FCC 47 CFR PART 15 SUBPART C

BLUETOOTH
CERTIFICATION TEST REPORT

FOR

Tv Box, 10/100 Ethernet, MoCA 1.1/2.0, WiFi AP, HDMI 1.4 w/ HDCP

MODEL NUMBER: GFHD200

FCC ID: A4RGFHD200

REPORT NUMBER: 14U17737-4 Revision A

ISSUE DATE: June 10, 2014

Prepared for
GOOGLE
1600 AMPHITHEATRE PARKWAY
MOUNTAIN VIEW
CA, 94043, US

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	6/2/14	Initial Issue	F. de Anda
A	6/10/14	Update- test equipment list	F. de Anda

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: GOOGLE
1600 AMPHITHEATRE PARKWAY
MOUNTAIN VIEW, CA, 94043, US

EUT DESCRIPTION: Tv Box, 10/100 Ethernet, MoCA 1.1/2.0, WiFi AP, HDMI 1.4 w/ HDCP

MODEL: GFHD200

SERIAL NUMBER: GTAFSJ1419DI0012

DATE TESTED: MAY 7-16, 2014

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

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

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

Approved & Released For
UL Verification Services Inc. By:

FRANCISCO DE ANDA
PROJECT LEAD
UL Verification Services Inc.

Tested By:

STEVE AGUILAR
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.

3. FACILITIES AND ACCREDITATION

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

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

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	±3.52 dB
Radiated Disturbance, 30 to 1000 MHz	±4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a TV set top box that includes the following interfaces;

- 10/100 Ethernet
- MoCA 1.1/2.0
- 2.4/5.2/5.8 GHz WiFi AP
- HDMI1.4 w/HDCP
- BT 4.0 and BLE

The radio chipset is manufactured by Marvell.

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	4.32	2.70
2402 - 2480	Enhanced 8PSK	6.88	4.88

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a stamped metal dipole antenna with a maximum gain of 3.0 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was gftv200-37.11.

The test utility software on the support laptop used during testing was Dut Labtool ver. 2.0.0.44.

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

Worst-case data rates as provided by the client were: 1Mbps.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	G505	2586122356414	DoC
AC/DC Adapter	Lenovo	ADLX45NDC3A	45N0290	DoC
Router	Google	GFRG100	G20A32200404	DoC
AC/DC Adapter	Google	STD-12018U1	31500077	DoC
EUT AC Adapter	Liteon Tech. Corp.	PB-1180-29	N/A	N/A

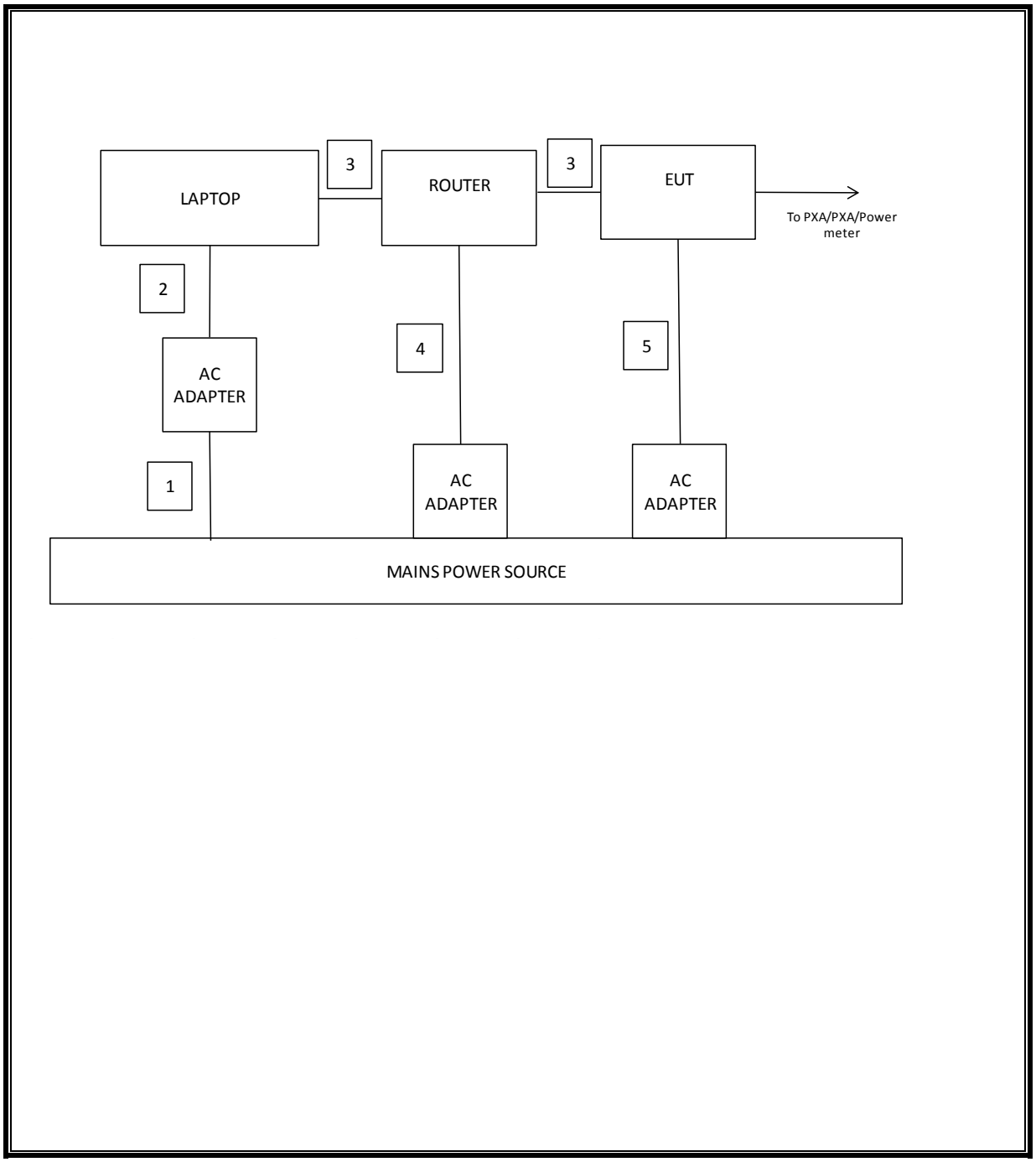
I/O CABLES I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	3-prong	Un-Shielded	1	N/A
2	DC	1	Barrel	Un-Shielded	1.8	N/A
3	LAN	2	RJ45	Un-Shielded	1	N/A
4	DC	1	Barrel	Un-Shielded	1.8	EUT power
5	DC	1	Barrel	Un-Shielded	1.8	N/A

TEST SETUP

The EUT is linked to a host laptop computer via router during the tests. Test software exercised the EUT to test the Bluetooth functions.

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**
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/26/13	11/26/14
Antenna, Horn, 18GHz	ETS Lindgren	3117	T711	06/24/13	06/24/14
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	F00027	05/05/14	05/05/15
High Pass Filter, fc: 3.0GHz, 50 Ohms	Micro-Tronics	HPM17543	F00182	08/30/13	08/30/14
Low Pass Filter, fc: 5GHz, 50 Ohms	Micro-Tronics	LPS17541	F00176	08/30/13	08/30/14
High Pass Filter, fc: 6GHz, 50 Ohms	Micro-Tronics	HPS17542	F00177	08/30/13	08/30/14
RF PreAmplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	F00352	08/30/13	08/30/14
Amplifier	Sonoma	310	F00009	04/23/14	04/23/15
PreAmplifier, 1-26.5GHz	Agilent	8449B	F00167	03/25/14	03/25/15
Spectrum Analyzer	Agilent	N9030A	F00127	03/11/14	03/11/15
Wideband Power Sensor, 30MHz BW	Agilent	N1921A	F00360	09/30/13	09/30/14
P-Series single channel Power Meter	Agilent	N1911A	F00050	10/04/13	10/04/14
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/17/14	01/17/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	F00092	09/09/13	09/09/14

7. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

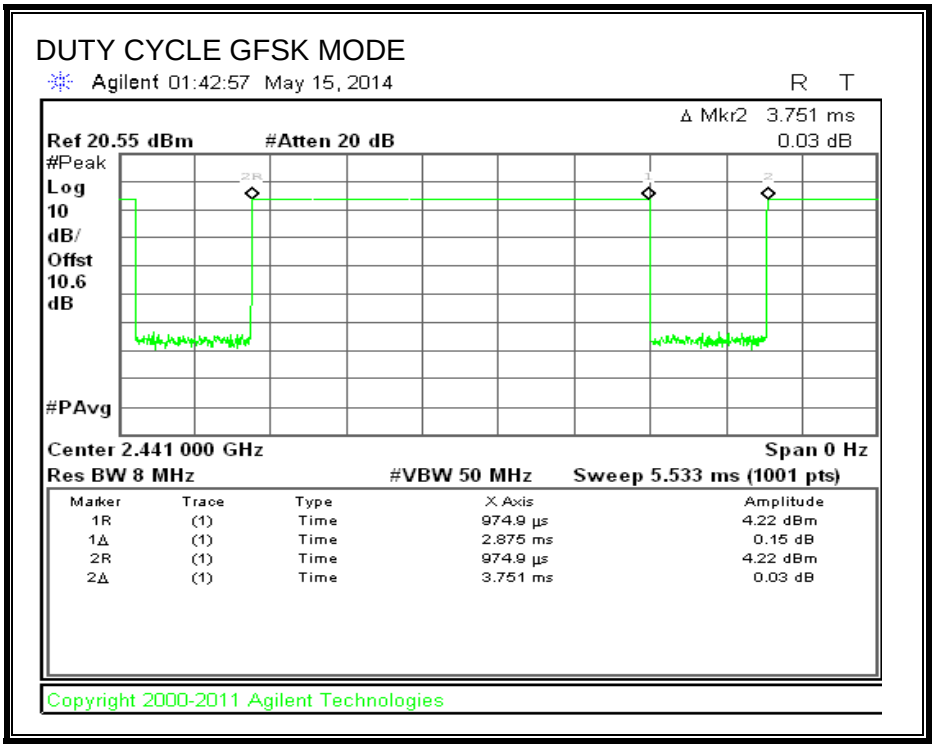
KDB 558074 Zero-Span Spectrum Analyzer Method.

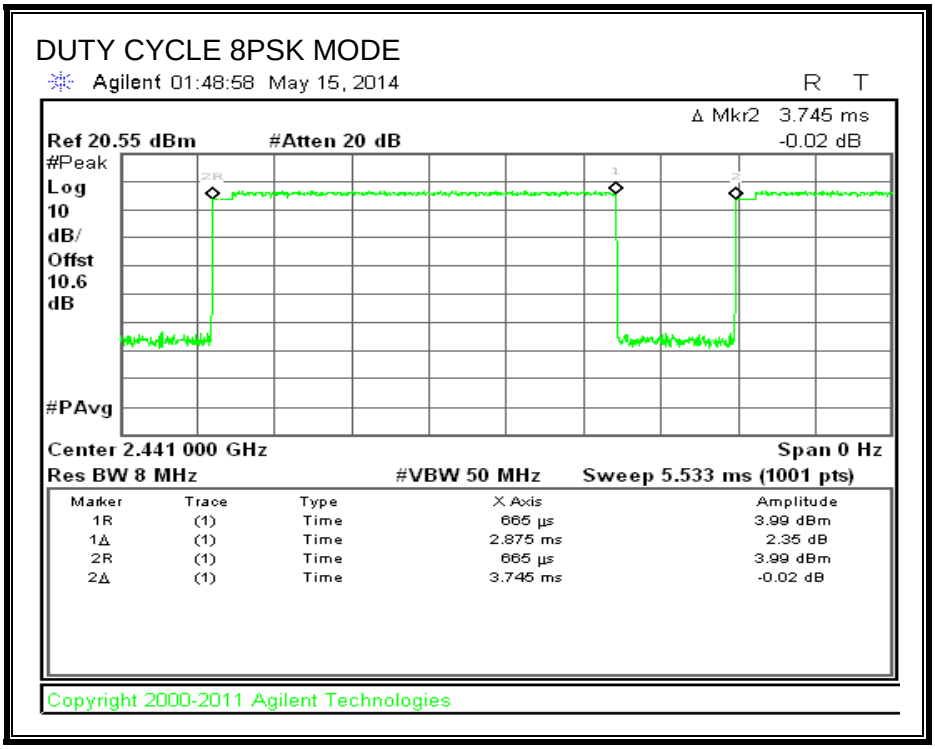
7.1. ON TIME AND DUTY CYCLE RESULTS

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	2.875	3.751	0.766	76.65%	1.16	0.348
Bluetooth 8PSK	2.875	3.745	0.768	76.77%	1.15	0.348

7.2. DUTY CYCLE PLOTS

HOPPING OFF





8. ANTENNA PORT TEST RESULTS

8.1. BASIC DATA RATE GFSK MODULATION

8.1.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

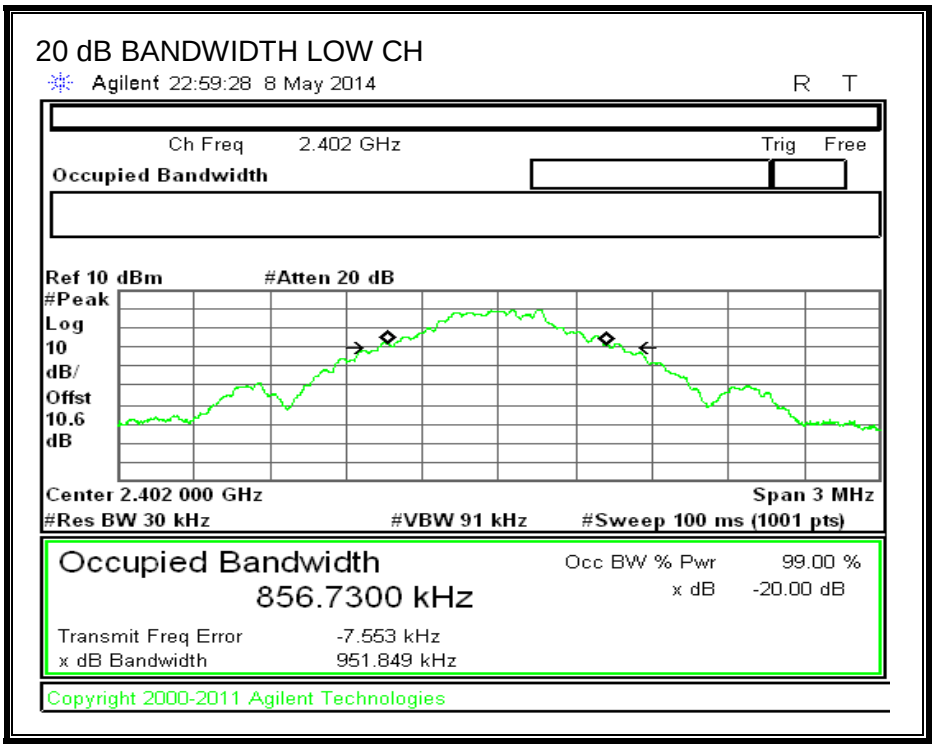
TEST PROCEDURE

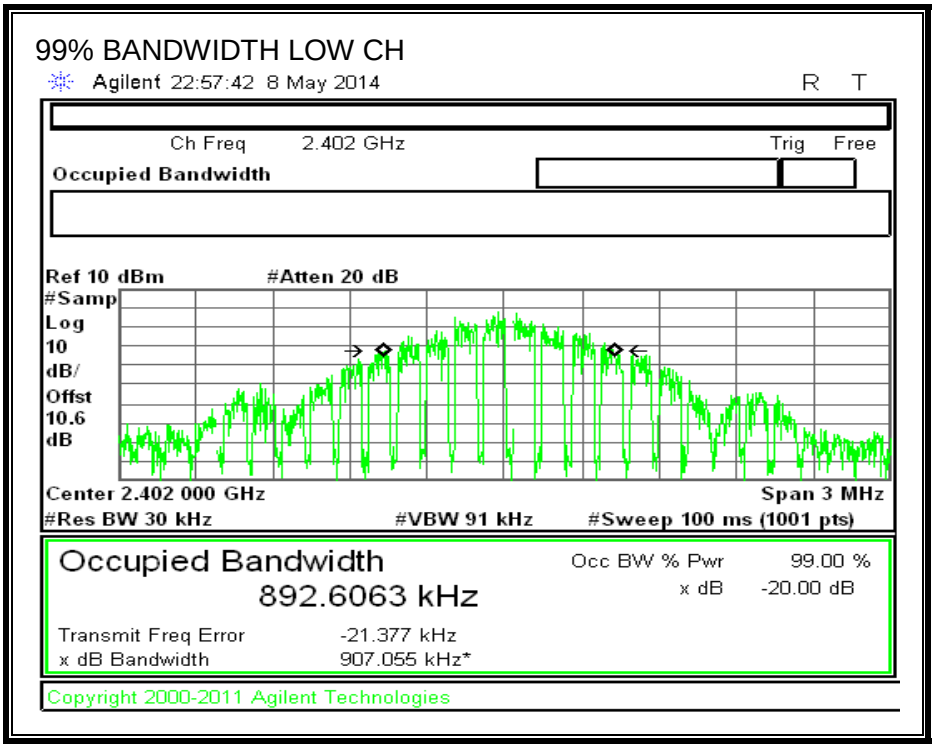
The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

RESULTS

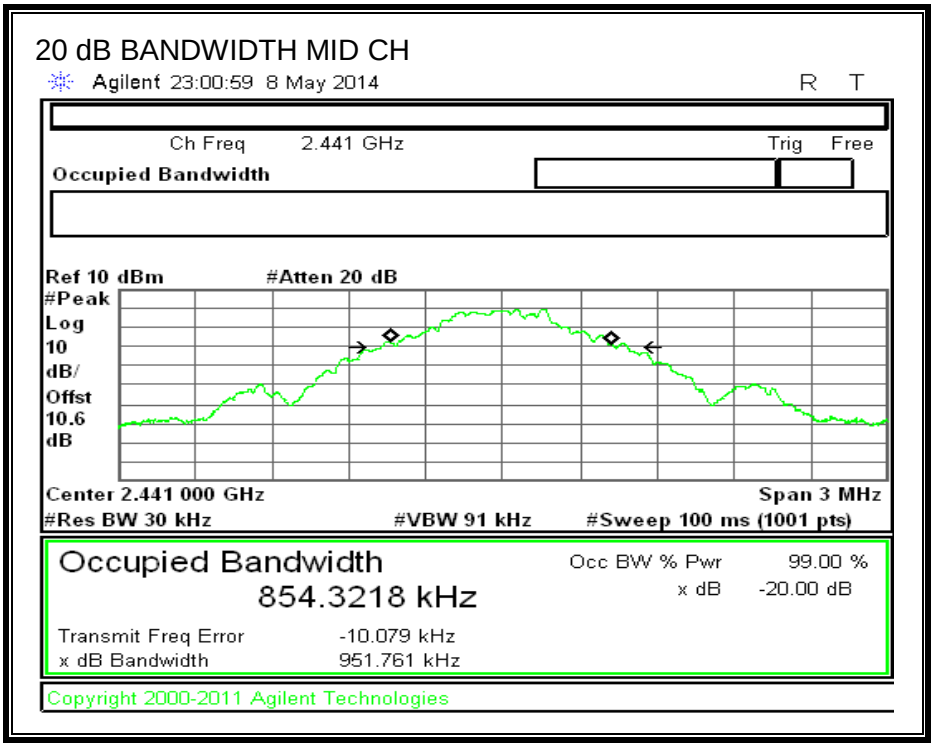
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	951.849	892.6063
Middle	2441	951.761	893.5289
High	2480	950.675	861.8499

20 dB AND 99% BANDWIDTH

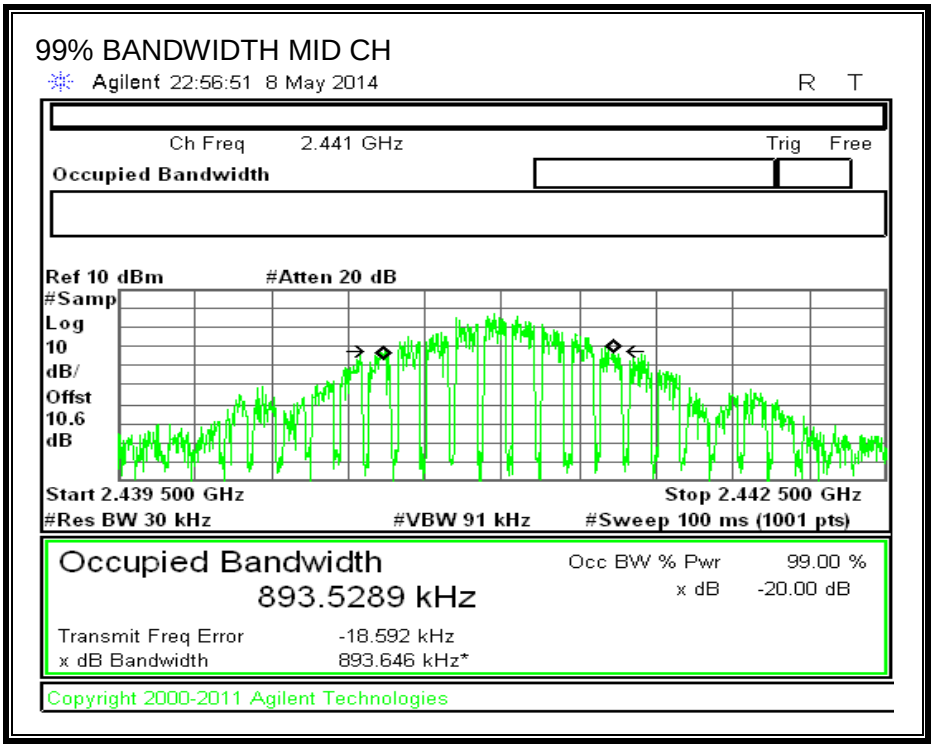




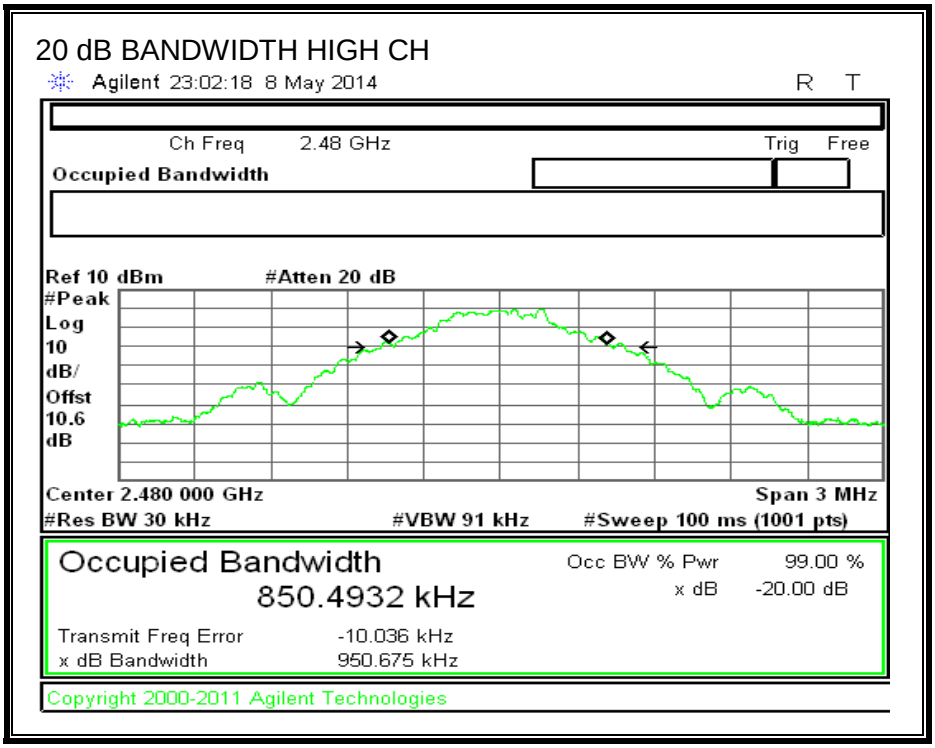
20 dB BANDWIDTH MID CH



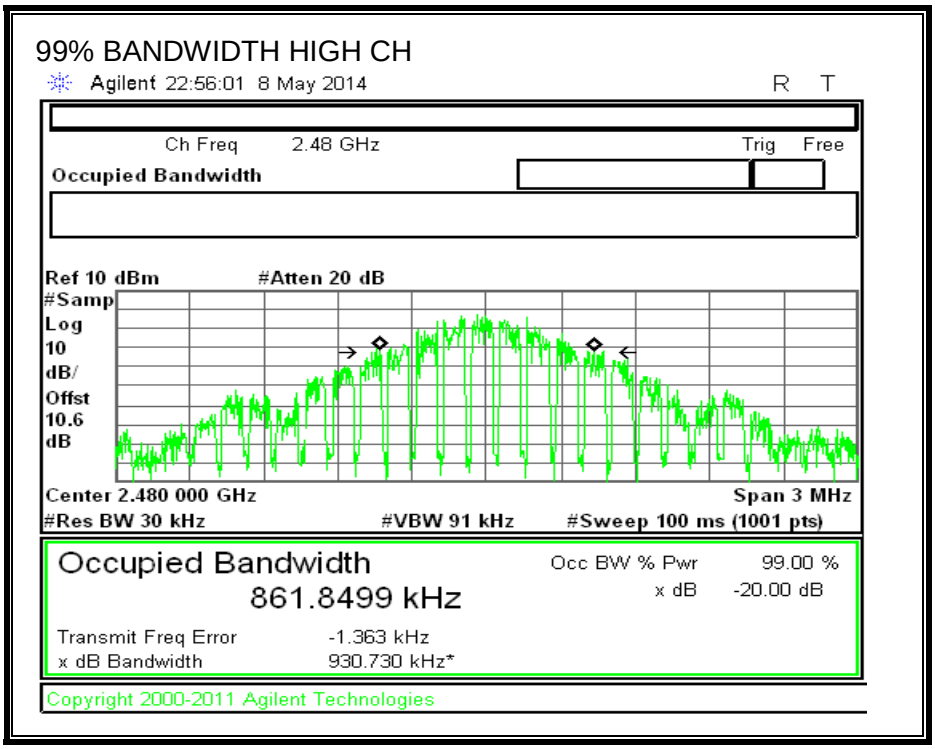
99% BANDWIDTH MID CH



20 dB BANDWIDTH HIGH CH



99% BANDWIDTH HIGH CH



8.1.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

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

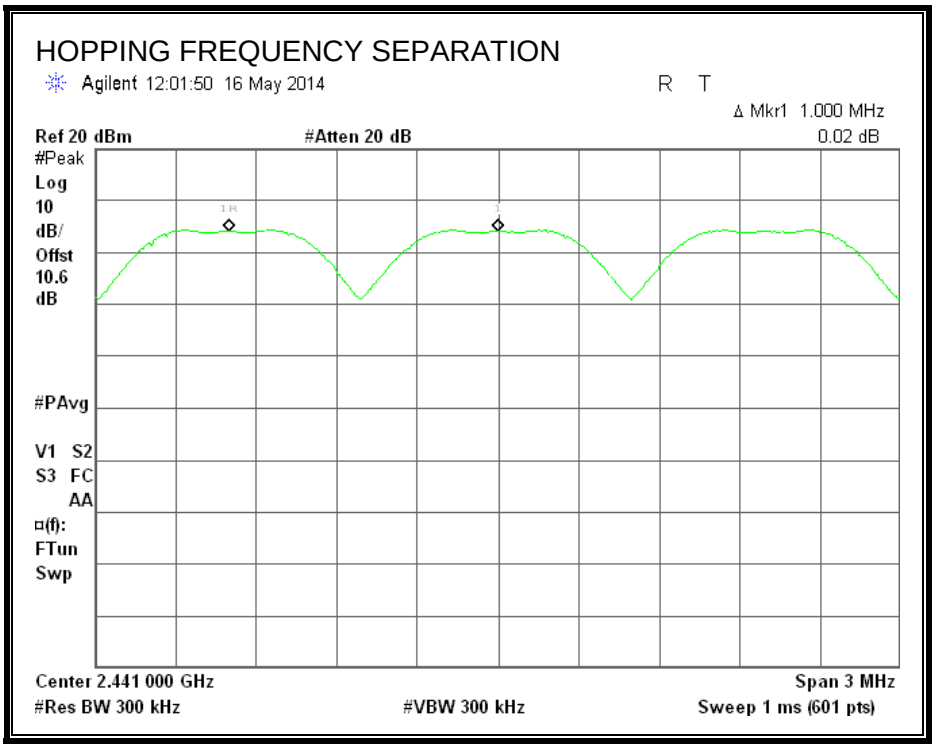
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

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

RESULTS

HOPPING FREQUENCY SEPARATION



8.1.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

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

TEST PROCEDURE

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.

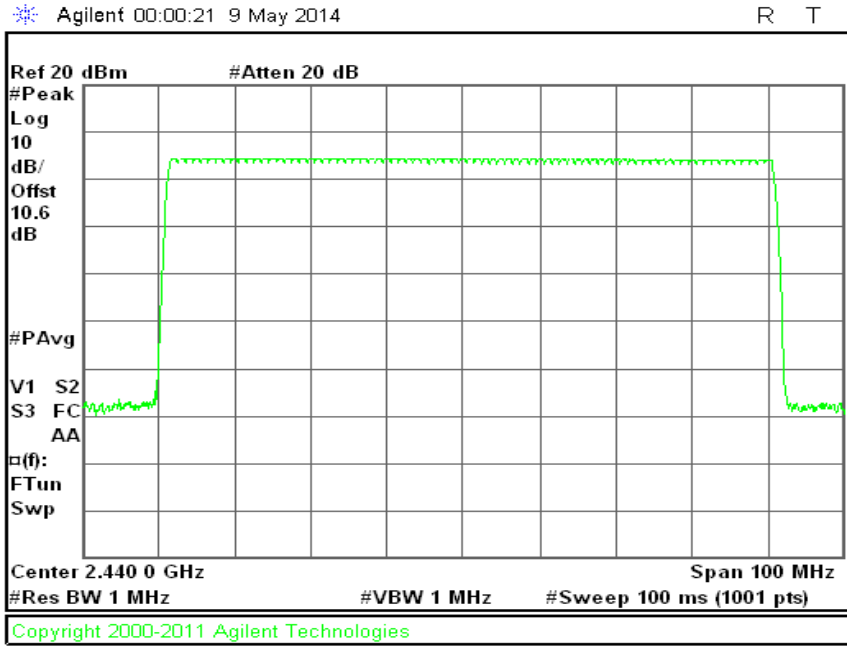
RESULTS

Normal Mode: 79 Channels observed.

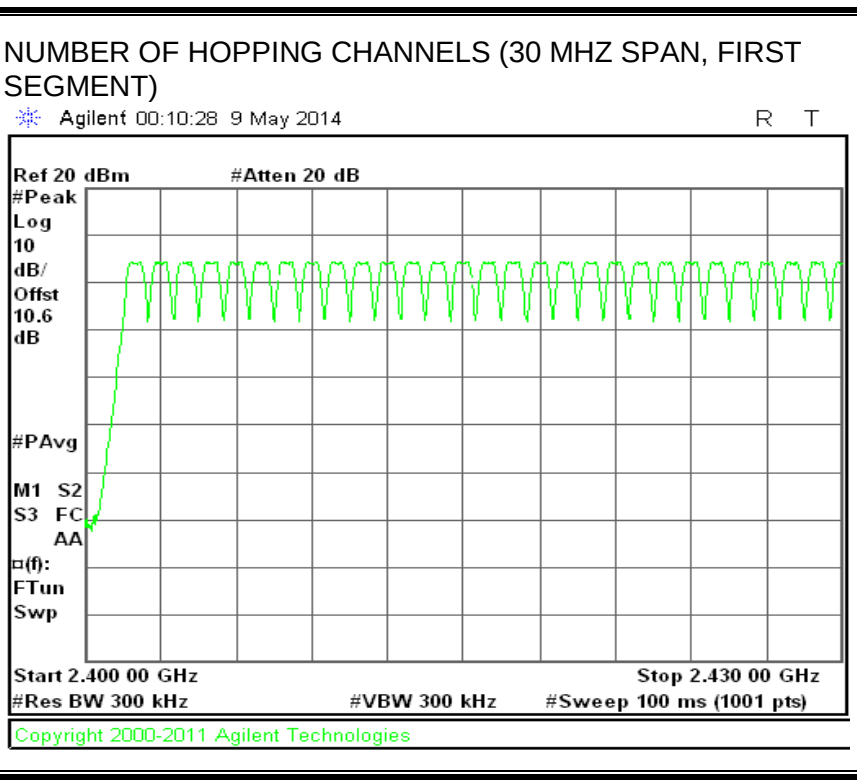
NOTE: Manufacturer declares 20 minimum hopping channels for AFH mode**.**

NUMBER OF HOPPING CHANNELS

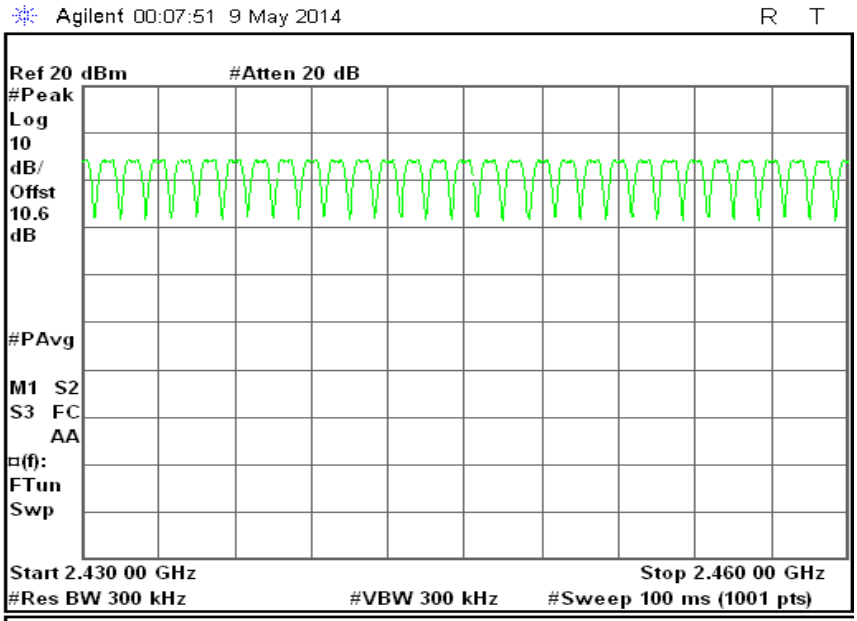
NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)



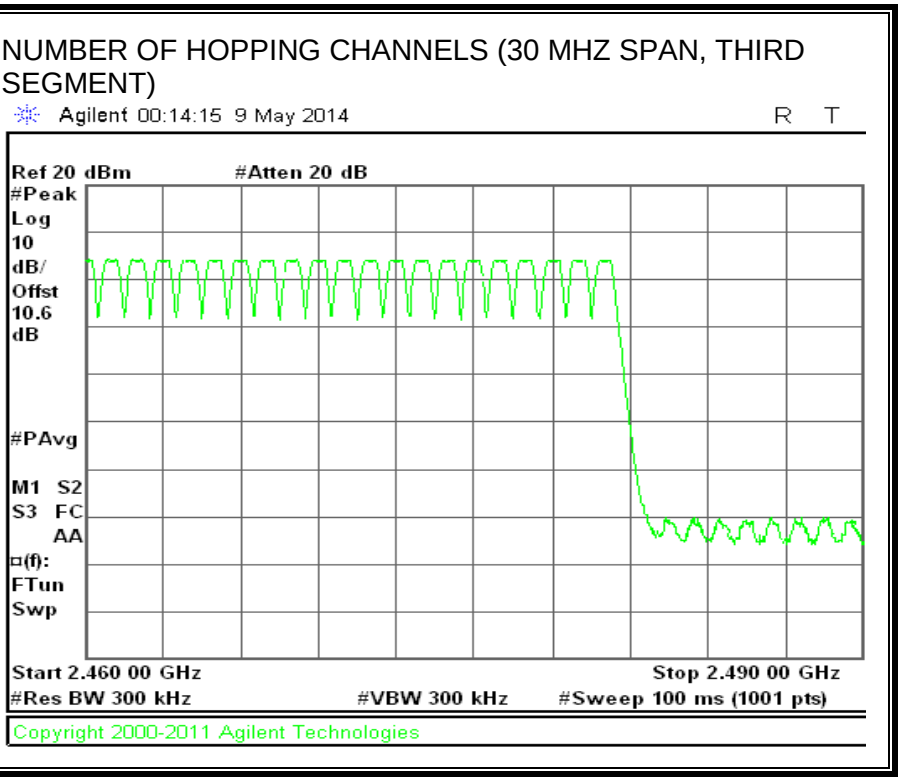
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)



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



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



8.1.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

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

TEST PROCEDURE

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

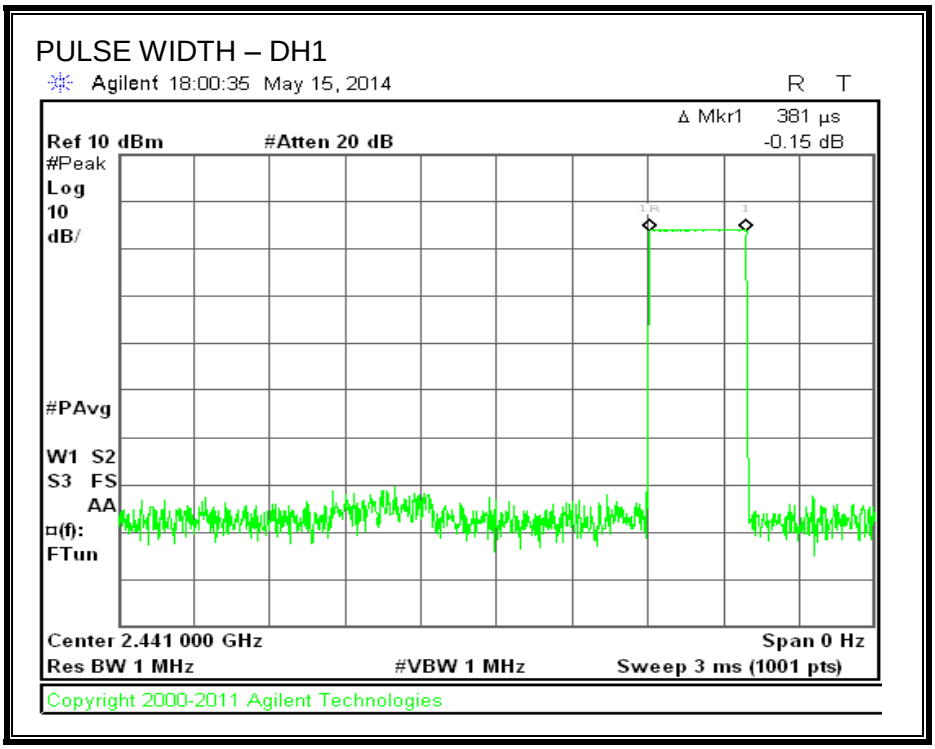
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

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.

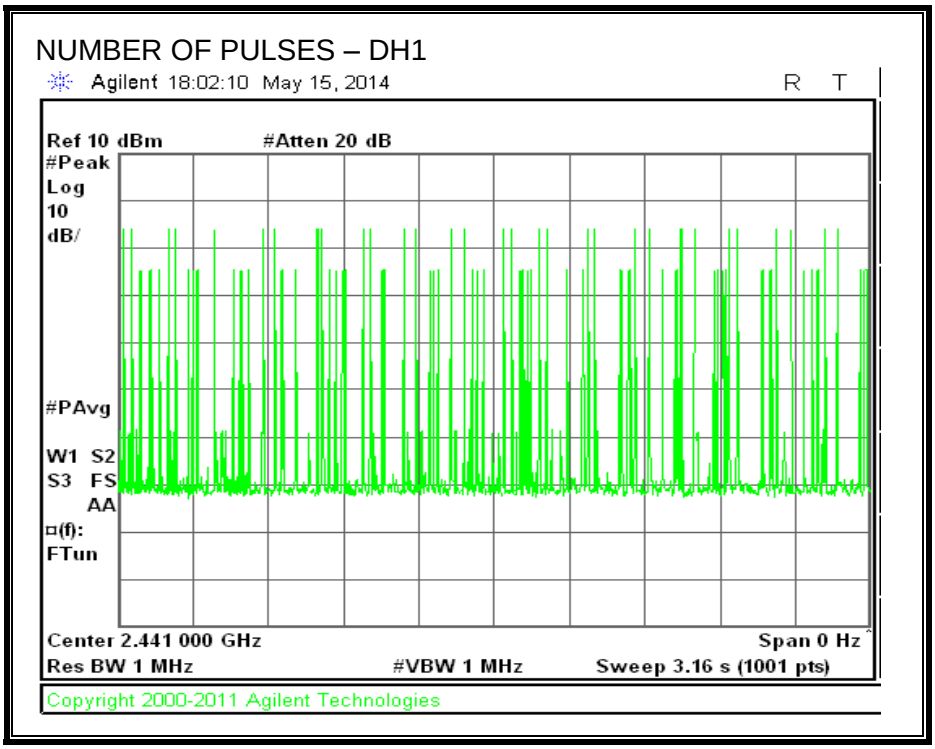
RESULTS

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	0.381	32	0.122	0.4	-0.278
DH3	1.629	20	0.326	0.4	-0.074
DH5	2.87	10	0.287	0.4	-0.113

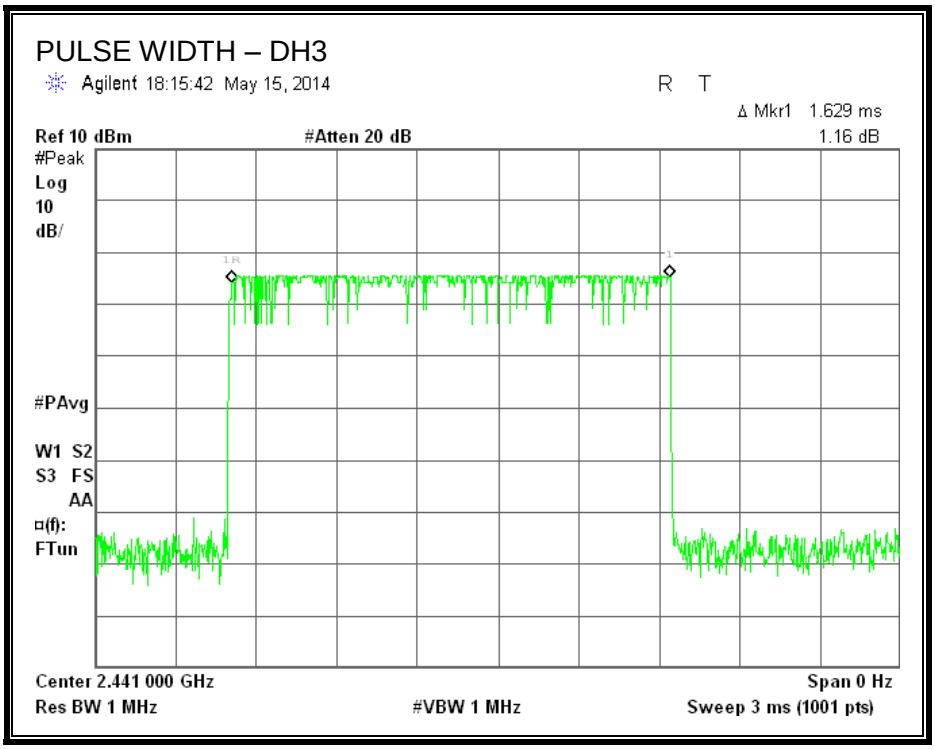
PULSE WIDTH - DH1



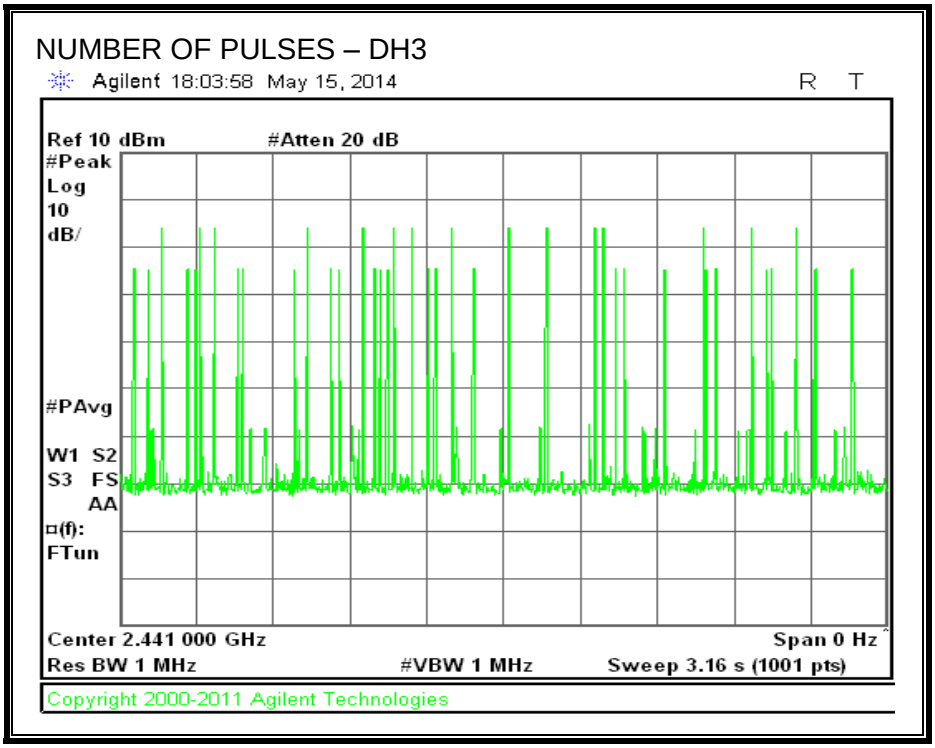
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



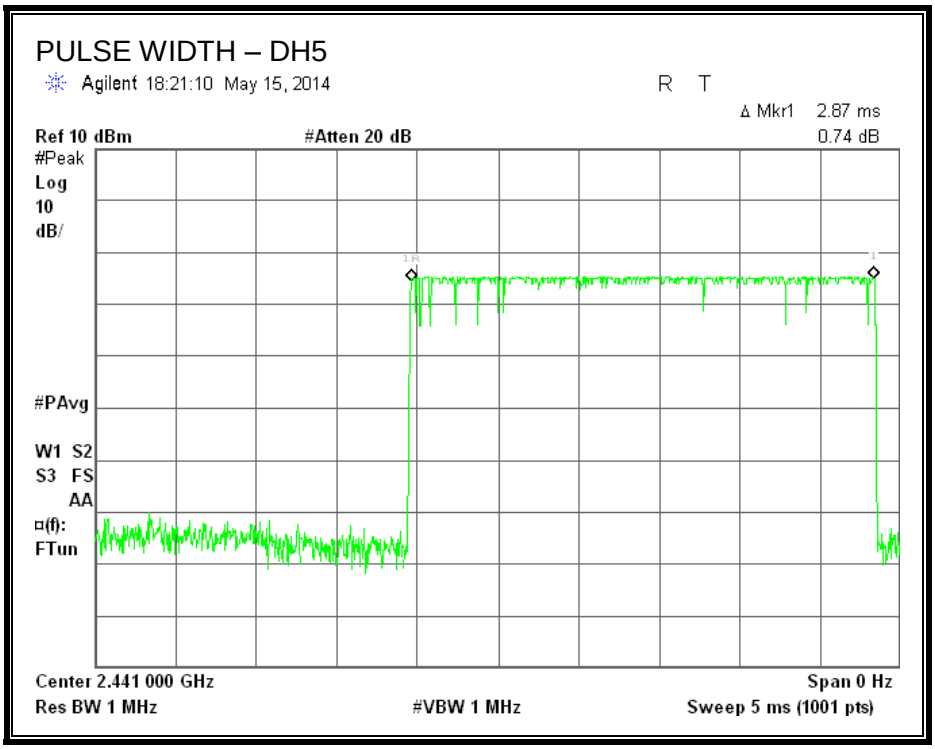
PULSE WIDTH – DH3



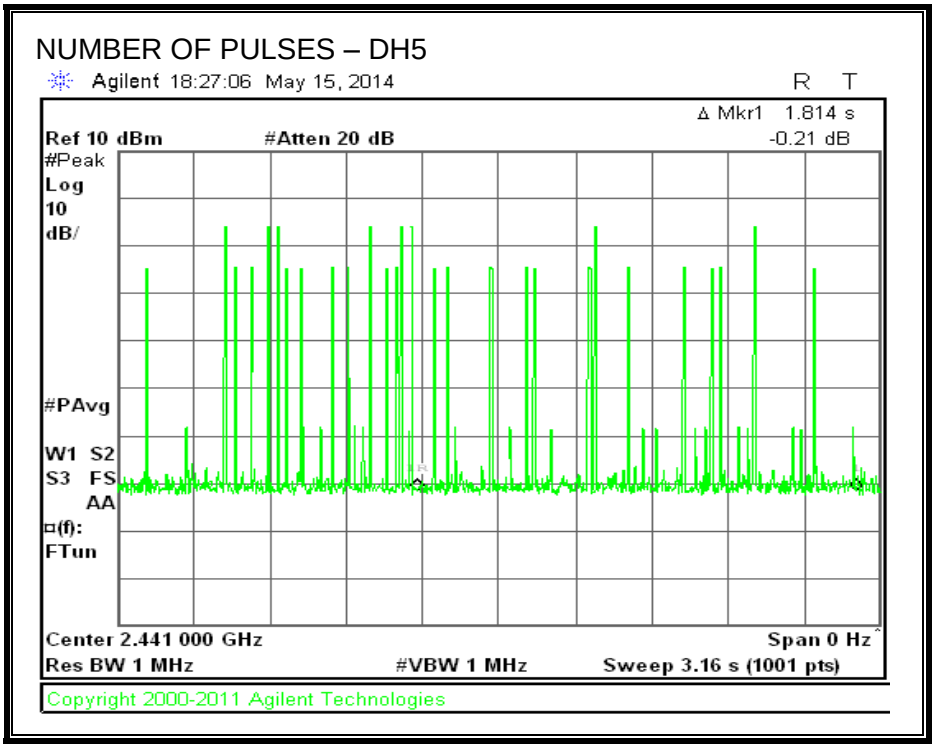
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



8.1.5. 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 10.55dB (including 10 dB pad and .55 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	4.08
Middle	2441	4.01
High	2480	3.92

8.1.6. OUTPUT POWER

LIMIT

§15.247 (b) (1)

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

TEST PROCEDURE

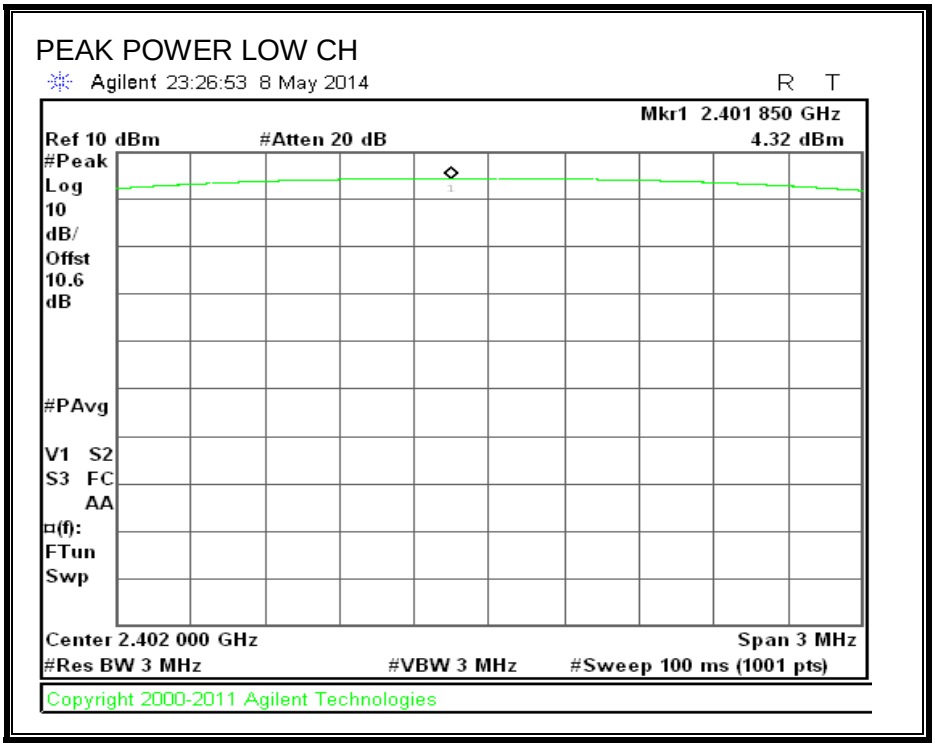
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

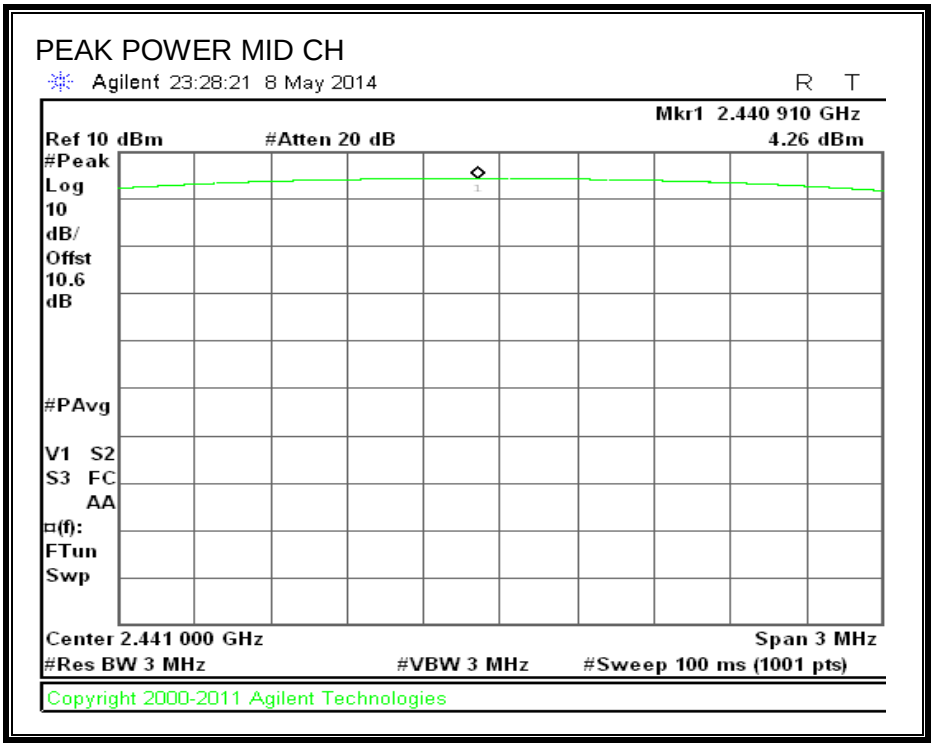
Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.32	30	-25.68
Middle	2441	4.26	30	-25.74
High	2480	4.15	30	-25.85

OUTPUT POWER

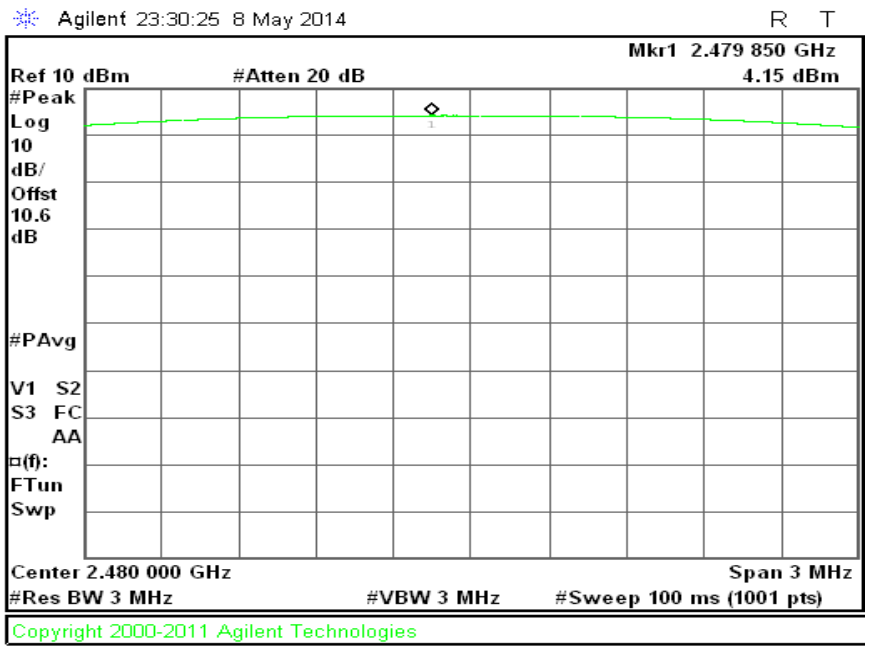
PEAK POWER LOW CH



PEAK POWER MID CH



PEAK POWER HIGH CH



8.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Limit = -20 dBc

TEST PROCEDURE

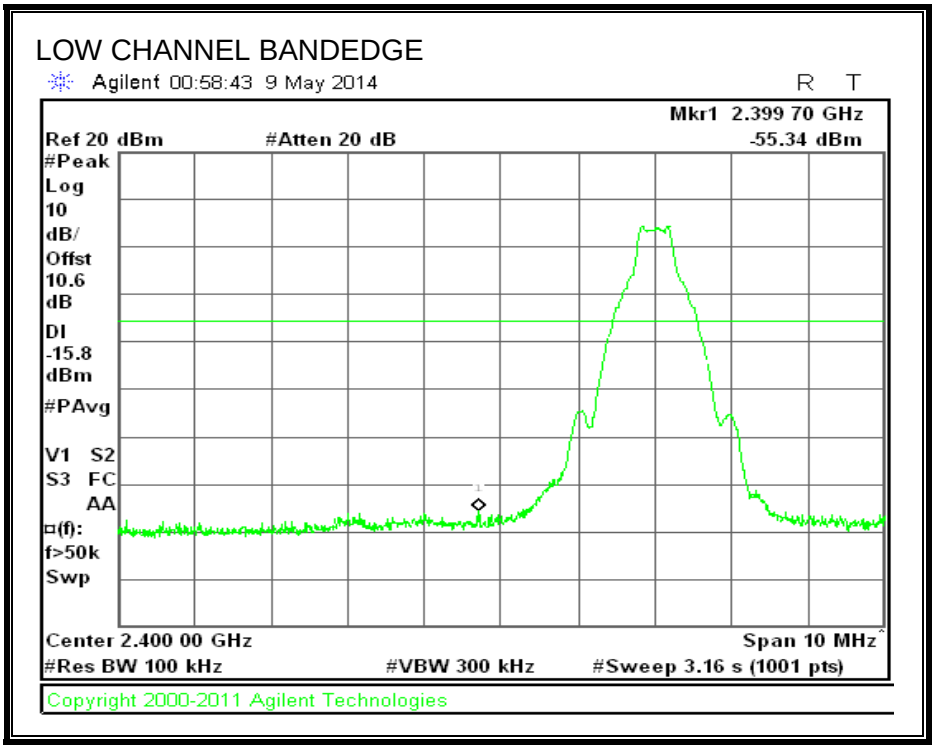
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

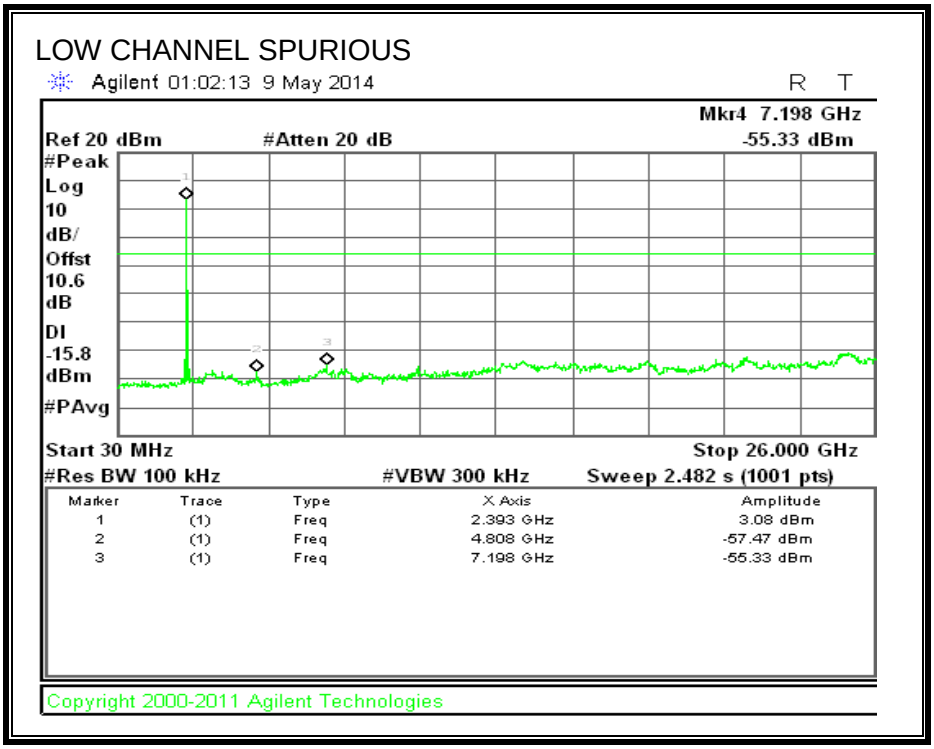
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

RESULTS

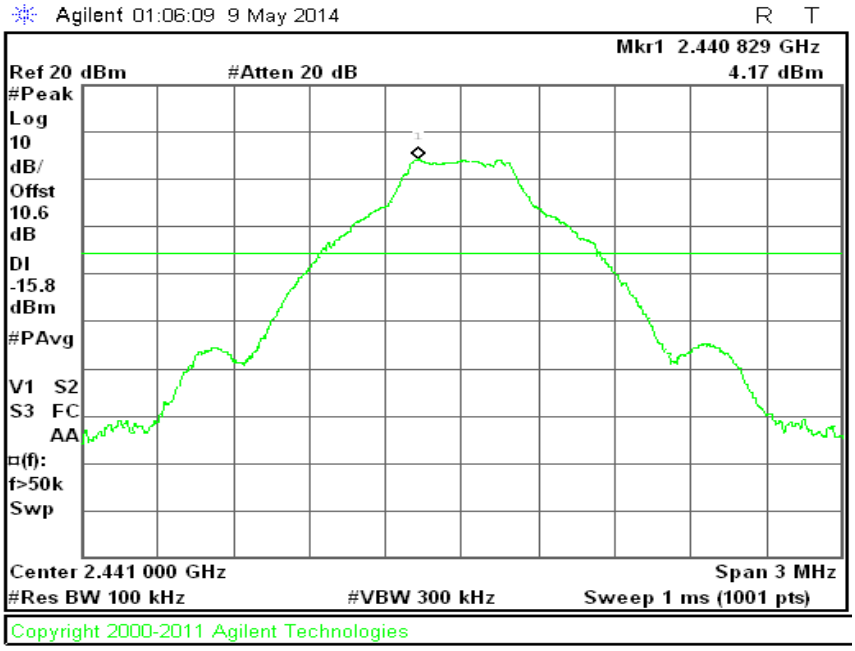
SPURIOUS EMISSIONS, LOW CHANNEL



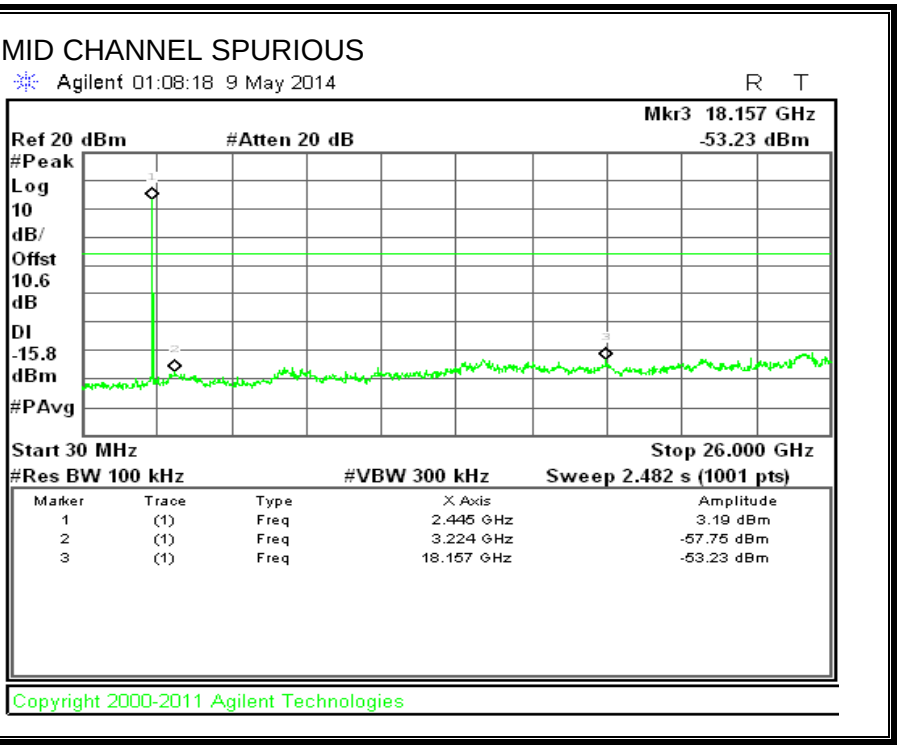


SPURIOUS EMISSIONS, MID CHANNEL

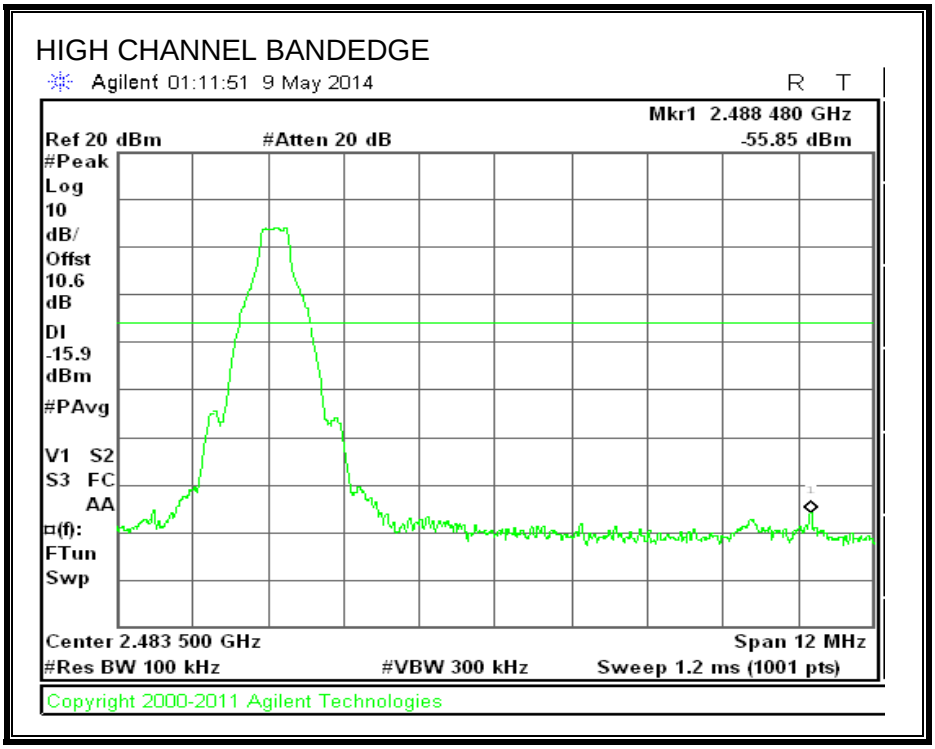
MID CHANNEL REFERENCE

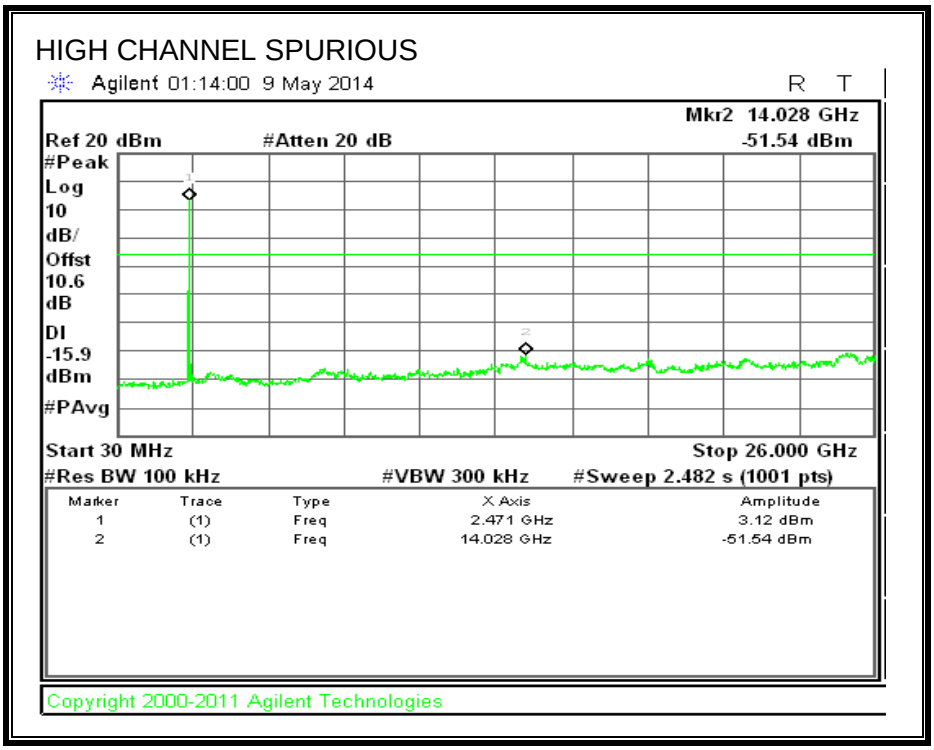


MID CHANNEL SPURIOUS



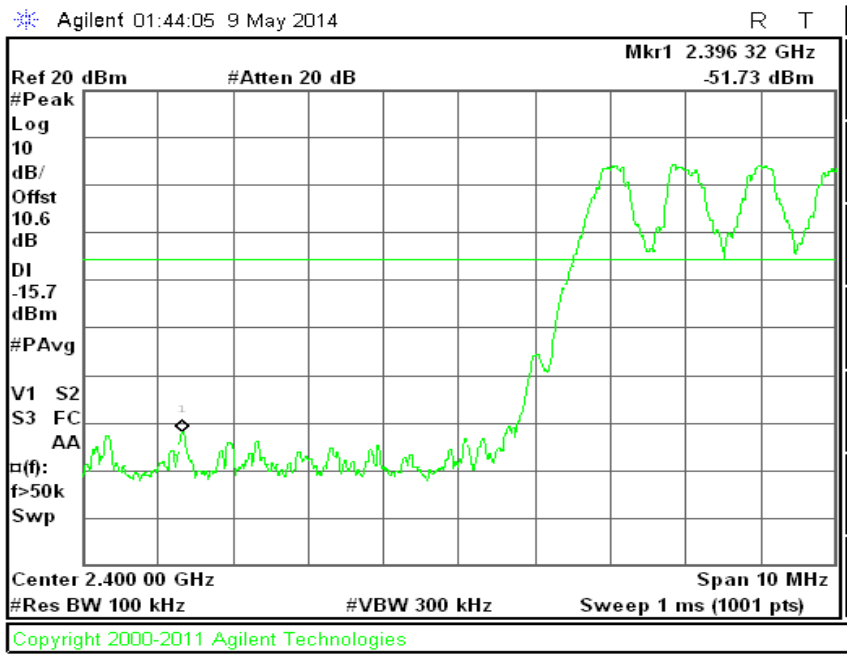
SPURIOUS EMISSIONS, HIGH CHANNEL



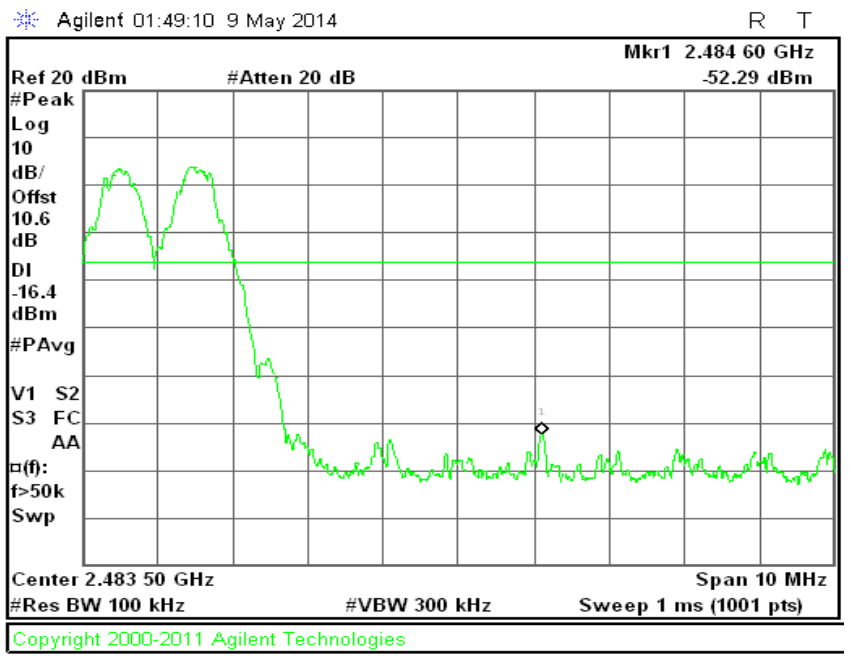


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



8.2. ENHANCED DATA RATE 8PSK MODULATION

8.2.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

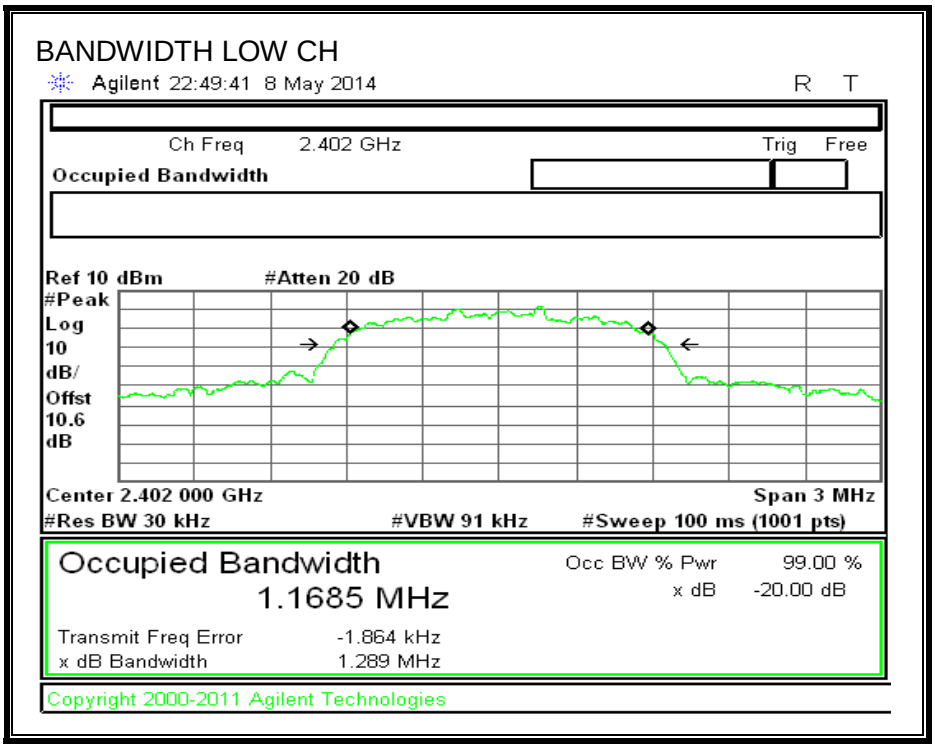
TEST PROCEDURE

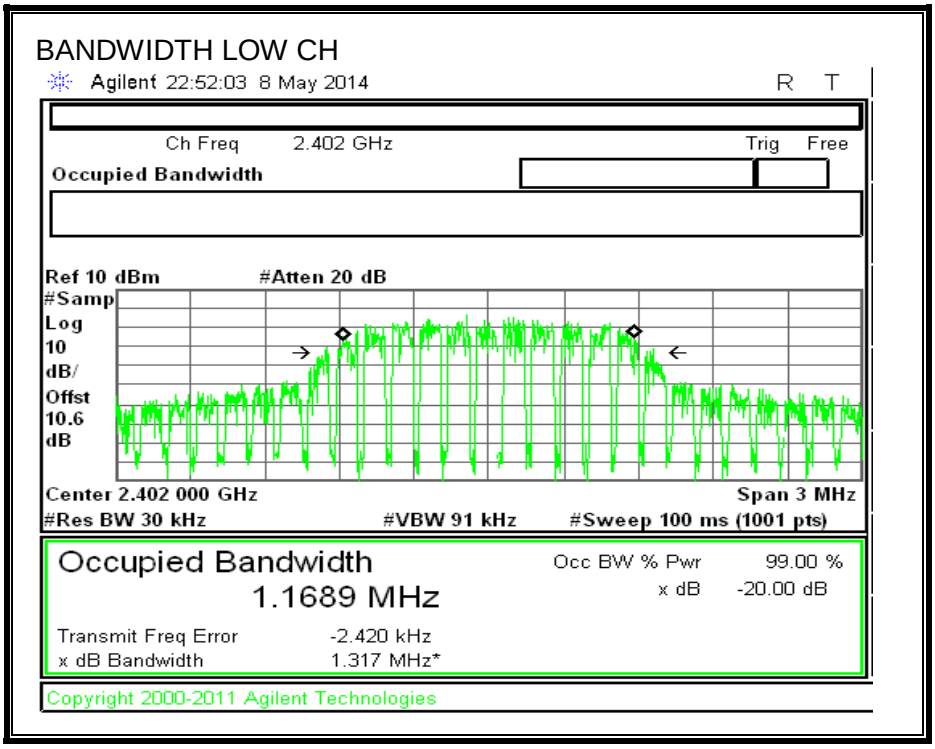
The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

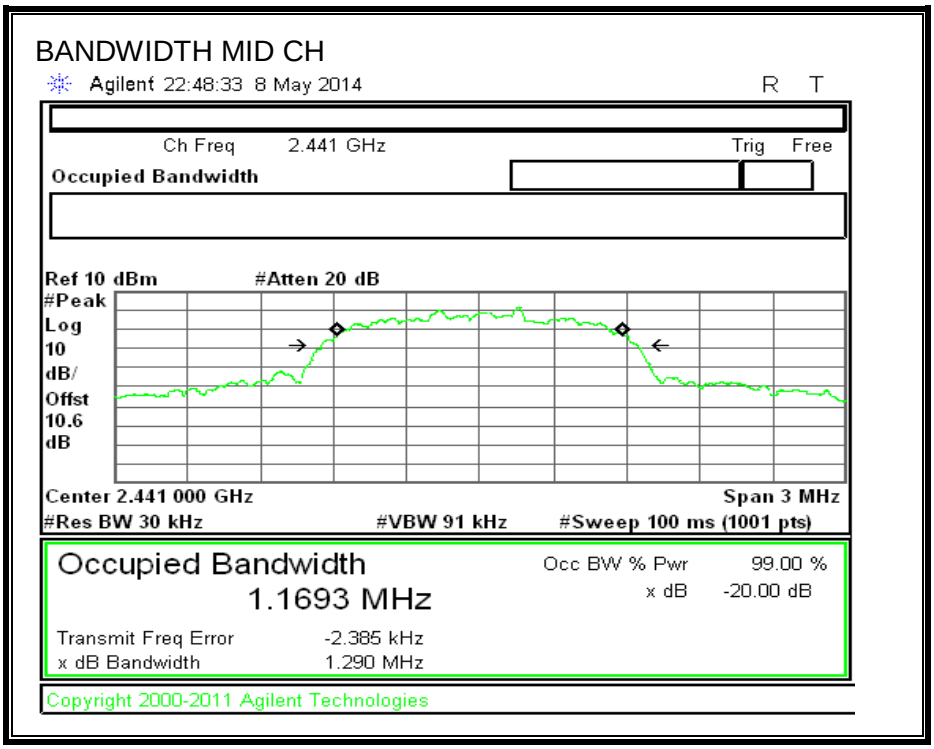
RESULTS

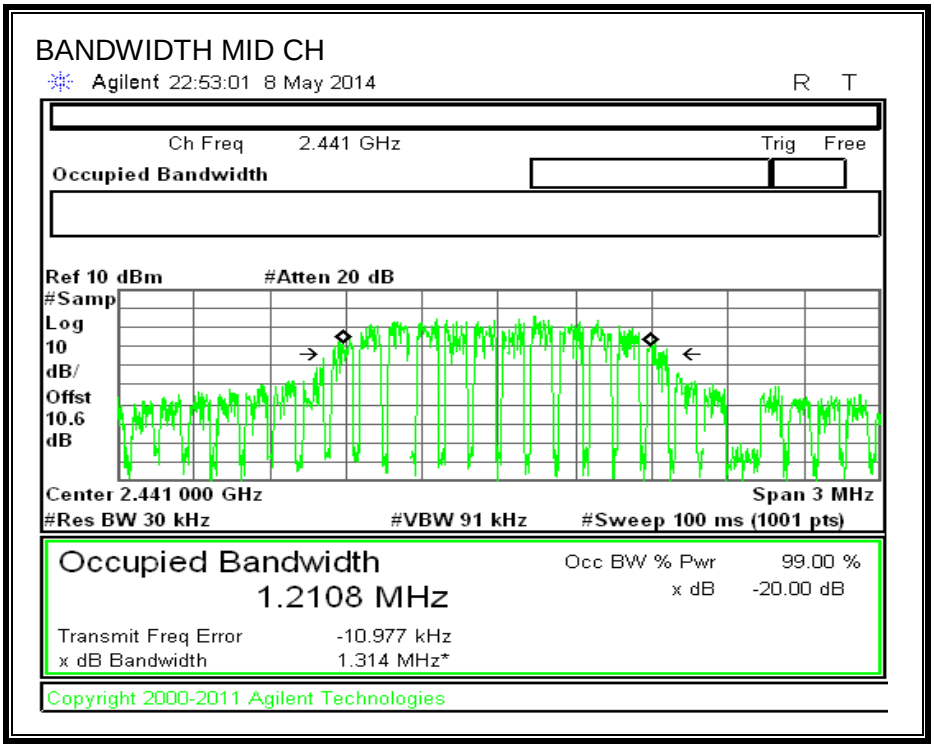
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.289	1.1689
Middle	2441	1.29	1.2108
High	2480	1.289	1.2149

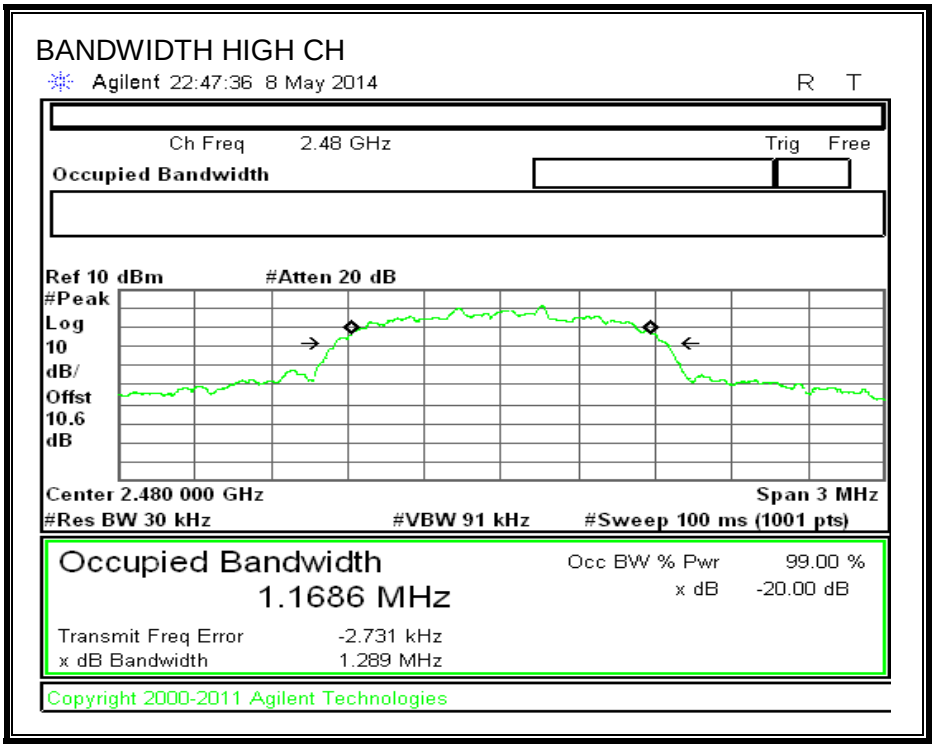
20 dB AND 99% BANDWIDTH

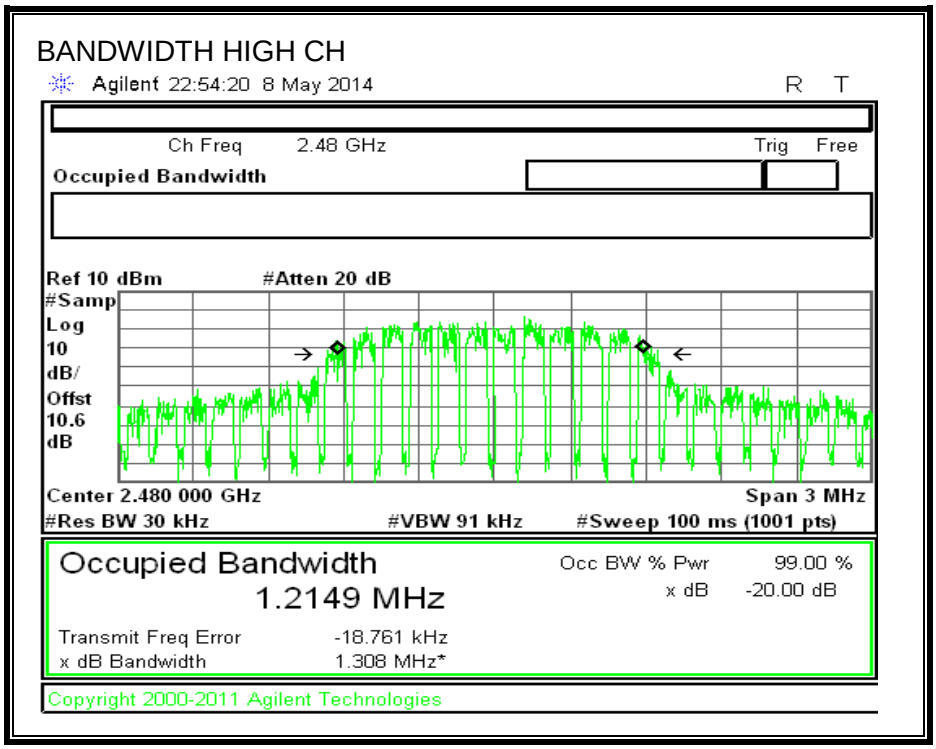












8.2.2. HOPPING FREQUENCY SEPARATION

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.

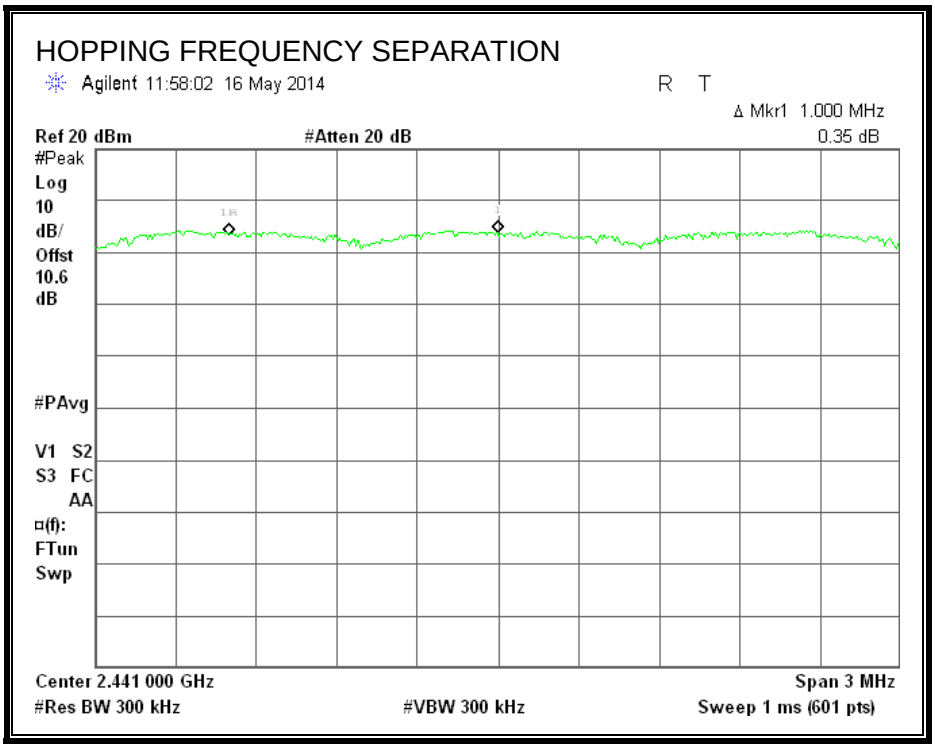
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

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

RESULTS

HOPPING FREQUENCY SEPARATION



8.2.3. 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

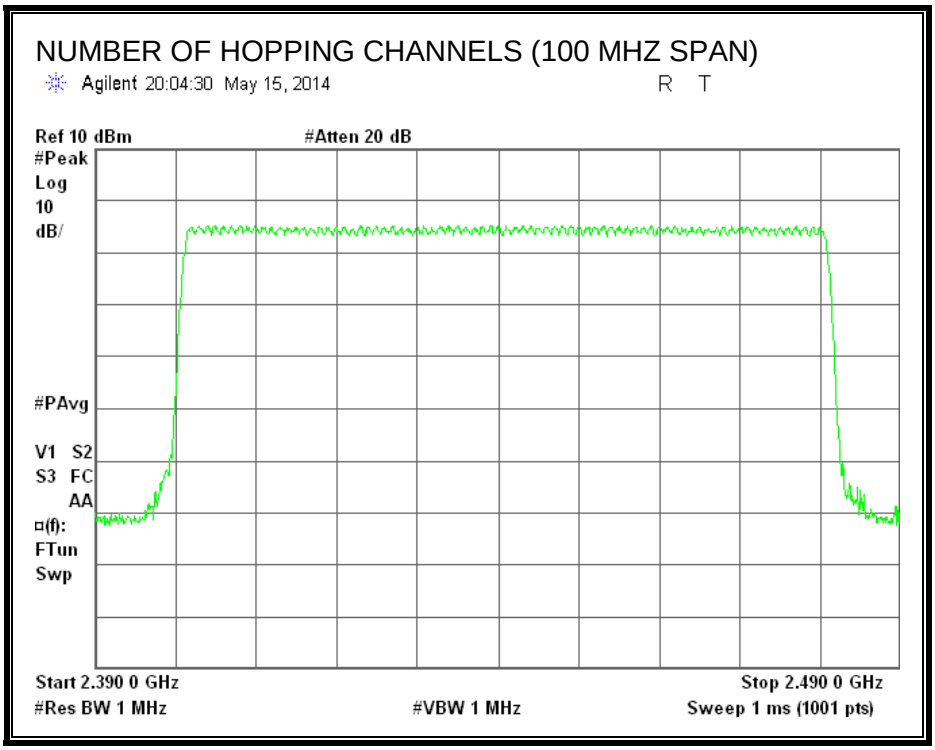
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

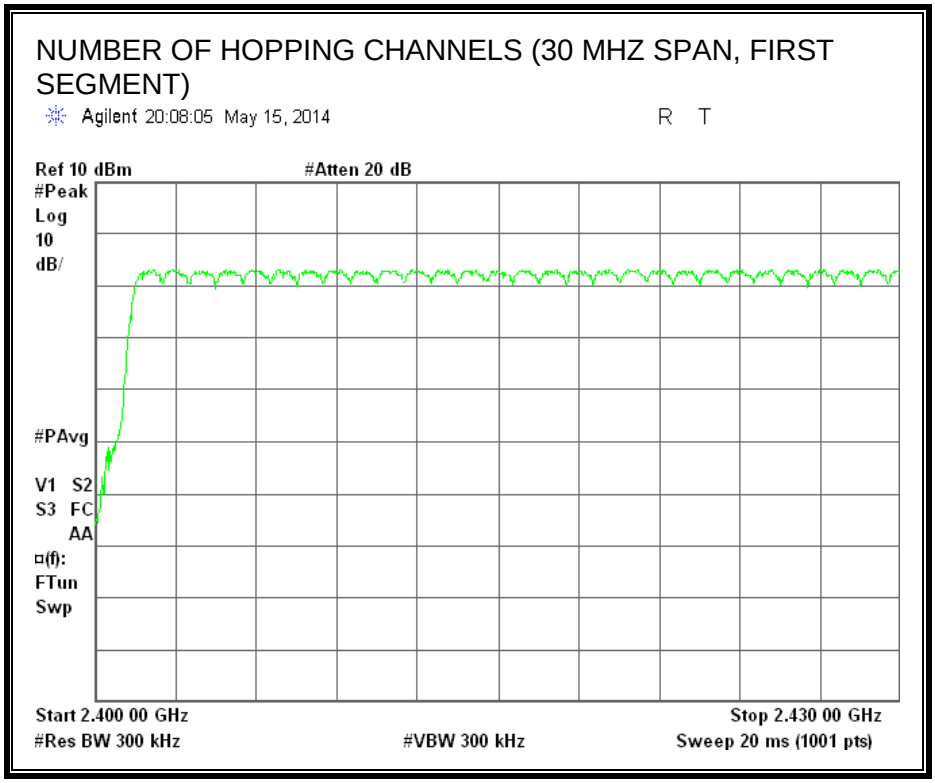
RESULTS

Normal Mode: 79 Channels observed.

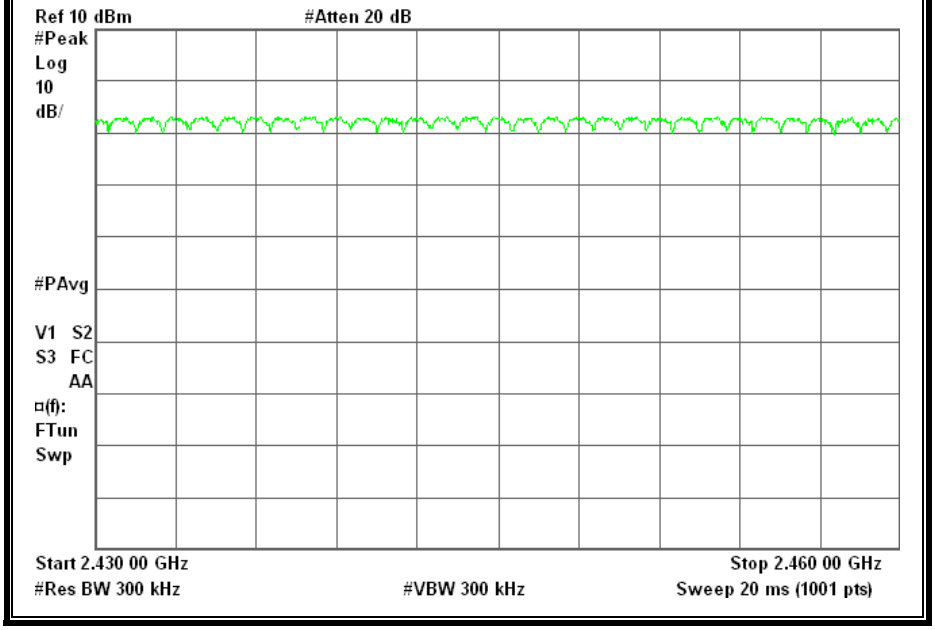
NOTE: Manufacturer declares 20 minimum hopping channels for AFH mode**.**

NUMBER OF HOPPING CHANNELS

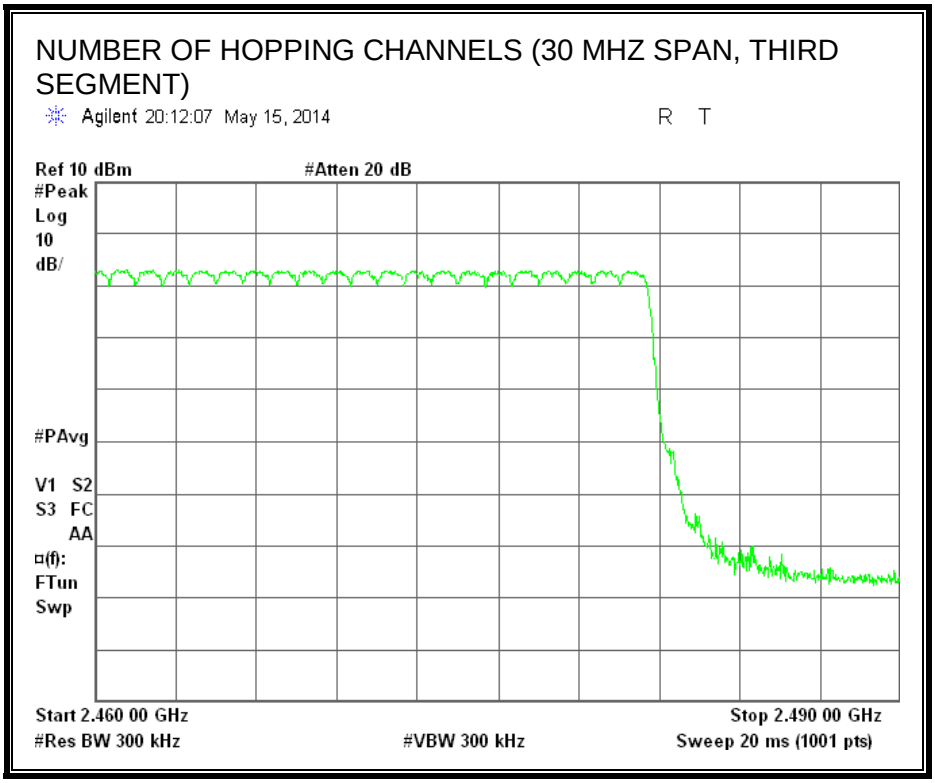




NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, SECOND SEGMENT)



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



8.2.4. 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.

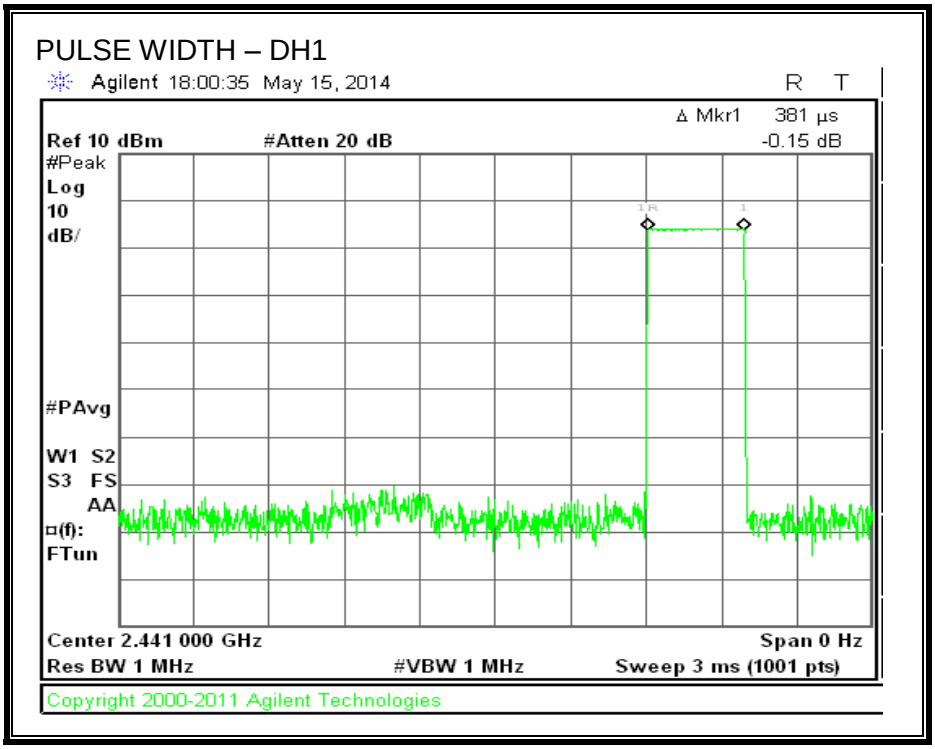
RESULTS

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

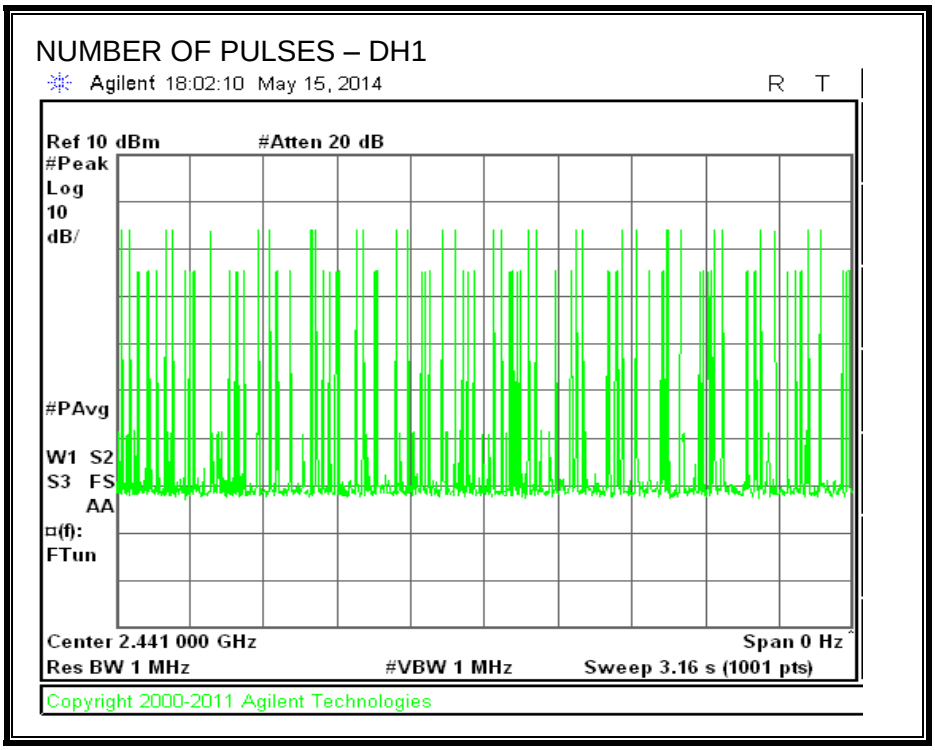
8PSK (EDR) Mode

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of (sec)	Limit (sec)	Margin (sec)
DH1	0.381	32	0.122	0.4	-0.278
DH3	1.605	19	0.305	0.4	-0.095
DH5	2.85	10	0.285	0.4	-0.115

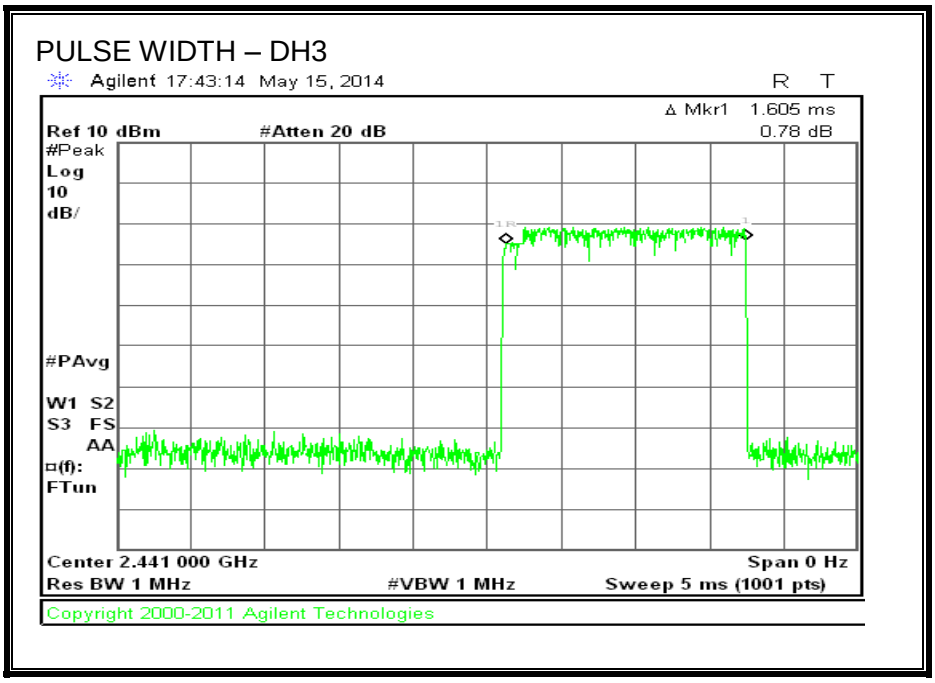
PULSE WIDTH - DH1



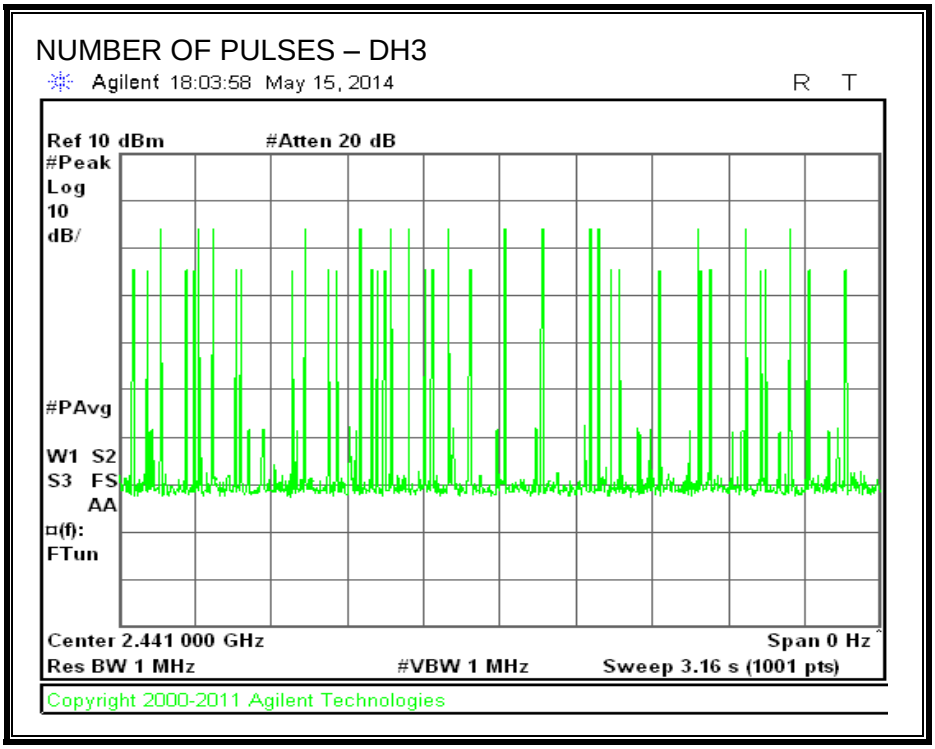
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



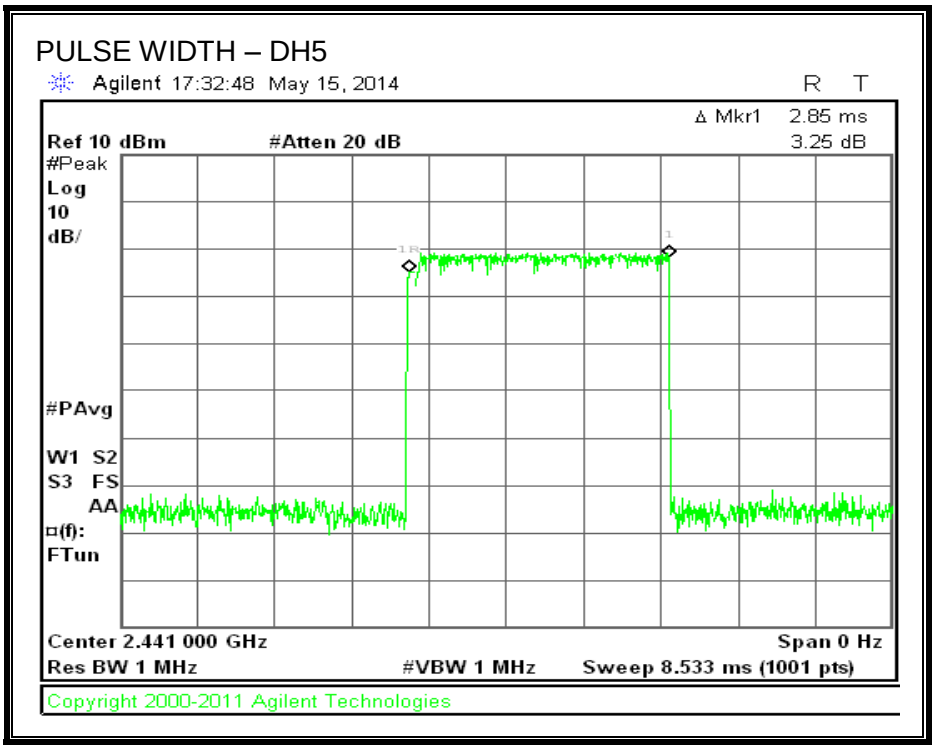
PULSE WIDTH – DH3



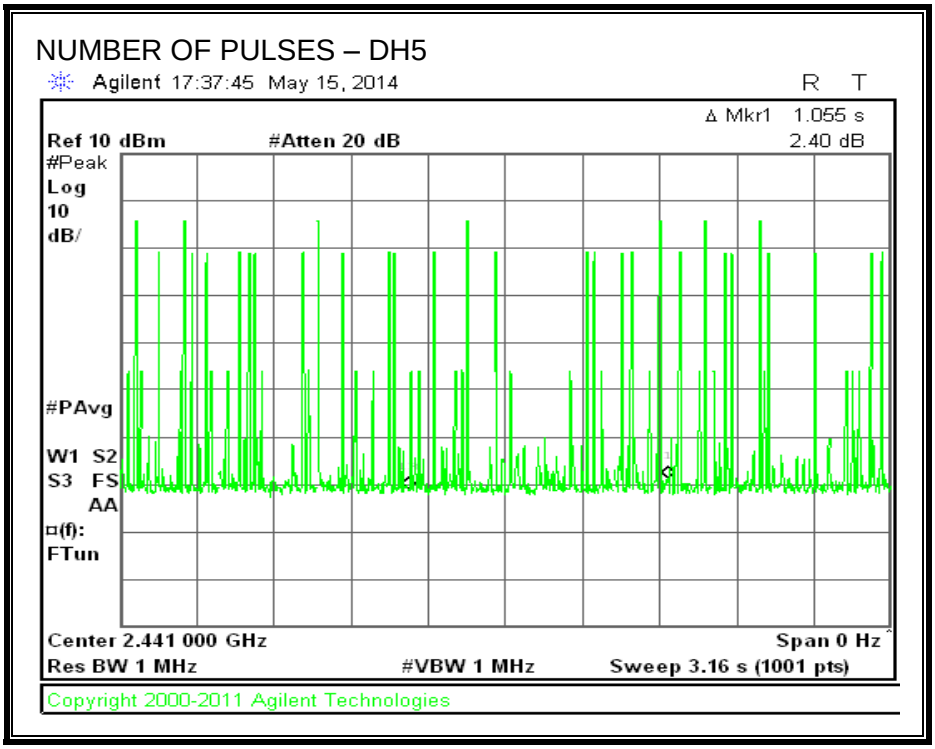
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



8.2.5. 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 10.55 dB (including 10 dB pad and .55 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	3.82
Middle	2441	3.70
High	2480	3.57

8.2.6. 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

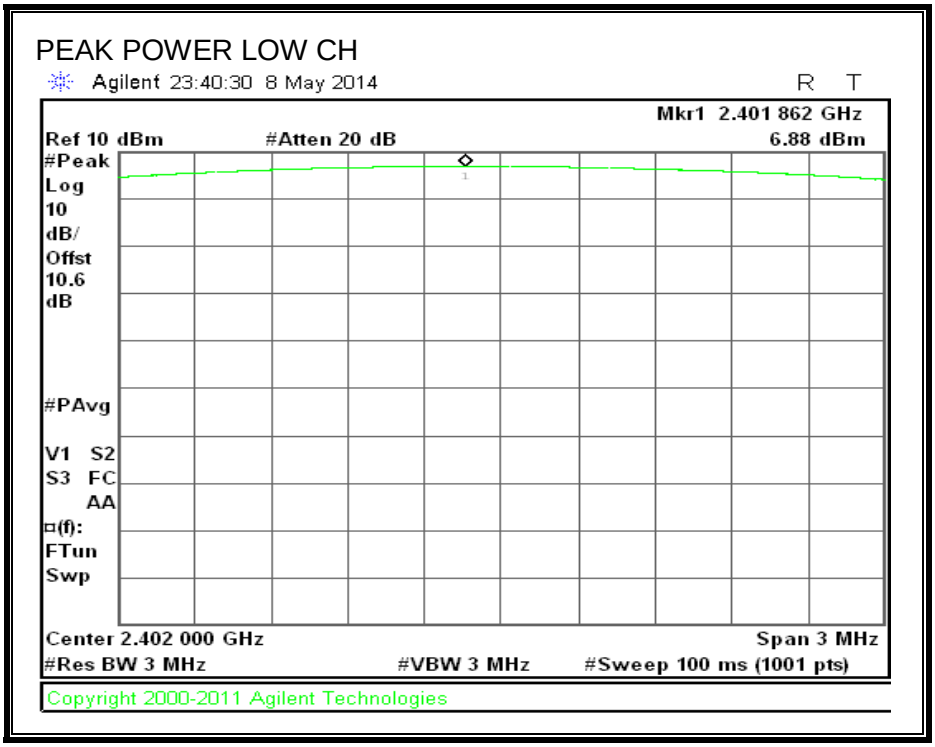
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

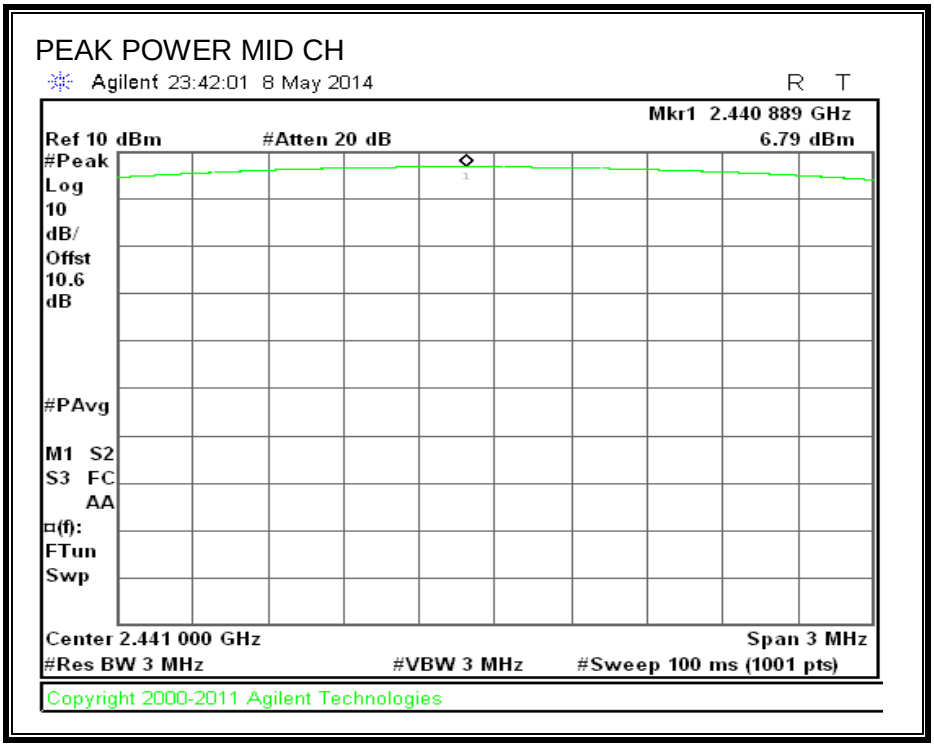
Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	6.88	30	-23.12
Middle	2441	6.79	30	-23.21
High	2480	6.63	30	-23.37

OUTPUT POWER

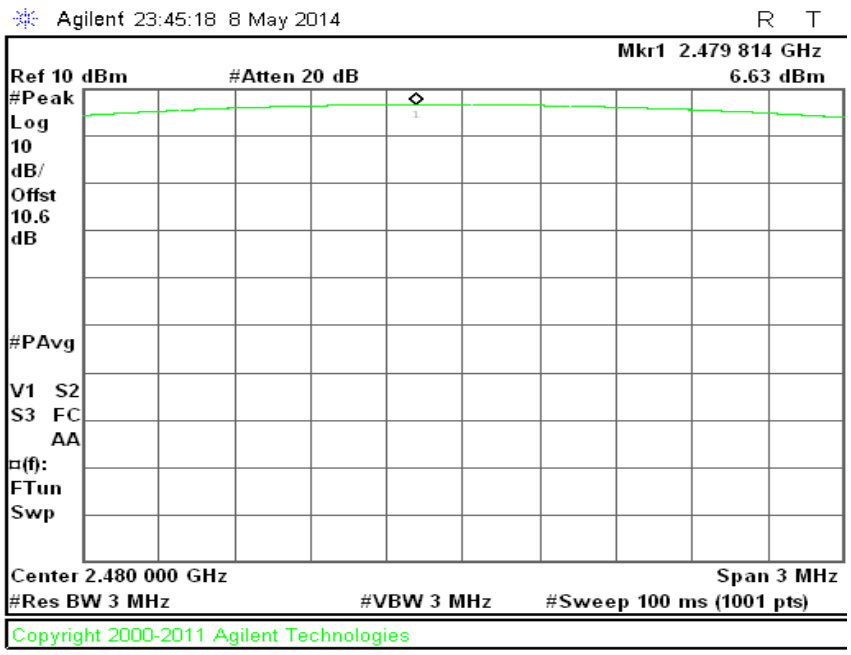
PEAK POWER LOW CH



PEAK POWER MID CH



PEAK POWER HIGH CH



8.2.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

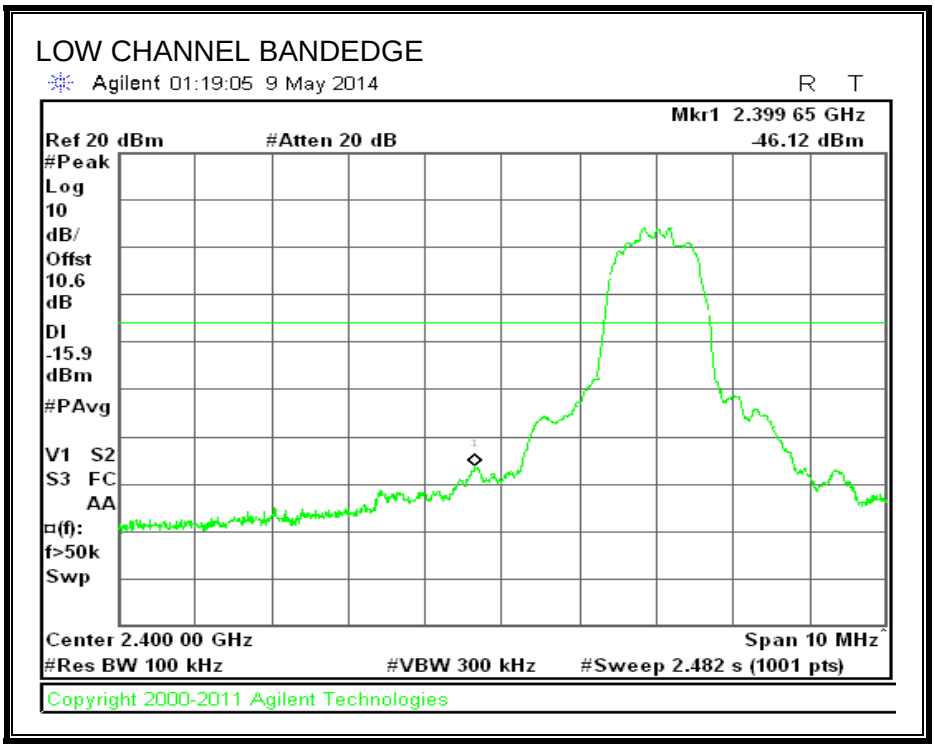
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

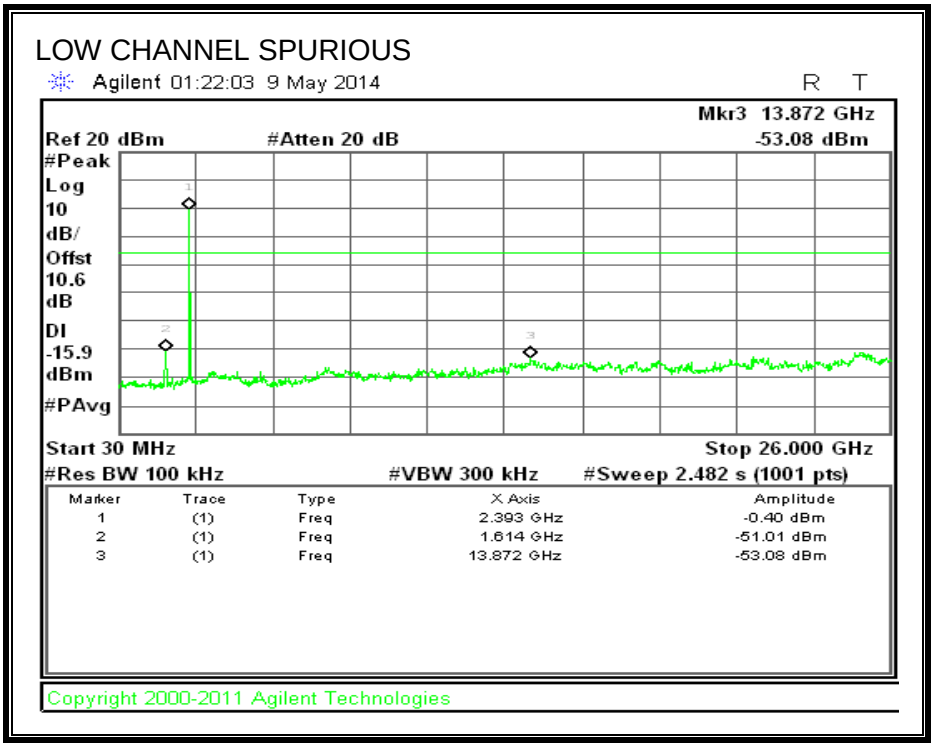
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

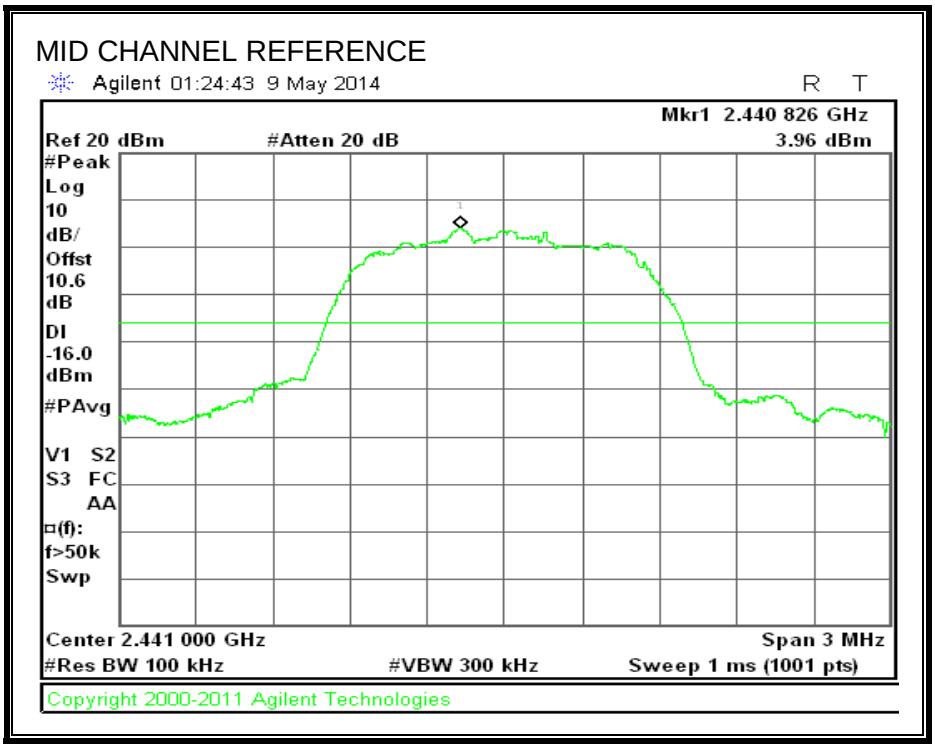
RESULTS

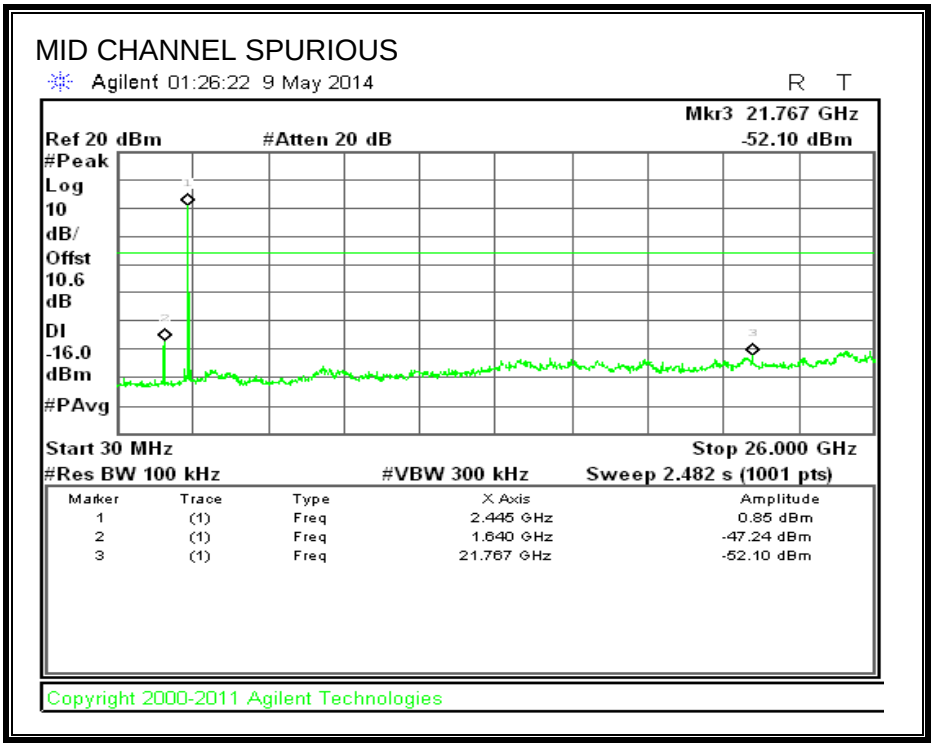
SPURIOUS EMISSIONS, LOW CHANNEL



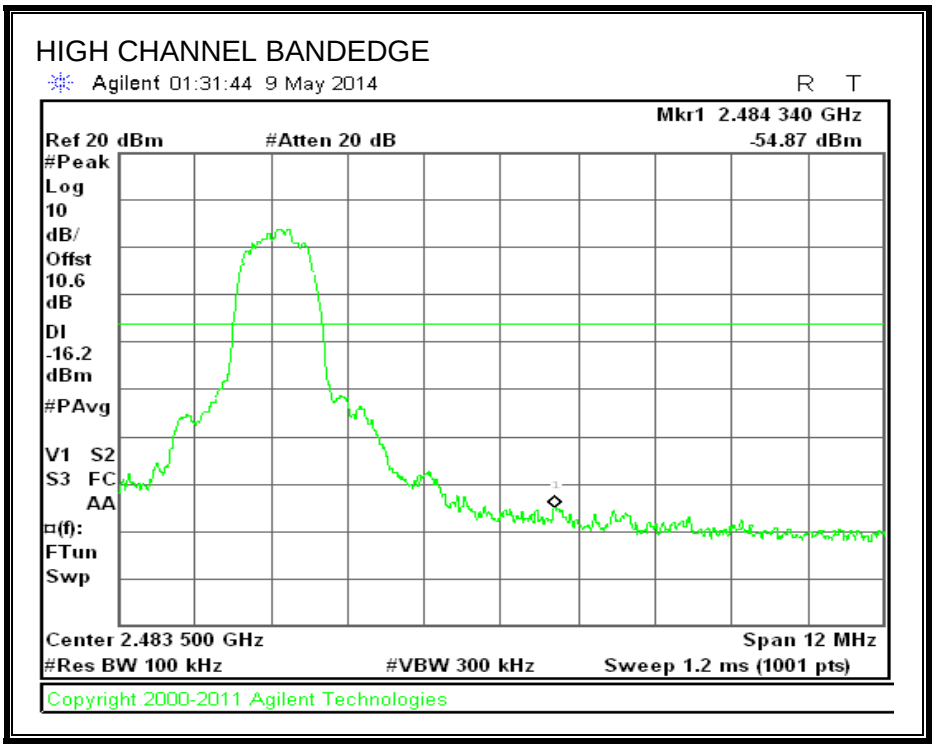


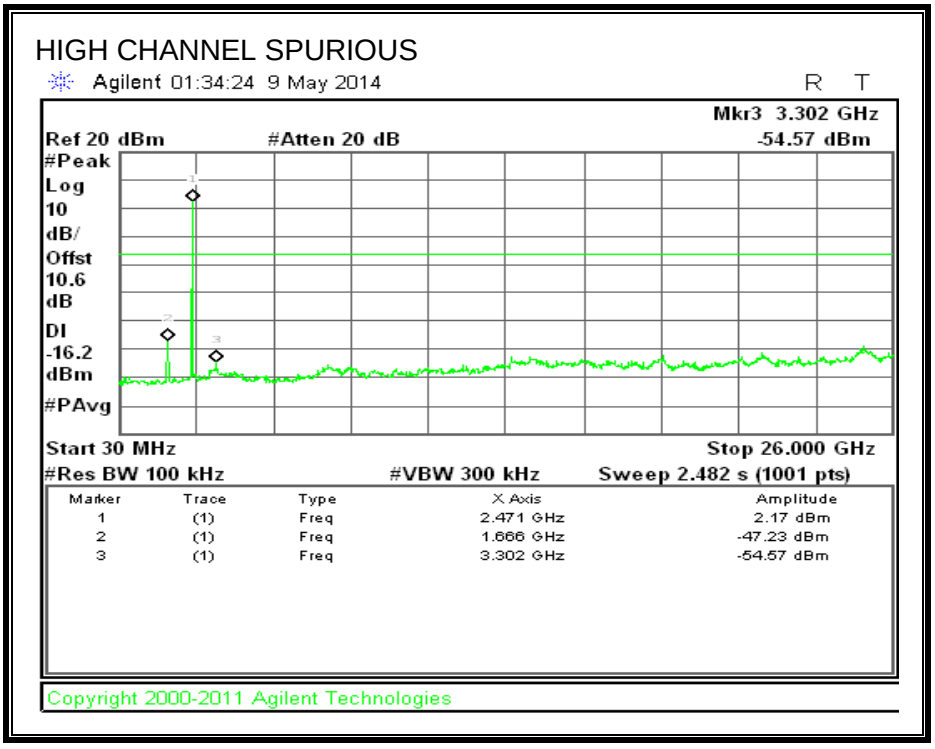
SPURIOUS EMISSIONS, MID CHANNEL





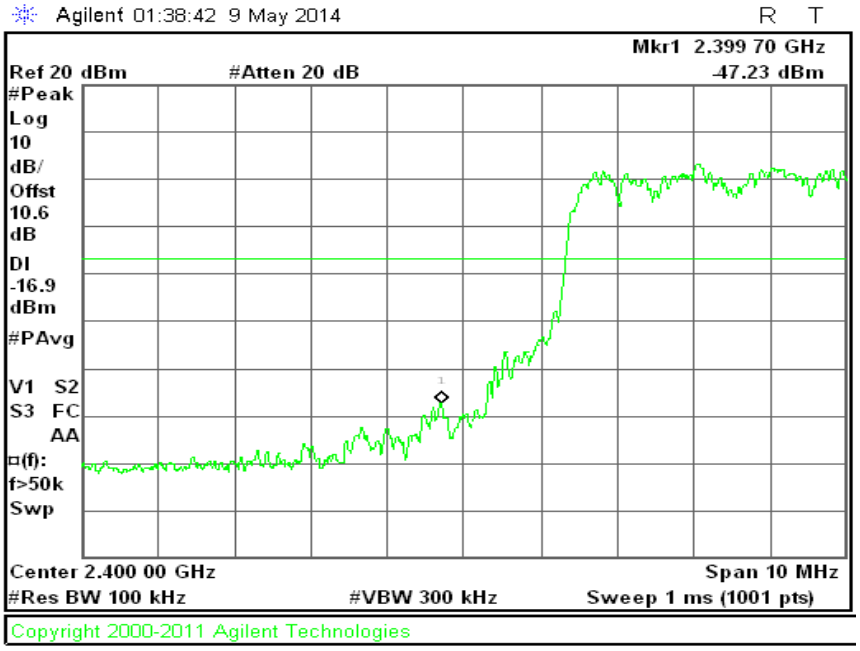
SPURIOUS EMISSIONS, HIGH CHANNEL



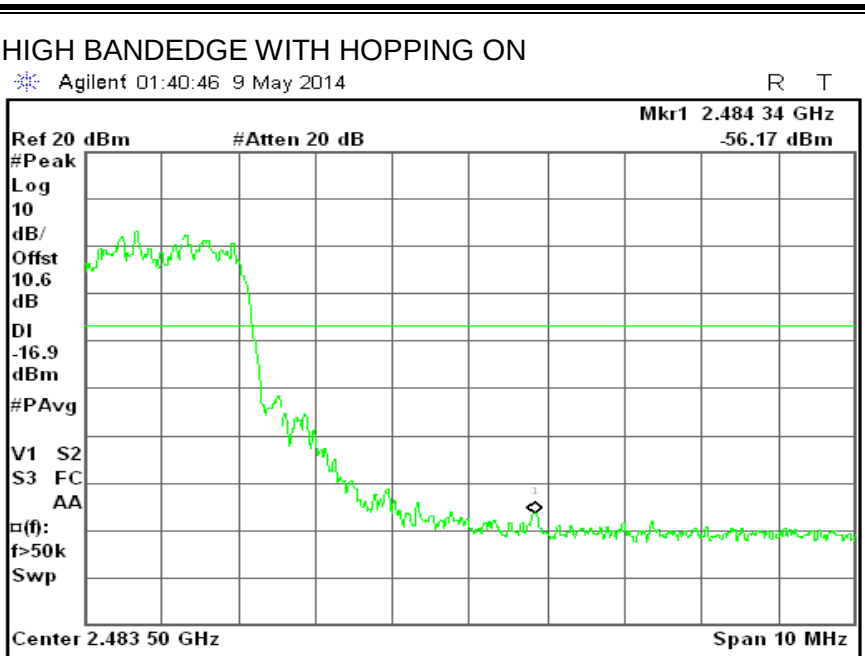


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



9. RADIATED TEST RESULTS

9.1. 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 3 MHz for peak measurements and 1 MHz resolution bandwidth with 3MHz video bandwidth with average detector 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.

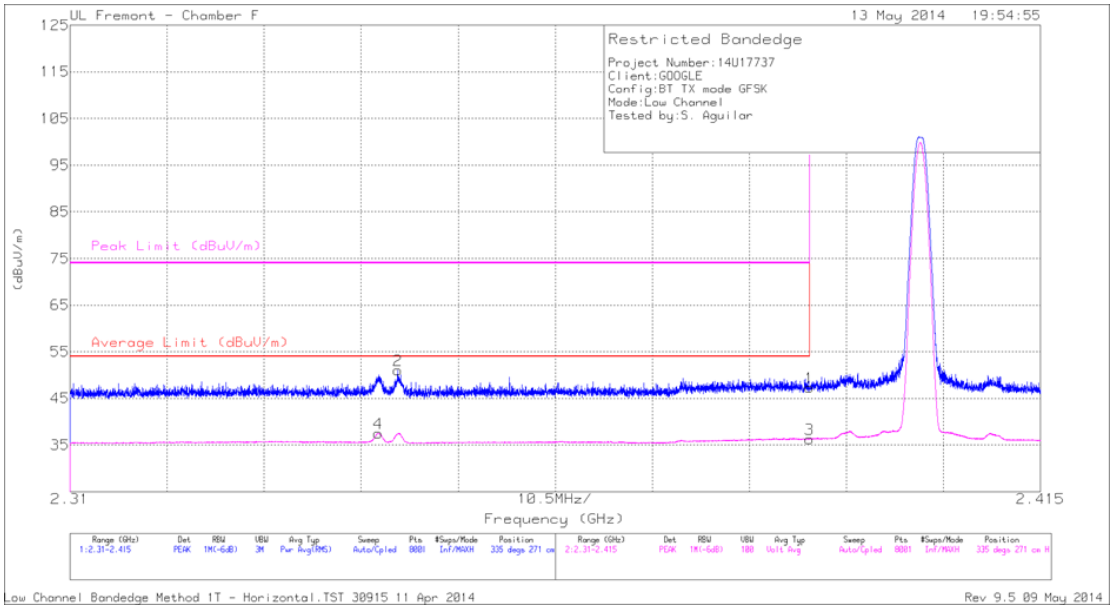
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL PLOT



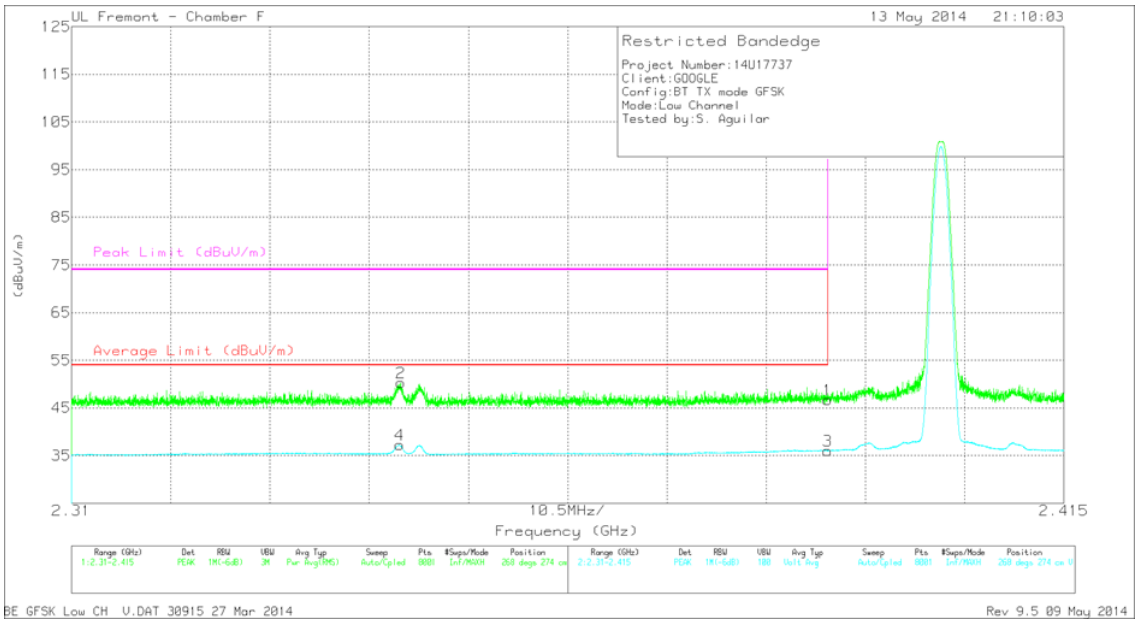
DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	38.91	PK	32.2	-23.8	1.2	48.51	-	-	74	-25.49	335	271	H
2	* 2.345	42.64	PK	32	-23.6	1.2	52.24	-	-	74	-21.76	335	271	H
3	* 2.39	27.84	VB1T	32.2	-23.8	1.2	37.44	54	-16.56	-	-	335	271	H
4	* 2.343	29.15	VB1T	32	-23.6	1.2	38.75	54	-15.25	-	-	335	271	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

LOW CHANNEL VERTICAL PLOT



DATA

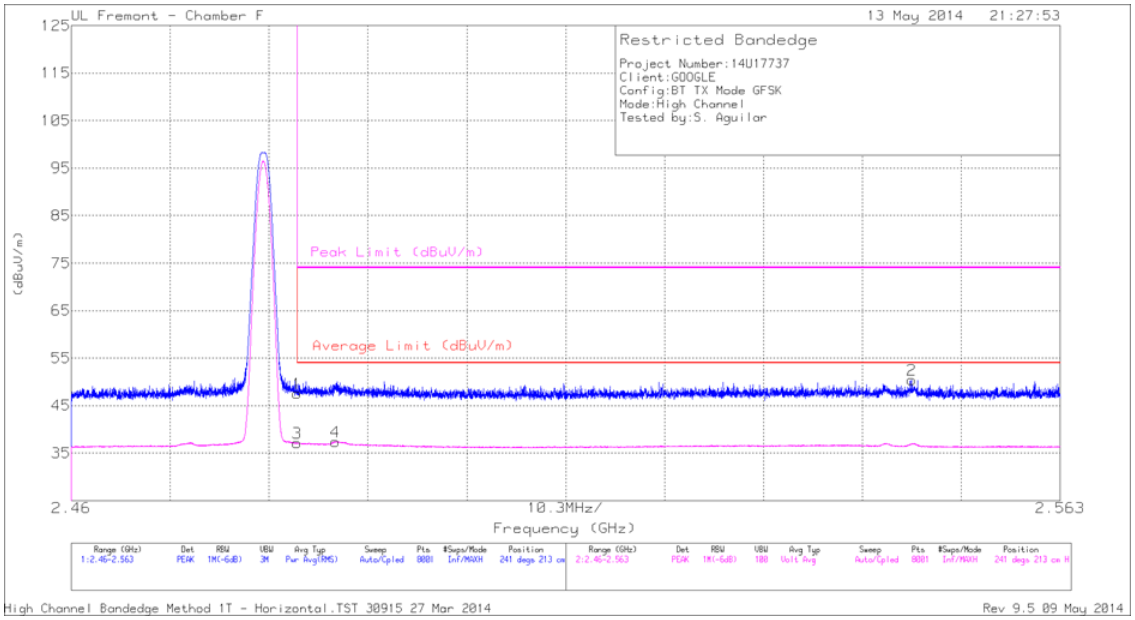
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	38.32	PK	32.2	-23.8	1.2	47.92	-	-	74	-26.08	268	274	V
2	* 2.345	41.9	PK	32	-23.6	1.2	51.5	-	-	74	-22.5	268	274	V
3	* 2.39	27.56	VB1T	32.2	-23.8	1.2	37.16	54	-16.84	-	-	268	274	V
4	* 2.345	28.86	VB1T	32	-23.6	1.2	38.46	54	-15.54	-	-	268	274	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

RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL PLOT



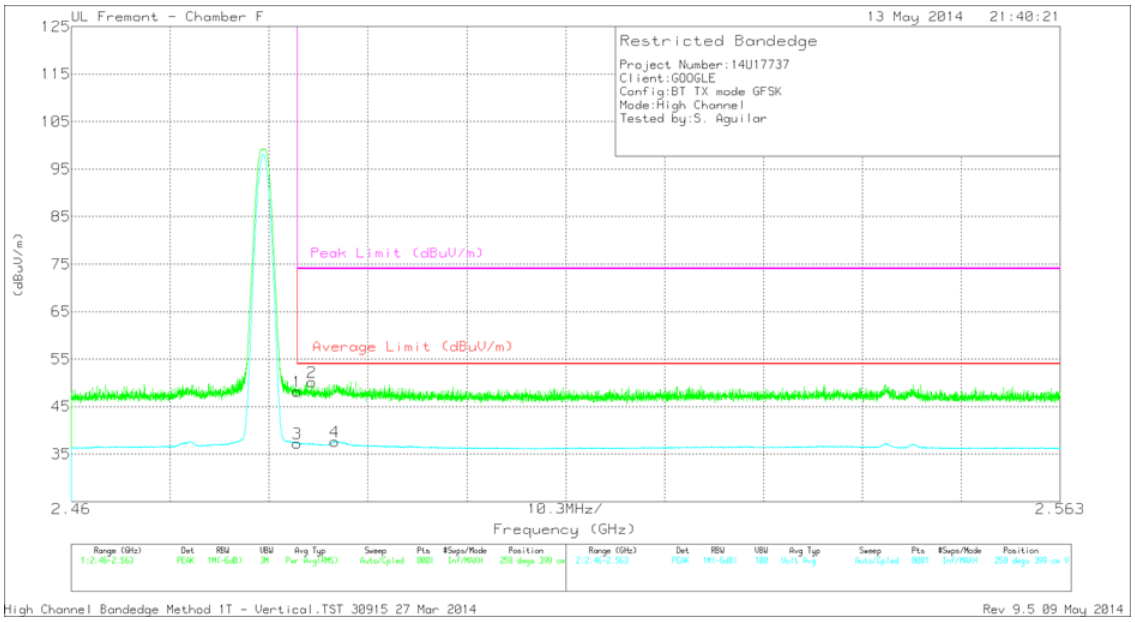
DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	37.99	PK	32.6	-23	1.2	48.79	-	-	74	-25.21	241	213	H
2	2.548	40.77	PK	32.7	-23.1	1.2	51.57	-	-	74	-22.43	241	213	H
3	* 2.484	27.48	VB1T	32.6	-23	1.2	38.28	54	-15.72	-	-	241	213	H
4	* 2.487	27.63	VB1T	32.6	-22.8	1.2	38.63	54	-15.37	-	-	241	213	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

HIGH CHANNEL VERTICAL PLOT



DATA

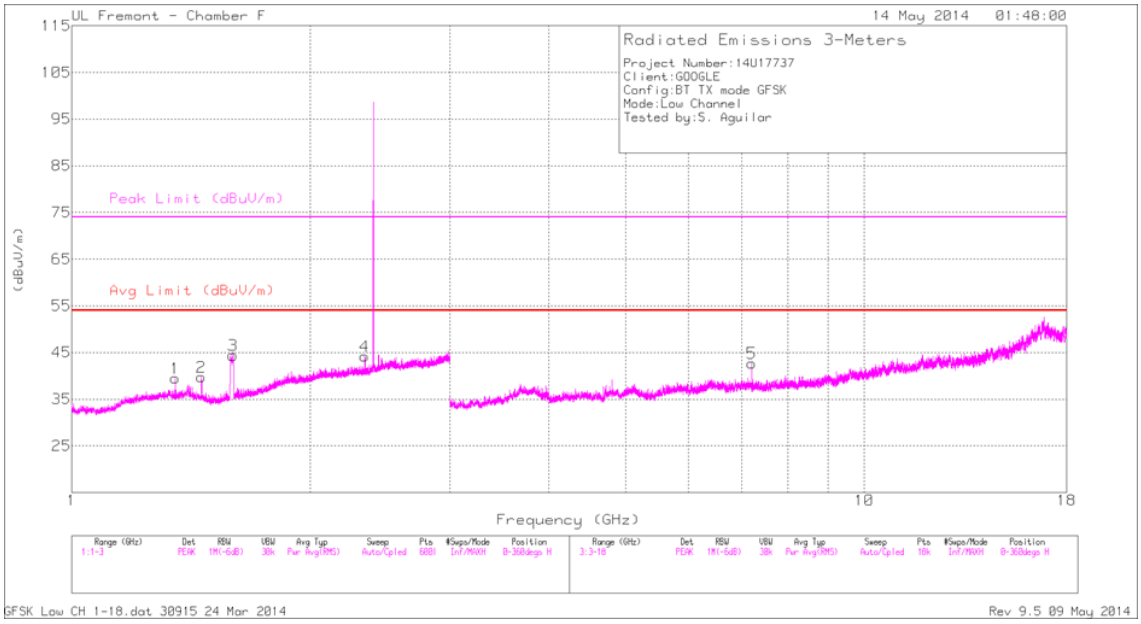
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	38.53	PK	32.6	-23	1.2	49.33	-	-	74	-24.67	258	399	V
2	* 2.485	40.5	PK	32.6	-22.9	1.2	51.4	-	-	74	-22.6	258	399	V
3	* 2.484	27.63	VB1T	32.6	-23	1.2	38.43	54	-15.57	-	-	258	399	V
4	* 2.487	27.86	VB1T	32.6	-22.8	1.2	38.86	54	-15.14	-	-	258	399	V

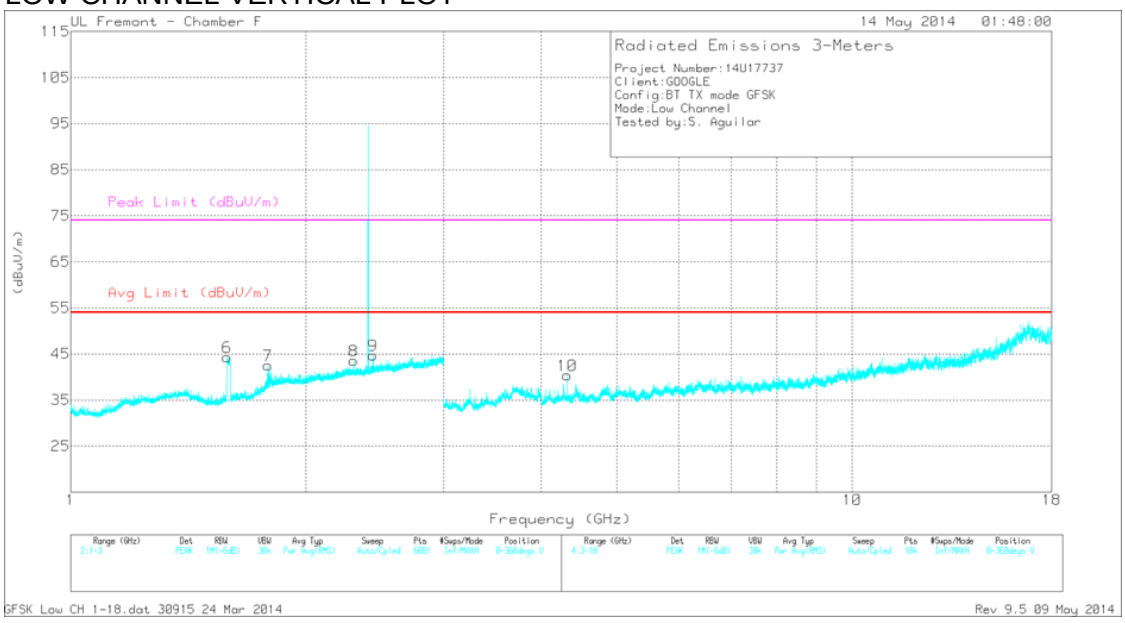
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Trace Markers

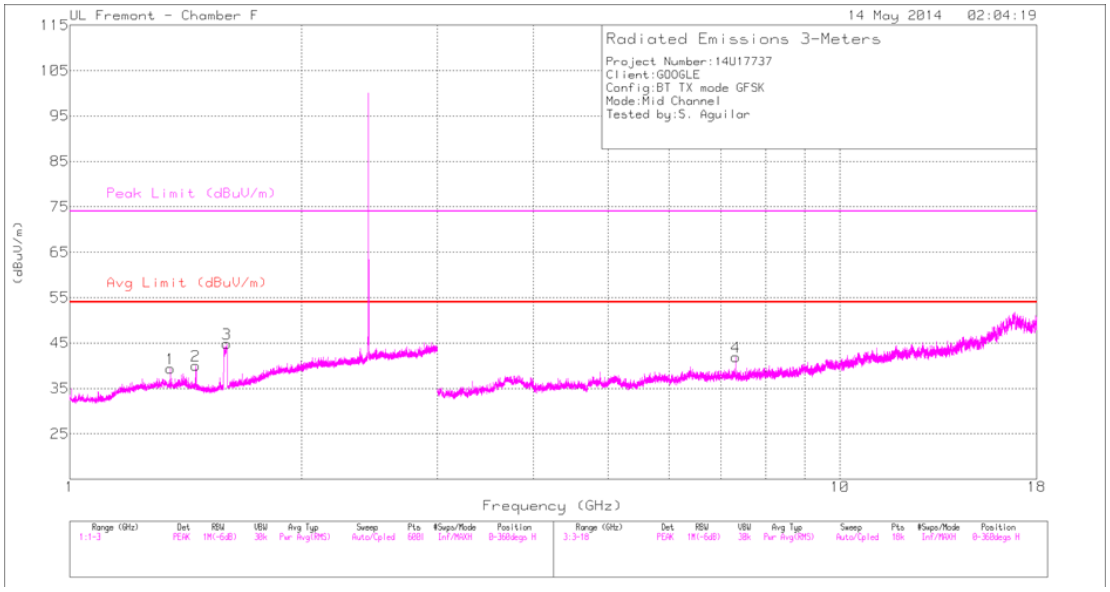
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	36.28	PK	29.6	-26.4	1.2	40.68	54	-13.32	74	-33.32	0-360	200	H
2	* 1.458	36.88	PK	28.7	-25.8	1.2	40.98	54	-13.02	74	-33.02	0-360	101	H
3	* 1.597	41.3	PK	28.5	-25.4	1.2	45.6	54	-8.4	74	-28.4	0-360	200	H
4	* 2.343	35.79	PK	32	-23.6	1.2	45.39	54	-8.61	74	-28.61	0-360	101	H
6	* 1.584	41.38	PK	28.5	-25.6	1.2	45.48	54	-8.52	74	-28.52	0-360	101	V
7	1.789	37.31	PK	30.1	-24.8	1.2	43.81	-	-	-	-	0-360	201	V
8	* 2.3	35.32	PK	31.8	-23.5	1.2	44.82	54	-9.18	74	-29.18	0-360	201	V
9	2.438	35.77	PK	32.4	-23.5	1.2	45.87	-	-	-	-	0-360	101	V
5	7.206	34.04	PK	35.5	-26.8	1.2	43.94	-	-	-	-	0-360	101	H
10	* 4.32	35.54	PK	33.7	-28.9	1.2	41.54	54	-12.46	74	-32.46	0-360	101	V

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

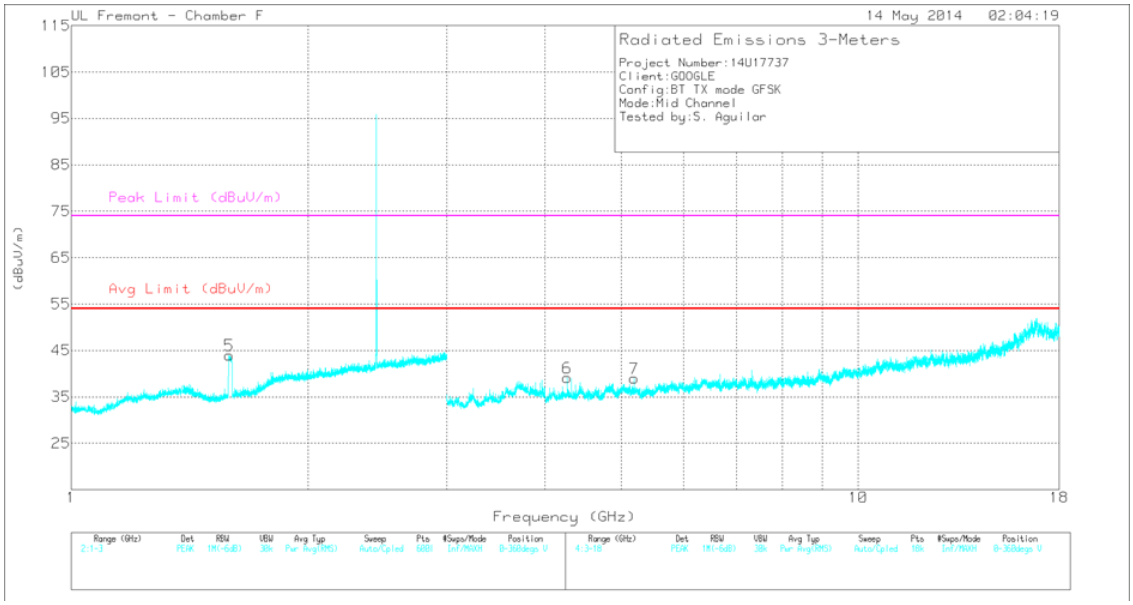
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Trace Markers

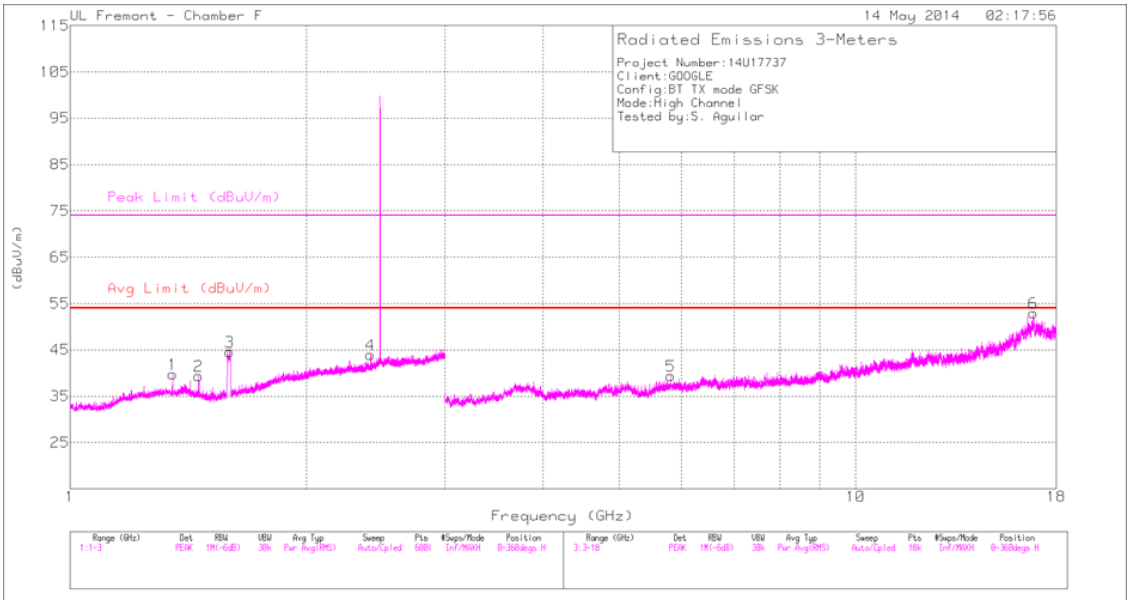
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	36.18	PK	29.6	-26.4	1.2	40.58	54	-13.42	74	-33.42	0-360	199	H
2	* 1.458	37.17	PK	28.7	-25.8	1.2	41.27	54	-12.73	74	-32.73	0-360	199	H
3	* 1.6	41.74	PK	28.5	-25.4	1.2	46.04	54	-7.96	74	-27.96	0-360	199	H
5	* 1.587	41.01	PK	28.5	-25.5	1.2	45.21	54	-8.79	74	-28.79	0-360	101	V
4	* 7.322	32.97	PK	35.6	-26.7	1.2	43.07	54	-10.93	74	-30.93	0-360	101	H
6	* 4.266	34.25	PK	33.7	-28.8	1.2	40.35	54	-13.65	74	-33.65	0-360	201	V
7	5.192	32.73	PK	34.4	-28.1	1.2	40.23	-	-	-	-	0-360	101	V

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

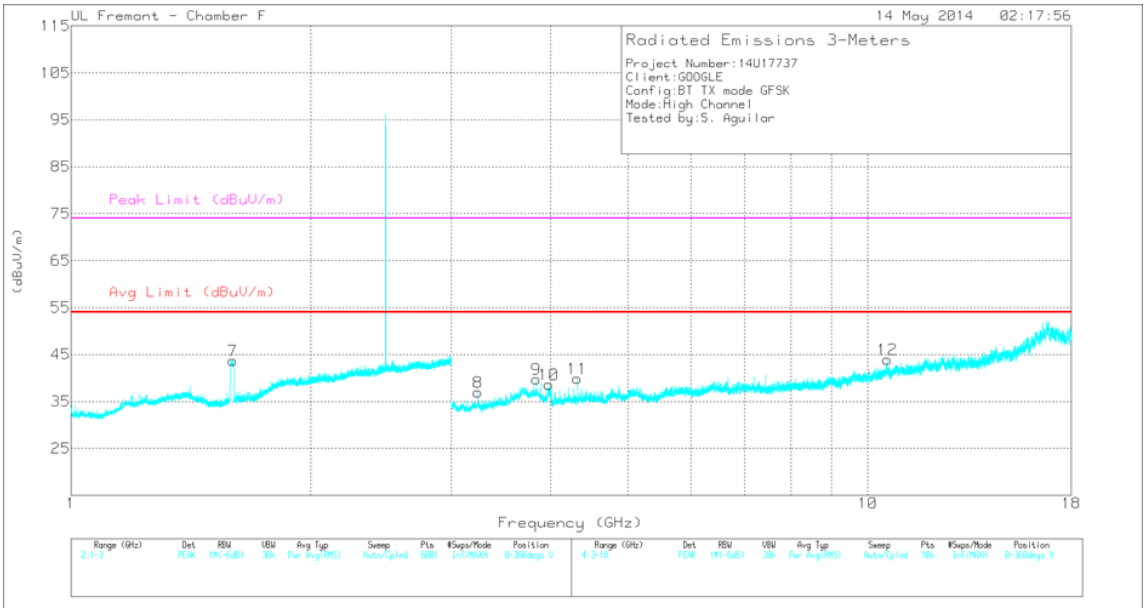
Note: Emissions were scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	36.52	PK	29.6	-26.4	1.2	40.92	54	-13.08	74	-33.08	0-360	200	H
2	* 1.458	36.49	PK	28.7	-25.8	1.2	40.59	54	-13.41	74	-33.41	0-360	200	H
3	* 1.596	41.48	PK	28.5	-25.4	1.2	45.78	54	-8.22	74	-28.22	0-360	200	H
4	2.413	35.44	PK	32.3	-23.8	1.2	45.14	-	-	-	-	0-360	101	H
7	* 1.596	40.6	PK	28.5	-25.4	1.2	44.9	54	-9.1	74	-29.1	0-360	101	V
5	5.817	32.01	PK	35	-27.6	1.2	40.61	-	-	-	-	0-360	101	H
6	16.842	27.21	PK	41.5	-15.8	1.2	54.11	-	-	-	-	0-360	101	H
8	3.24	32.32	PK	33.5	-28.8	1.2	38.22	-	-	-	-	0-360	201	V
9	* 3.834	34.34	PK	34.3	-28.9	1.2	40.94	54	-13.06	74	-33.06	0-360	201	V
10	* 3.974	33.95	PK	33.8	-29.1	1.2	39.85	54	-14.15	74	-34.15	0-360	201	V
11	* 4.32	35.07	PK	33.7	-28.9	1.2	41.07	54	-12.93	74	-32.93	0-360	101	V
12	10.572	26.96	PK	37.8	-20.8	1.2	45.16	-	-	-	-	0-360	201	V

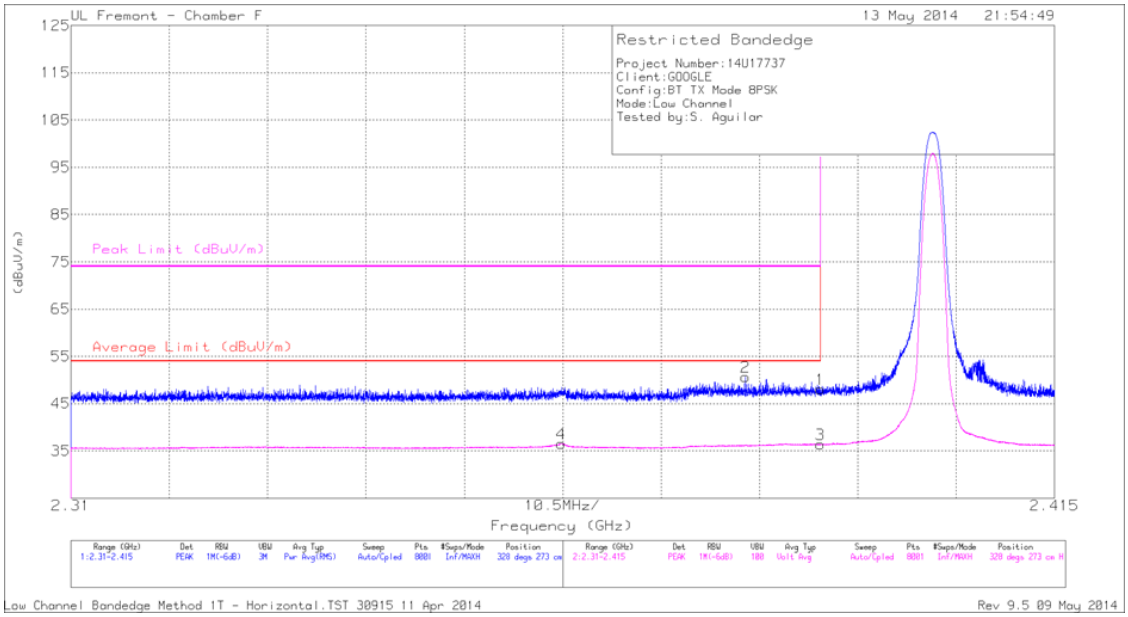
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

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

9.2.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL HORIZONTAL PLOT



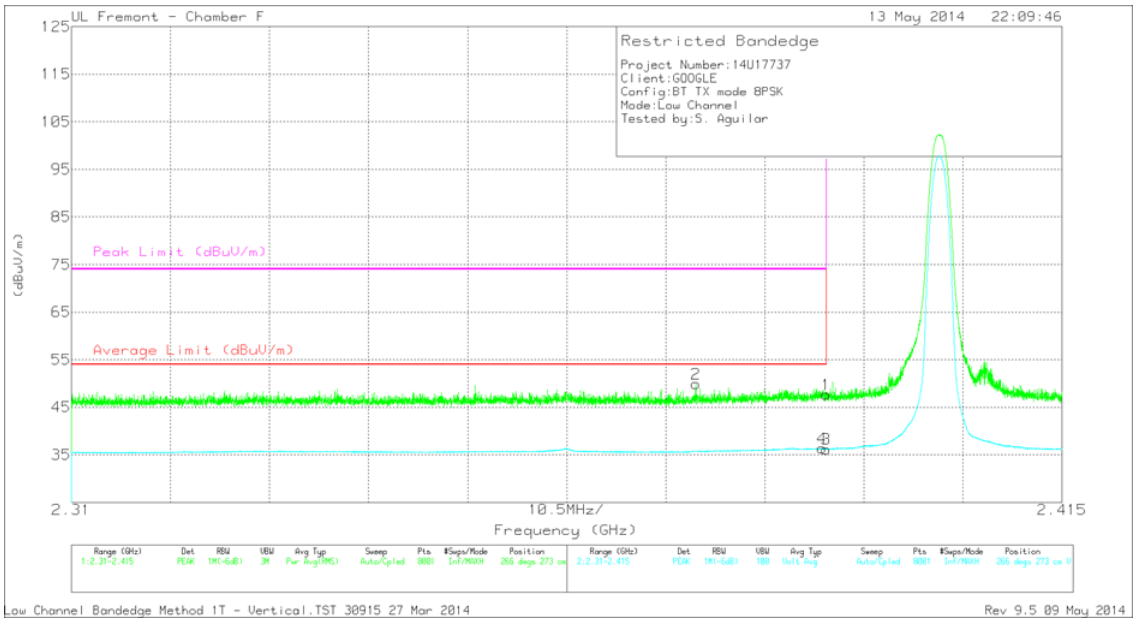
DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	39.71	PK	32.2	-23.8	1.2	49.31	-	-	74	-24.69	328	273	H
2	* 2.382	42.34	PK	32.1	-23.8	1.2	51.84	-	-	74	-22.16	328	273	H
3	* 2.39	27.99	VB1T	32.2	-23.8	1.2	37.59	54	-16.41	-	-	328	273	H
4	* 2.362	28.13	VB1T	32.1	-23.7	1.2	37.73	54	-16.27	-	-	328	273	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

LOW CHANNEL VERTICAL PLOT



DATA

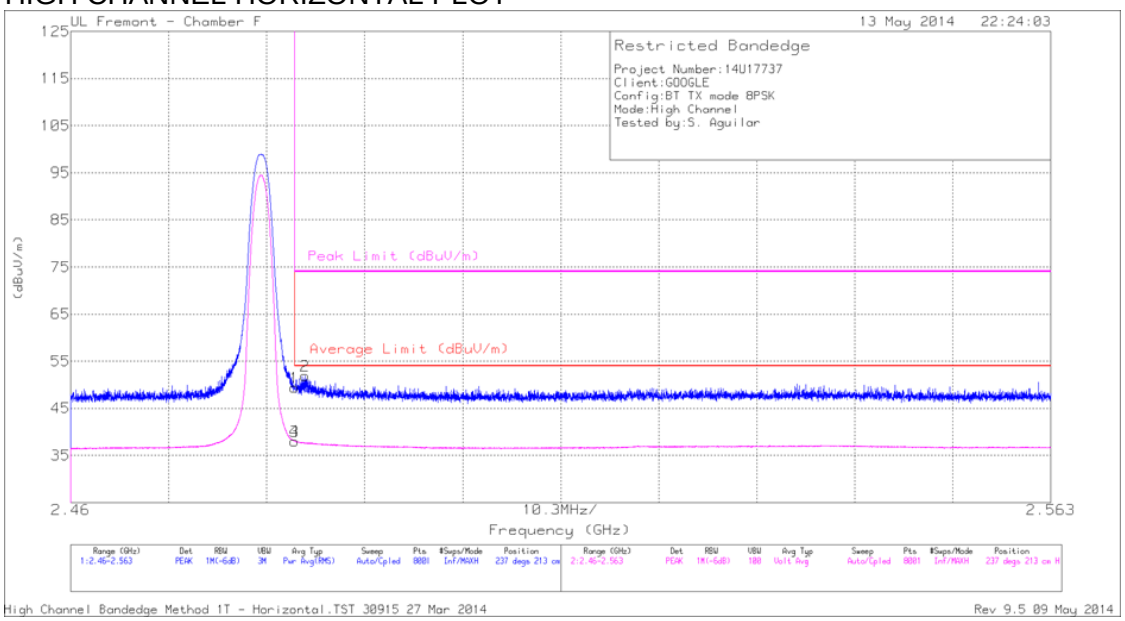
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	39.24	PK	32.2	-23.8	1.2	48.84	-	-	74	-25.16	266	273	V
2	* 2.376	41.68	PK	32.1	-23.9	1.2	51.08	-	-	74	-22.92	266	273	V
3	* 2.39	27.8	VB1T	32.2	-23.8	1.2	37.4	54	-16.6	-	-	266	273	V
4	* 2.39	27.98	VB1T	32.2	-23.8	1.2	37.58	54	-16.42	-	-	266	273	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

RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL HORIZONTAL PLOT



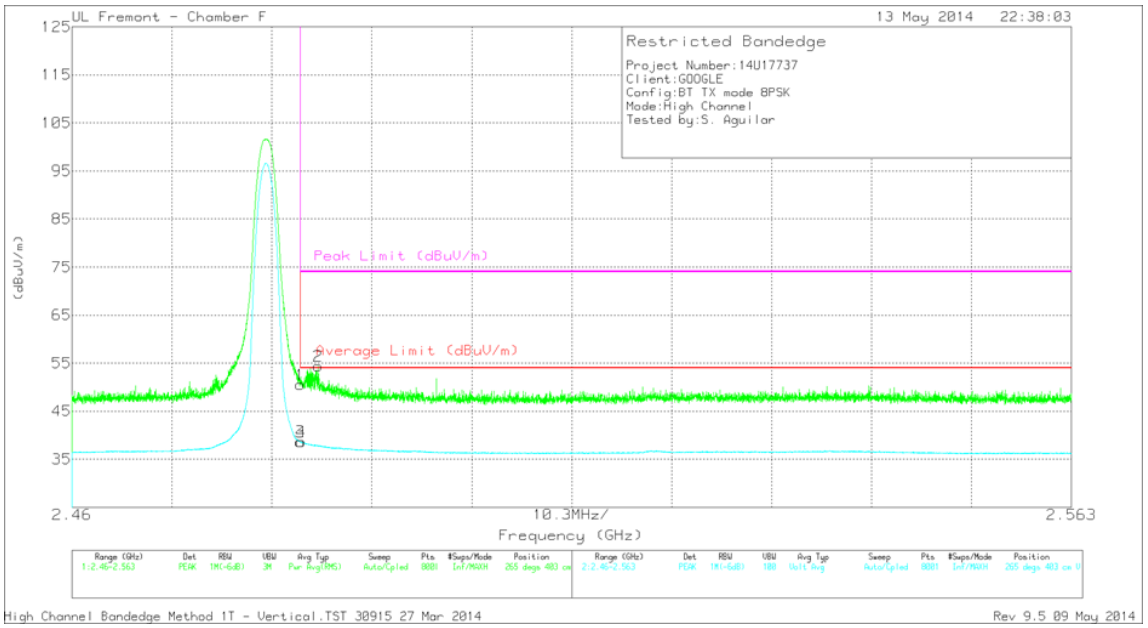
DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	39.8	PK	32.6	-23	1.2	50.6	-	-	74	-23.4	237	213	H
2	* 2.485	42.18	PK	32.6	-22.9	1.2	53.08	-	-	74	-20.92	237	213	H
3	* 2.484	28.37	VB1T	32.6	-23	1.2	39.17	54	-14.83	-	-	237	213	H
4	* 2.484	28.46	VB1T	32.6	-23	1.2	39.26	54	-14.74	-	-	237	213	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

HIGH CHANNEL VERTICAL PLOT



DATA

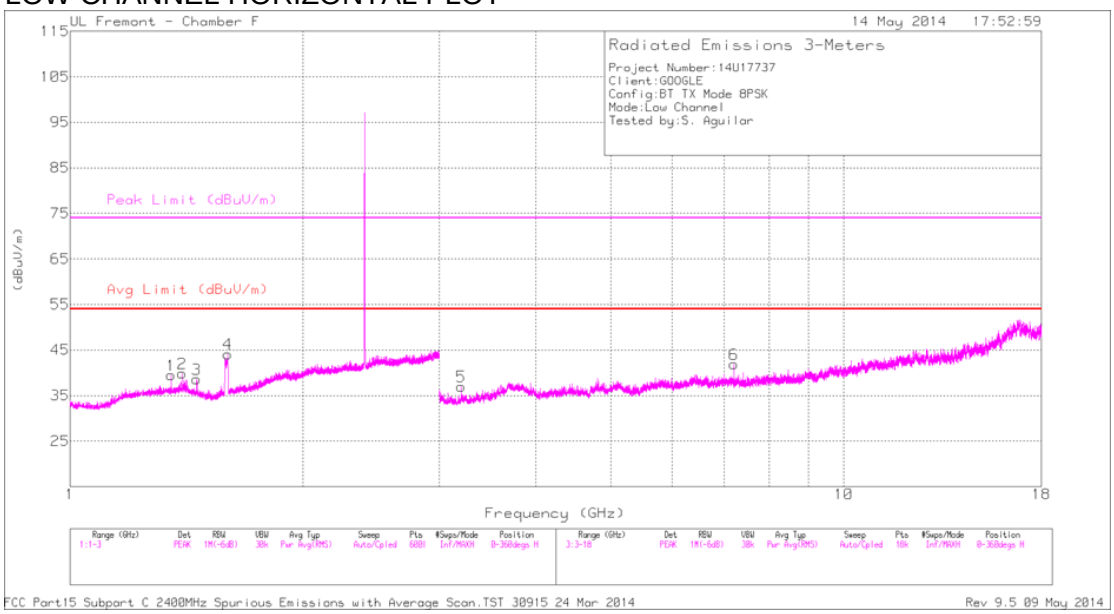
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	40.92	PK	32.6	-23	1.2	51.72	-	-	74	-22.28	265	403	V
2	* 2.485	44.72	PK	32.6	-22.9	1.2	55.62	-	-	74	-18.38	265	403	V
3	* 2.484	29.08	VB1T	32.6	-23	1.2	39.88	54	-14.12	-	-	265	403	V
4	* 2.484	28.97	VB1T	32.6	-23	1.2	39.77	54	-14.23	-	-	265	403	V

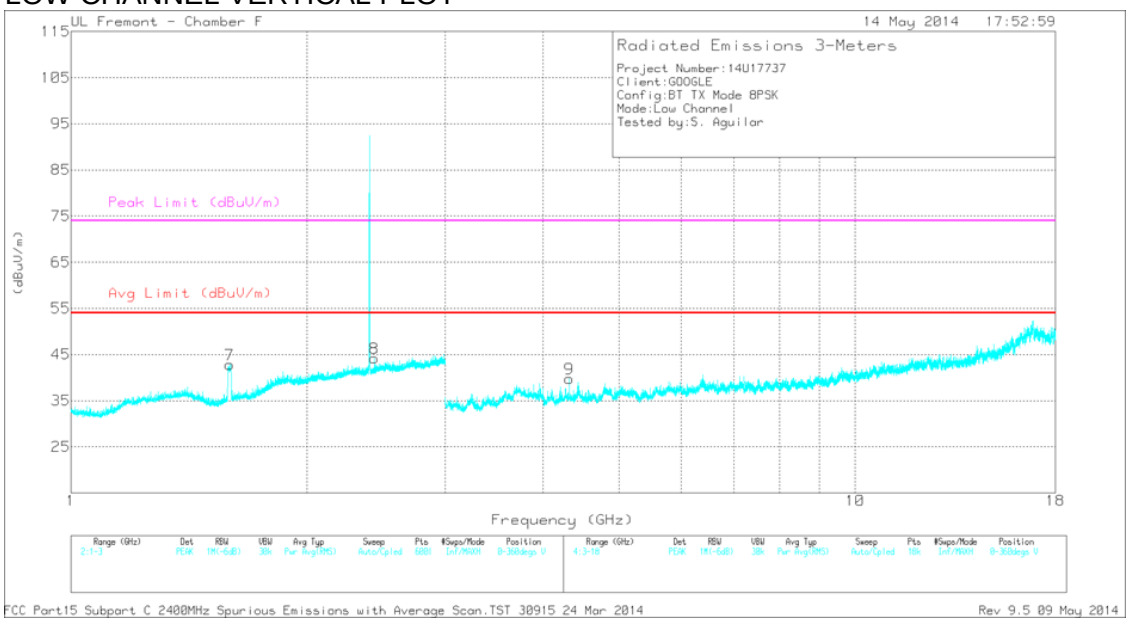
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Trace Markers

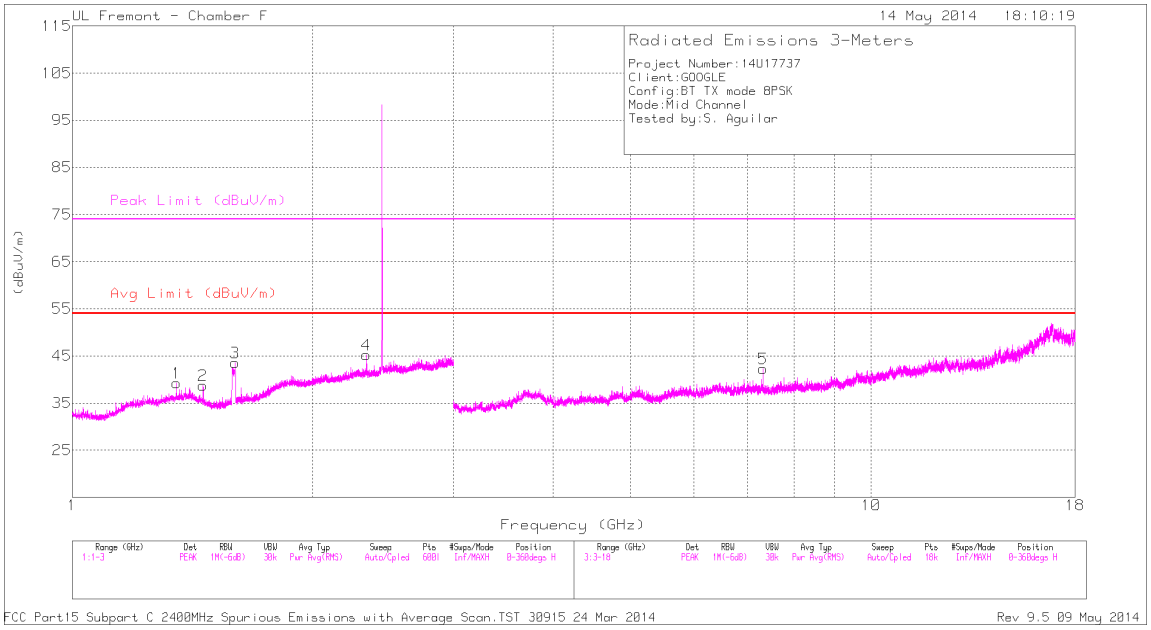
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	36.25	PK	29.6	-26.4	1.2	40.65	54	-13.35	74	-33.35	0-360	201	H
2	* 1.396	36.24	PK	29.3	-25.6	1.2	41.14	54	-12.86	74	-32.86	0-360	201	H
3	* 1.458	35.7	PK	28.7	-25.8	1.2	39.8	54	-14.2	74	-34.2	0-360	201	H
4	* 1.6	41.04	PK	28.5	-25.4	1.2	45.34	54	-8.66	74	-28.66	0-360	201	H
7	* 1.593	39.75	PK	28.5	-25.4	1.2	44.05	54	-9.95	74	-29.95	0-360	101	V
8	2.437	35.46	PK	32.4	-23.6	1.2	45.46	-	-	-	-	0-360	200	V
5	3.202	33.13	PK	33.3	-29.4	1.2	38.23	-	-	-	-	0-360	201	H
6	7.206	33.27	PK	35.5	-26.8	1.2	43.17	-	-	-	-	0-360	101	H
9	* 4.32	34.92	PK	33.7	-28.9	1.2	40.92	54	-13.08	74	-33.08	0-360	199	V

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

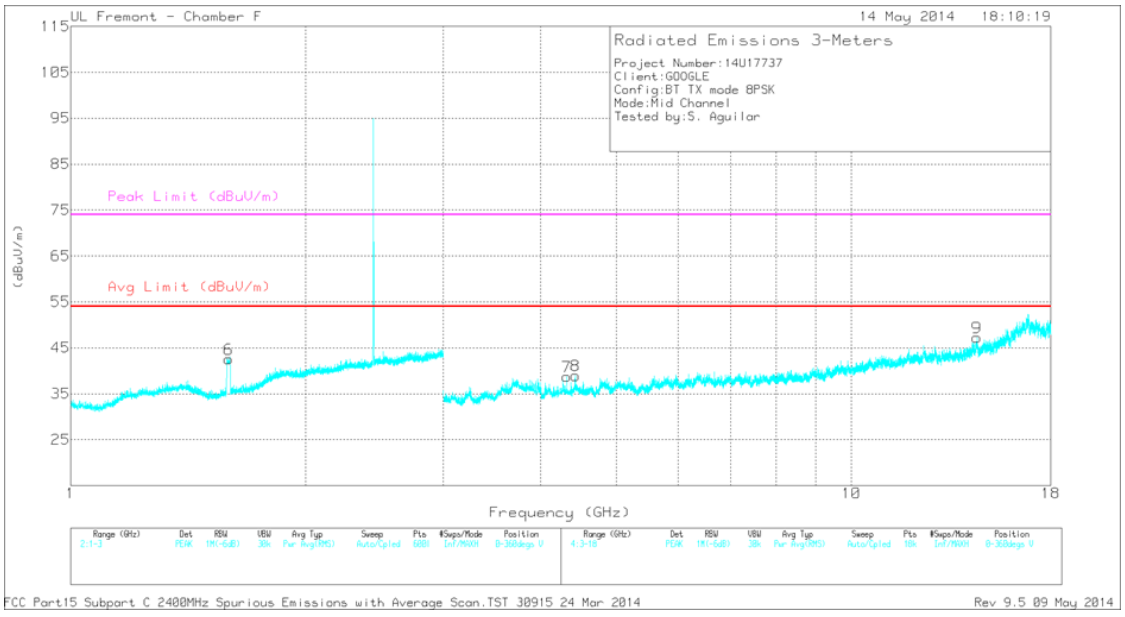
Note: Emissions were scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Trace Markers

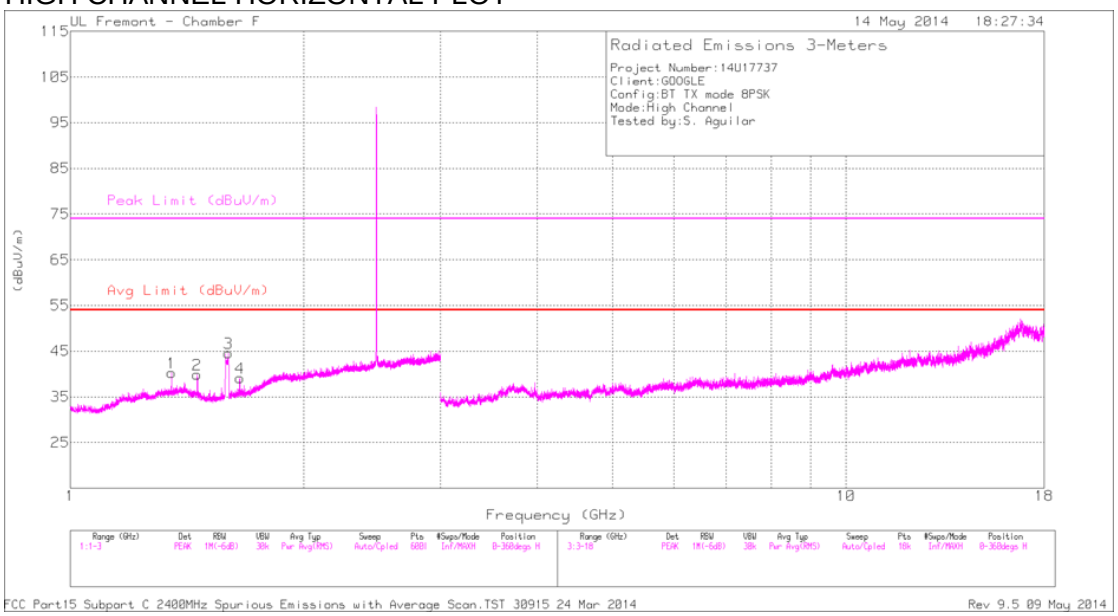
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	36.11	PK	29.6	-26.4	1.2	40.51	54	-13.49	74	-33.49	0-360	199	H
2	* 1.458	35.86	PK	28.7	-25.8	1.2	39.96	54	-14.04	74	-34.04	0-360	199	H
3	* 1.6	40.51	PK	28.5	-25.4	1.2	44.81	54	-9.19	74	-29.19	0-360	199	H
4	* 2.335	36.78	PK	31.9	-23.5	1.2	46.38	54	-7.62	74	-27.62	0-360	100	H
6	* 1.594	39.44	PK	28.5	-25.4	1.2	43.74	54	-10.26	74	-30.26	0-360	101	V
5	* 7.322	33.42	PK	35.6	-26.7	1.2	43.52	54	-10.48	74	-30.48	0-360	101	H
7	* 4.32	33.89	PK	33.7	-28.9	1.2	39.89	54	-14.11	74	-34.11	0-360	101	V
8	4.428	33.74	PK	33.9	-28.7	1.2	40.14	-	-	-	-	0-360	201	V
9	* 14.478	29.21	PK	39.8	-21.8	1.2	48.41	54	-5.59	74	-25.59	0-360	201	V

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

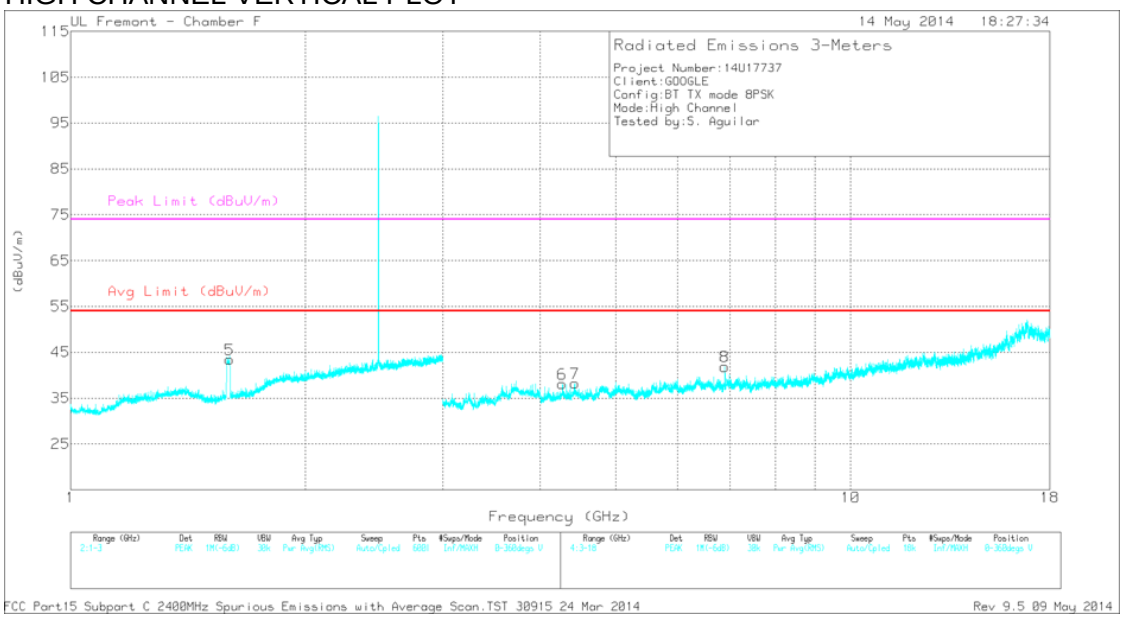
Note: Emissions were scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.35	37.1	PK	29.6	-26.4	1.2	41.5	54	-12.5	74	-32.5	0-360	200	H
2	* 1.458	36.98	PK	28.7	-25.8	1.2	41.08	54	-12.92	74	-32.92	0-360	200	H
3	* 1.6	41.49	PK	28.5	-25.4	1.2	45.79	54	-8.21	74	-28.21	0-360	200	H
4	1.653	35.34	PK	28.9	-25.1	1.2	40.34	-	-	-	-	0-360	101	H
5	* 1.598	40.37	PK	28.5	-25.4	1.2	44.67	54	-9.33	74	-29.33	0-360	101	V
6	* 4.266	33.16	PK	33.7	-28.8	1.2	39.26	54	-14.74	74	-34.74	0-360	201	V
7	4.428	33.03	PK	33.9	-28.7	1.2	39.43	-	-	-	-	0-360	201	V
8	6.9	33.36	PK	35.5	-27	1.2	43.06	-	-	-	-	0-360	201	V

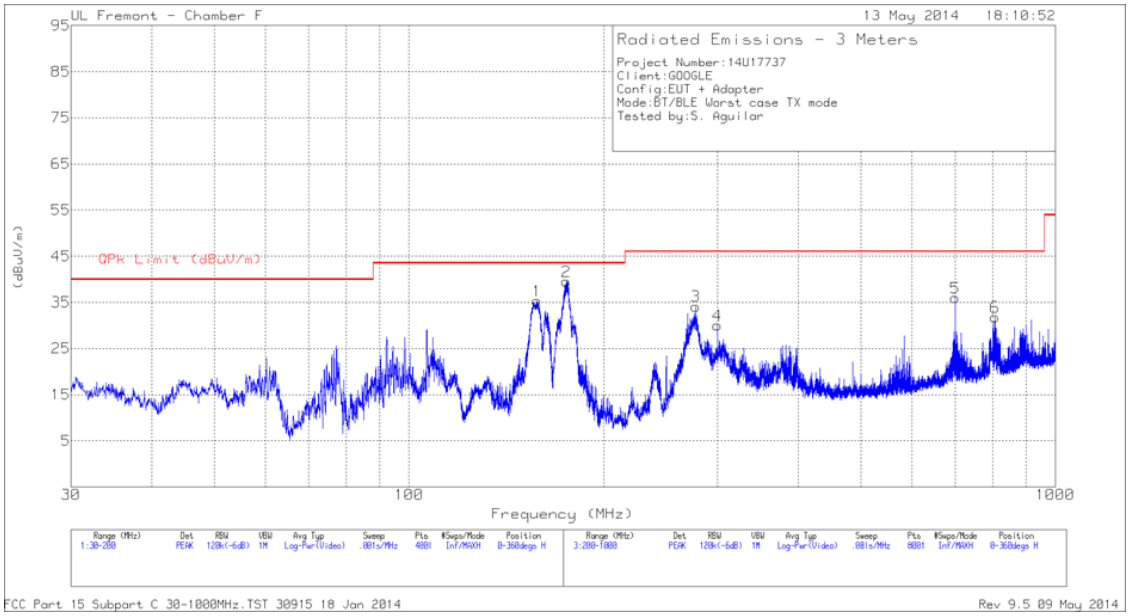
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

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

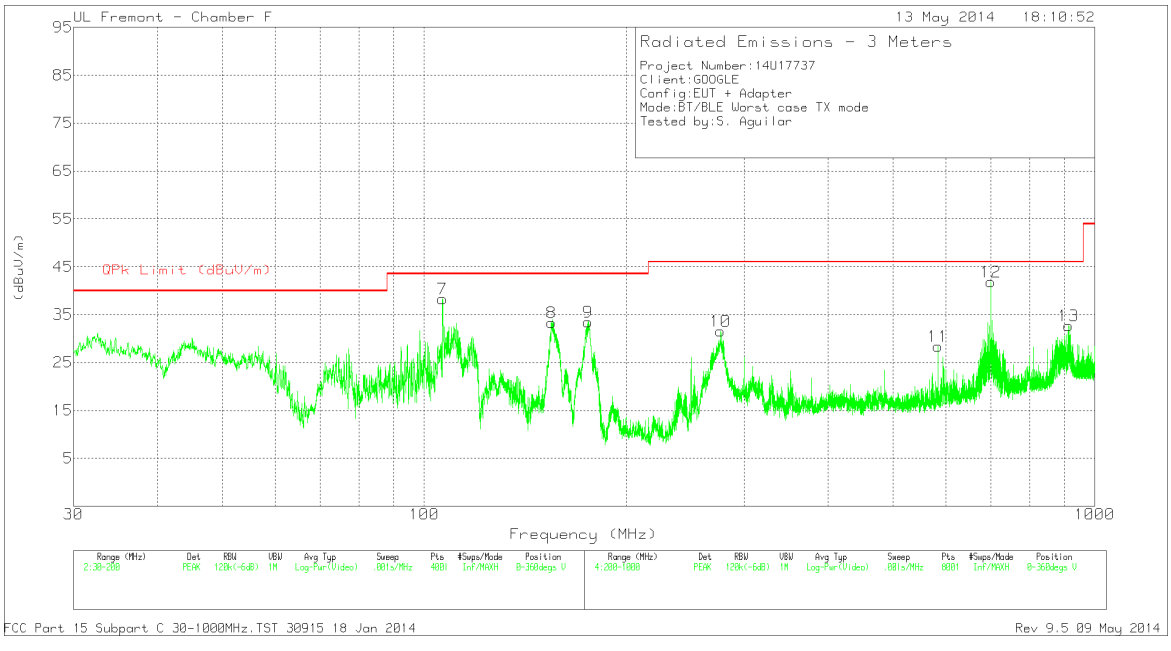
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	157.925	53.84	PK	12.5	-31	35.34	43.52	-8.18	0-360	200	H
2	175.1375	59.39	PK	11.5	-31.3	39.59	43.52	-3.93	0-360	200	H
7	106.5	57.98	PK	12	-31.7	38.28	43.52	-5.24	0-360	100	V
8	154.9925	51.76	PK	12.5	-30.9	33.36	43.52	-10.16	0-360	100	V
9	175.5625	53.18	PK	11.4	-31.1	33.48	43.52	-10.04	0-360	100	V
3	* 277.7	51.57	PK	13.4	-30.8	34.17	46.02	-11.85	0-360	100	H
4	300	47.06	PK	13.4	-30.4	30.06	46.02	-15.96	0-360	100	H
5	700	45.36	PK	20.3	-29.6	36.06	46.02	-9.96	0-360	100	H
6	805.6	39.38	PK	21.5	-29	31.88	46.02	-14.14	0-360	100	H
10	* 276.6	48.96	PK	13.3	-30.7	31.56	46.02	-14.46	0-360	200	V
11	583.3	39.5	PK	18.7	-29.8	28.4	46.02	-17.62	0-360	100	V
12	700	51.13	PK	20.3	-29.6	41.83	46.02	-4.19	0-360	100	V
13	913.2	38.57	PK	22.5	-28.4	32.67	46.02	-13.35	0-360	100	V

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

PK - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
158.8335	52.44	QP	12.5	-31.3	33.64	43.52	-9.88	82	179	H
174.4905	55.75	QP	11.6	-31.4	35.95	43.52	-7.57	62	167	H
106.4936	44.73	QP	12	-31.7	25.03	43.52	-18.49	187	109	V
* 275.4389	47.03	QP	13.3	-30.8	29.53	46.02	-16.49	87	134	H
* 277.7174	49.57	QP	13.4	-30.8	32.17	46.02	-13.85	158	137	V
700.0038	49.45	QP	20.3	-29.6	40.15	46.02	-5.87	247	104	V

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

QP - Quasi-Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

TEST PROCEDURE

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.

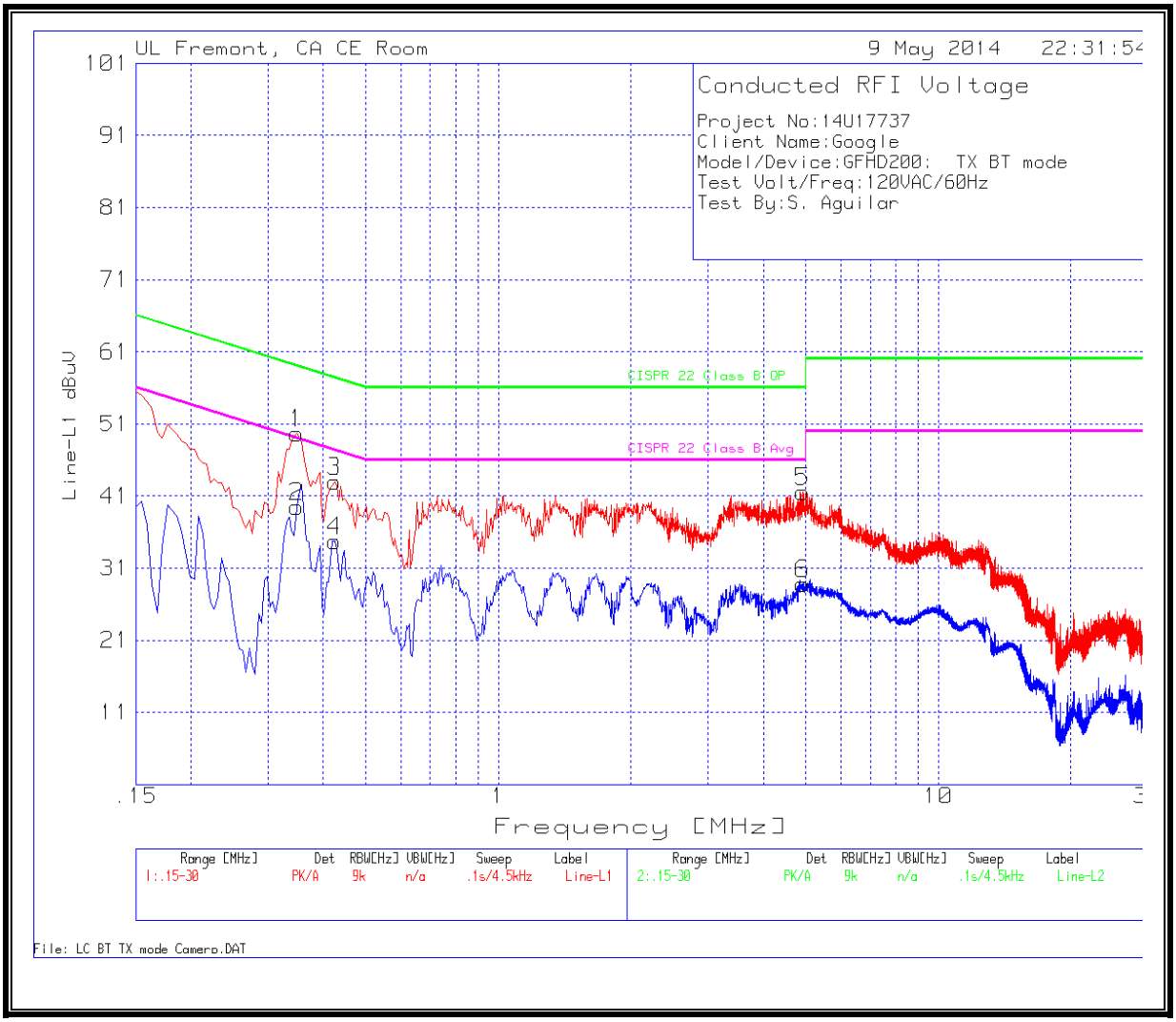
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

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

LINE 1 RESULTS

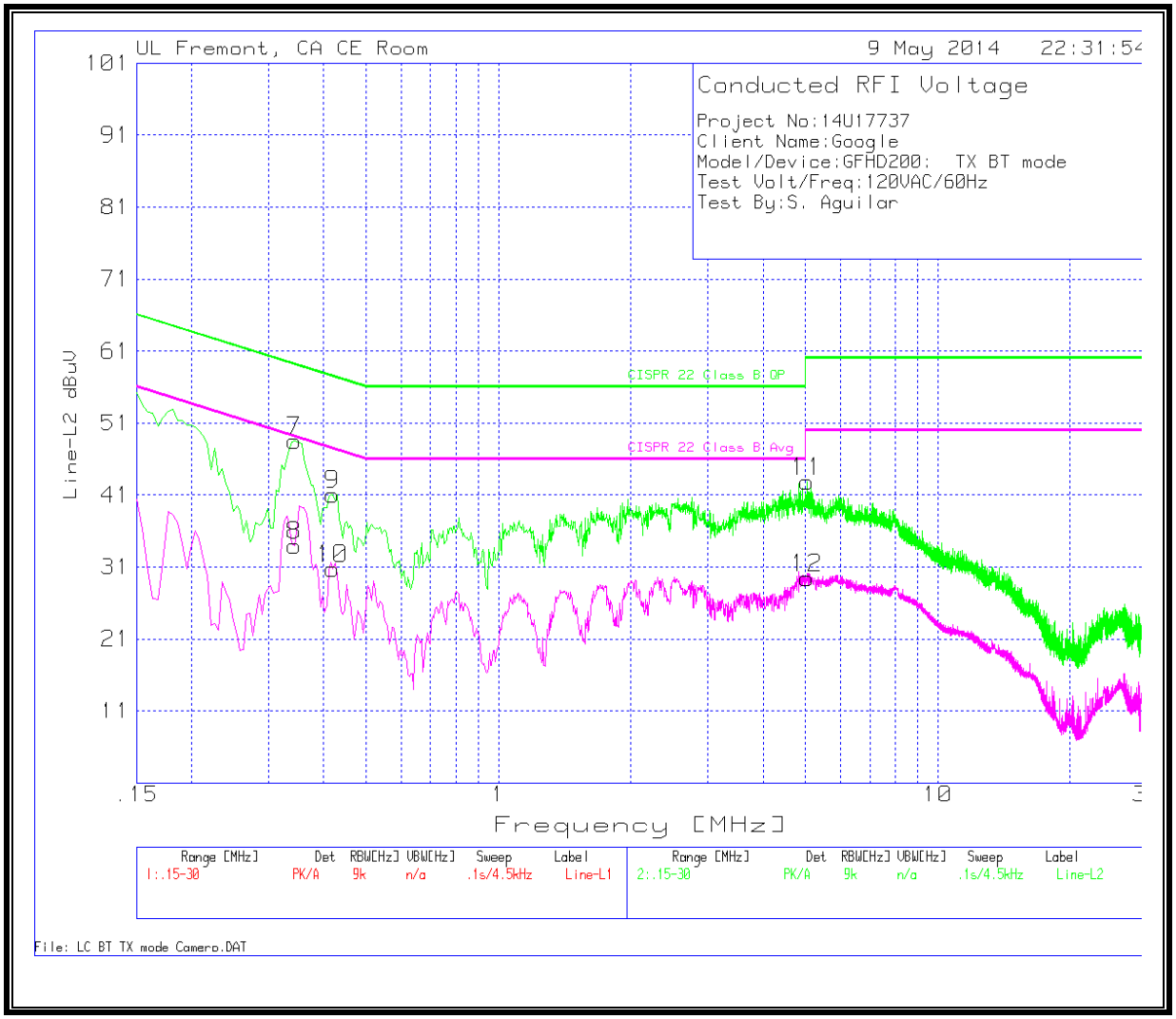


Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.348	49.24	PK	.5	0	49.74	59	-9.26	-	-
2	.348	39.05	Av	.5	0	39.55	-	-	49	-9.45
3	.4245	42.58	PK	.4	0	42.98	57.4	-14.42	-	-
4	.4245	34.35	Av	.4	0	34.75	-	-	47.4	-12.65
5	4.9245	41.26	PK	.2	.1	41.56	56	-14.44	-	-
6	4.9245	28.47	Av	.2	.1	28.77	-	-	46	-17.23

LINE 2 RESULTS



Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
7	.3435	48.03	PK	.5	0	48.53	59.1	-10.57	-	-
8	.3435	33.51	Av	.5	0	34.01	-	-	49.1	-15.09
9	.42	40.67	PK	.4	0	41.07	57.4	-16.33	-	-
10	.42	30.37	Av	.4	0	30.77	-	-	47.4	-16.63
11	5.046	42.55	PK	.2	.1	42.85	60	-17.15	-	-
12	5.046	29.15	Av	.2	.1	29.45	-	-	50	-20.55

PK - Peak detector
Av - average detection