



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

**850/1900 GSM/GPRS/WCDMA PHONE WITH BLUETOOTH 3.0 AND EDR,
HOTSPOTS, VOIP AND WLAN TRANSCEIVER**

MODEL NUMBER: GT-S5360L

FCC ID: A3LGTS5360L

REPORT NUMBER: 11I13976-2

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Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KORERA**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

EUT DESCRIPTION: 850/1900 GSM/GPRS/WCDMA PHONE WITH BLUETOOTH 3.0
AND EDR, HOTSPOTS, VOIP AND WLAN TRANSCEIVER

MODEL: GT-S5360L

SERIAL NUMBER: F1 192 D (Conducted Unit), F1 192 B (Radiated Unit)

DATE TESTED: AUGUST 10 TO 19, 2011

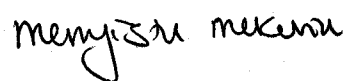
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

Compliance Certification Services (UL CCS) 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 CCS 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS 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 CCS By:

Tested By:



THU CHAN
ENGINEERING MANAGER
UL CCS

MENGISTU MEKURIA
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 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 an 850/1900 GSM/GPRS/WCDMA phone with Bluetooth 3.0 and EDR, Hotspots, VOIP and WLAN transceiver.

The radio module is manufactured by Samsung Electronics Co., Ltd.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	9.88	9.73
2402 - 2480	Enhanced 8PSK	9.68	9.29

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -5.7dBi for Bluetooth.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was C6712.02, rev 0.1

The EUT is also linked in Bluetooth Enable Test mode with Rohde & Schwarz CBT Test box.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

Since the EUT is a portable device, the three orientations; X, Y and Z, and the worst orientation among them with headset and an AC Adapter have been investigated. After the investigation the worst case was found to be at Y orientation with Headset and an AC Adapter.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ET0U10EBE	SC3ZA18MS/7-E	DoC
Earphone	Samsung	NA	F1 192 B	NA

I/O CABLES (CONDUCTED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2.0 m	NA
2	RF	1	SMA	Shielded	0.6 m	NA
3	RF	1	EUT	Un-shielded	0.2 m	NA

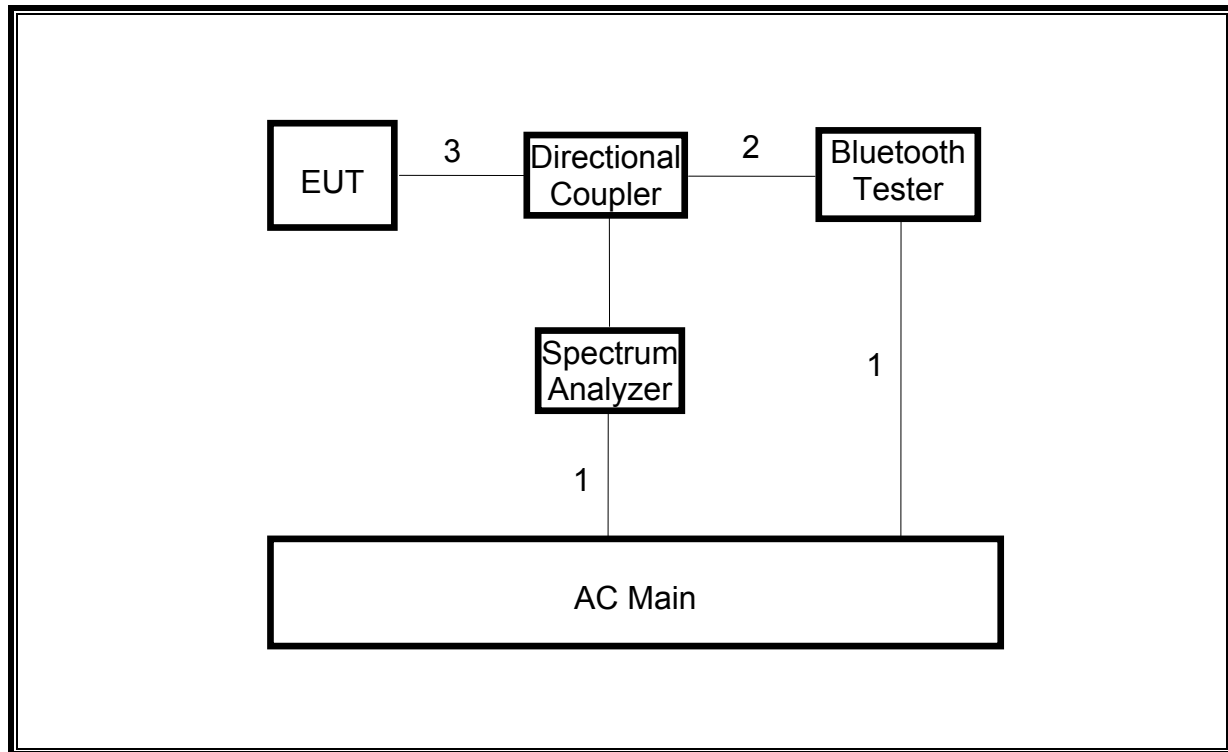
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Un-shielded	2m	NA
2	Jack	1	Earphone	Un-shielded	2m	Volume Control on Cable

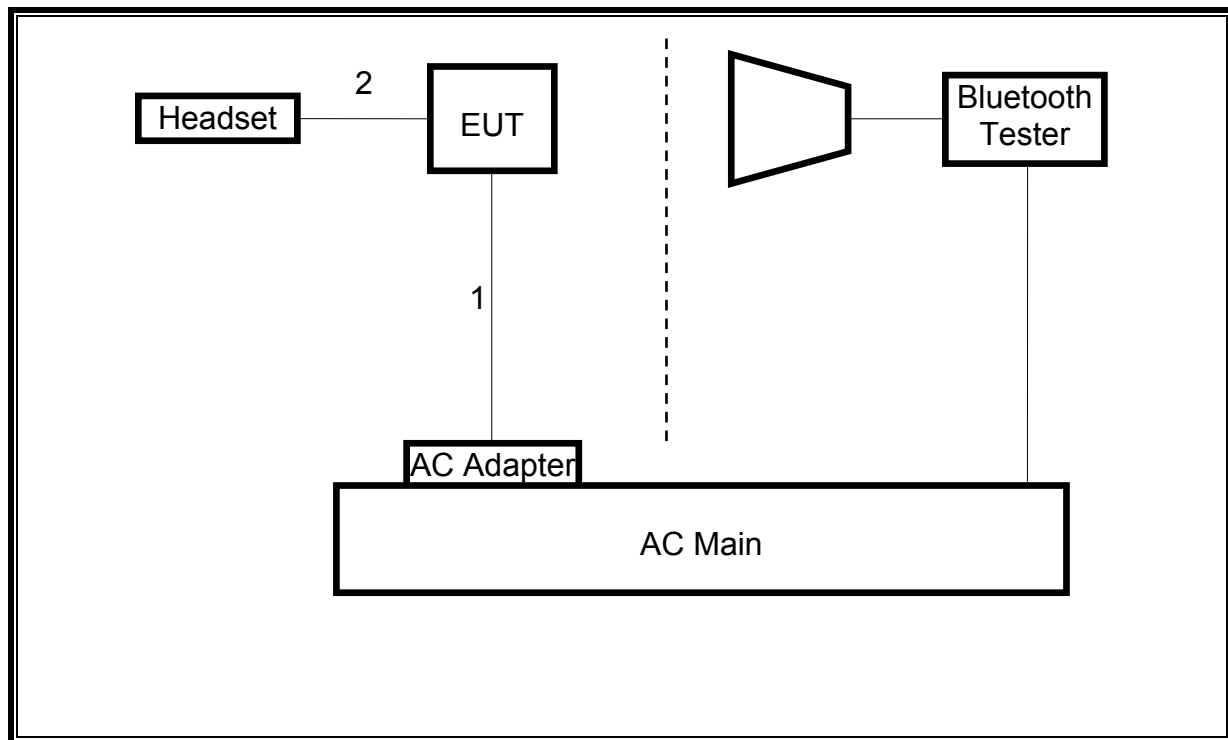
TEST SETUP

The EUT is connected to Bluetooth tester via a directional coupler during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	01/19/12
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/30/11
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01161	12/07/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	01/27/12
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/12/12
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/16/12
Bluetooth Test	R&S	CBT	NA	04/22/12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11
EMI Test Receiver, 9 kHz-7	R & S	ESCI 7	1000741	07/06/12
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/04/11
Peak Power Meter	Agilent / HP	E4416A	C00963	12/04/11
Directional Coupler, 18 GHz	Krytar	1817	N02656	CNR

7. ANTENNA PORT TEST RESULTS

7.1. BASIC DATA RATE GFSK MODULATION

7.1.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

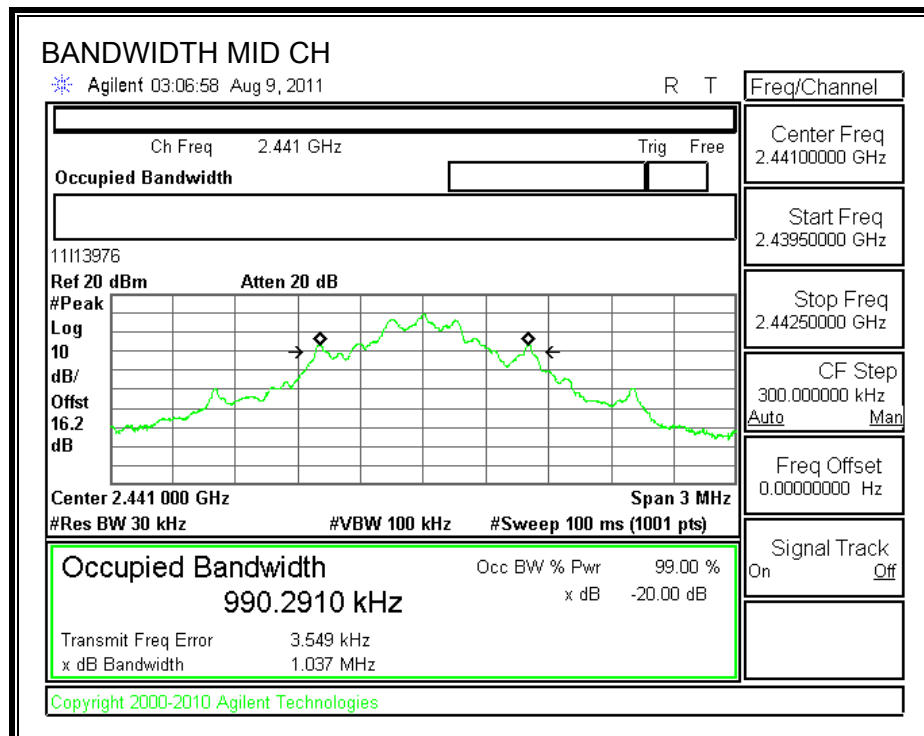
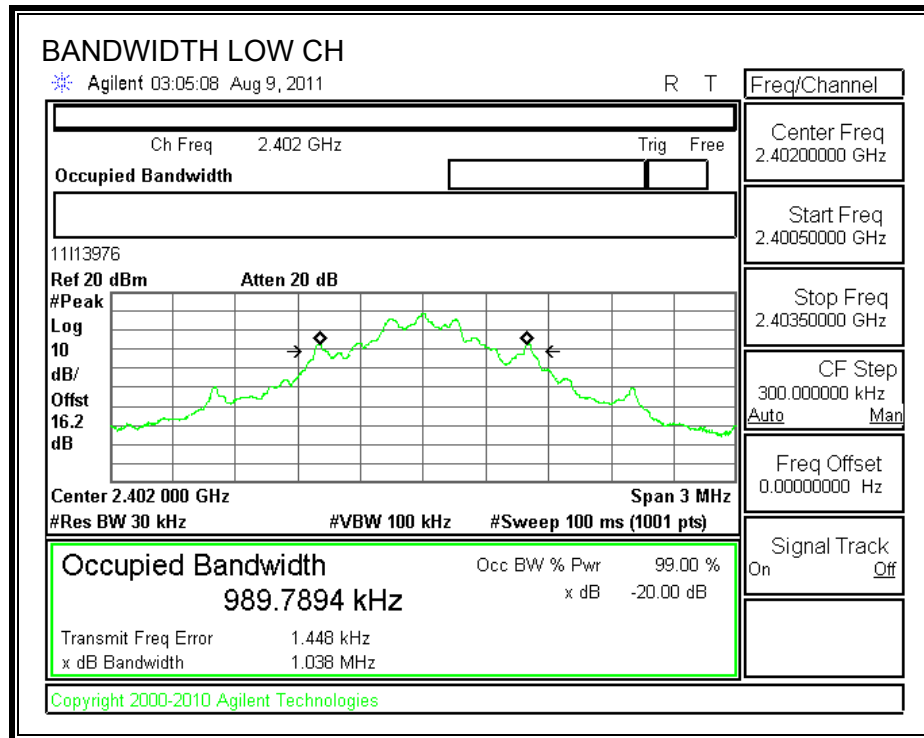
TEST PROCEDURE

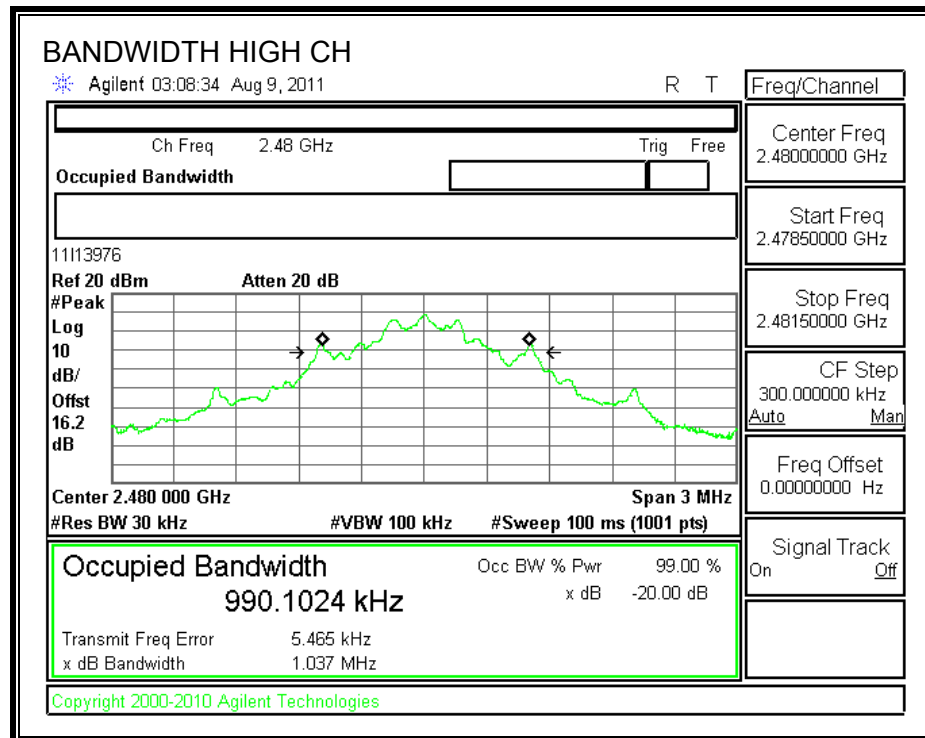
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2402	1.038
Middle	2441	1.037
High	2480	1.037

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

RESULTS

20 dB BANDWIDTH





7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

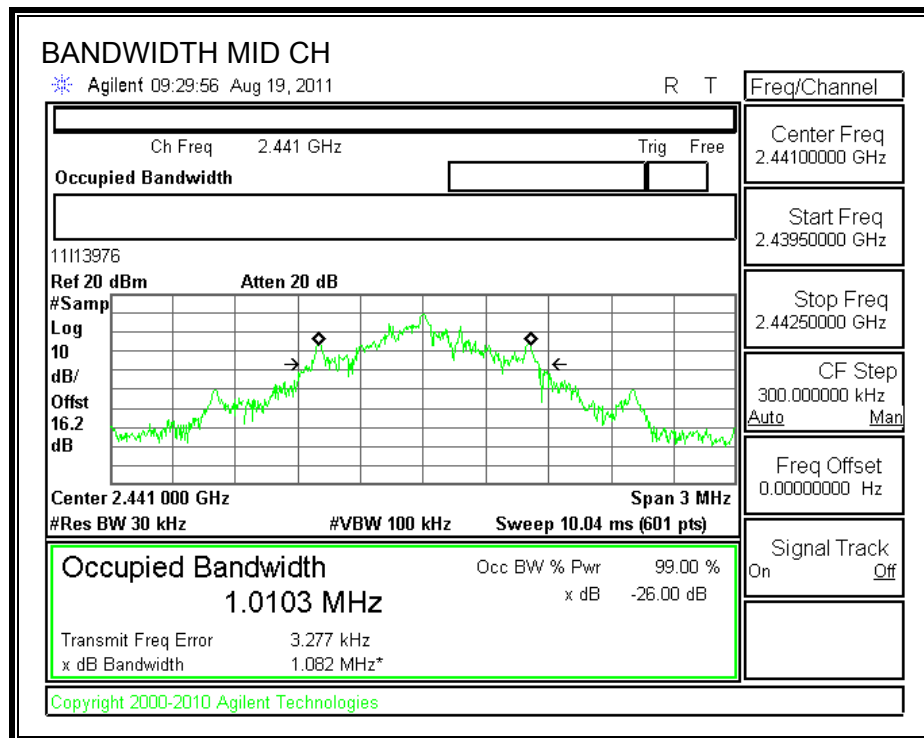
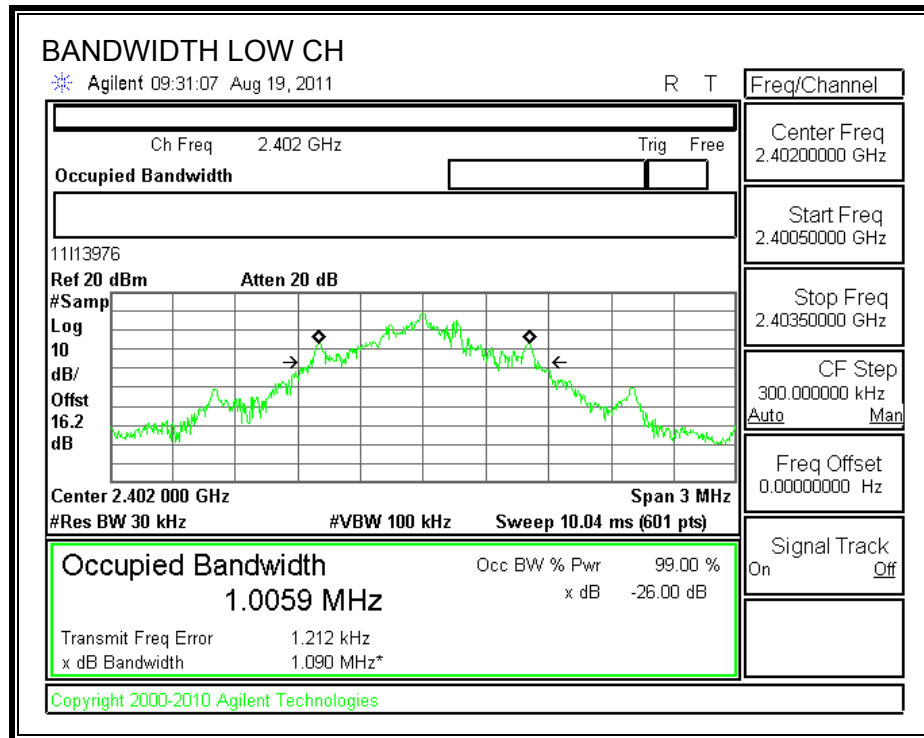
TEST PROCEDURE

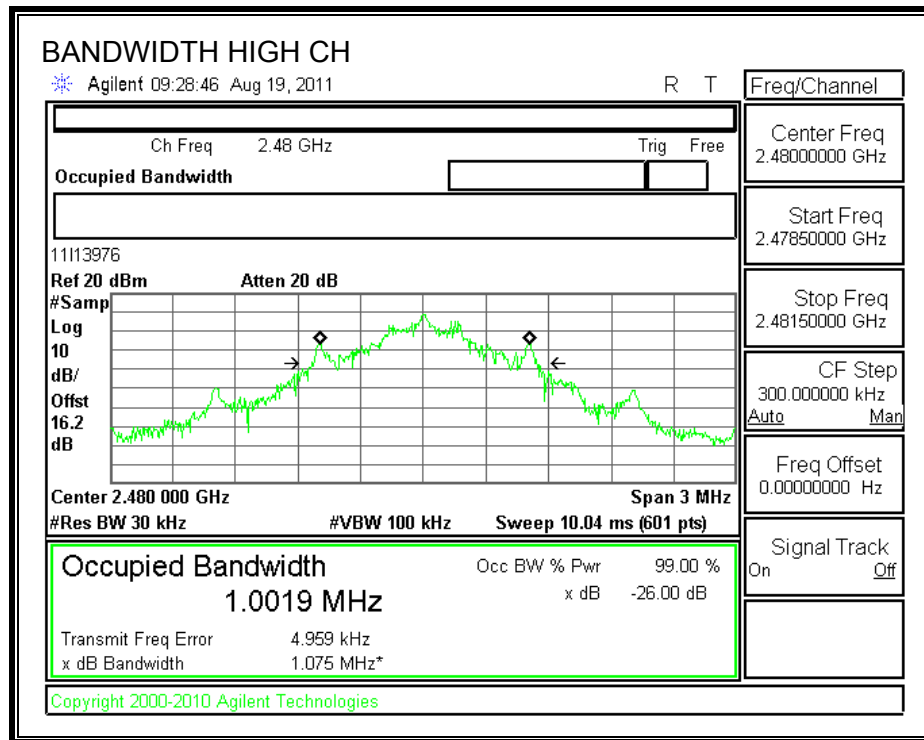
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0059
Middle	2441	1.0103
High	2480	1.0019

99% BANDWIDTH





7.1.3. 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 hopping channel, whichever is greater.

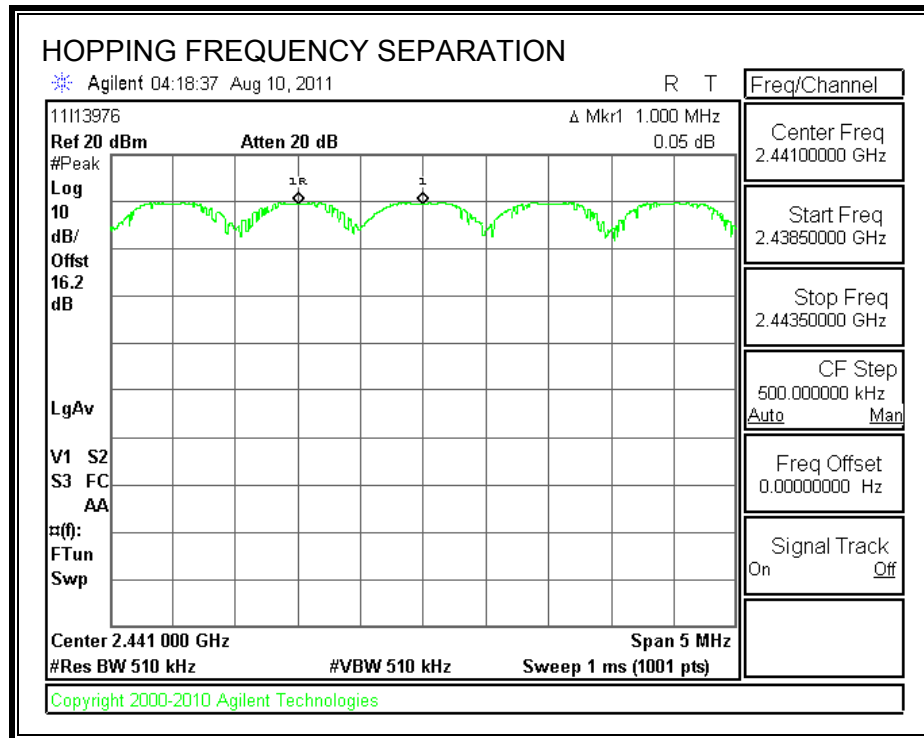
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

HOPPING FREQUENCY SEPARATION



7.1.4. 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.

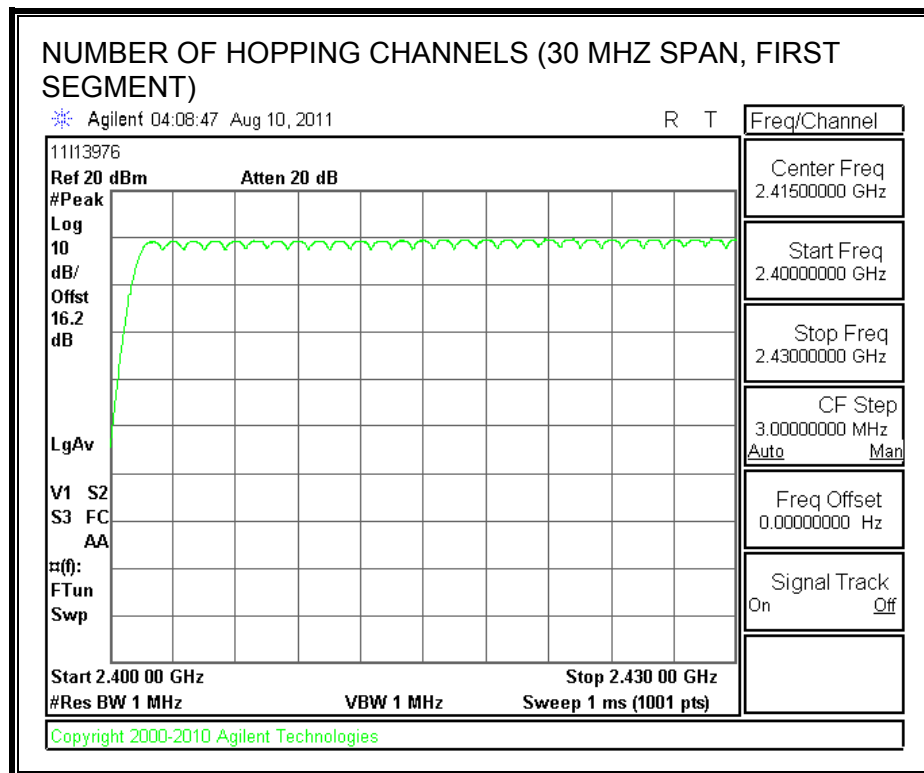
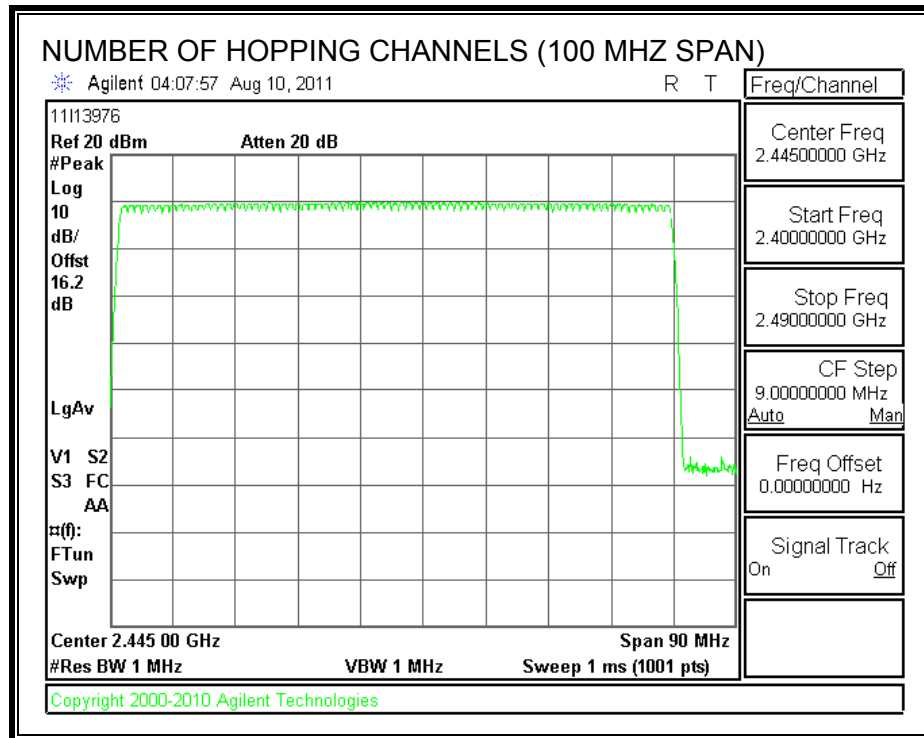
TEST PROCEDURE

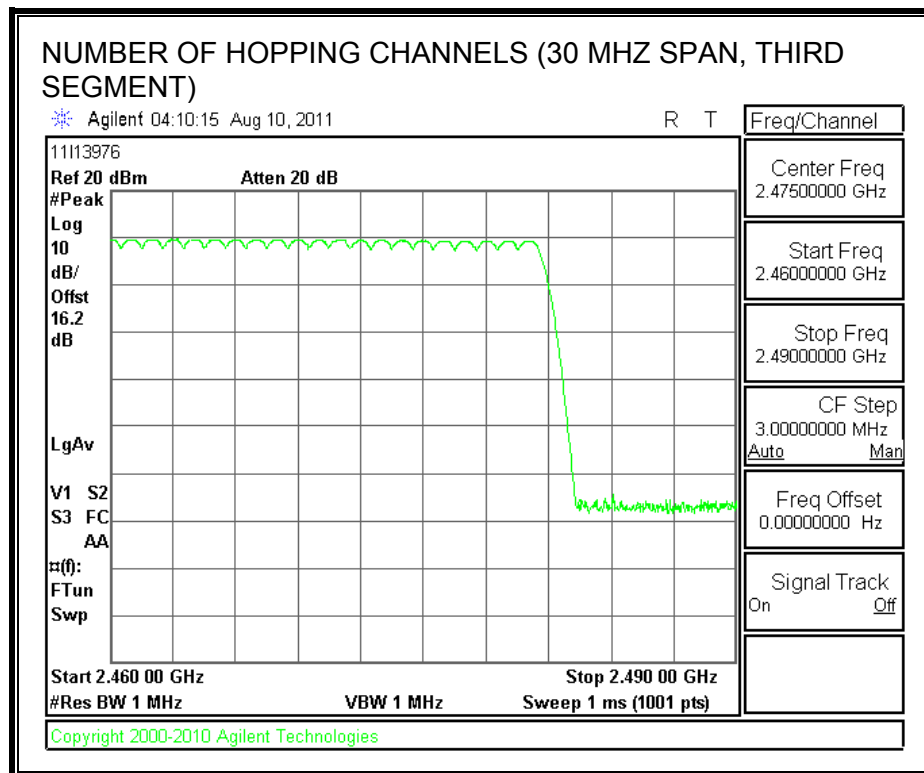
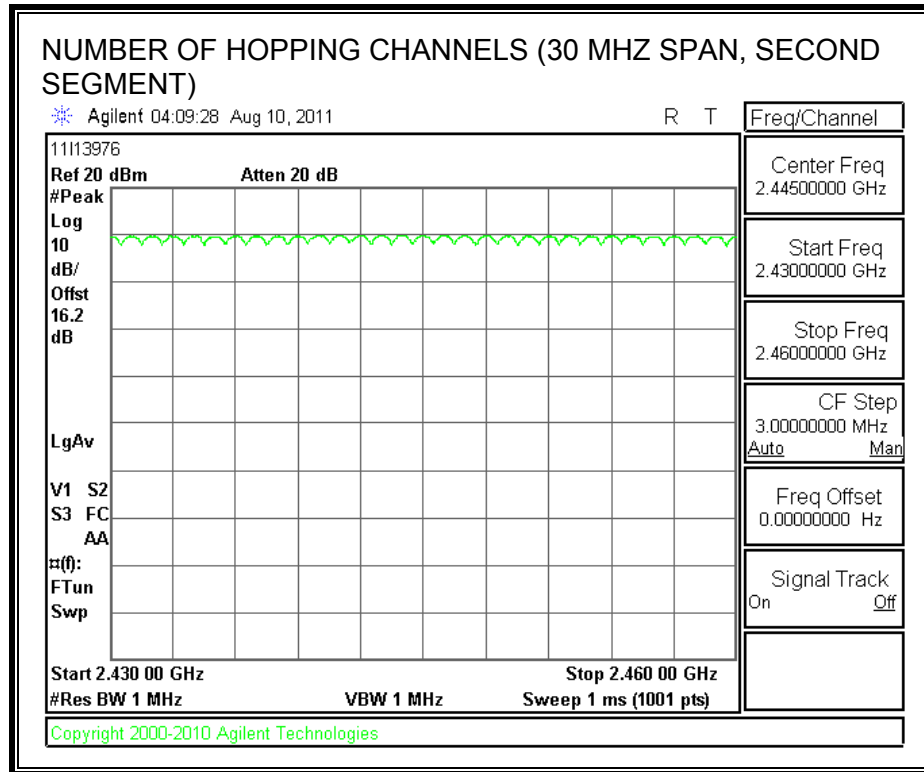
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

79 Channels observed.

NUMBER OF HOPPING CHANNELS





7.1.5. 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.

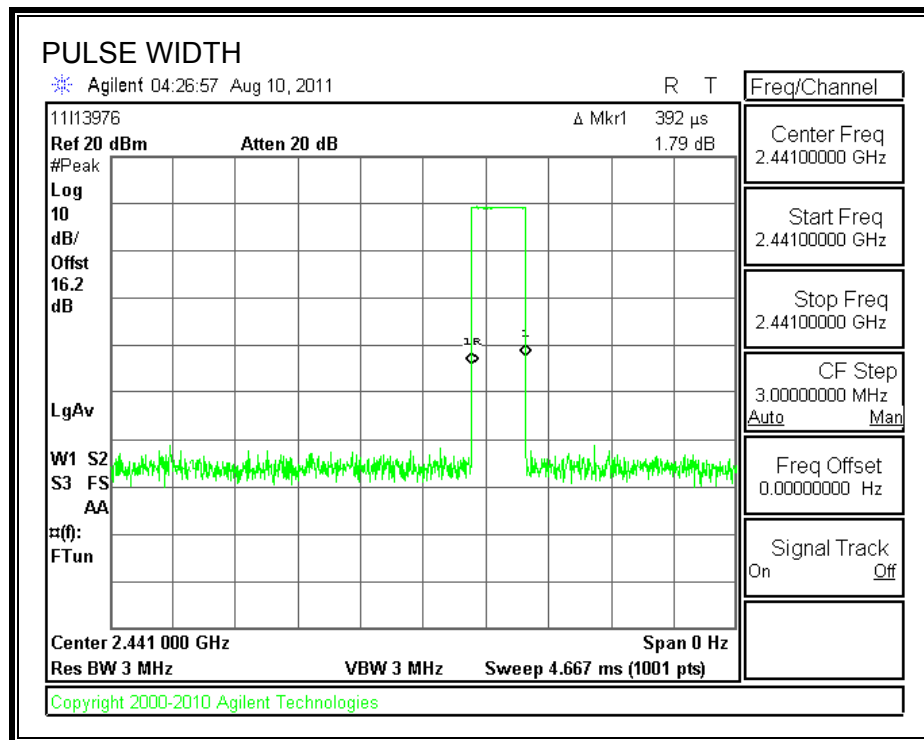
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

RESULTS

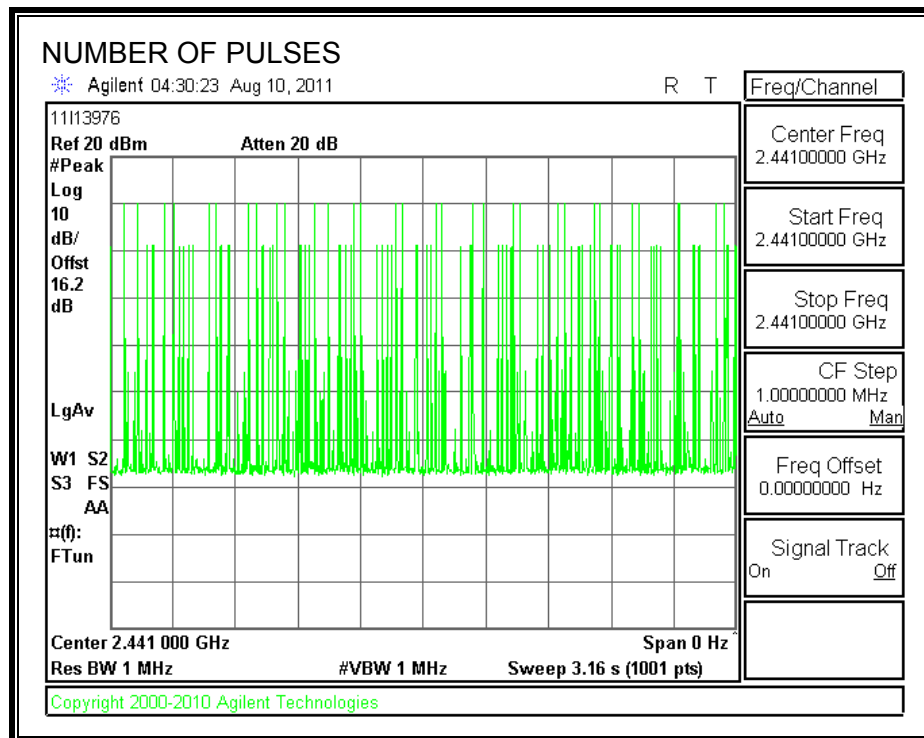
GFSK Mode

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of (sec)	Limit (sec)	Margin (sec)
DH1	0.392	32	0.125	0.4	0.275
DH3	1.655	15	0.248	0.4	0.152
DH5	2.918	11	0.321	0.4	0.079

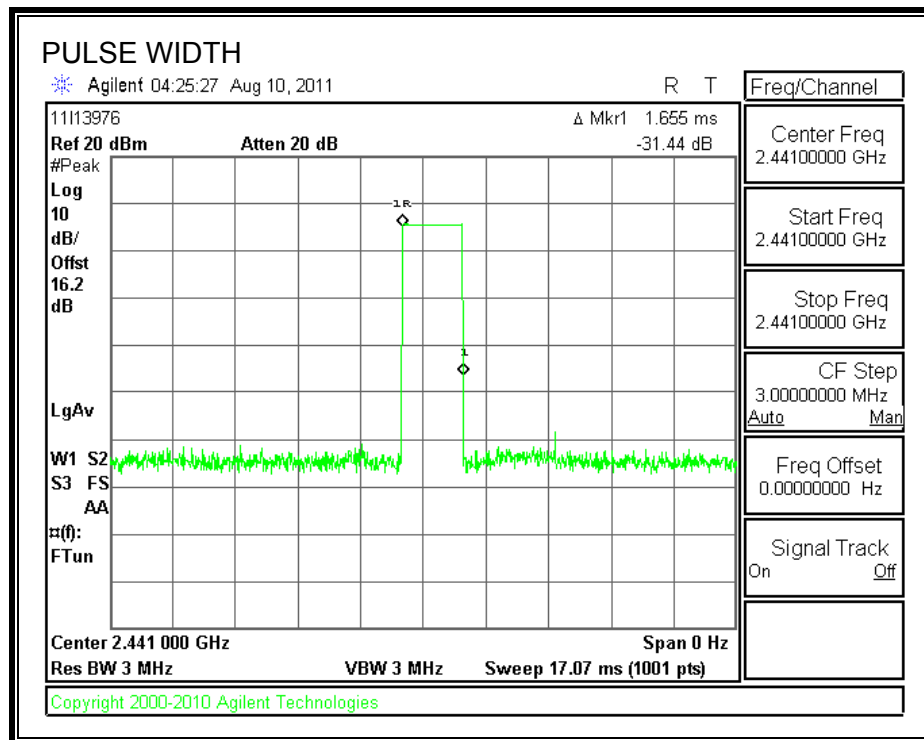
PULSE WIDTH , DH1



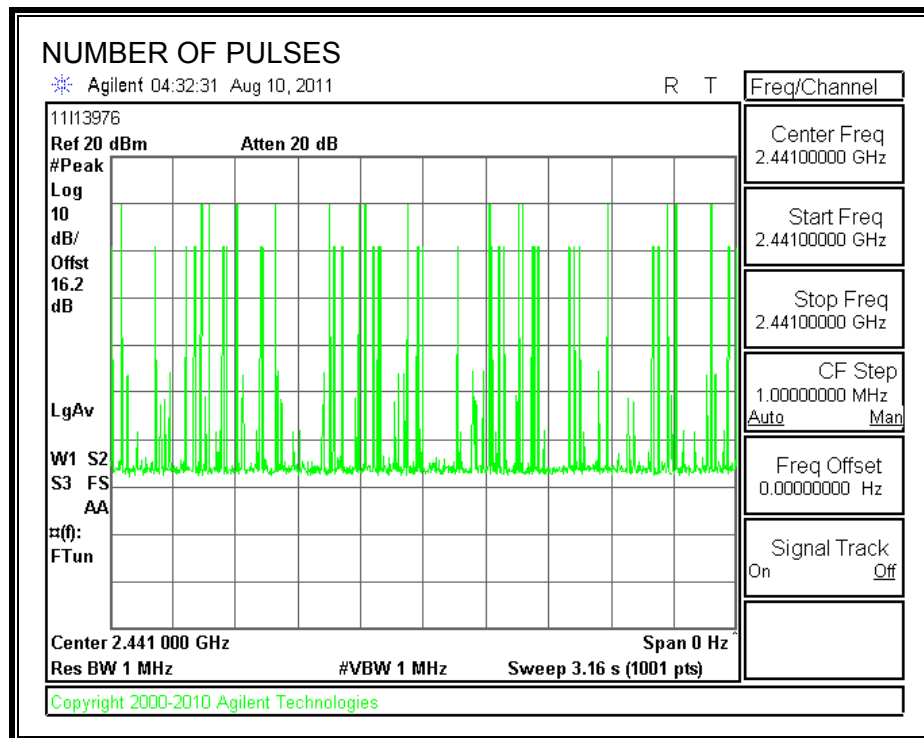
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



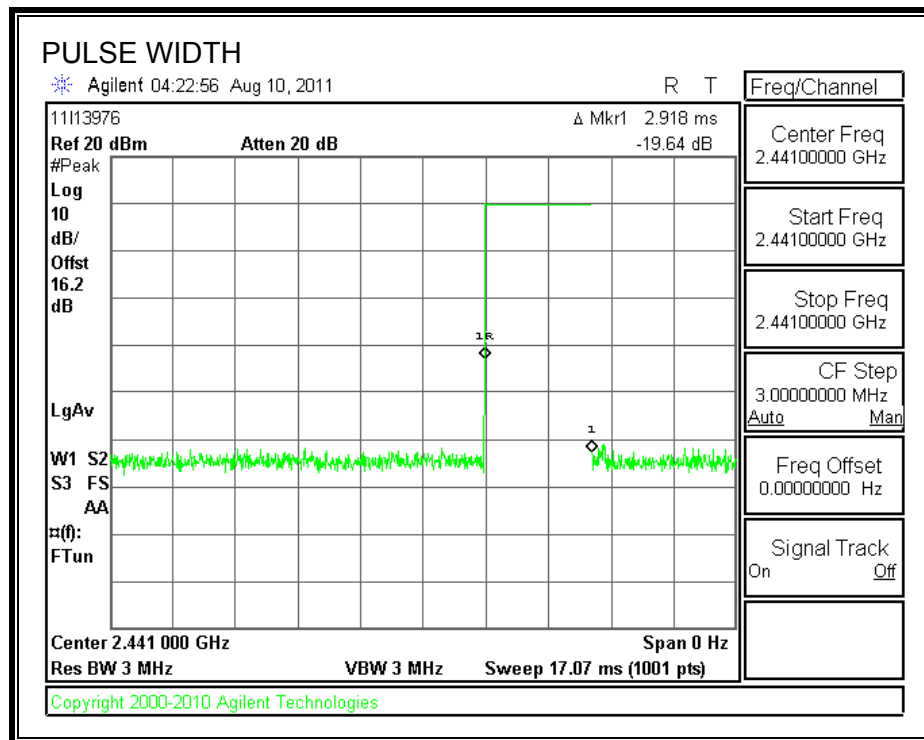
PULSE WIDTH, DH3



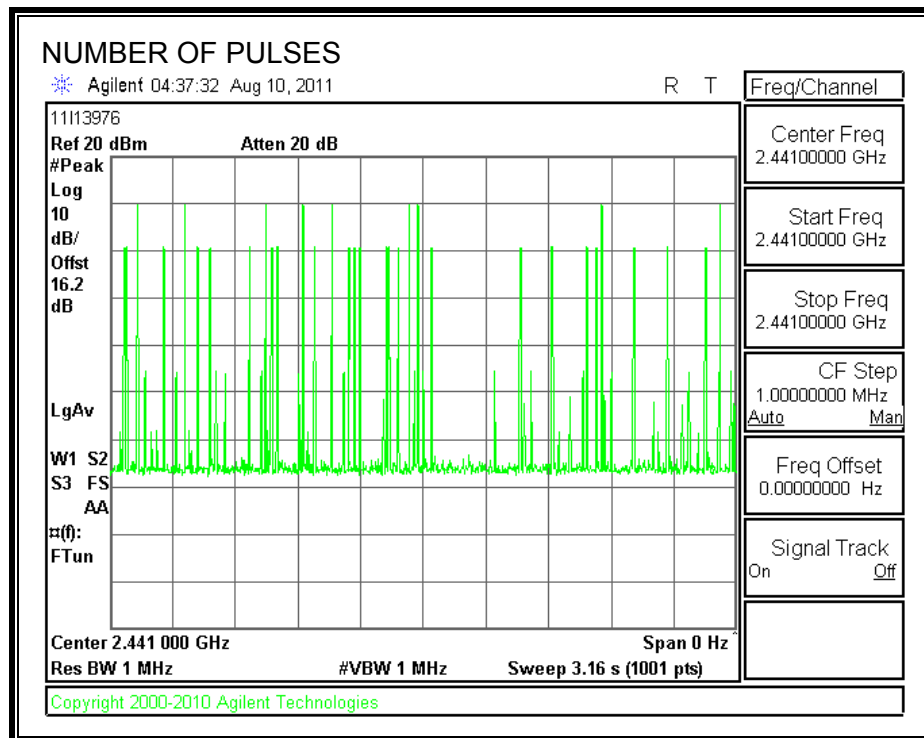
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



PULSE WIDTH, DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



7.1.6. 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.

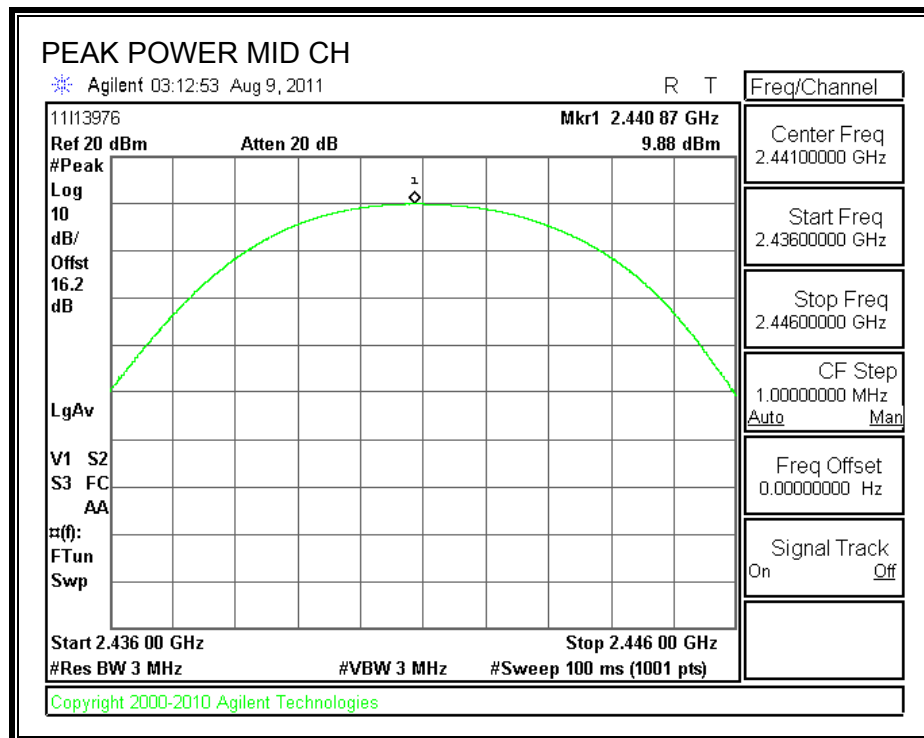
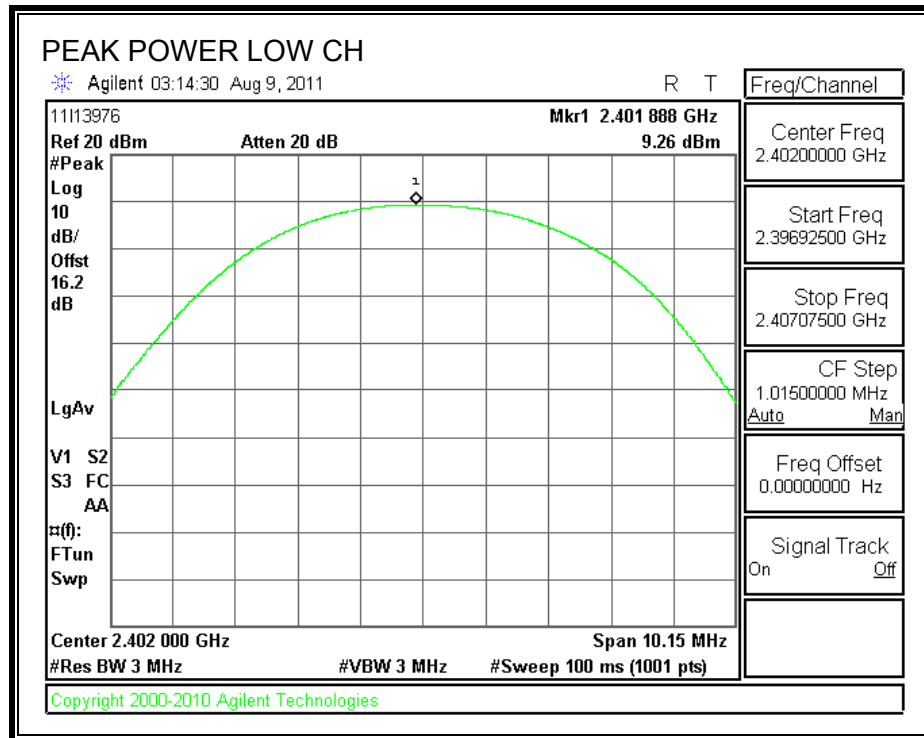
TEST PROCEDURE

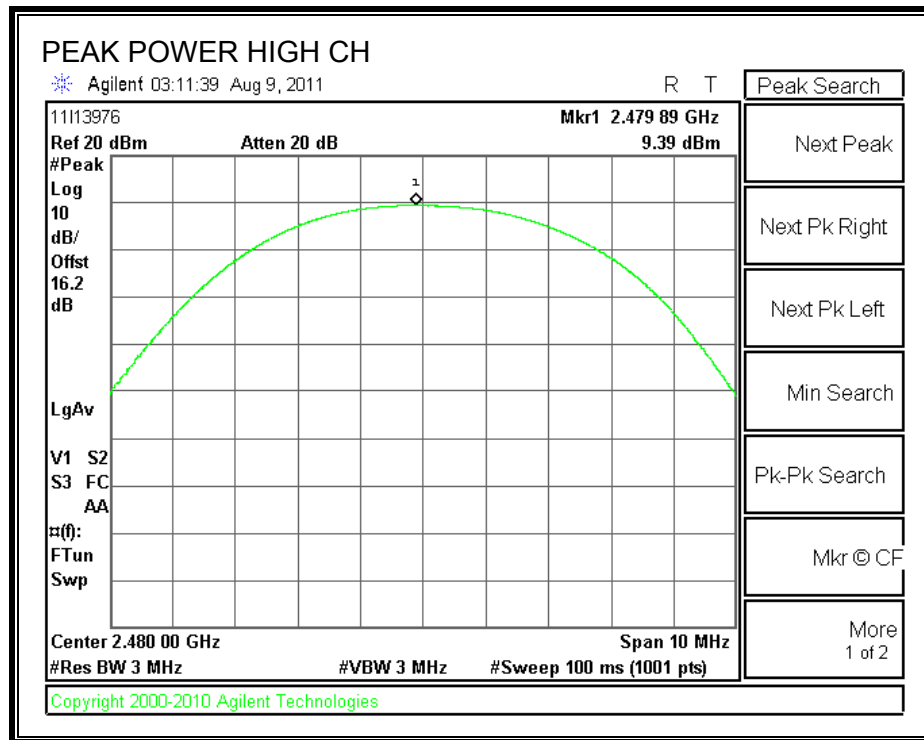
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.26	30	-20.74
Middle	2441	9.88	30	-20.12
High	2480	9.39	30	-20.61

OUTPUT POWER





7.1.7. 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 16.2dB (including 16 dB pad and 0.2 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	7.71
Middle	2441	8.22
High	2480	7.80

7.1.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

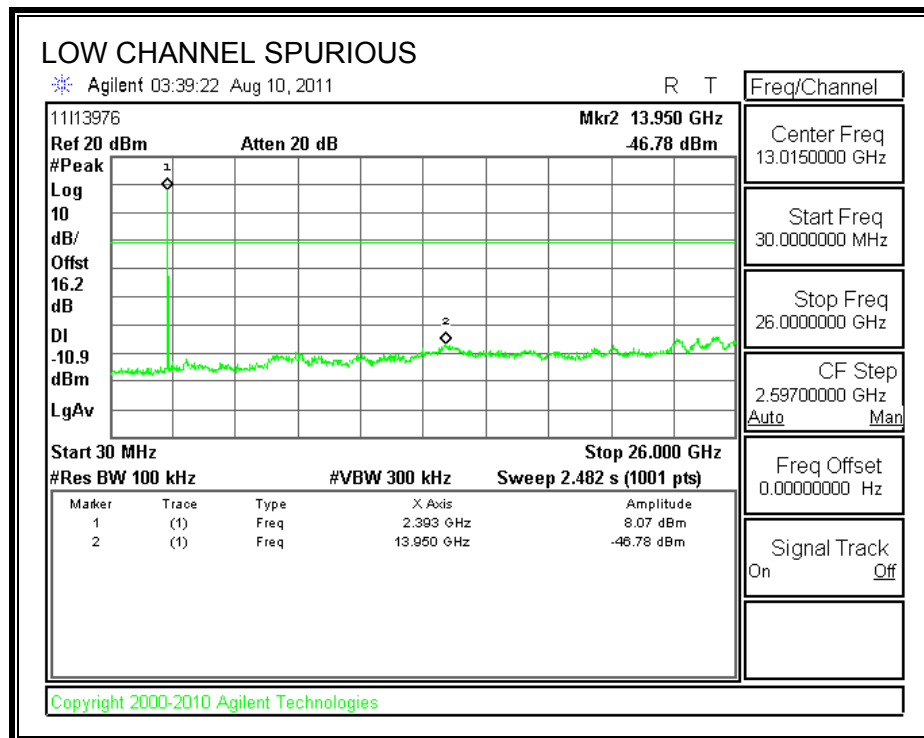
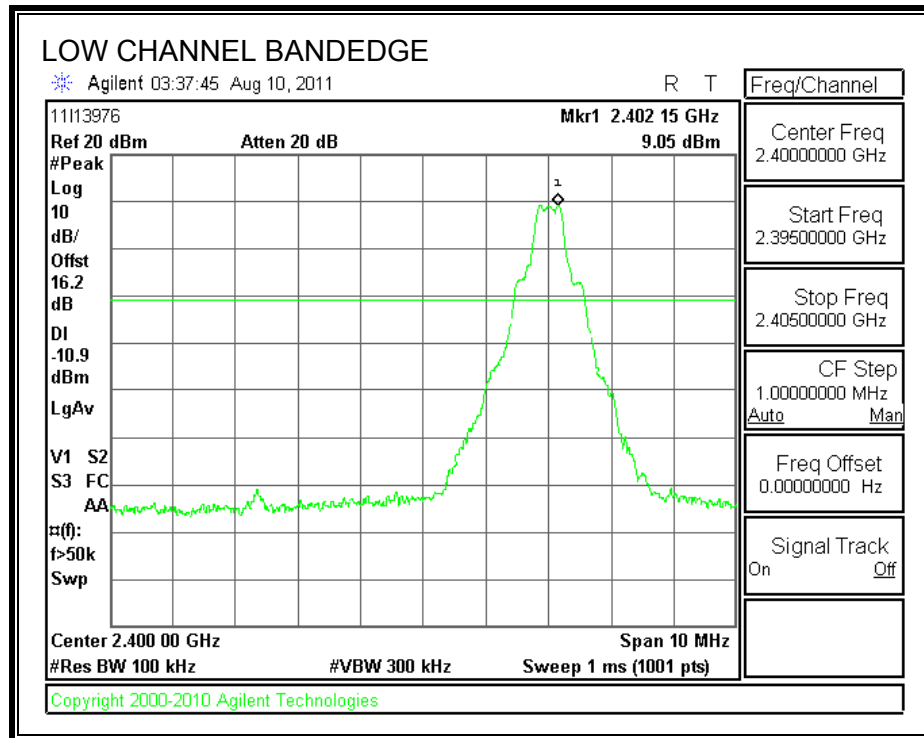
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

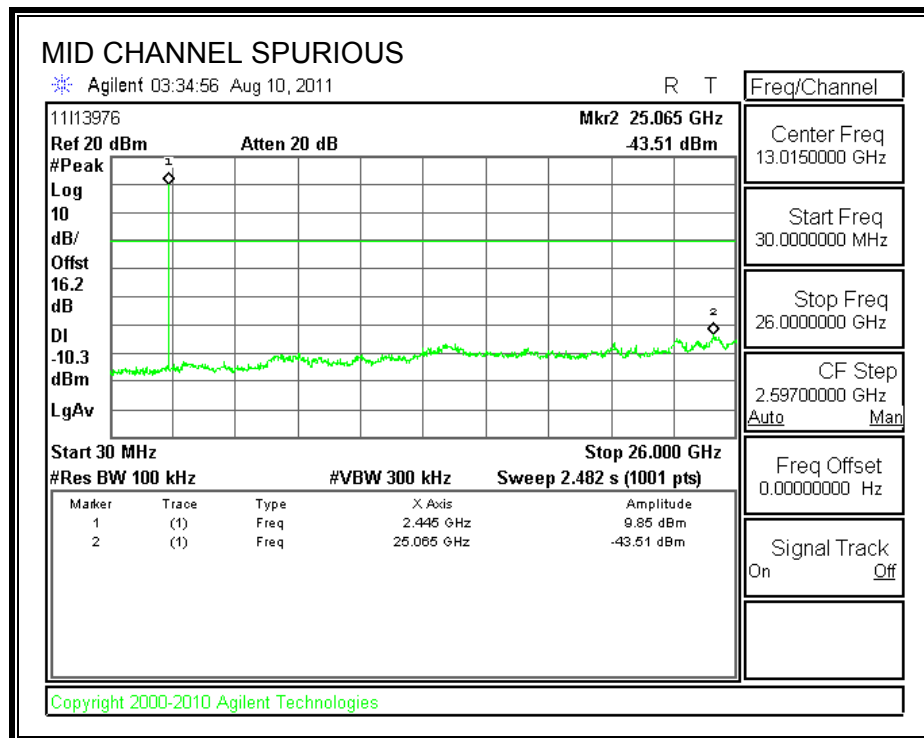
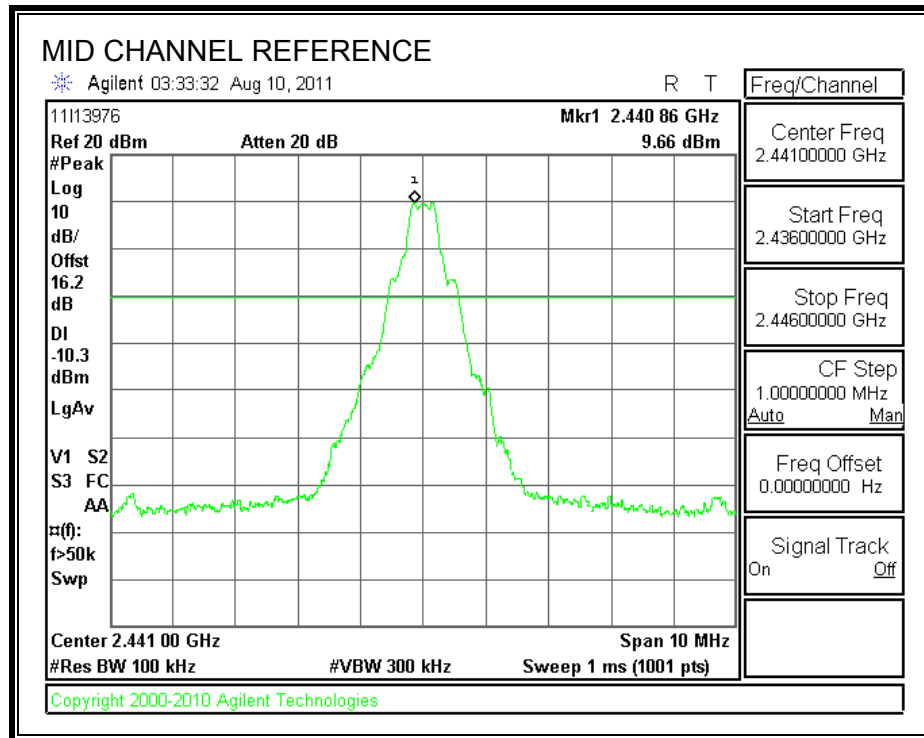
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

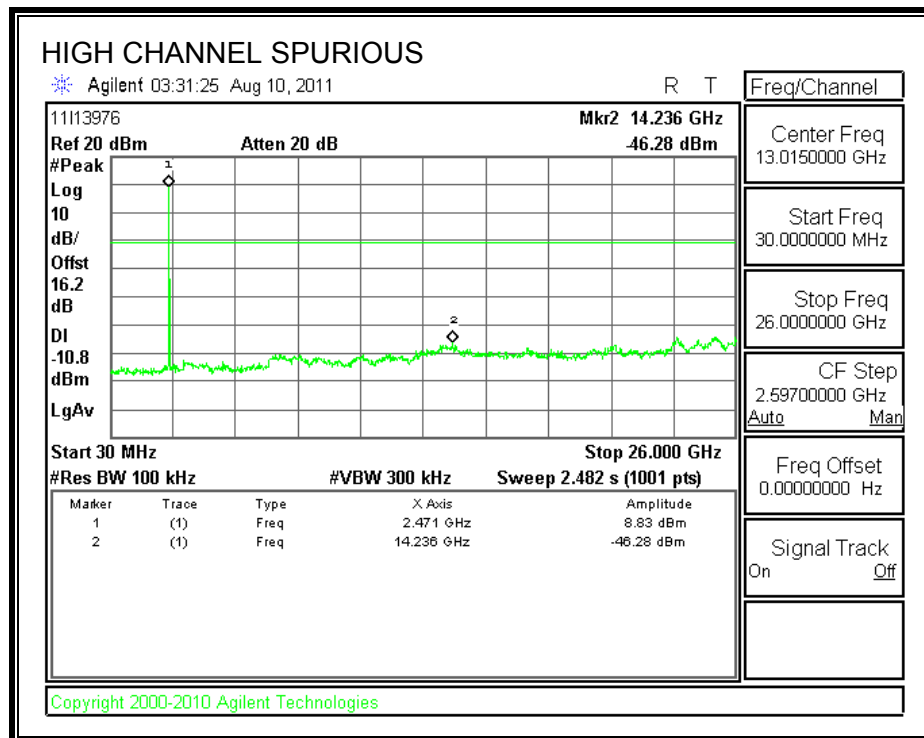
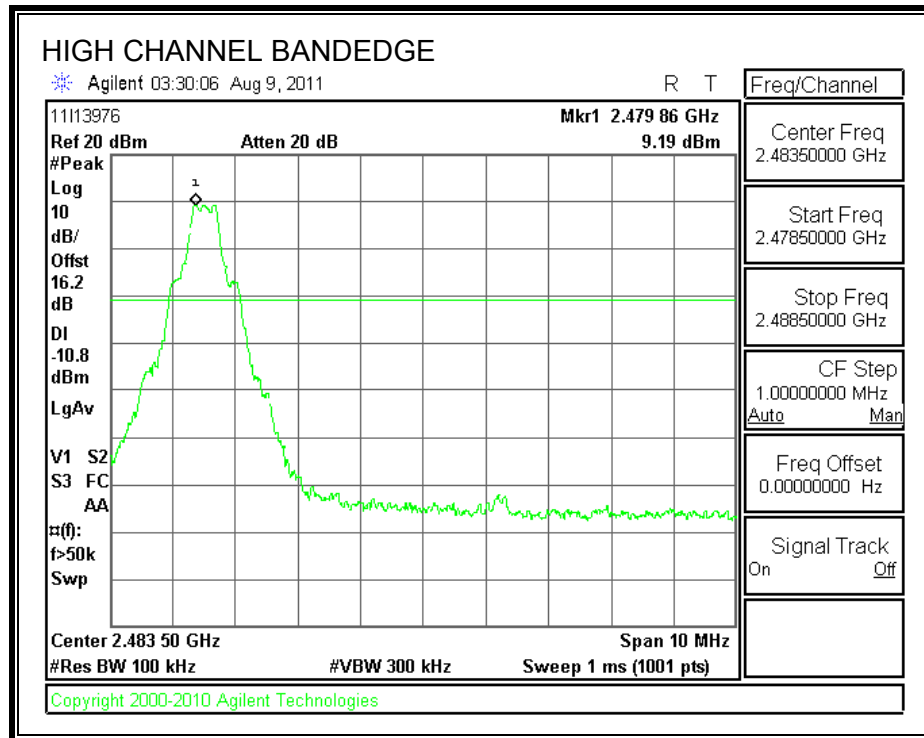
SPURIOUS EMISSIONS, LOW CHANNEL



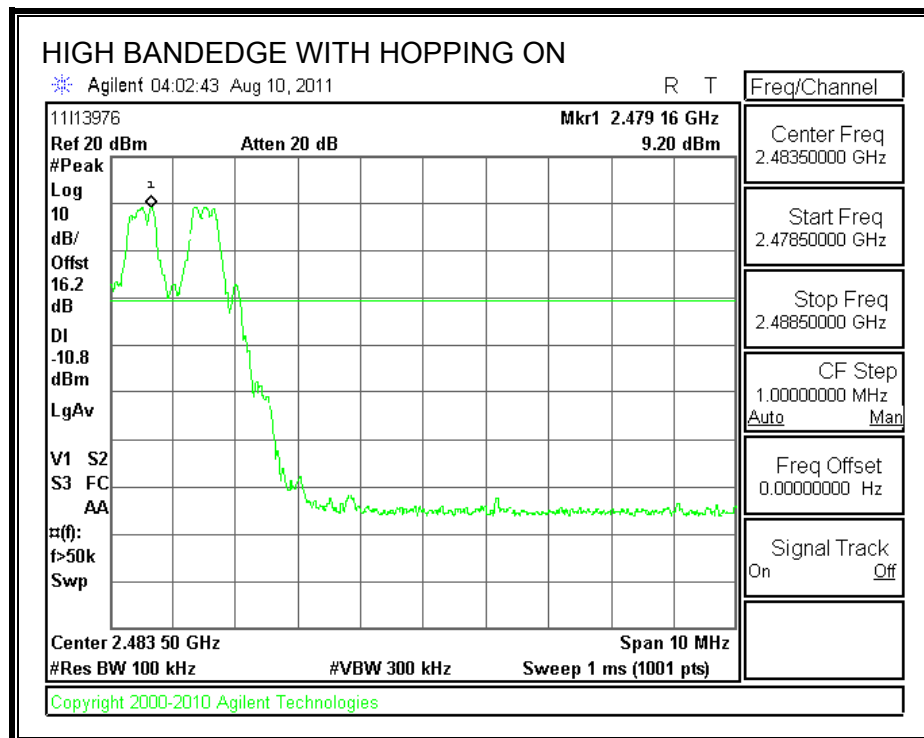
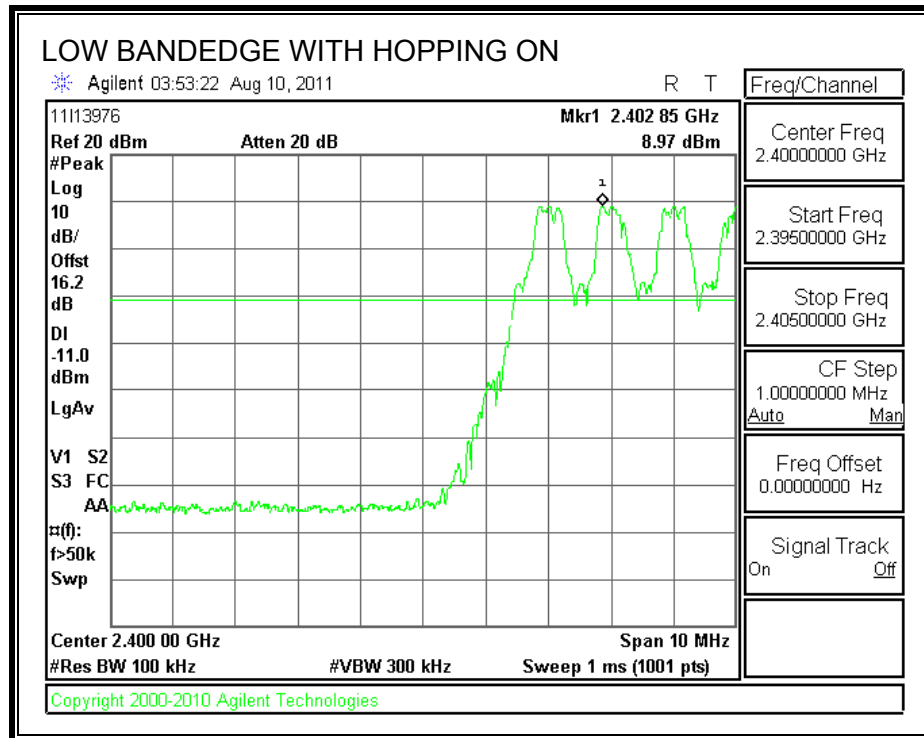
SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



7.2. ENHANCED DATA RATE 8PSK MODULATION

7.2.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

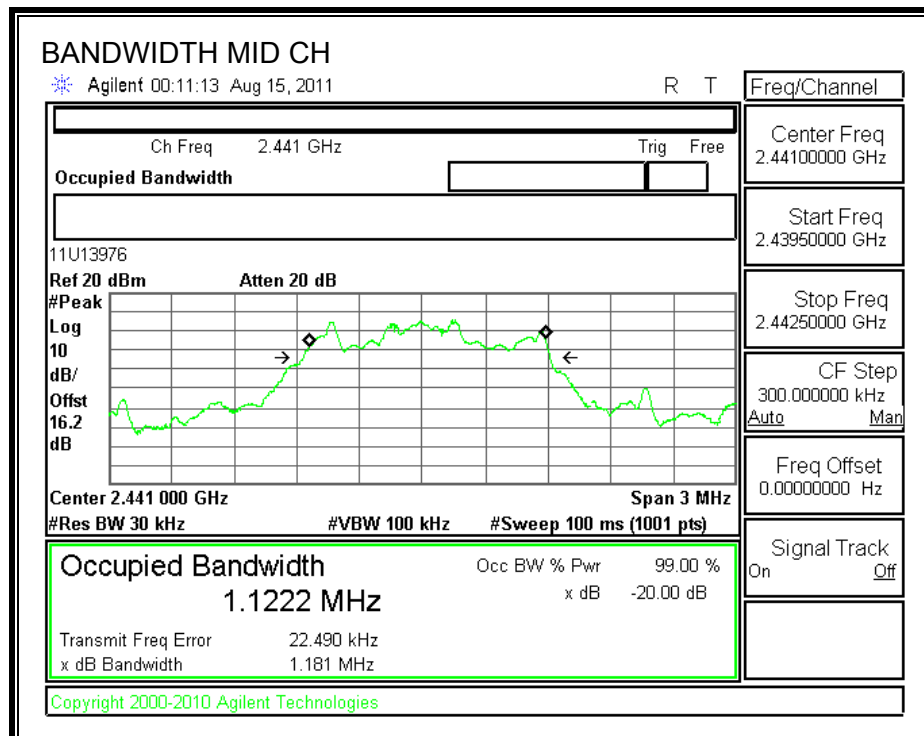
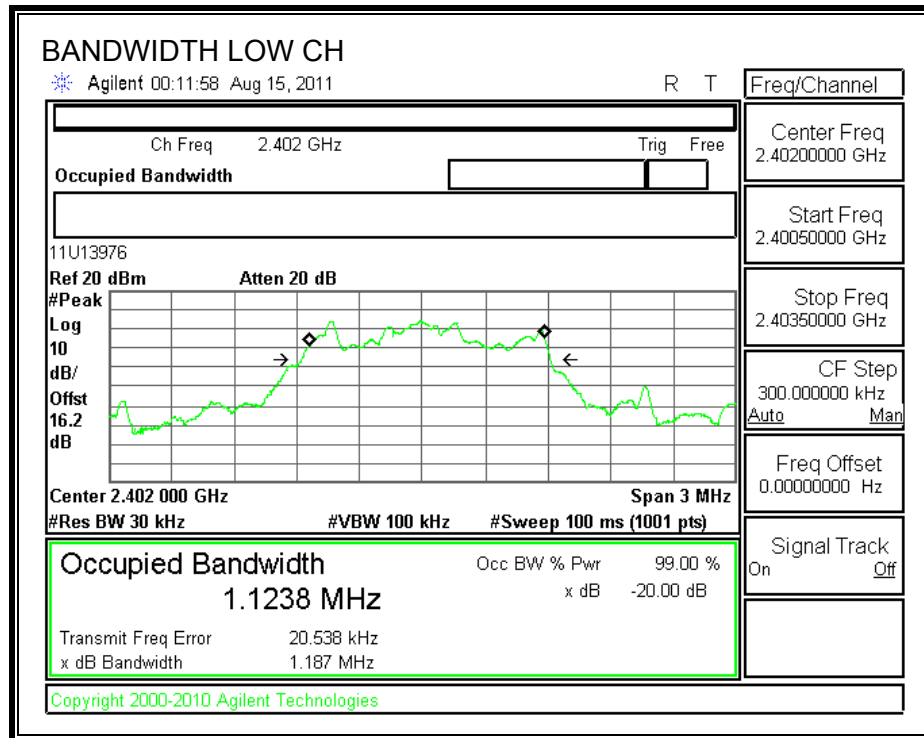
TEST PROCEDURE

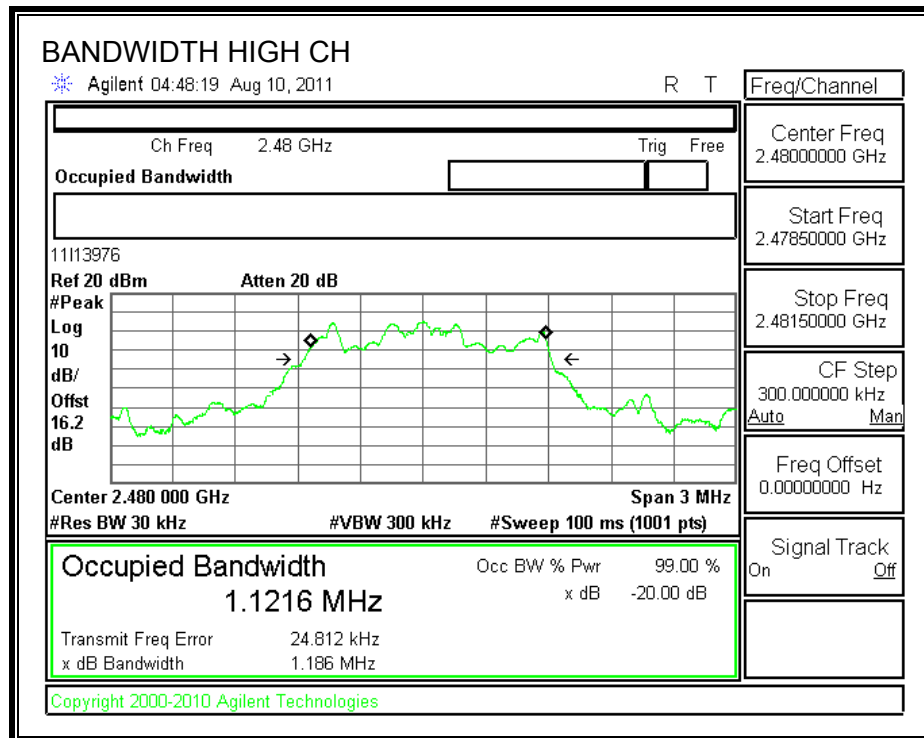
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2402	1.187
Middle	2441	1.181
High	2480	1.186

20 dB BANDWIDTH





7.2.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

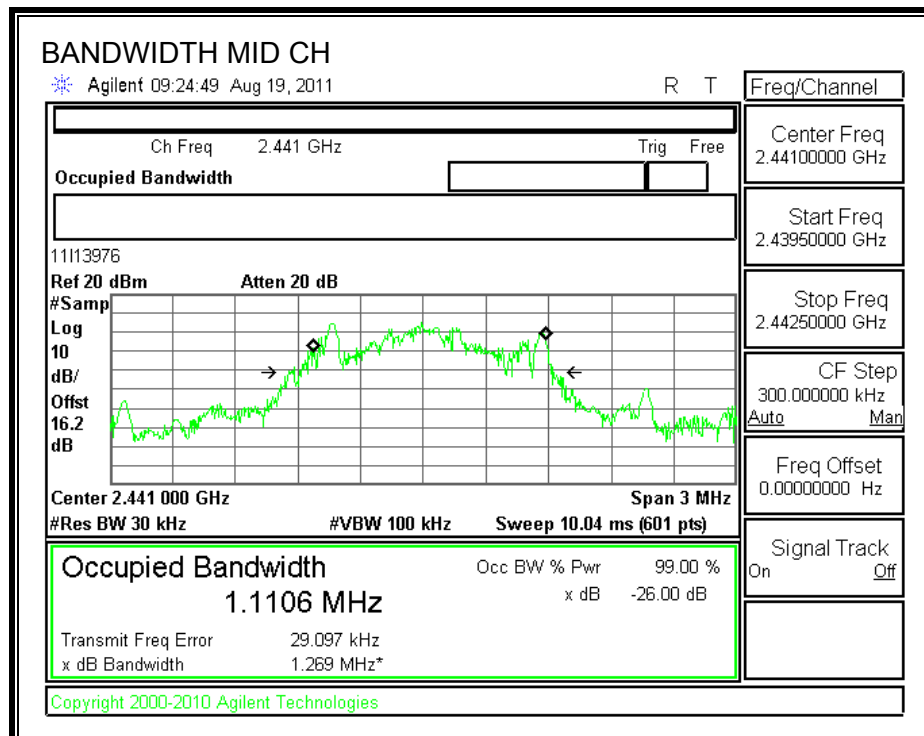
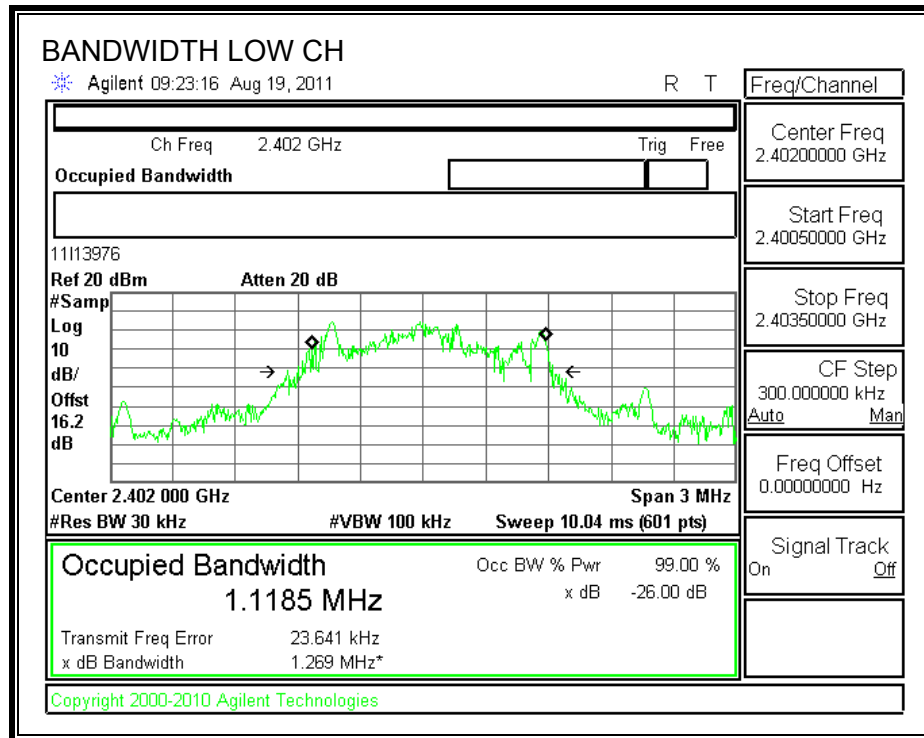
TEST PROCEDURE

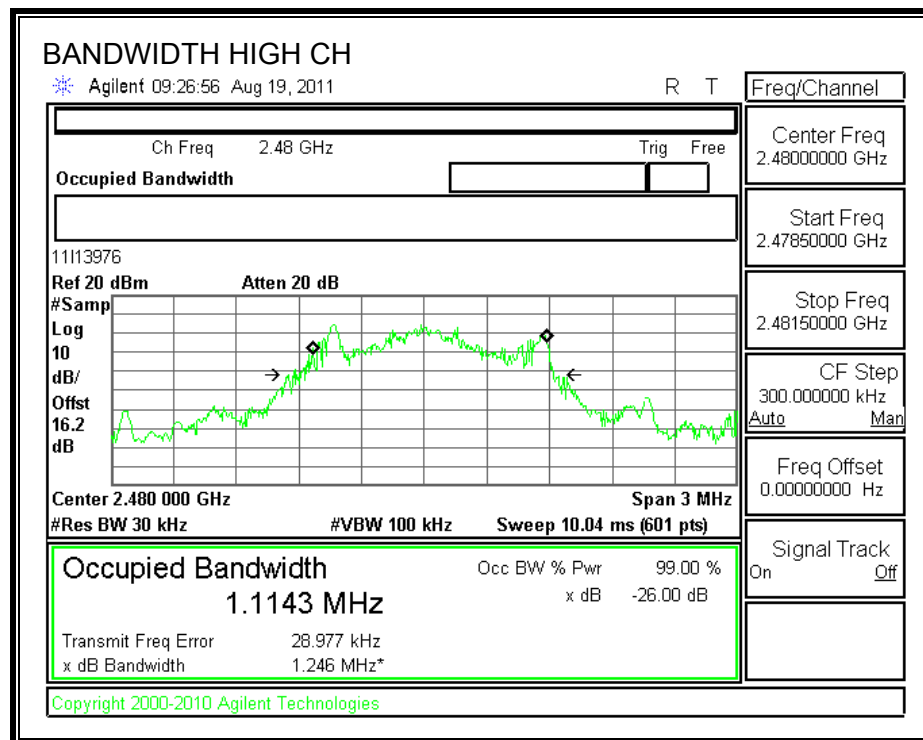
Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	2402	1.1185
Middle	2441	1.1106
High	2480	1.1143

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

RESULTS

99% BANDWIDTH





7.2.3. 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 hopping channel, whichever is greater.

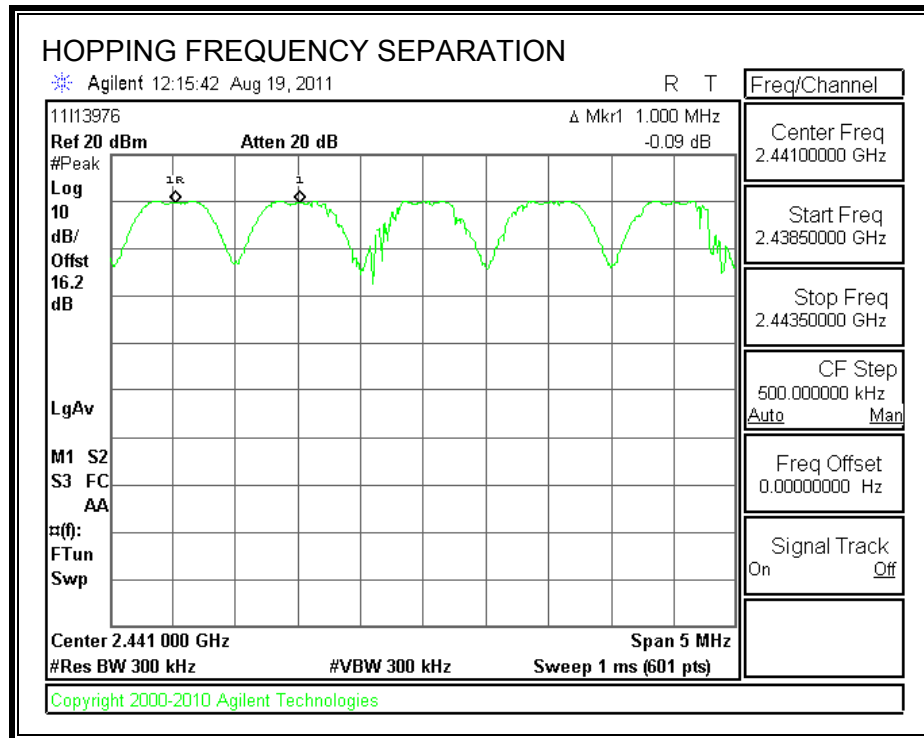
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

HOPPING FREQUENCY SEPARATION



7.2.4. 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.

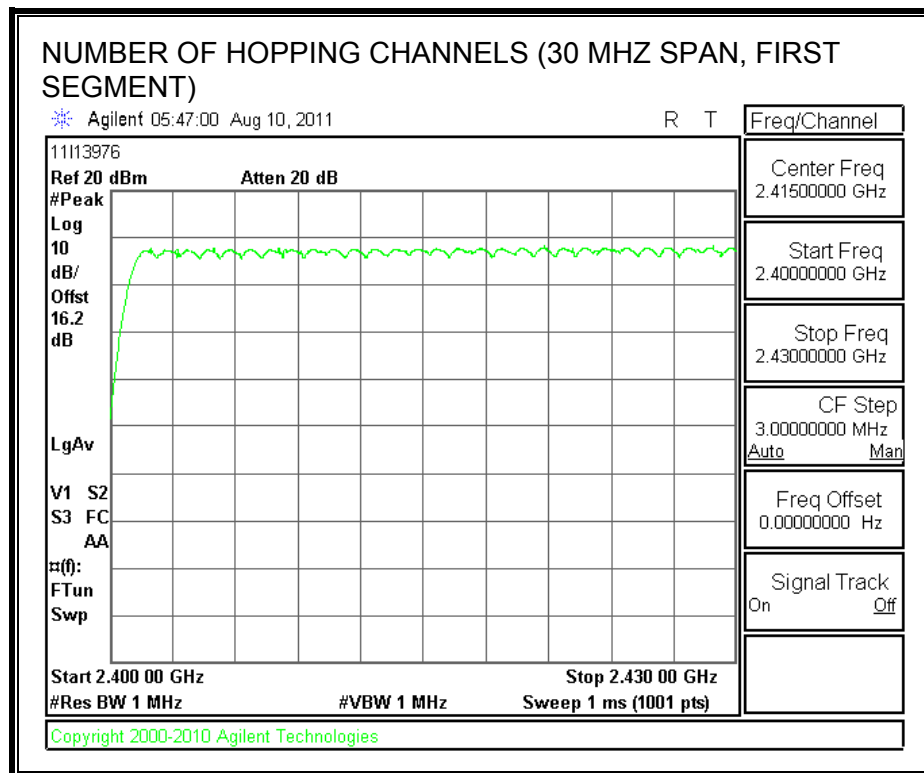
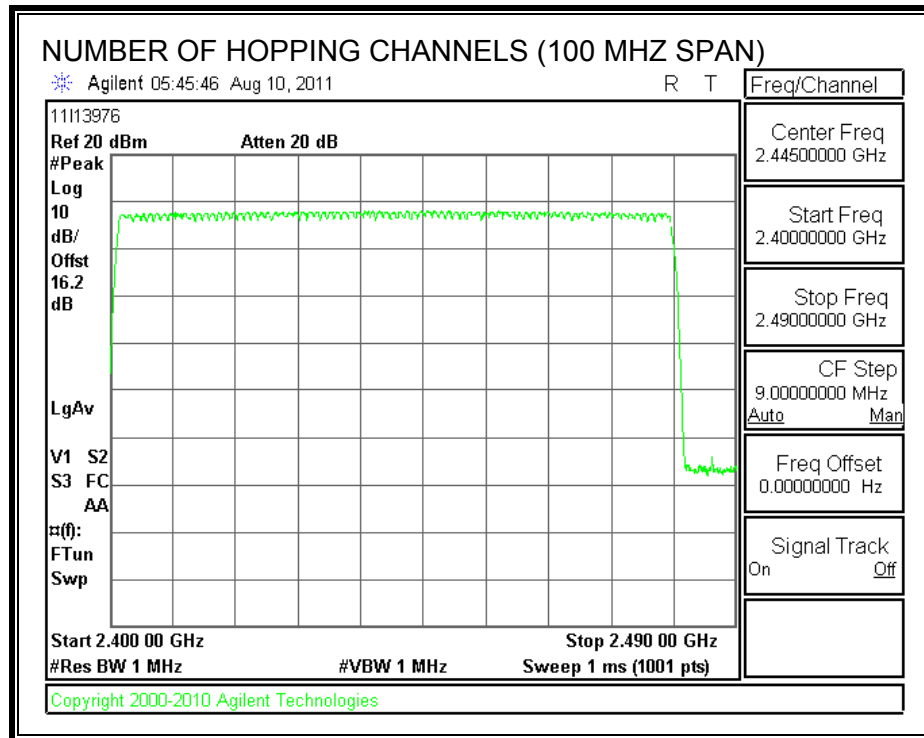
TEST PROCEDURE

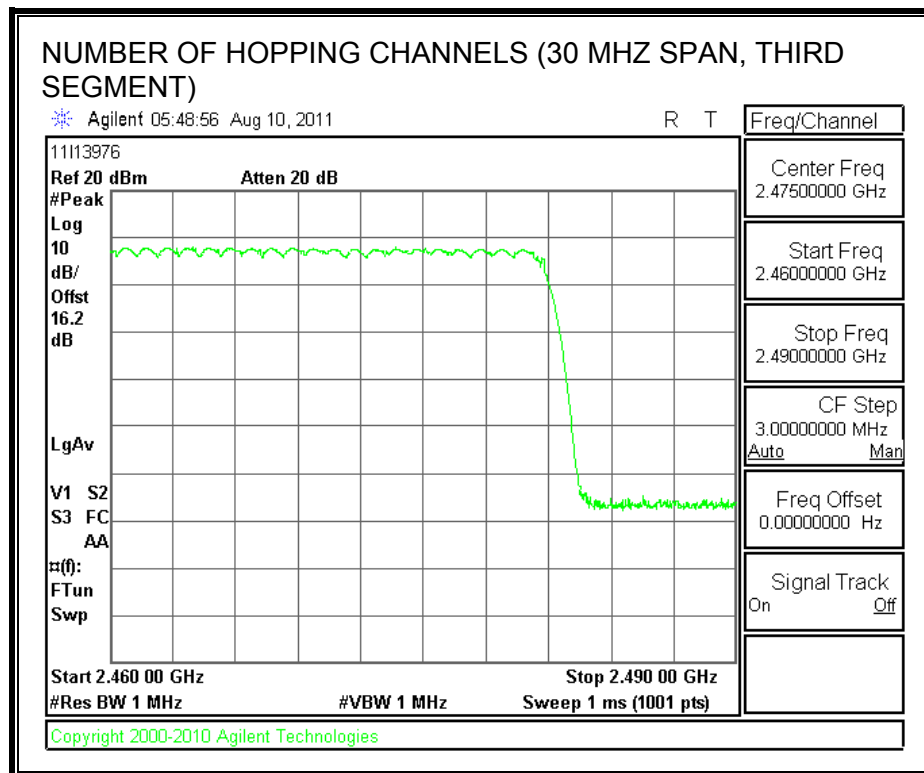
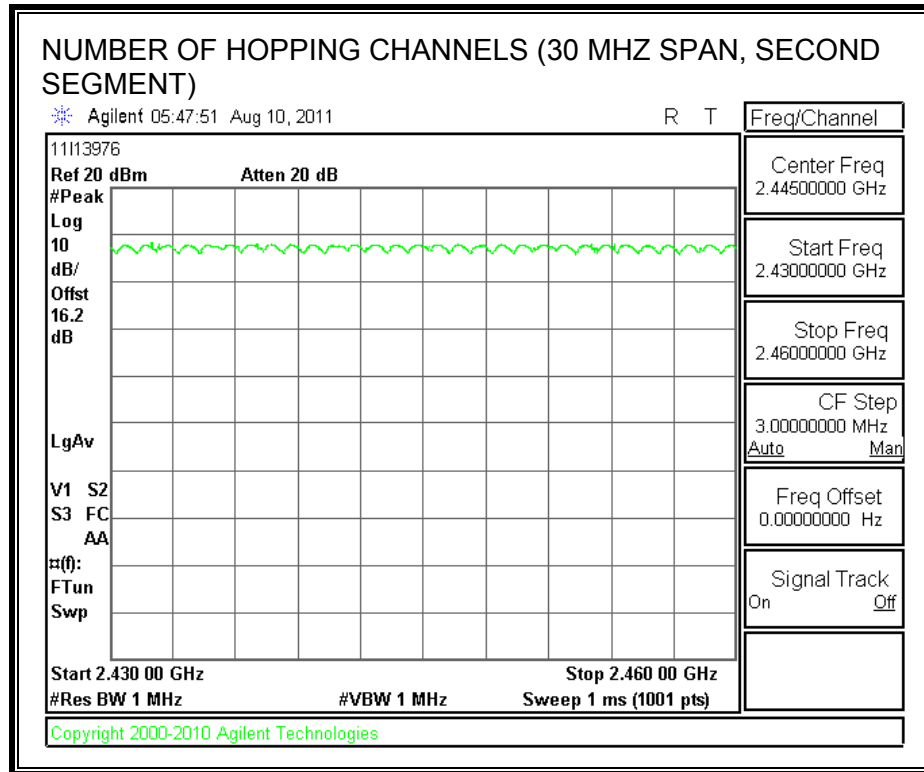
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

79 Channels observed.

NUMBER OF HOPPING CHANNELS





7.2.5. 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.

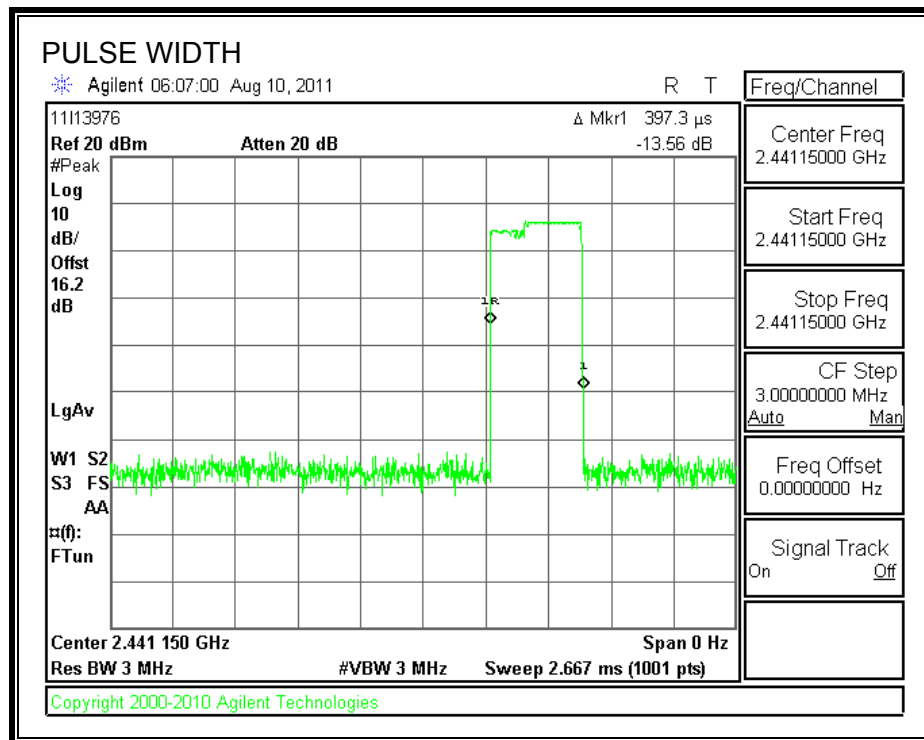
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

RESULTS

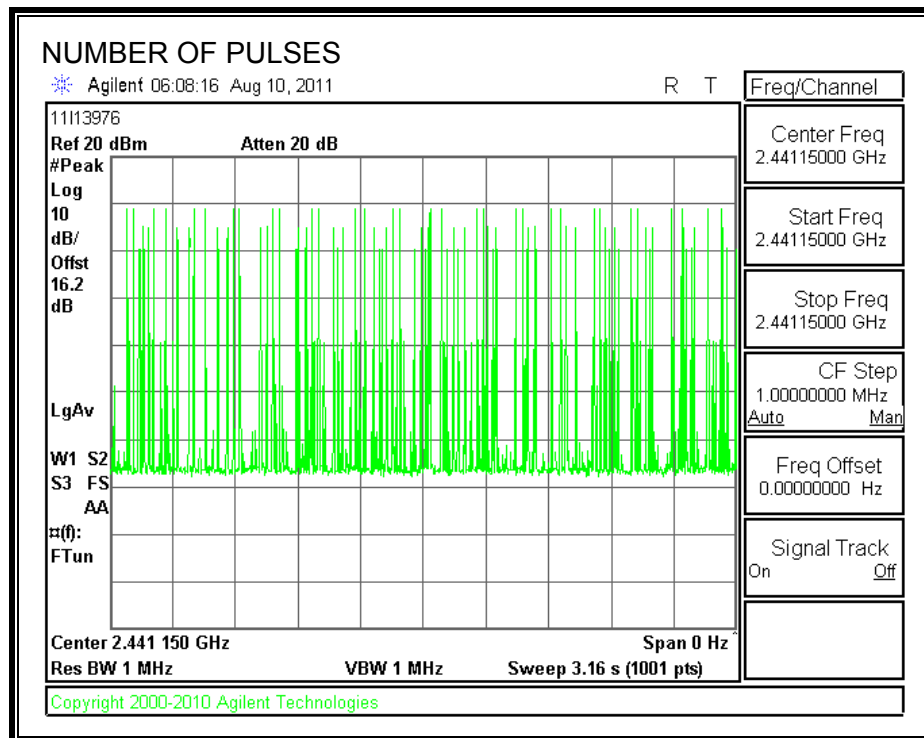
8PSK Mode

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
DH1	0.3973	33	0.131	0.4	0.269
DH3	1.6730	17	0.284	0.4	0.116
DH5	2.9080	11	0.320	0.4	0.080

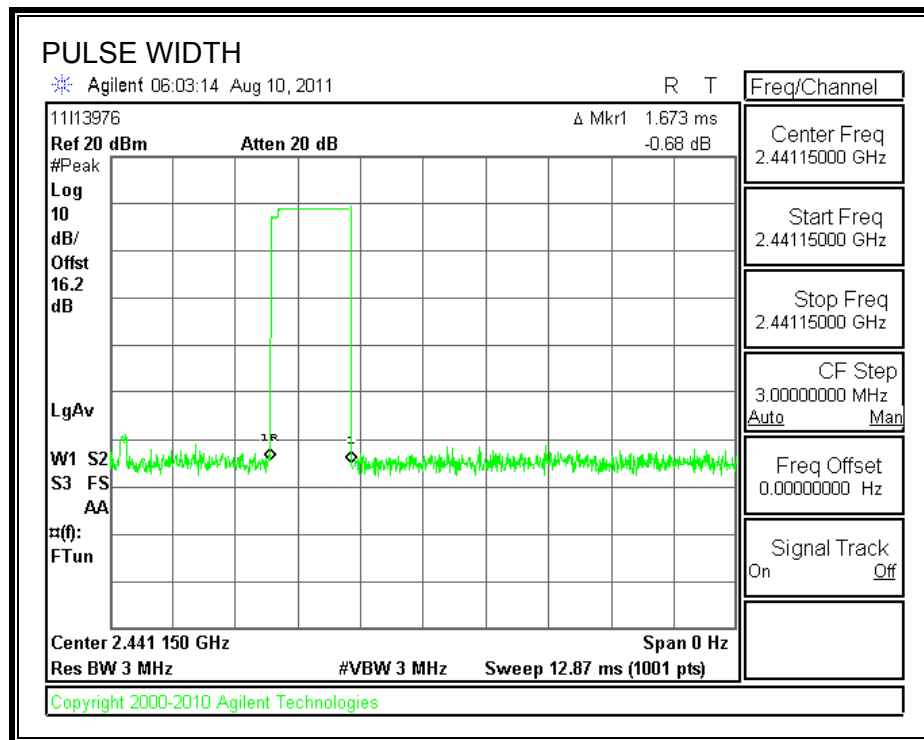
PULSE WIDTH , 3DH1



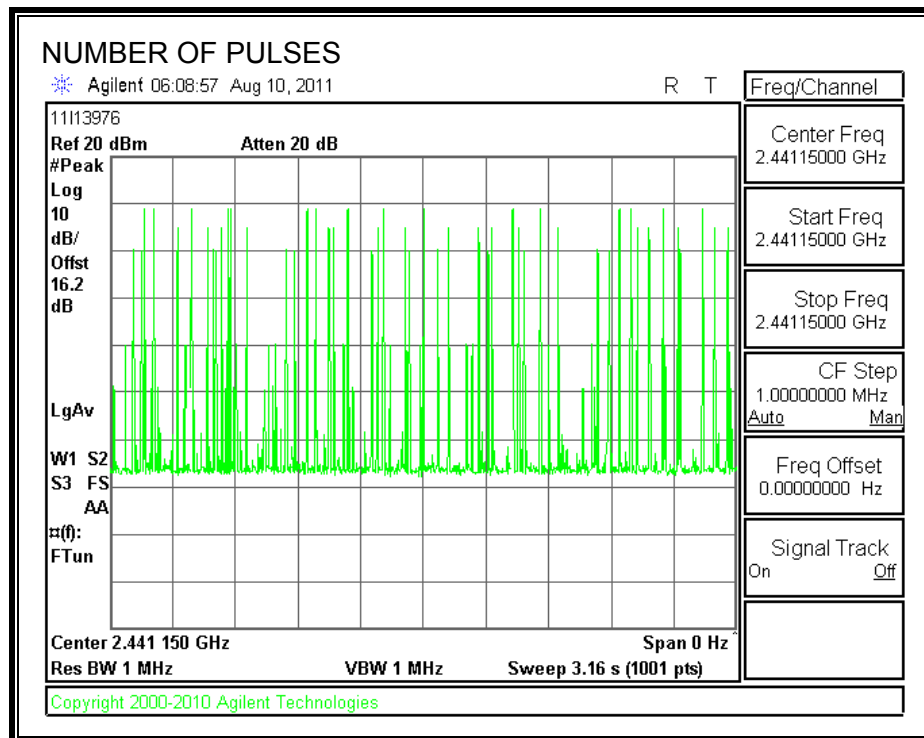
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



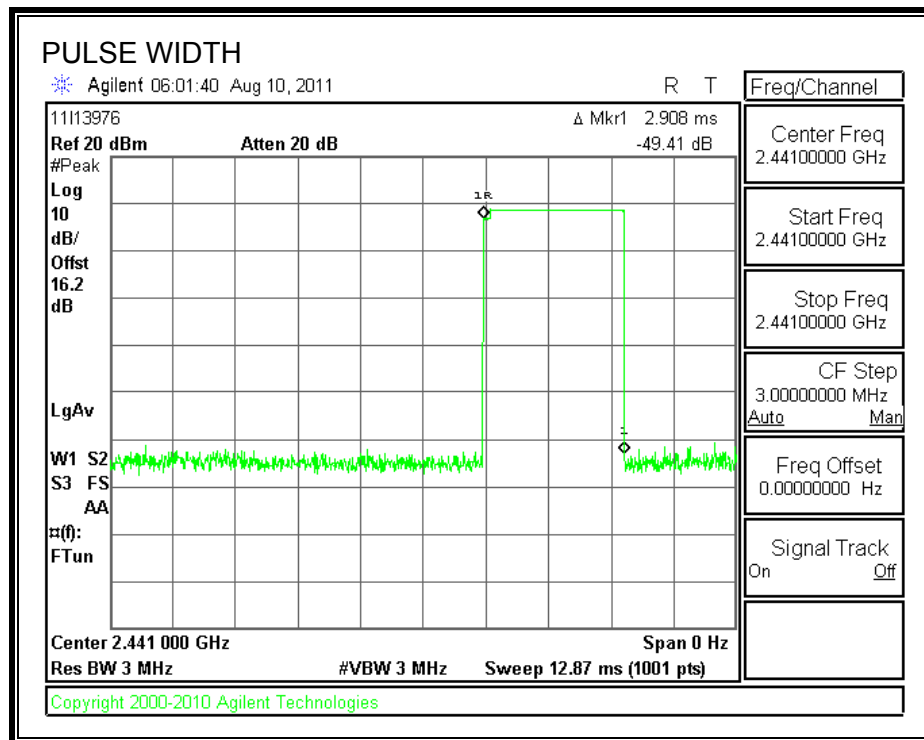
PULSE WIDTH, 3DH3



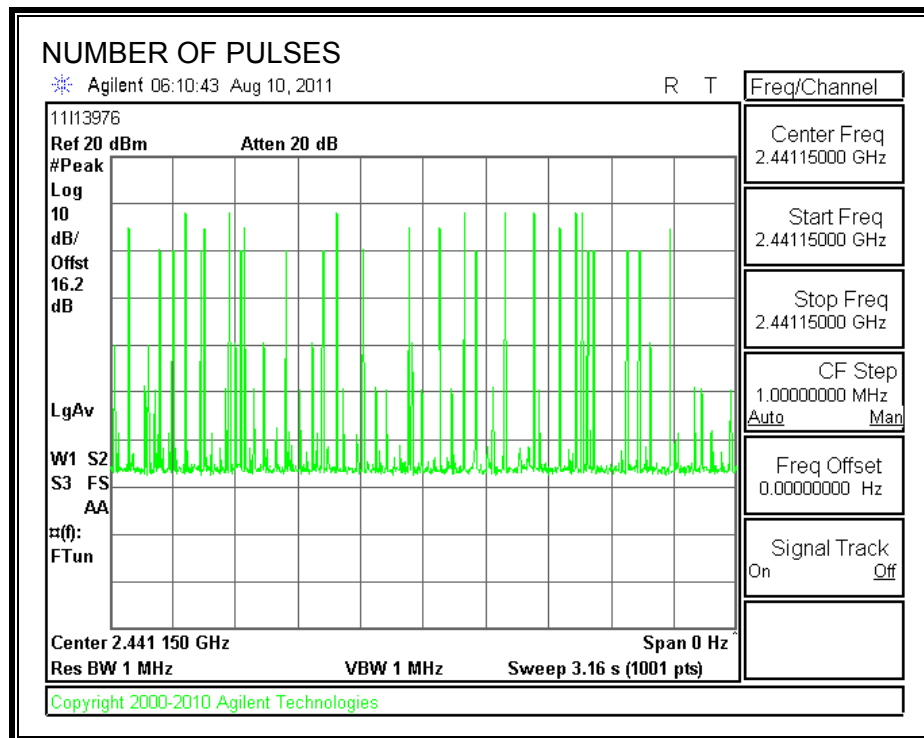
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



PULSE WIDTH, DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



7.2.6. 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.

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.

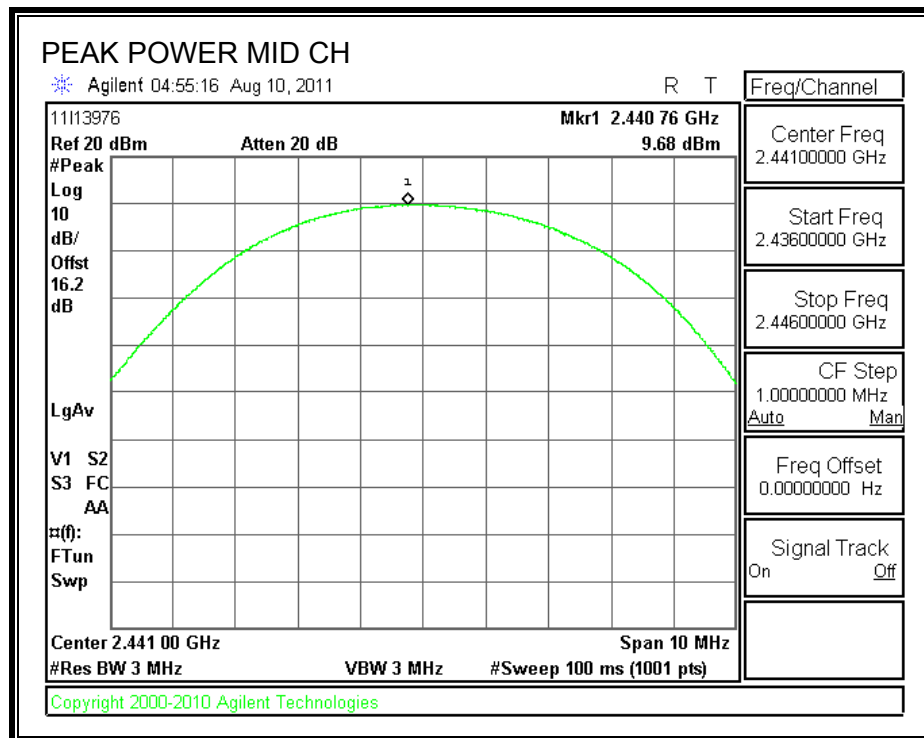
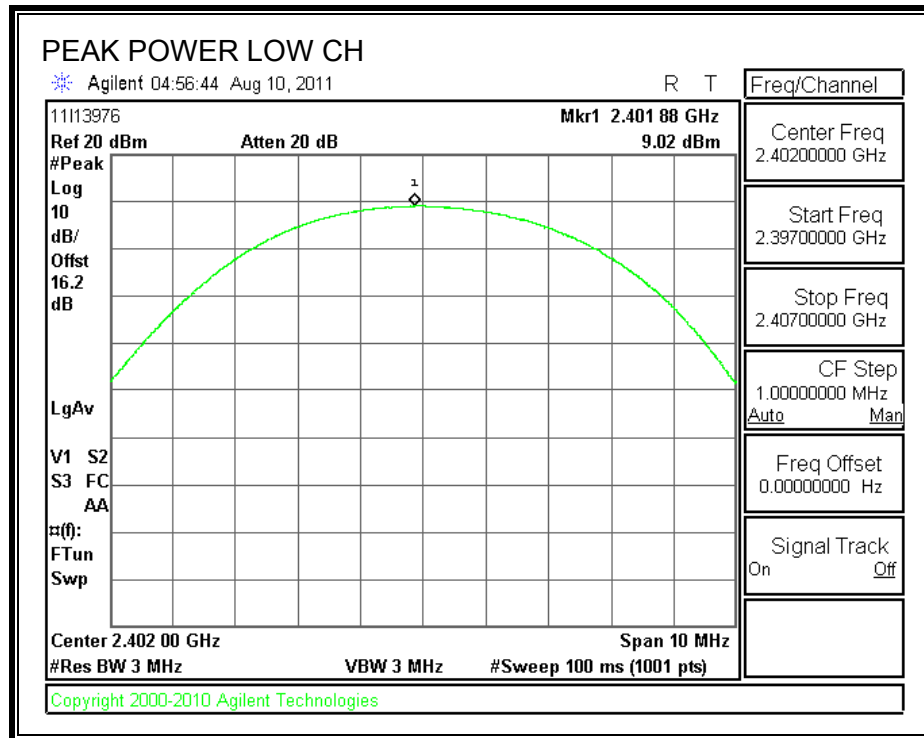
TEST PROCEDURE

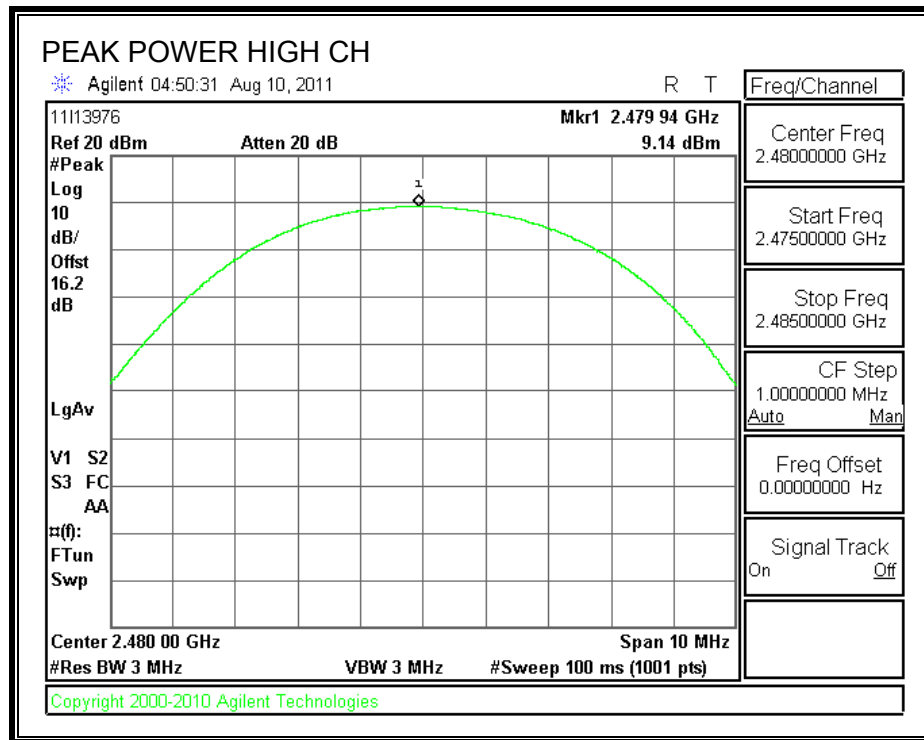
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.02	21	-11.95
Middle	2441	9.68	21	-11.29
High	2480	9.14	21	-11.83

OUTPUT POWER





7.2.7. 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 16.2dB (including 16 dB pad and 0.2 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	5.40
Middle	2441	5.94
High	2480	5.48

7.2.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

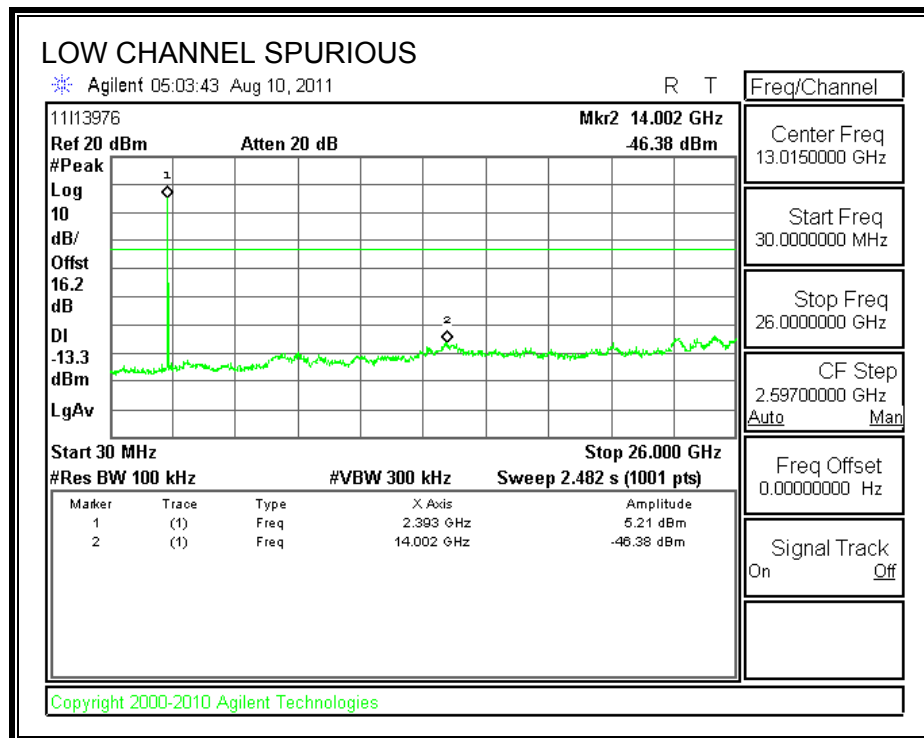
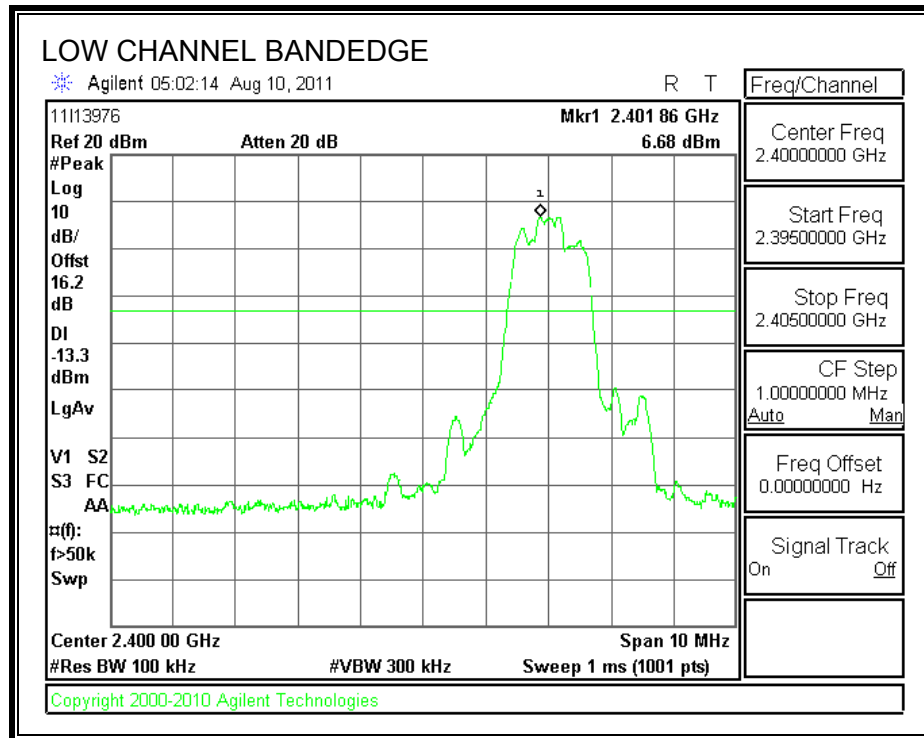
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

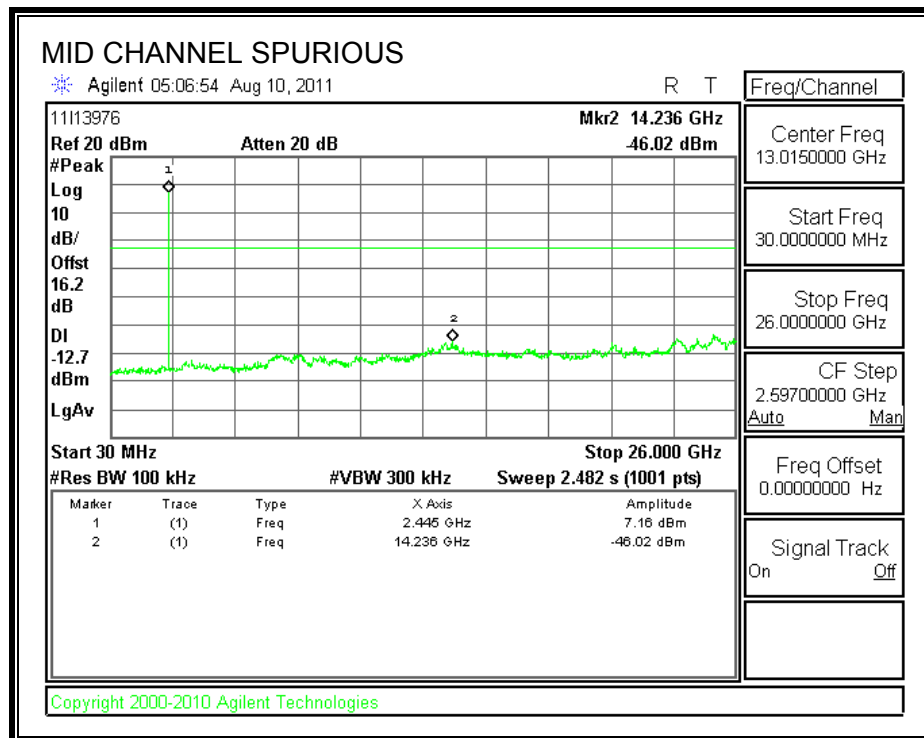
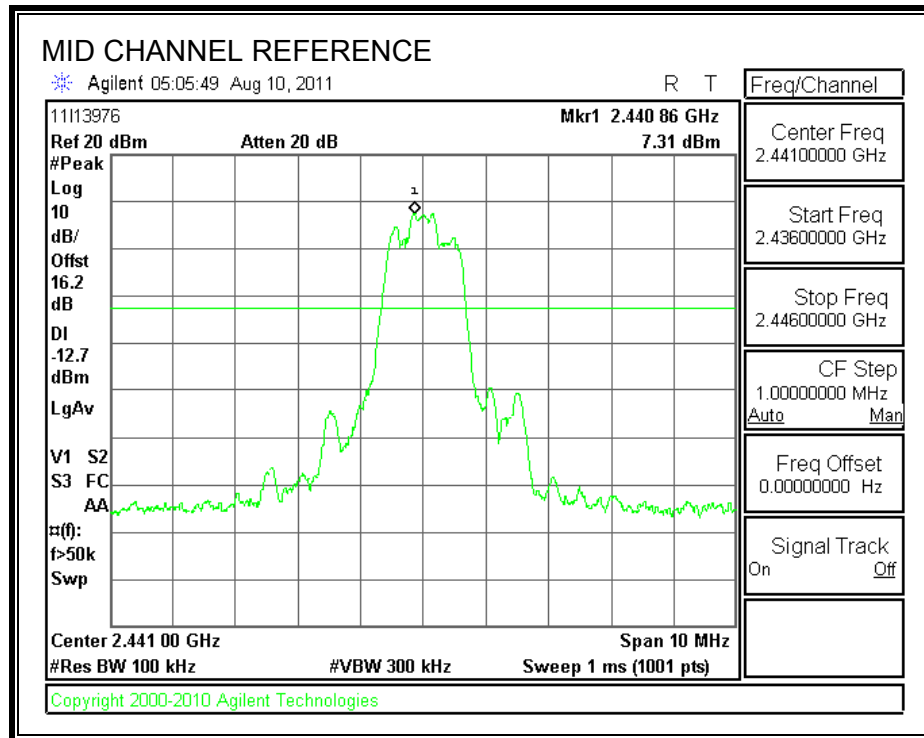
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

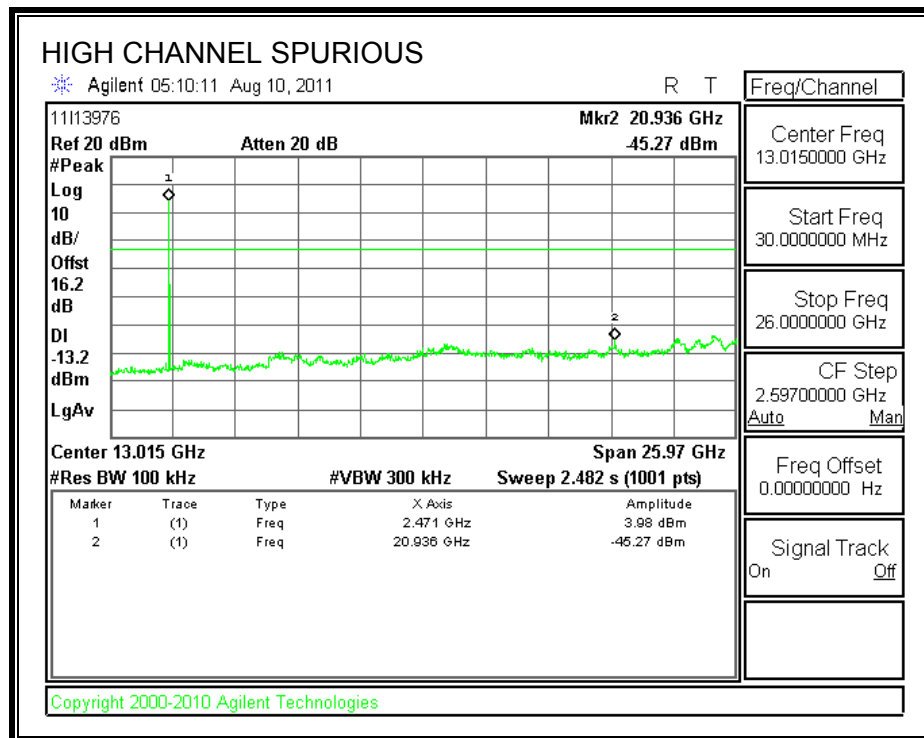
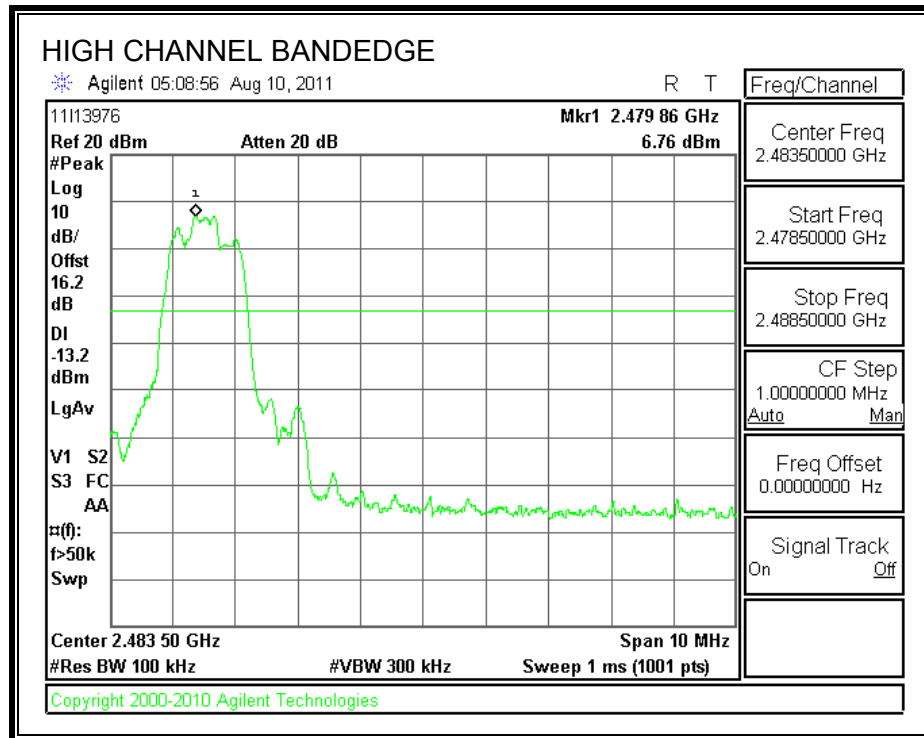
SPURIOUS EMISSIONS, LOW CHANNEL



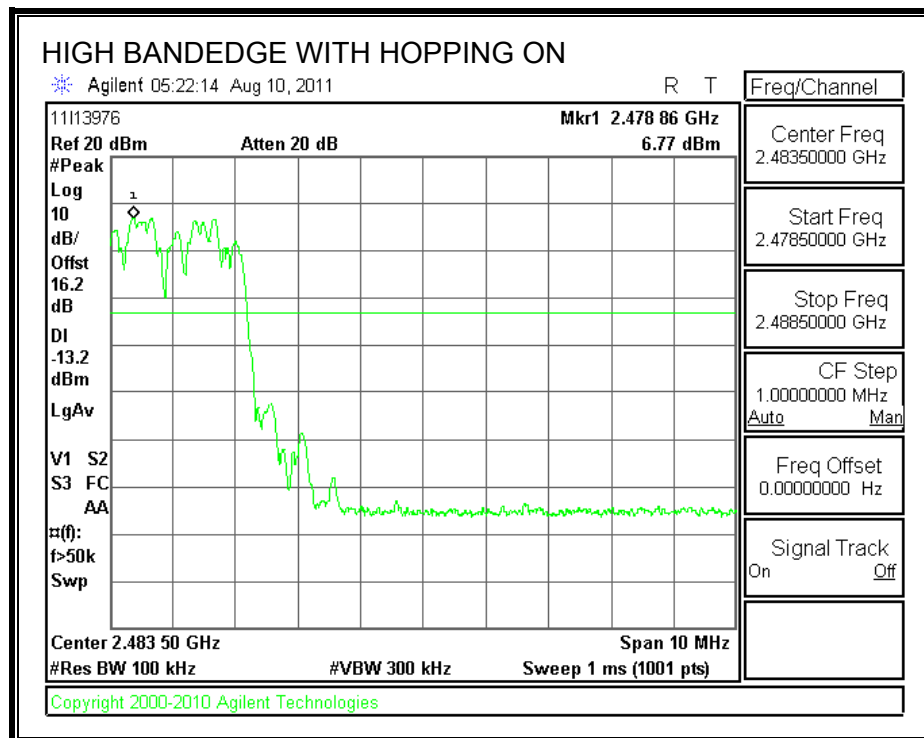
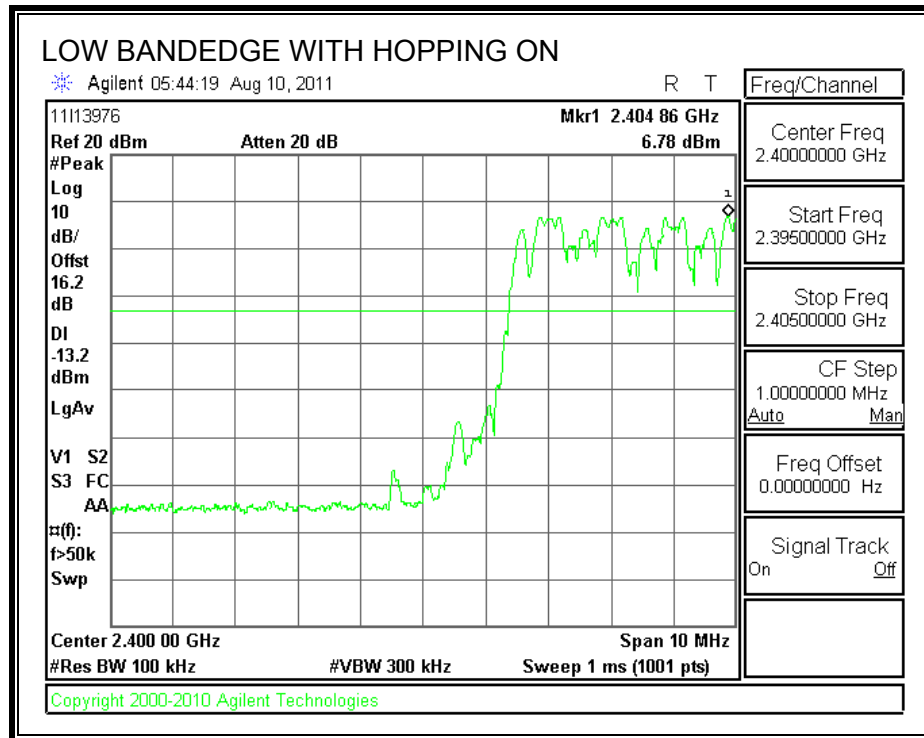
SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



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.

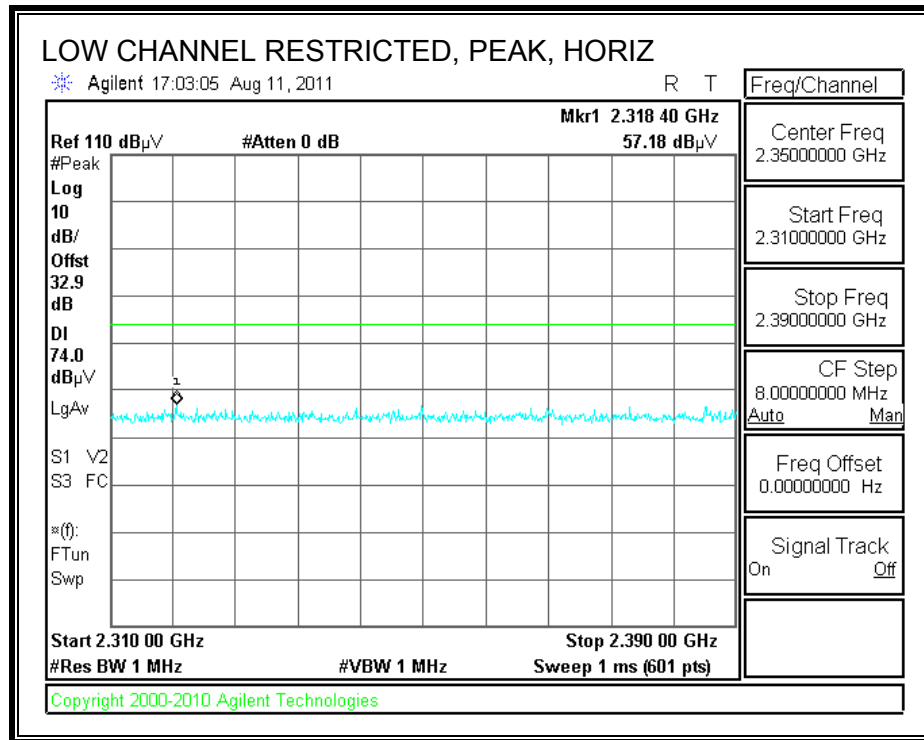
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

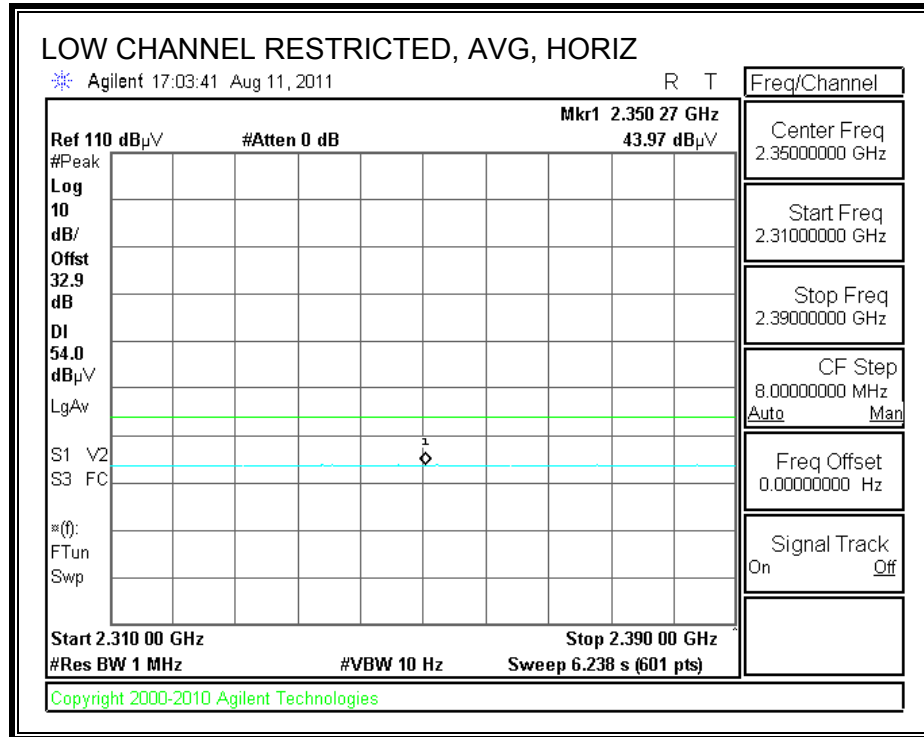
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

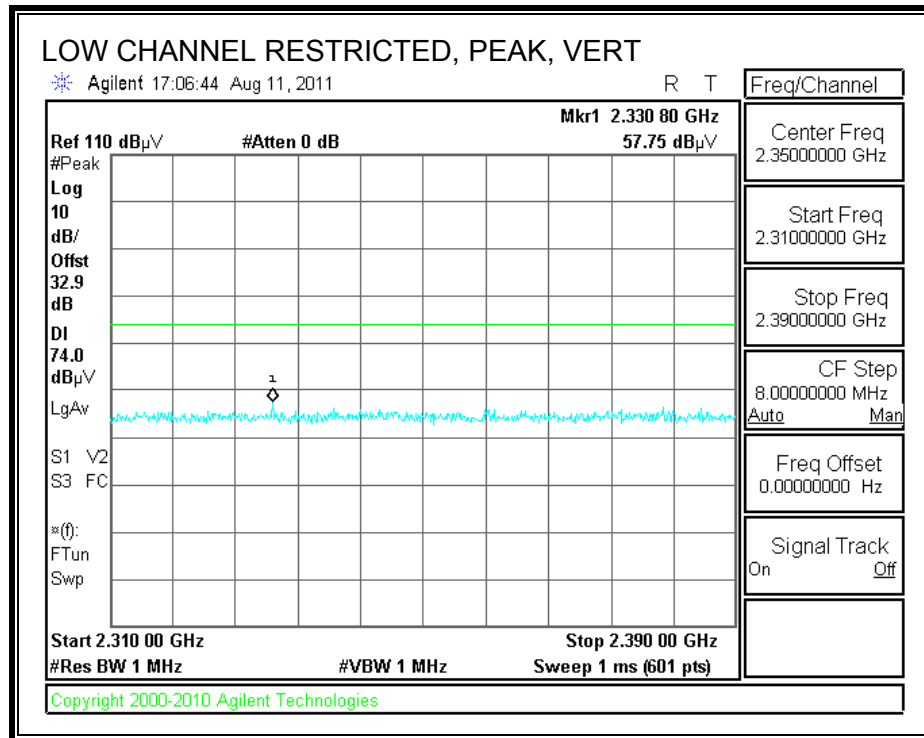
8.2.1. BASIC DATA RATE GFSK MODULATION

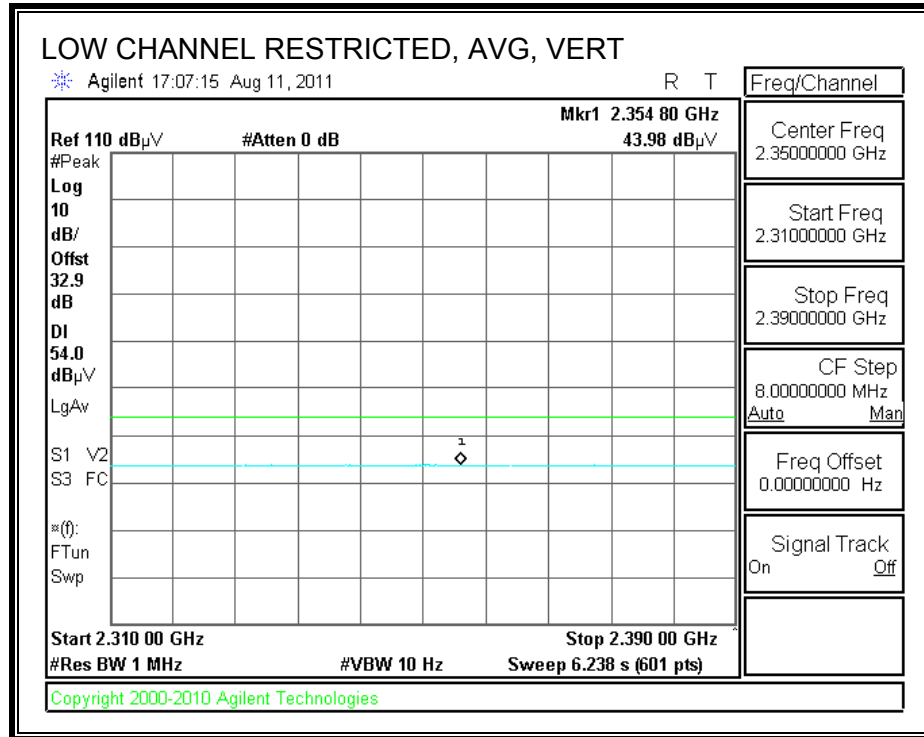
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



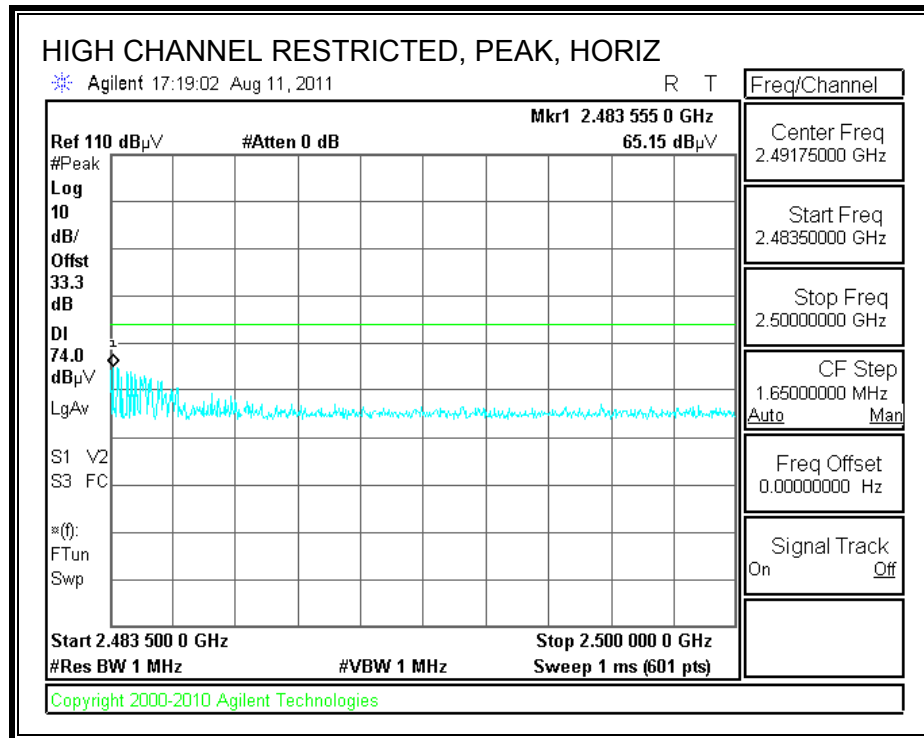


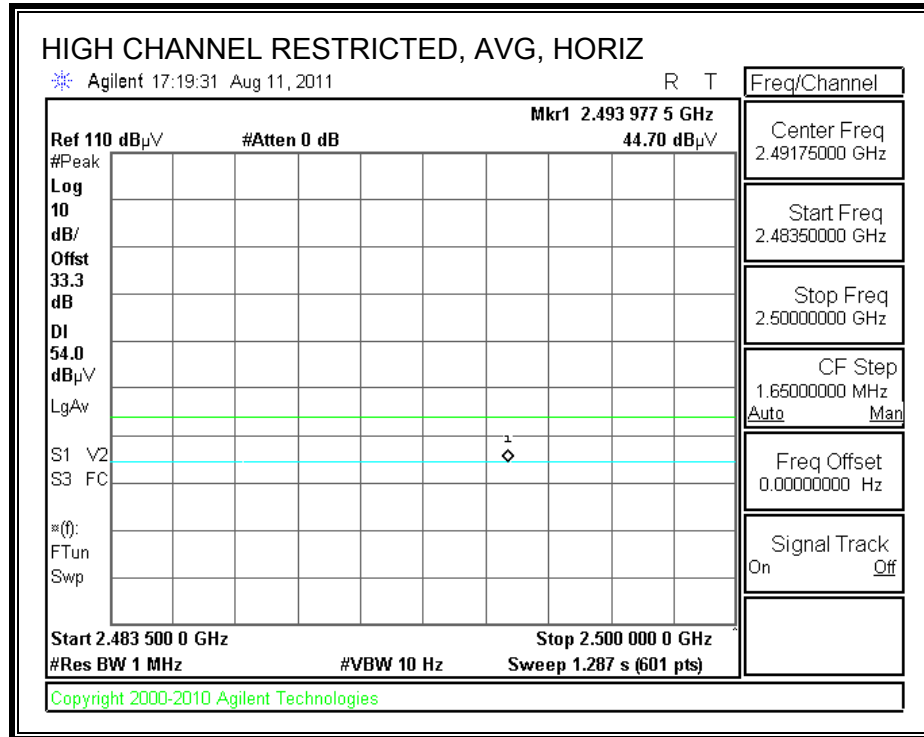
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



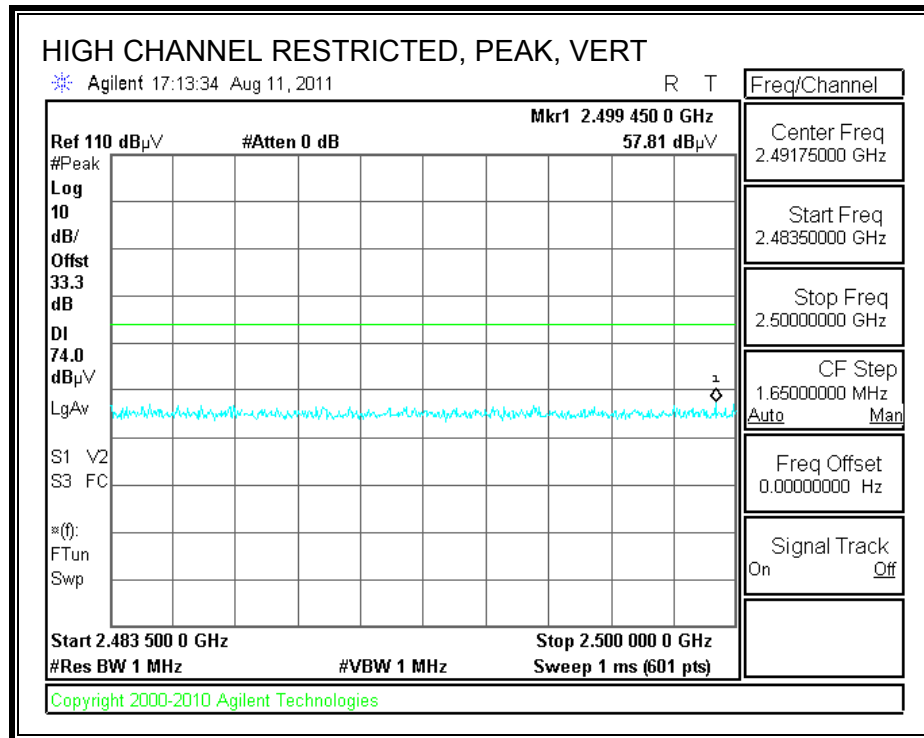


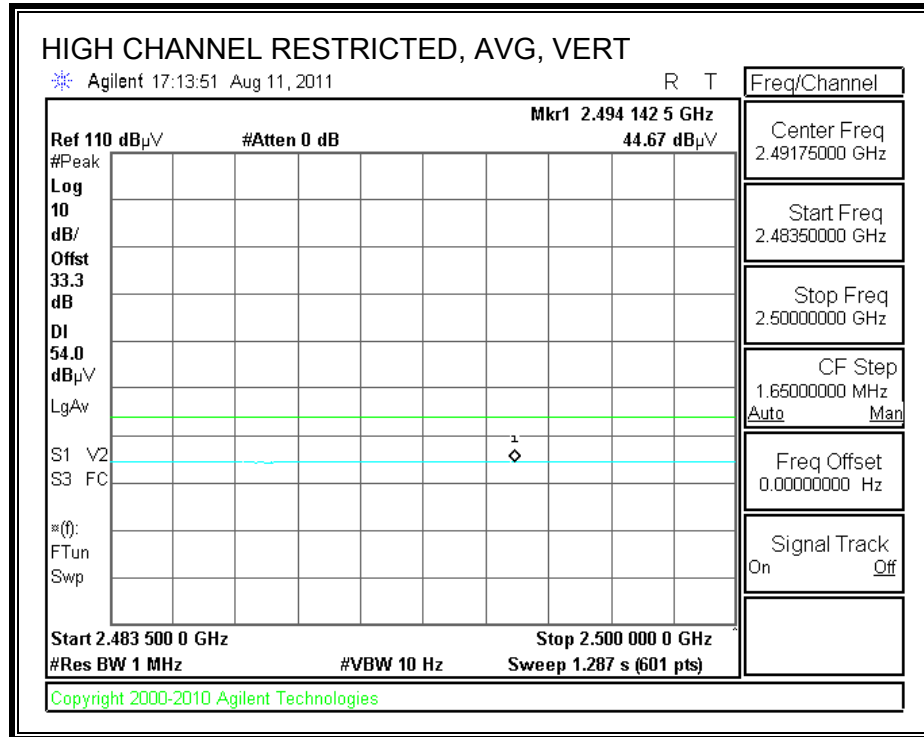
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 08/11/11
Project #: 11113976
Company: Samsung
Test Target: FCC
Mode Oper: BT, GFSK

f Measurement Frequency Amp Preamp Gain Average Field Strength Limit
Dist Distance to Antenna D Corr Distance Correct to 3 meters Peak Field Strength Limit
Read Analyzer Reading Avg Average Field Strength @ 3 m Margin vs. Average Limit
AF Antenna Factor Peak Calculated Peak Field Strength Margin vs. Peak Limit
CL Cable Loss HPF High Pass Filter

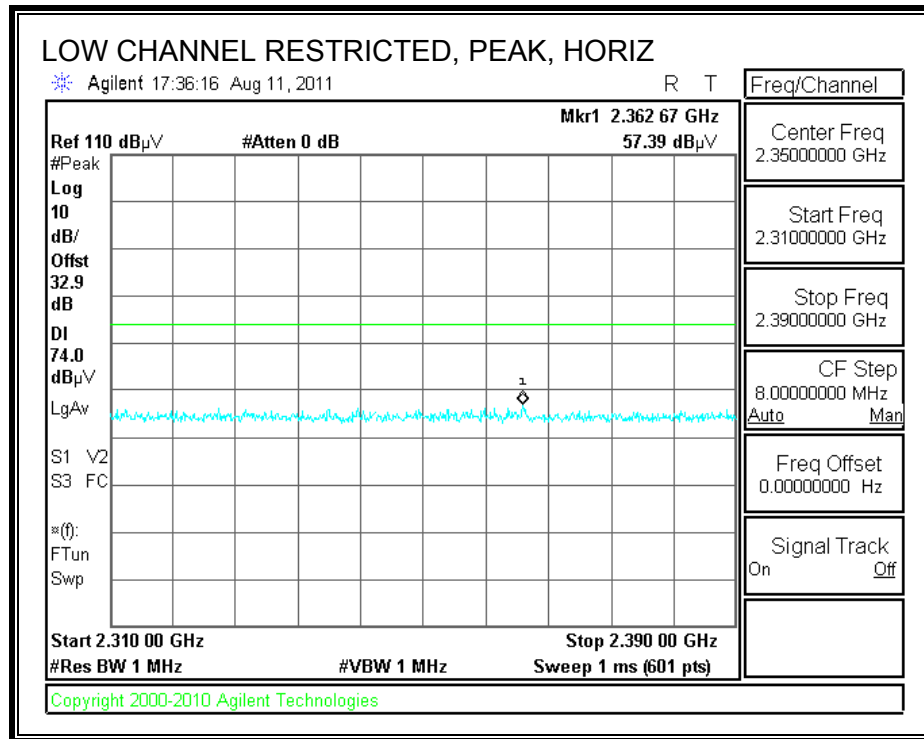
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2402 MHz															
4.804	3.0	47.2	34.6	6.2	-35.5	0.0	0.0	52.5	74.0	-21.5	V	P	129.7	78.3	
4.804	3.0	40.5	34.6	6.2	-35.5	0.0	0.0	45.8	54.0	-8.2	V	A	129.7	78.3	
4.804	3.0	48.2	34.6	6.2	-35.5	0.0	0.0	53.5	74.0	-20.5	H	P	199.6	177.4	
4.804	3.0	41.8	34.6	6.2	-35.5	0.0	0.0	47.1	54.0	-6.9	H	A	199.6	177.4	
Mid Ch. 2441 MHz															
4.882	3.0	50.1	34.7	6.2	-35.5	0.0	0.0	55.6	74.0	-18.4	V	P	126.1	74.5	
4.882	3.0	43.4	34.7	6.2	-35.5	0.0	0.0	48.9	54.0	-5.1	V	A	126.1	74.5	
4.882	3.0	50.2	34.7	6.2	-35.5	0.0	0.0	55.7	74.0	-18.3	H	P	165.1	139.0	
4.882	3.0	43.5	34.7	6.2	-35.5	0.0	0.0	49.0	54.0	-5.0	H	A	165.1	139.0	
7.323	3.0	37.7	36.2	8.4	-35.4	0.0	0.0	46.8	74.0	-27.2	H	P	185.9	358.9	
7.323	3.0	25.3	36.2	8.4	-35.4	0.0	0.0	34.5	54.0	-19.5	H	A	185.9	358.9	
7.323	3.0	38.1	36.2	8.4	-35.4	0.0	0.0	47.3	74.0	-26.7	V	P	123.5	321.8	
7.323	3.0	25.3	36.2	8.4	-35.4	0.0	0.0	34.5	54.0	-19.5	V	A	123.5	321.8	
High Ch. 2480 MHz															
4.960	3.0	51.6	34.8	6.3	-35.5	0.0	0.0	57.2	74.0	-16.8	V	P	103.3	247.1	
4.960	3.0	44.7	34.8	6.3	-35.5	0.0	0.0	50.4	54.0	-3.6	V	A	103.3	247.1	
4.960	3.0	51.0	34.8	6.3	-35.5	0.0	0.0	56.7	74.0	-17.3	H	P	167.8	132.4	
4.960	3.0	44.3	34.8	6.3	-35.5	0.0	0.0	50.0	54.0	-4.0	H	A	167.8	132.4	
7.440	3.0	37.0	36.4	8.4	-35.5	0.0	0.0	46.4	74.0	-27.6	H	P	150.9	0.0	
7.440	3.0	25.5	36.4	8.4	-35.5	0.0	0.0	34.9	54.0	-19.1	H	A	150.9	0.0	
7.440	3.0	37.3	36.4	8.4	-35.5	0.0	0.0	46.7	74.0	-27.3	V	P	142.4	3.1	
7.440	3.0	24.8	36.4	8.4	-35.5	0.0	0.0	34.2	54.0	-19.8	V	A	142.4	3.1	

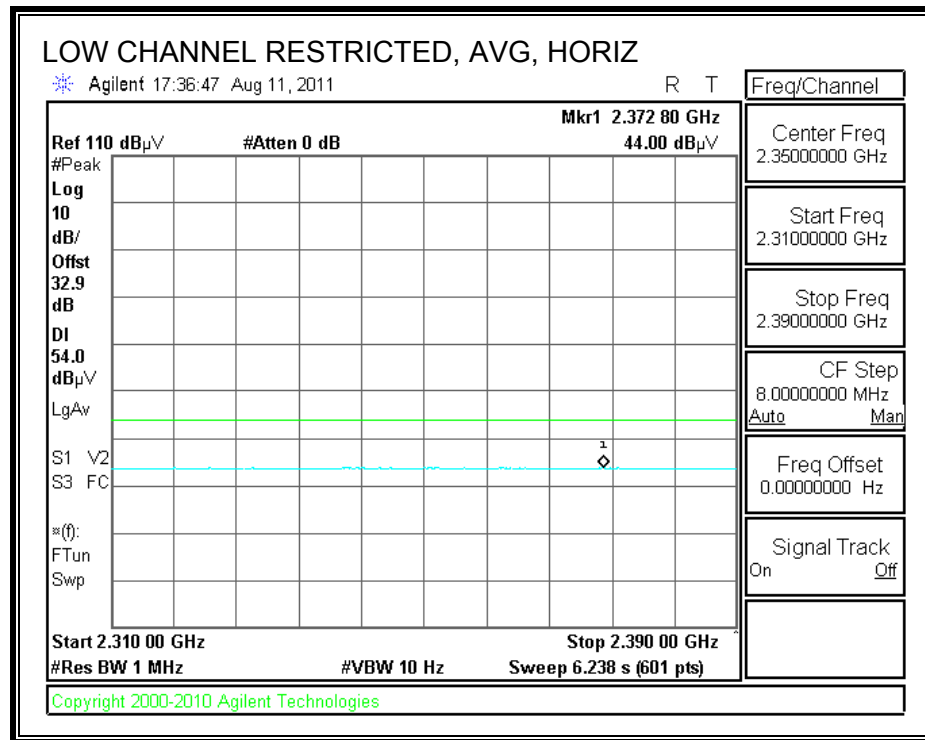
Rev. 4.1.2.7

Note: No other emissions were detected above the system noise floor.

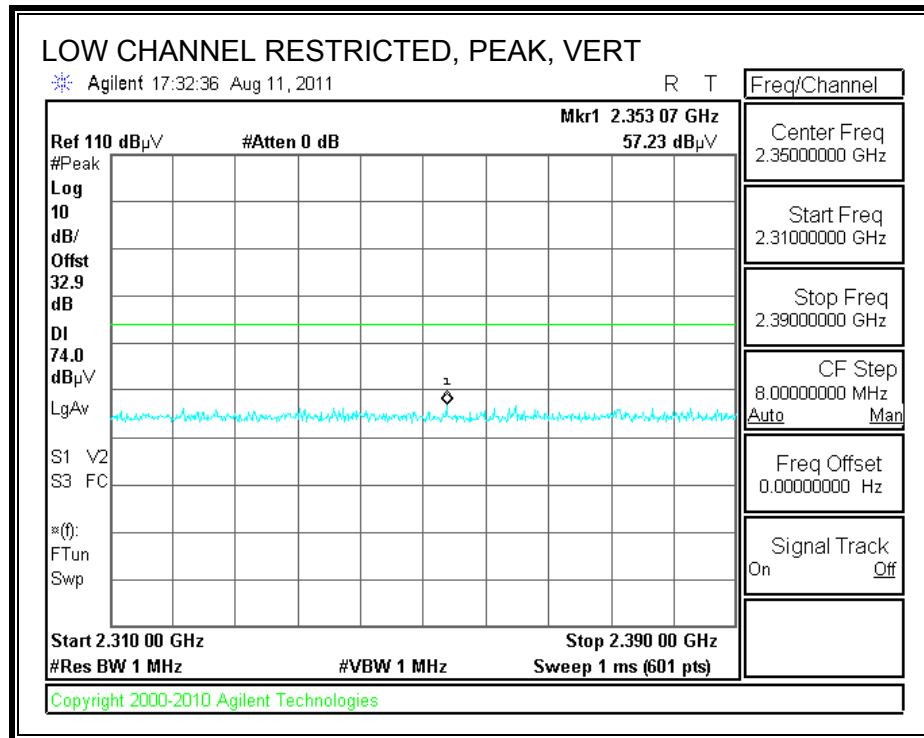
8.2.2. ENHANCED DATA RATE 8PSK MODULATION

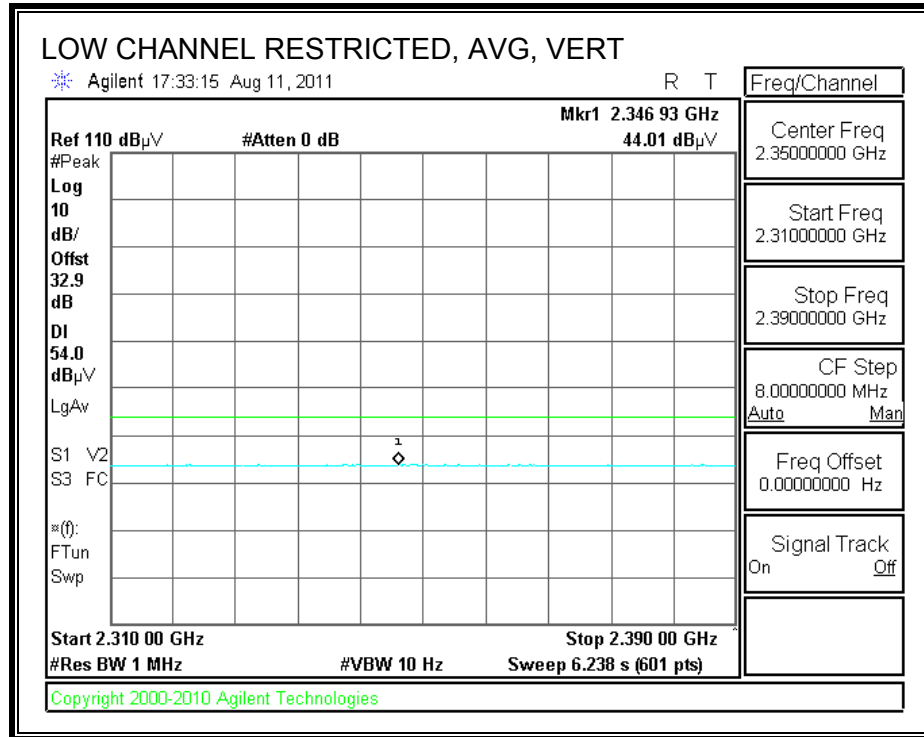
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



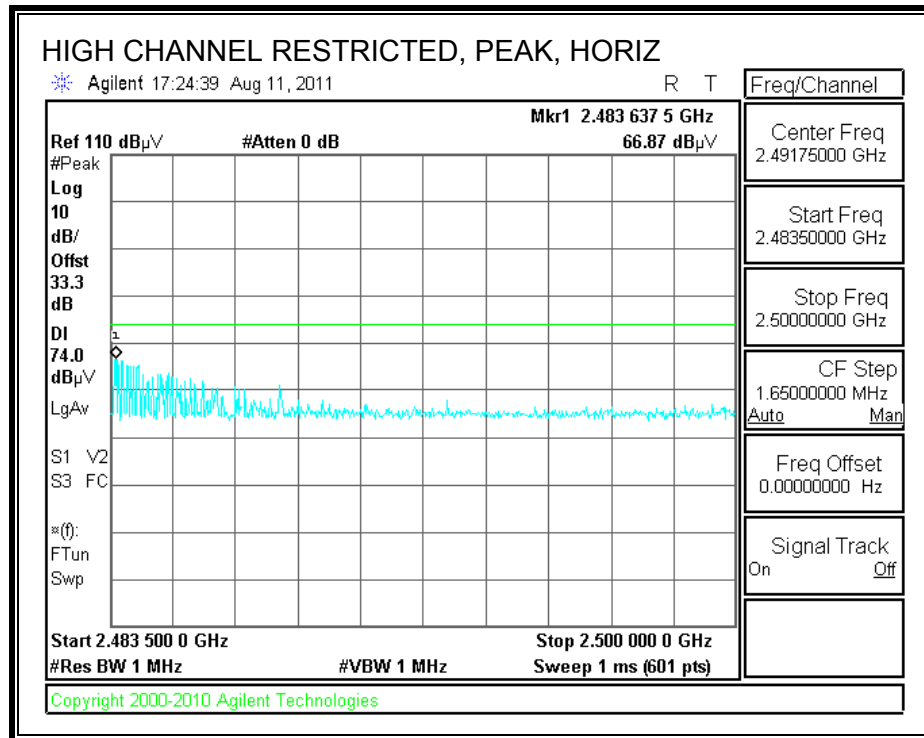


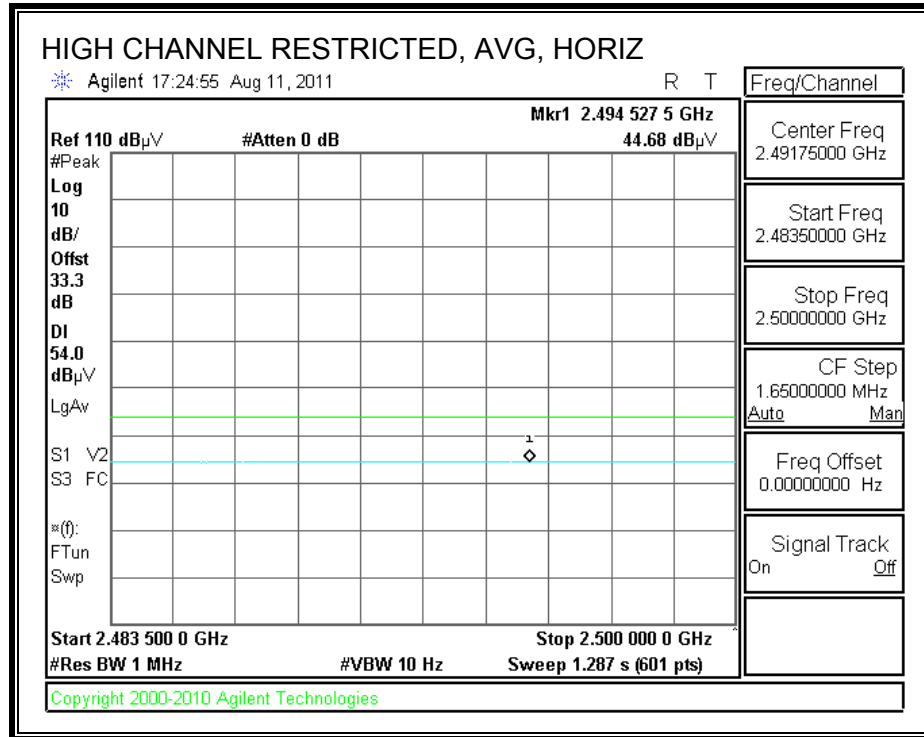
RESTRICTED BANEDGE (LOW CHANNEL, VERTICAL)



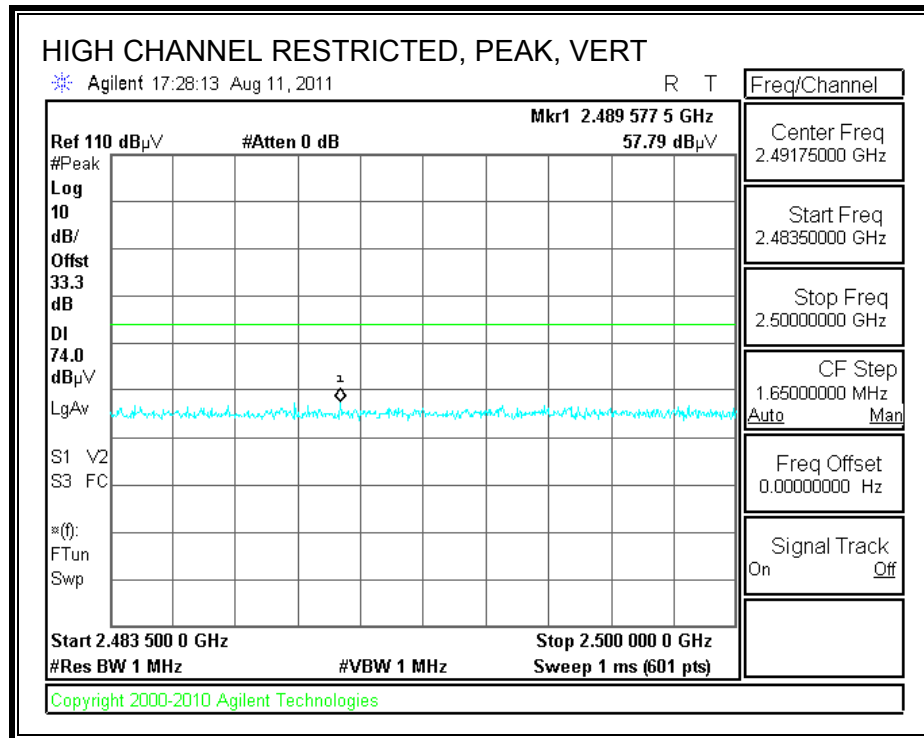


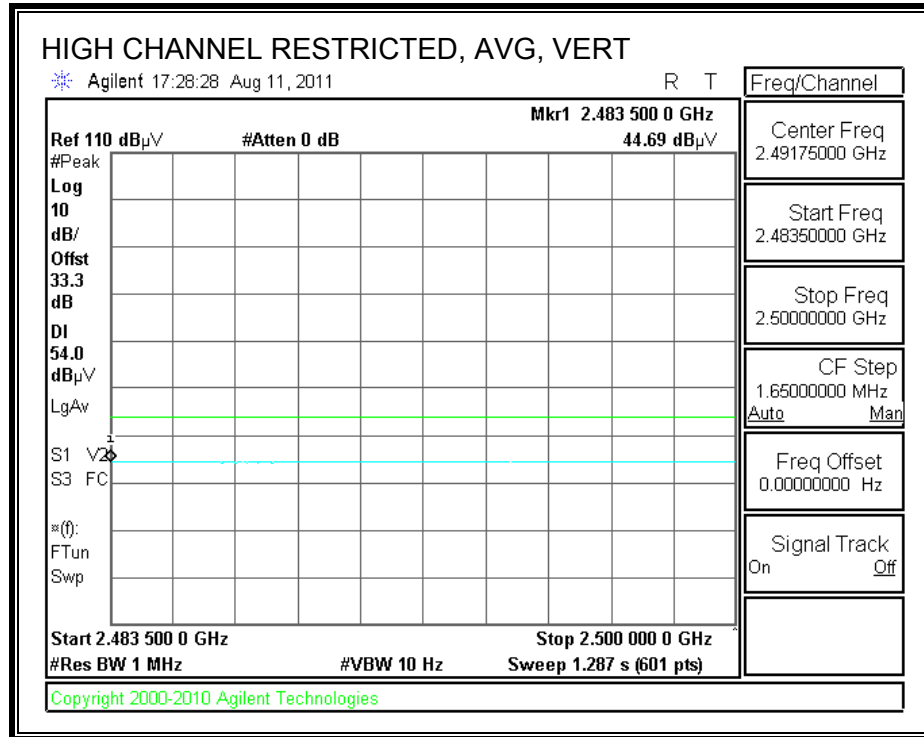
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber

Test Engr: William Zhuang
Date: 08/11/11
Project #: 11113976
Company: Samsung
Test Target: FCC
Mode Oper: BT, 8PSK

f Measurement Frequency Amp Preamp Gain Average Field Strength Limit
Dist Distance to Antenna D Corr Distance Correct to 3 meters Peak Field Strength Limit
Read Analyzer Reading Avg Average Field Strength @ 3 m Margin vs. Average Limit
AF Antenna Factor Peak Calculated Peak Field Strength Margin vs. Peak Limit
CL Cable Loss HPF High Pass Filter

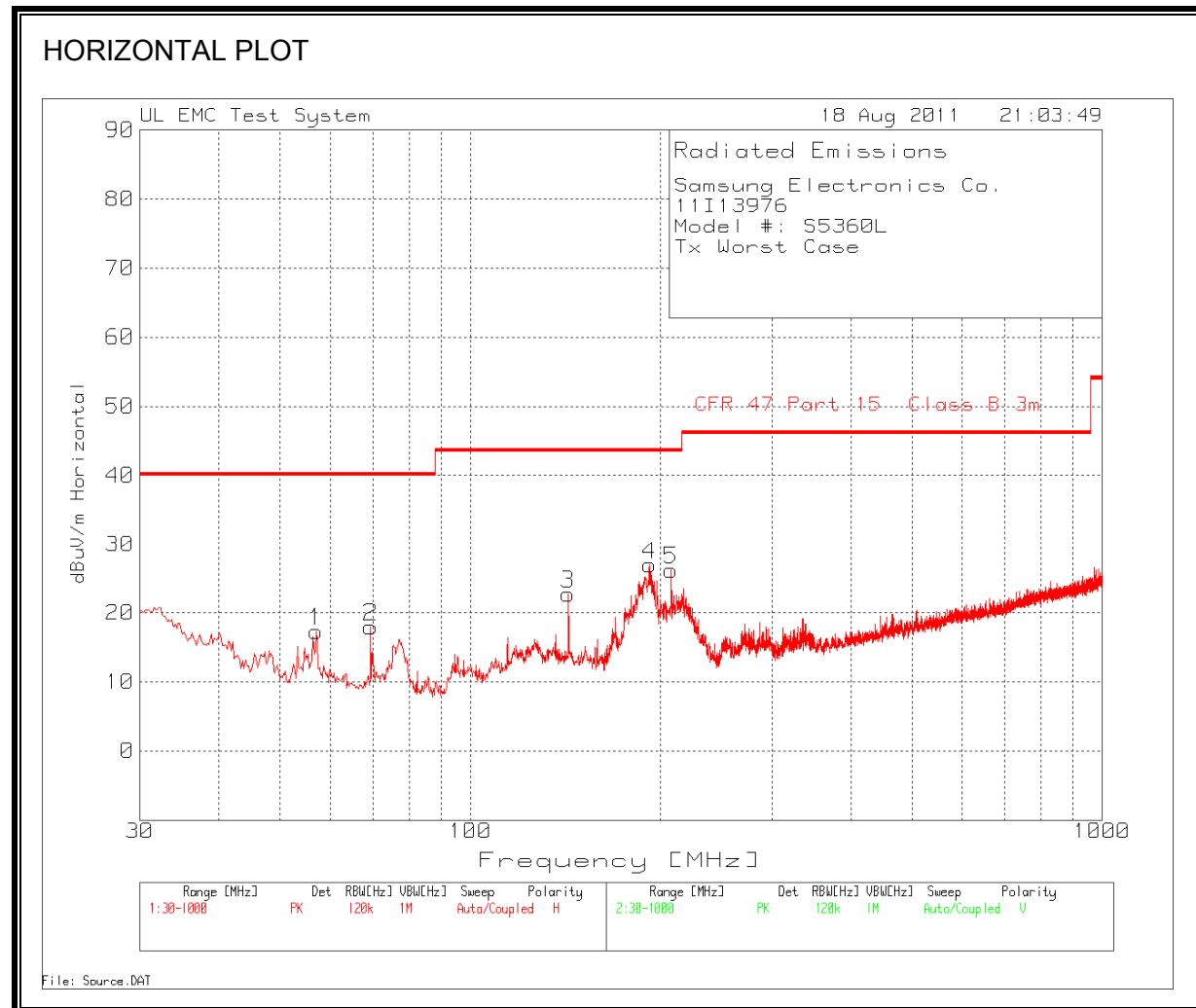
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
Low Ch. 2402 MHz															
4.804	3.0	46.0	34.6	6.2	-35.5	0.0	0.0	51.3	74.0	-22.7	V	P	128.8	73.0	
4.804	3.0	38.0	34.6	6.2	-35.5	0.0	0.0	43.3	54.0	-10.7	V	A	128.8	73.0	
4.804	3.0	48.2	34.6	6.2	-35.5	0.0	0.0	53.5	74.0	-20.5	H	P	156.7	150.5	
4.804	3.0	40.1	34.6	6.2	-35.5	0.0	0.0	45.3	54.0	-8.7	H	A	156.7	150.5	
Mid Ch. 2441 MHz															
4.882	3.0	47.4	34.7	6.2	-35.5	0.0	0.0	52.9	74.0	-21.1	V	P	111.8	74.7	
4.882	3.0	39.6	34.7	6.2	-35.5	0.0	0.0	45.1	54.0	-8.9	V	A	111.8	74.7	
4.882	3.0	47.8	34.7	6.2	-35.5	0.0	0.0	53.3	74.0	-20.7	H	P	170.9	138.3	
4.882	3.0	40.2	34.7	6.2	-35.5	0.0	0.0	45.7	54.0	-8.3	H	A	170.9	138.3	
7.323	3.0	38.1	36.2	8.4	-35.4	0.0	0.0	47.3	74.0	-26.7	H	P	199.6	157.7	
7.323	3.0	25.3	36.2	8.4	-35.4	0.0	0.0	34.5	54.0	-19.5	H	A	199.6	157.7	
7.323	3.0	37.5	36.2	8.4	-35.4	0.0	0.0	46.7	74.0	-27.3	V	P	101.9	25.8	
7.323	3.0	25.3	36.2	8.4	-35.4	0.0	0.0	34.5	54.0	-19.5	V	A	101.9	25.8	
High Ch. 2480 MHz															
4.960	3.0	49.3	34.8	6.3	-35.5	0.0	0.0	55.0	74.0	-19.0	V	P	116.0	249.1	
4.960	3.0	41.5	34.8	6.3	-35.5	0.0	0.0	47.1	54.0	-6.9	V	A	116.0	249.1	
4.960	3.0	49.3	34.8	6.3	-35.5	0.0	0.0	54.9	74.0	-19.1	H	P	168.7	140.8	
4.960	3.0	41.3	34.8	6.3	-35.5	0.0	0.0	47.0	54.0	-7.0	H	A	168.7	140.8	
7.440	3.0	37.6	36.4	8.4	-35.5	0.0	0.0	47.0	74.0	-27.0	H	P	116.0	324.4	
7.440	3.0	24.8	36.4	8.4	-35.5	0.0	0.0	34.2	54.0	-19.8	H	A	116.0	324.4	
7.440	3.0	37.1	36.4	8.4	-35.5	0.0	0.0	46.4	74.0	-27.6	V	P	148.0	303.9	
7.440	3.0	24.8	36.4	8.4	-35.5	0.0	0.0	34.2	54.0	-19.8	V	A	148.0	303.9	

Rev. 4.1.2.7

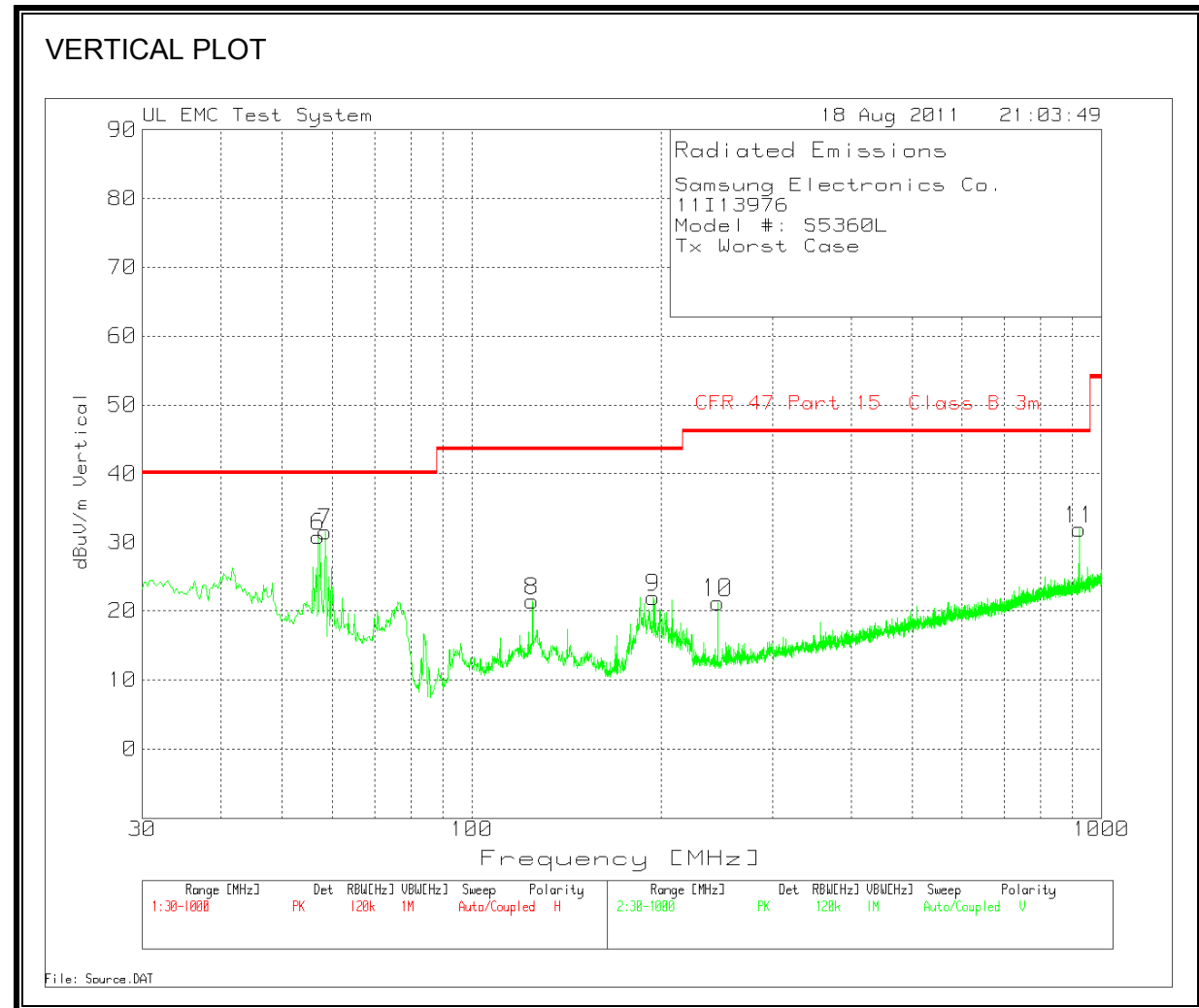
Note: No other emissions were detected above the system noise floor.

8.3. WORST-CASE BELOW 1 GHz

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



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



DATA

Samsung Electronics Co.										
11I13976										
Model #: S5360L										
Tx Worst Case										
Range 1 30 - 1000MHz										
Test	Meter	Detector	Chamber 5B	T10 Below 1 GHz	T130 Bilog	dBuV/m	CFR 47 Part 15	Margin	Height [cm]	Polarity
Frequency	Reading		Cable.TX [dB]	PreAmp.TXT [dB]	Factors.TXT [dB]		Class B 3m			
56.9444	37.75	PK	1.1	-29.4	7.9	17.35	40	-22.65	200	Horz
69.5444	37.84	PK	1.2	-29.4	8.3	17.94	40	-22.06	100	Horz
142.8177	37.16	PK	1.7	-29.2	13	22.66	43.5	-20.84	100	Horz
192.442	42.64	PK	1.9	-29	11.4	26.94	43.5	-16.56	100	Horz
207.7558	41.09	PK	2	-28.9	12	26.19	43.5	-17.31	100	Horz
Range 2 30 - 1000MHz										
Test	Meter	Detector	Chamber 5B	T10 Below 1 GHz	T130 Bilog	dBuV/m	CFR 47 Part 15	Margin	Height [cm]	Polarity
Frequency	Reading		Cable.TX [dB]	PreAmp.TXT [dB]	Factors.TXT [dB]		Class B 3m			
56.9444	51.26	PK	1.1	-29.4	7.9	30.86	40	-9.14	100	Vert
58.4952	51.91	PK	1.1	-29.4	7.9	31.51	40	-8.49	100	Vert
124.7902	35.27	PK	1.6	-29.2	13.8	21.47	43.5	-22.03	100	Vert
194.3805	37.36	PK	1.9	-28.9	11.6	21.96	43.5	-21.54	200	Vert
245.7494	35.92	PK	2.2	-28.7	11.8	21.22	46	-24.78	100	Vert
921.299	34.59	PK	4.2	-28.5	21.7	31.99	46	-14.01	100	Vert

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.

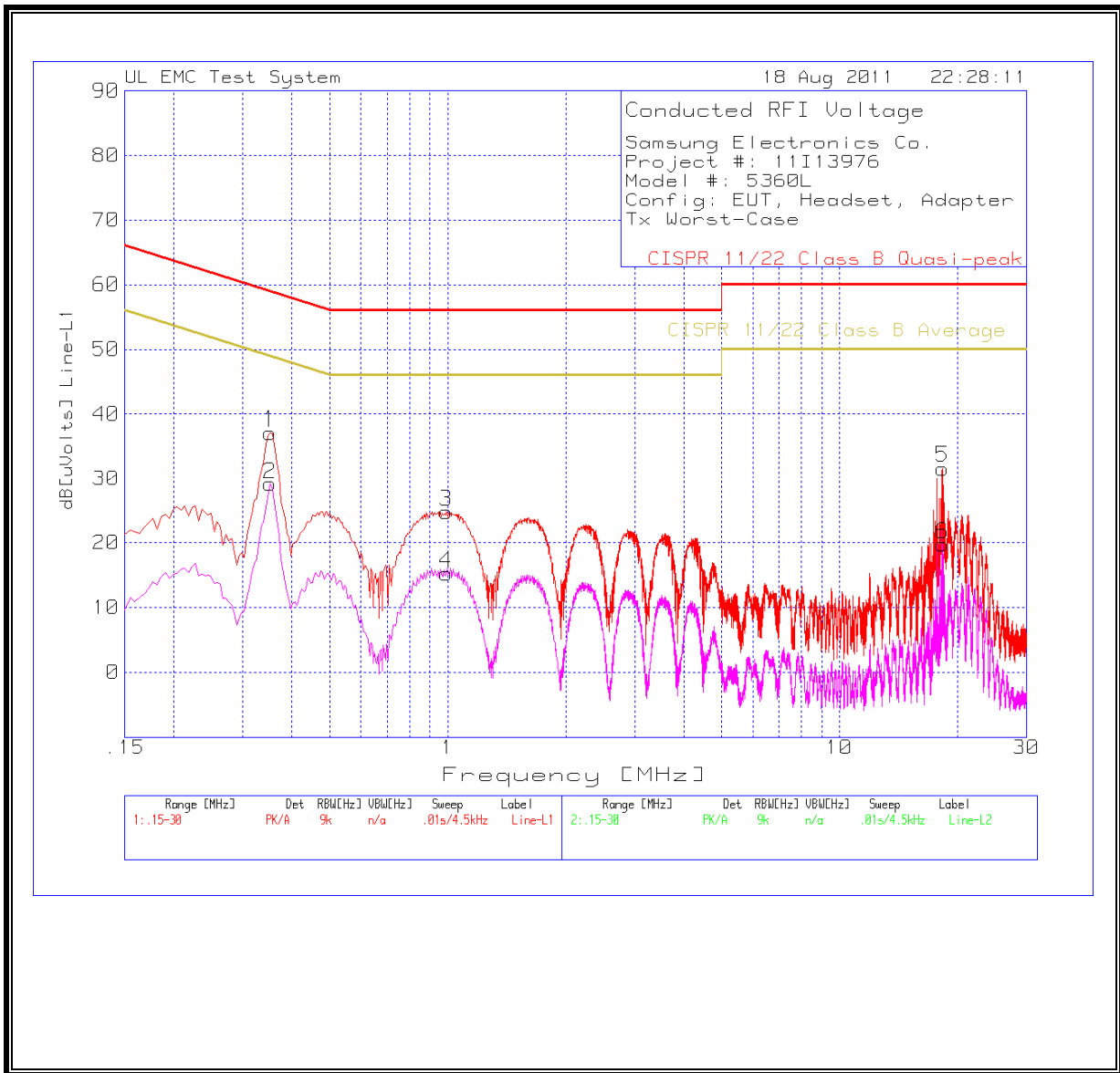
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Samsung Electronics Co.									
Project #: 11I13976									
Model #: 5360L									
Config: EUT, Headset, Adapter									
Tx Worst-Case									
Line-L1 .15 - 30MHz									
Test	Meter	Detector	LISN [dB]	Conducted	dB[uVolts]	CISPR Class B	Margin	CISPR Class B	Margin
Frequency	Reading			Cable [dB]		Quasi-peak		Average	
0.3525	37.15	PK	0	0	37.15	58.9	-21.75	48.9	-11.75
0.3525	29.13	Av	0	0	29.13	58.9	-29.77	48.9	-19.77
0.9915	24.79	PK	0	0	24.79	56	-31.21	46	-21.21
0.9915	15.27	Av	0	0	15.27	56	-40.73	46	-30.73
18.3075	31.63	PK	0	0	31.63	60	-28.37	50	-18.37
18.3075	19.7	Av	0	0	19.7	60	-40.3	50	-30.3
Line-L2 .15 - 30MHz									
Test	Meter	Detector	LISN [dB]	Conducted	dB[uVolts]	CISPR Class B	Margin	CISPR Class B	Margin
Frequency	Reading			Cable [dB]		Quasi-peak		Average	
0.348	32.41	PK	0	0	32.41	59	-26.59	49	-16.59
0.348	18.61	Av	0	0	18.61	59	-40.39	49	-30.39
1.0005	22.15	PK	0	0	22.15	56	-33.85	46	-23.85
1.0005	8.45	Av	0	0	8.45	56	-47.55	46	-37.55
18.2445	36.27	PK	0	0	36.27	60	-23.73	50	-13.73
18.2445	17.93	Av	0	0	17.93	60	-42.07	50	-32.07

LINE 1 RESULTS



LINE 2 RESULTS

