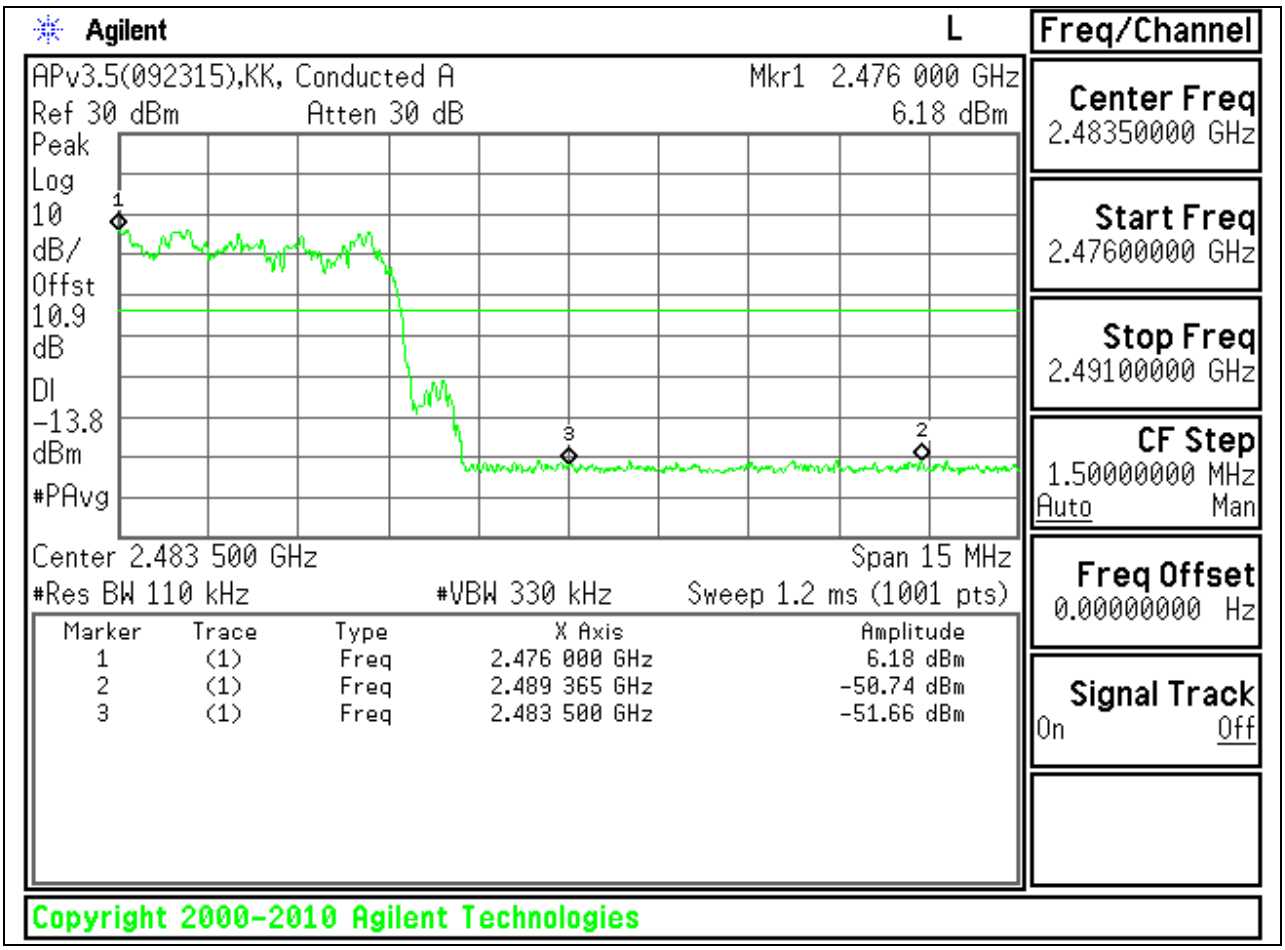
HIGH BANDEDGE WITH HOPPING ON



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9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. 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 / 0.002884S = 347Hz.

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.

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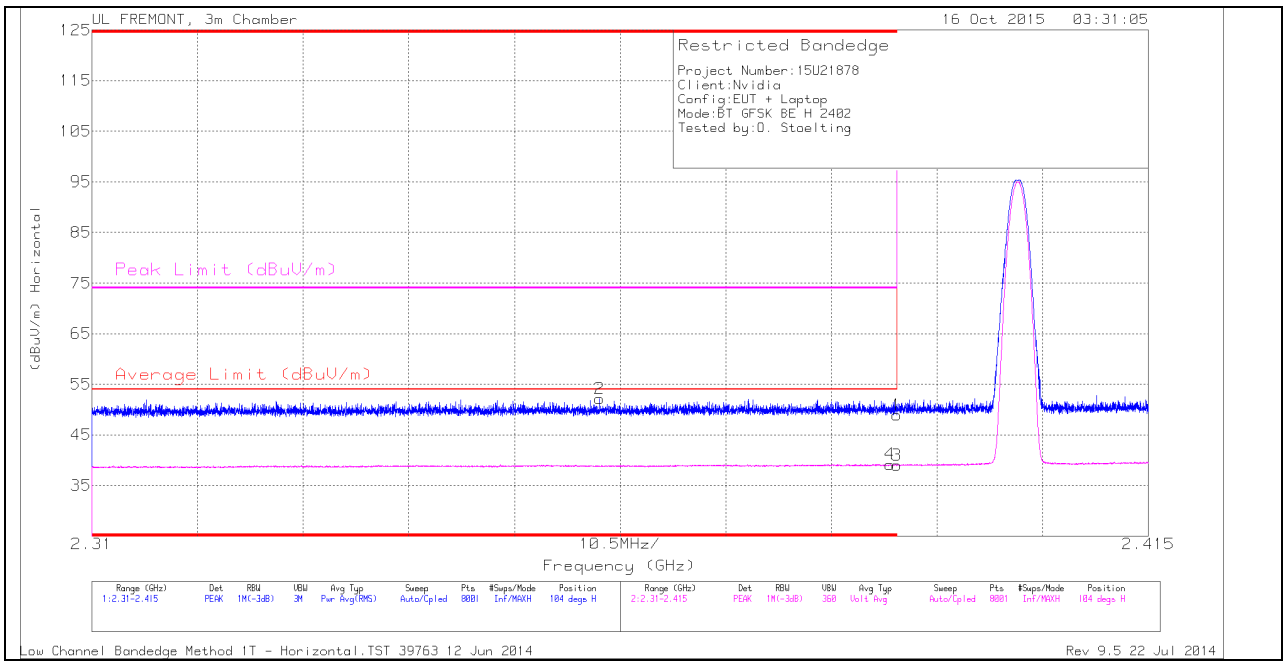
9.2. TRANSMITTER ABOVE 1 GHz

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	39.35	PK	32	-22.4	48.95	-	-	74	-25.05	104	381	H
2	* 2.36	42.7	PK	31.9	-22.5	52.1	-	-	74	-21.9	104	381	H
3	* 2.39	29.36	VB1T	32	-22.4	38.96	54	-15.04	-	-	104	381	H
4	* 2.389	29.58	VB1T	32	-22.4	39.18	54	-14.82	-	-	104	381	H

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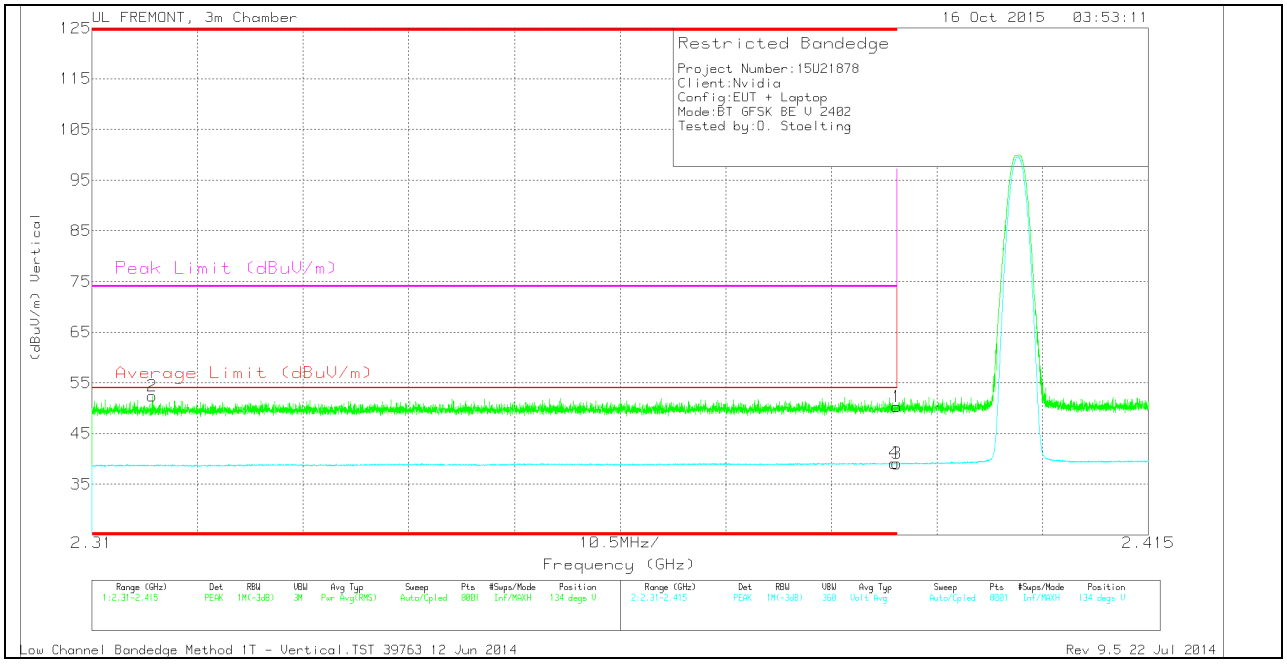
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL 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
2	* 2.316	43.05	PK	31.7	-22.4	52.35	-	-	74	-21.65	134	327	V
1	* 2.39	40.69	PK	32	-22.4	50.29	-	-	74	-23.71	134	327	V
3	* 2.39	29.46	VB1T	32	-22.4	39.06	54	-14.94	-	-	134	327	V
4	* 2.39	29.58	VB1T	32	-22.4	39.18	54	-14.82	-	-	134	327	V

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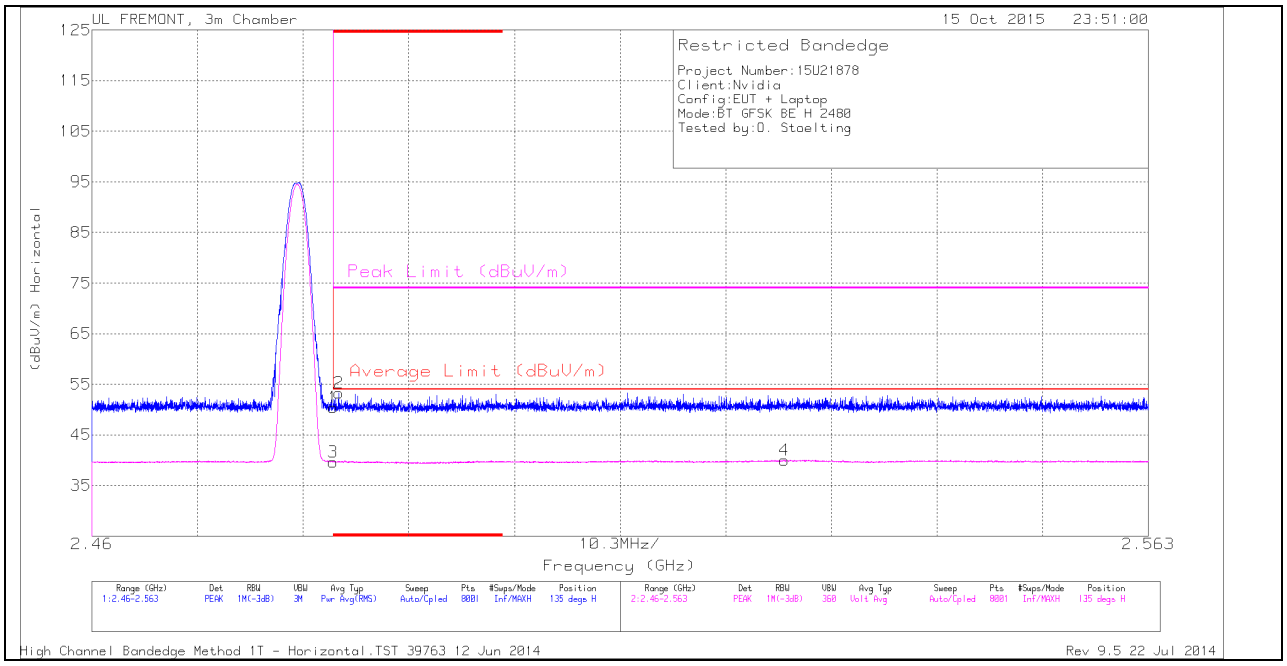
AUTHORIZED BANDEDGE (HIGH CHANNEL)

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	* 2.484	40.21	PK	32.3	-22.1	50.41	-	-	74	-23.59	135	113	H
2	* 2.484	43.12	PK	32.3	-22.1	53.32	-	-	74	-20.68	135	113	H
3	* 2.484	29.47	VB1T	32.3	-22.1	39.67	54	-14.33	-	-	135	113	H
4	2.528	29.63	VB1T	32.4	-22	40.03	54	-13.97	-	-	135	113	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

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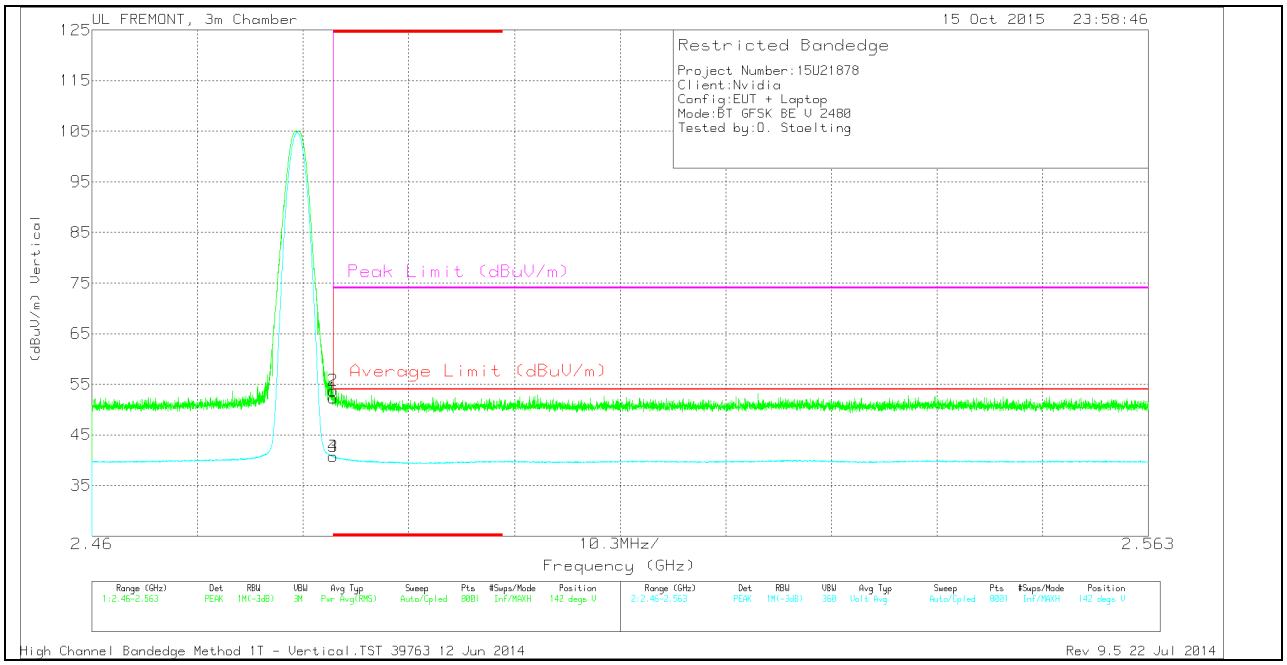
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL 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	* 2.484	42.04	PK	32.3	-22.1	52.24	-	-	74	-21.76	142	188	V
2	* 2.484	43.62	PK	32.3	-22.1	53.82	-	-	74	-20.18	142	188	V
3	* 2.484	30.55	VB1T	32.3	-22.1	40.75	54	-13.25	-	-	142	188	V
4	* 2.484	30.54	VB1T	32.3	-22.1	40.74	54	-13.26	-	-	142	188	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

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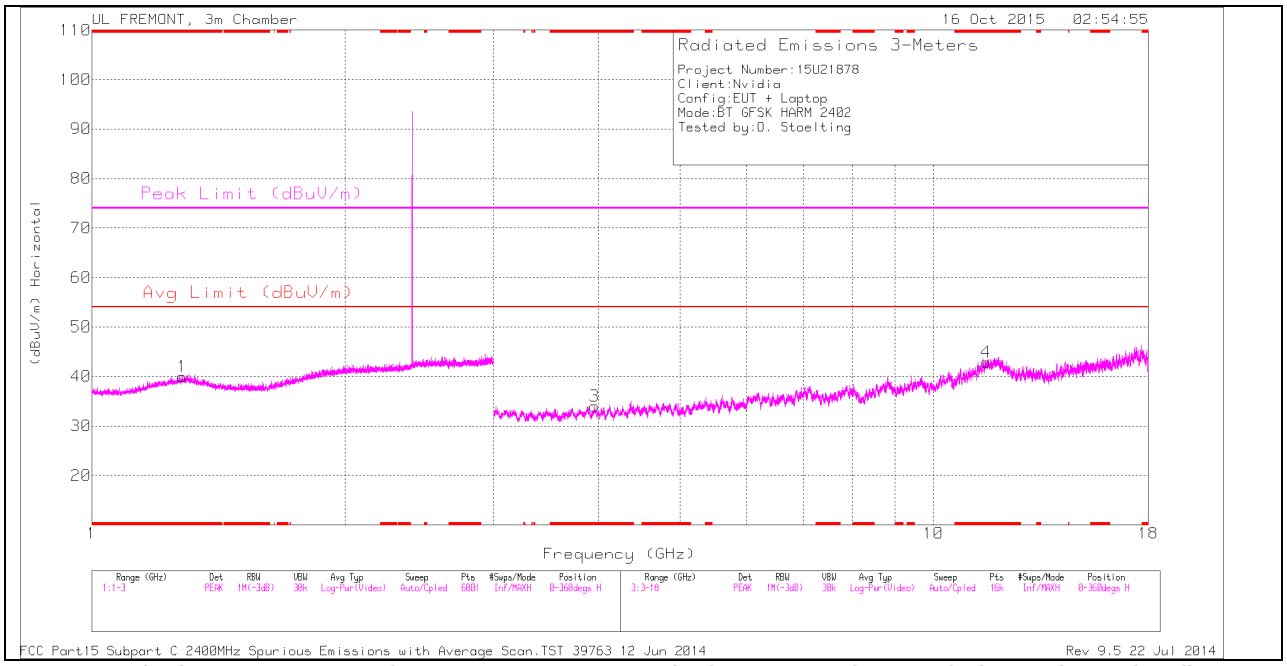
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

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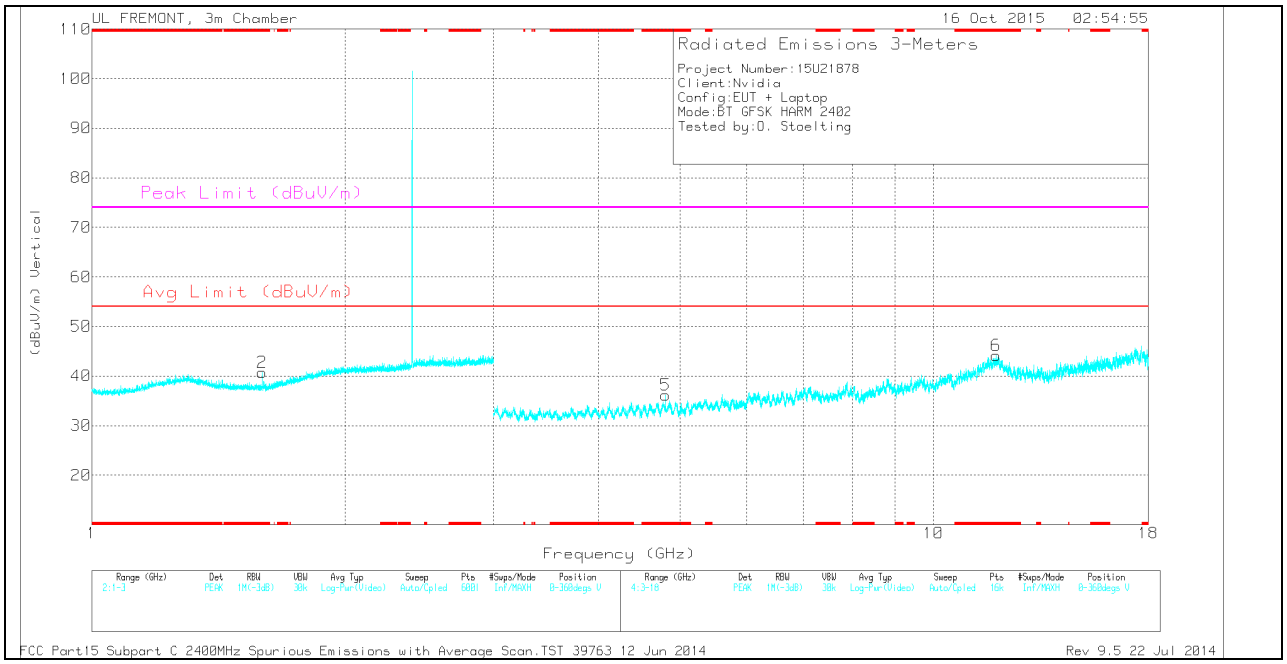
LOW CHANNEL VERTICAL



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

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LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	* 1.281	33.44	PK	29.7	-23.2	39.94	-	-	74	-34.06	0-360	200	H
2	* 1.594	35.37	PK	28	-22.7	40.67	-	-	74	-33.33	0-360	100	V
3	* 3.955	31.22	PK	33.2	-30.4	34.02	-	-	74	-39.98	0-360	200	H
4	* 11.551	26.92	PK	38.5	-22.5	42.92	-	-	74	-31.08	0-360	200	H
5	* 4.804	31.61	PK	34	-29.4	36.21	-	-	74	-37.79	0-360	200	V
6	* 11.862	27.74	PK	39.1	-22.7	44.14	-	-	74	-29.86	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.28	42.74	PK3	29.7	-23.2	49.24	-	-	74	-24.76	148	161	H
* 1.282	30	VB1T	29.7	-23.2	36.5	54	-17.5	-	-	148	161	H
* 1.594	45.6	PK3	28	-22.7	50.9	-	-	74	-23.1	269	399	V
* 1.593	29.86	VB1T	28	-22.8	35.06	54	-18.94	-	-	269	399	V
* 3.953	41.11	PK3	33.2	-30.3	44.01	-	-	74	-29.99	217	183	H
* 3.957	27.76	VB1T	33.2	-30.4	30.56	54	-23.44	-	-	217	183	H
* 11.553	36.56	PK3	38.5	-22.5	52.56	-	-	74	-21.44	62	148	H
* 11.551	23.93	VB1T	38.5	-22.5	39.93	54	-14.07	-	-	62	148	H
* 4.804	42.68	PK3	34	-29.4	47.28	-	-	74	-26.72	149	225	V
* 4.804	33.36	VB1T	34	-29.4	37.96	54	-16.04	-	-	149	225	V
* 11.863	36.74	PK3	39.1	-22.7	53.14	-	-	74	-20.86	107	371	V
* 11.861	23.96	VB1T	39.1	-22.7	40.36	54	-13.64	-	-	107	371	V

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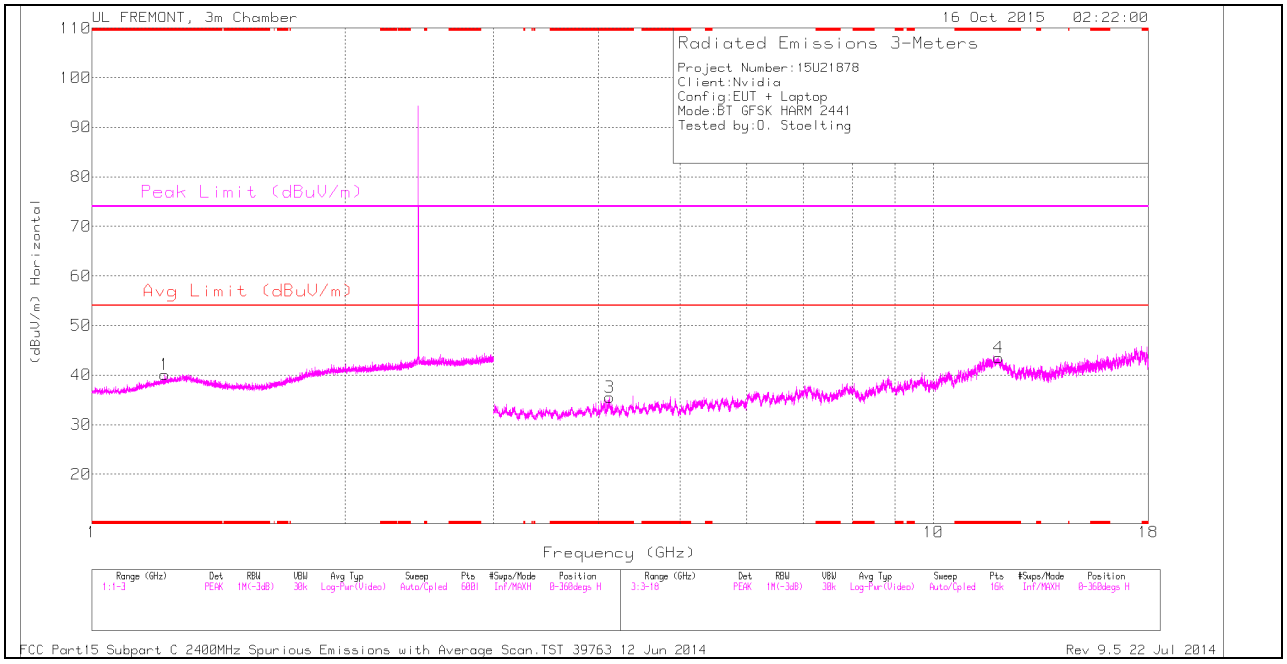
MID CHANNEL HORIZONTAL



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

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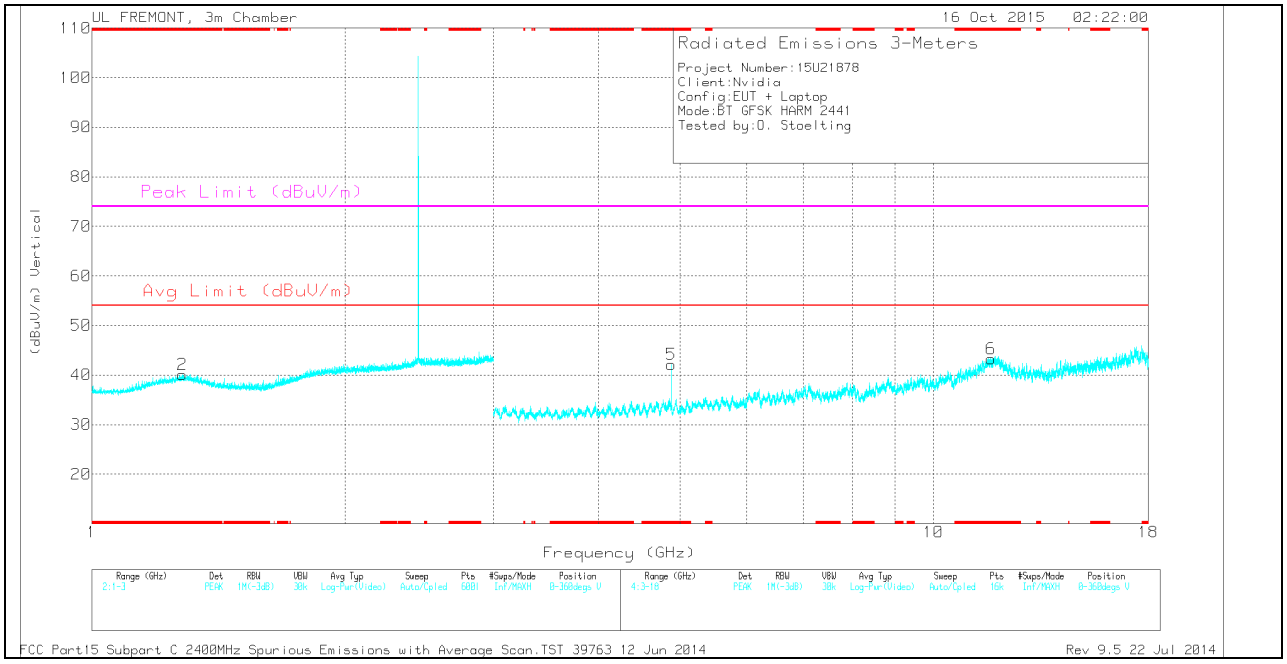
MID CHANNEL VERTICAL



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

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MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	* 1.22	34.18	PK	29.1	-23.2	40.08	-	-	74	-33.92	0-360	200	H
2	* 1.28	33.59	PK	29.7	-23.2	40.09	-	-	74	-33.91	0-360	100	V
3	* 4.121	32.64	PK	33.3	-30.4	35.54	-	-	74	-38.46	0-360	200	H
4	* 11.953	27.47	PK	39.1	-23	43.57	-	-	74	-30.43	0-360	100	H
5	* 4.882	37.28	PK	34	-29.1	42.18	-	-	74	-31.82	0-360	200	V
6	* 11.713	26.86	PK	38.8	-22.4	43.26	-	-	74	-30.74	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.22	43.62	PK3	29.1	-23.2	49.52	-	-	74	-24.48	189	172	H
* 1.222	29.97	VB1T	29.1	-23.2	35.87	54	-18.13	-	-	189	172	H
* 1.28	43.73	PK3	29.7	-23.2	50.23	-	-	74	-23.77	35	120	V
* 1.282	30.03	VB1T	29.7	-23.2	36.53	54	-17.47	-	-	35	120	V
* 4.12	40.97	PK3	33.3	-30.4	43.87	-	-	74	-30.13	188	145	H
* 4.12	28.12	VB1T	33.3	-30.4	31.02	54	-22.98	-	-	188	145	H
* 11.954	37.08	PK3	39.1	-23	53.18	-	-	74	-20.82	184	106	H
* 11.955	24.38	VB1T	39.1	-22.9	40.58	54	-13.42	-	-	184	106	H
* 4.882	42.43	PK3	34	-29.1	47.33	-	-	74	-26.67	156	216	V
* 4.882	35.77	VB1T	34	-29.1	40.67	54	-13.33	-	-	156	216	V
* 11.711	35.71	PK3	38.8	-22.4	52.11	-	-	74	-21.89	2	397	V
* 11.711	23.06	VB1T	38.8	-22.4	39.46	54	-14.54	-	-	2	397	V

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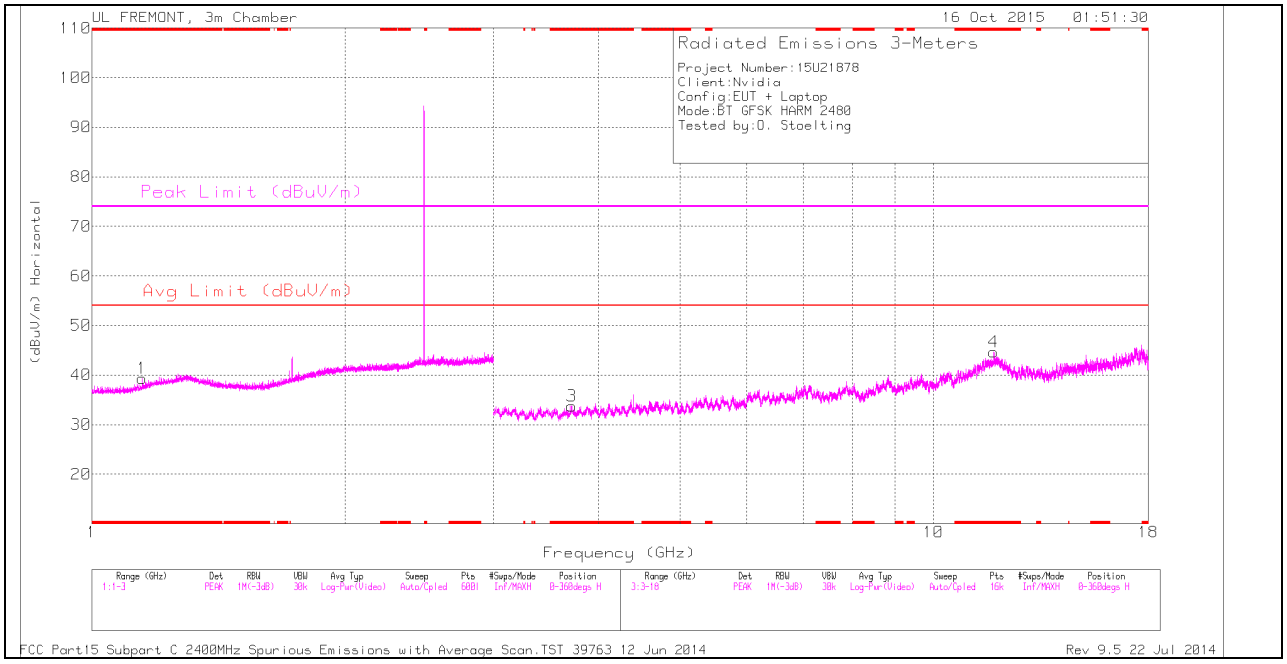
HIGH CHANNEL HORIZONTAL



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

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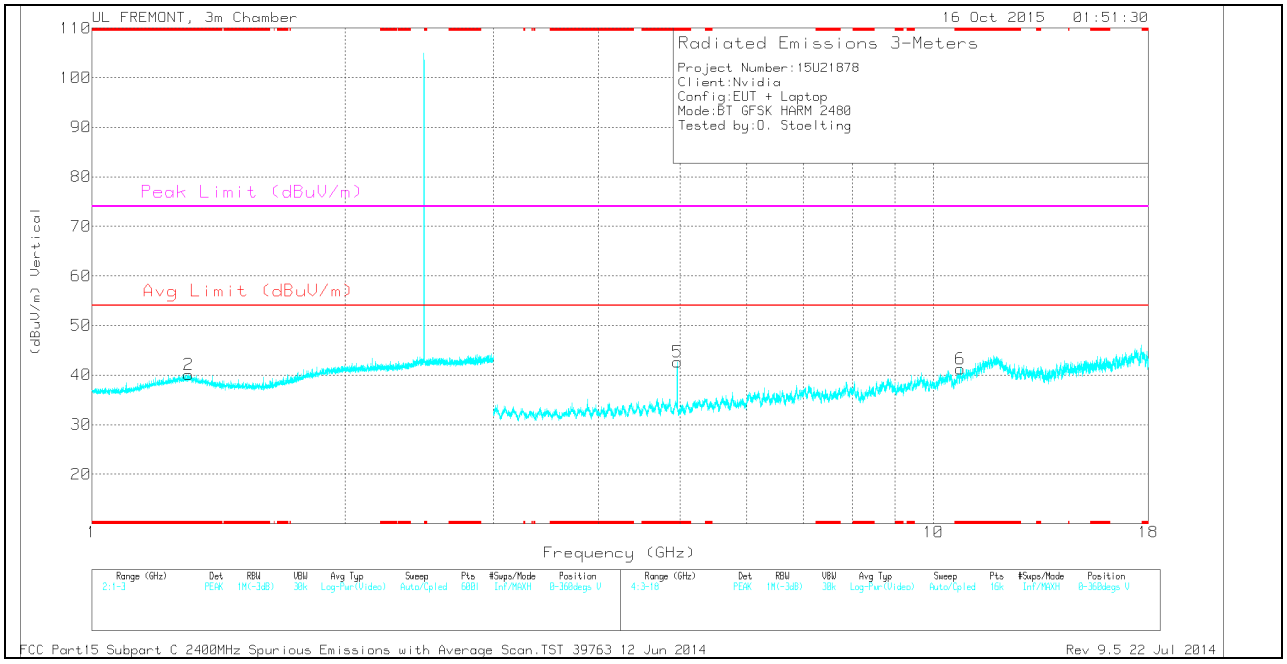
HIGH CHANNEL VERTICAL



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

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HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	* 1.148	34.4	PK	28.1	-23.2	39.3	-	-	74	-34.7	0-360	200	H
2	* 1.302	33.43	PK	29.9	-23.2	40.13	-	-	74	-33.87	0-360	100	V
3	* 3.716	30.79	PK	33	-30	33.79	-	-	74	-40.21	0-360	100	H
4	* 11.798	28.11	PK	39	-22.4	44.71	-	-	74	-29.29	0-360	100	H
5	* 4.96	38.99	PK	34	-30.3	42.69	-	-	74	-31.31	0-360	200	V
6	* 10.755	26.79	PK	37.8	-23.3	41.29	-	-	74	-32.71	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.149	42.7	PK3	28.1	-23.2	47.6	-	-	74	-26.4	210	333	H
* 1.149	30.1	VB1T	28.1	-23.2	35	54	-19	-	-	210	333	H
* 1.304	43.05	PK3	29.8	-23.1	49.75	-	-	74	-24.25	243	311	V
* 1.302	30	VB1T	29.9	-23.2	36.7	54	-17.3	-	-	243	311	V
* 3.717	40.56	PK3	33	-29.9	43.66	-	-	74	-30.34	174	345	H
* 3.718	27.59	VB1T	33	-29.9	30.69	54	-23.31	-	-	174	345	H
* 11.798	37.05	PK3	39	-22.4	53.65	-	-	74	-20.35	112	112	H
* 11.796	24.33	VB1T	39	-22.4	40.93	54	-13.07	-	-	112	112	H
* 4.96	43.54	PK3	34	-30.3	47.24	-	-	74	-26.76	165	213	V
* 4.96	36.61	VB1T	34	-30.3	40.31	54	-13.69	-	-	165	213	V
* 10.755	35.52	PK3	37.8	-23.3	50.02	-	-	74	-23.98	314	309	V
* 10.755	23.08	VB1T	37.8	-23.3	37.58	54	-16.42	-	-	314	309	V

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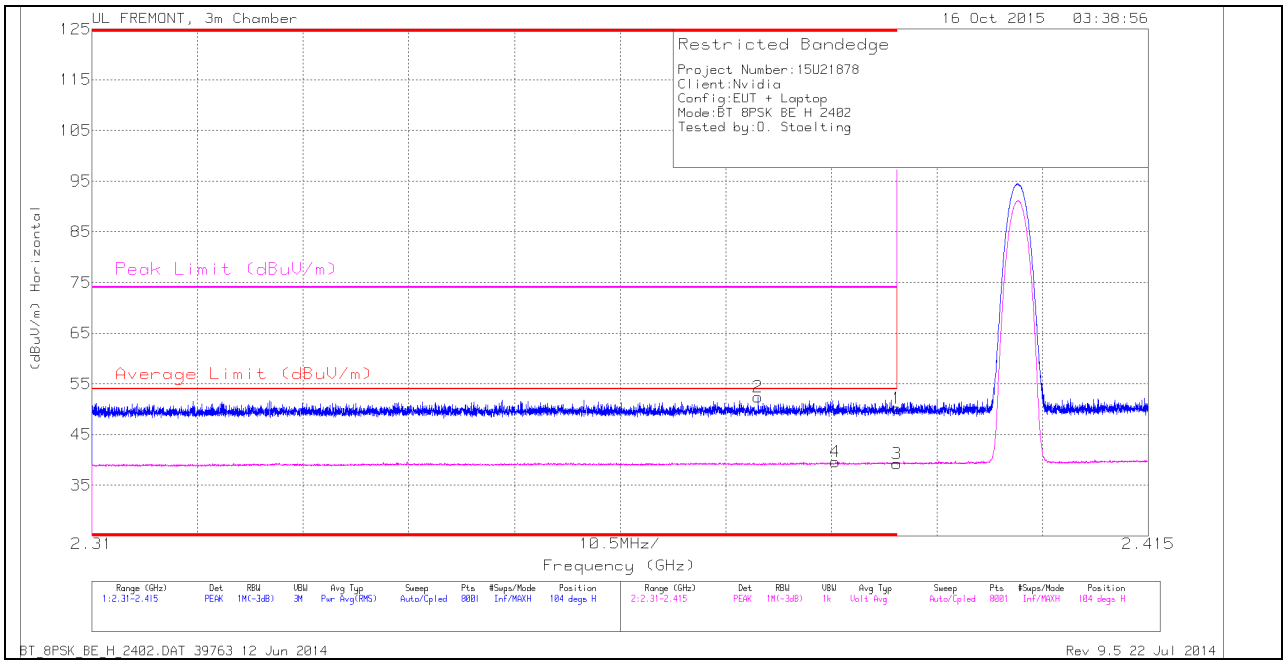
9.2.2. ENHANCED DATA RATE 8PSK MODULATION RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ 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
2	* 2.376	42.91	PK	31.9	-22.4	52.41	-	-	74	-21.59	104	381	H
4	* 2.384	30	VB1T	32	-22.4	39.6	54	-14.4	-	-	104	381	H
1	* 2.39	40.55	PK	32	-22.4	50.15	-	-	74	-23.85	104	381	H
3	* 2.39	29.61	VB1T	32	-22.4	39.21	54	-14.79	-	-	104	381	H

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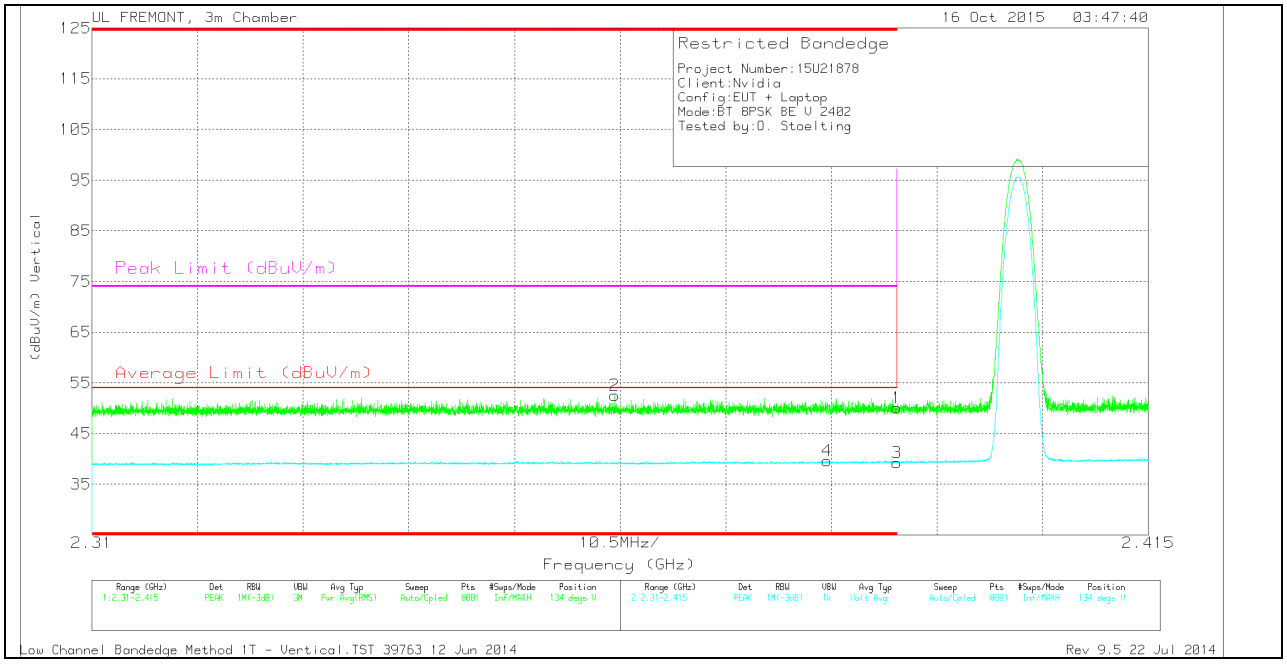
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL 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
2	* 2.362	43.09	PK	31.9	-22.5	52.49	-	-	74	-21.51	134	327	V
4	* 2.383	30.04	VB1T	32	-22.4	39.64	54	-14.36	-	-	134	327	V
1	* 2.39	40.39	PK	32	-22.4	49.99	-	-	74	-24.01	134	327	V
3	* 2.39	29.64	VB1T	32	-22.4	39.24	54	-14.76	-	-	134	327	V

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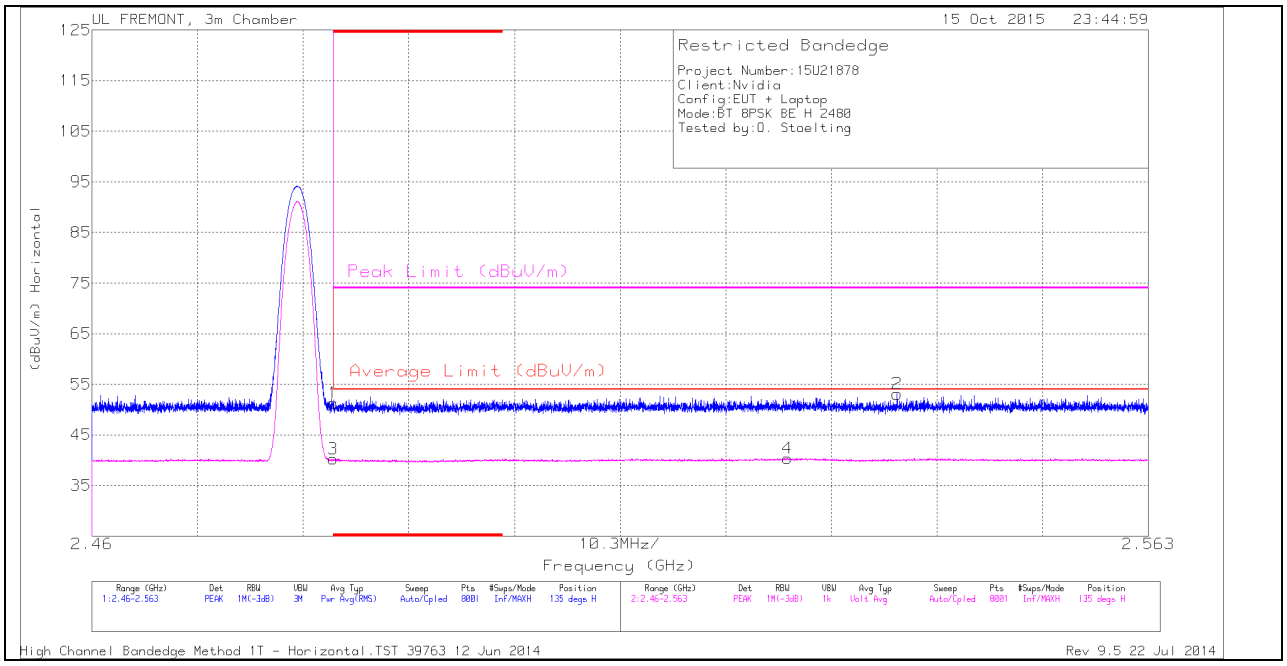
AUTHORIZED BANDEDGE (HIGH CHANNEL)

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	* 2.484	41.05	PK	32.3	-22.1	51.25	-	-	74	-22.75	135	113	H
3	* 2.484	30.01	VB1T	32.3	-22.1	40.21	54	-13.79	-	-	135	113	H
4	2.528	30.01	VB1T	32.4	-22	40.41	54	-13.59	-	-	135	113	H
2	2.539	42.69	PK	32.4	-22	53.09	-	-	74	-20.91	135	113	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

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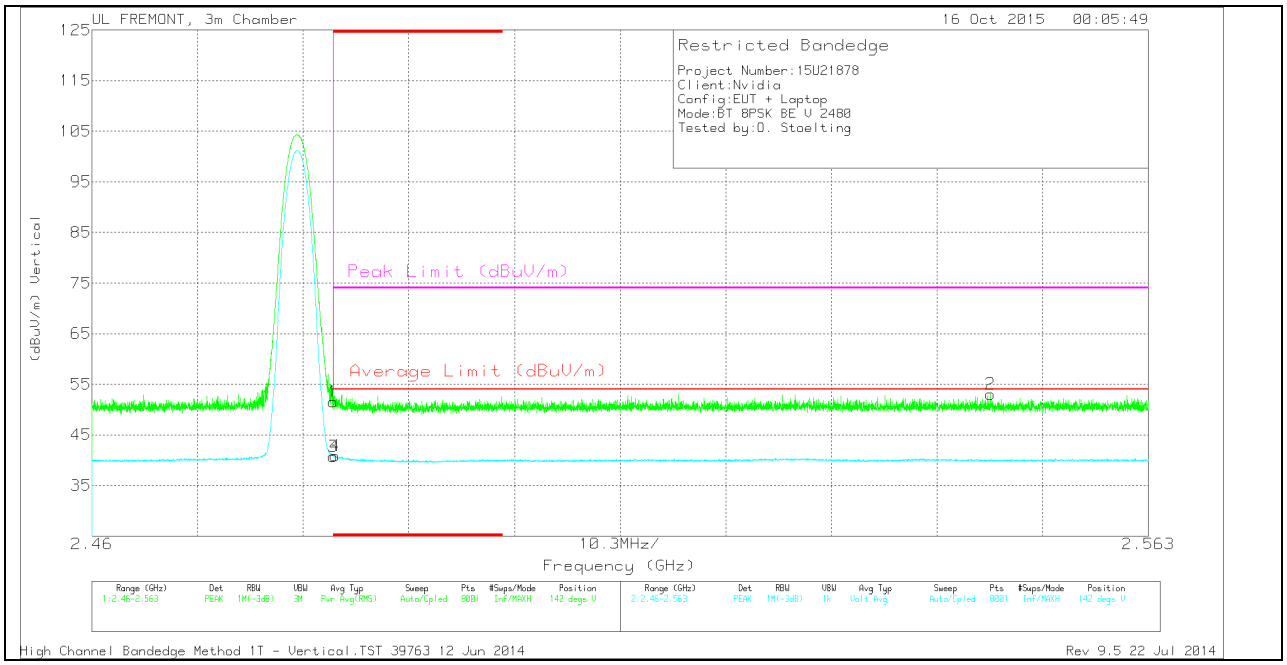
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL 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	* 2.484	41.3	PK	32.3	-22.1	51.5	-	-	74	-22.5	142	188	V
3	* 2.484	30.55	VB1T	32.3	-22.1	40.75	54	-13.25	-	-	142	188	V
4	* 2.484	30.66	VB1T	32.3	-22.1	40.86	54	-13.14	-	-	142	188	V
2	2.548	42.68	PK	32.4	-22	53.08	-	-	74	-20.92	142	188	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

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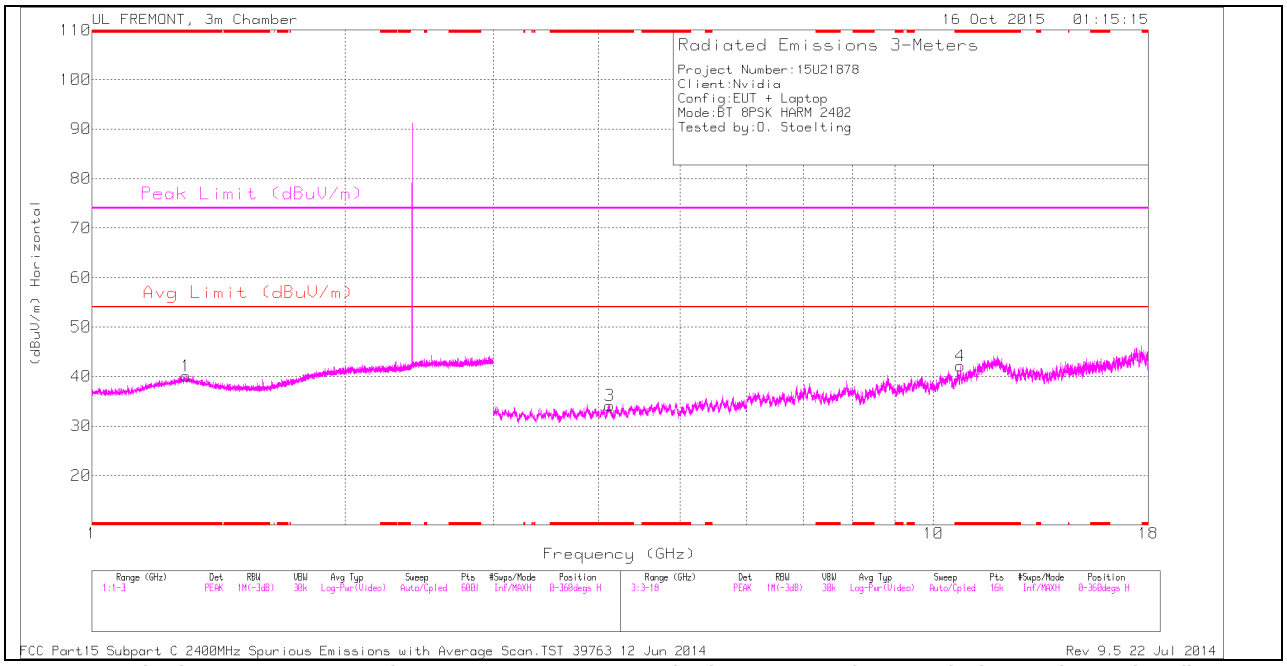
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

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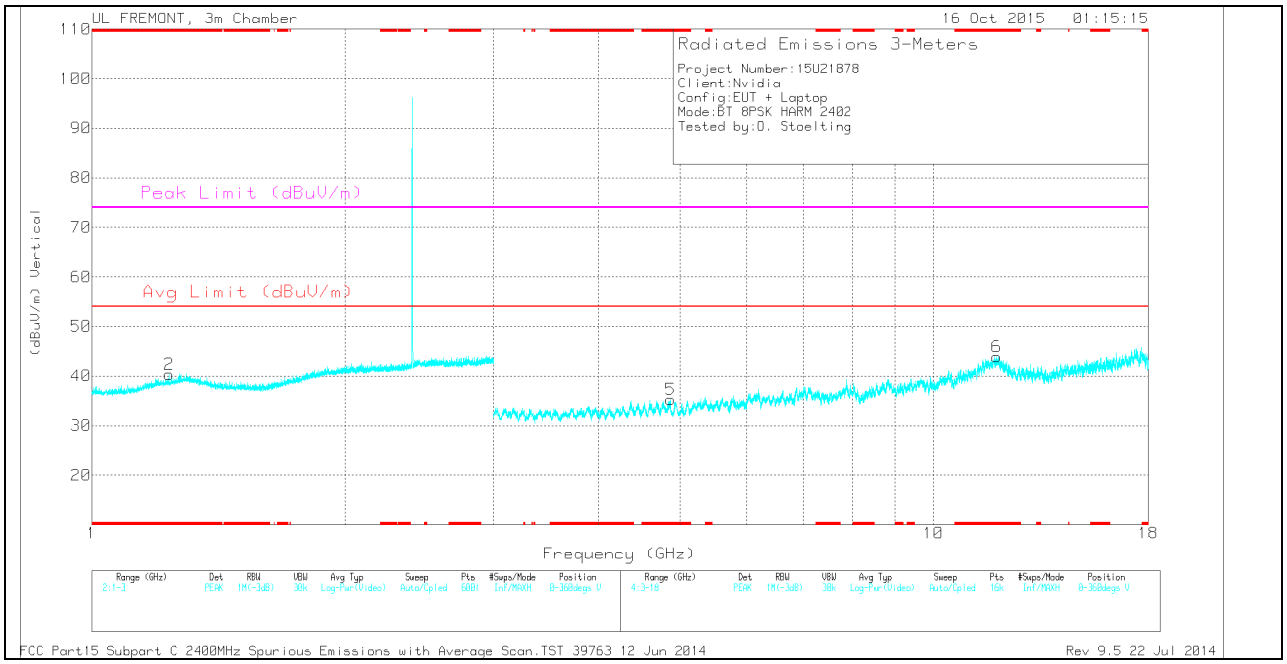
LOW CHANNEL VERTICAL



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

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LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	* 1.295	33.55	PK	29.8	-23.2	40.15	-	-	74	-33.85	0-360	200	H
2	* 1.235	34.2	PK	29.3	-23.2	40.3	-	-	74	-33.7	0-360	200	V
3	* 4.123	31.24	PK	33.3	-30.4	34.14	-	-	74	-39.86	0-360	200	H
4	* 10.77	27.27	PK	37.9	-23	42.17	-	-	74	-31.83	0-360	200	H
5	* 4.867	30.32	PK	34	-29.1	35.22	-	-	74	-38.78	0-360	100	V
6	* 11.881	27.58	PK	39.1	-22.8	43.88	-	-	74	-30.12	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.295	42.29	PK3	29.8	-23.2	48.89	-	-	74	-25.11	240	163	H
* 1.295	30.41	VB1T	29.8	-23.2	37.01	54	-16.99	-	-	240	163	H
* 1.236	42.75	PK3	29.3	-23.2	48.85	-	-	74	-25.15	312	248	V
* 1.236	30.31	VB1T	29.3	-23.2	36.41	54	-17.59	-	-	312	248	V
* 4.124	41.04	PK3	33.3	-30.4	43.94	-	-	74	-30.06	203	400	H
* 4.121	28.38	VB1T	33.3	-30.4	31.28	54	-22.72	-	-	203	400	H
* 10.768	36.35	PK3	37.9	-23.1	51.15	-	-	74	-22.85	24	131	H
* 10.771	23.96	VB1T	37.9	-23.1	38.76	54	-15.24	-	-	24	131	H
* 4.866	40.16	PK3	34	-29.1	45.06	-	-	74	-28.94	220	364	V
* 4.866	27.13	VB1T	34	-29.1	32.03	54	-21.97	-	-	220	364	V
* 11.883	36.56	PK3	39.1	-22.8	52.86	-	-	74	-21.14	354	303	V
* 11.883	24.02	VB1T	39.1	-22.8	40.32	54	-13.68	-	-	354	303	V

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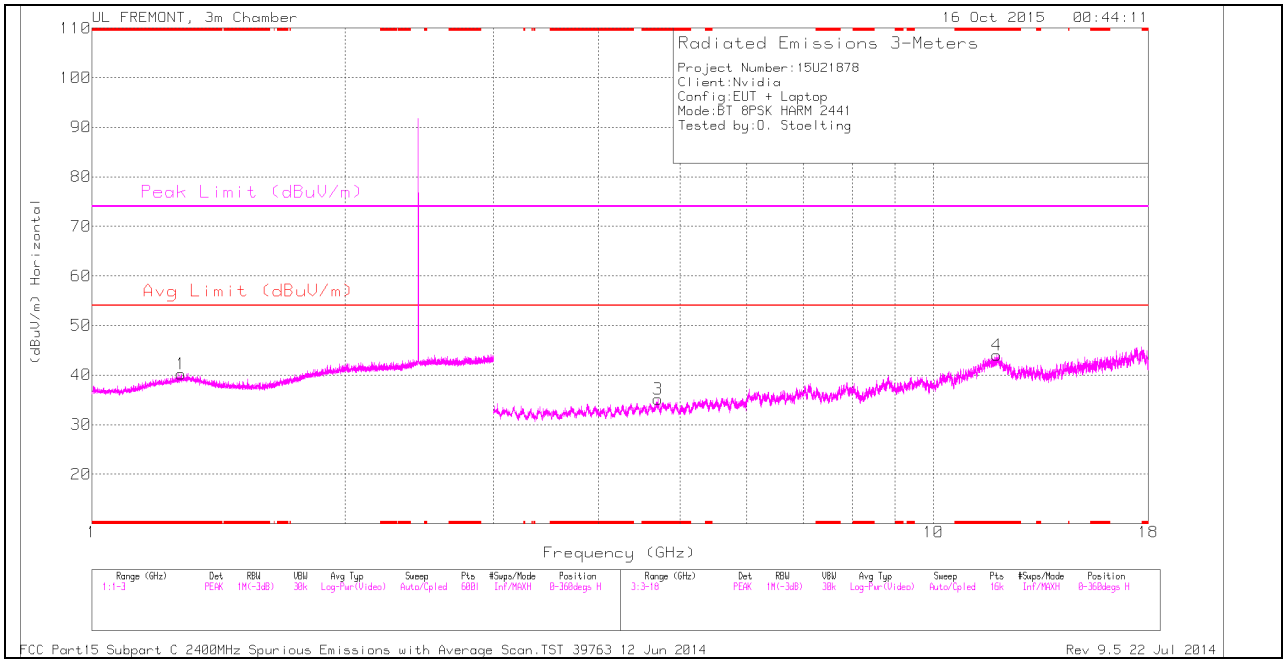
MID CHANNEL HORIZONTAL



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

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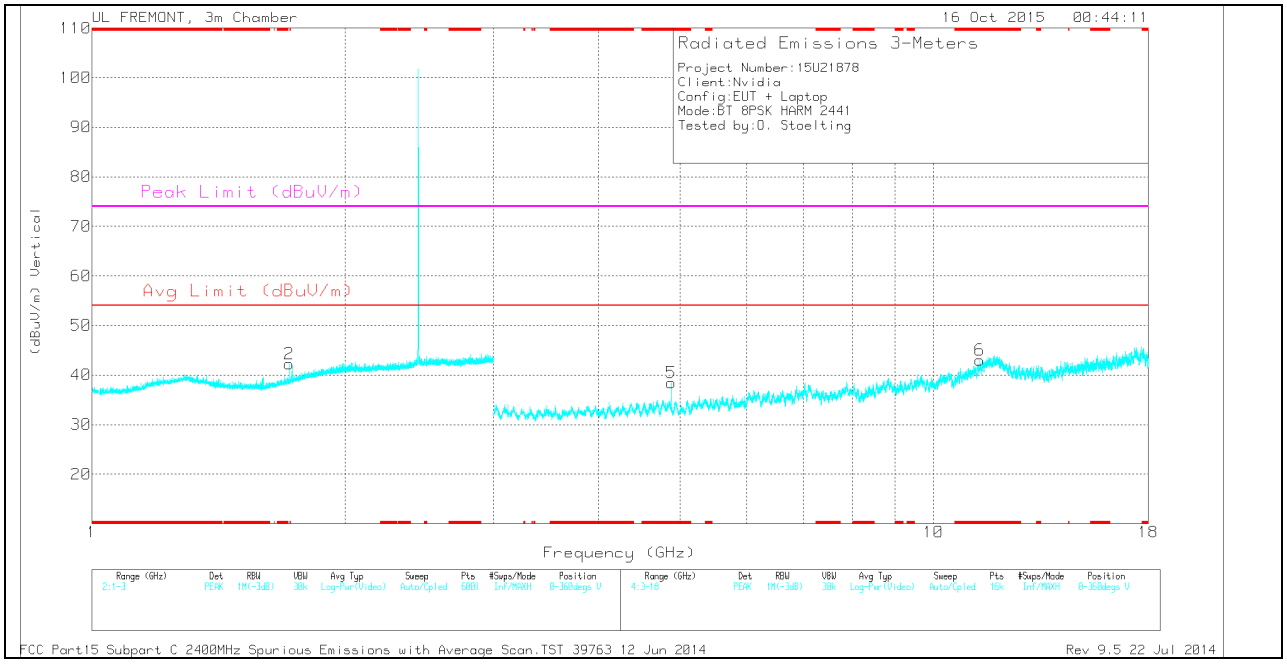
MID CHANNEL VERTICAL



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

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MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	* 1.276	33.59	PK	29.7	-23.1	40.19	-	-	74	-33.81	0-360	200	H
3	* 4.704	31.27	PK	34.1	-30.2	35.17	-	-	74	-38.83	0-360	200	H
4	* 11.888	27.72	PK	39.1	-22.8	44.02	-	-	74	-29.98	0-360	200	H
5	* 4.881	33.55	PK	34	-29.1	38.45	-	-	74	-35.55	0-360	200	V
6	* 11.359	28.21	PK	38.1	-23.3	43.01	-	-	74	-30.99	0-360	200	V
2	1.716	35.73	PK	29.2	-22.7	42.23	-	-	-	-	0-360	200	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.276	42.88	PK3	29.7	-23.1	49.48	-	-	74	-24.52	282	355	H
* 1.274	30.36	VB1T	29.6	-23.1	36.86	54	-17.14	-	-	282	355	H
* 4.705	40.45	PK3	34.1	-30.2	44.35	-	-	74	-29.65	260	367	H
* 4.703	27.96	VB1T	34.1	-30.2	31.86	54	-22.14	-	-	260	367	H
* 11.889	36.66	PK3	39.1	-22.8	52.96	-	-	74	-21.04	116	195	H
* 11.89	24.46	VB1T	39.1	-22.8	40.76	54	-13.24	-	-	116	195	H
* 4.882	41.55	PK3	34	-29.1	46.45	-	-	74	-27.55	164	207	V
* 4.882	31.37	VB1T	34	-29.1	36.27	54	-17.73	-	-	164	207	V
* 11.361	36.74	PK3	38.1	-23.3	51.54	-	-	74	-22.46	326	311	V
* 11.361	24.9	VB1T	38.1	-23.3	39.7	54	-14.3	-	-	326	311	V
1.714	42.72	PK3	29.2	-22.7	49.22	-	-	-	-	78	222	V
1.716	30.76	VB1T	29.2	-22.8	37.16	-	-	-	-	78	222	V

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

PK3 - FHSS Method: Maximum Peak

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

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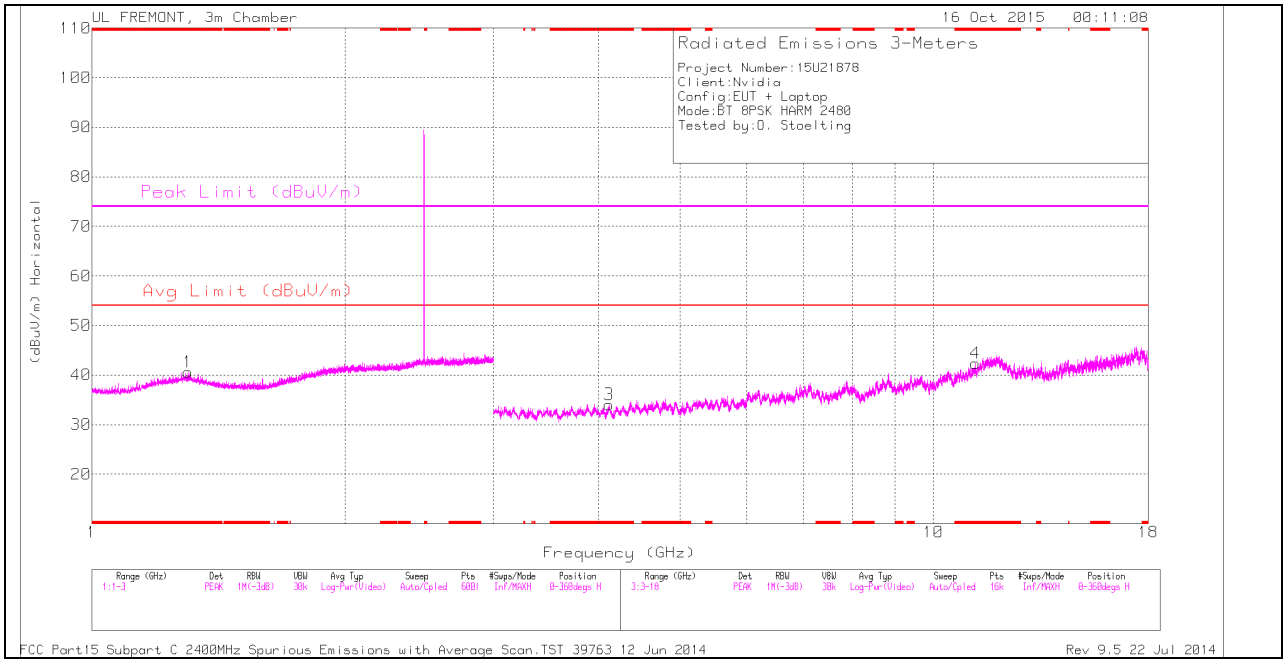
HIGH CHANNEL HORIZONTAL



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

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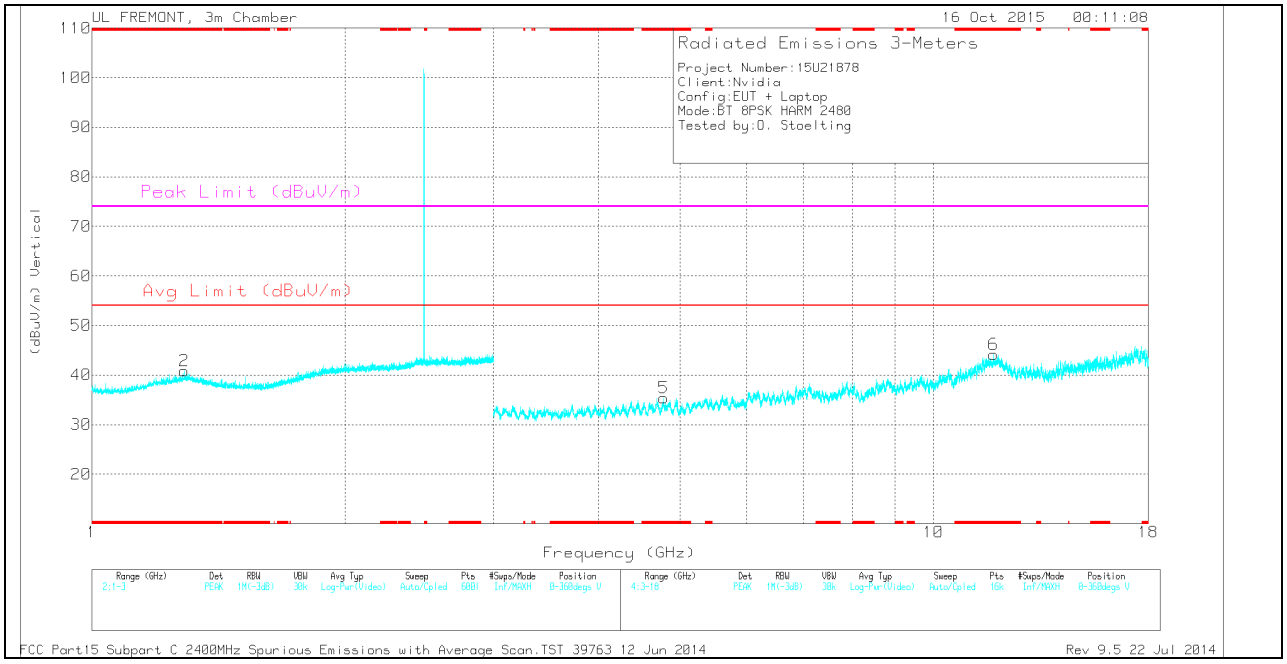
HIGH CHANNEL VERTICAL



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

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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 1.287	34.2	PK	29.8	-23.1	40.9	-	-	74	-33.1	0-360	100	V
1	* 1.301	33.9	PK	29.9	-23.2	40.6	-	-	74	-33.4	0-360	100	H
4	* 11.219	26.9	PK	37.9	-22.4	42.4	-	-	74	-31.6	0-360	100	H
6	* 11.786	27.45	PK	39	-22.3	44.15	-	-	74	-29.85	0-360	200	V
3	* 4.113	31.16	PK	33.3	-30.4	34.06	-	-	74	-39.94	0-360	100	H
5	* 4.78	31.41	PK	34	-30	35.41	-	-	74	-38.59	0-360	200	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.3	42.64	PK3	29.9	-23.2	49.34	-	-	74	-24.66	219	392	H
* 1.301	30.39	VB1T	29.9	-23.2	37.09	54	-16.91	-	-	219	392	H
* 1.286	43.12	PK3	29.8	-23.1	49.82	-	-	74	-24.18	63	263	V
* 1.287	30.37	VB1T	29.8	-23.1	37.07	54	-16.93	-	-	63	263	V
* 4.113	40.78	PK3	33.3	-30.4	43.68	-	-	74	-30.32	55	205	H
* 4.114	28.42	VB1T	33.3	-30.4	31.32	54	-22.68	-	-	55	205	H
* 11.221	36.52	PK3	37.9	-22.4	52.02	-	-	74	-21.98	98	156	H
* 11.22	23.59	VB1T	37.9	-22.4	39.09	54	-14.91	-	-	98	156	H
* 4.779	43.38	PK3	34	-30	47.38	-	-	74	-26.62	284	107	V
* 4.778	27.98	VB1T	34	-30	31.98	54	-22.02	-	-	284	107	V
* 11.784	36.97	PK3	39	-22.4	53.57	-	-	74	-20.43	158	111	V
* 11.785	24.59	VB1T	39	-22.3	41.29	54	-12.71	-	-	158	111	V

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

PK3 - FHSS Method: Maximum Peak

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

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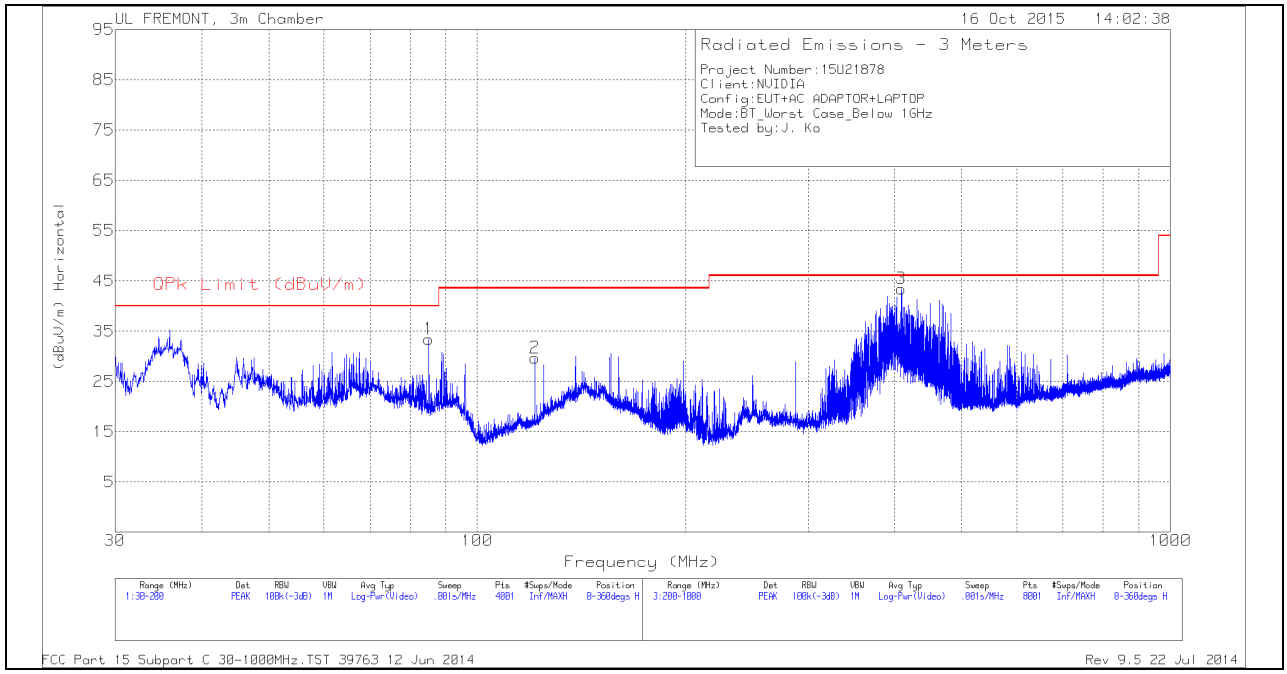
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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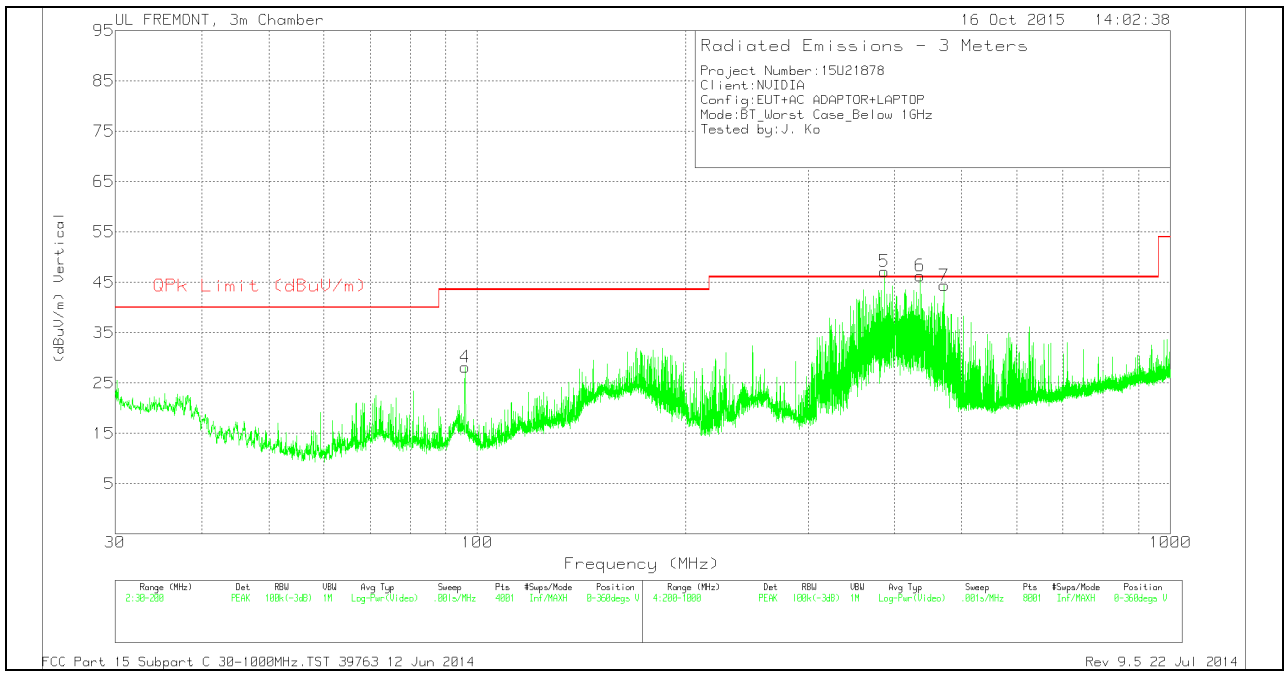
VERTICAL PLOT



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BELOW 1 GHz TABLE

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	85.1225	52.33	PK	7.6	-26.5	33.43	40	-6.57	0-360	200	H
4	96.0025	45.67	PK	8.8	-26.3	28.17	43.52	-15.35	0-360	100	V
2	121.035	41.99	PK	13.8	-26.1	29.69	43.52	-13.83	0-360	200	H
5	386.8	56.96	PK	15	-24.8	47.16	46.02	1.14	0-360	100	V
3	409.2	52.75	PK	15.5	-24.8	43.45	46.02	-2.57	0-360	100	H
6	435.3	54.51	PK	16.7	-24.9	46.31	46.02	.29	0-360	100	V
7	471.9	52.16	PK	17.2	-25	44.36	46.02	-1.66	0-360	200	V

PK - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
386.33	38.93	QP	15	-24.7	29.23	46.02	-16.79	117	178	V
409.255	41.47	QP	15.5	-24.8	32.17	46.02	-13.85	294	105	H
435.512	39.68	QP	16.7	-24.9	31.48	46.02	-14.54	211	212	V
471.953	34.22	QP	17.2	-25	26.42	46.02	-19.6	327	105	V

QP - Quasi-Peak detector

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10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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.

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

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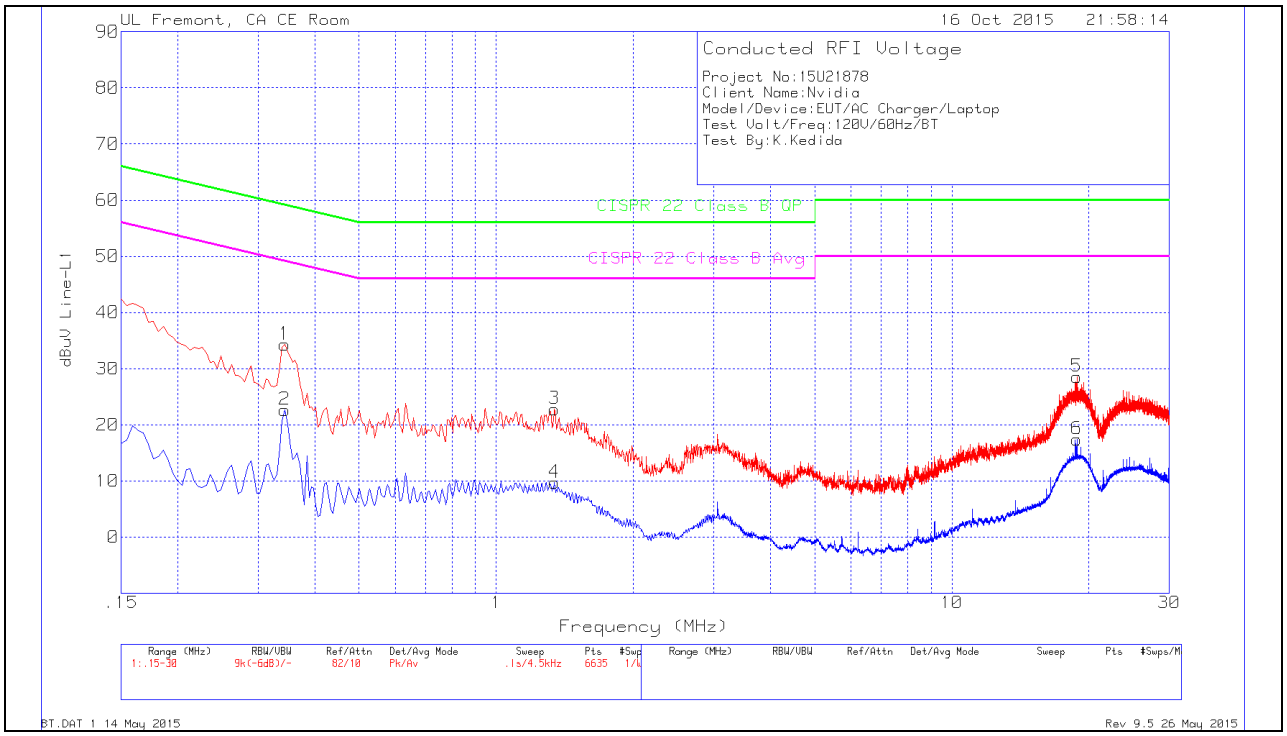
6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.3435	33.78	Pk	.5	0	34.28	59.12	-24.84		
2	.3435	22.14	Av	.5	0	22.64	-	-	49.12	-26.48
3	1.3425	22.52	Pk	.2	.1	22.82	56	-33.18		
4	1.3425	9.39	Av	.2	.1	9.69	-	-	46	-36.31
5	18.8115	28.04	Pk	.3	.2	28.54	60	-31.46		
6	18.8115	16.94	Av	.3	.2	17.44	-	-	50	-32.56

Pk - Peak detector

Av - Average detection

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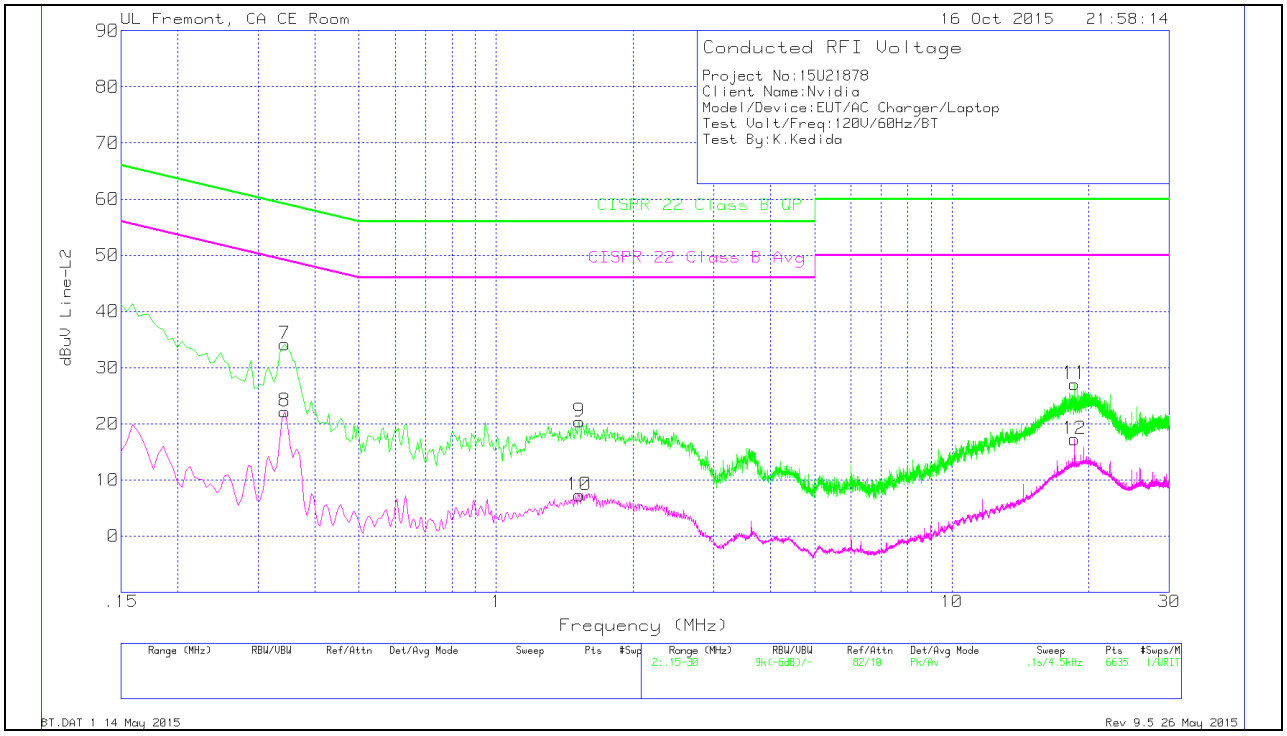
LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
7	.3435	33.67	Pk	.5	0	34.17	59.12	-24.95		
8	.3435	21.7	Av	.5	0	22.2	-	-	49.12	-26.92
9	1.5225	20.12	Pk	.2	.1	20.42	56	-35.58		
10	1.5225	7.03	Av	.2	.1	7.33	-	-	46	-38.67
11	18.591	26.59	Pk	.3	.2	27.09	60	-32.91		
12	18.591	16.76	Av	.3	.2	17.26	-	-	50	-32.74

Pk - Peak detector

Av - Average detection

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