FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

802.11 a/b/g/n, BLE, and BT module

MODEL NUMBER: EDISON

FCC ID: 2AB8ZND1
IC: 1000X-ND1

REPORT NUMBER: 14U17976-E5

ISSUE DATE: AUGUST 7, 2014

Prepared for
INTEL CORPORATON
2200 MISSION COLLEGE BOULEVARD
SANTA CLARA, CA 95052, U.S.A

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	08/07/14	Initial Issue	C.S.OOI

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: INTEL CORPORATION
2200 MISSION COLLEGE BOULEVARD
SANTA CLARA, CA 95052, U.S.A

EUT DESCRIPTION: 802.11 a/b/g/n, BLE, and BT module

MODEL: EDISON

SERIAL NUMBER: SMED425D0039PBAF(SKU10),(Conducted)
SMED425D004KPBAF(SKU9),(Radiated)

DATE TESTED: JULY 09 - JULY 29, 2014

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

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

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

Approved & Released For
UL Verification Services Inc. By:

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PROJECT LEAD
UL Verification Services Inc.

Tested By:

THANH PHAM
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☐ Chamber D
☐ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 802.11 a/b/g/n, BLE, and BT module.

The radio module is made by Intel.

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	5.70	3.72
2402 - 2480	Enhanced 8PSK	5.11	3.24

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Range (MHz)	Max Gain (dBi)
2400-2483.5	3.2
5150-5850	4.2

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 6.10 RC190.40.

The EUT driver software installed during testing was 6.10.190.49

5.5. WORST-CASE CONFIGURATION AND MODE

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

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

Only BT and 5GHz WLAN can transmit simultaneously.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	T420	4236b92	N/A
AC / DC Adapter	Lenovo	42T4430	11S42T4430Z1ZGWE28	N/A
Laptop	Lenovo	T420	4236b92	N/A
AC / DC Adapter	Lenovo	42T4430	11S42T4430Z1ZGWE28	N/A

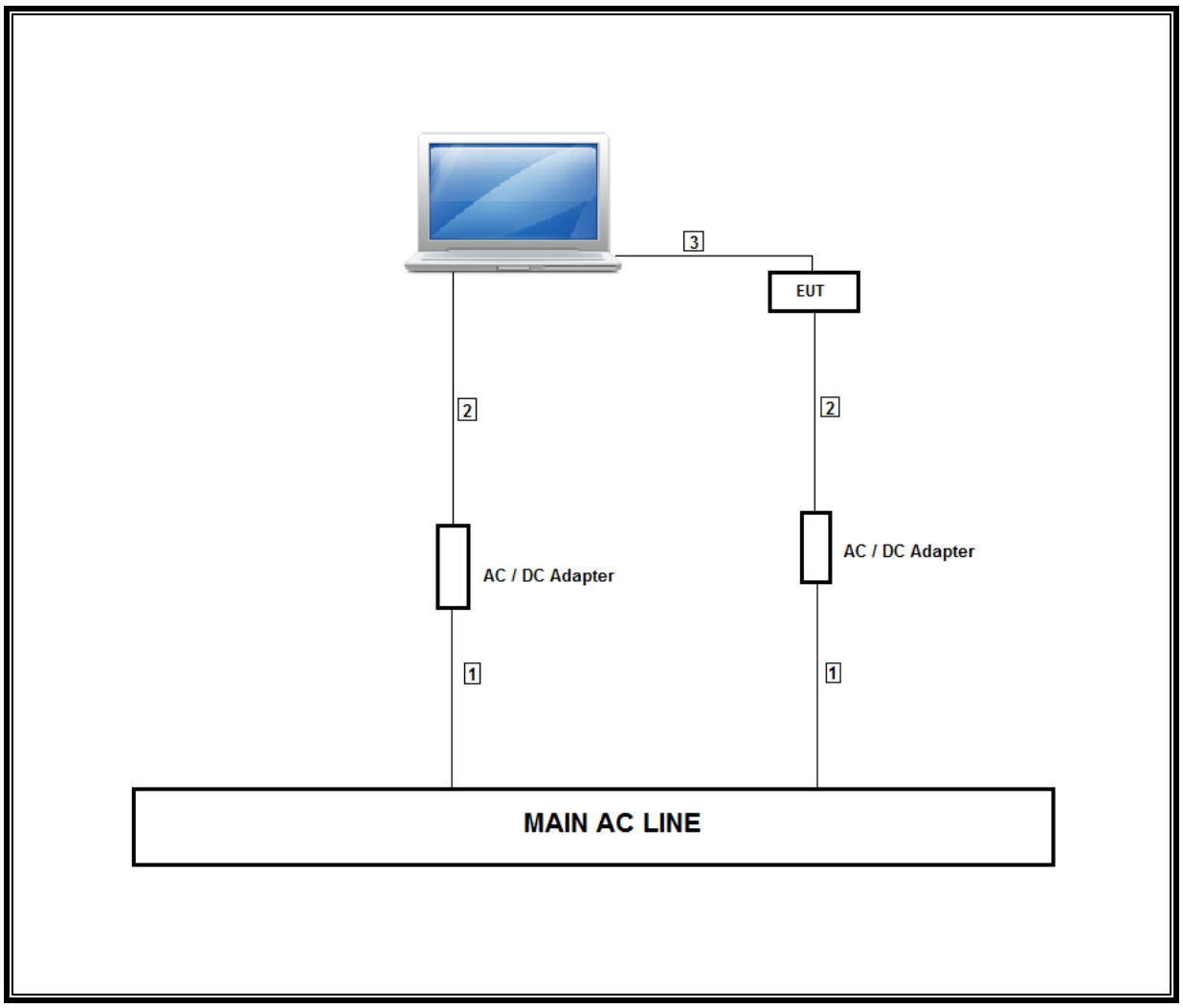
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	2	AC	Unshielded	1	AC input
2	DC	2	DC	Unshielded	1	DC output
3	USB	1	USB	Unshielded	0.5	USB-A to OTG

TEST SETUP

The EUT is connected with a host laptop computer by USB cable during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	T146	06/19/14	06/19/15
PXA Signal Analyzer	Agilent	N9030A	T339	12/10/13	12/10/14
Horn Antenna, 1GHz-18GHz	ETS Lindgren	3117	T119	01/06/14	01/06/15
Antenna, Horn, 18 GHz	EMCO	3115	C01218	01/18/14	01/18/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/13	11/14/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01016	08/22/13	08/22/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/19/13	10/19/14
Peak Power Meter	Agilent / HP	N1911A	T379	02/07/14	02/07/15
Power Meter Sensoor	Agilent / HP	N1921A	T309	12/12/13	12/12/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/14	01/16/15
5GHz Low Pass Filter	Micro-Tronics	LPS17541	F00219	01/11/14	01/11/15
3GHz High Pass Filter	Micro-Tronics	HPS17542	F00222	01/11/14	01/11/15
6GHz High Pass Filter	Micro-Tronics	HPM17543	F00224	01/11/14	01/11/15

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

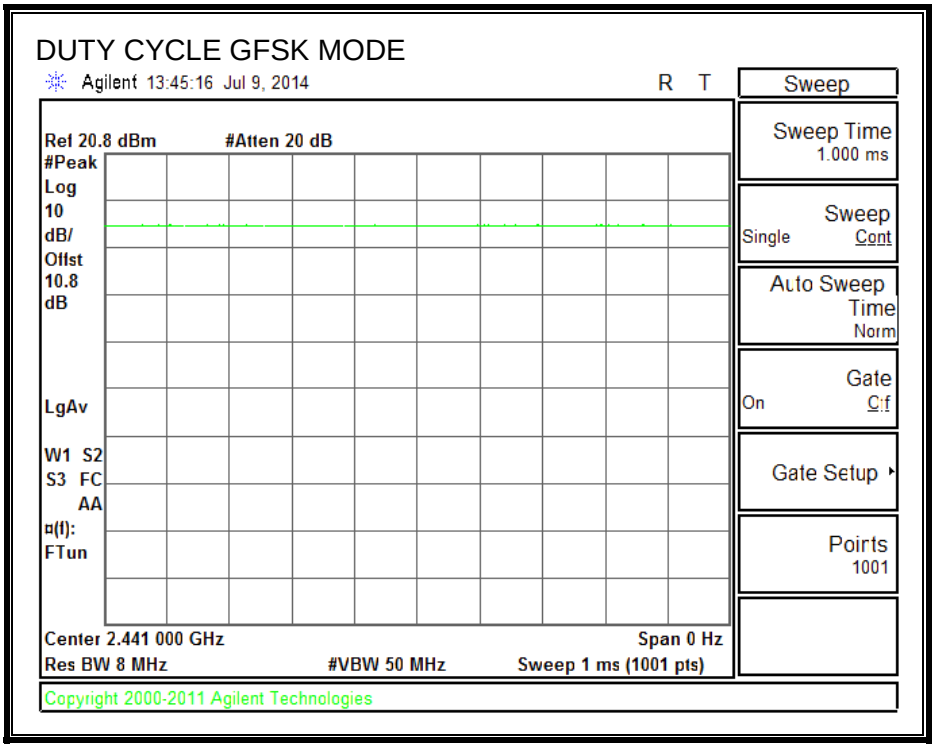
KDB 558074 Zero-Span Spectrum Analyzer Method.

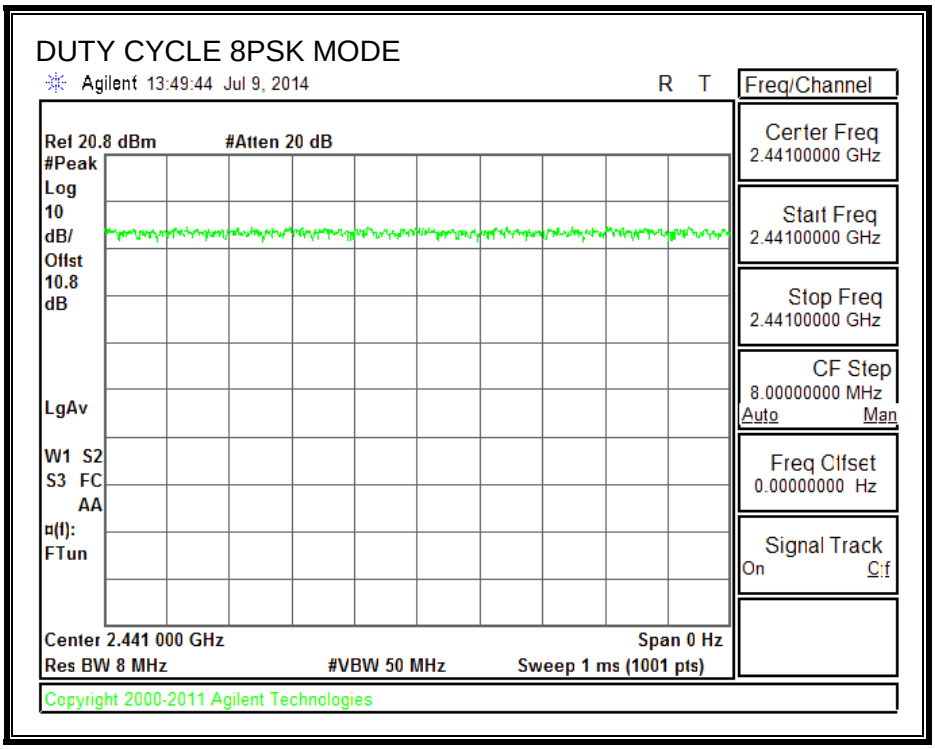
7.2. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4 GHz band (Hopping OFF)						
Bluetooth GFSK	1.000	1.000	1.000	100.00%	0.00	0.010
Bluetooth 8PSK	1.000	1.000	1.000	100.00%	0.00	0.010

7.3. DUTY CYCLE PLOTS

HOPPING OFF





7.4. BASIC DATA RATE GFSK MODULATION

7.4.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

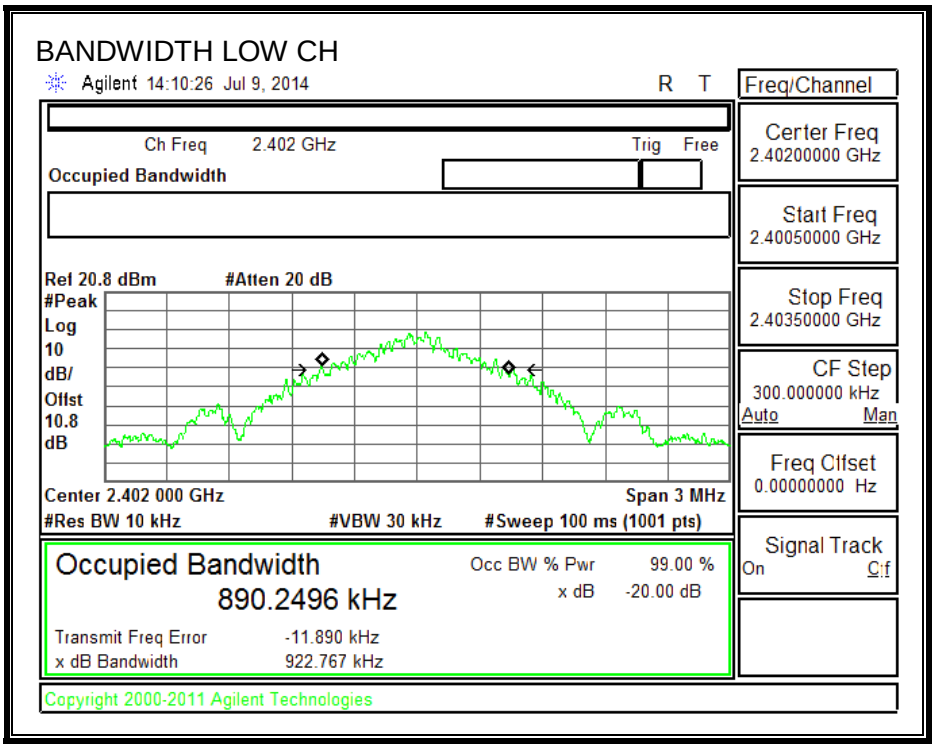
TEST PROCEDURE

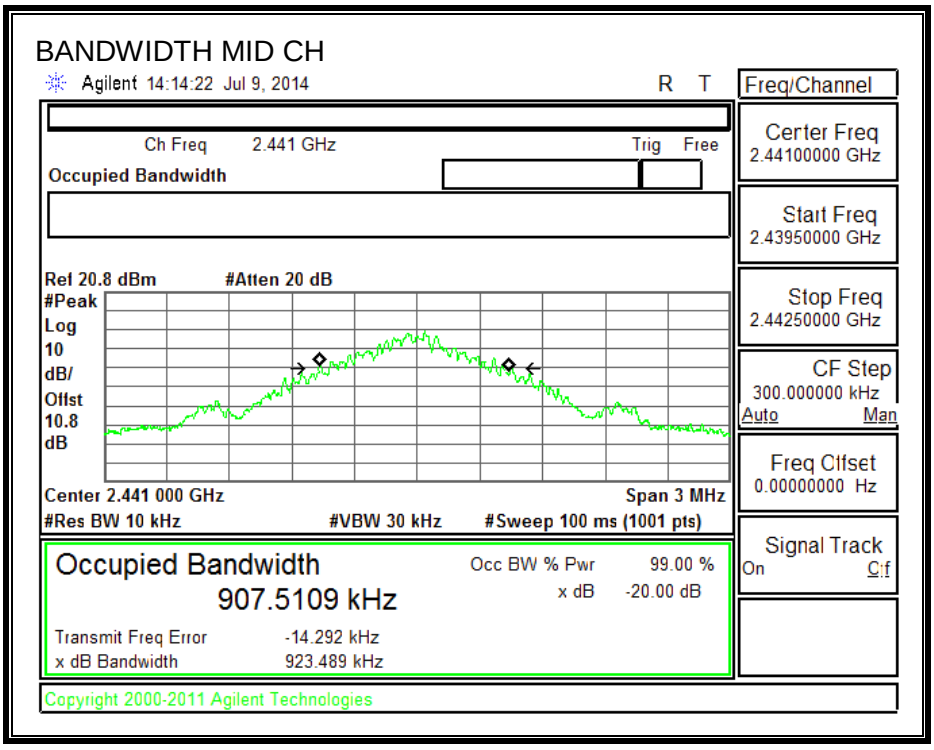
The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

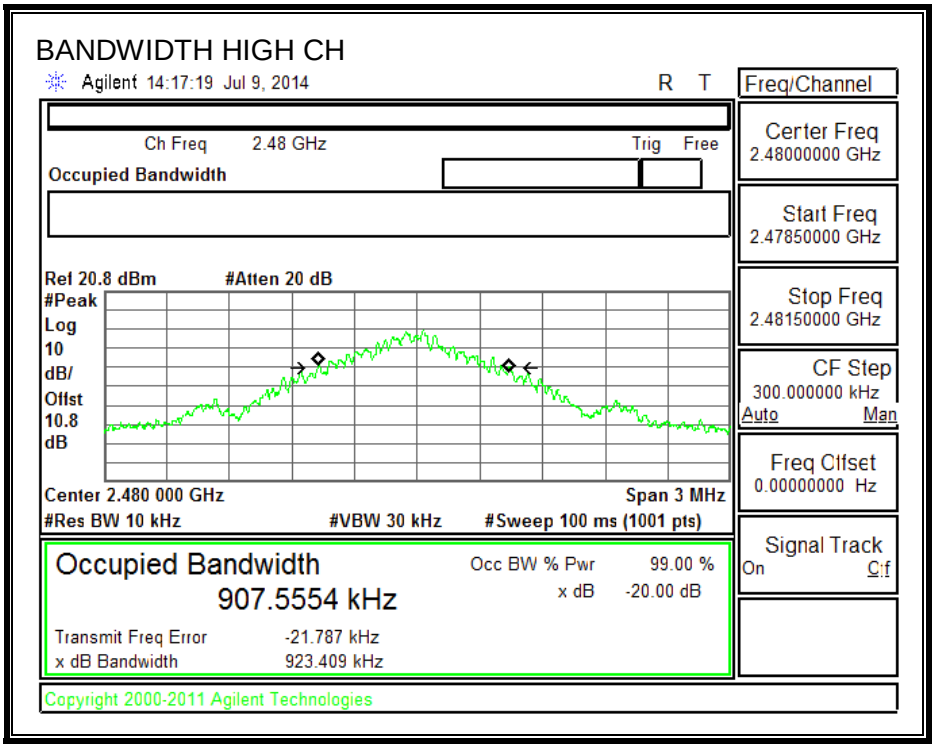
RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	922.767	886.3411
Middle	2441	923.489	880.4033
High	2480	923.409	880.8433

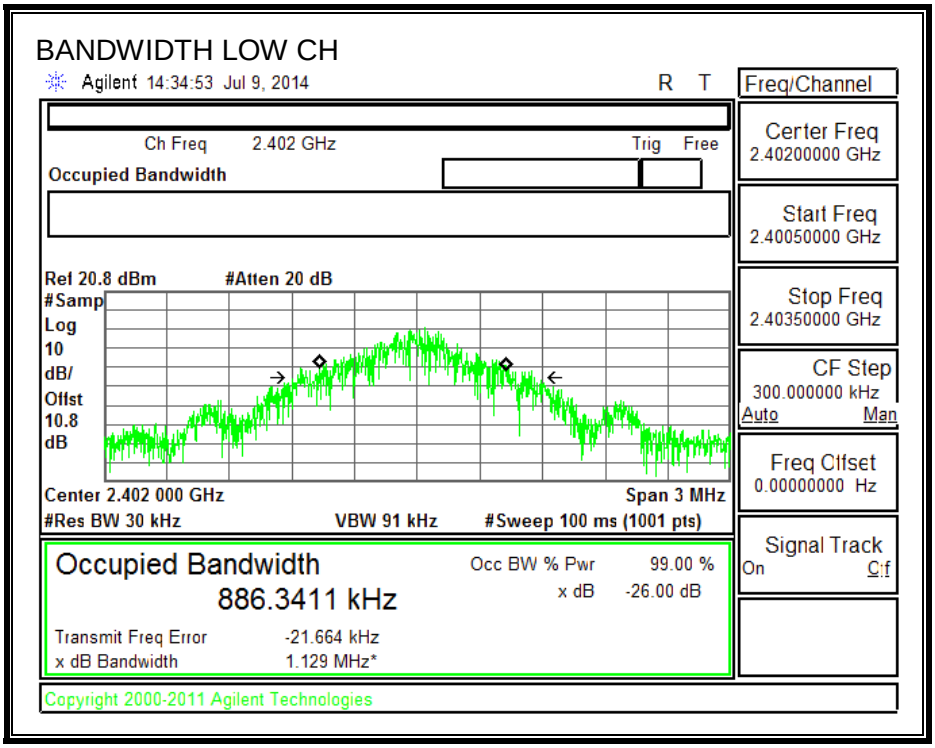
20 dB BANDWIDTH



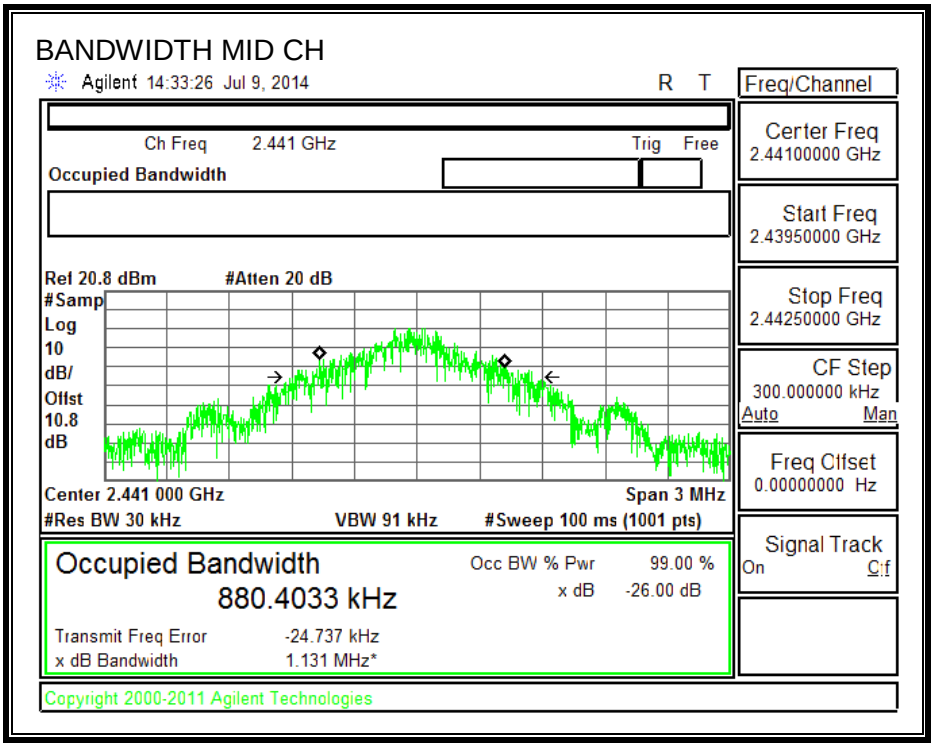




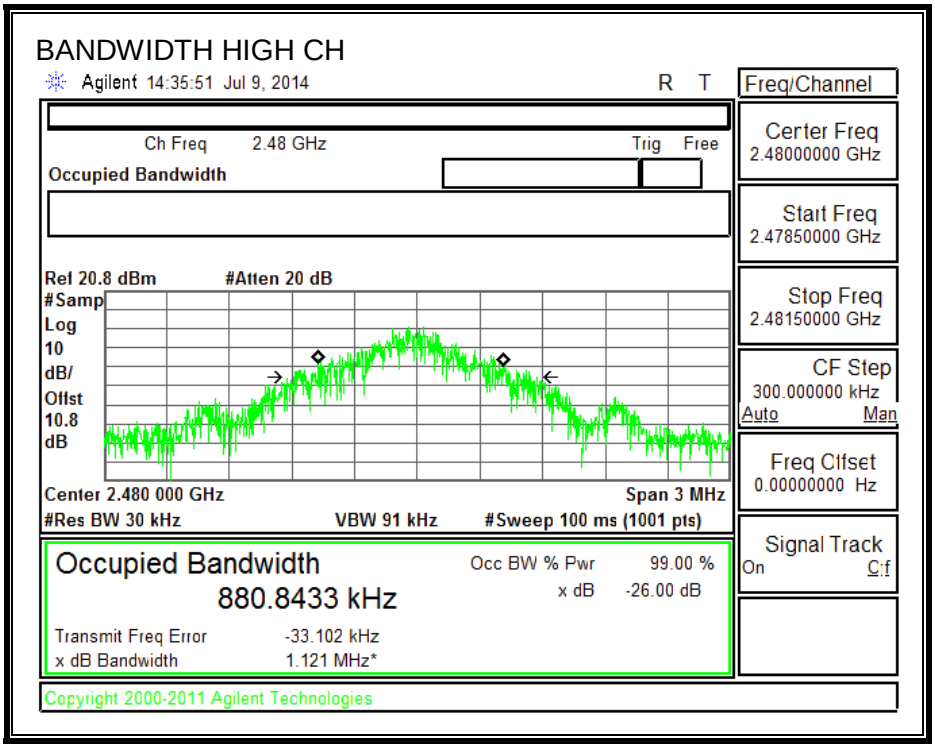
99% BANDWIDTH



BANDWIDTH MID CH



BANDWIDTH HIGH CH



7.4.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-210 A8.1 (b)

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.

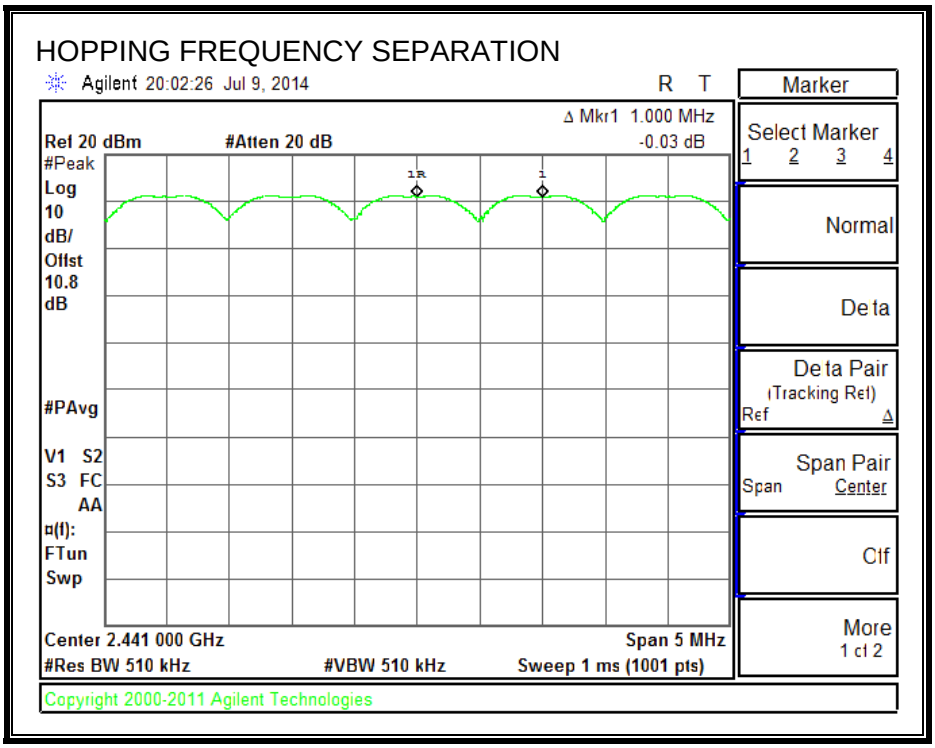
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 510 kHz and the VBW is set to 510 kHz. The sweep time is coupled.

RESULTS

HOPPING FREQUENCY SEPARATION



7.4.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

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

TEST PROCEDURE

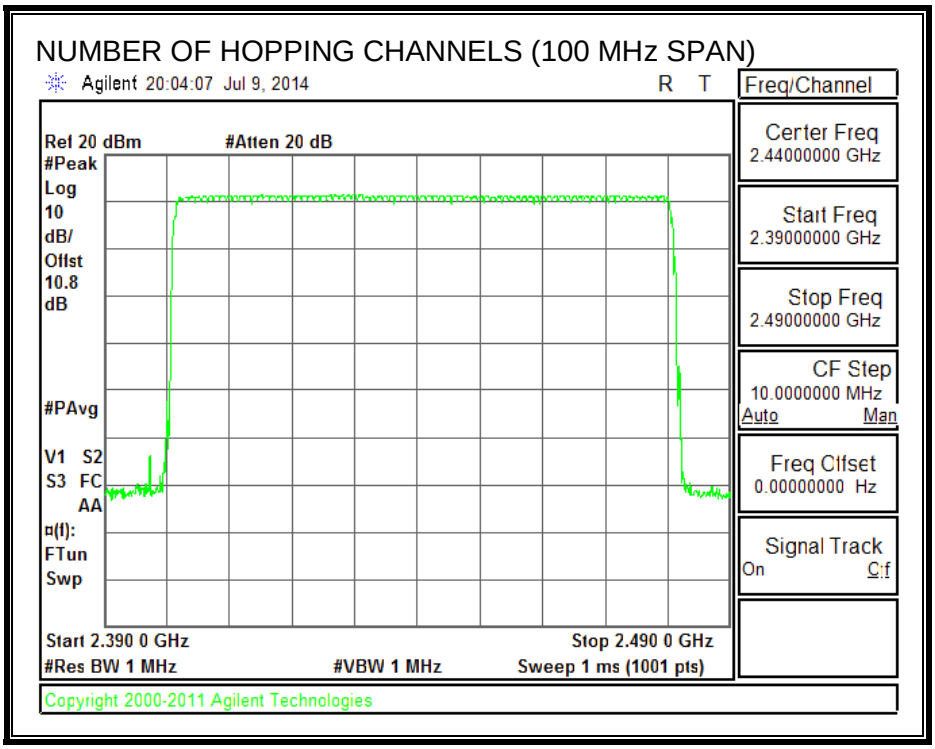
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

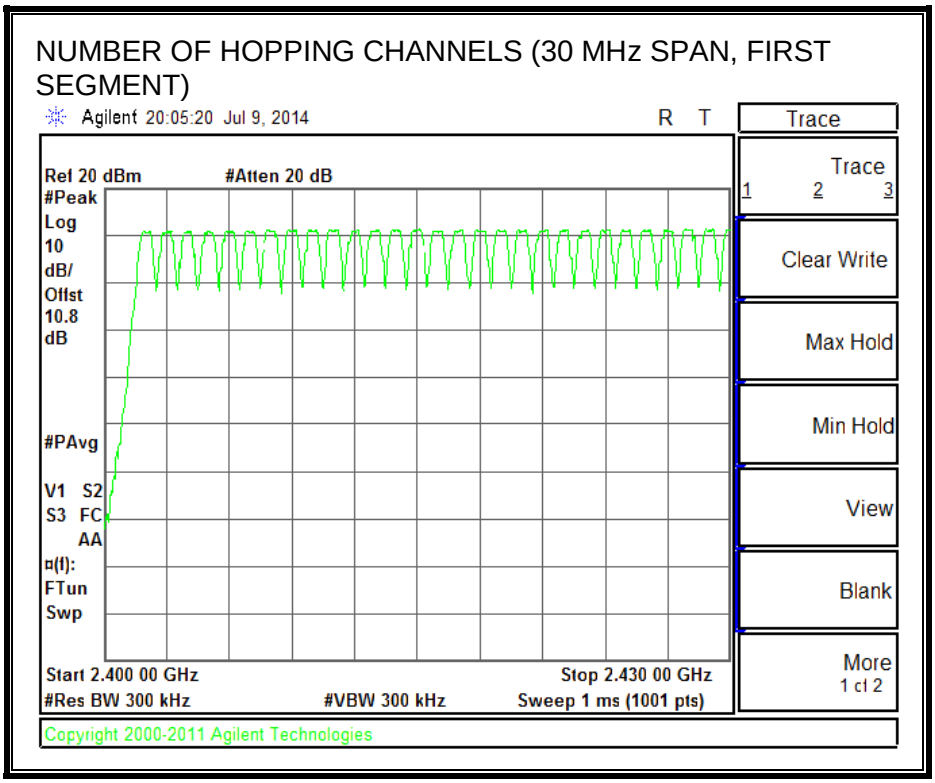
Normal Mode: 79 Channels observed.
AFH Mode: 20 Channels declared.

NUMBER OF HOPPING CHANNELS

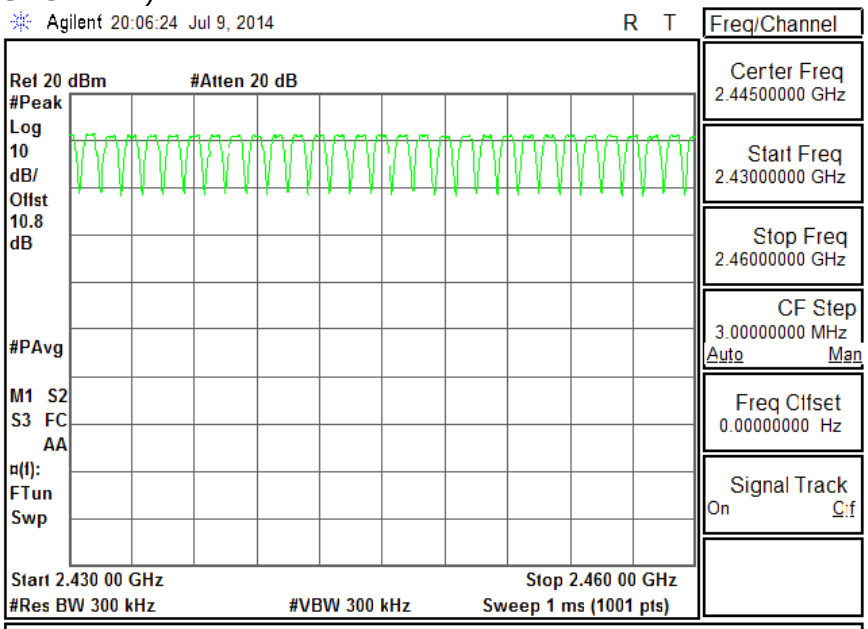
NUMBER OF HOPPING CHANNELS (100 MHz SPAN)



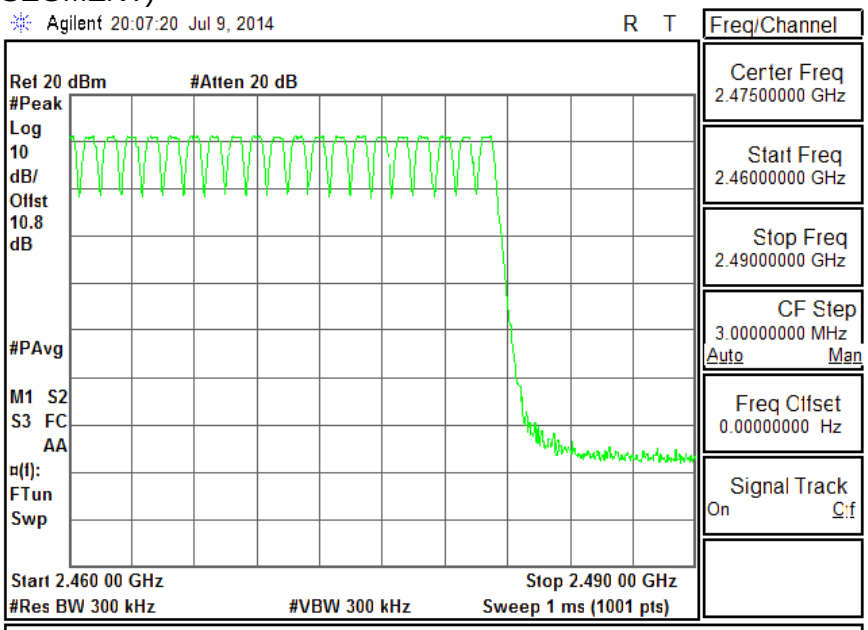
NUMBER OF HOPPING CHANNELS (30 MHz SPAN, FIRST SEGMENT)



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



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



7.4.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

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.

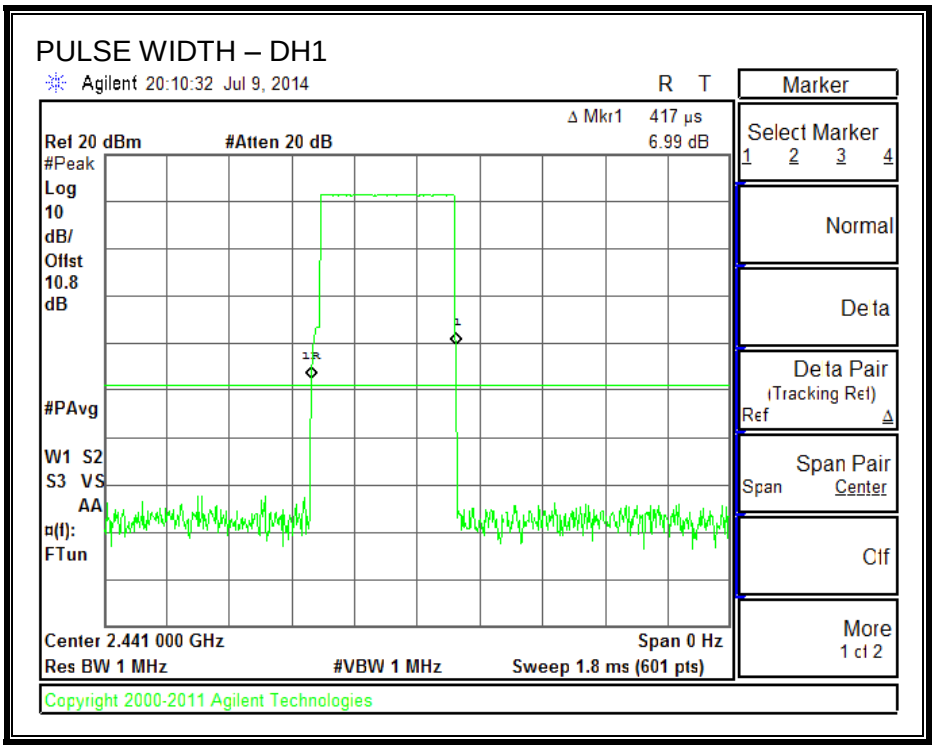
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

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.

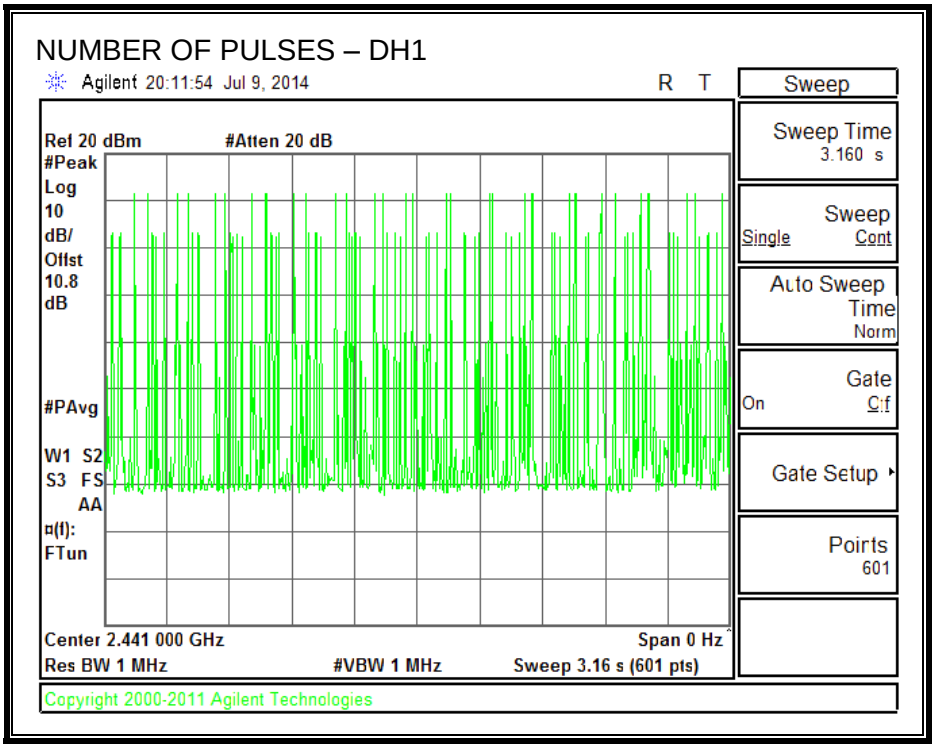
RESULTS

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	0.417	31	0.129	0.4	-0.271
DH3	1.668	20	0.334	0.4	-0.066
DH5	2.917	13	0.379	0.4	-0.021
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	0.417	7.75	0.032	0.4	-0.368
DH3	1.668	5	0.083	0.4	-0.317
DH5	2.917	3.25	0.095	0.4	-0.305

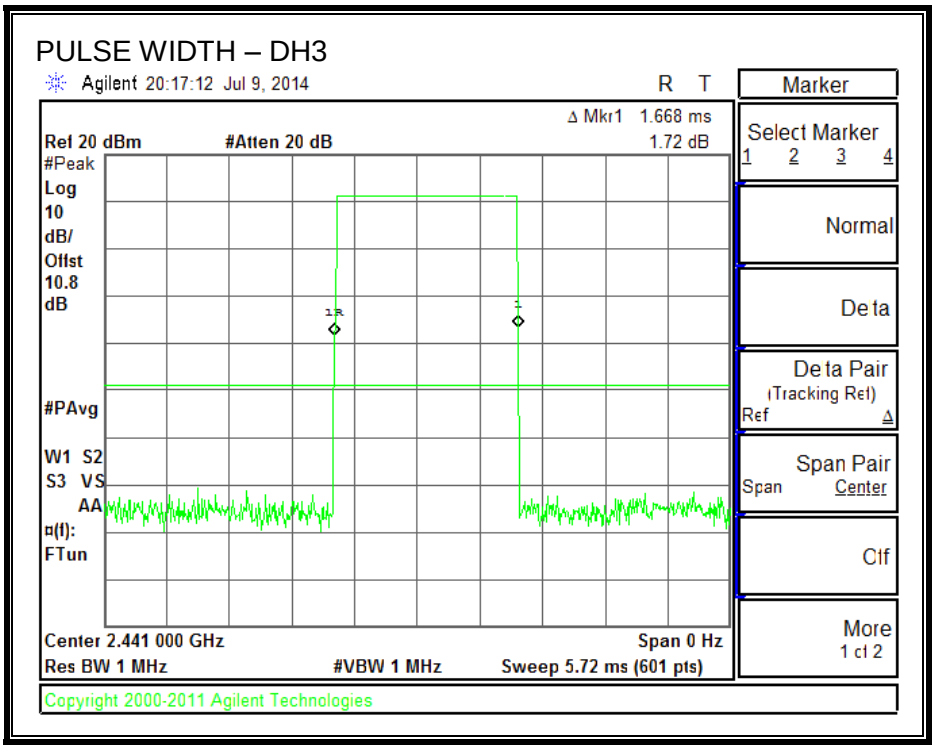
PULSE WIDTH - DH1



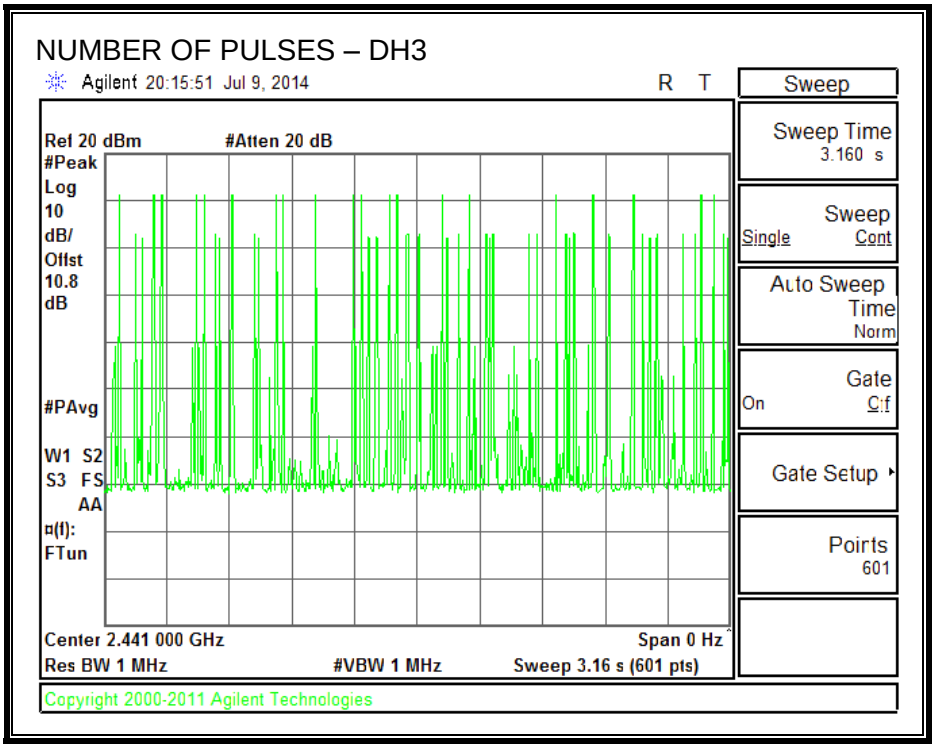
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



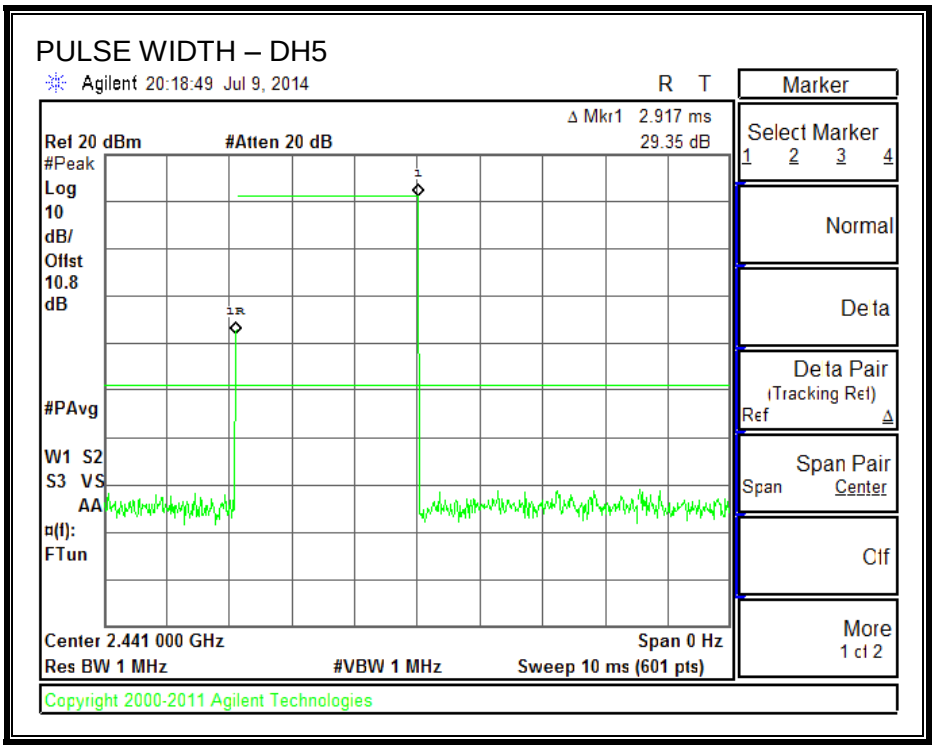
PULSE WIDTH – DH3



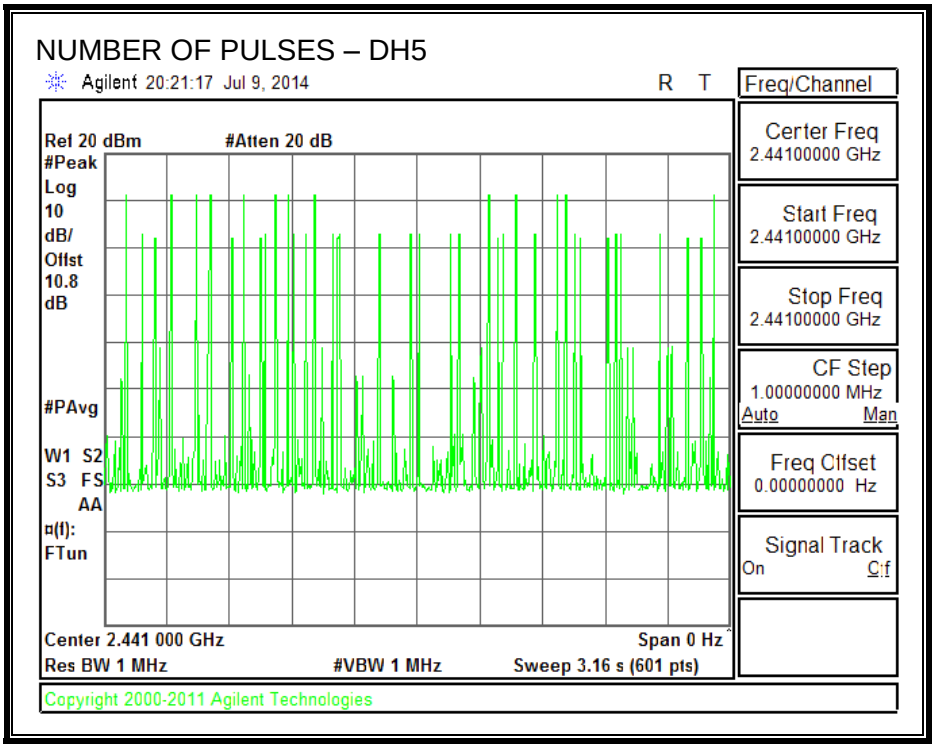
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



7.4.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

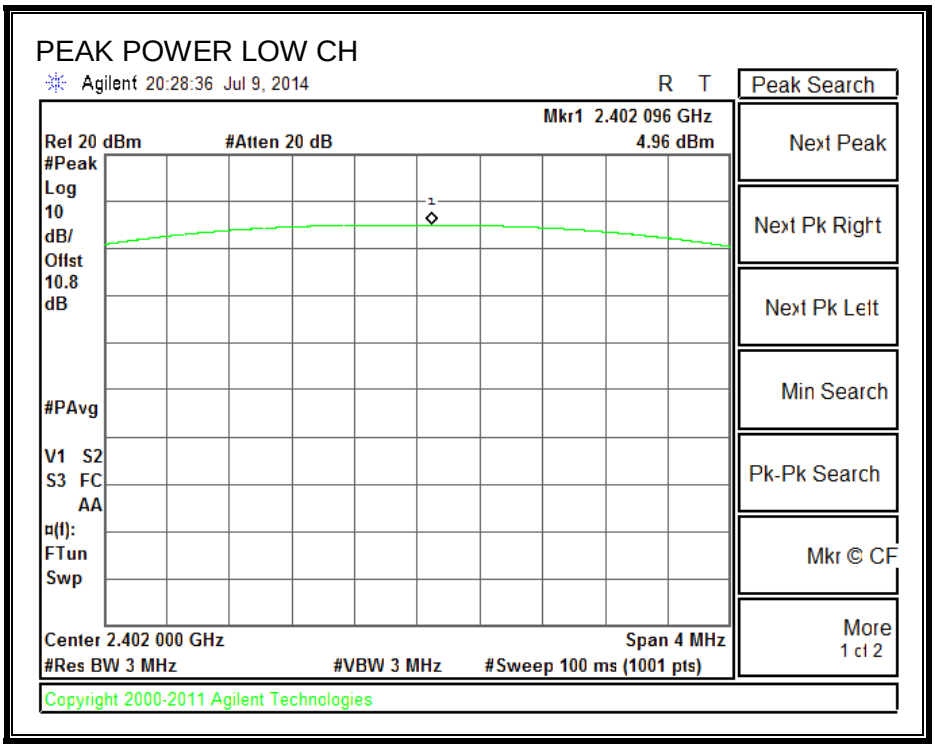
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

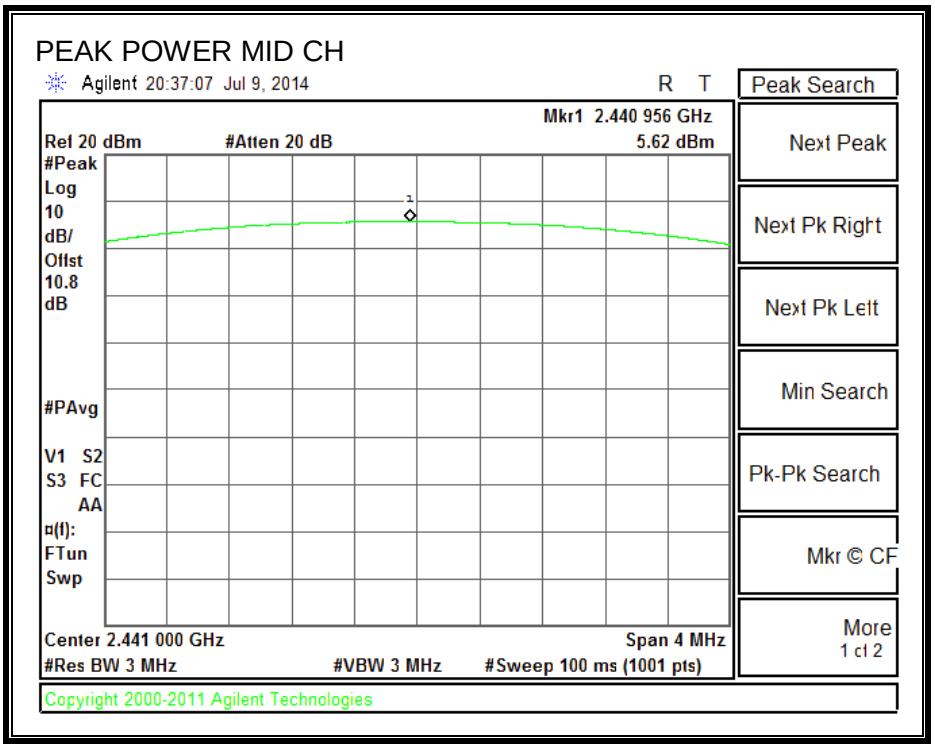
Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.96	30	-25.04
Middle	2441	5.62	30	-24.38
High	2480	5.70	30	-24.30

OUTPUT POWER

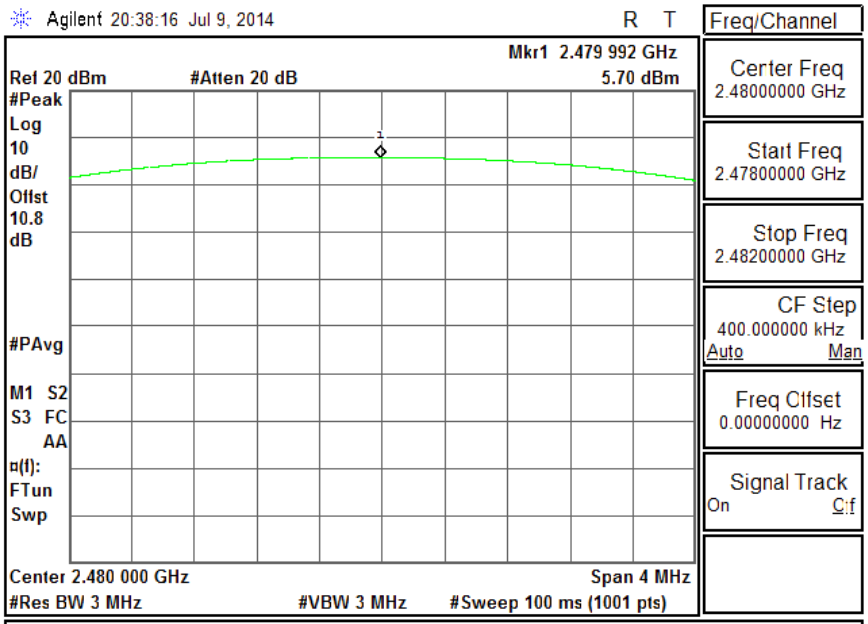
PEAK POWER LOW CH



PEAK POWER MID CH



PEAK POWER HIGH CH



7.4.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.8 dB (including 10 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	4.77
Middle	2441	5.17
High	2480	5.37

7.4.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

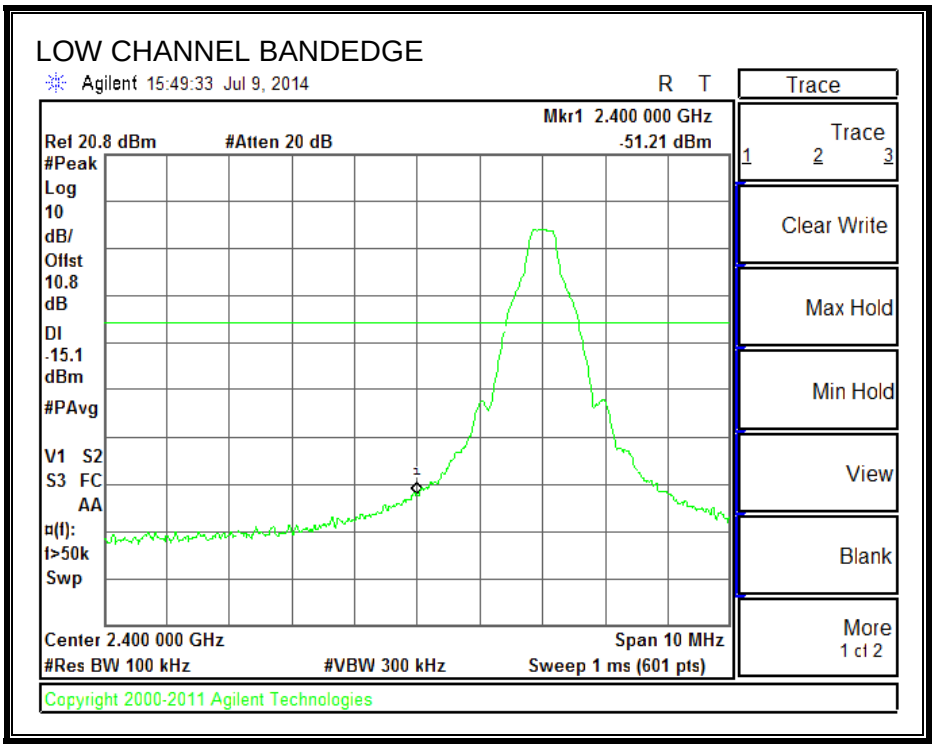
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

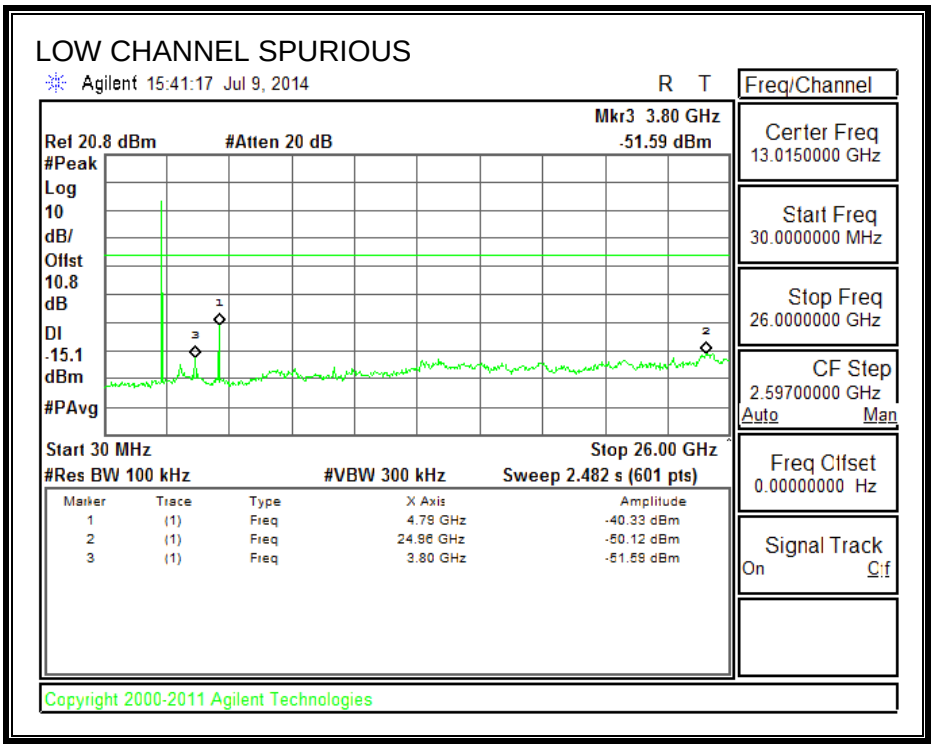
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

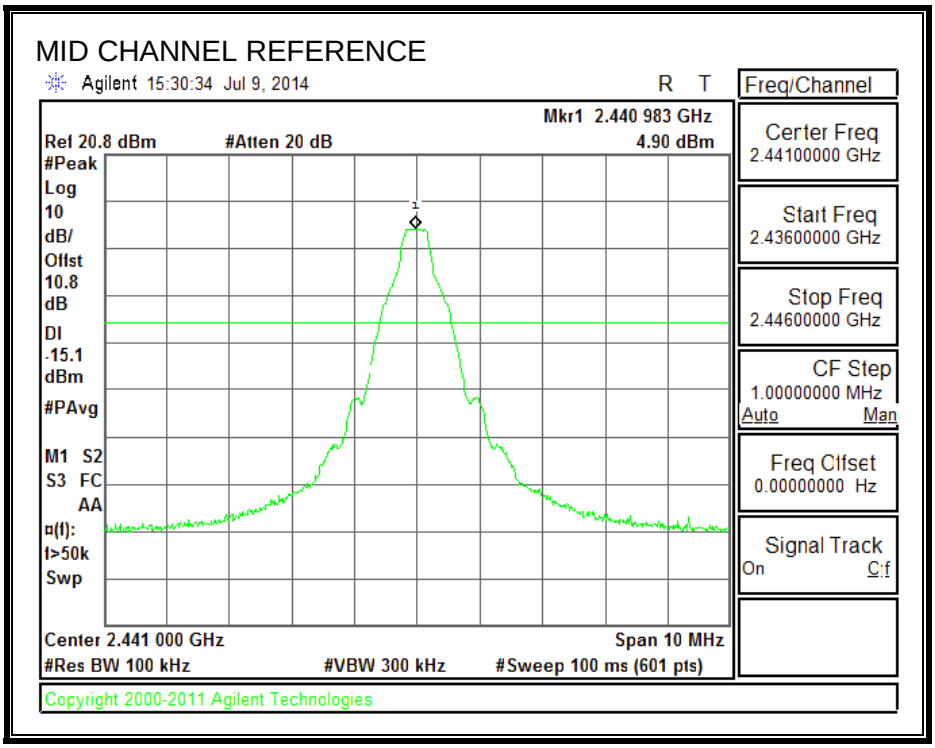
RESULTS

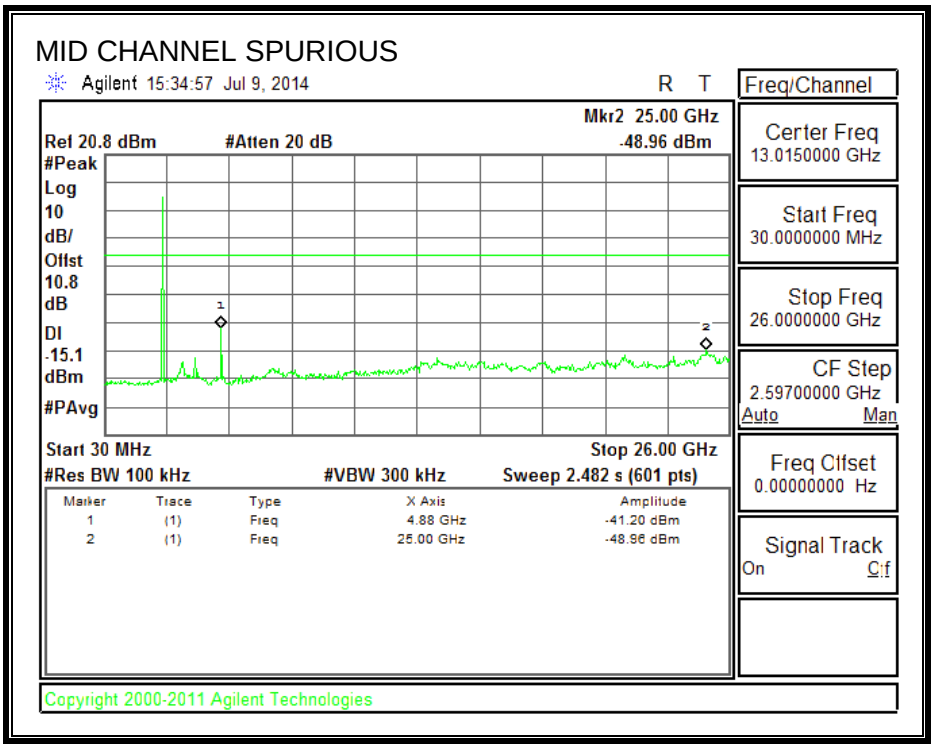
SPURIOUS EMISSIONS, LOW CHANNEL



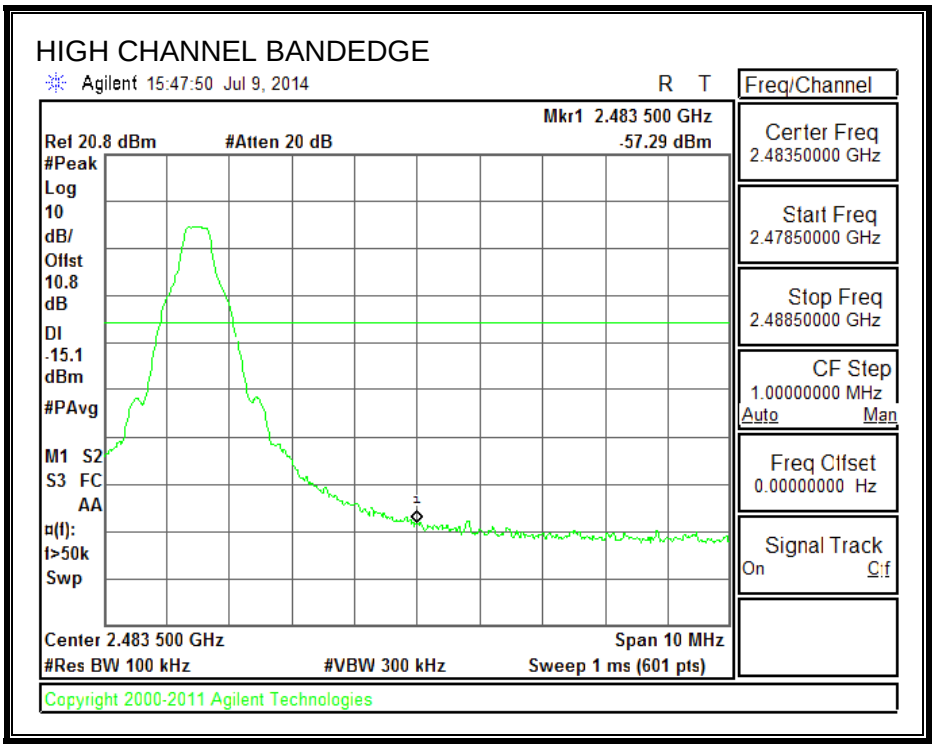


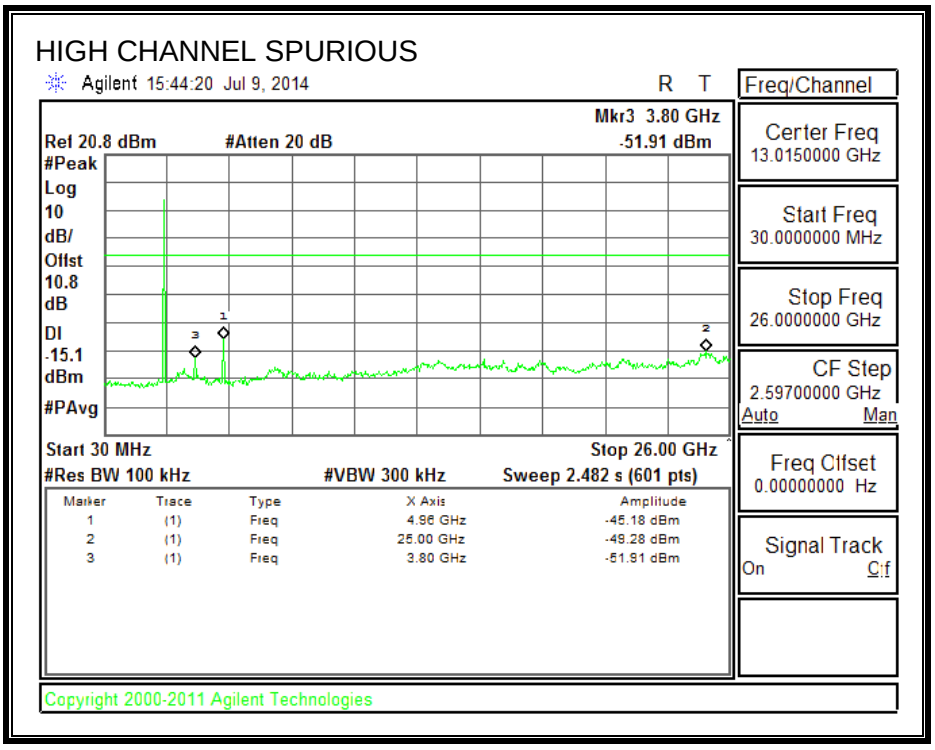
SPURIOUS EMISSIONS, MID CHANNEL





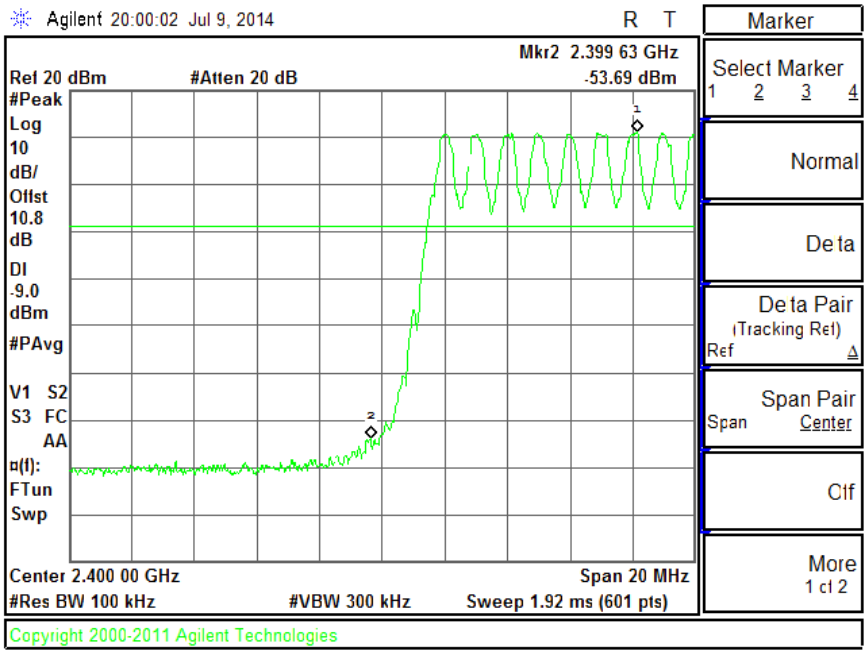
SPURIOUS EMISSIONS, HIGH CHANNEL



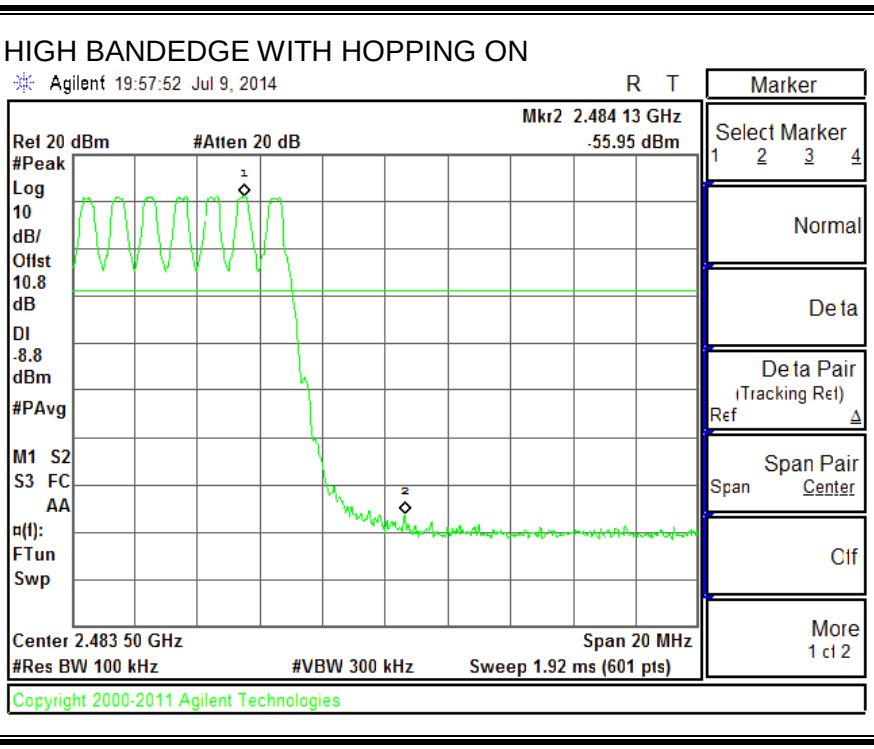


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.5. ENHANCED DATA RATE 8PSK MODULATION

7.5.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

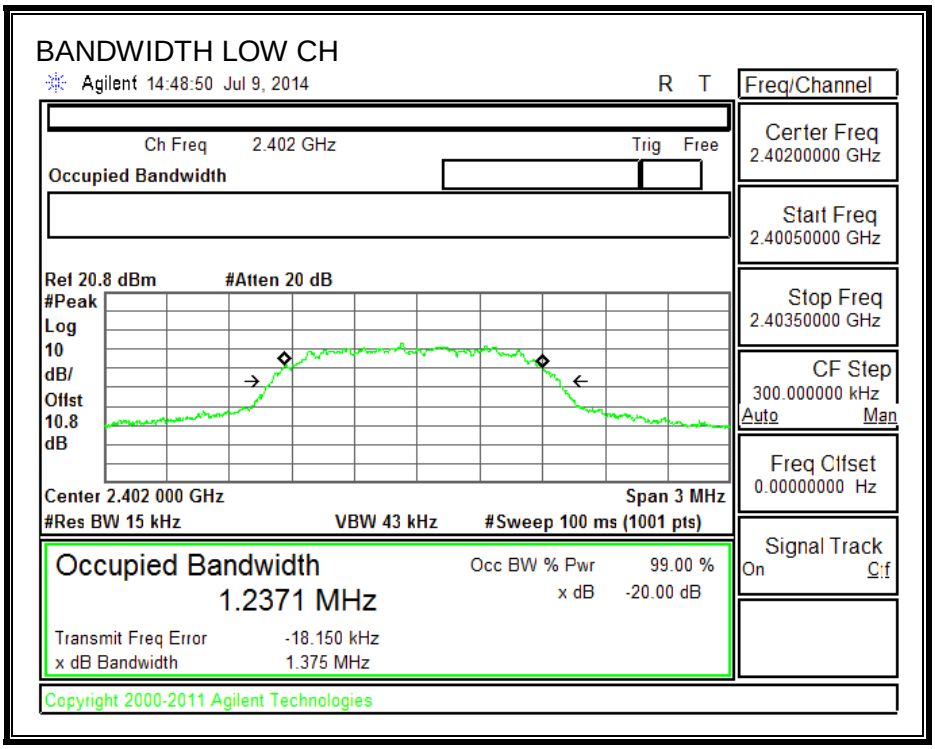
TEST PROCEDURE

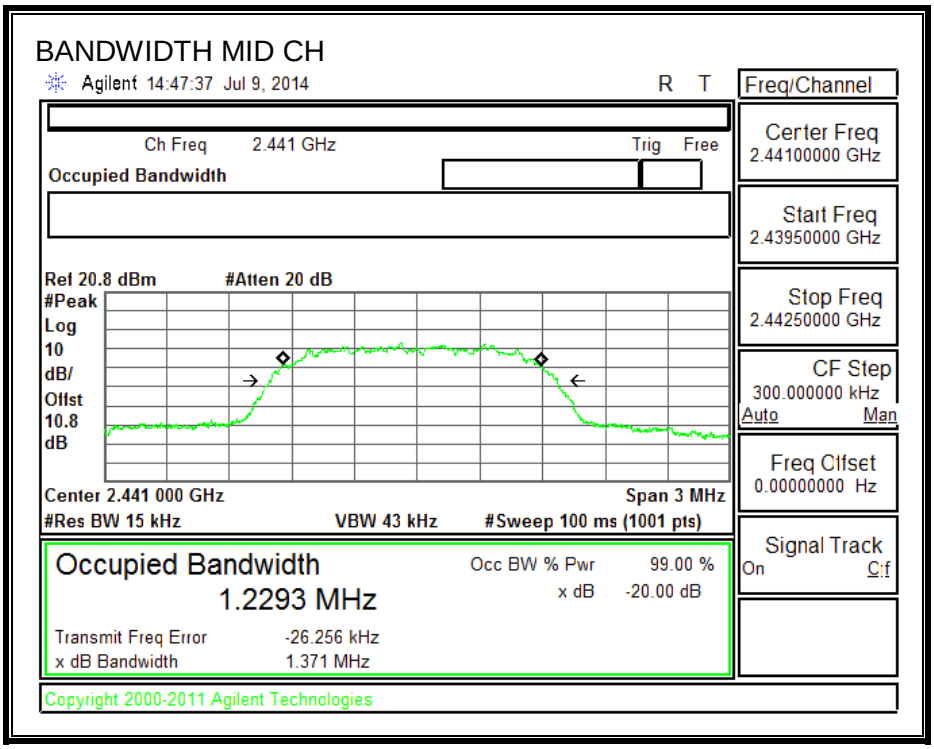
The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

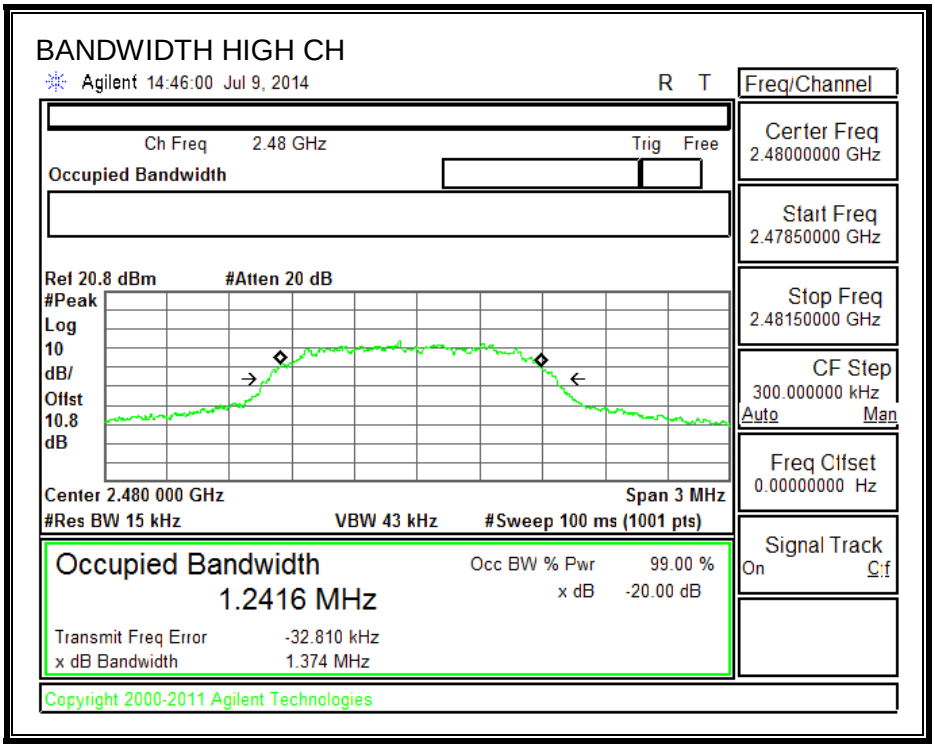
RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	1375	1242.20
Middle	2441	1371	1216.90
High	2480	1374	1248.00

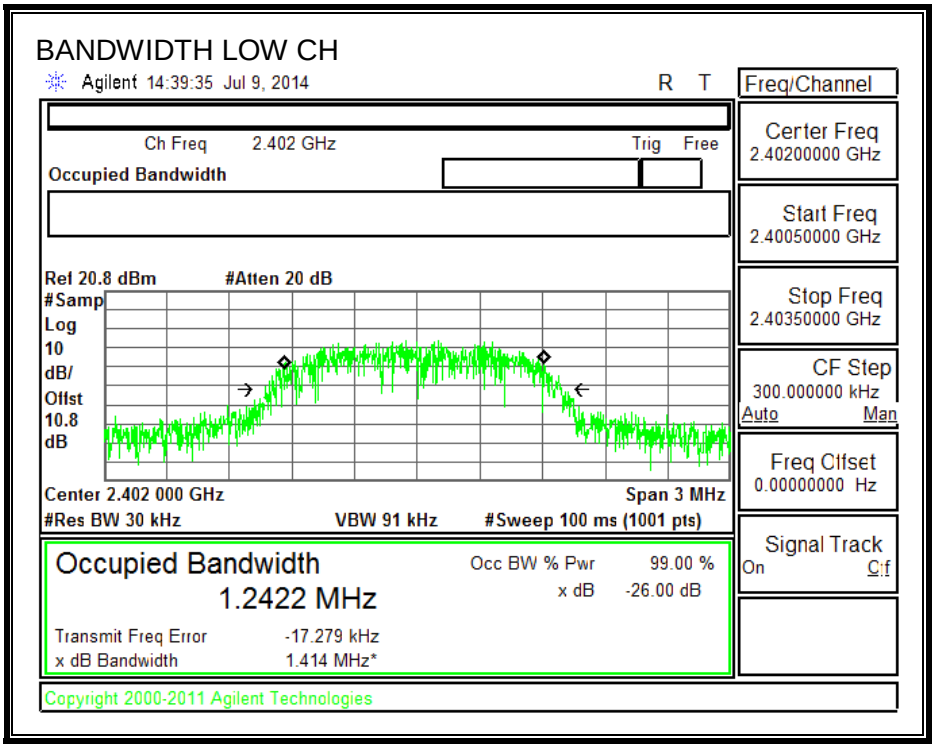
20 dB BANDWIDTH



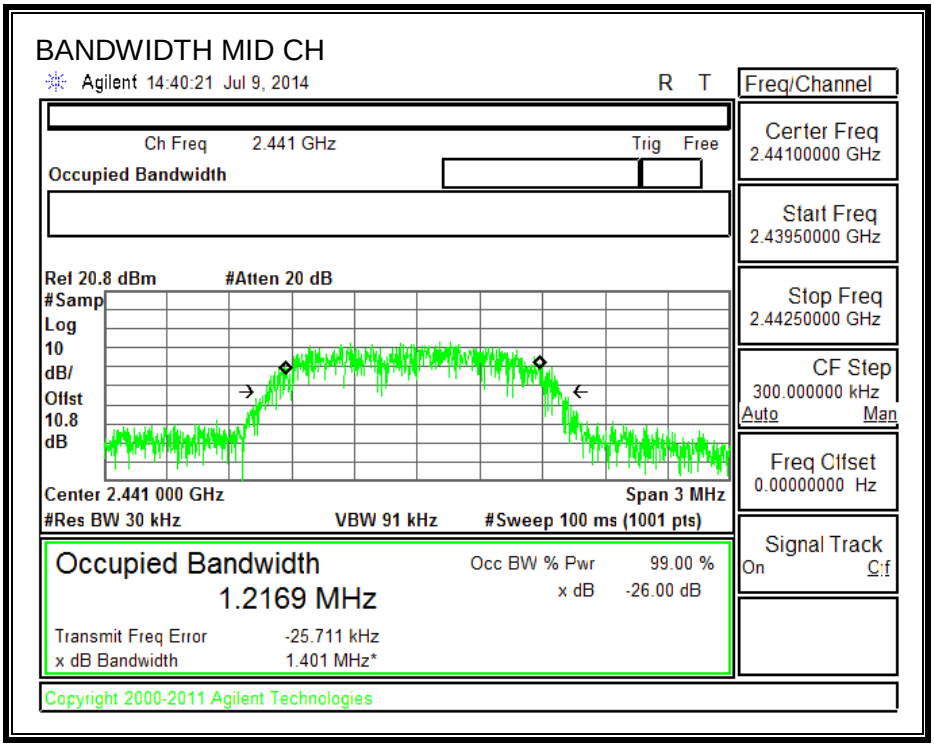




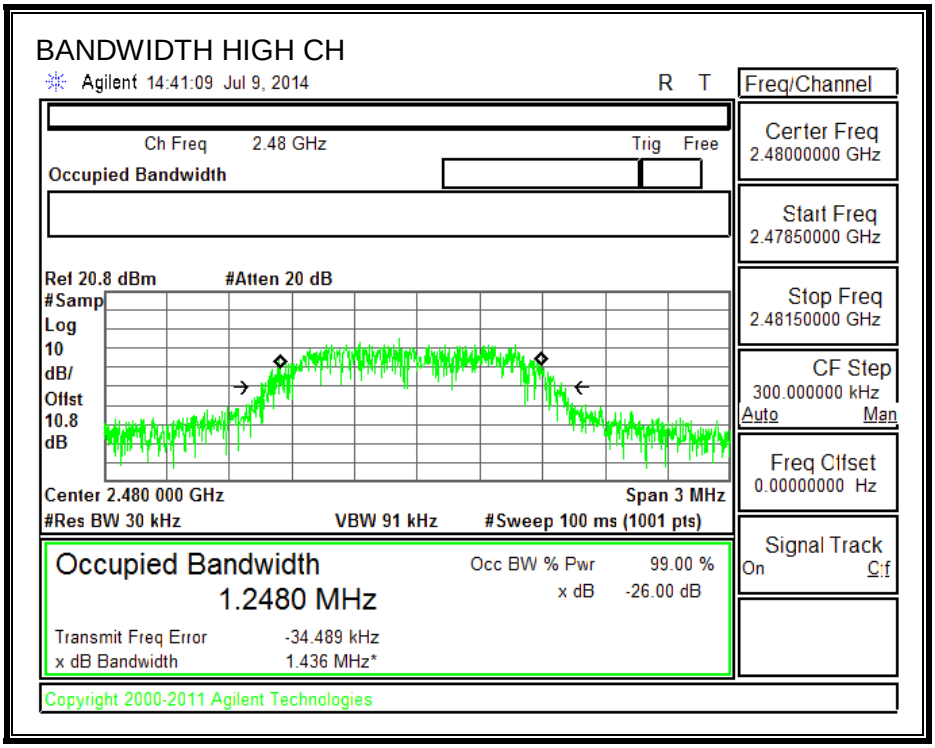
99% BANDWIDTH



BANDWIDTH MID CH



BANDWIDTH HIGH CH



7.5.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-210 A8.1 (b)

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.

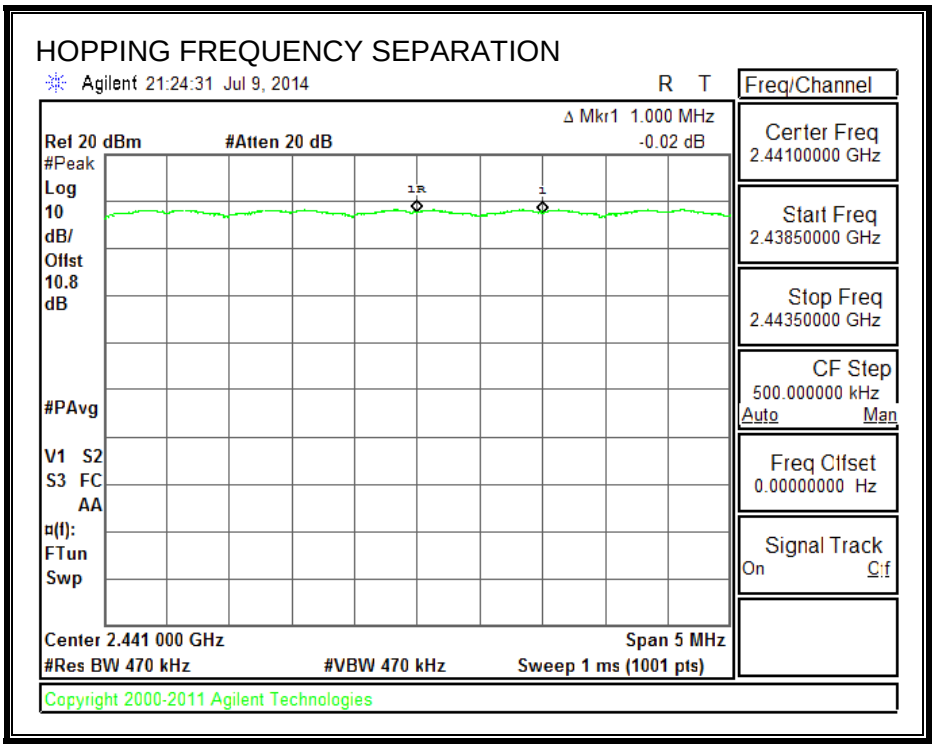
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 470 kHz and the VBW is set to 470 kHz. The sweep time is coupled.

RESULTS

HOPPING FREQUENCY SEPARATION



7.5.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

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

TEST PROCEDURE

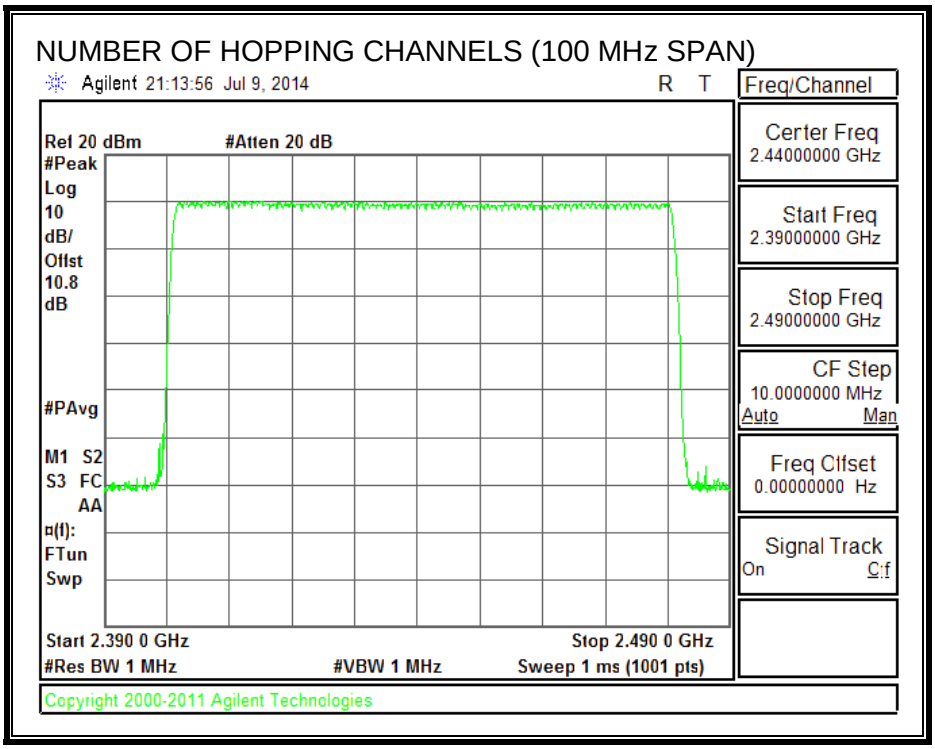
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

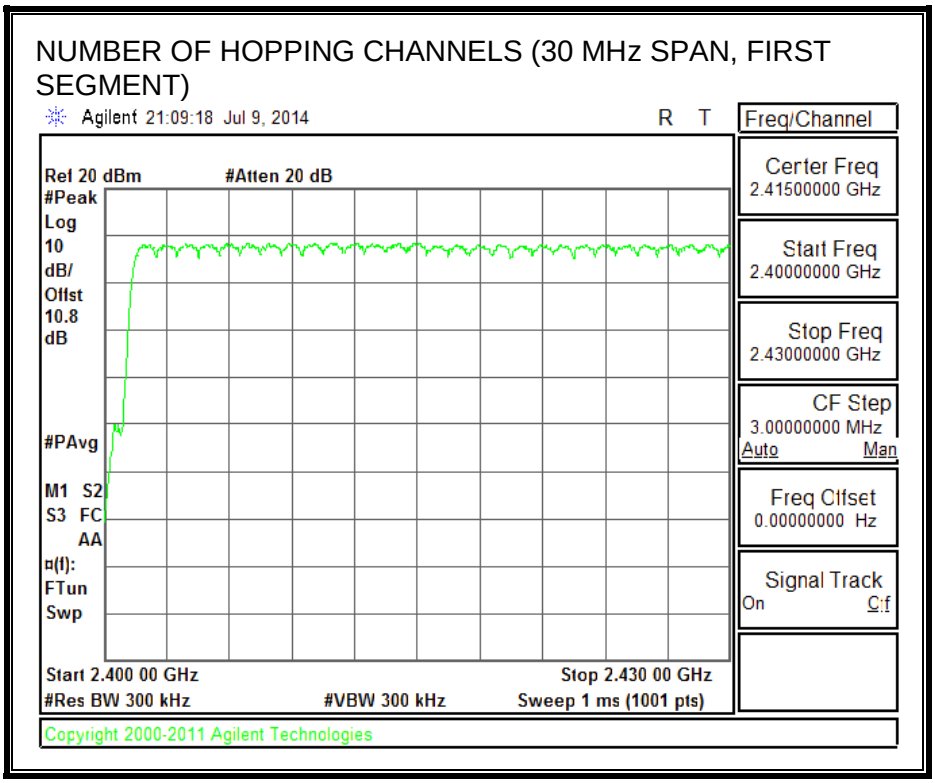
Normal Mode: 79 Channels observed.
AFH Mode: 20 Channels declared.

NUMBER OF HOPPING CHANNELS

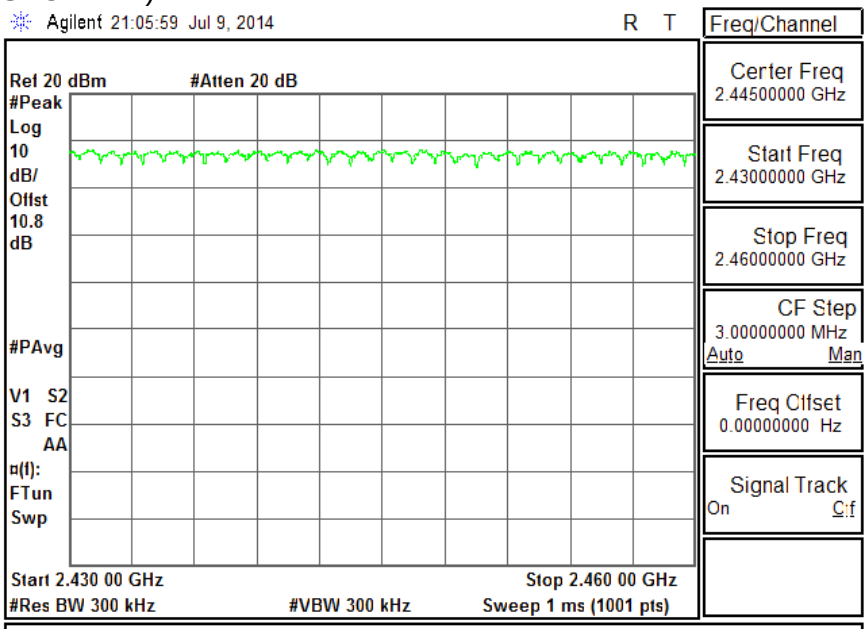
NUMBER OF HOPPING CHANNELS (100 MHz SPAN)



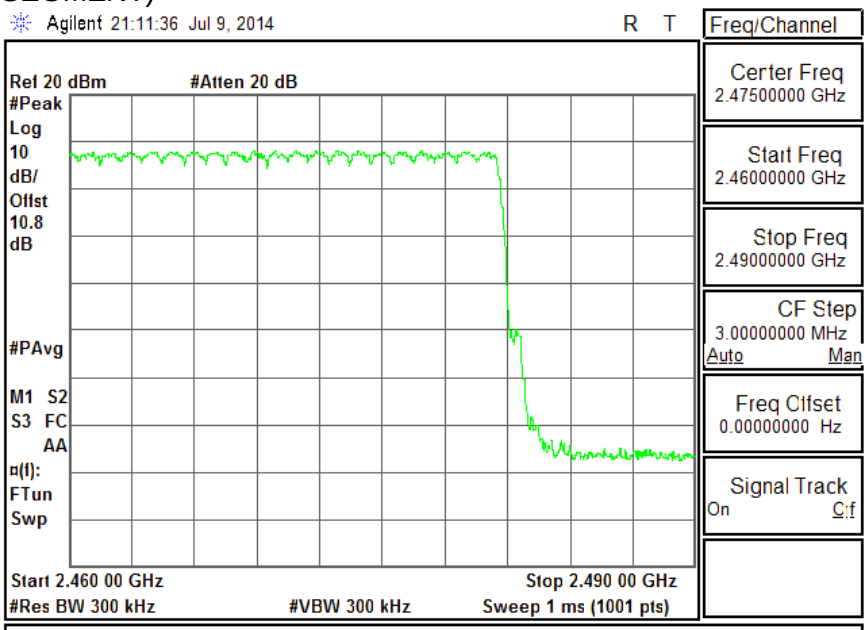
NUMBER OF HOPPING CHANNELS (30 MHz SPAN, FIRST SEGMENT)



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



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



7.5.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

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.

RESULTS

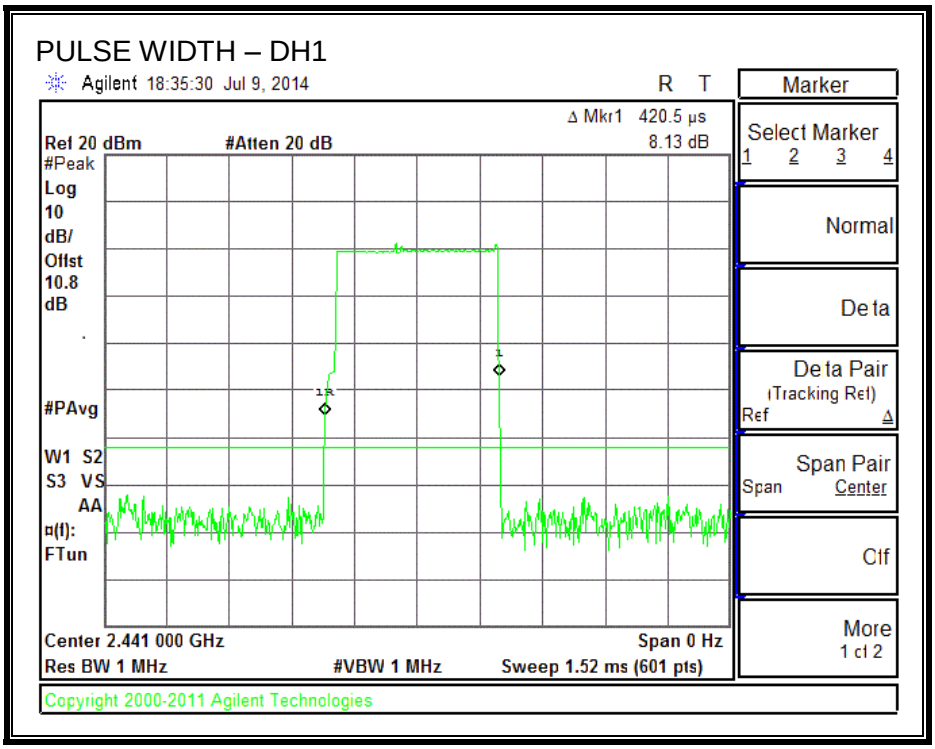
Time Of Occupancy = 10 * xx pulses * yy msec = zz msec

8PSK (EDR) Mode

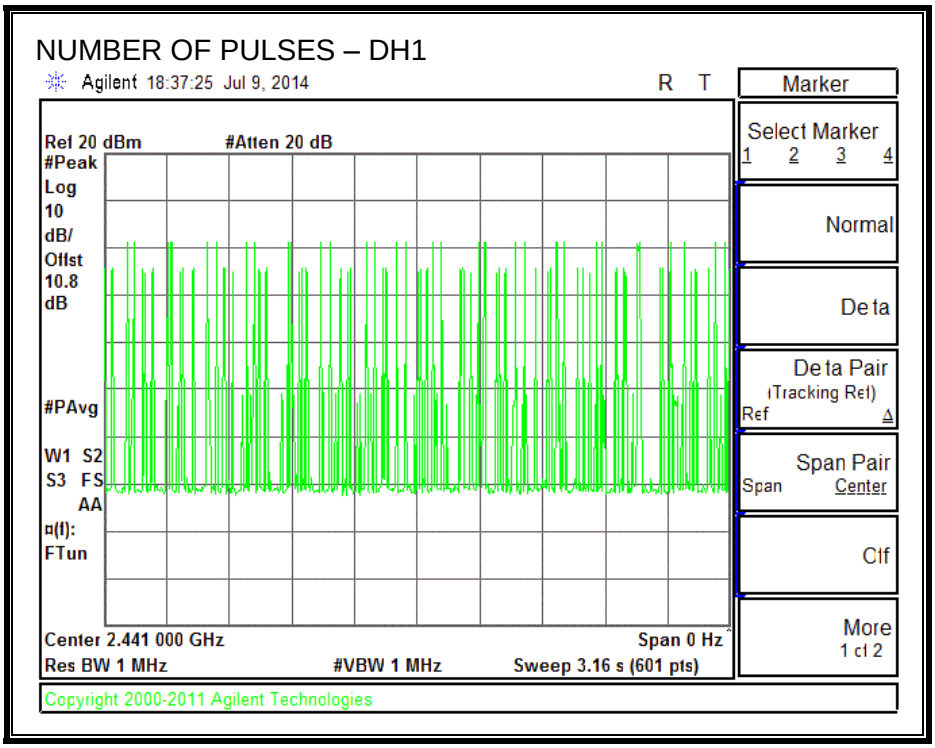
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of (sec)	Limit (sec)	Margin (sec)
DH1	0.4205	31	0.130	0.4	-0.270
DH3	1.567	19	0.298	0.4	-0.102
DH5	2.267	14	0.317	0.4	-0.083

Note: for AFH (8PSK) mode, please refer to the results of AFH (GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate on page 23 demonstrates compliance with channel occupancy when AFH is employed.

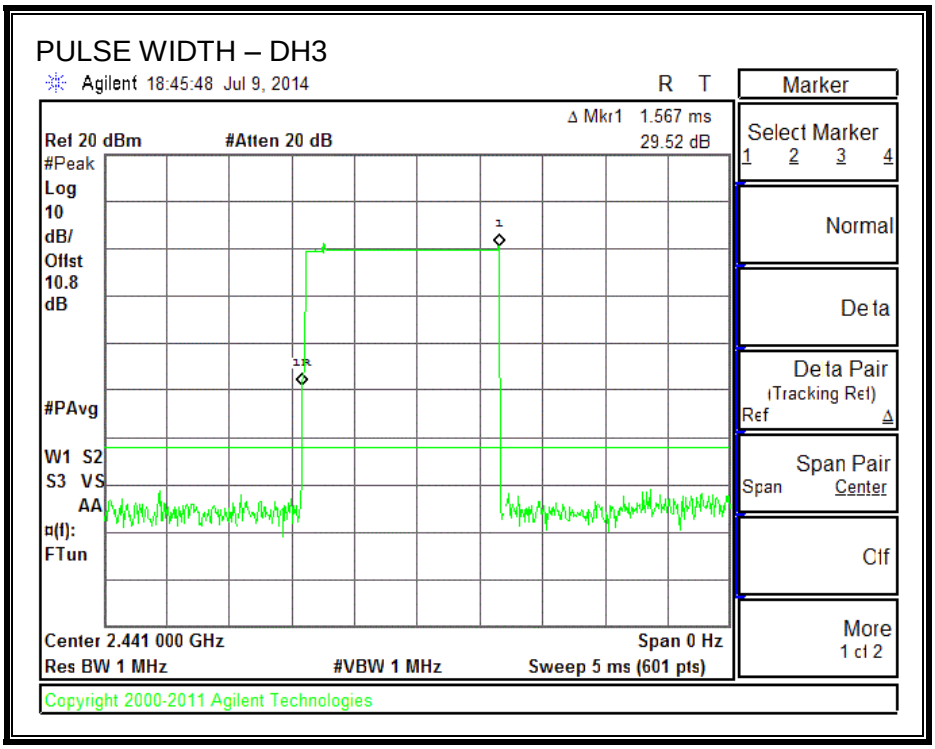
PULSE WIDTH - DH1



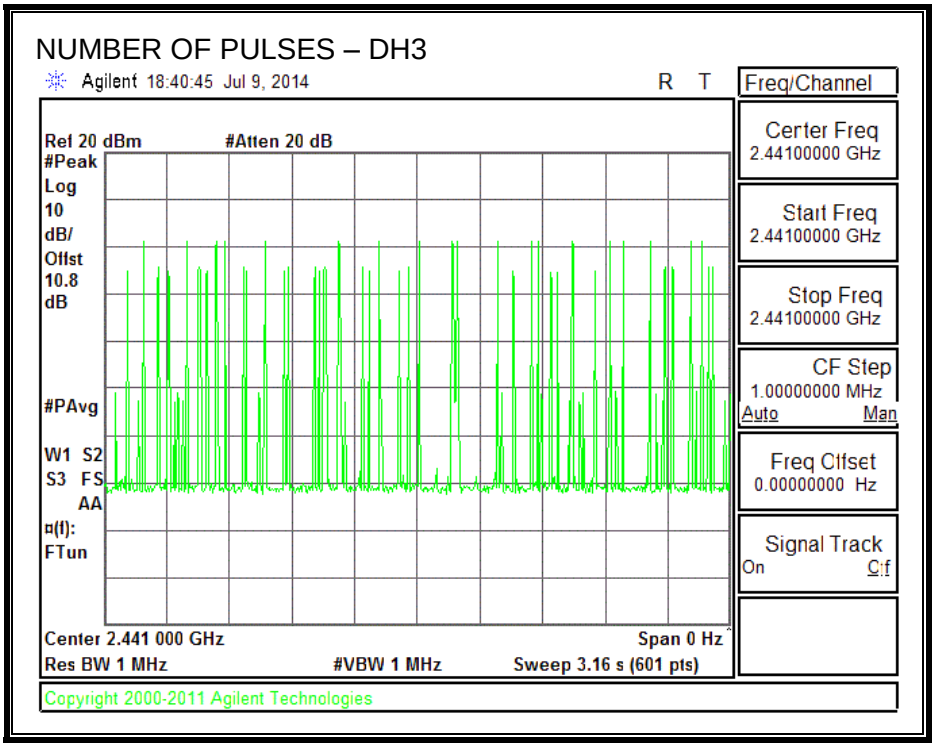
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



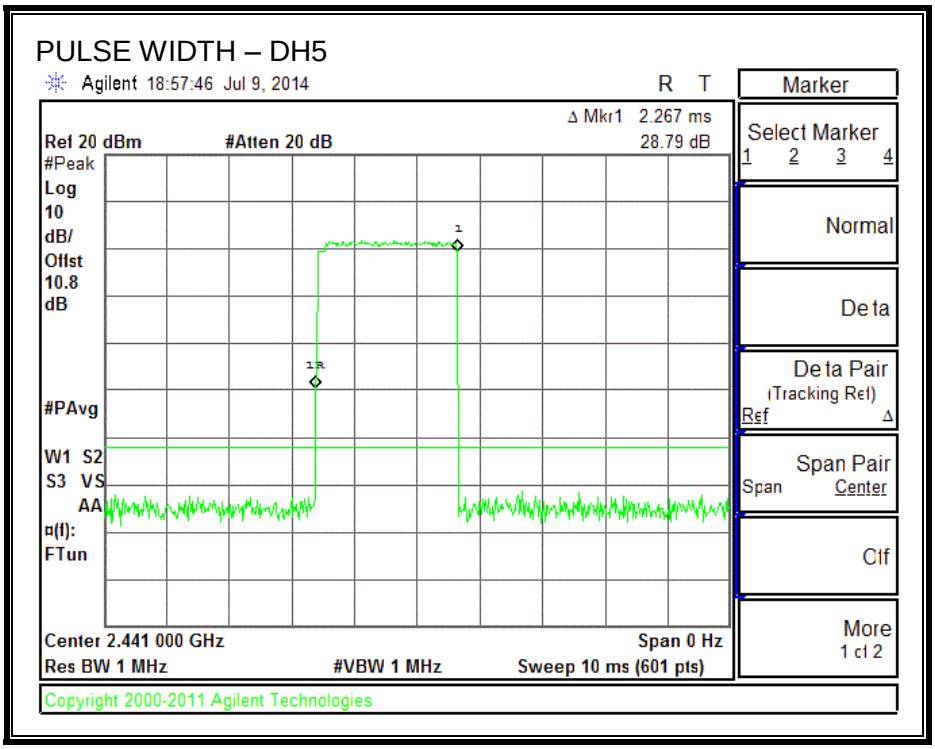
PULSE WIDTH – DH3



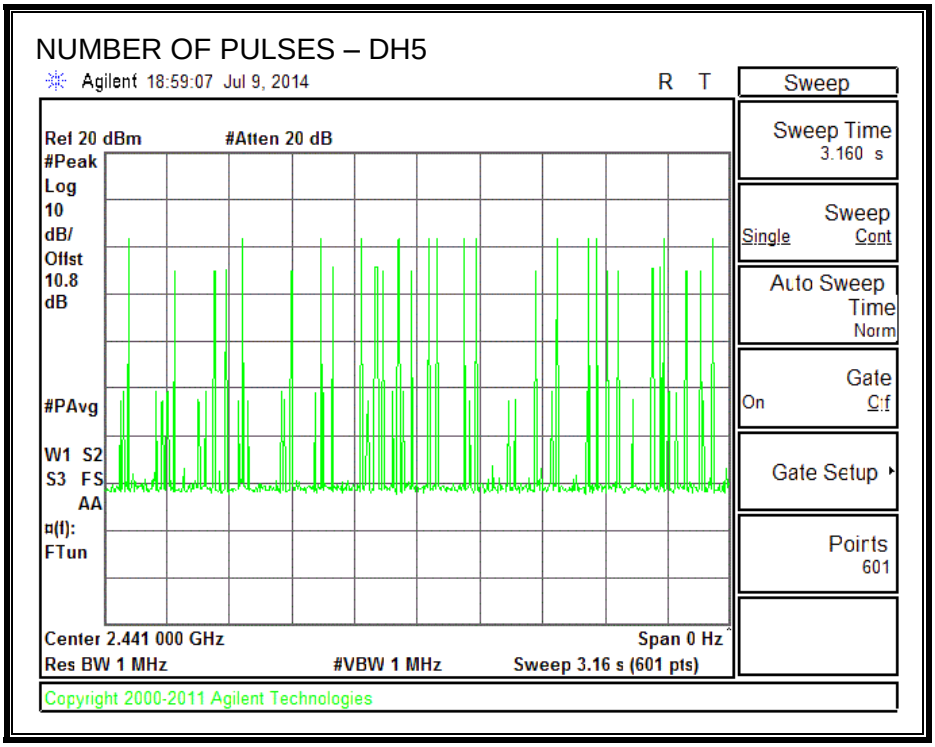
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



7.5.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

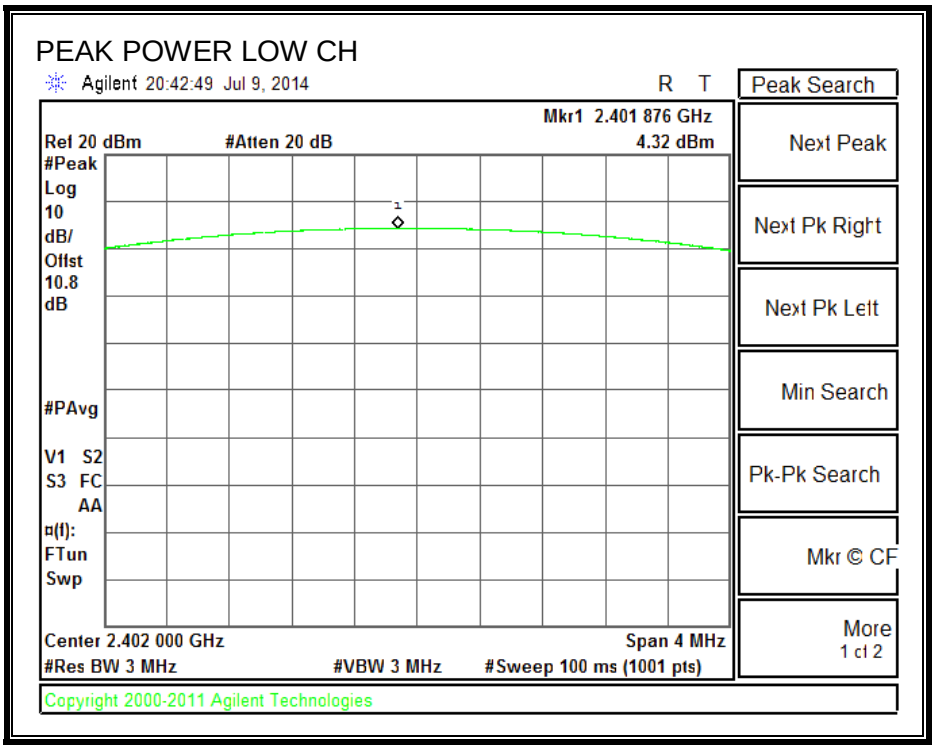
TEST PROCEDURE

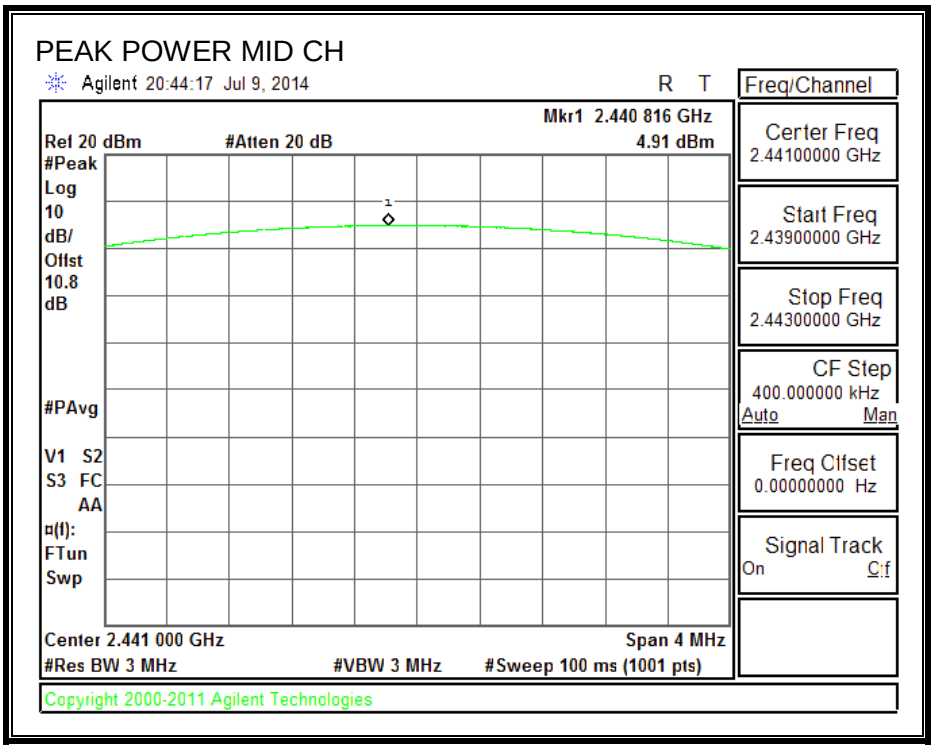
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

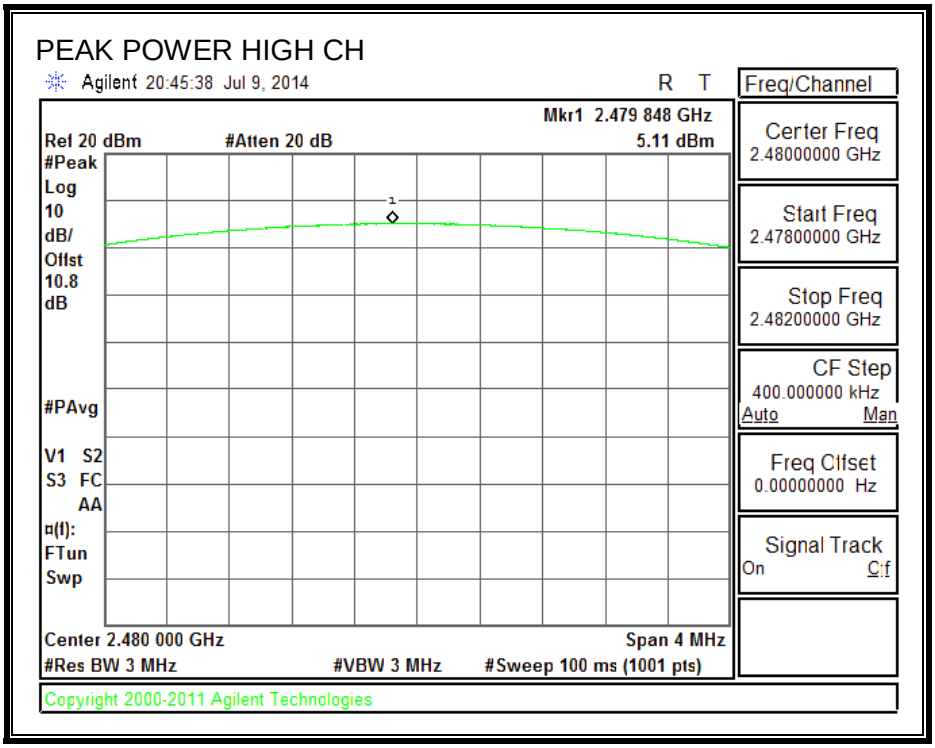
Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.32	30	-25.68
Middle	2441	4.91	30	-25.09
High	2480	5.11	30	-24.89

OUTPUT POWER





PEAK POWER HIGH CH



7.5.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.8 dB (including 10 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	1.80
Middle	2441	2.22
High	2480	2.38

7.5.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

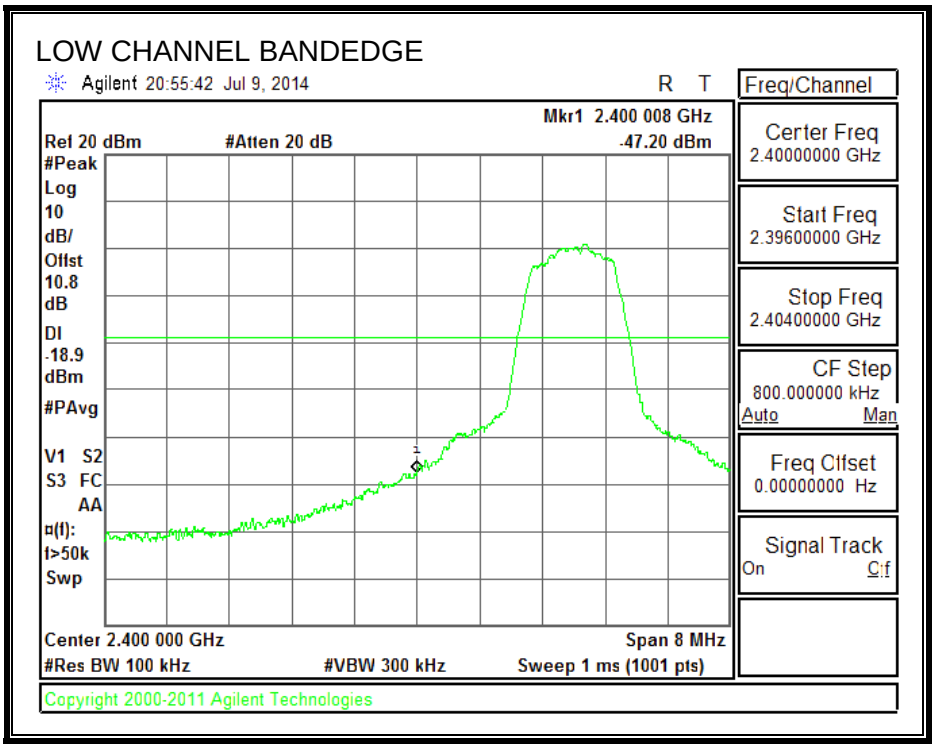
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

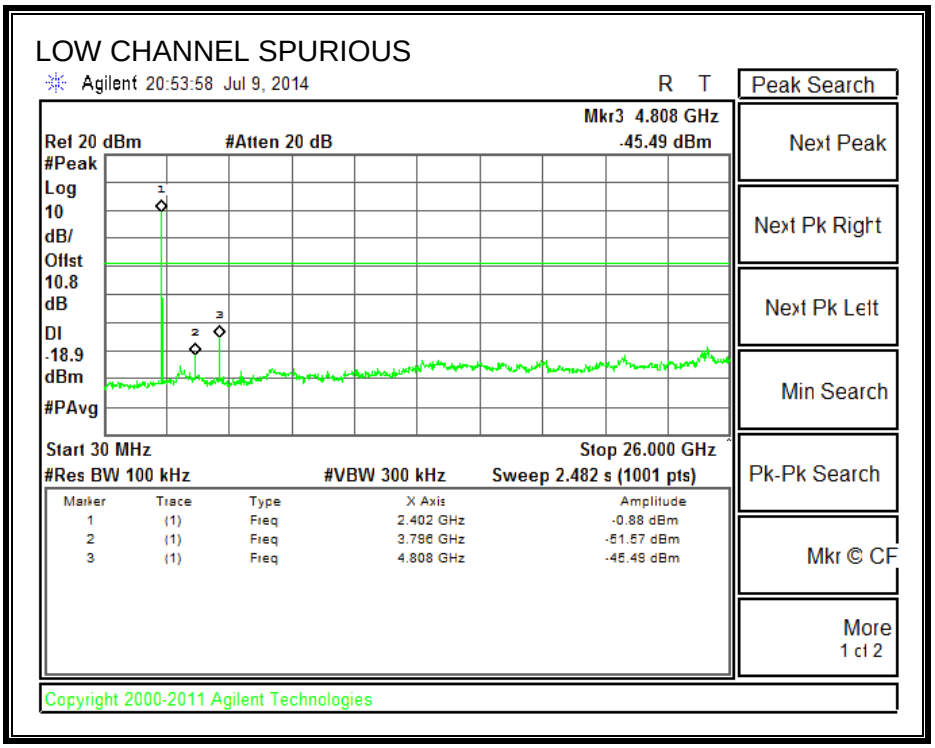
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

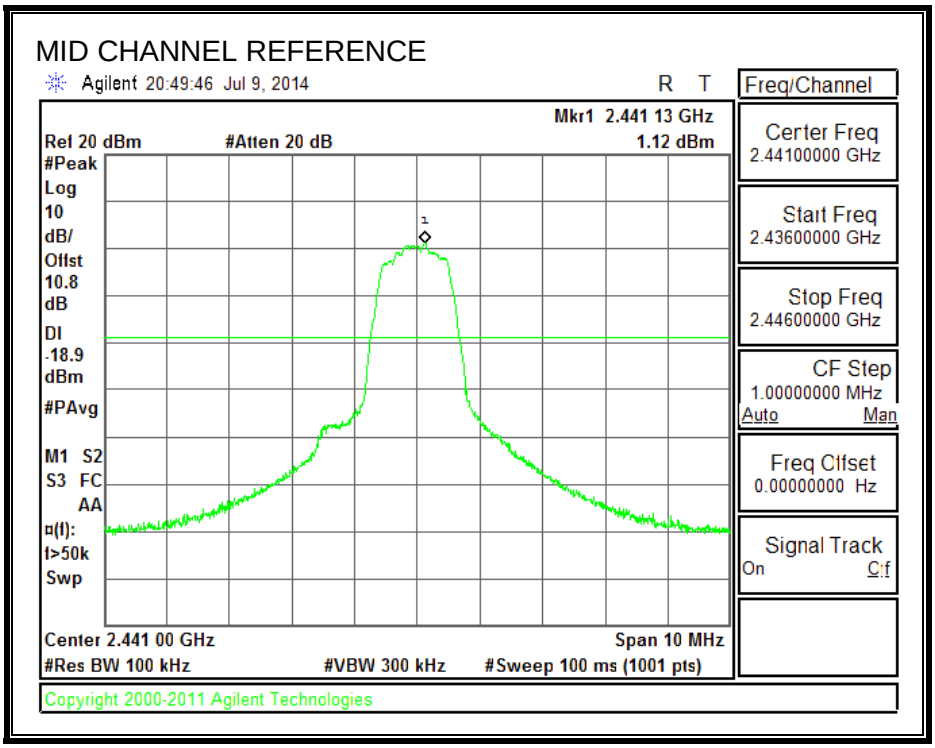
RESULTS

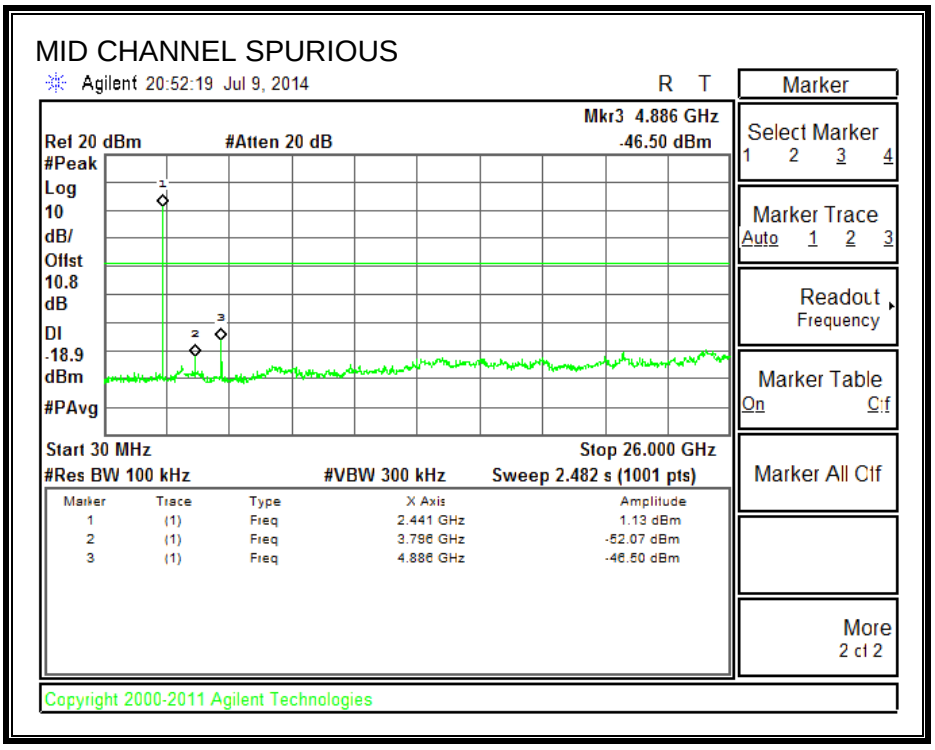
SPURIOUS EMISSIONS, LOW CHANNEL





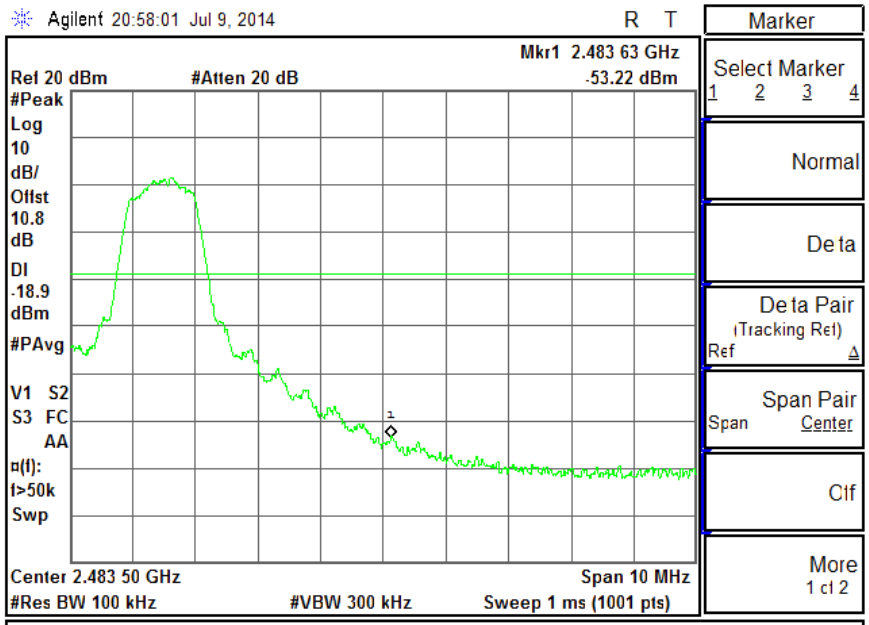
SPURIOUS EMISSIONS, MID CHANNEL



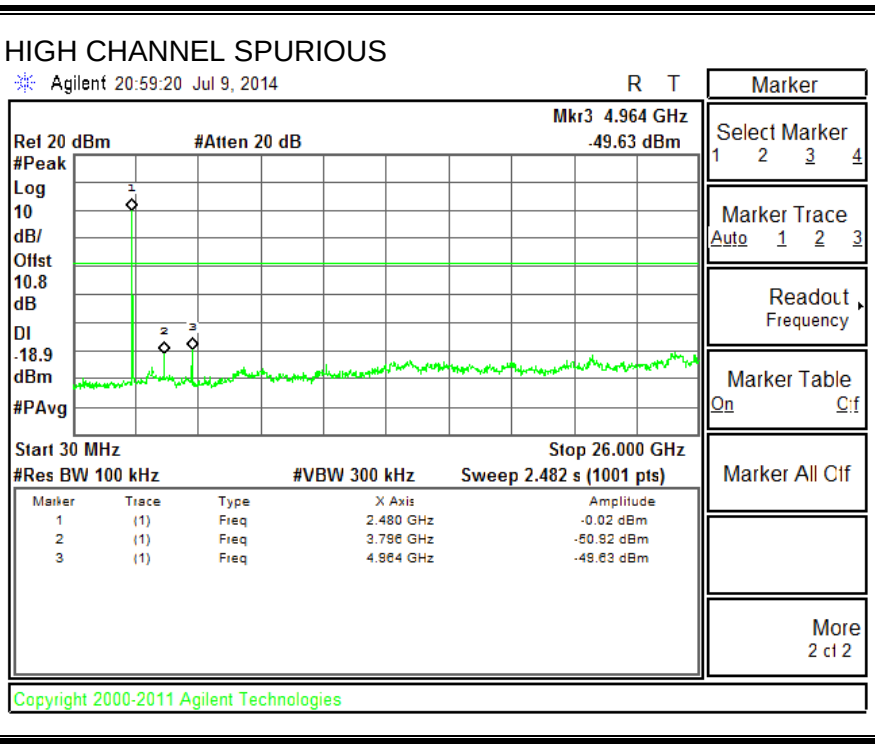


SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE

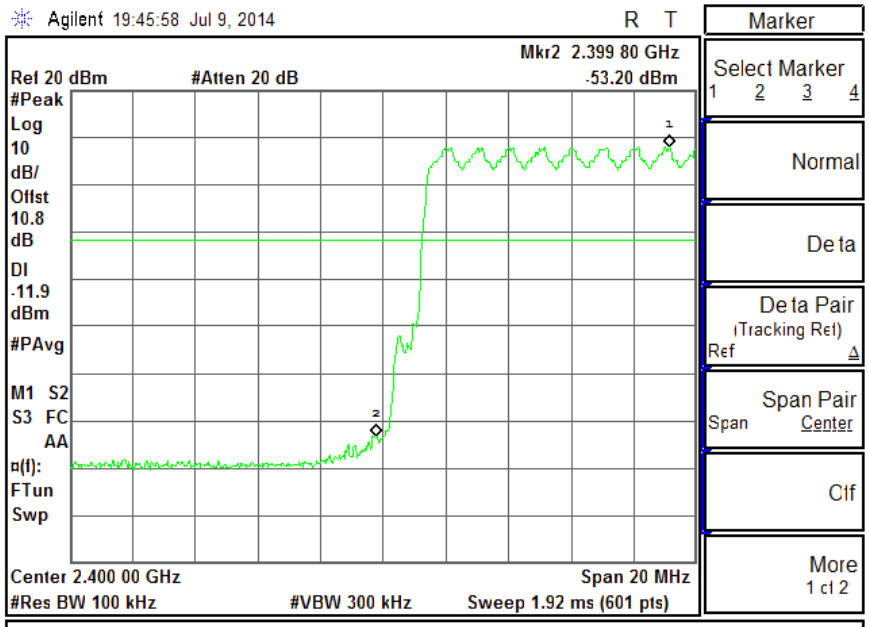


HIGH CHANNEL SPURIOUS

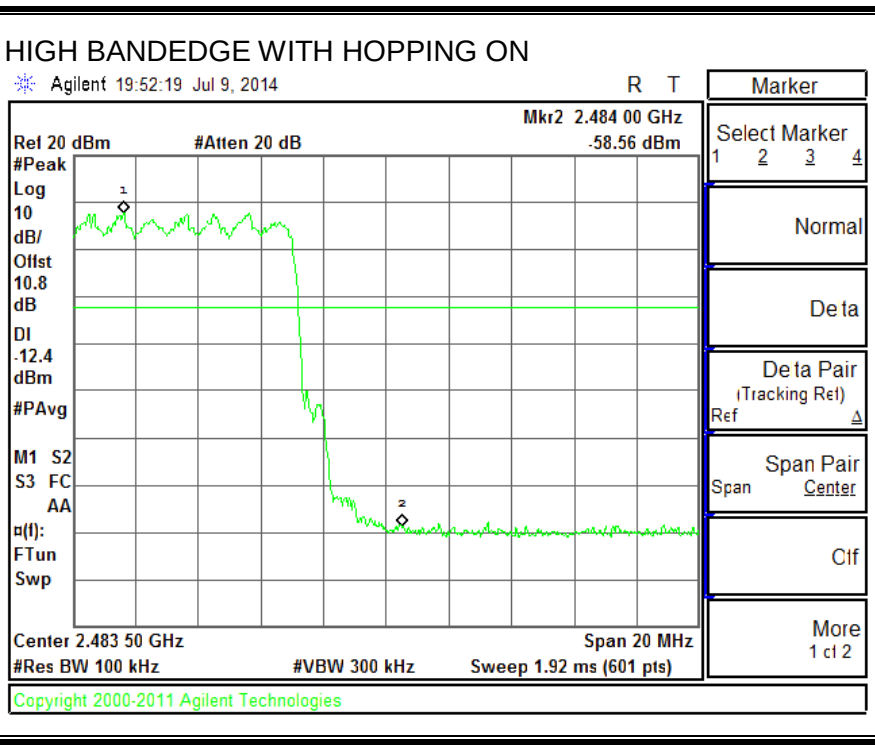


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON

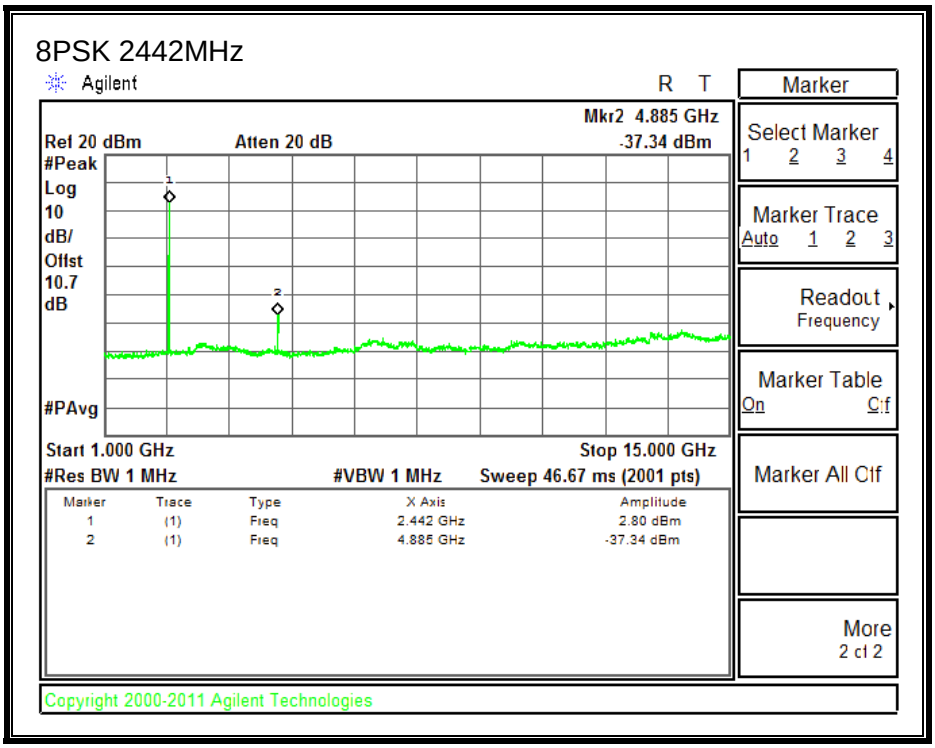


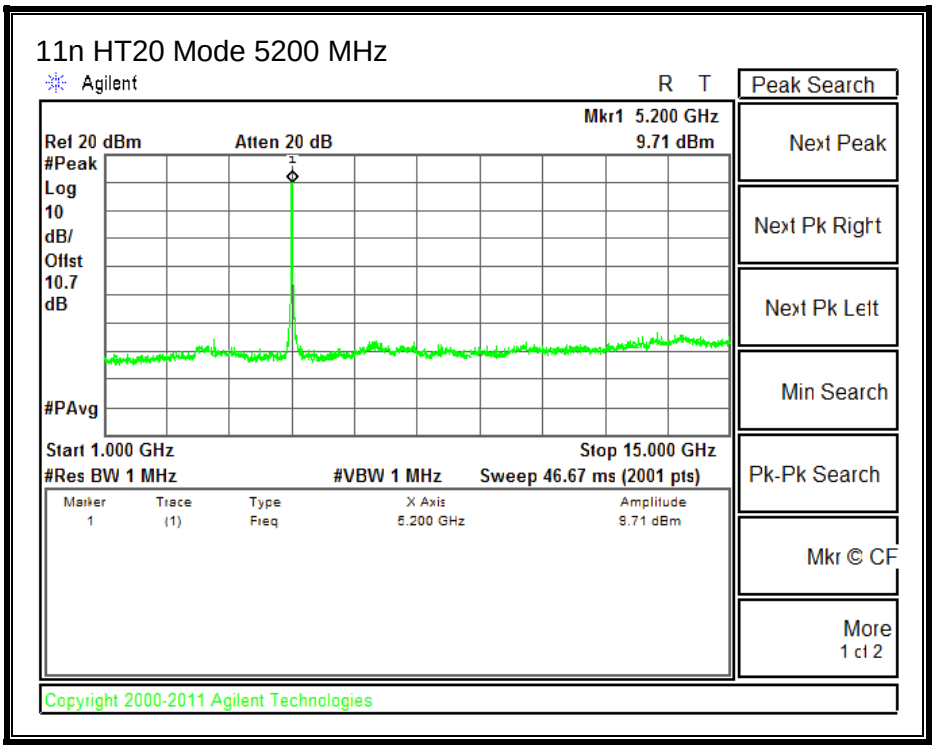
7.6. COLOCATION

Below table shows potential intermodulation frequencies due to Bluetooth and 5GHz WLAN simultaneous transmission.

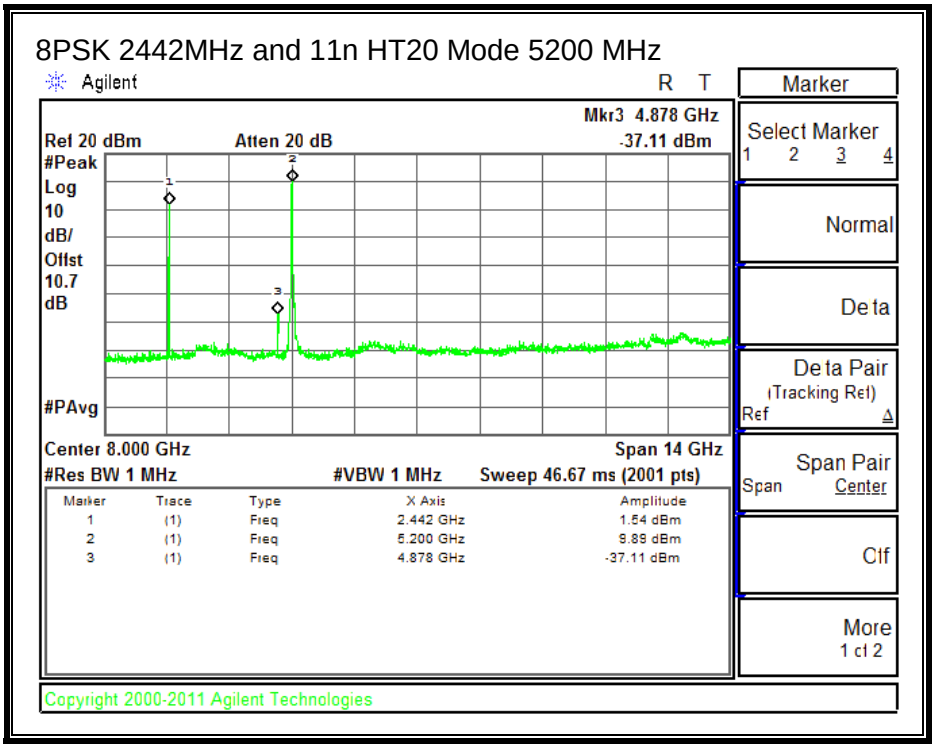
Modes	A	B	A+B	A-B	2A+B	A+2B	A-2B
8PSK+11n HT20 5.2 band	2441	5200	7641	2759	10082	12841	7959
8PSK+11n HT20 5.3 band	2441	5300	7741	2859	10182	13041	8159
8PSK+11n HT20 5.6 band	2441	5600	8041	3159	10482	13641	8759
8PSK+11n HT20 5.8 band	2441	5785	8226	3344	10667	14011	9129
8PSK+11n HT40 5.2 band	2441	5190	7601	2749	10072	12821	7939
8PSK+11n HT40 5.3 band	2441	5270	7741	2829	10152	12981	8099
8PSK+11n HT40 5.6 band	2441	5590	8031	3149	10472	13621	8739
8PSK+11n HT40 5.8 band	2441	5755	8196	3314	10637	13951	9069

7.6.1. 8PSK and 802.11n HT20 Mode 5.2 GHz

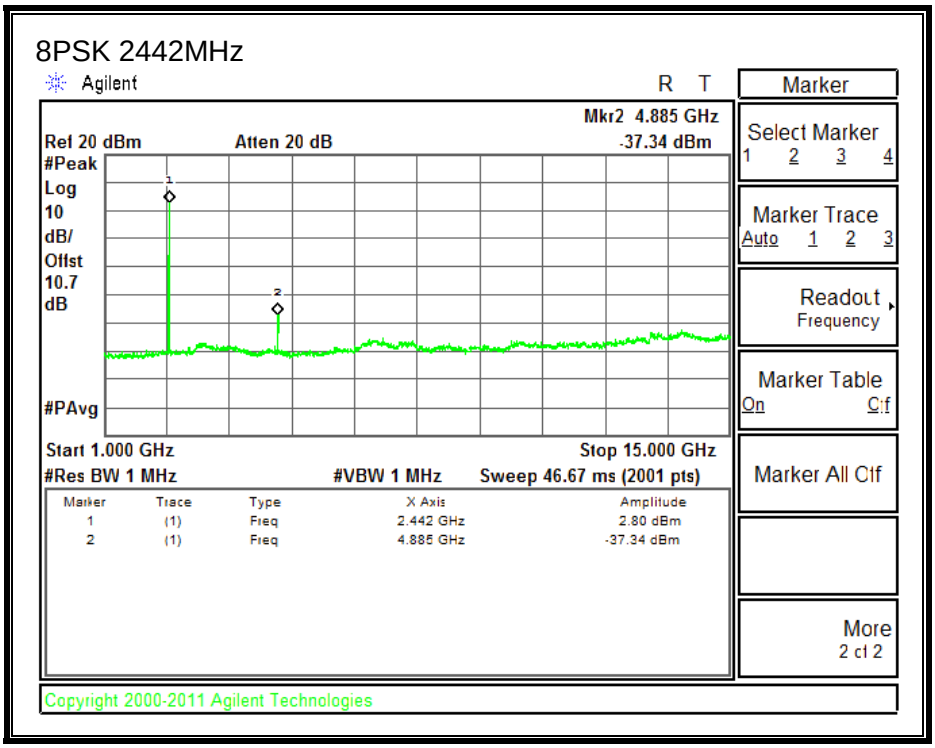


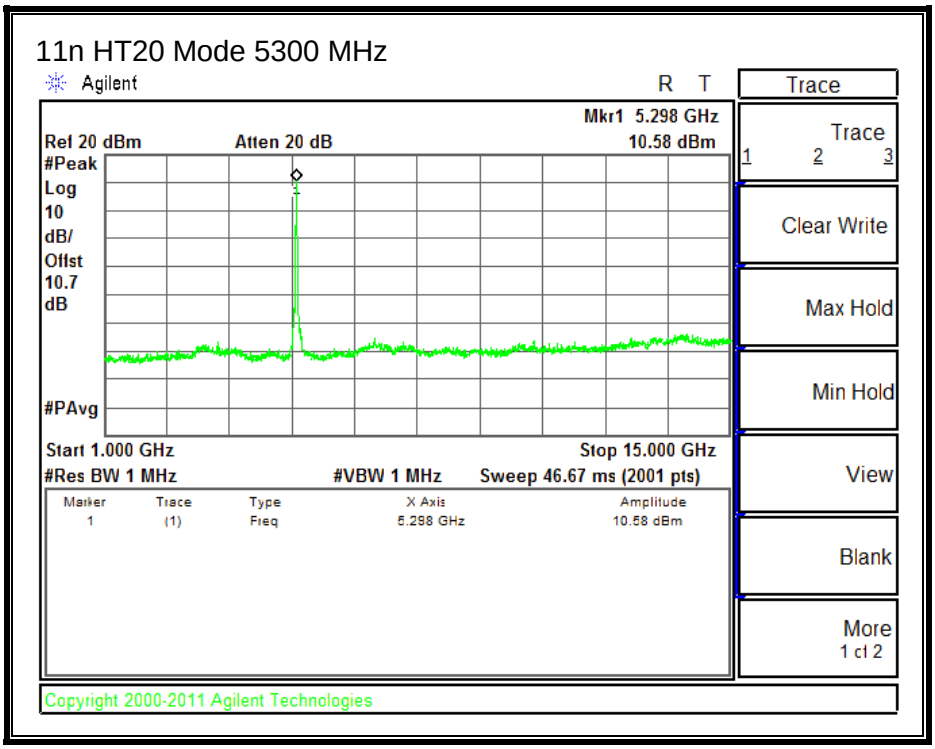


Colocation

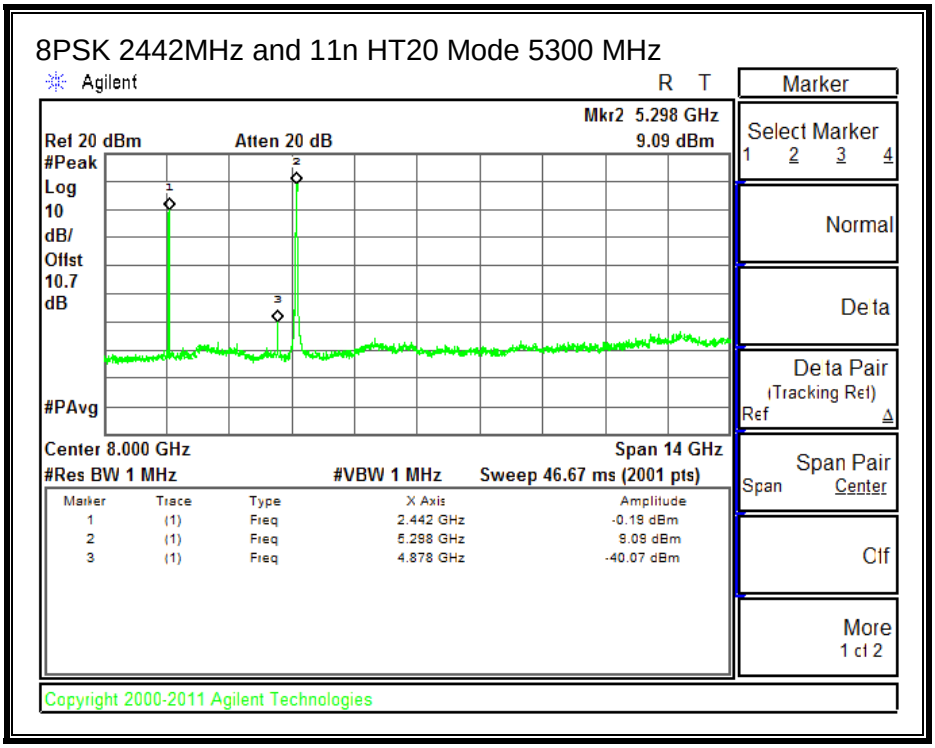


7.6.2. 8PSK and 802.11n HT20 Mode 5.3 GHz

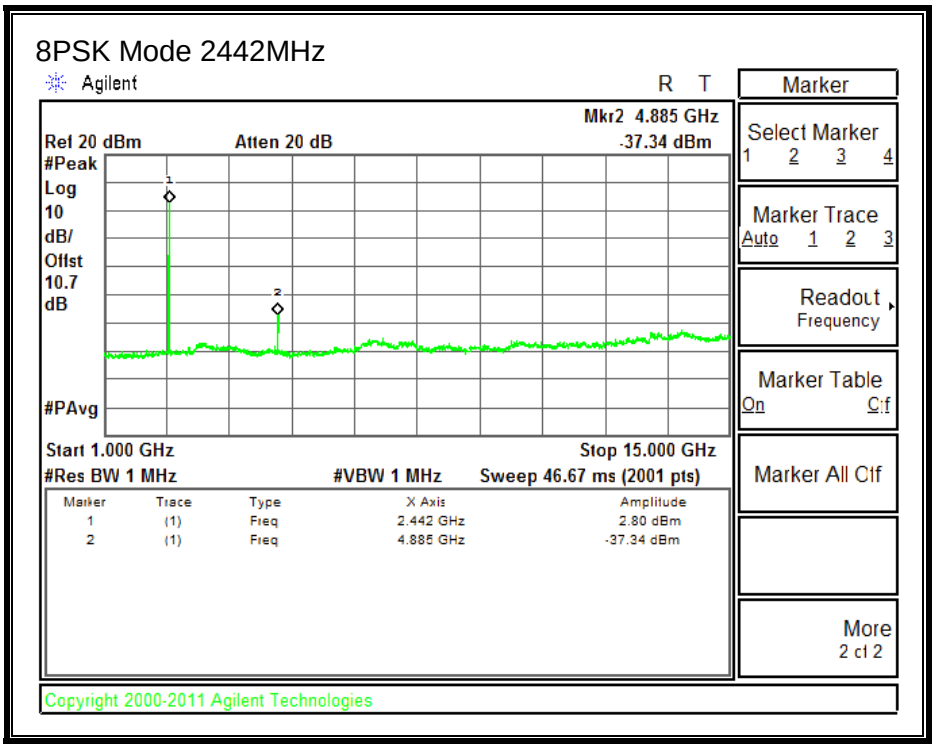


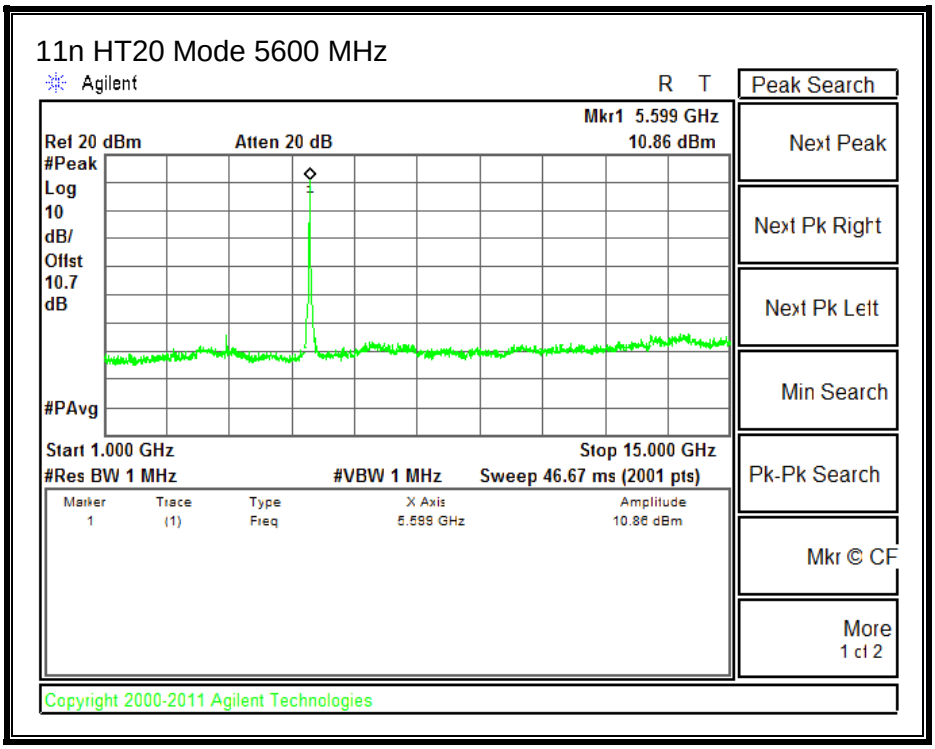


Colocation

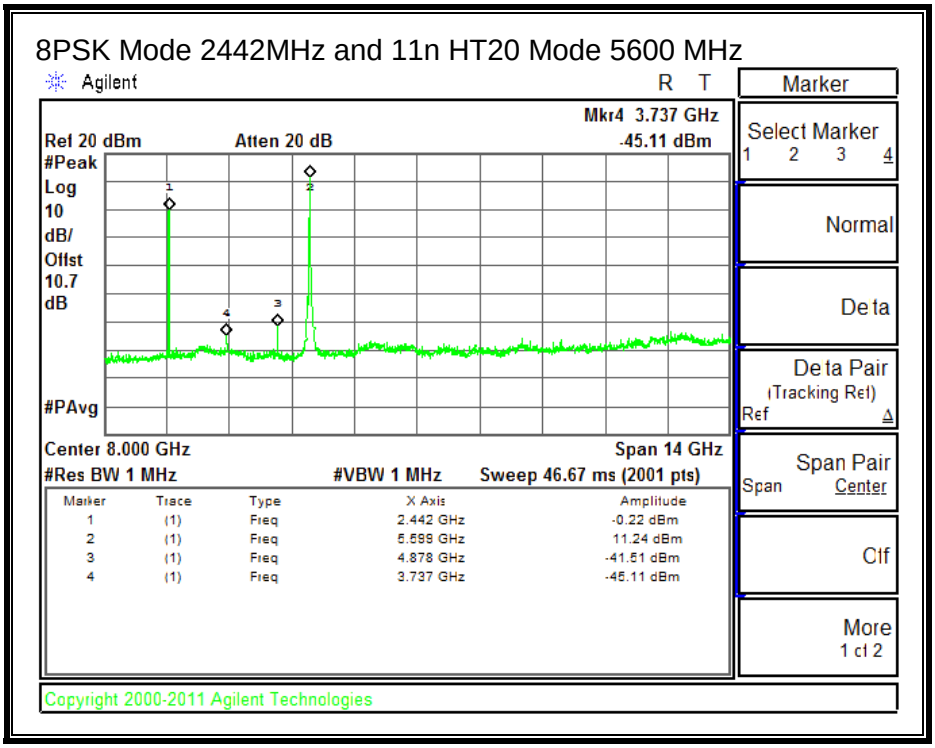


7.6.3. 8PSK and 802.11n HT20 Mode 5.6 GHz

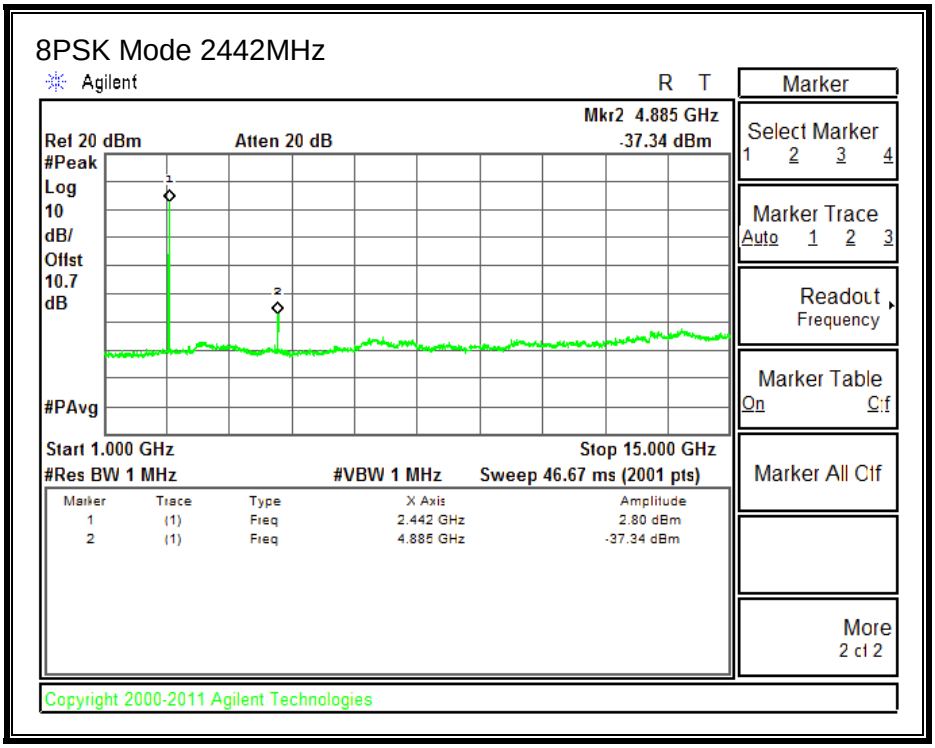


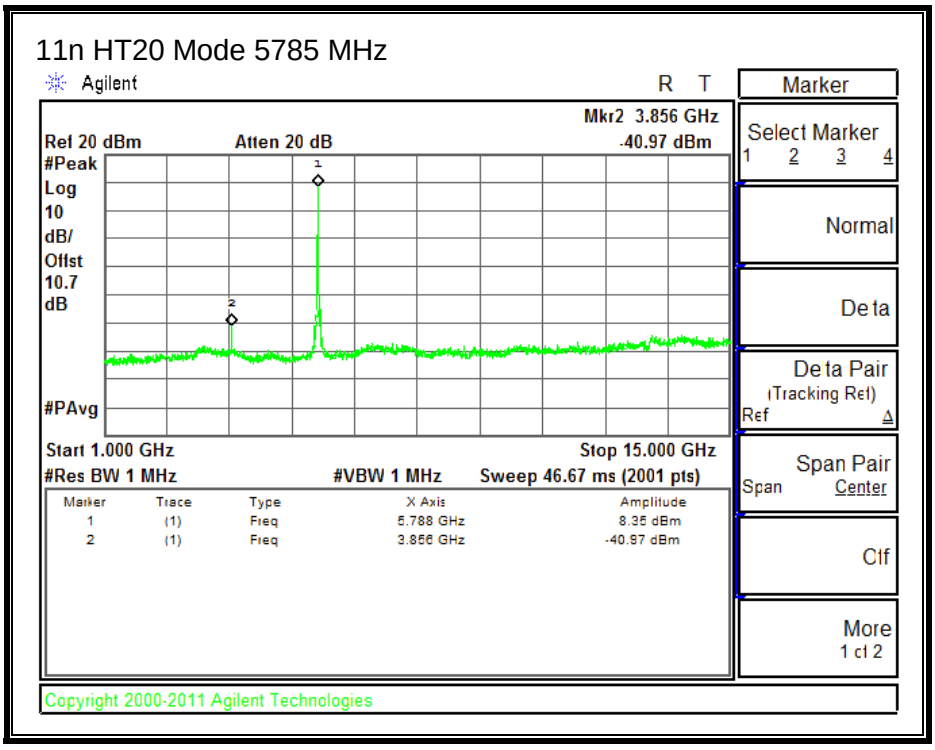


Colocation

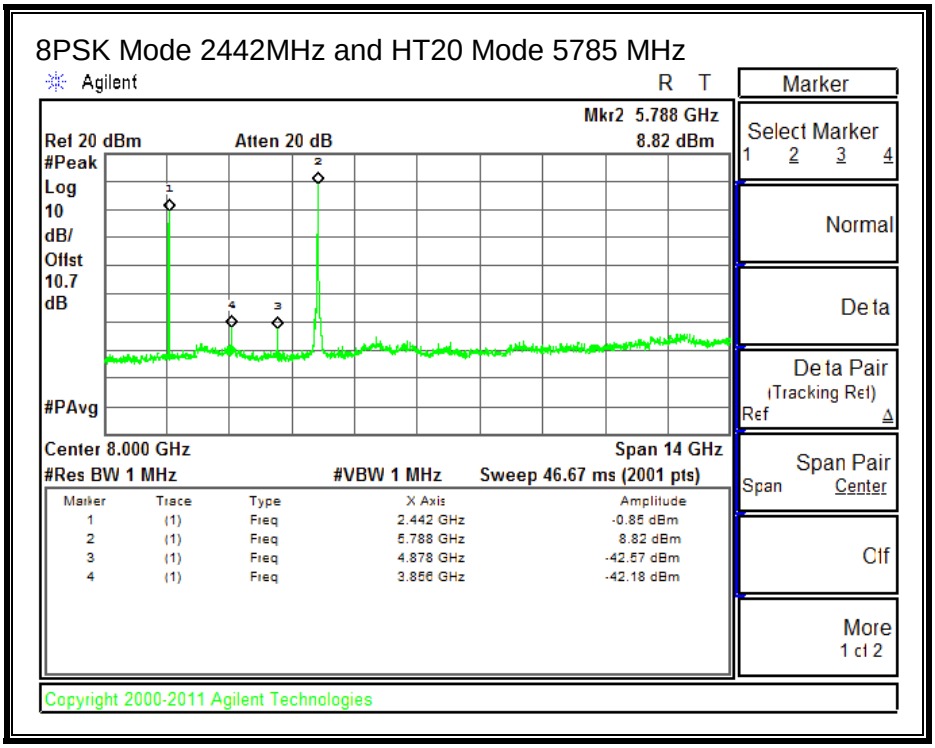


7.6.4. 8PSK and 802.11n HT20 Mode 5.8 GHz

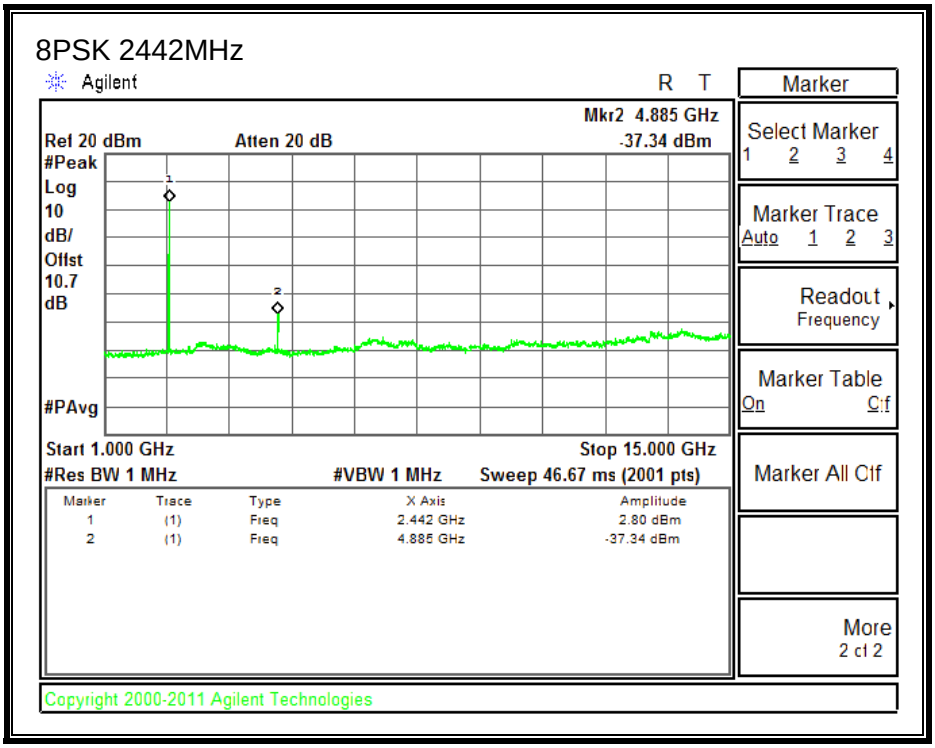


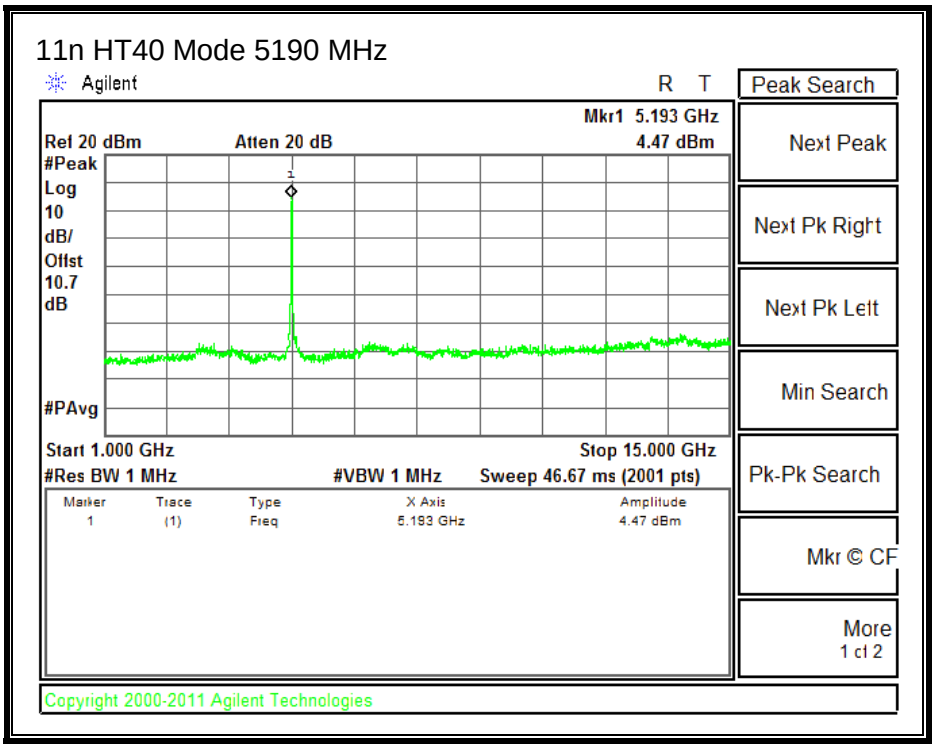


Colocation

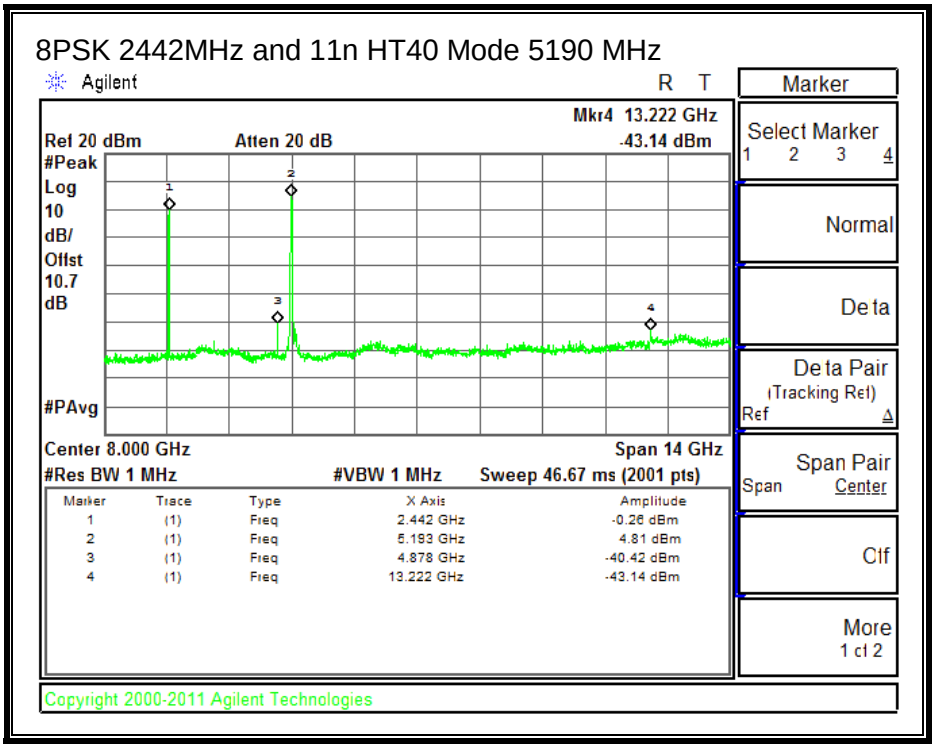


7.6.5. 8PSK and 802.11n HT40 Mode 5.2 GHz

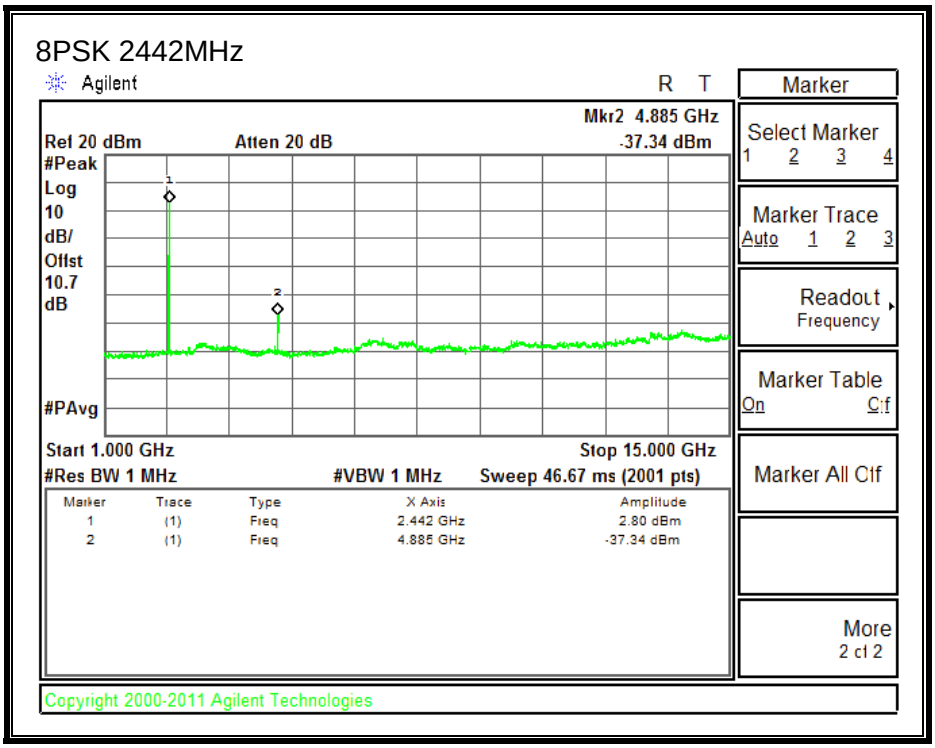


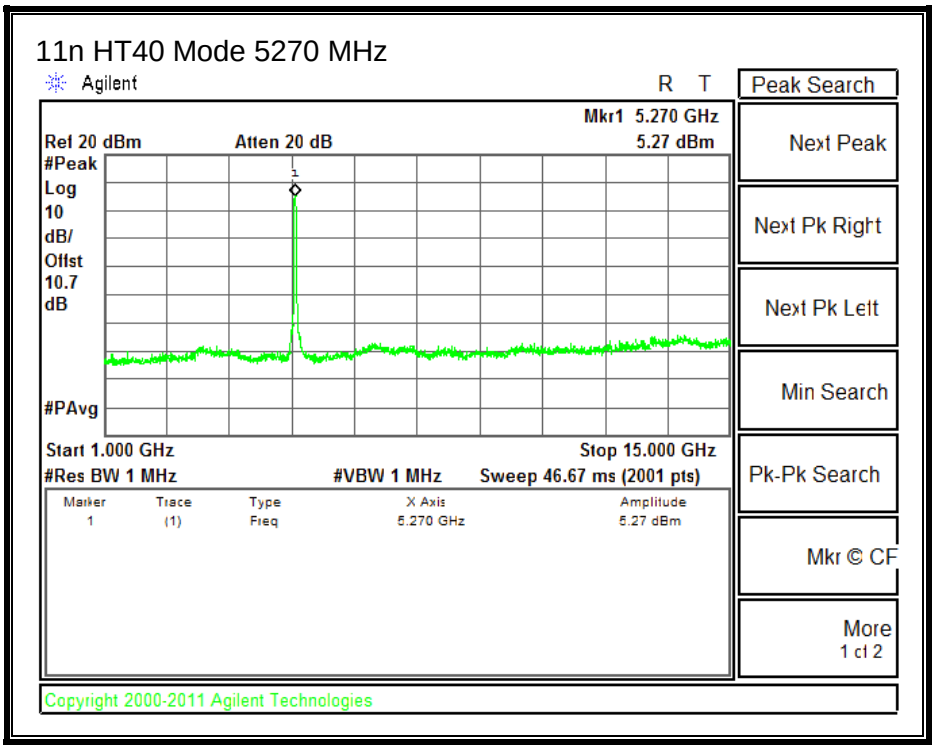


Colocation

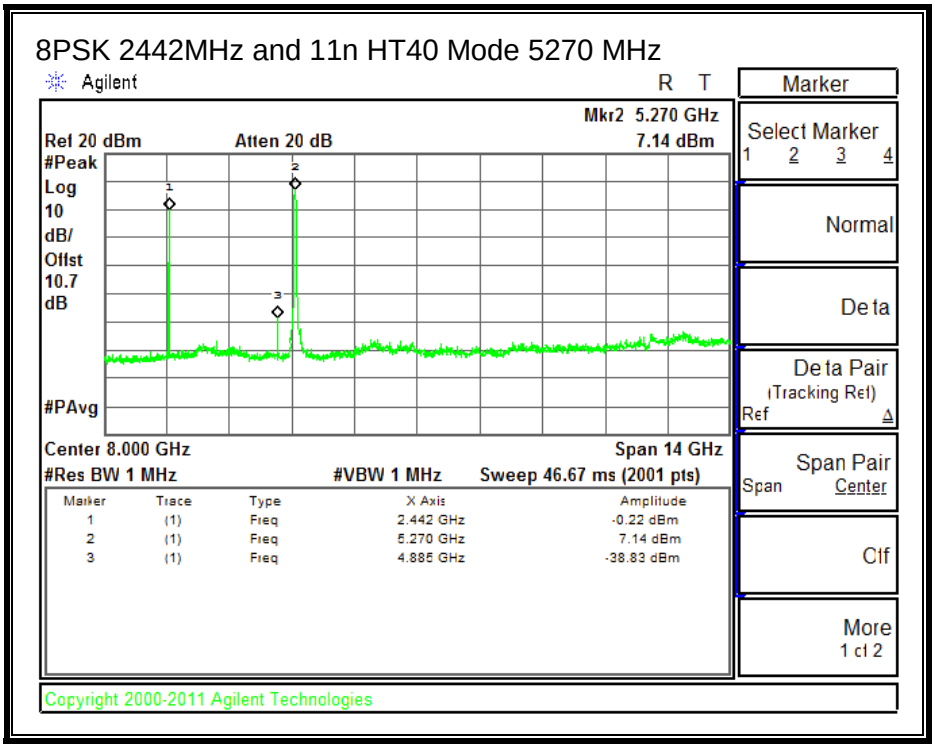


7.6.6. 8PSK and 802.11n HT40 Mode 5.3 GHz

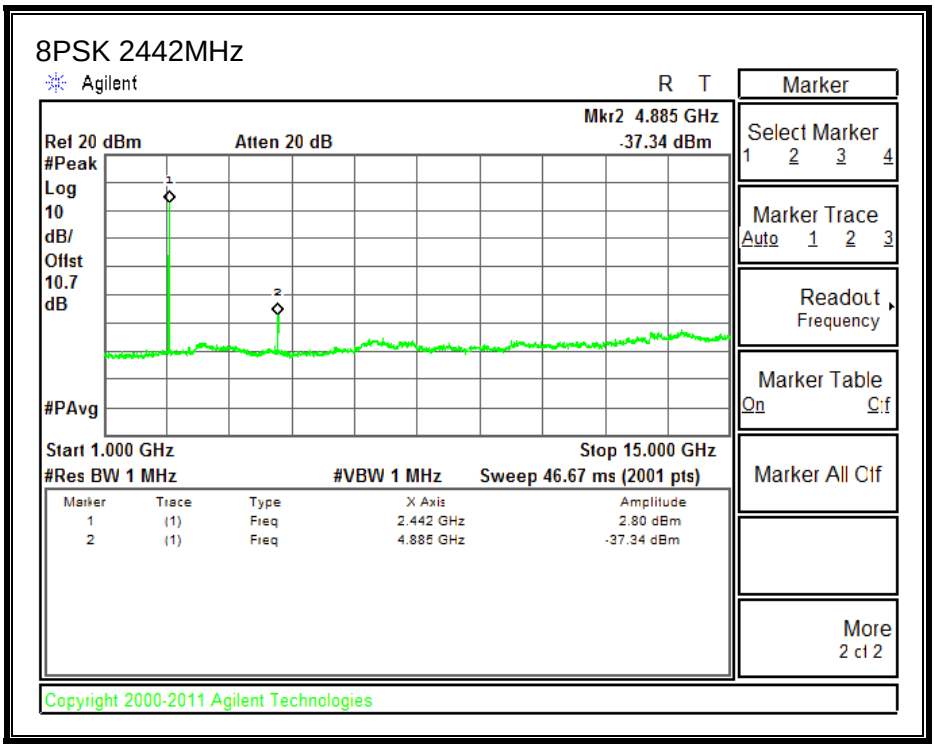


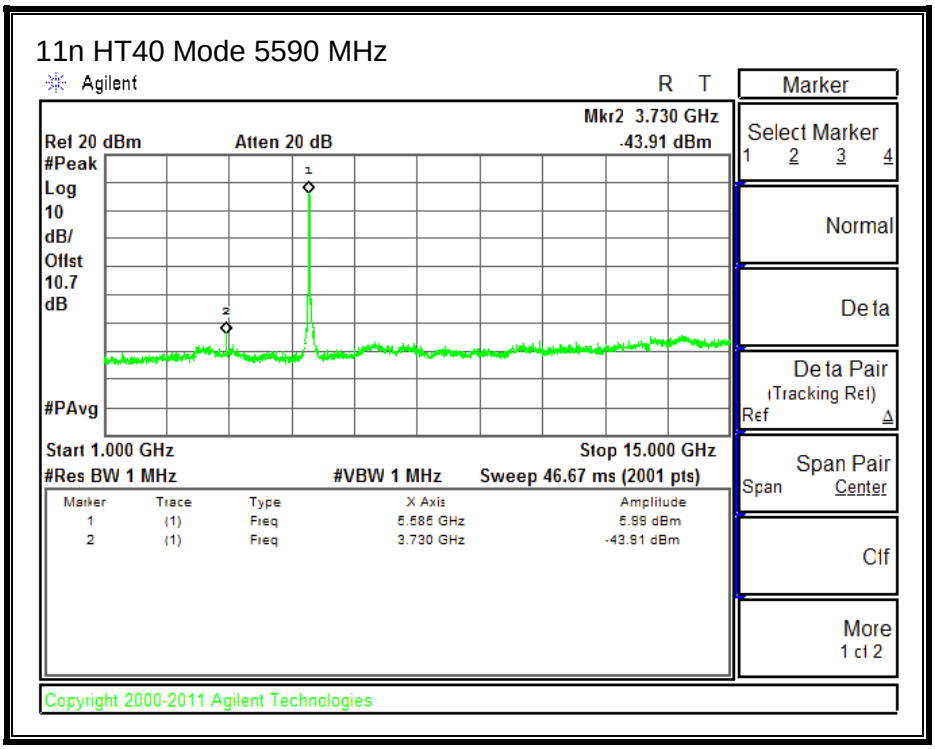


Colocation

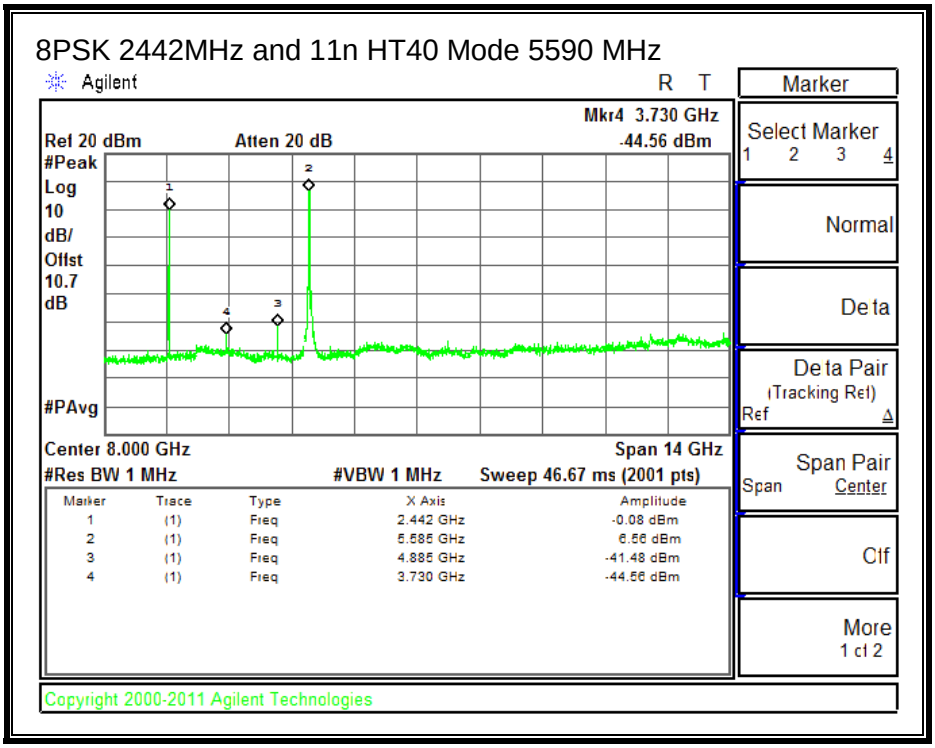


7.6.7. 8PSK and 802.11n HT40 Mode 5.6 GHz

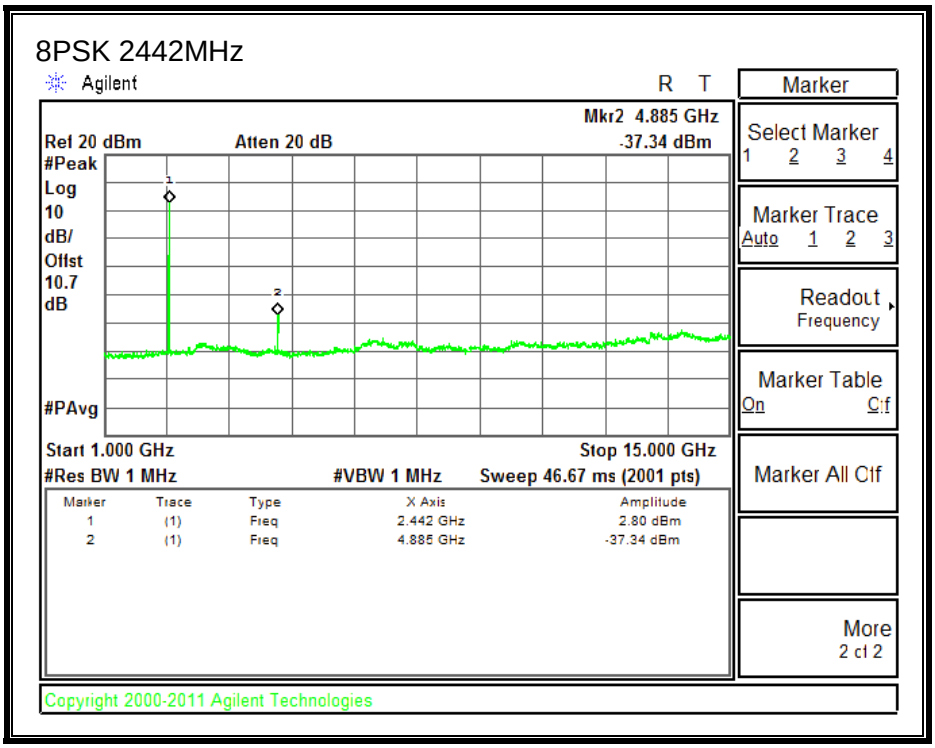


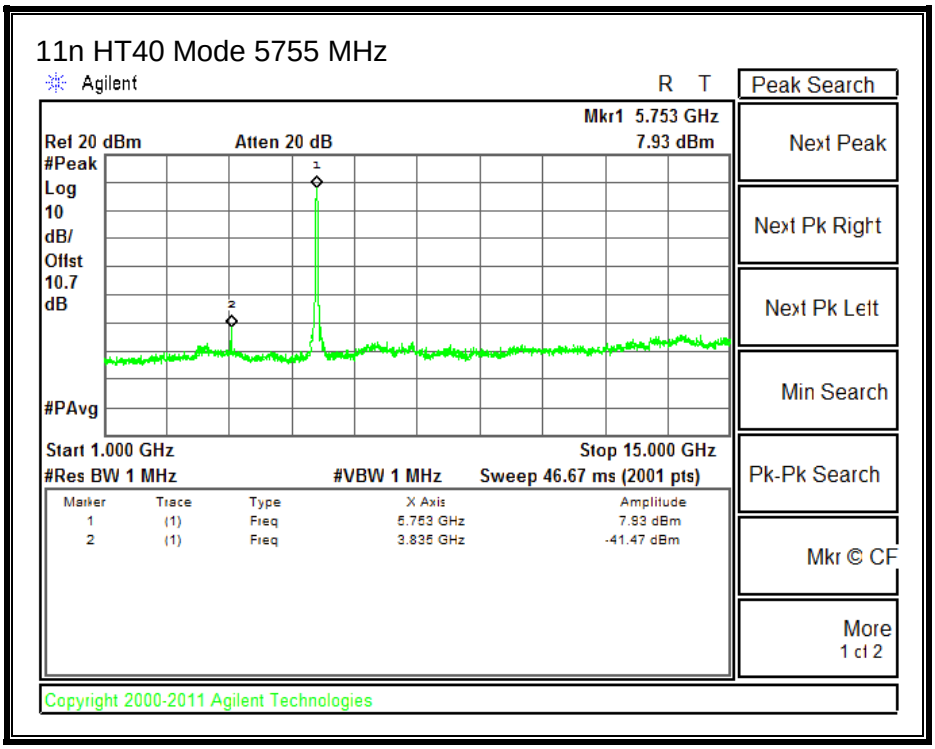


Colocation

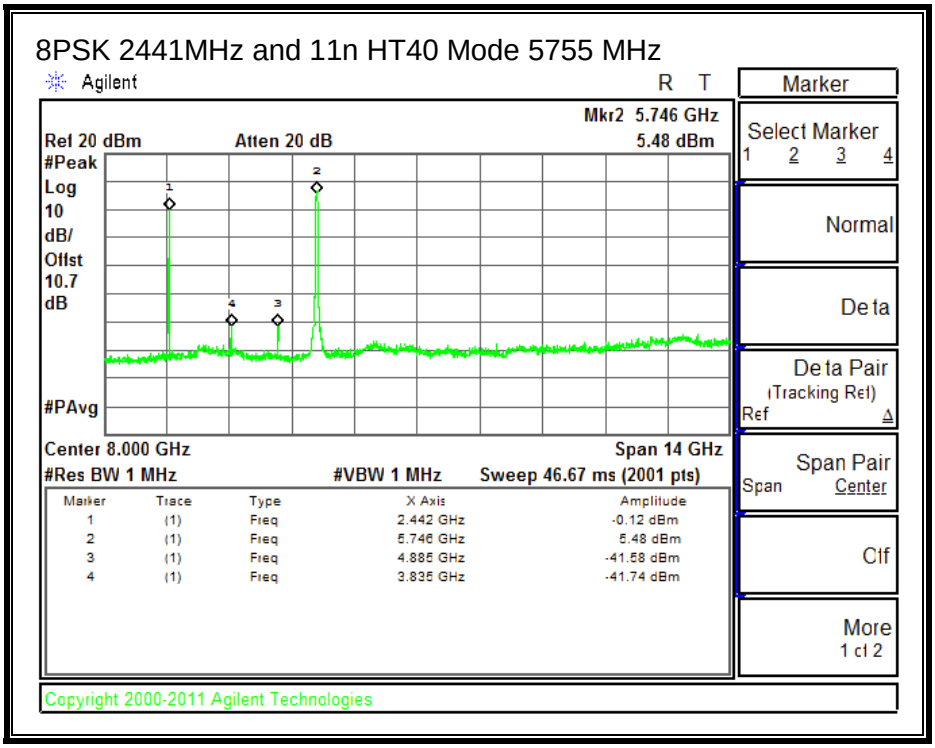


7.6.8. 8PSK and 802.11n HT40 Mode 5.8 GHz





Colocation



8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. 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 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 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

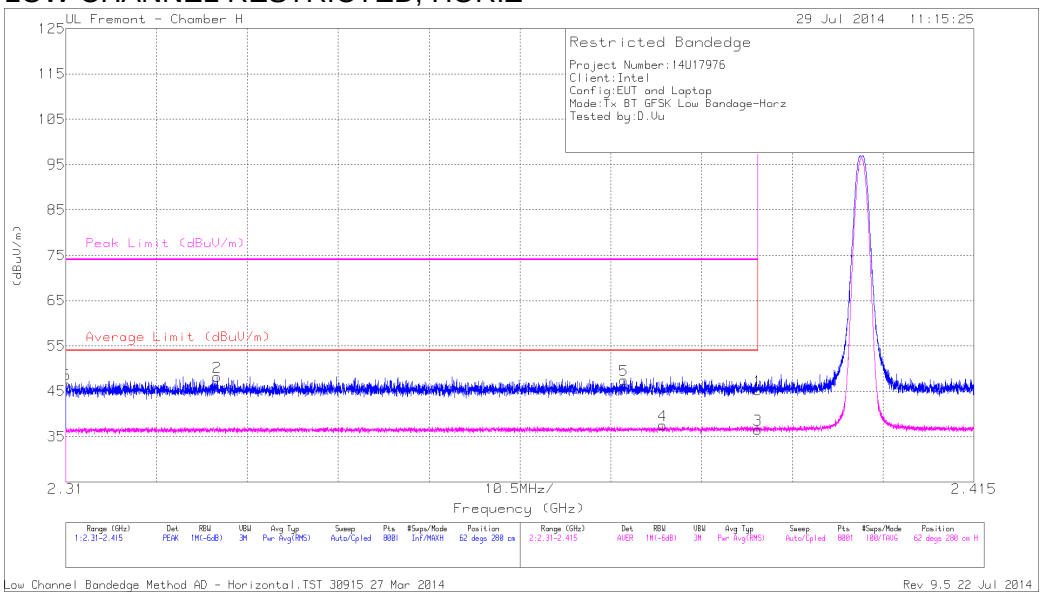
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, HORIZ



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.76	PK	32	-24.6	0	45.16	-	-	74	-28.84	62	280	H
2	* 2.327	40.91	PK	31.9	-24.6	0	48.21	-	-	74	-25.79	62	280	H
5	* 2.375	40.15	PK	31.9	-24.6	0	47.45	-	-	74	-26.55	62	280	H
6	* 2.31	39.35	PK	31.8	-24.6	0	46.55	-	-	74	-27.45	62	280	H
3	* 2.39	29.12	RMS	32	-24.6	0	36.52	54	-17.48	-	-	62	280	H
4	* 2.379	30.15	RMS	32	-24.6	0	37.55	54	-16.45	-	-	62	280	H

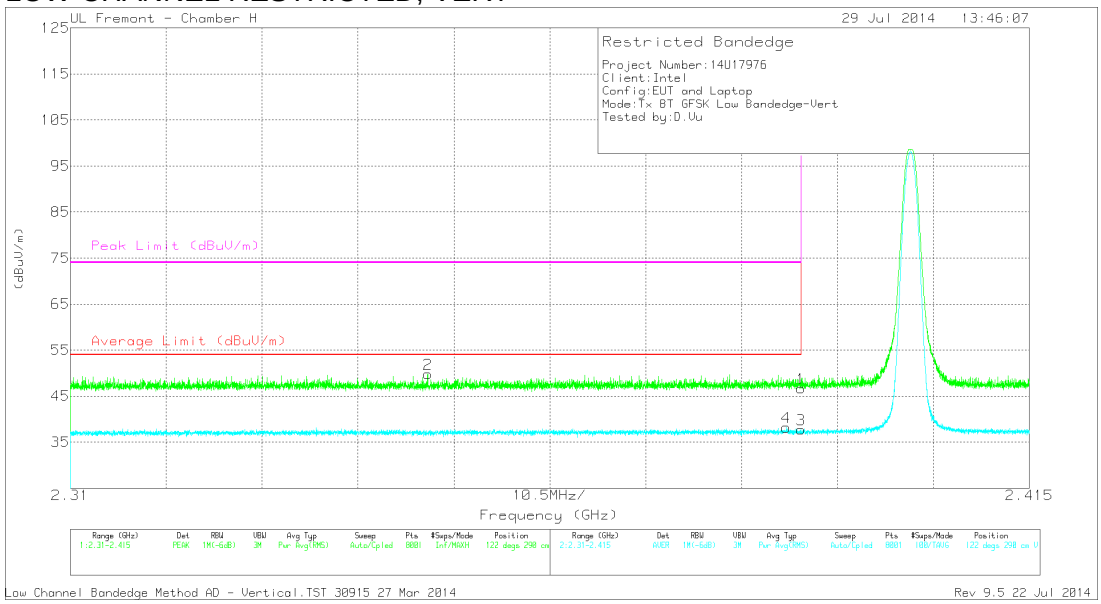
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, VERT



Trace Markers

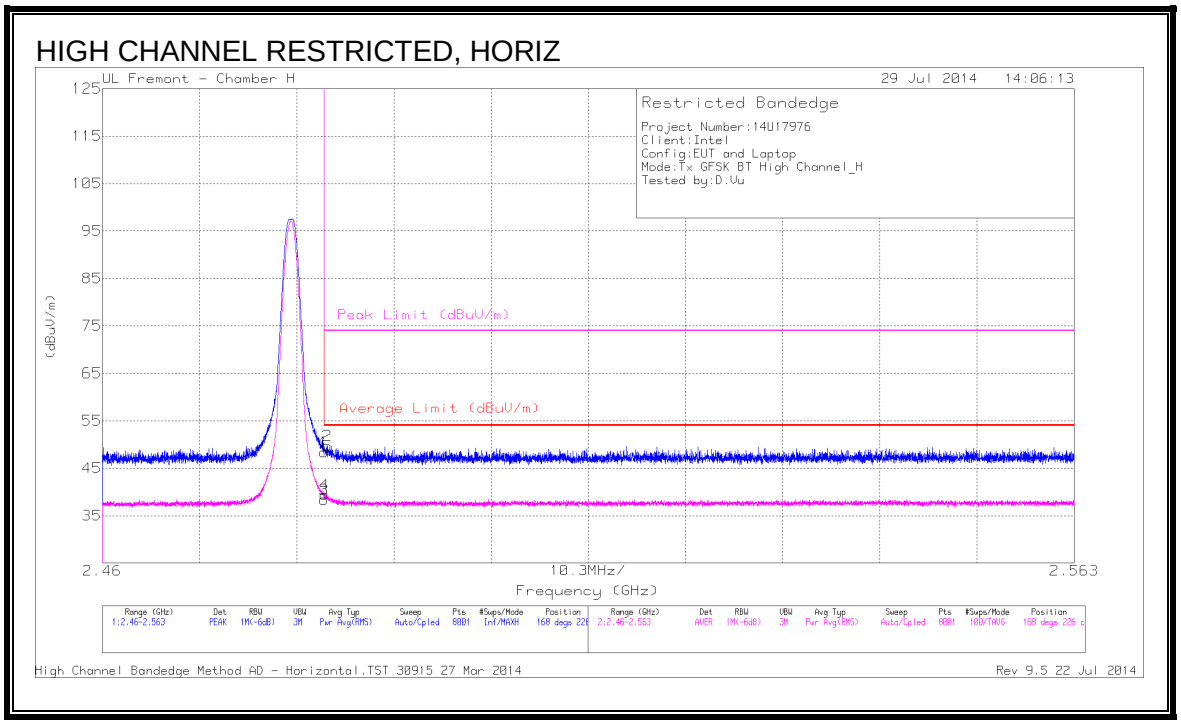
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.31	PK	32	-24.6	0	46.71	-	-	74	-27.29	122	290	V
2	* 2.349	42.46	PK	31.9	-24.6	0	49.76	-	-	74	-24.24	122	290	V
3	* 2.39	30.33	RMS	32	-24.6	0	37.73	54	-16.27	-	-	122	290	V
4	* 2.388	30.79	RMS	32	-24.6	0	38.19	54	-15.81	-	-	122	290	V

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

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



Trace Markers

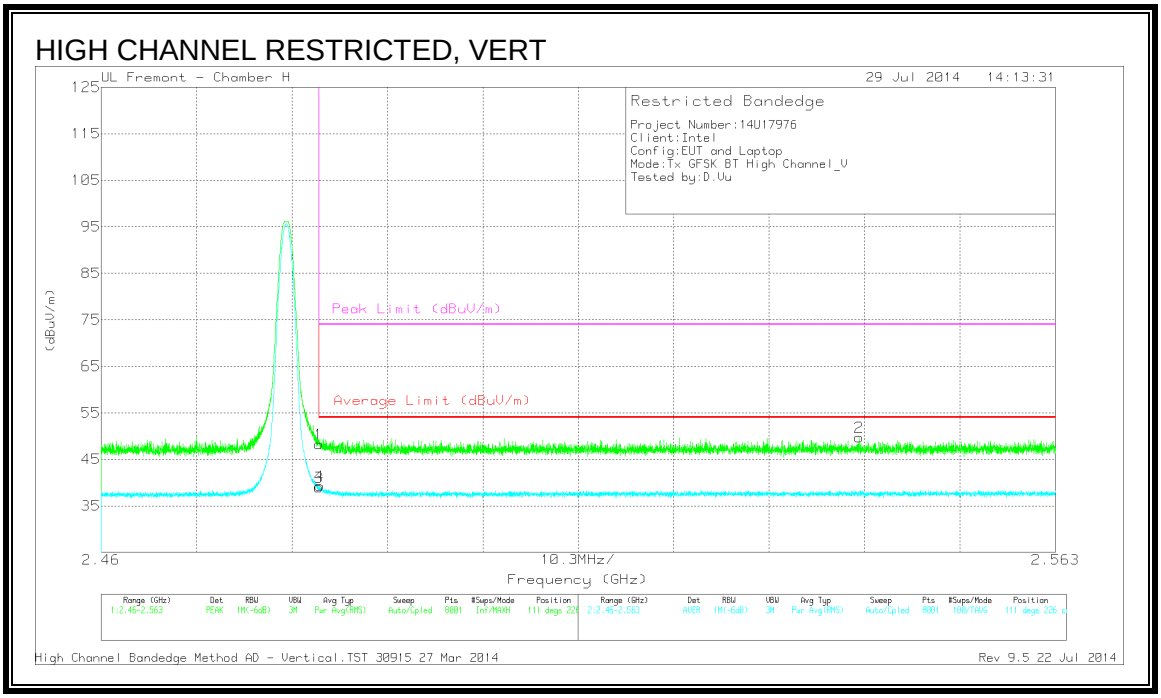
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.484	42.07	PK	32.2	-24.5	0	49.77	-	-	74	-24.23	168	226	H
4	* 2.484	31.72	RMS	32.2	-24.5	0	39.42	54	-14.58	-	-	168	226	H

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

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.61	PK	32.2	-24.5	0	48.31	-	-	74	-25.69	111	226	V
3	* 2.484	31.34	RMS	32.2	-24.5	0	39.04	54	-14.96	-	-	111	226	V
4	* 2.484	31.6	RMS	32.2	-24.5	0	39.3	54	-14.7	-	-	111	226	V
2	2.542	41.98	PK	32.2	-24.4	0	49.78	-	-	74	-24.22	111	226	V

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

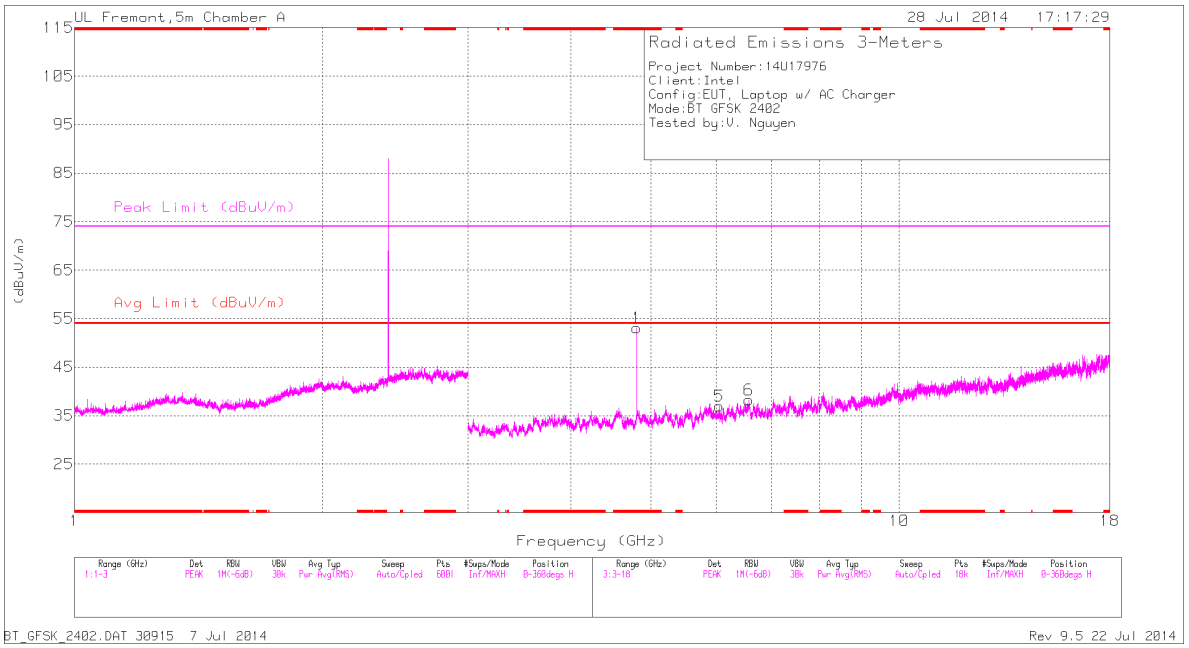
PK - Peak detector

RMS - RMS detection

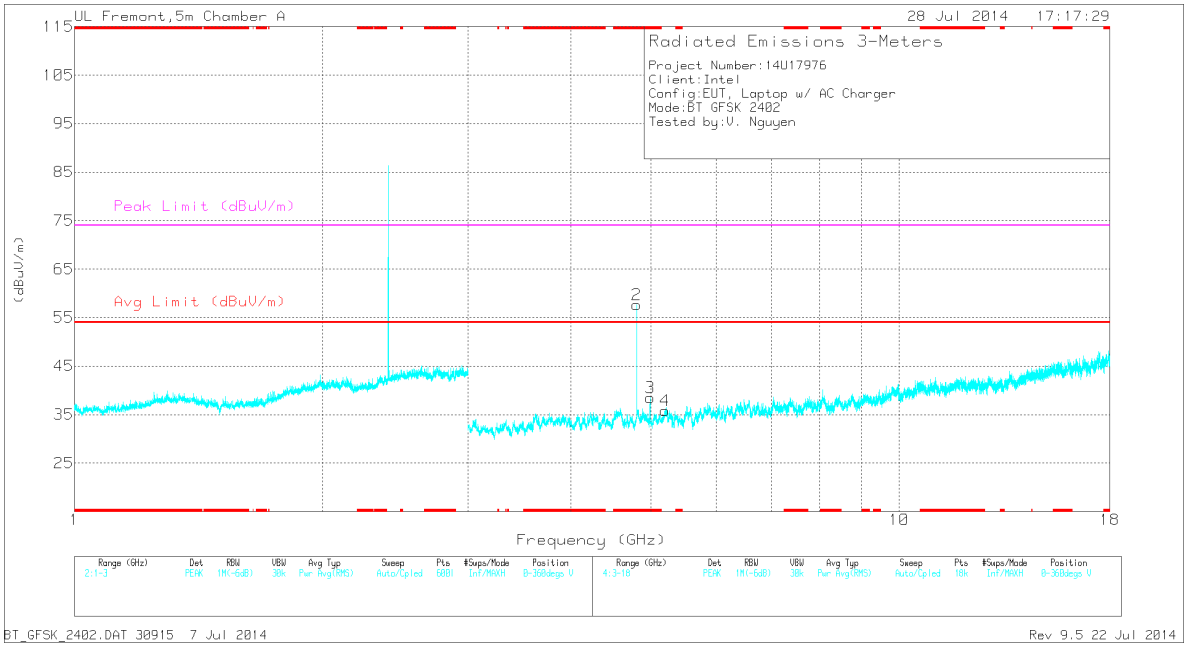
HARMONICS AND SPURIOUS EMISSIONS

GFSK, LOW CHANNEL – 2402 MHz

HORIZONTAL



VERTICAL



GFSK, LOW CHANNEL – 2402 MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.804	51.8	PK3	34	-30	0	55.8	-	-	74	-18.2	72	231	H
	* 4.804	49.46	VB1T	34	-30	0	53.46	54	-.54	-	-	72	231	H
2	* 4.804	49.84	PK3	34	-30	0	53.84	-	-	74	-20.16	349	315	V
	* 4.804	47.13	VB1T	34	-30	0	51.13	54	-2.87	-	-	349	315	V
3	* 4.988	43.39	PK3	33.9	-30.3	0	46.99	-	-	74	-27.01	291	200	V
	* 4.988	27.68	VB1T	33.9	-30.3	0	31.28	54	-22.72	-	-	291	200	V
4	5.197	30.38	PK	34.1	-28.7	0	35.78	-	-	-	-	0-360	201	V
5	6.046	29.69	PK	35.3	-28	0	36.99	-	-	-	-	0-360	201	H
6	6.566	29.53	PK	35.5	-26.8	0	38.23	-	-	-	-	0-360	201	H

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

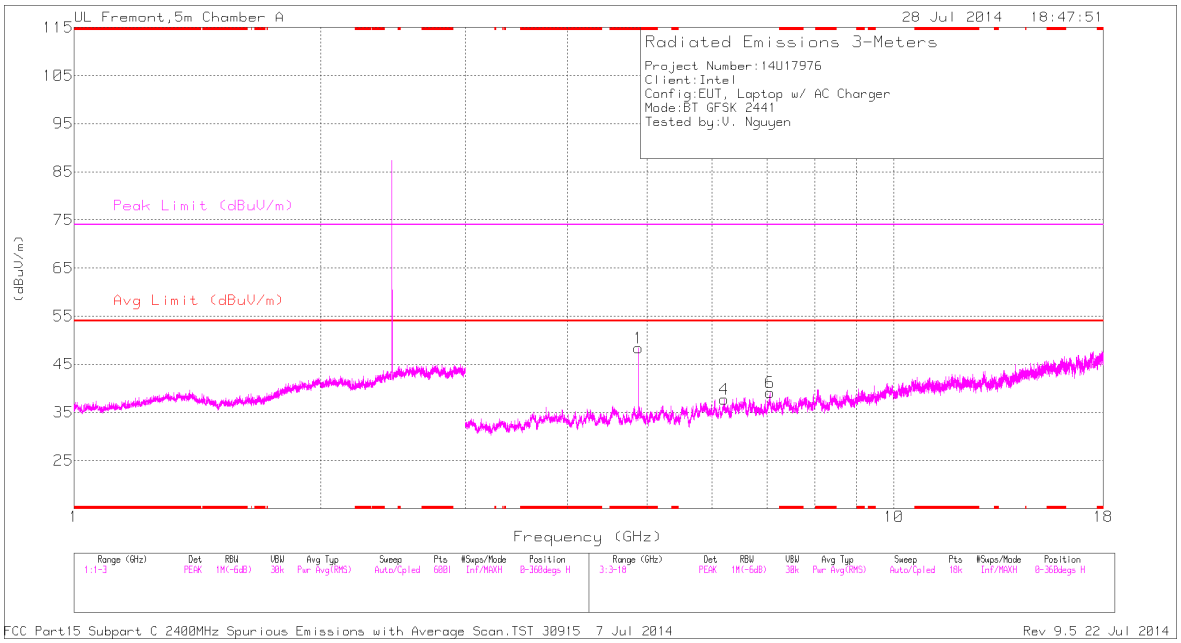
PK - Peak detector

PK3 - FHSS Method: Maximum Peak

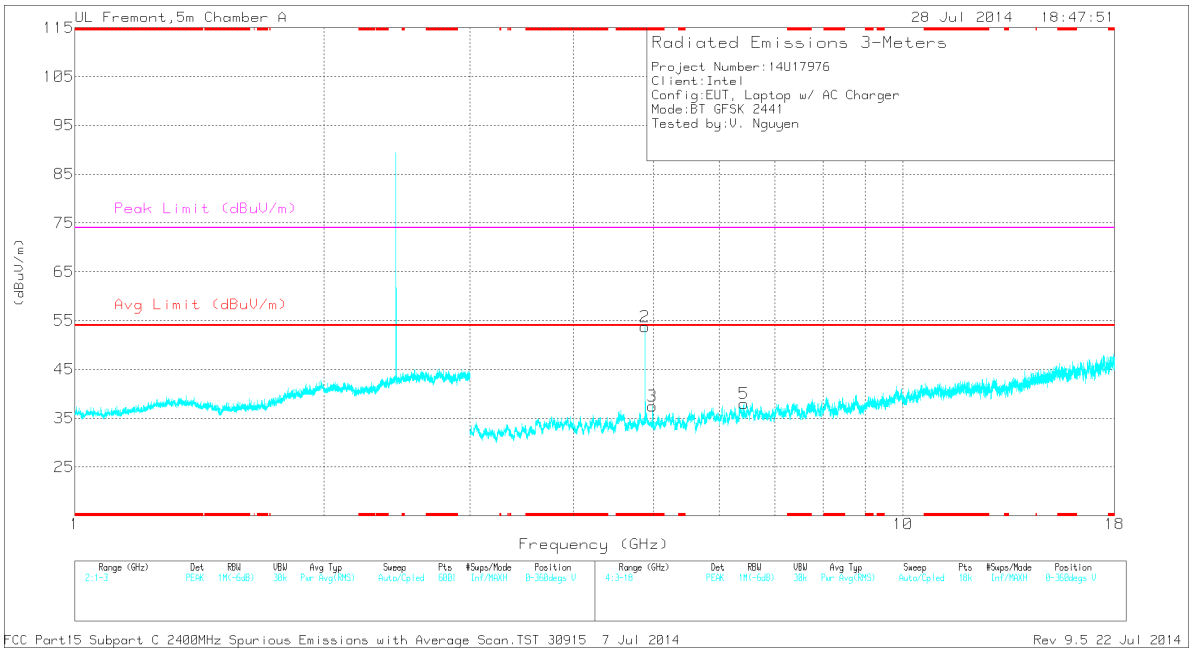
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

GFSK, MID CHANNEL – 2441 MHz

HORIZONTAL



VERTICAL



GFSK, MID CHANNEL – 2441 MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.882	47.72	PK3	34	-28.4	0	53.32	-	-	74	-20.68	24	392	H
	* 4.882	44.12	VB1T	34	-28.3	0	49.82	54	-4.18	-	-	24	392	H
2	* 4.882	45.19	PK3	34	-28.3	0	50.89	-	-	74	-23.11	5	312	V
	* 4.882	42.07	VB1T	34	-28.3	0	47.77	54	-6.23	-	-	5	312	V
3	* 4.978	42.52	PK3	33.9	-30.3	0	46.12	-	-	74	-27.88	117	159	V
	* 4.98	28.33	VB1T	33.9	-30.3	0	31.93	54	-22.07	-	-	117	159	V
4	6.211	29.9	PK	35.4	-27.6	0	37.7	-	-	-	-	0-360	100	H
5	6.42	30.48	PK	35.5	-28	0	37.98	-	-	-	-	0-360	100	V
6	7.06	29.77	PK	35.3	-25.9	0	39.17	-	-	-	-	0-360	100	H

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

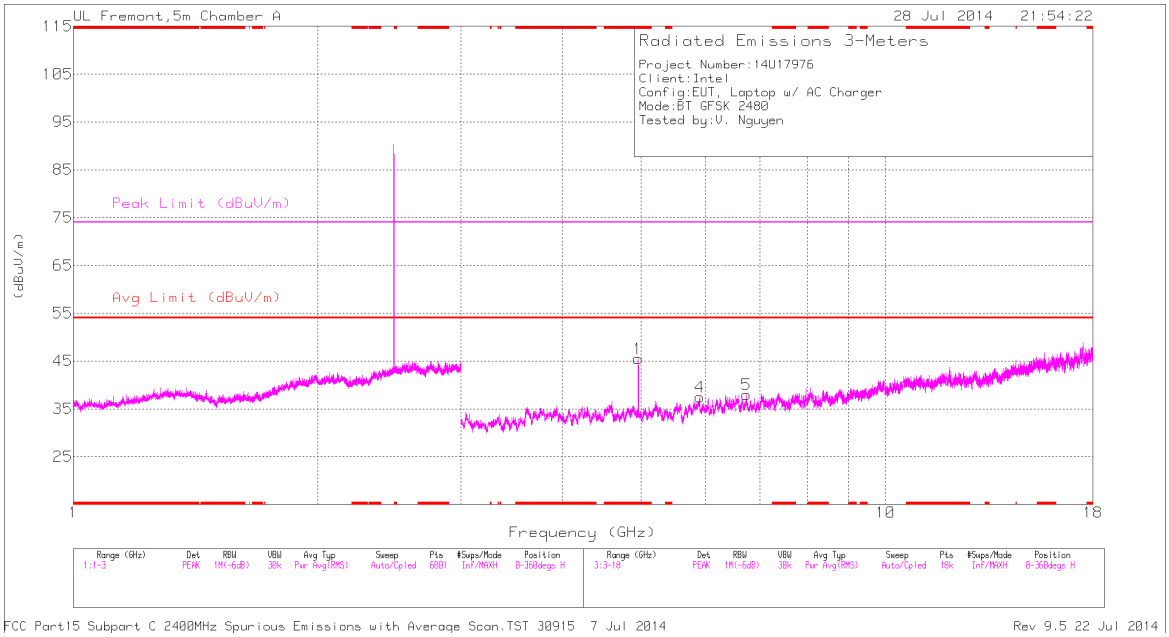
PK - Peak detector

PK3 - FHSS Method: Maximum Peak

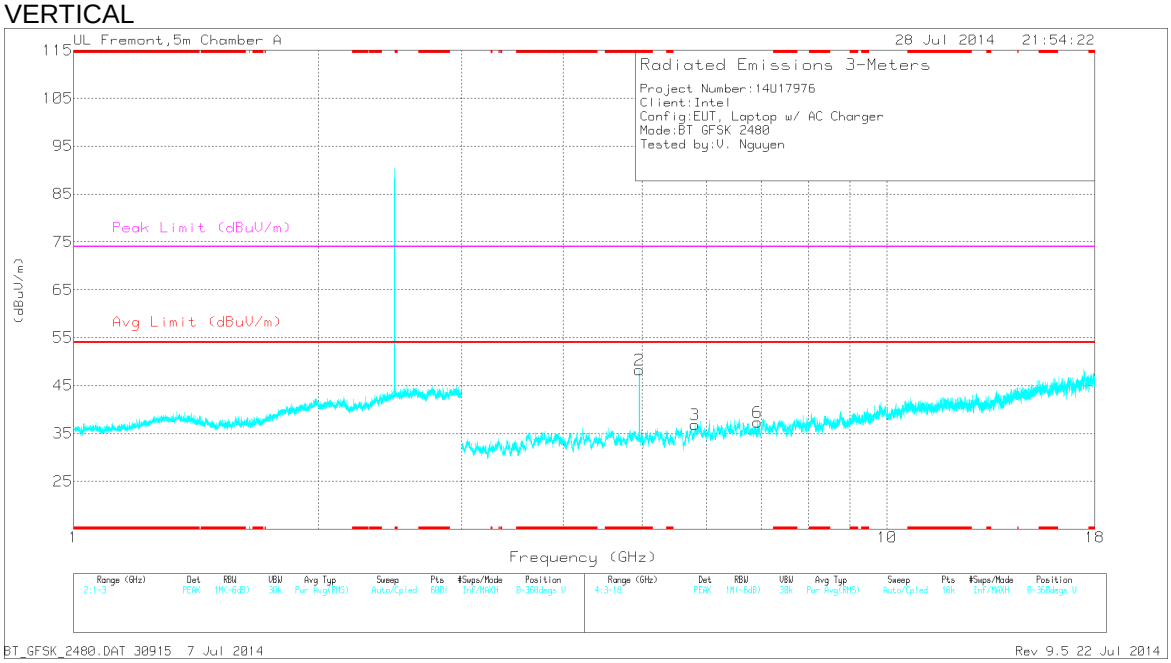
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

GFSK, HIGH CHANNEL – 2480 MHz

HORIZONTAL



VERTICAL



GFSK, HIGH CHANNEL – 2480 MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.96	44.71	PK3	33.9	-29.7	0	48.91	-	-	74	-25.09	32	305	H
	* 4.96	39.88	VB1T	33.9	-29.7	0	44.08	54	-9.92	-	-	32	305	H
2	* 4.96	49.96	PK3	33.9	-29.7	0	54.16	-	-	74	-19.84	360	272	V
	* 4.96	47.12	VB1T	33.9	-29.7	0	51.32	54	-2.68	-	-	360	272	V
3	5.804	30.99	PK	34.8	-28.9	0	36.89	-	-	-	-	0-360	201	V
4	5.902	30.5	PK	35	-28	0	37.5	-	-	-	-	0-360	100	H
5	6.741	29.49	PK	35.4	-26.9	0	37.99	-	-	-	-	0-360	201	H
6	6.925	29.8	PK	35.3	-27.8	0	37.3	-	-	-	-	0-360	201	V

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

PK - Peak detector

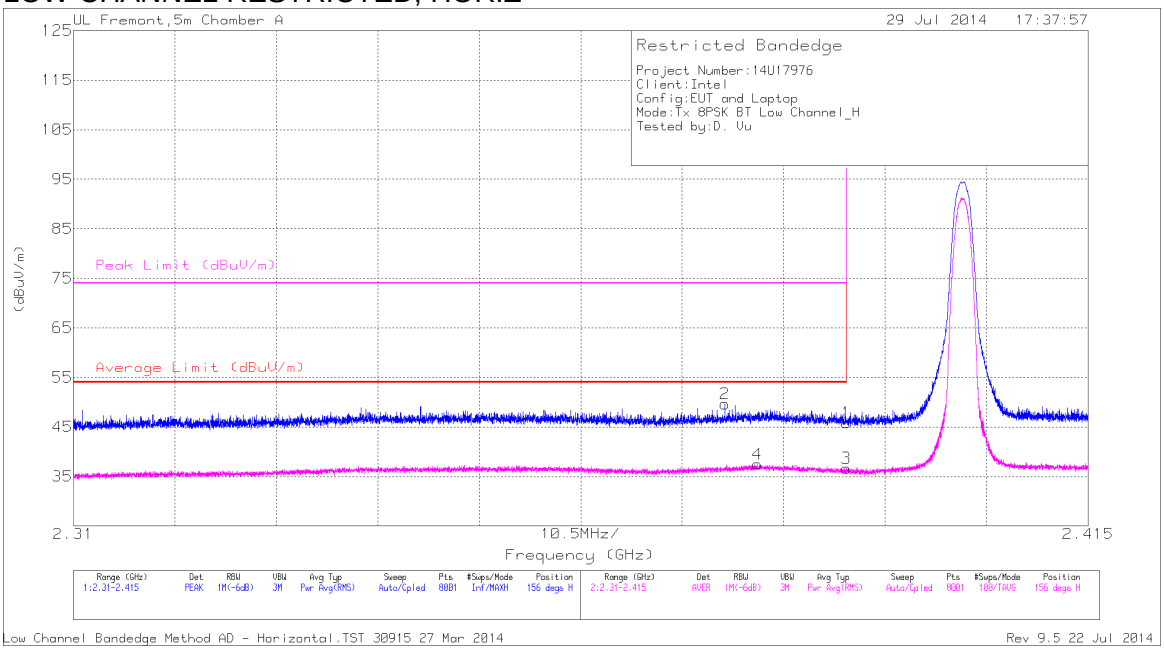
PK3 - FHSS Method: Maximum Peak

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

8.2.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, HORIZ



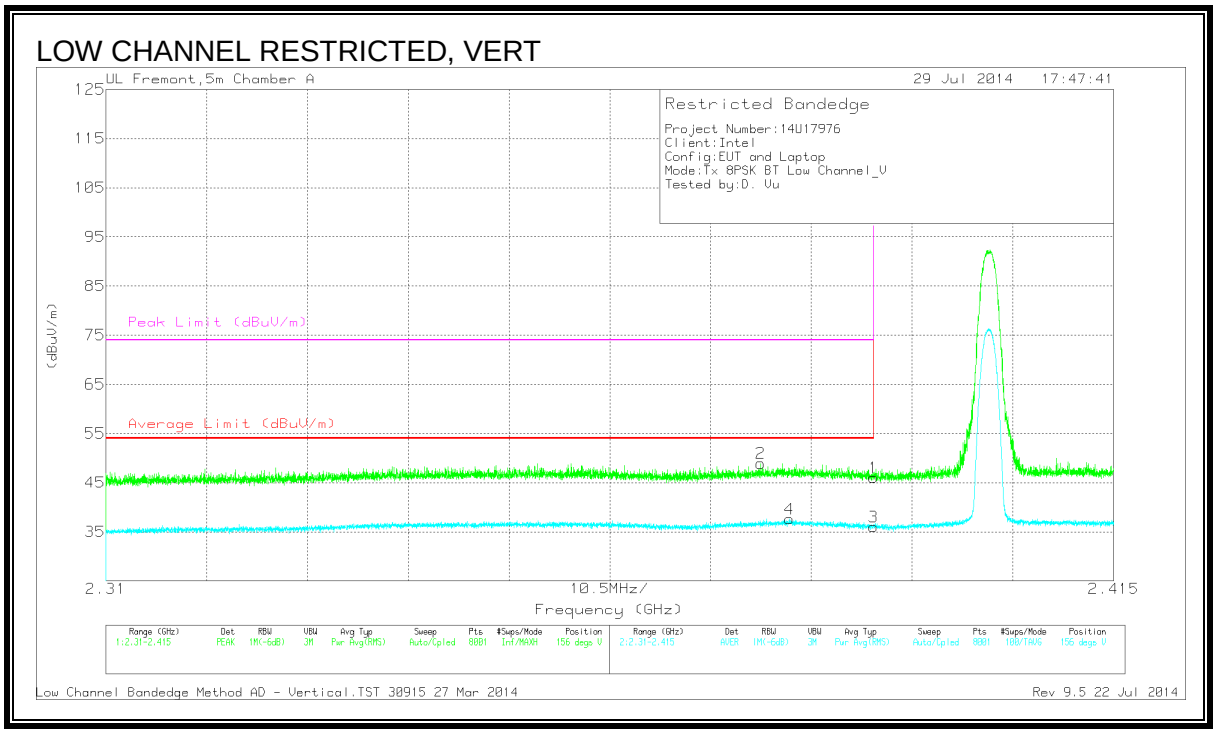
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.377	41.46	PK	32.1	-23.9	0	49.66	-	-	74	-24.34	156	125	H
4	2.381	28.9	RMS	32.2	-23.6	0	37.5	54	-16.5	-	-	156	125	H
1	2.39	38.06	PK	32.2	-24.4	0	45.86	-	-	74	-28.14	156	125	H
3	2.39	28.89	RMS	32.2	-24.4	0	36.69	54	-17.31	-	-	156	125	H

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



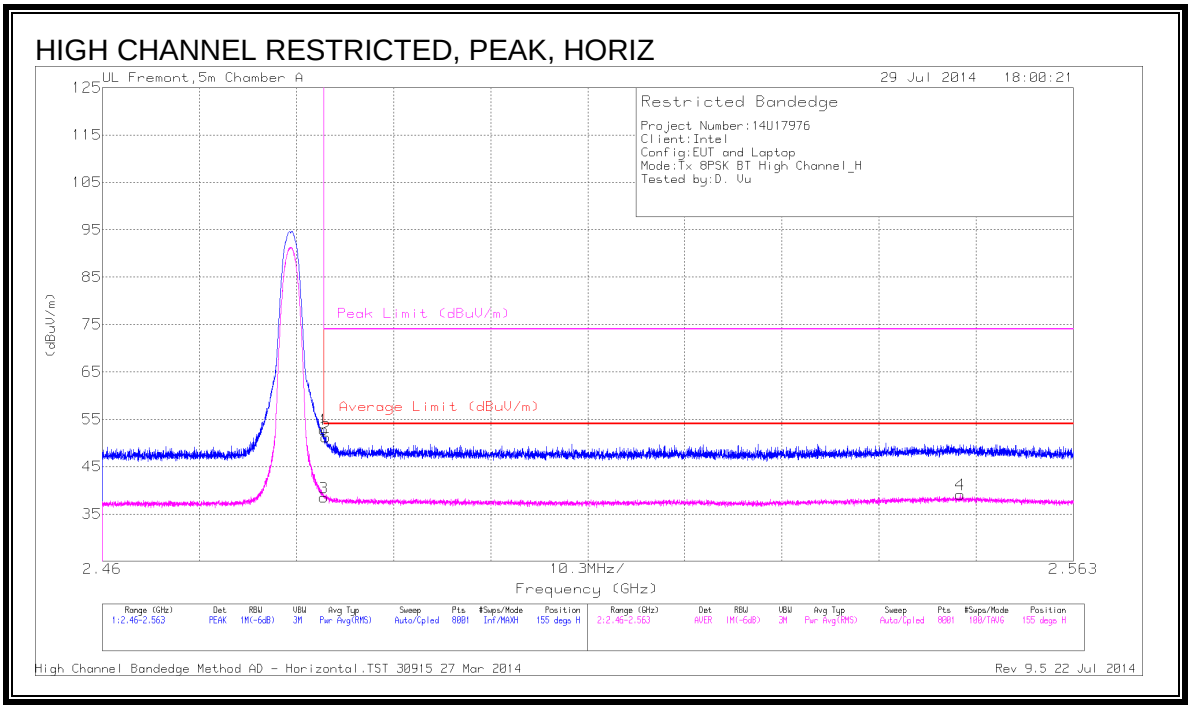
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.378	40.63	PK	32.1	-23.8	0	48.93	-	-	74	-25.07	156	106	V
4	2.381	28.91	RMS	32.2	-23.5	0	37.61	54	-16.39	-	-	156	106	V
1	2.39	38.25	PK	32.2	-24.4	0	46.05	-	-	74	-27.95	156	106	V
3	2.39	28.22	RMS	32.2	-24.4	0	36.02	54	-17.98	-	-	156	106	V

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



Trace Markers

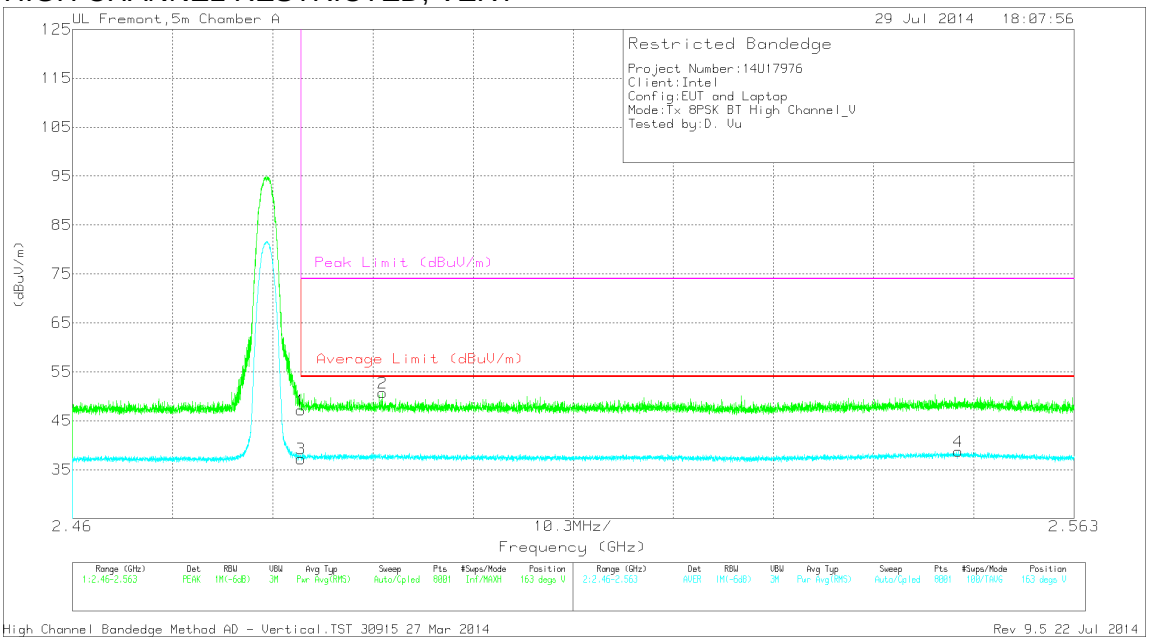
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	43.64	PK	32.7	-23.5	0	52.84	-	-	74	-21.16	155	128	H
2	2.484	42.03	PK	32.7	-23.5	0	51.23	-	-	74	-22.77	155	128	H
3	2.484	29.26	RMS	32.7	-23.5	0	38.46	54	-15.54	-	-	155	128	H
4	2.551	29.33	RMS	32.9	-23.1	0	39.13	54	-14.87	-	-	155	128	H

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, VERT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	37.95	PK	32.7	-23.5	0	47.15	-	-	74	-26.85	163	125	V
3	2.484	28.01	RMS	32.7	-23.5	0	37.21	54	-16.79	-	-	163	125	V
2	2.492	41.39	PK	32.8	-23.5	0	50.69	-	-	74	-23.31	163	125	V
4	2.551	28.93	RMS	32.9	-23.1	0	38.73	54	-15.27	-	-	163	125	V

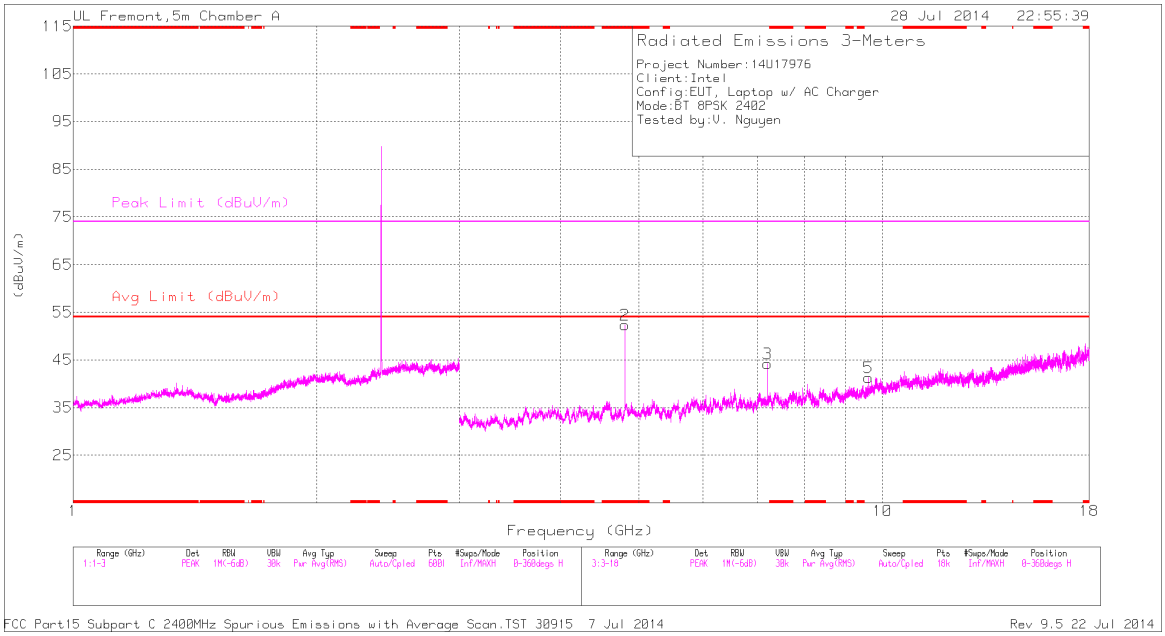
PK - Peak detector

RMS - RMS detection

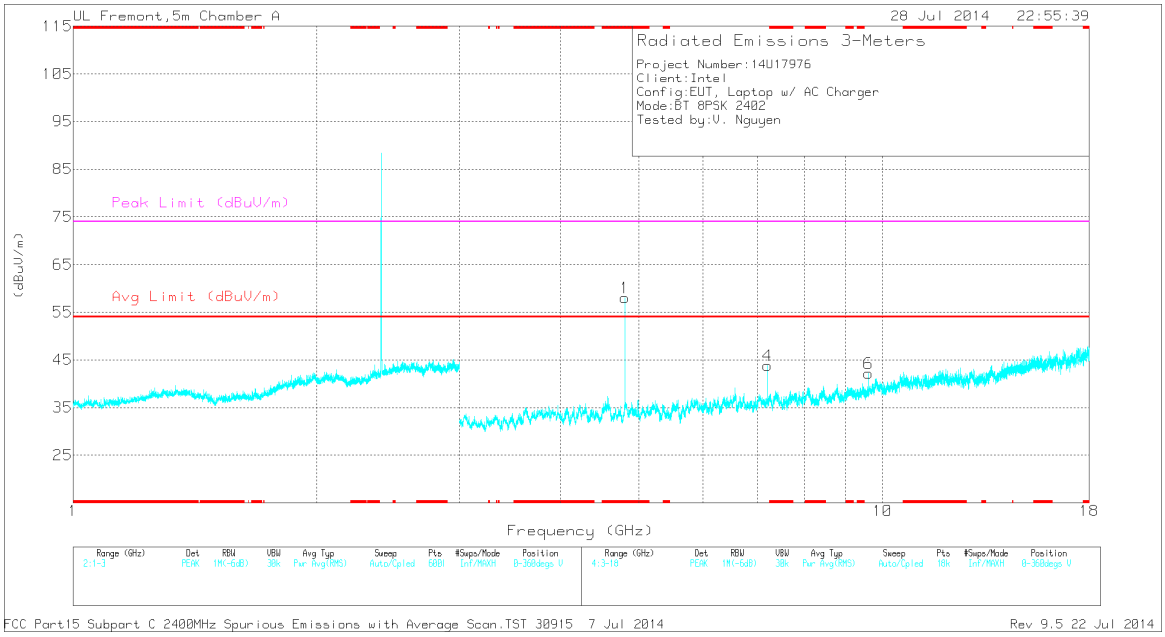
HARMONICS AND SPURIOUS EMISSIONS

8PSK, LOW CHANNEL – 2402 MHz

HORIZONTAL



VERTICAL



8PSK, LOW CHANNEL - 2402 MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.804	50.78	PK3	34	-30	0	54.78	-	-	74	-19.22	51	313	H
	* 4.804	44.57	VB1T	34	-30	0	48.57	54	-5.43	-	-	51	313	H
1	* 4.804	54.6	PK3	34	-30	0	58.6	-	-	74	-15.4	321	282	V
	* 4.804	48.34	VB1T	34	-30	0	52.34	54	-1.66	-	-	321	282	V
3	7.206	36.14	PK	35.2	-27.1	0	44.24	-	-	-	-	0-360	100	H
4	7.206	35.69	PK	35.2	-27.1	0	43.79	-	-	-	-	0-360	100	V
5	9.607	28.94	PK	36.8	-24.5	0	41.24	-	-	-	-	0-360	201	H
6	9.608	30.03	PK	36.8	-24.6	0	42.23	-	-	-	-	0-360	201	V

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

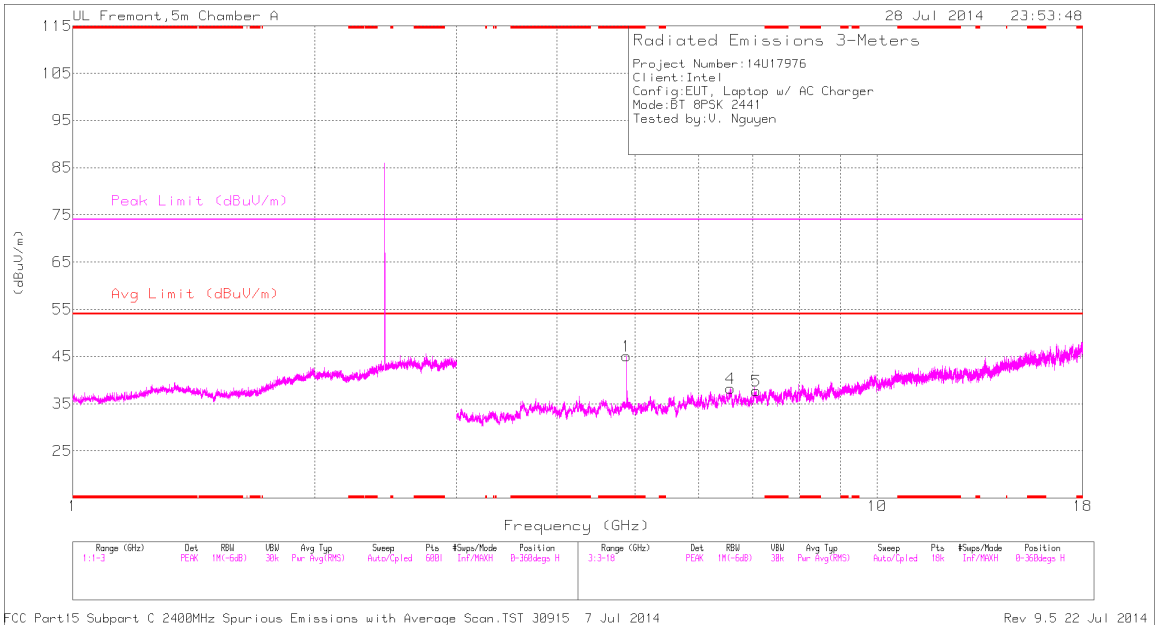
PK - Peak detector

PK3 - FHSS Method: Maximum Peak

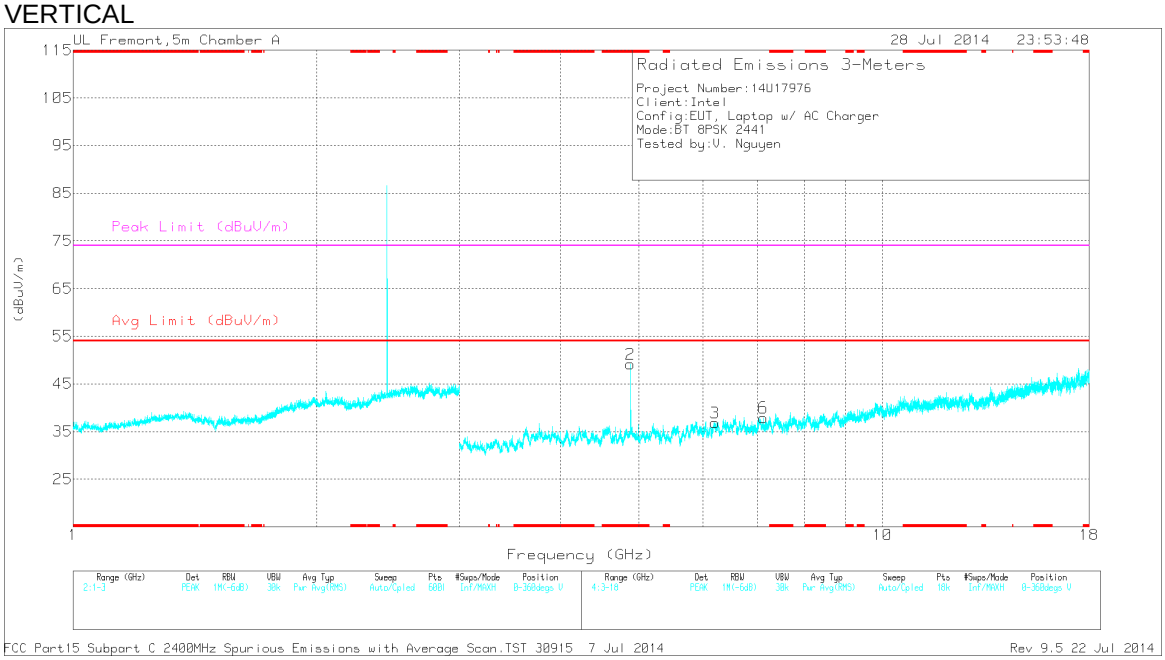
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

8PSK, MID CHANNEL – 2441MHz

HORIZONTAL



VERTICAL



8PSK, MID CHANNEL – 2441MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.882	45.1	PK3	34	-28.4	0	50.7	-	-	74	-23.3	30	277	H
	* 4.882	37.8	VB1T	34	-28.3	0	43.5	54	-10.5	-	-	30	277	H
2	* 4.882	50	PK3	34	-28.4	0	55.6	-	-	74	-18.4	334	343	V
	* 4.882	44.15	VB1T	34	-28.3	0	49.85	54	-4.15	-	-	334	343	V
3	6.21	29.08	PK	35.4	-27.6	0	36.88	-	-	-	-	0-360	201	V
4	6.567	29.69	PK	35.5	-26.9	0	38.29	-	-	-	-	0-360	201	H
5	7.071	28.59	PK	35.3	-26.2	0	37.69	-	-	-	-	0-360	100	H
6	7.124	30.12	PK	35.3	-27.5	0	37.92	-	-	-	-	0-360	100	V

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

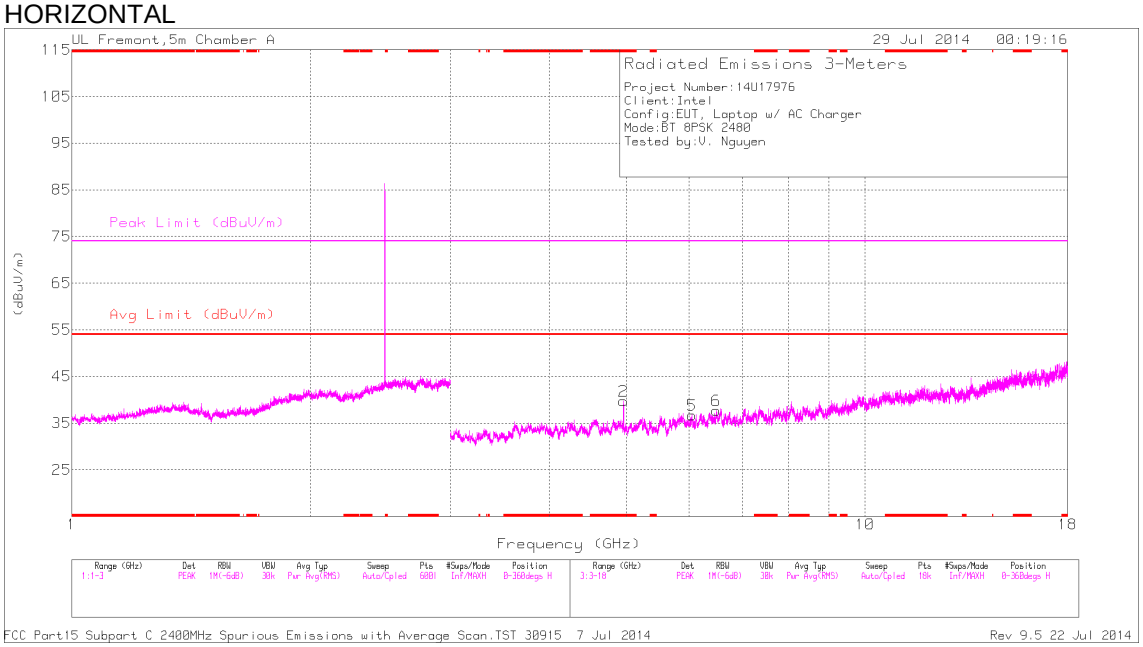
PK - Peak detector

PK3 - FHSS Method: Maximum Peak

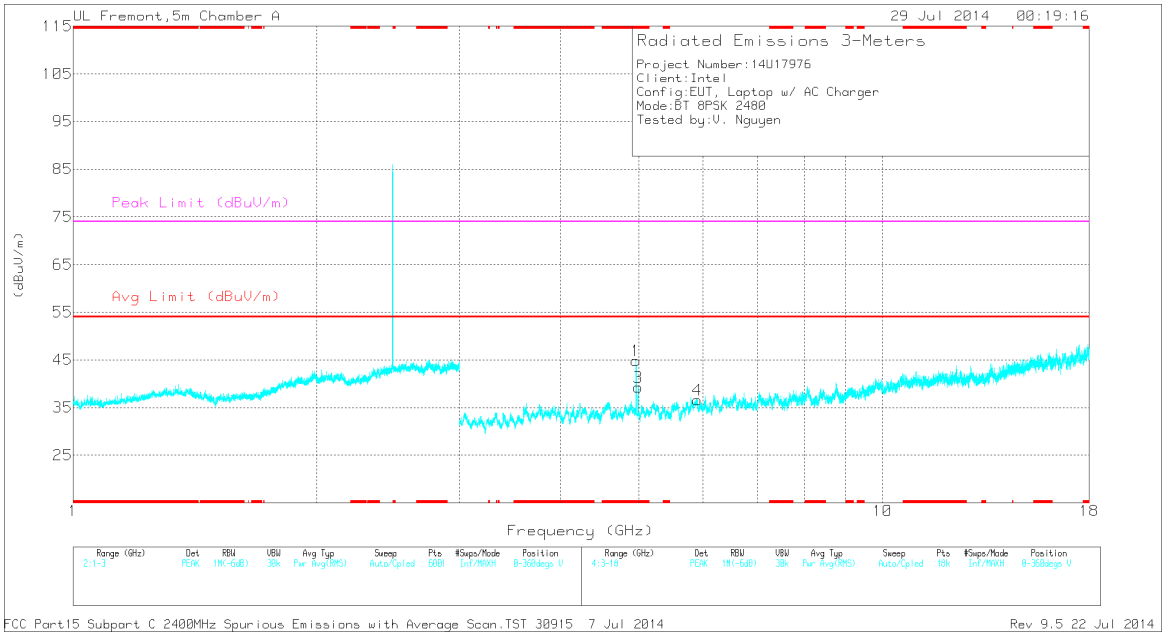
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

8PSK, HIGH CHANNEL – 2480 MHz

HORIZONTAL



VERTICAL



8PSK, HIGH CHANNEL – 2480 MHz, DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.959	42.29	PK3	33.9	-29.7	0	46.49	-	-	74	-27.51	66	331	H
	* 4.96	33.79	VB1T	33.9	-29.7	0	37.99	54	-16.01	-	-	66	331	H
1	* 4.96	47.29	PK3	33.9	-29.7	0	51.49	-	-	74	-22.51	355	299	V
	* 4.96	40.68	VB1T	33.9	-29.7	0	44.88	54	-9.12	-	-	355	299	V
3	* 4.988	42.47	PK3	33.9	-30.2	0	46.17	-	-	74	-27.83	293	217	V
	* 4.988	27.53	VB1T	33.9	-30.2	0	31.23	54	-22.77	-	-	293	217	V
4	5.902	29.7	PK	35	-28.1	0	36.6	-	-	-	-	0-360	201	V
5	6.046	29.43	PK	35.3	-28	0	36.73	-	-	-	-	0-360	100	H
6	6.496	30.18	PK	35.5	-28	0	37.68	-	-	-	-	0-360	100	H

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

PK - Peak detector

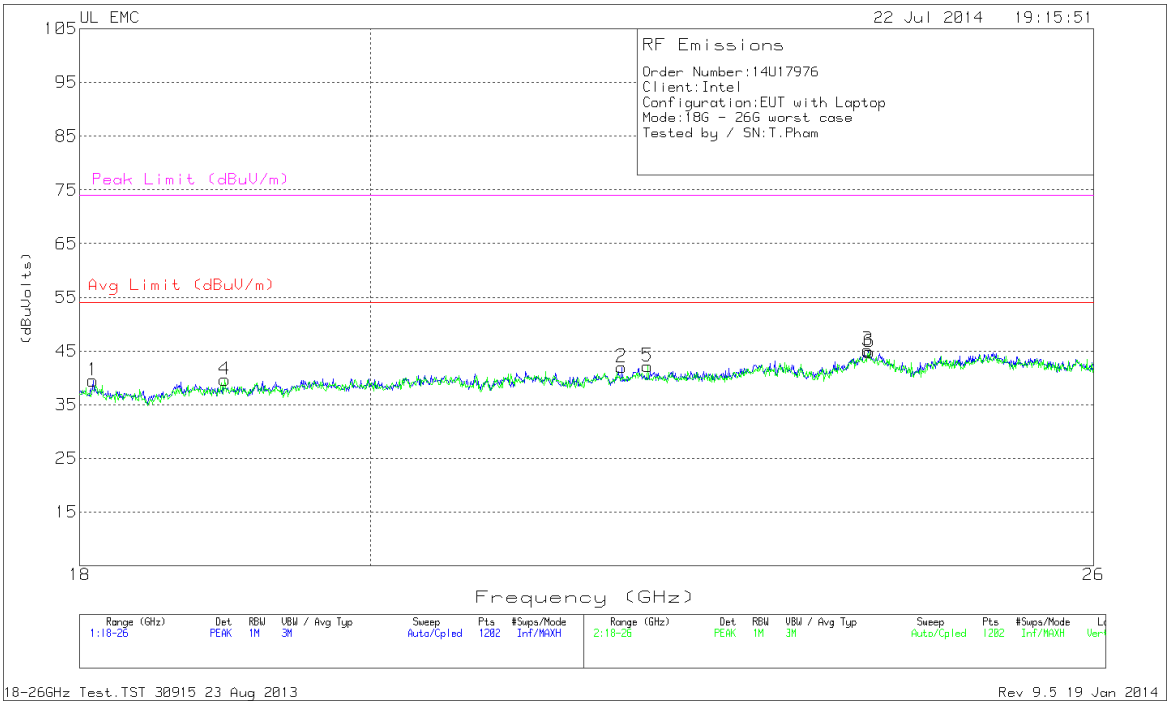
PK3 - FHSS Method: Maximum Peak

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

8.1. WORST-CASE 18-26 GHz

HARMONICS AND SPURIOUS EMISSIONS

PLOT



Trace Markers

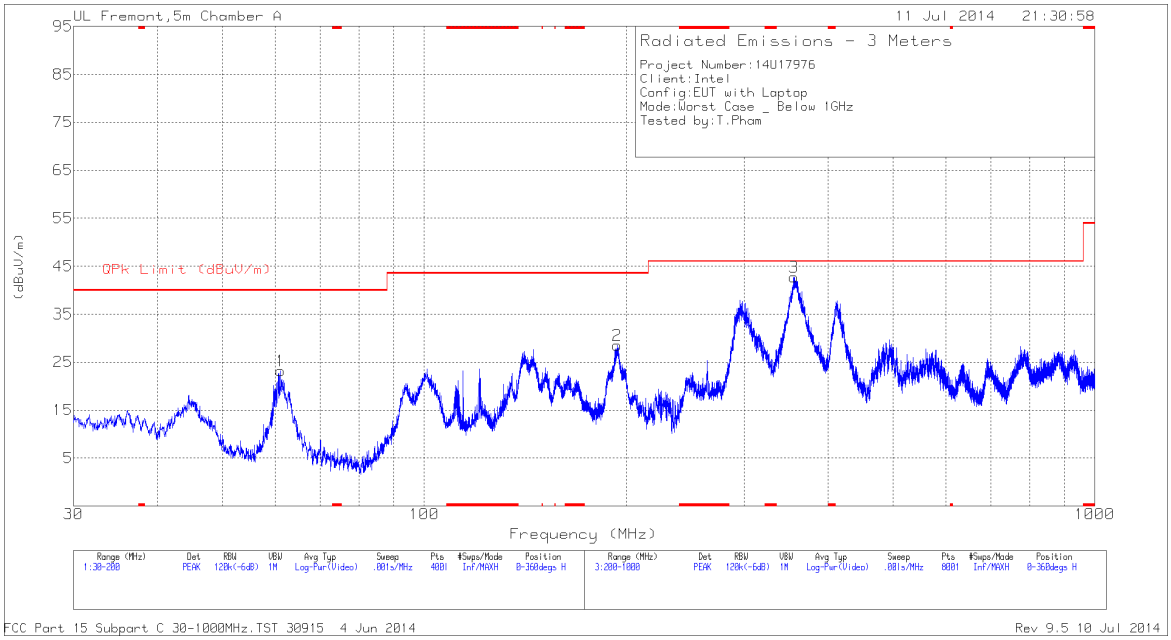
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.087	41.5	PK	32.4	-24.9	-9.5	39.5	54	-14.5	74	-34.5
2	21.91	42.2	PK	33.3	-24	-9.5	42	54	-12	74	-32
3	23.955	43.77	PK	33.6	-22.7	-9.5	45.17	54	-8.83	74	-28.83
4	18.973	41.17	PK	32.5	-24.5	-9.5	39.67	54	-14.33	74	-34.33
5	22.117	41.97	PK	33.3	-23.6	-9.5	42.17	54	-11.83	74	-31.83
6	23.968	43.33	PK	33.6	-22.6	-9.5	44.83	54	-9.17	74	-29.17

PK - Peak detector

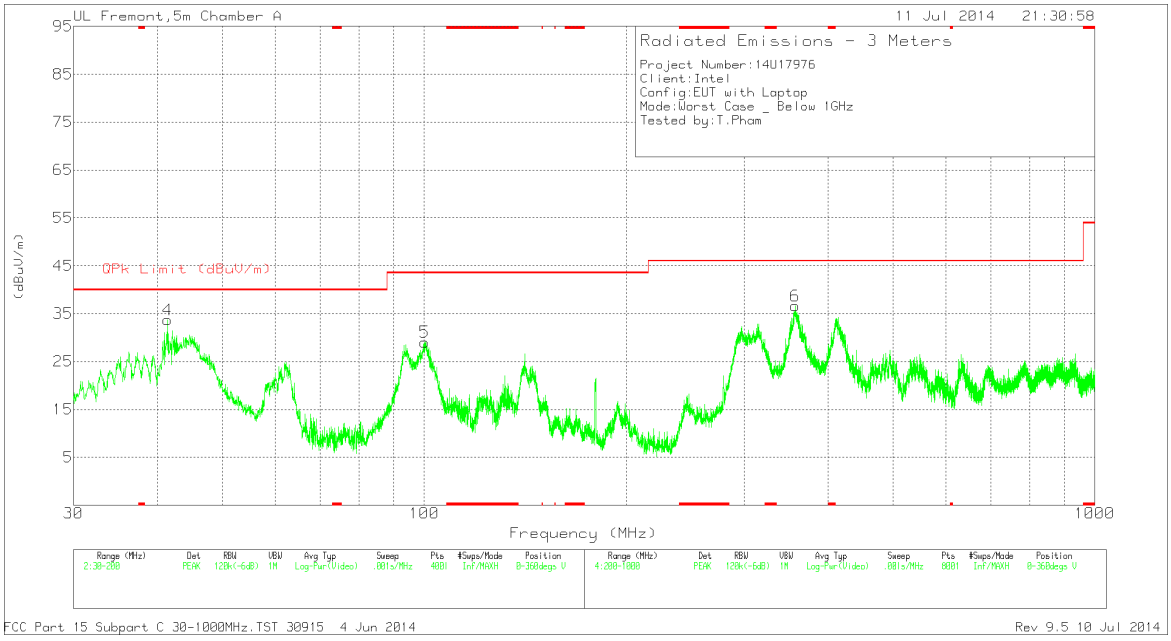
8.2. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	41.4325	51.47	PK	13.2	-30.9	0	33.77	40	-6.23	0-360	101	V
1	61.0675	45.97	PK	7.8	-30.6	0	23.17	40	-16.83	0-360	400	H
5	100.0825	49.29	PK	10.2	-30.4	0	29.09	43.52	-14.43	0-360	101	V
2	194.0075	46.77	PK	11.8	-30	0	28.57	43.52	-14.95	0-360	101	H
3	355.833	53.13	QP	14.5	-28.9	0	38.73	46.02	-7.29	338	104	H
6	357.8	50.99	PK	14.6	-28.9	0	36.69	46.02	-9.33	0-360	300	V

PK - Peak detector
QP - Quasi-Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

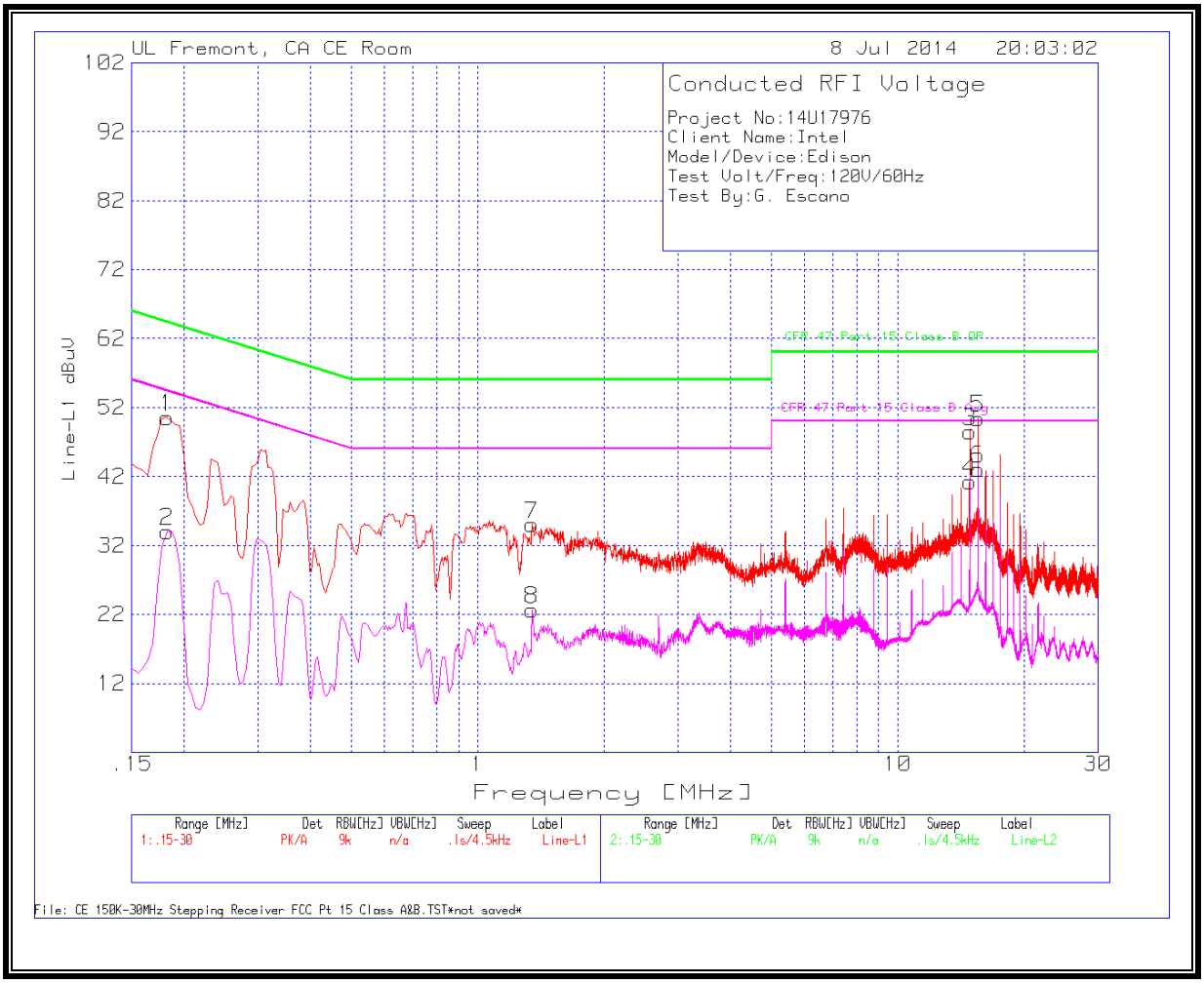
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 RESULTS

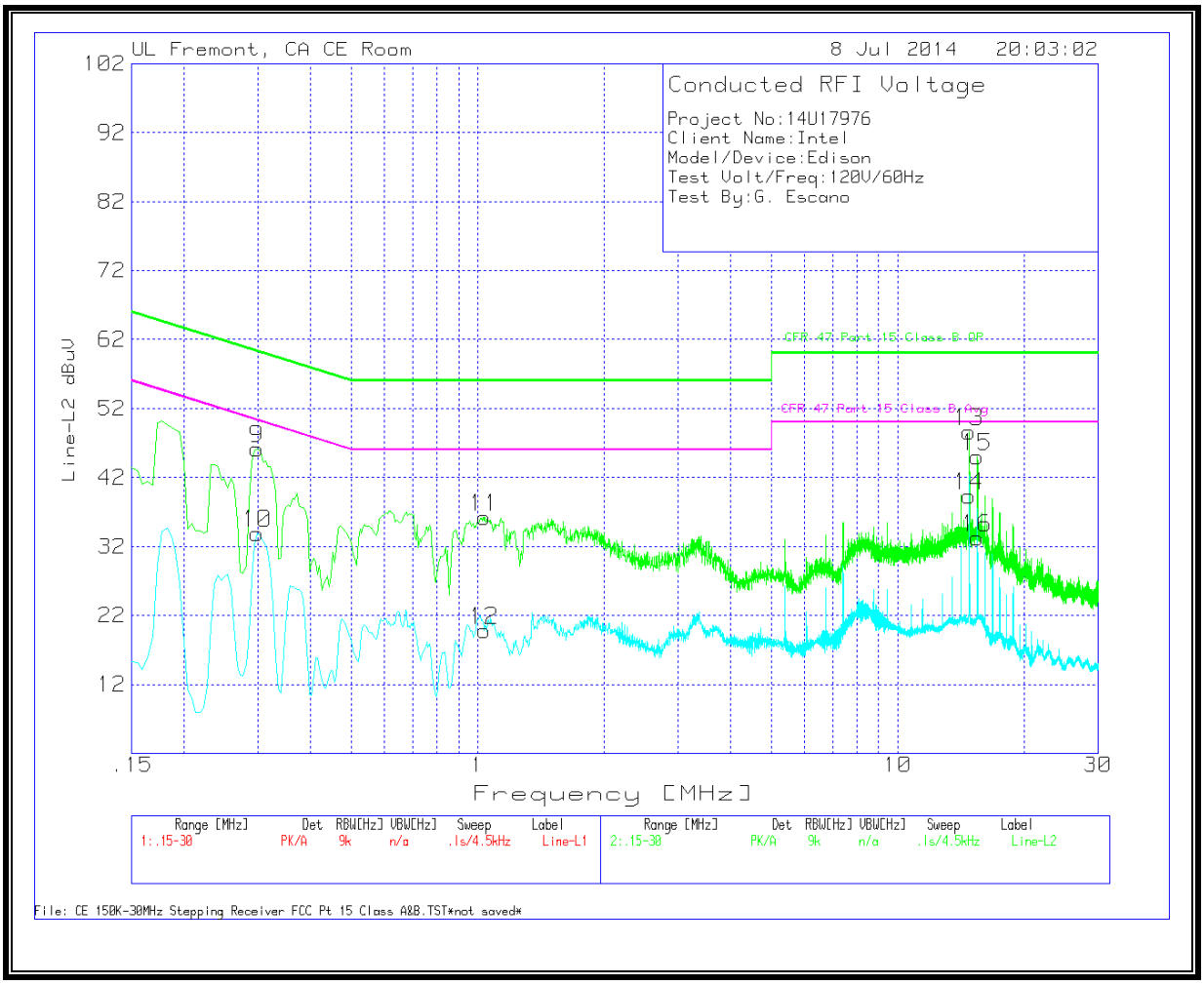


Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
1	.1815	49.42	PK	1.1	0	50.52	64.4	-13.88	-	-
2	.1815	32.97	Av	1.1	0	34.07	64.4	-30.33	54.4	-20.33
7	1.347	34.71	PK	.2	.1	35.01	56	-20.99	-	-
8	1.347	22.4	Av	.2	.1	22.7	56	-33.3	46	-23.3
3	14.8335	48.14	PK	.2	.2	48.54	60	-11.46	-	-
4	14.8335	40.82	Av	.2	.2	41.22	60	-18.78	50	-8.78
5	15.5085	49.95	PK	.3	.2	50.45	60	-9.55	-	-
6	15.5085	42.59	Av	.3	.2	43.09	60	-16.91	50	-6.91

LINE 2 RESULTS



Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
9	.2985	45.54	PK	.6	0	46.14	60.3	-14.16	-	-
10	.2985	33.28	Av	.6	0	33.88	60.3	-26.42	50.3	-16.42
11	1.0365	35.96	PK	.3	0	36.26	56	-19.74	-	-
12	1.0365	19.49	Av	.3	0	19.79	56	-36.21	46	-26.21
13	14.811	48.08	PK	.3	.2	48.58	60	-11.42	-	-
14	14.811	38.81	Av	.3	.2	39.31	60	-20.69	50	-10.69
15	15.468	44.55	PK	.3	.2	45.05	60	-14.95	-	-
16	15.468	32.8	Av	.3	.2	33.3	60	-26.7	50	-16.7

PK - Peak detector
Av - average detection