



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

**850/1900 GSM/GPRS, EDGE RX ONLY PHONE WITH BLUETOOTH AND WLAN
TRANSCEIVER**

MODEL NUMBER: GT-C6712

FCC ID: A3LGTC6712

REPORT NUMBER: 11I13692-3

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Prepared for

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NVLAP LAB CODE 200065-0

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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, EDGE RX ONLY PHONE WITH
BLUETOOTH AND WLAN TRANSCEIVER

MODEL: GT-C6712

SERIAL NUMBER: F1 032 D (Conducted Unit), F1 032 A (Radiated Unit)

DATE TESTED: FEBRUARY 23-26 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



CHIN PANG
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:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 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, EDGE Rx only Phone with Bluetooth and WLAN transceiver.

The radio module is manufactured by Samsung.

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	8.15	6.53
2402 - 2480	Enhanced 8PSK	8.18	6.58

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -4.2dBi for 2.4GHz band.

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.

For the fundamental investigation, since the EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated, also with AC/DC adapter, and earphone, and the worst case was found to be at Y orientation with earphone.

5.6. DESCRIPTION OF TEST SETUP**SUPPORT EQUIPMENT**

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ETA3U30EBE	DK1ZB04TS/5-E	DoC
Earphone	Samsung	NA	FT032B	NA

I/O CABLES (CONDUCTED SETUP)

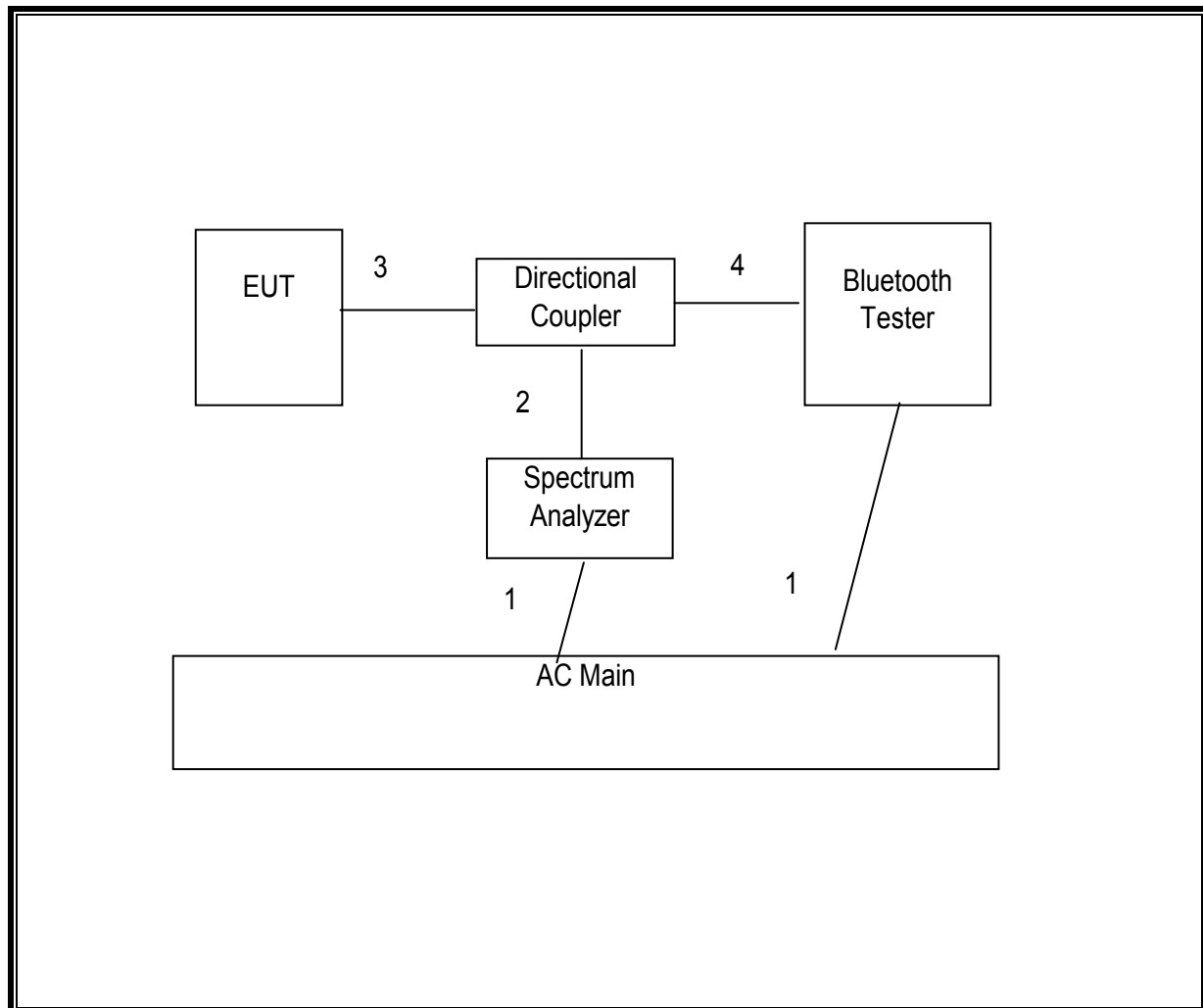
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	NA
2	RFout	1	Directional Coupler	Un-shielded	1m	NA
3	RF in/out	1	EUT	Un-shielded	1m	NA
4	RF in/out	1	Bluetooth Tester	Un-shielded	1m	NA

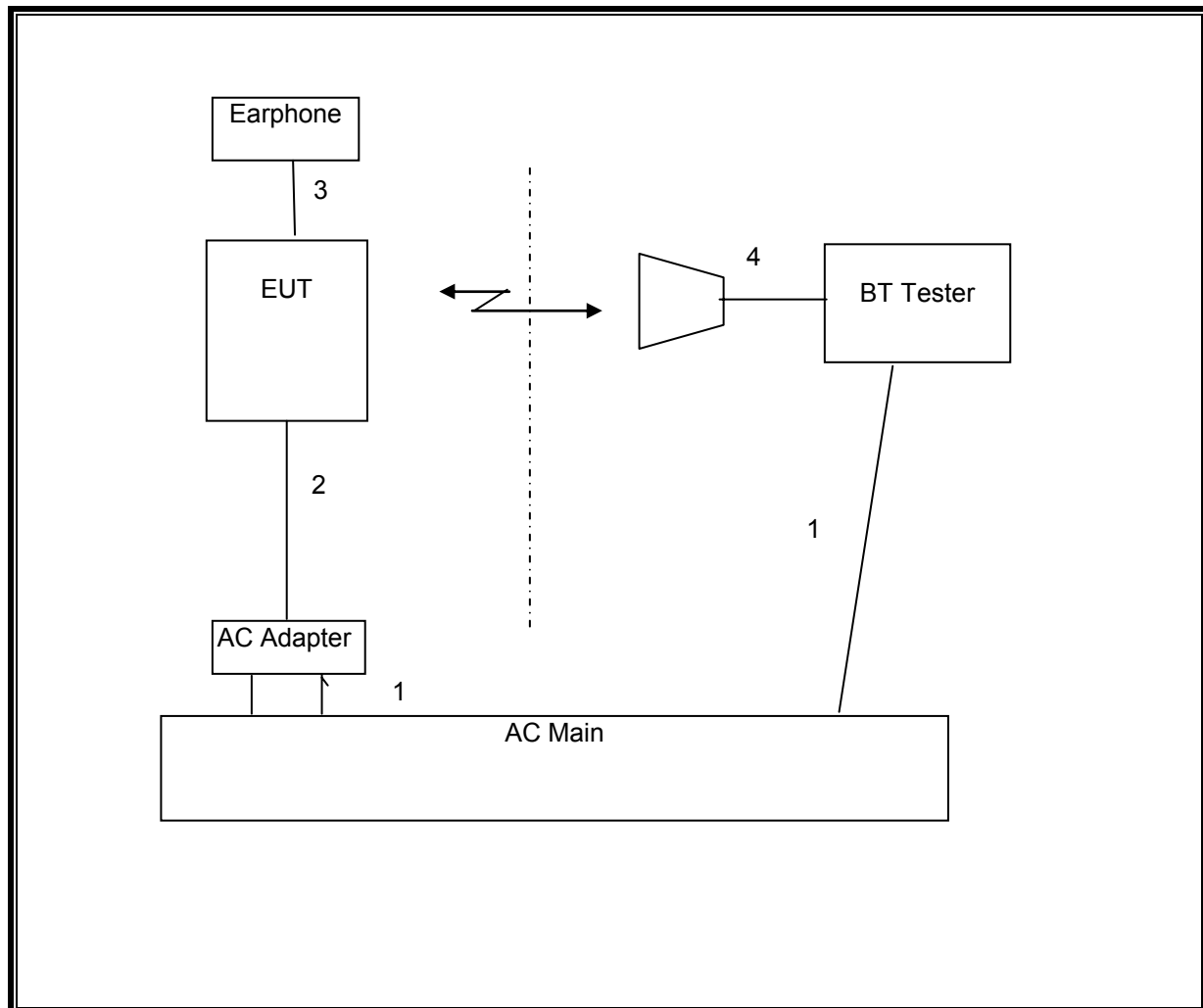
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	2m	NA
3	Jack	1	Earphone	Un-shielded	2m	NA
4	RF in/Out	1	Horn	Un-shielded	1.5m	NA

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
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07-14-11
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06-29-11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00778	01-27-12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07-12-11
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08-30-11
Bluetooth Test	R&S	CBT	NA	05-01-11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11-10-11
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05-06-11
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

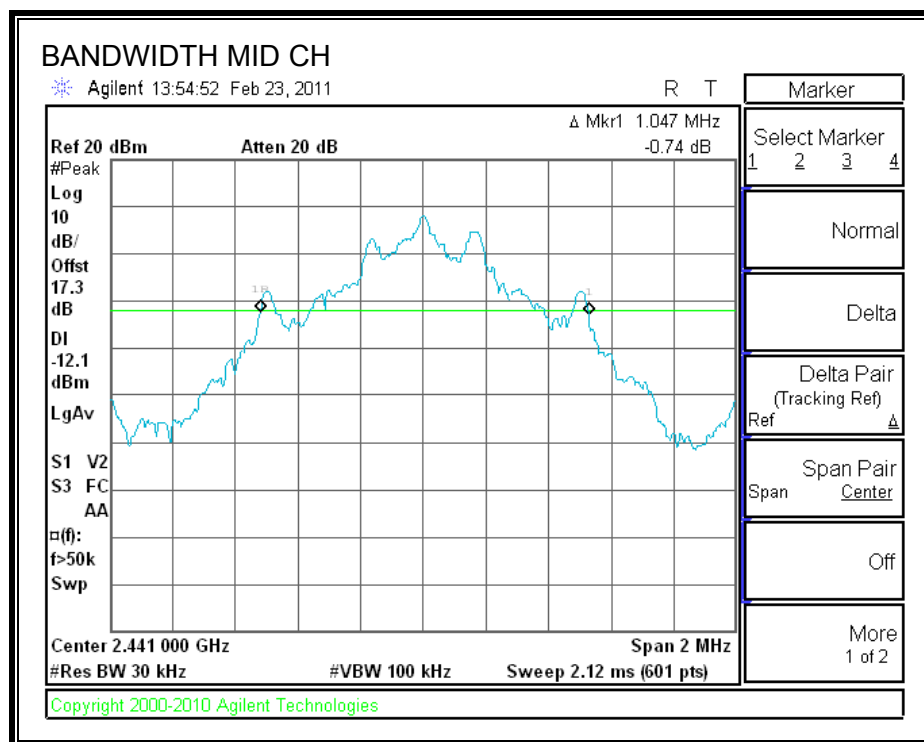
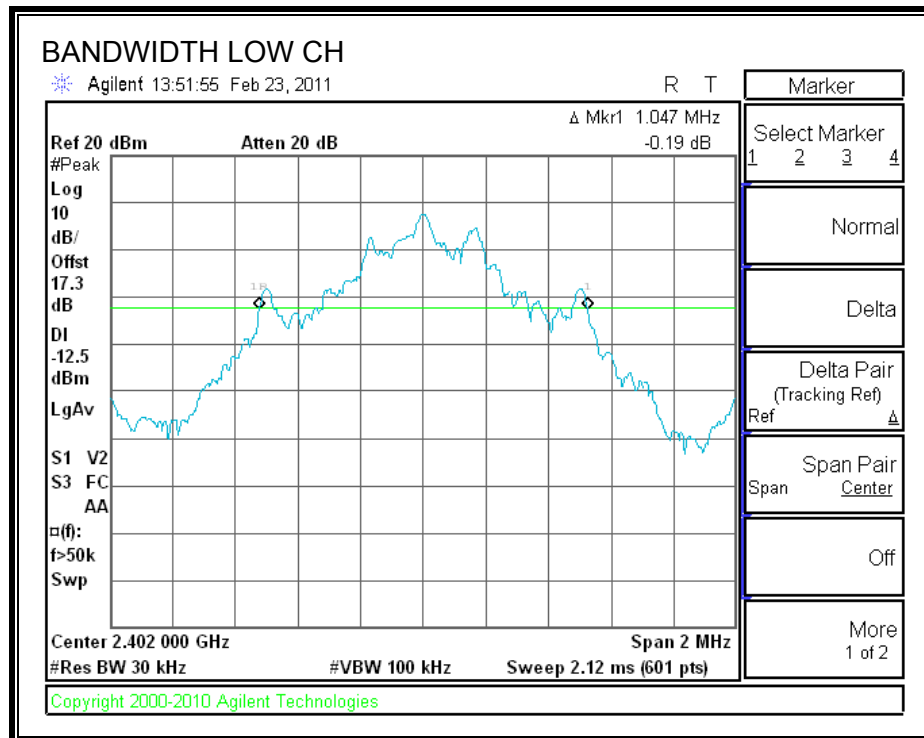
None; for reporting purposes only.

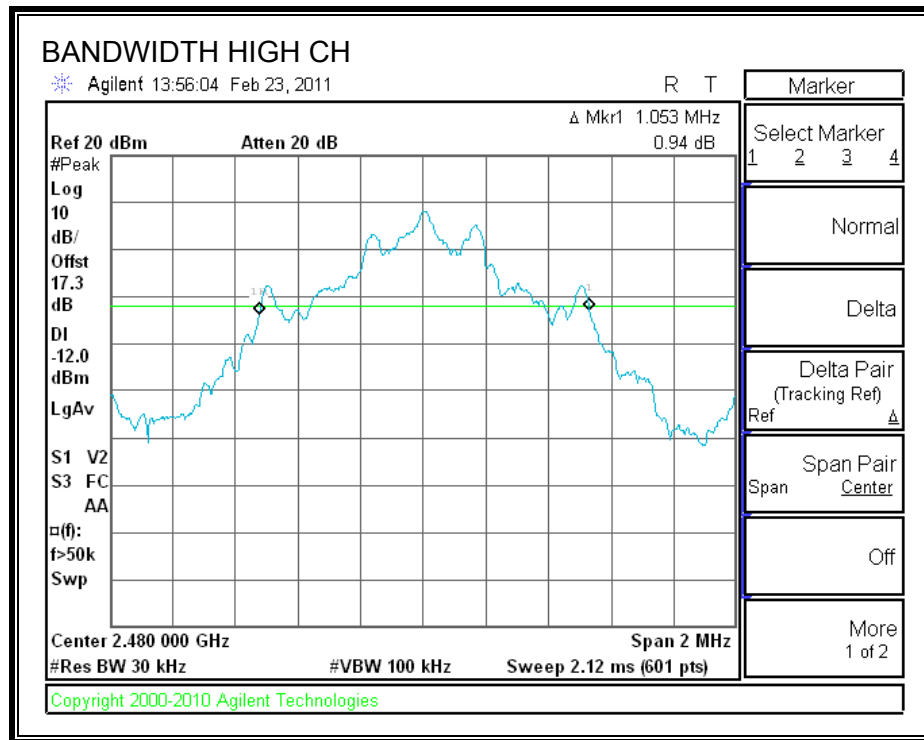
TEST PROCEDURE

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	2402	1.047
Middle	2441	1.047
High	2480	1.053

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.

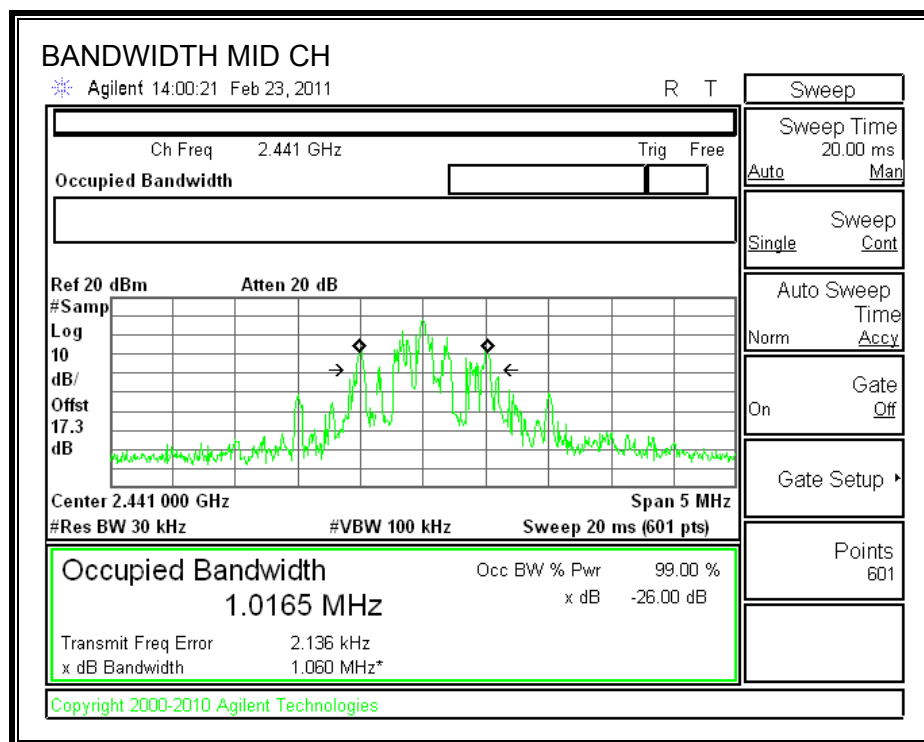
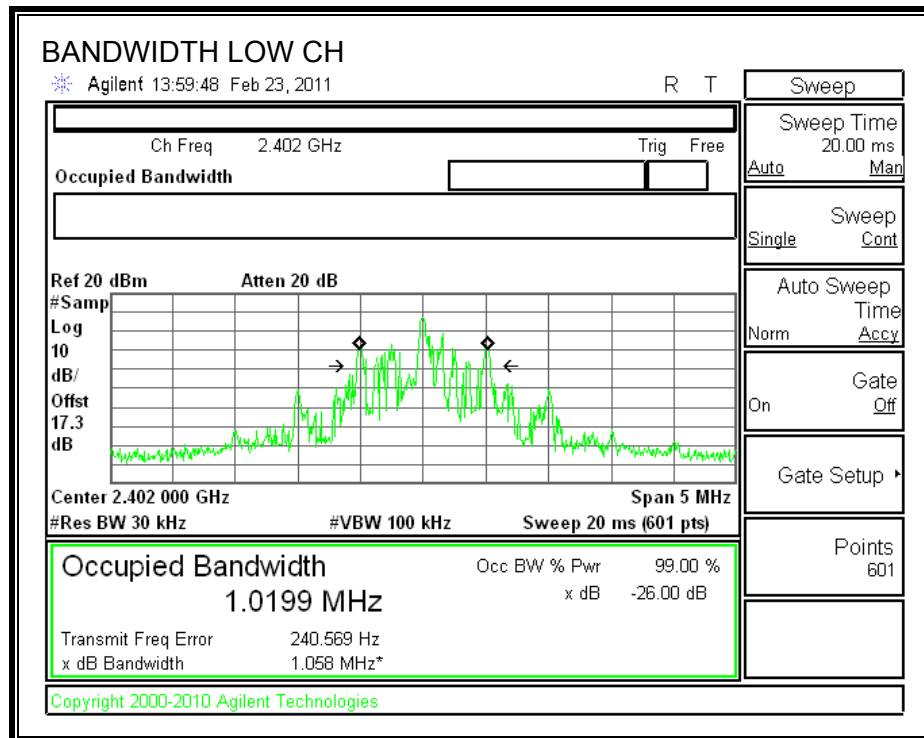
TEST PROCEDURE

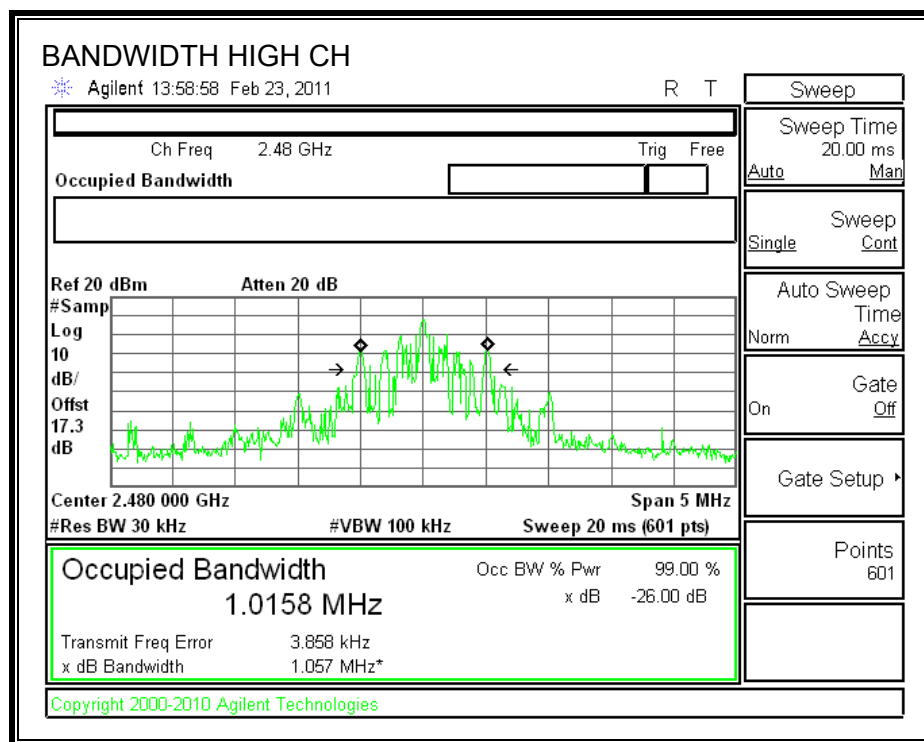
Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	2402	1.0199
Middle	2441	1.0165
High	2480	1.0158

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





7.1.3. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-210 A8.1 (b)

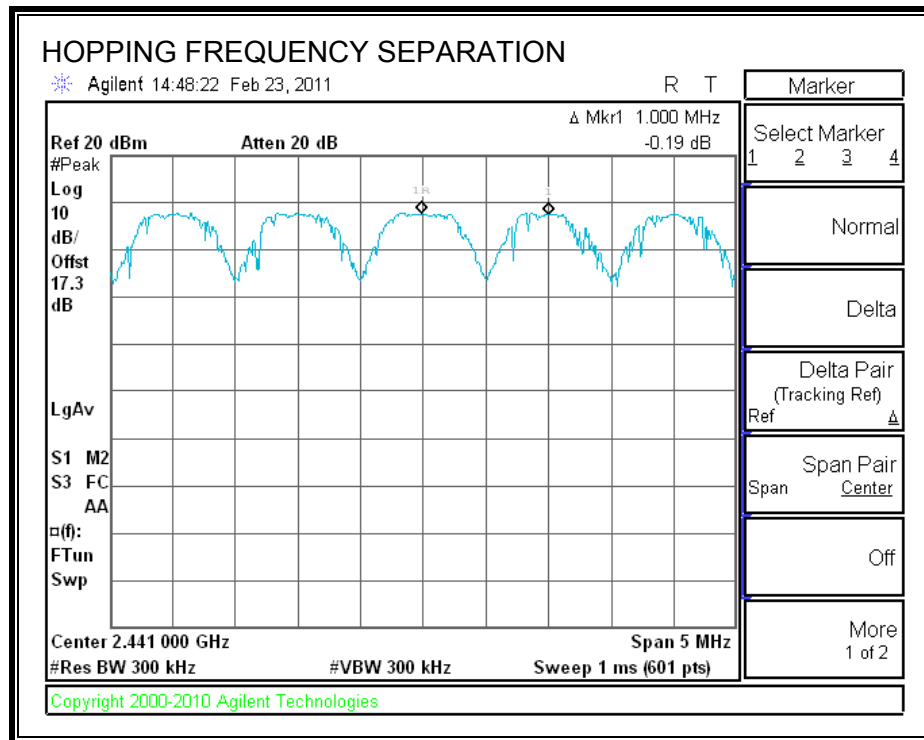
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

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)

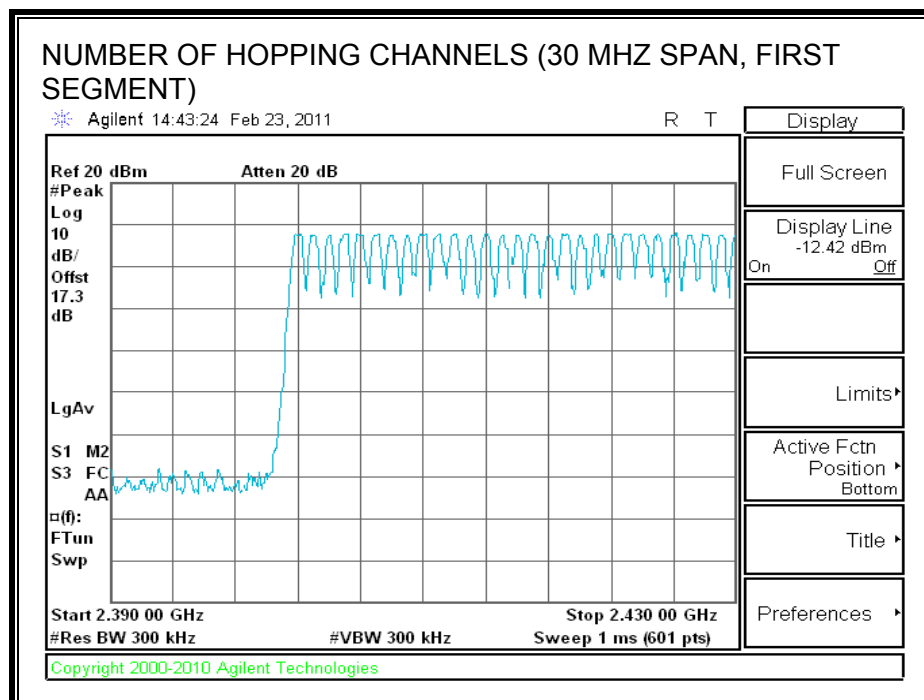
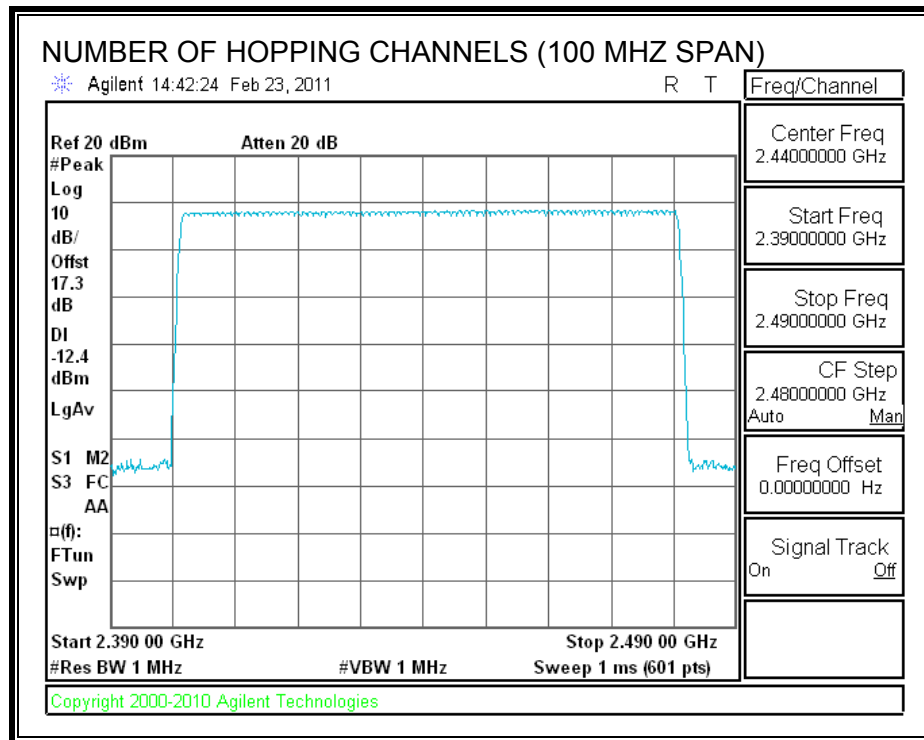
Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

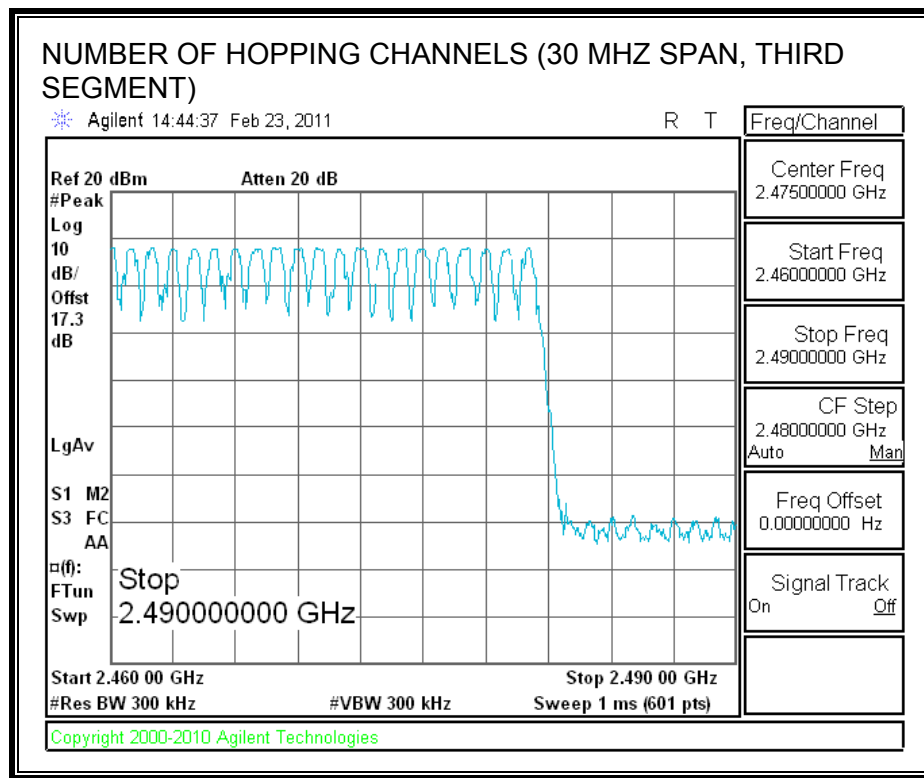
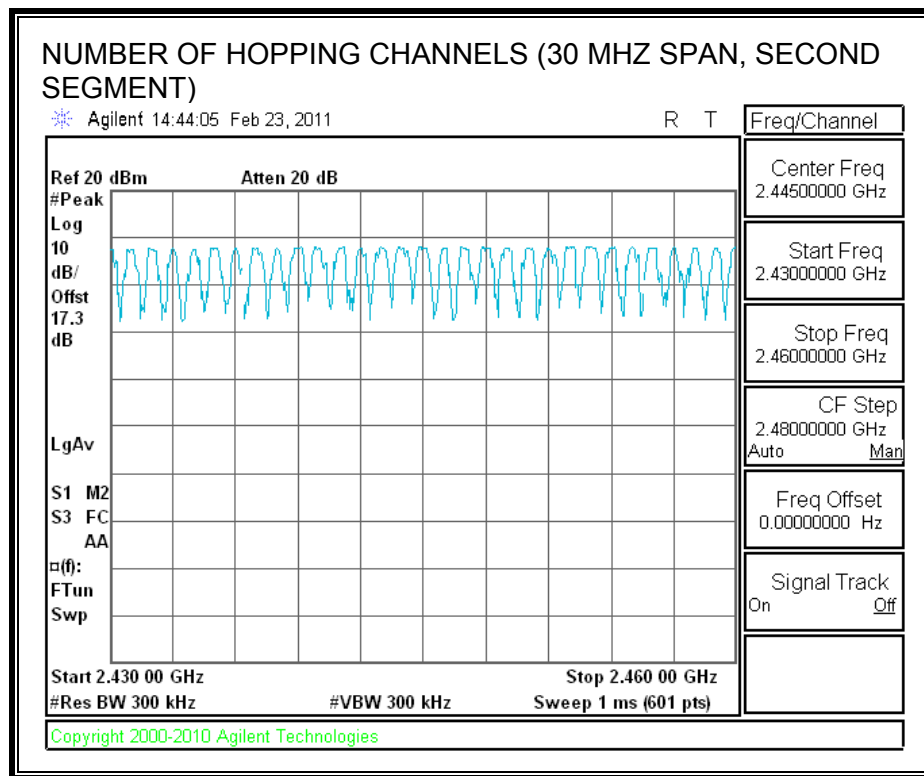
TEST PROCEDURE

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.

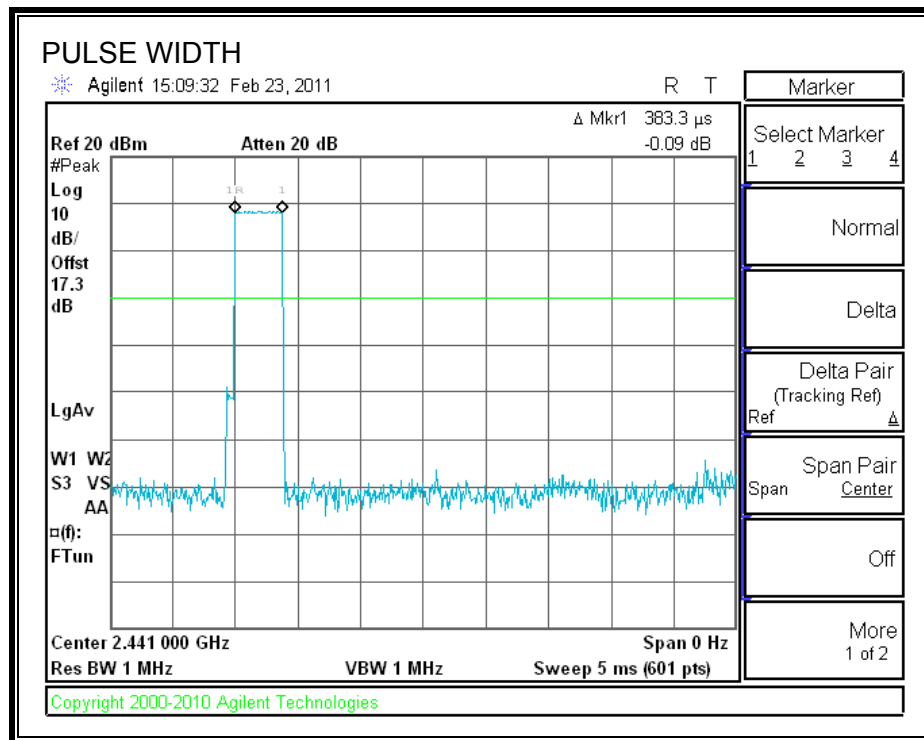
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

RESULTS

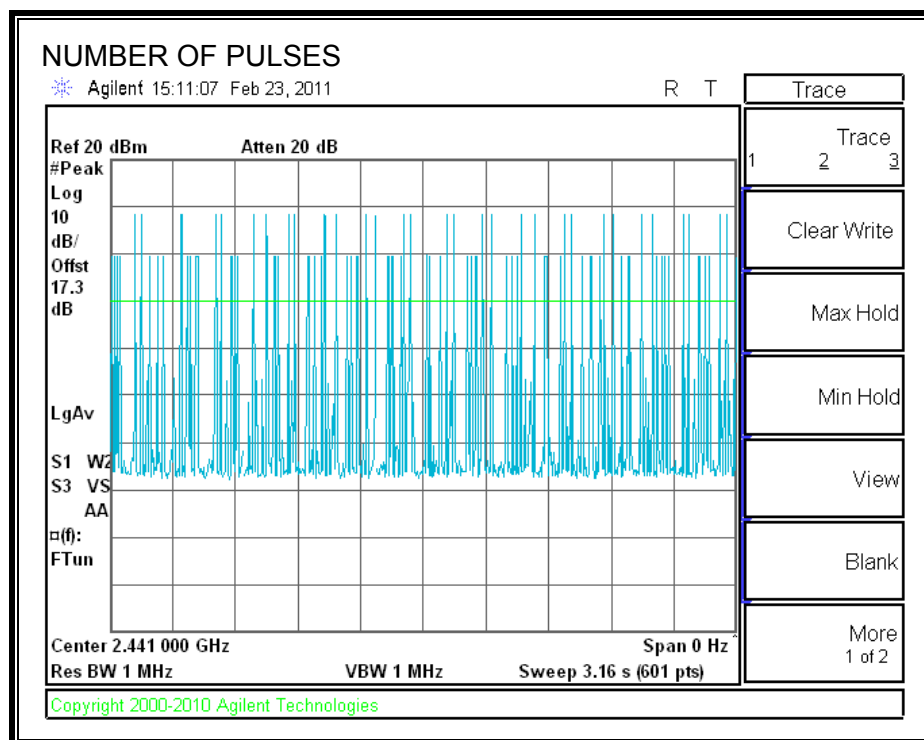
GFSK Mode

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of (sec)	Limit (sec)	Margin (sec)
DH1	0.3833	32	0.123	0.4	0.277
DH3	1.642	18	0.296	0.4	0.104
DH5	2.90	12	0.348	0.4	0.052

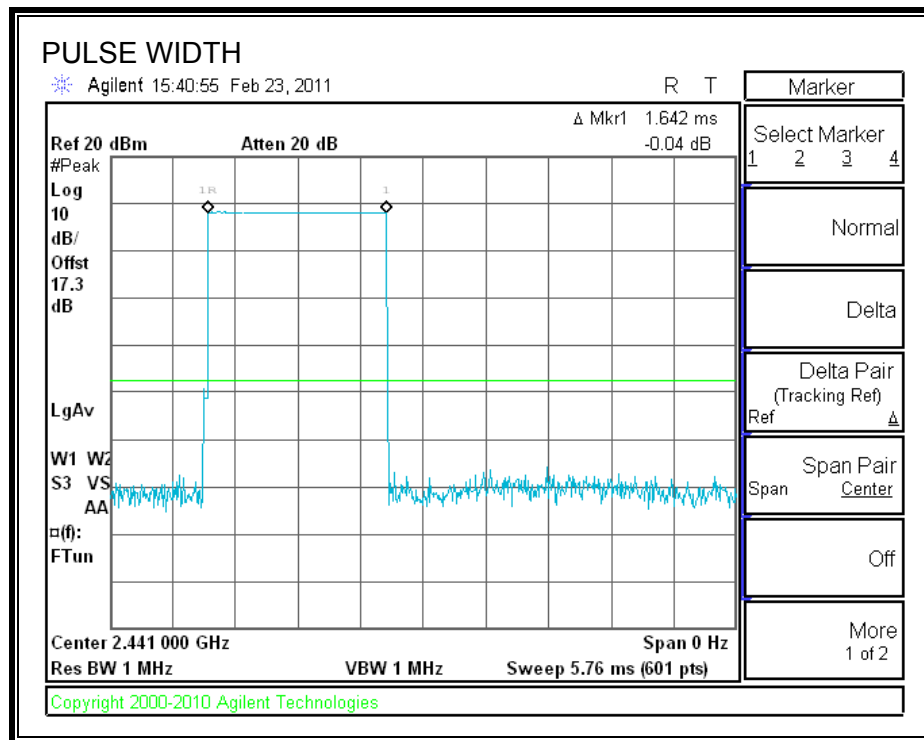
PULSE WIDTH , DH1



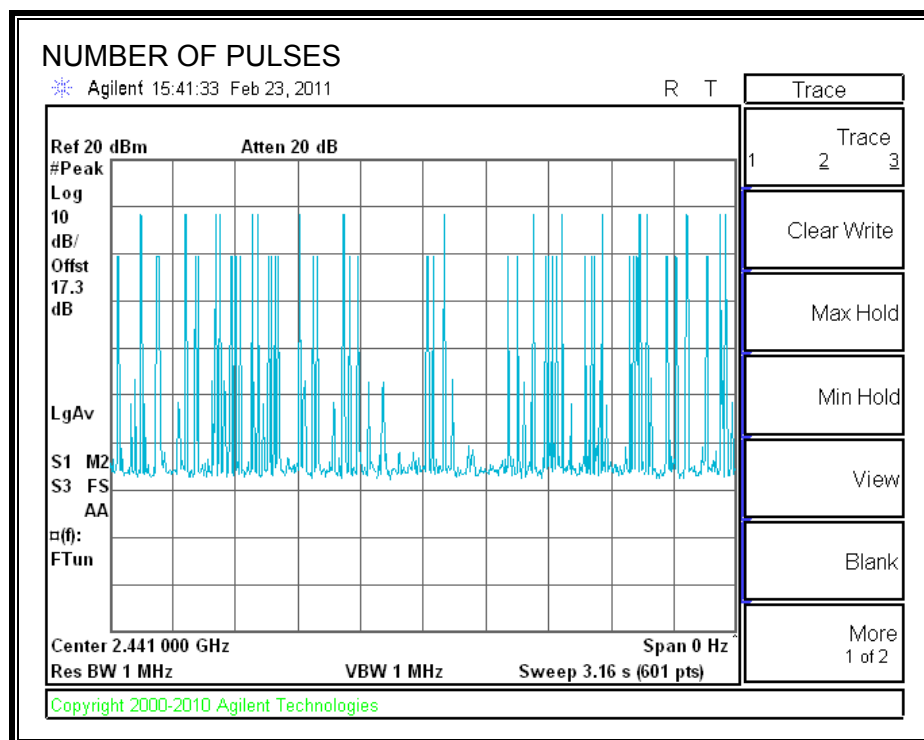
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD

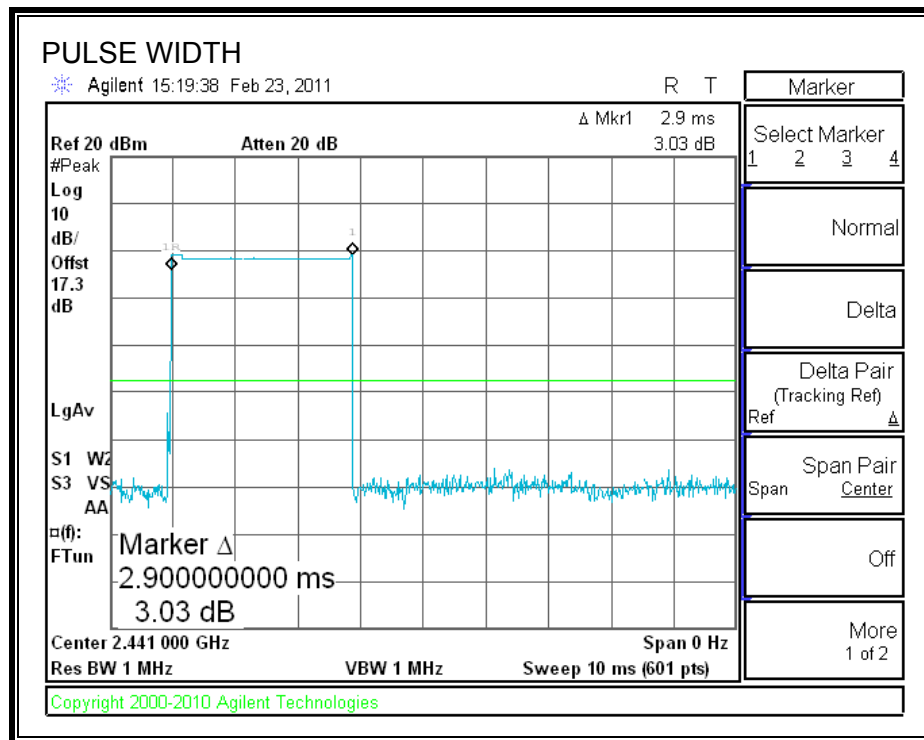
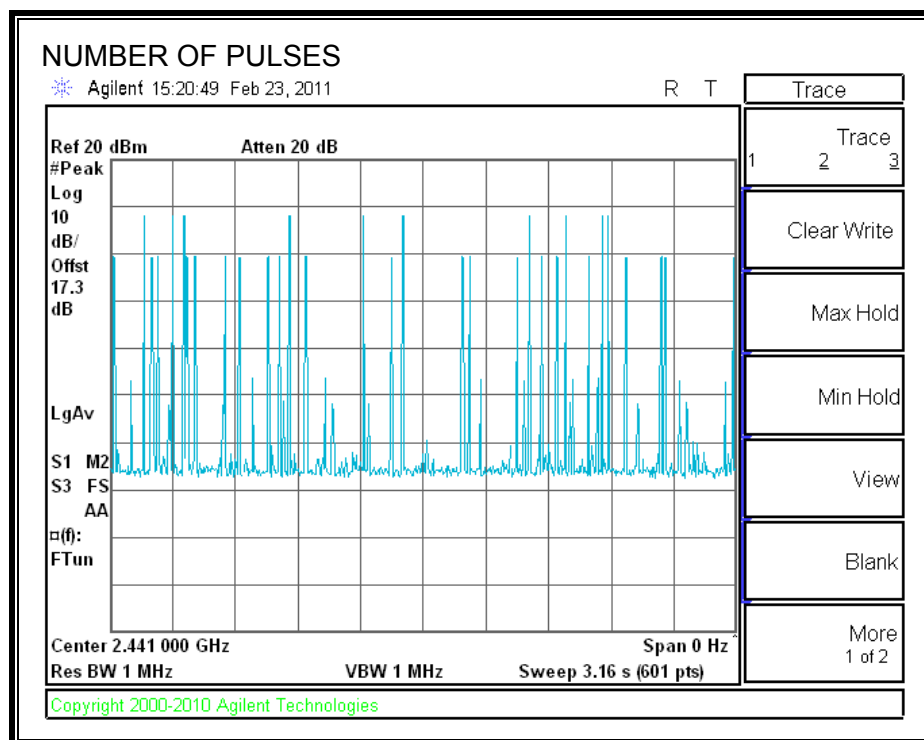


PULSE WIDTH, DH3



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

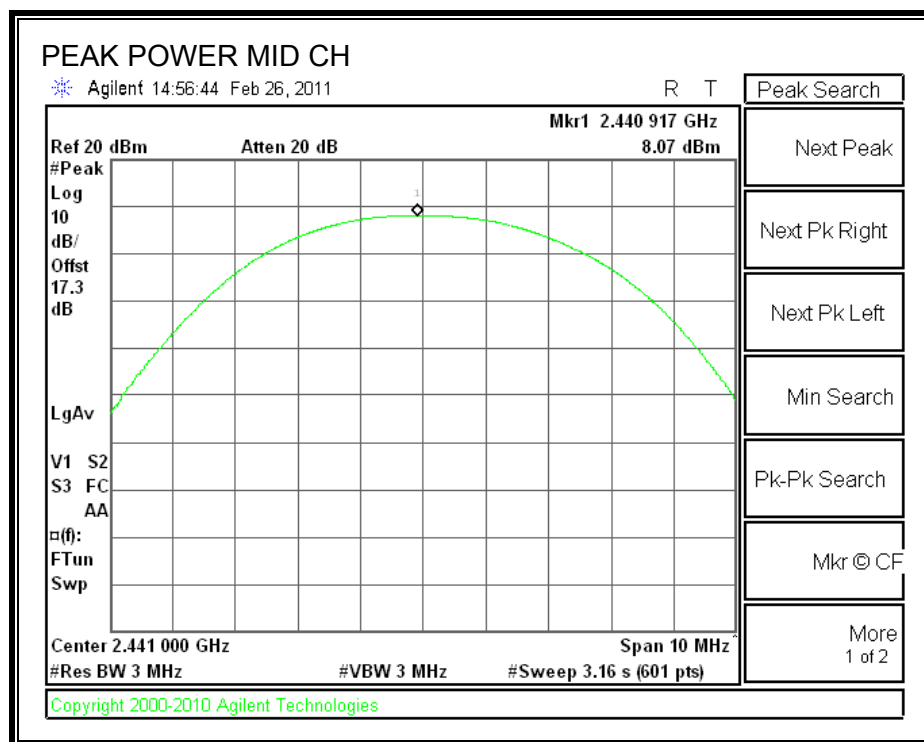
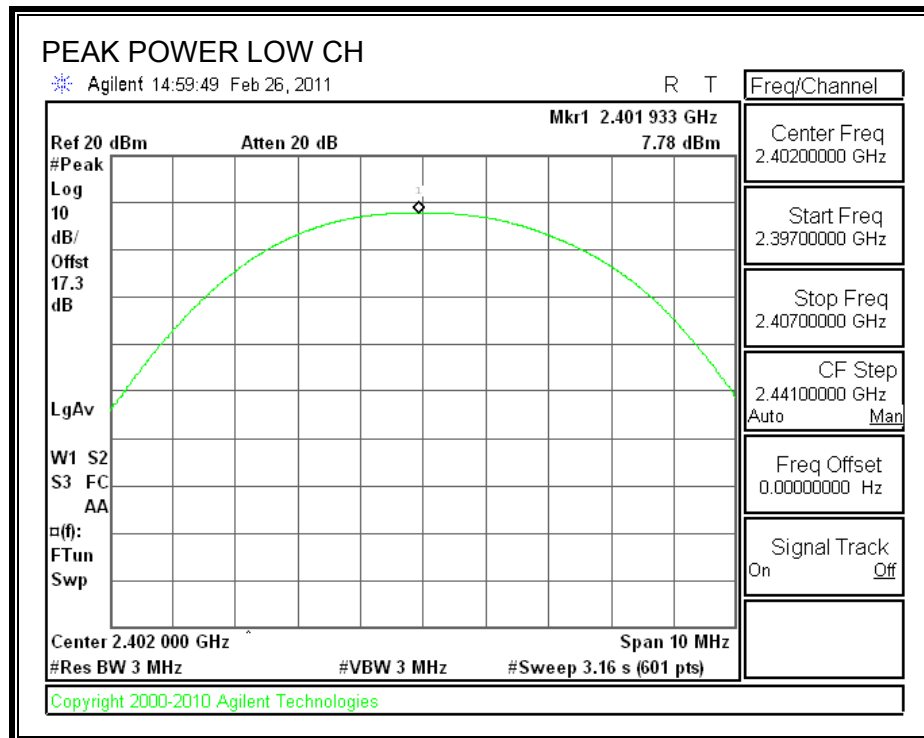
The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

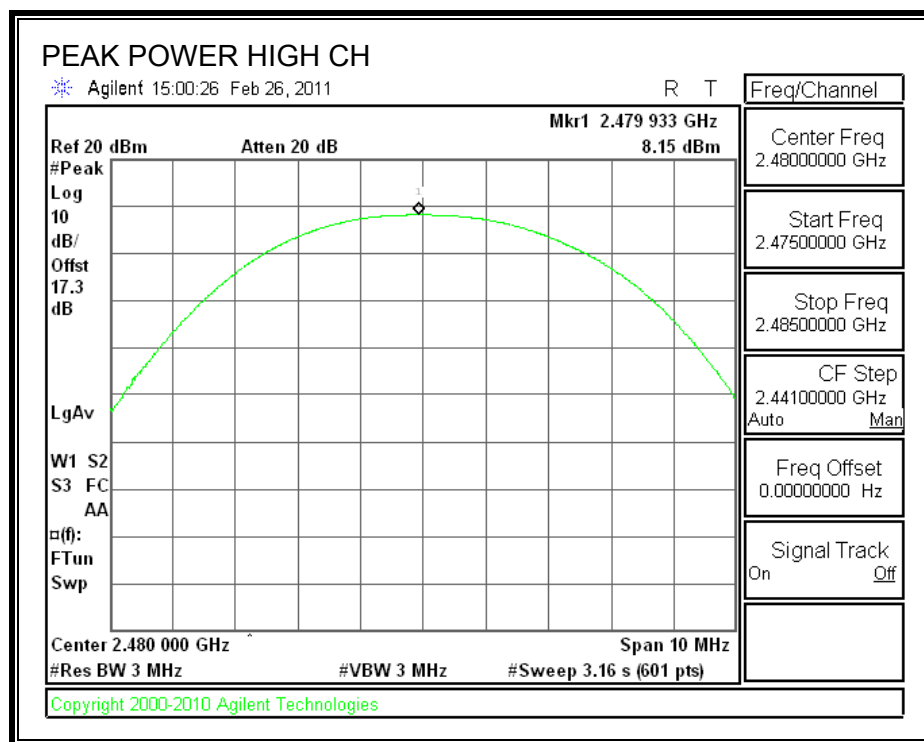
TEST PROCEDURE

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	7.78	30	-22.22
Middle	2441	8.07	30	-21.93
High	2480	8.15	30	-21.85

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 11.3B (including 10 dB pad and 0.3 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	6.90
Middle	2441	7.20
High	2480	7.30

7.1.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

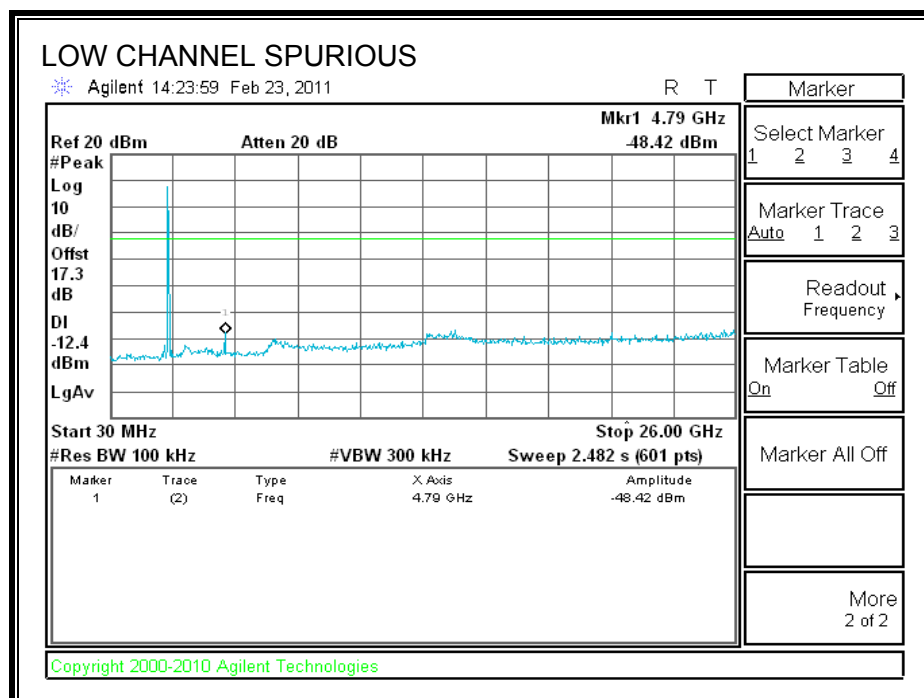
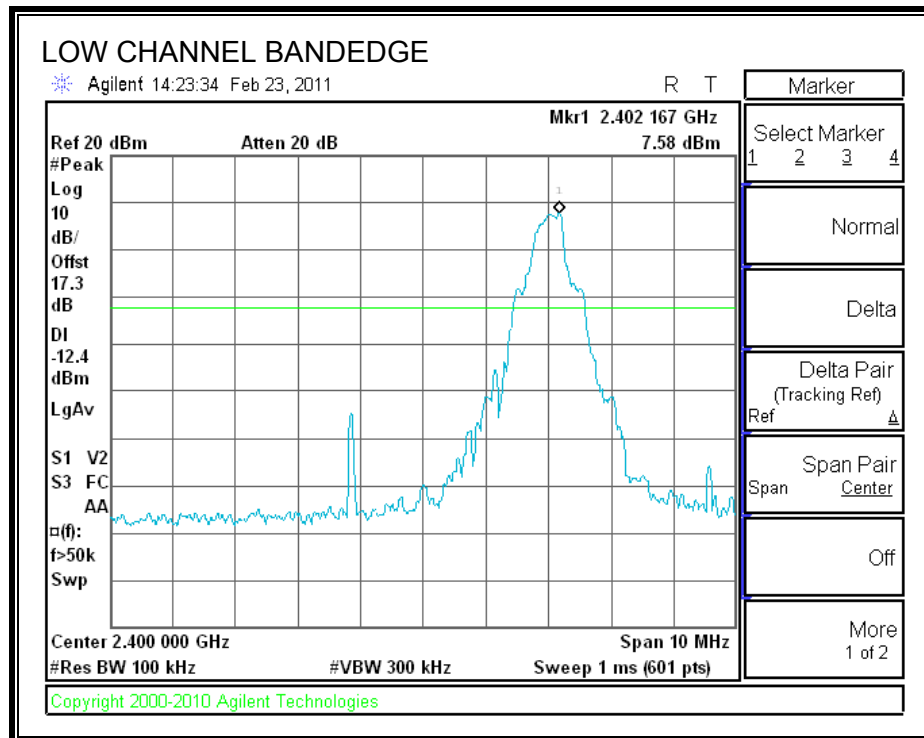
TEST PROCEDURE

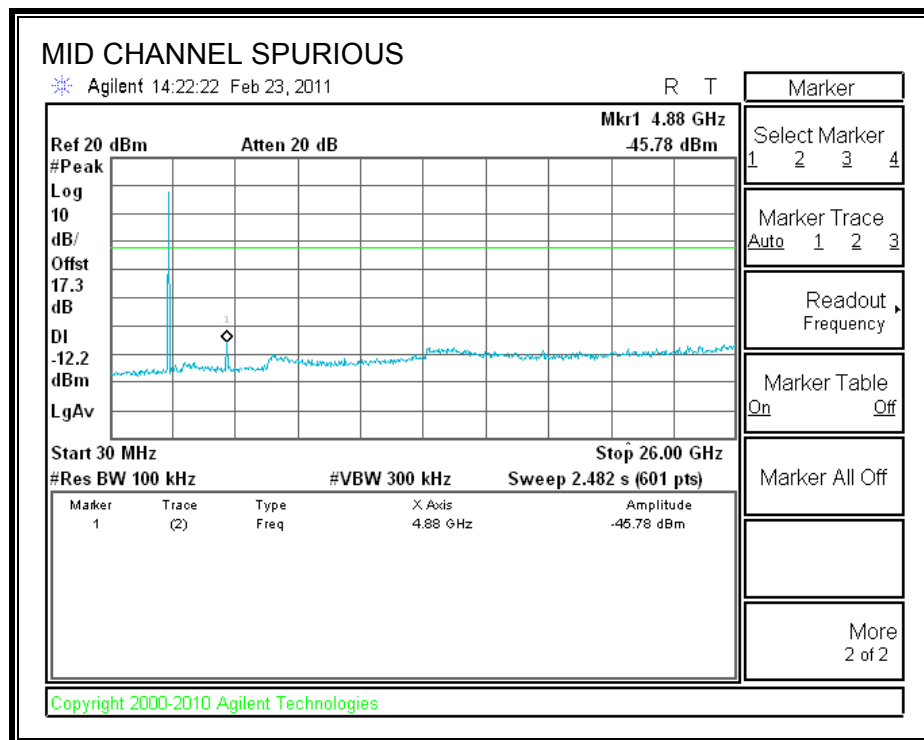
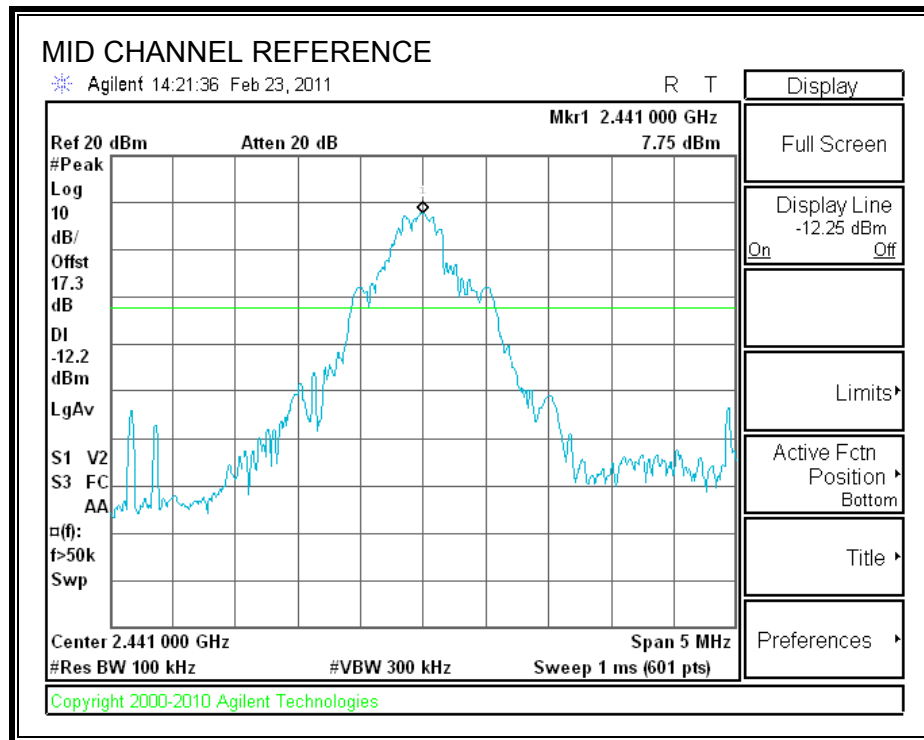
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

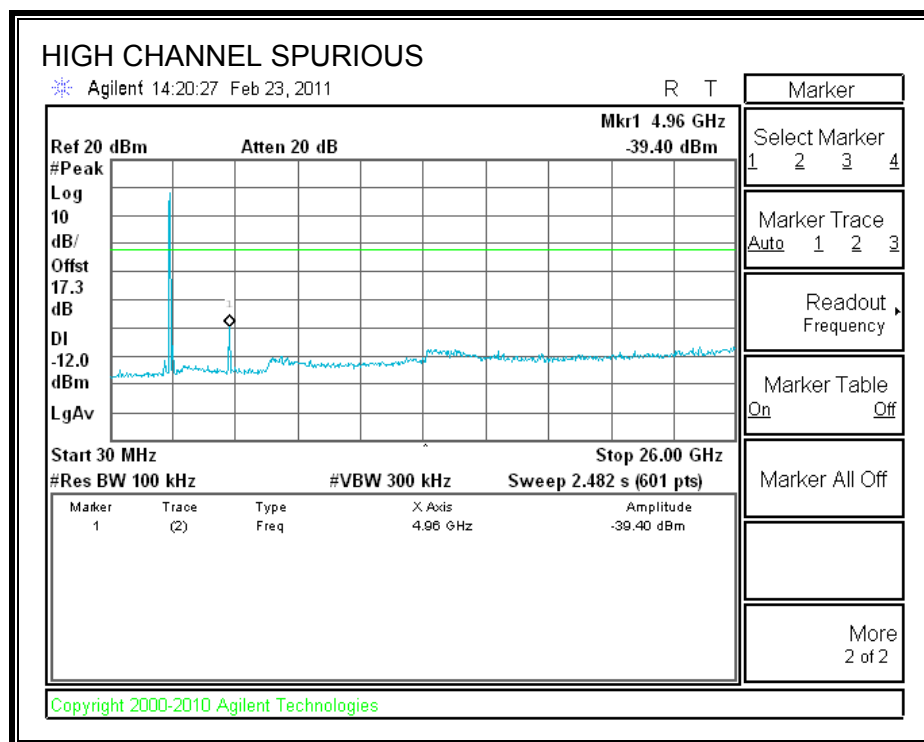
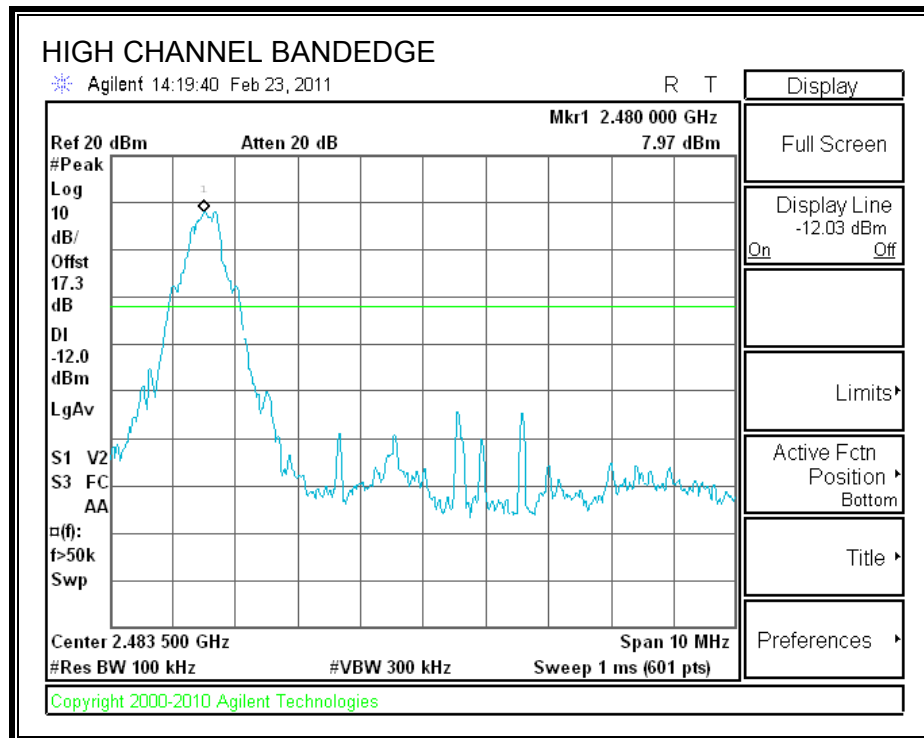
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

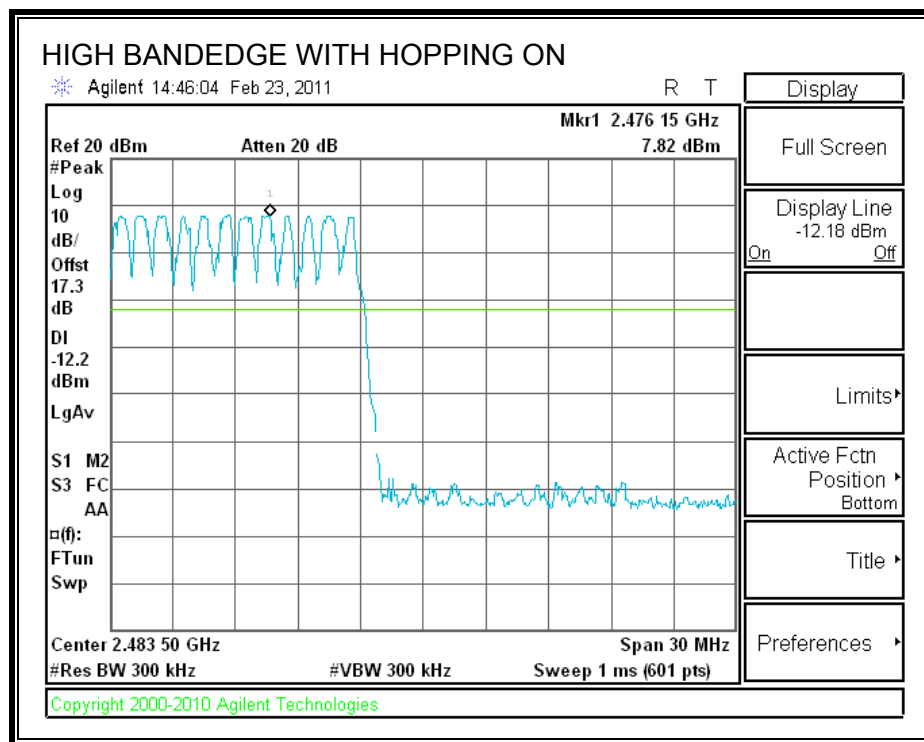
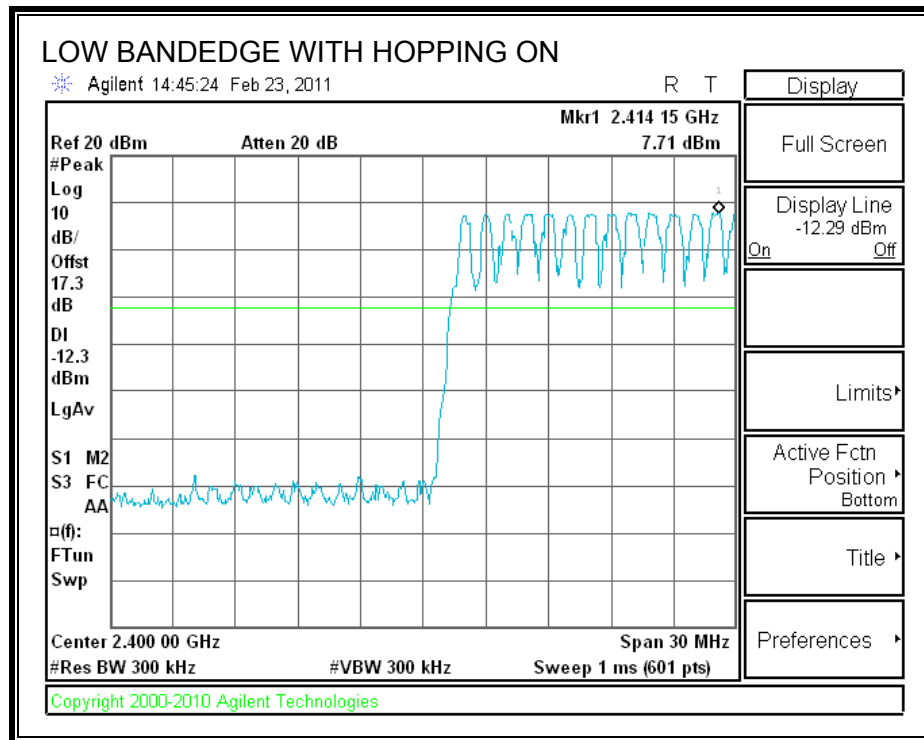
RESULTS

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

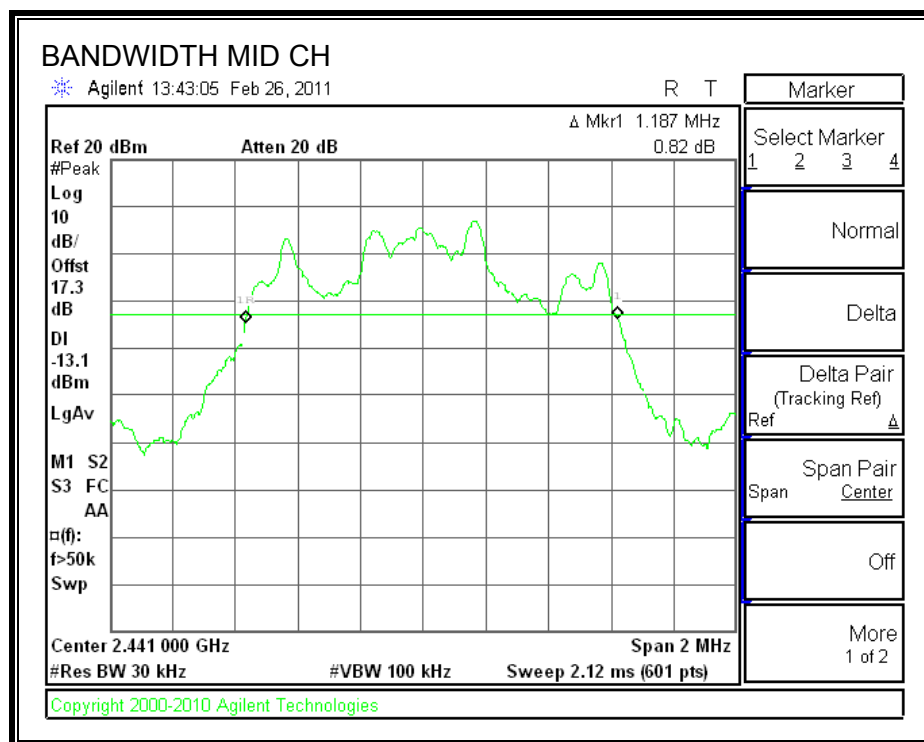
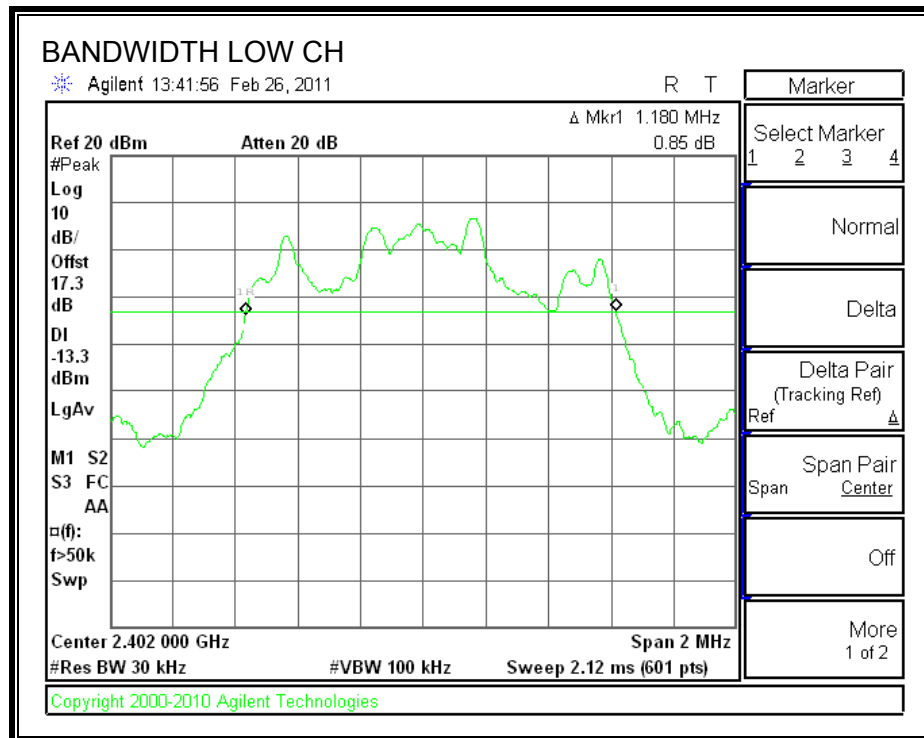
None; for reporting purposes only.

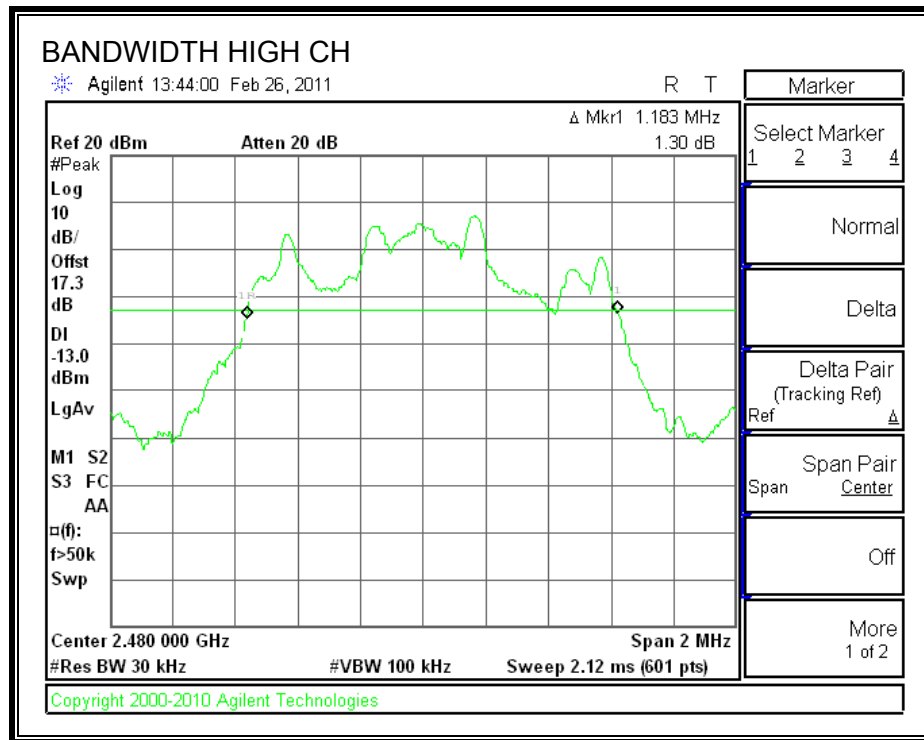
TEST PROCEDURE

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2402	1.180
Middle	2441	1.187
High	2480	1.183

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



7.2.2. 99% BANDWIDTH**LIMIT**

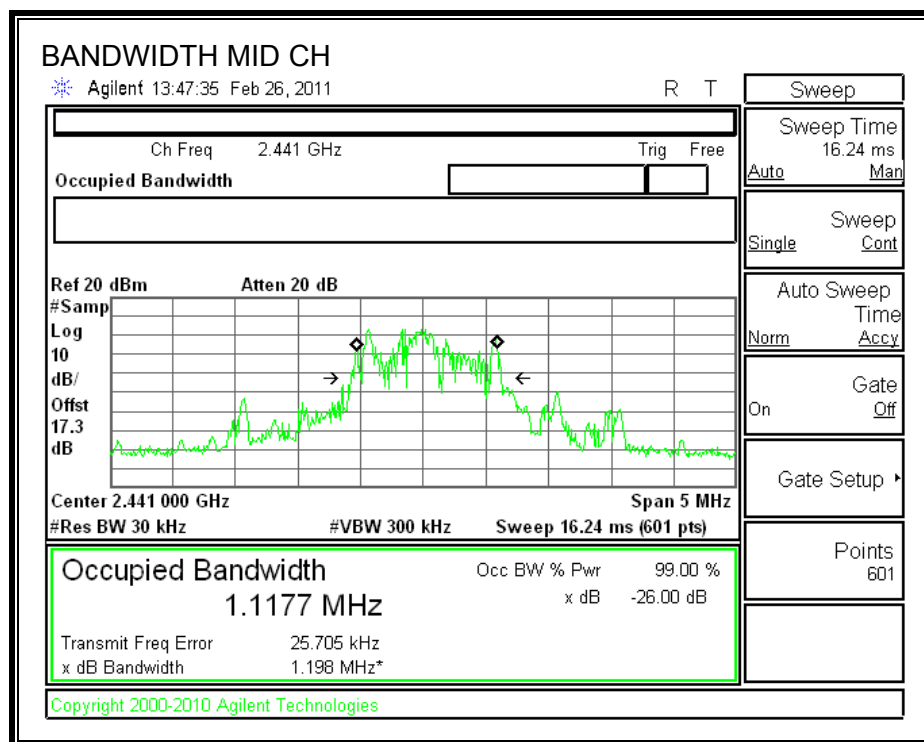
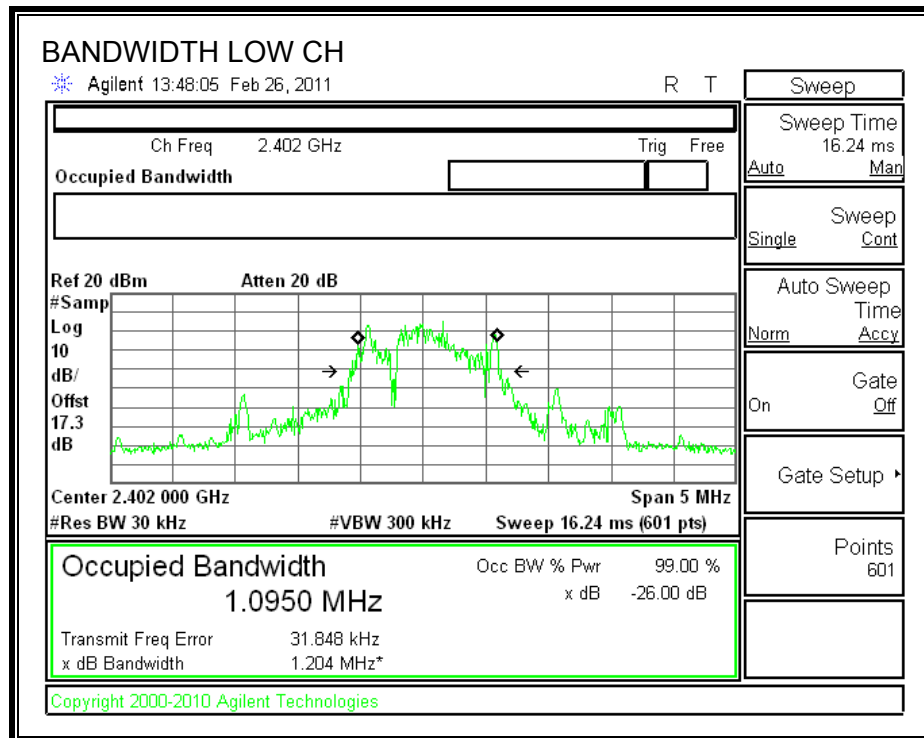
None; for reporting purposes only.

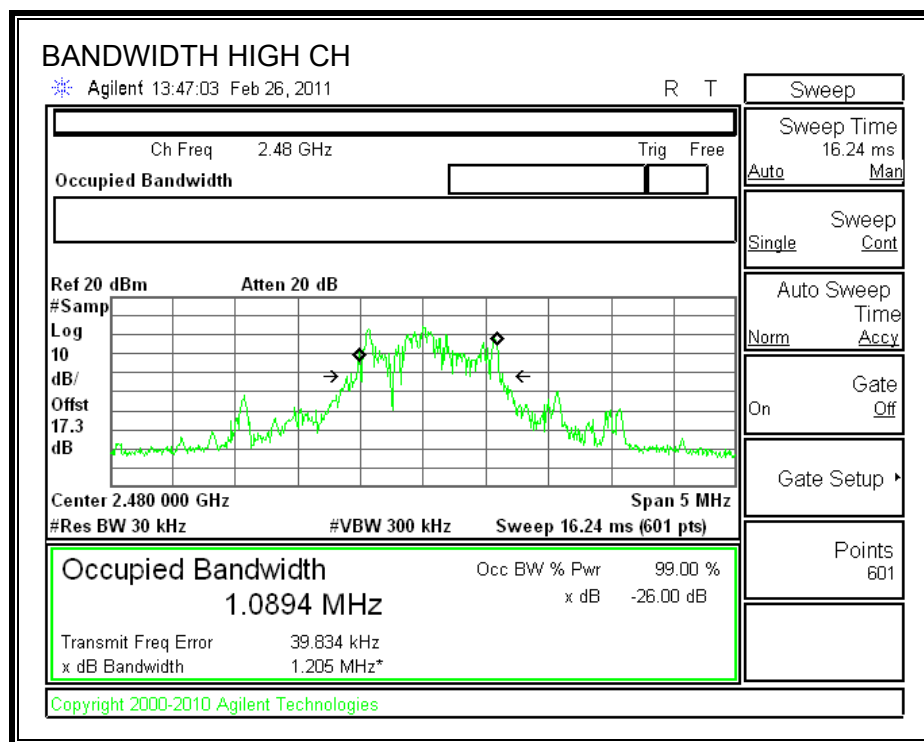
TEST PROCEDURE

Channel	Frequency (MHz)	99% Bandwidth (kHz)
Low	2402	1.0950
Middle	2441	1.1177
High	2480	1.0894

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)

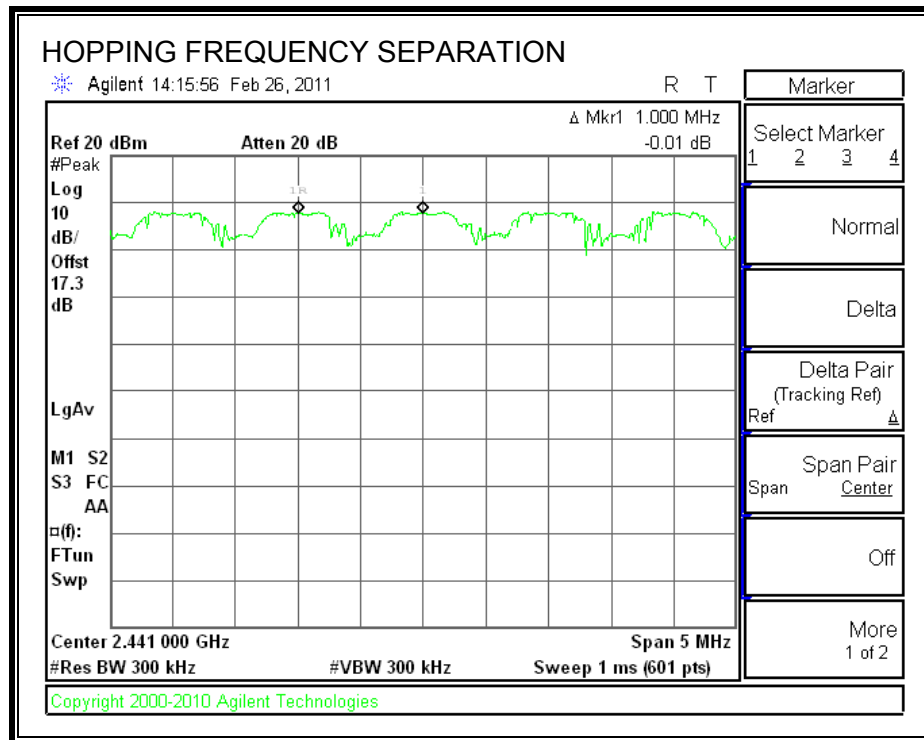
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

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)

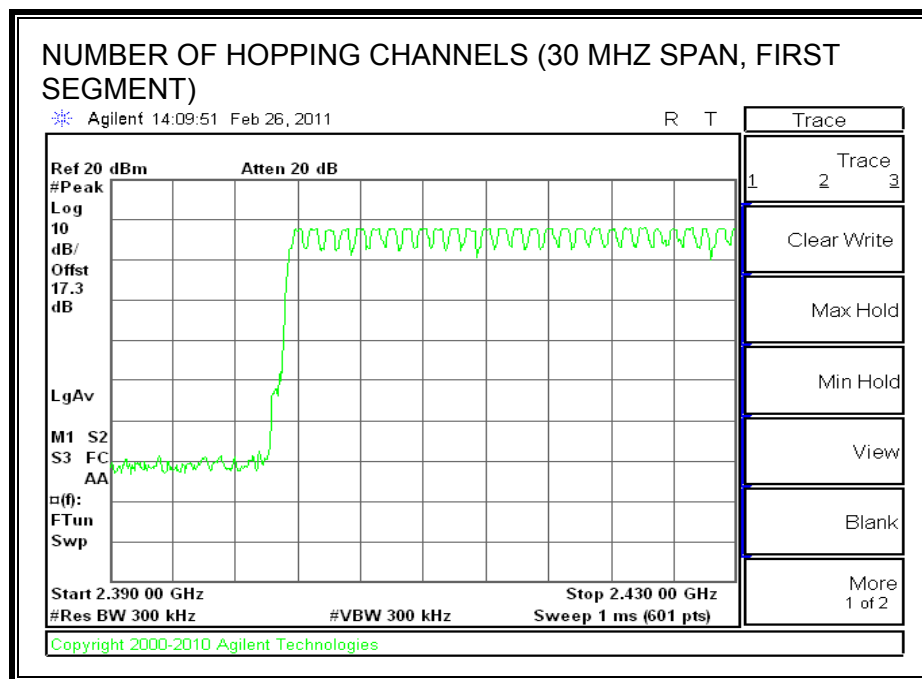
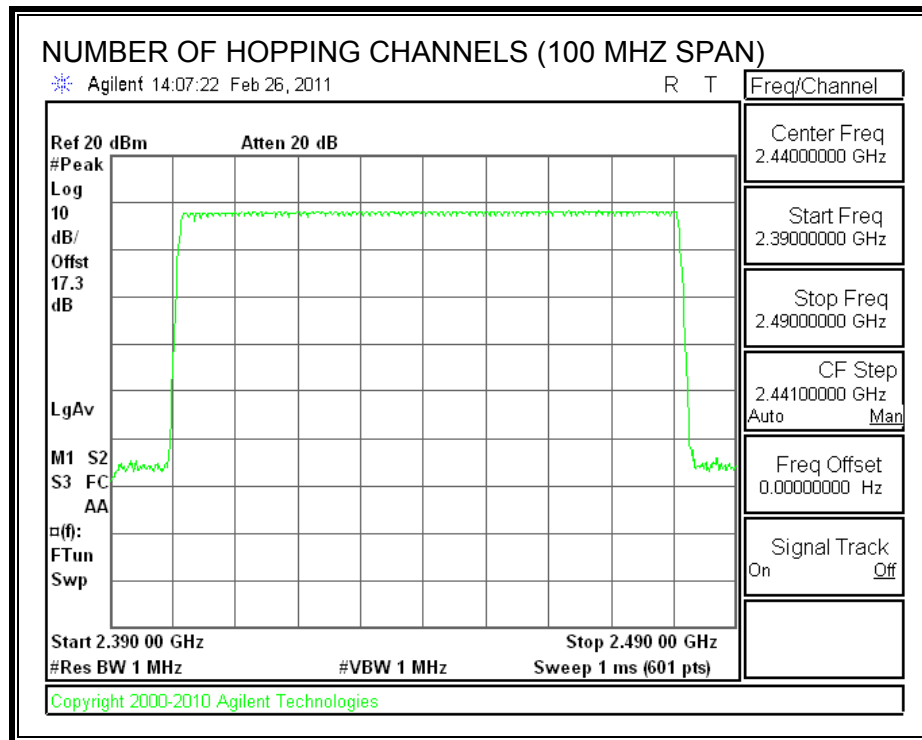
Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

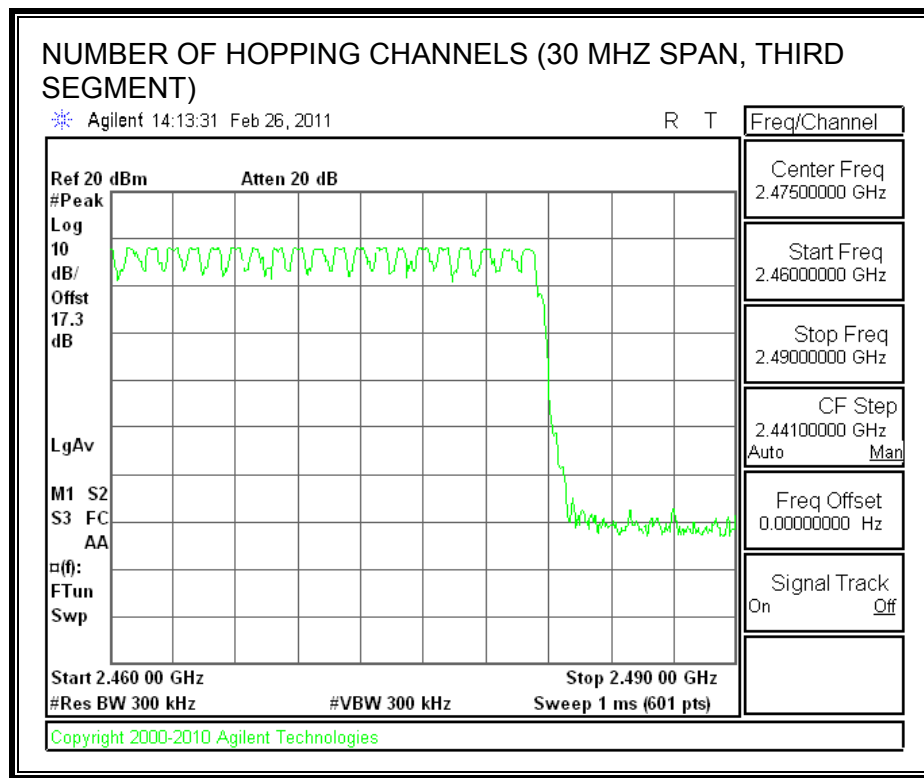
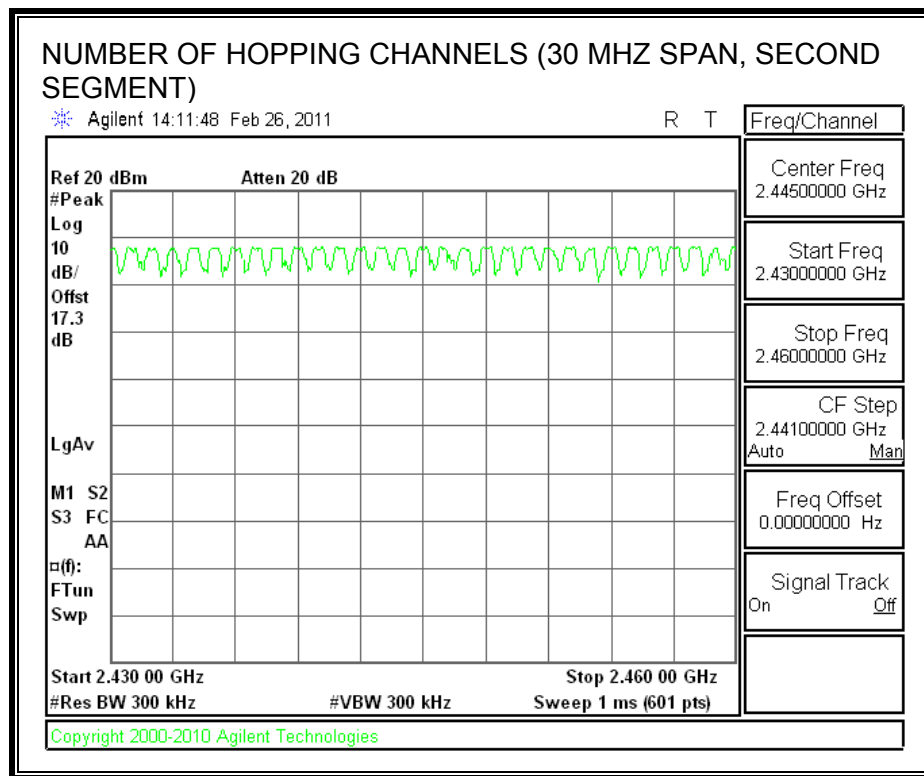
TEST PROCEDURE

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

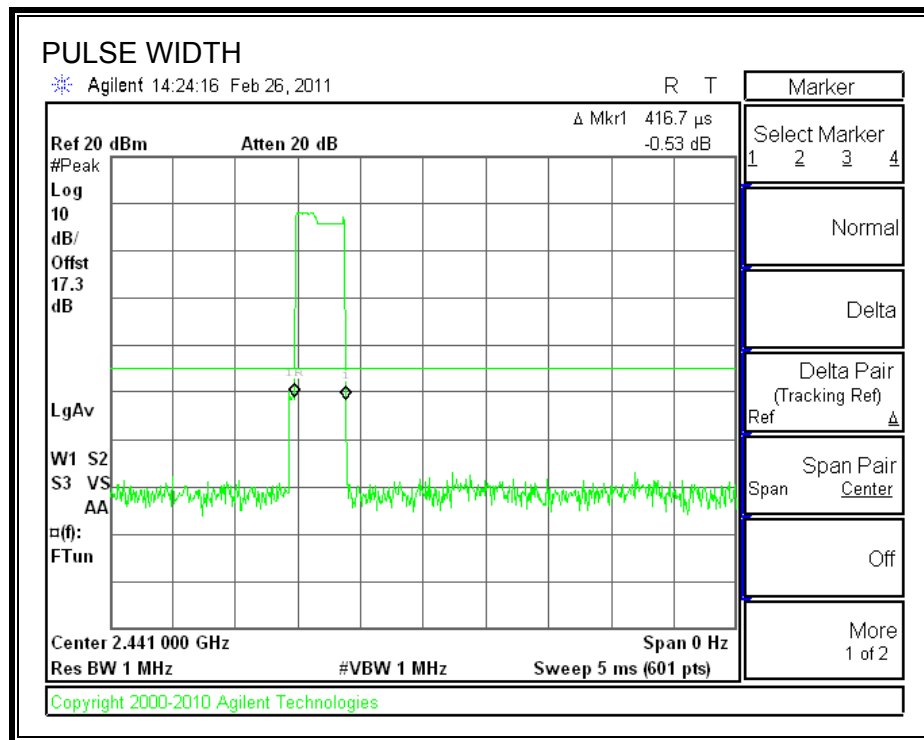
The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

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

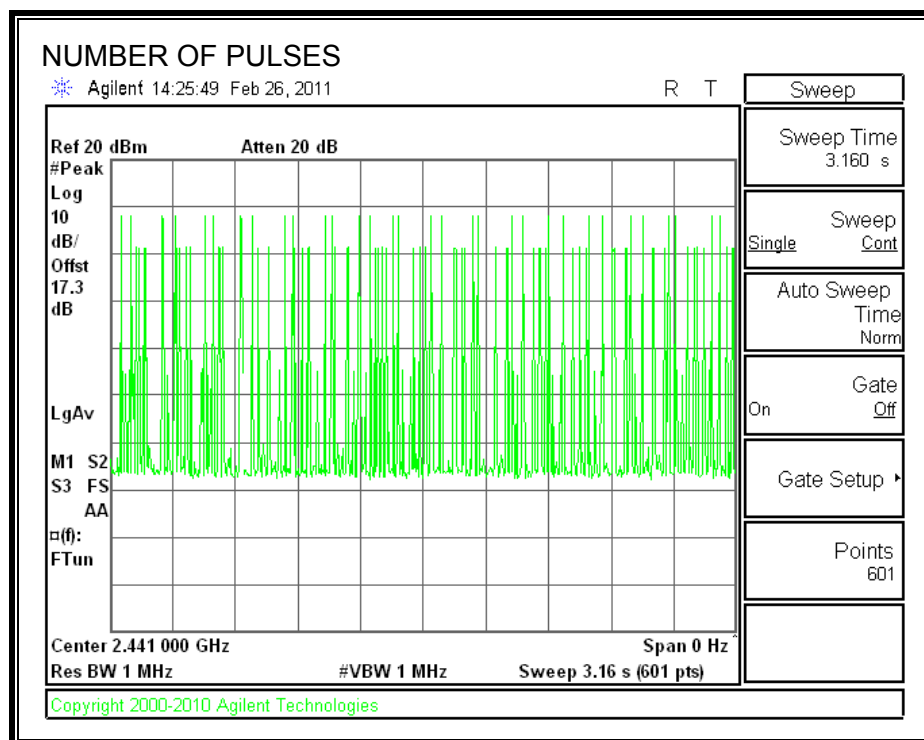
RESULTS**8PSK Mode**

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
DH1	0.4167	32	0.133	0.4	0.267
DH3	1.683	13	0.219	0.4	0.181
DH5	2.917	9	0.263	0.4	0.137

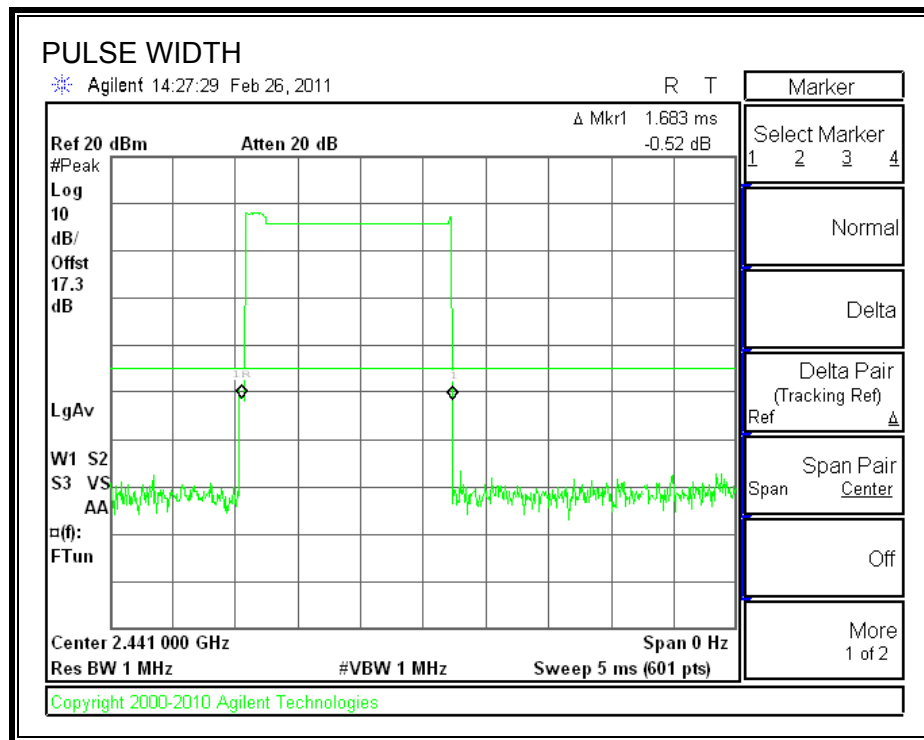
PULSE WIDTH , 3DH1



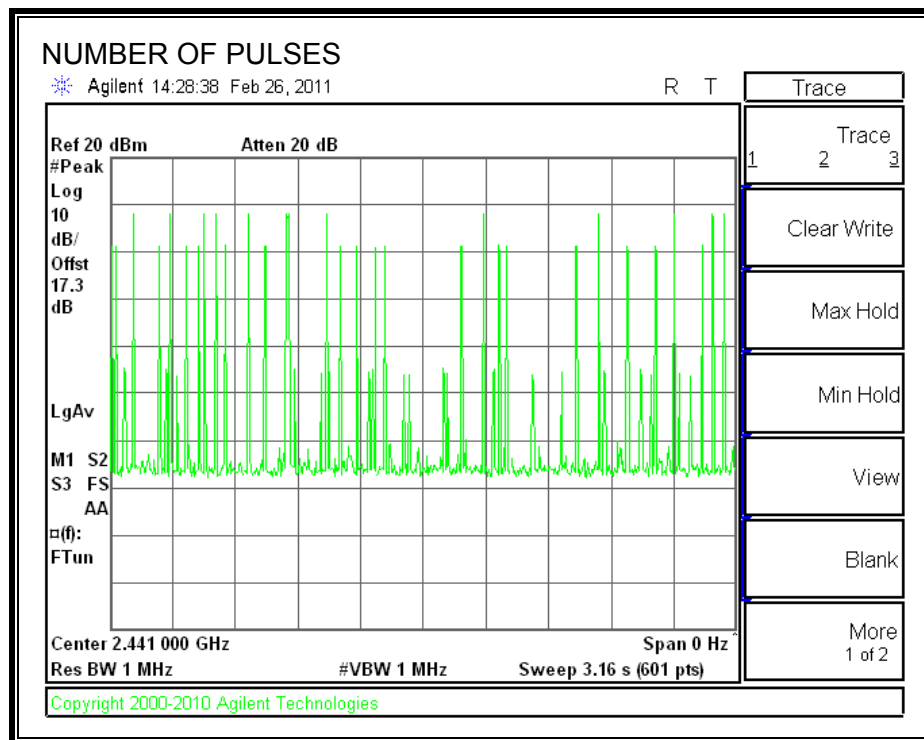
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



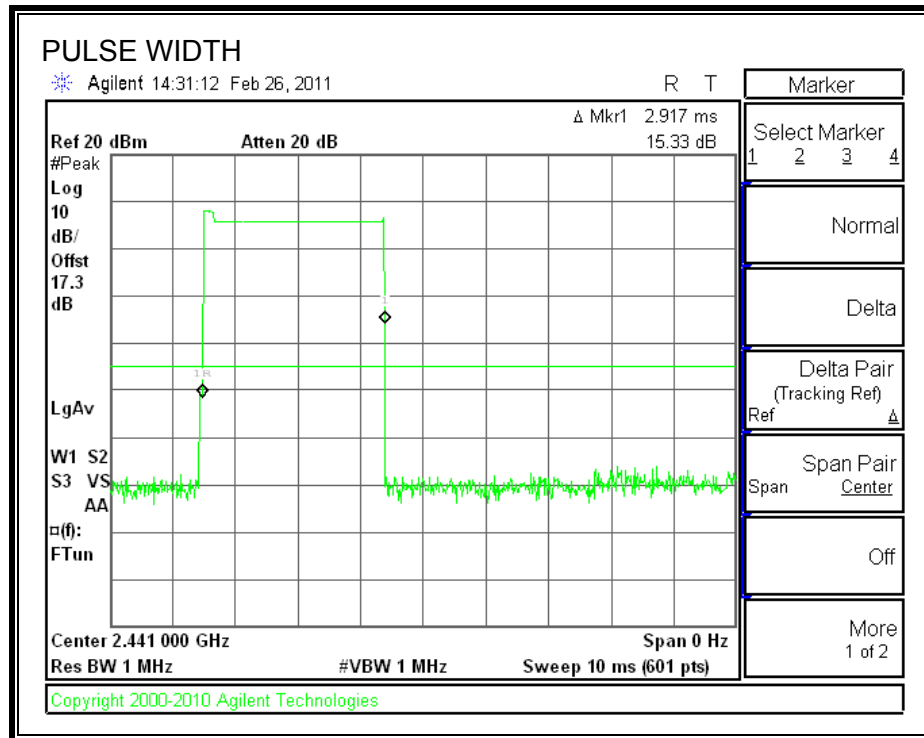
PULSE WIDTH, 3DH3



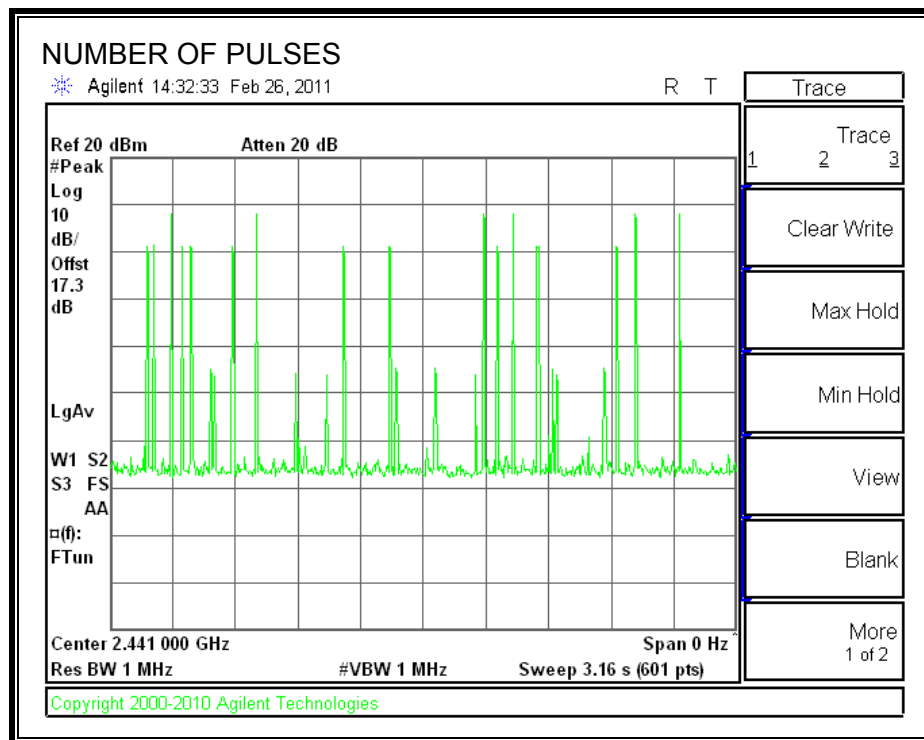
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



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.

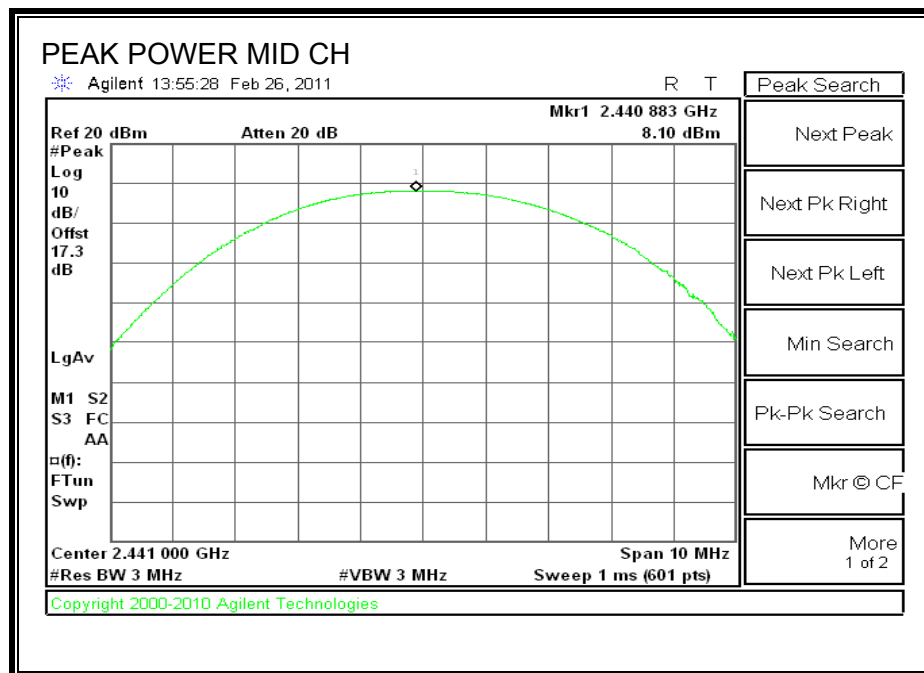
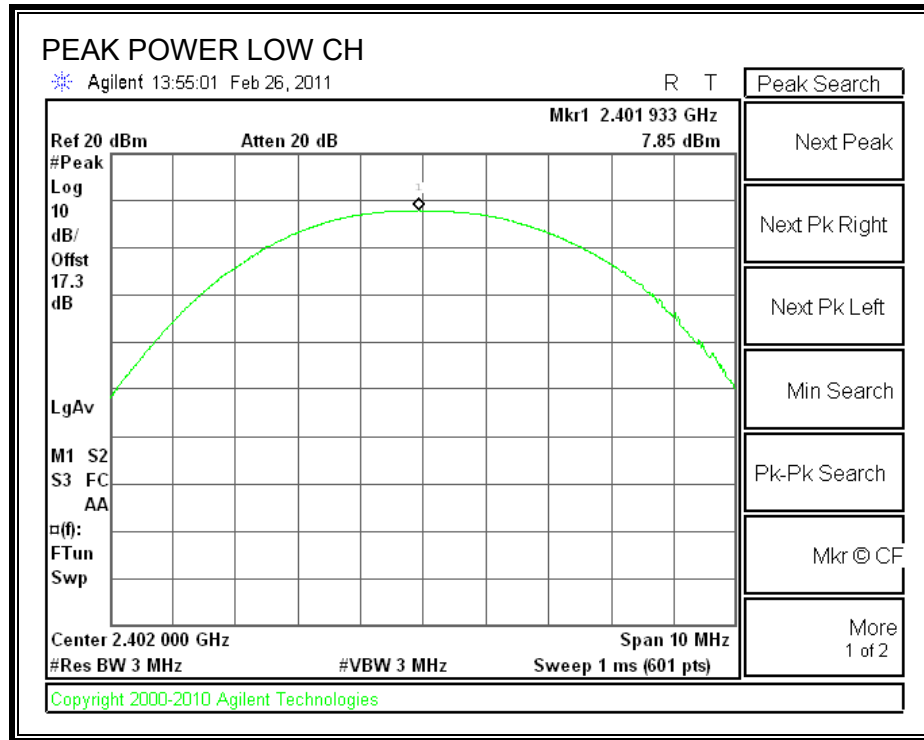
TEST PROCEDURE

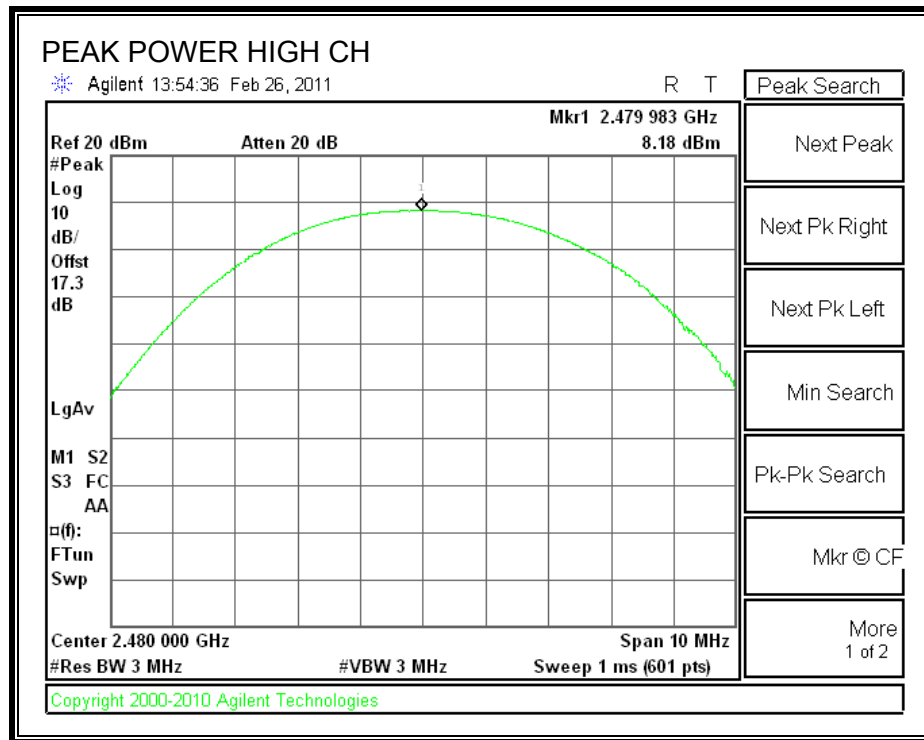
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.85	21	-13.12
Middle	2441	8.10	21	-12.87
High	2480	8.18	21	-12.79

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 11.3B (including 10 dB pad and 0.3 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	5.20
Middle	2441	5.50
High	2480	5.60

7.2.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

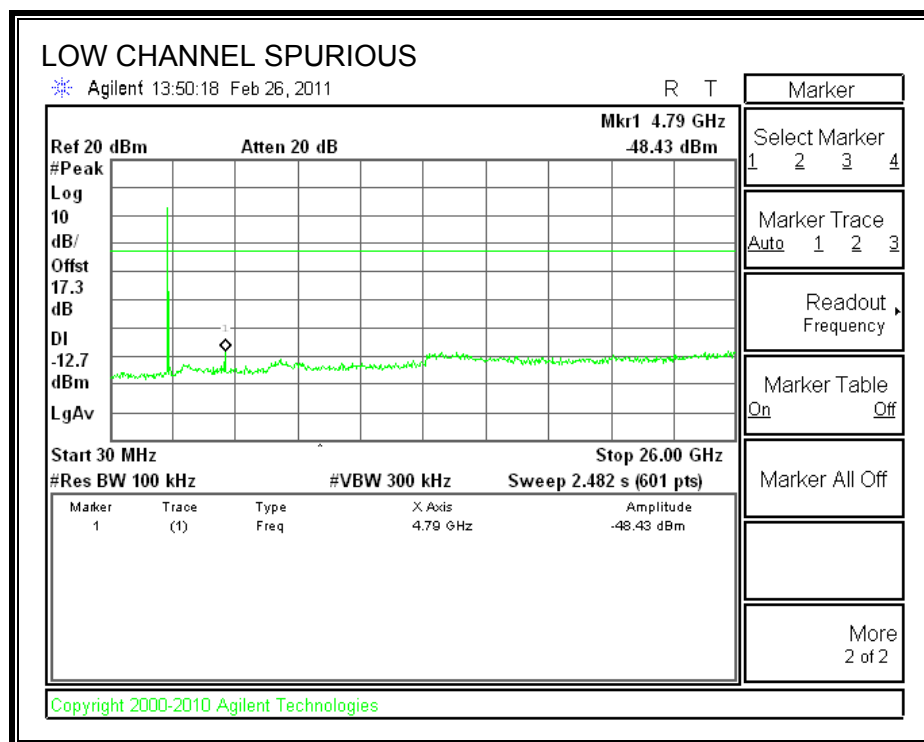
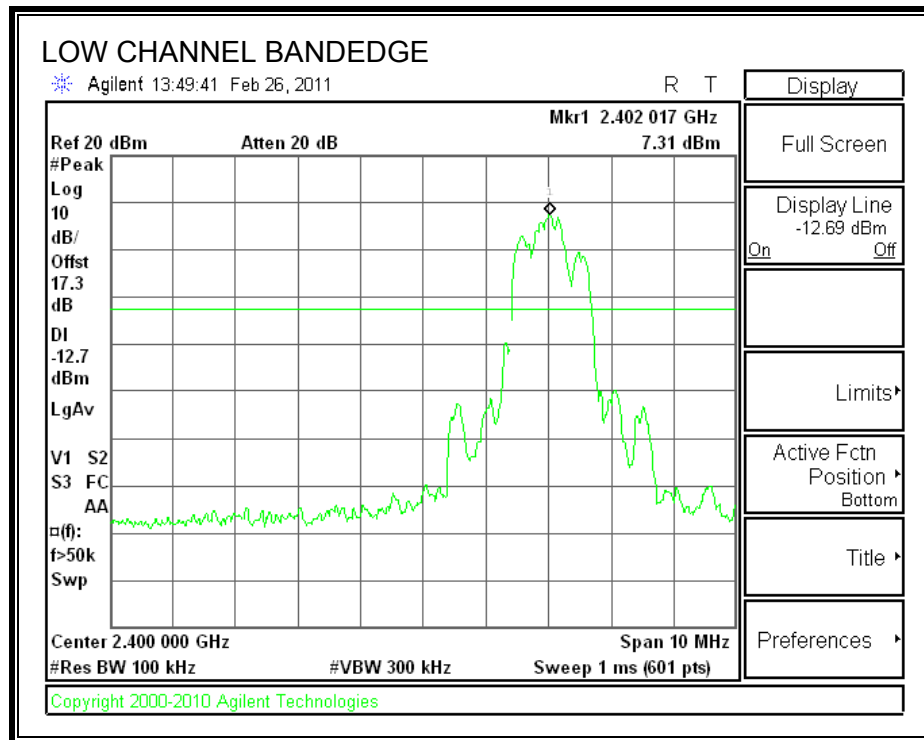
TEST PROCEDURE

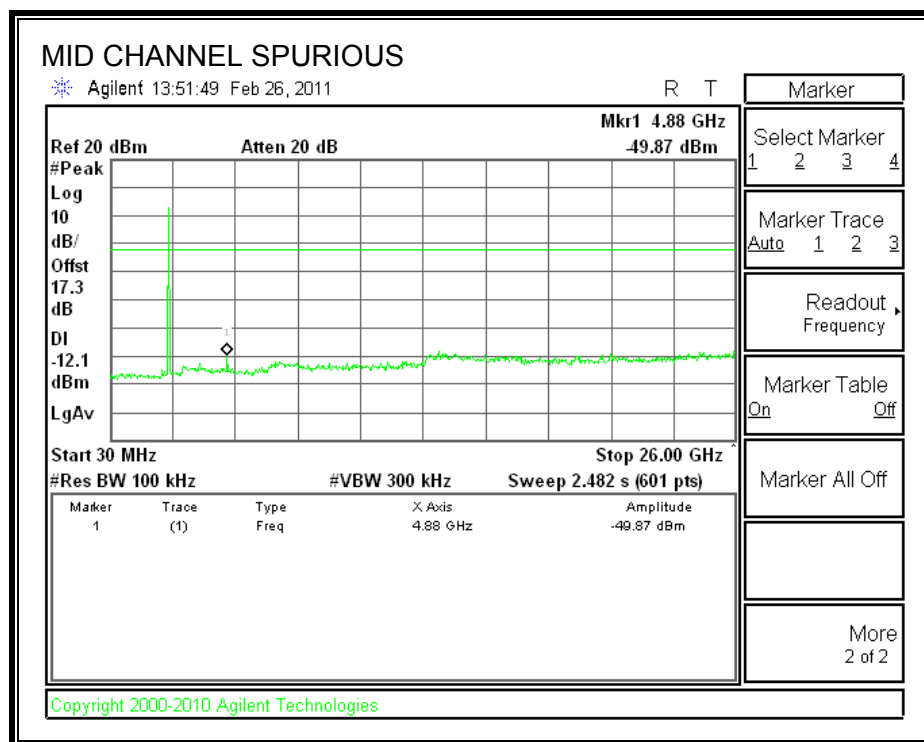
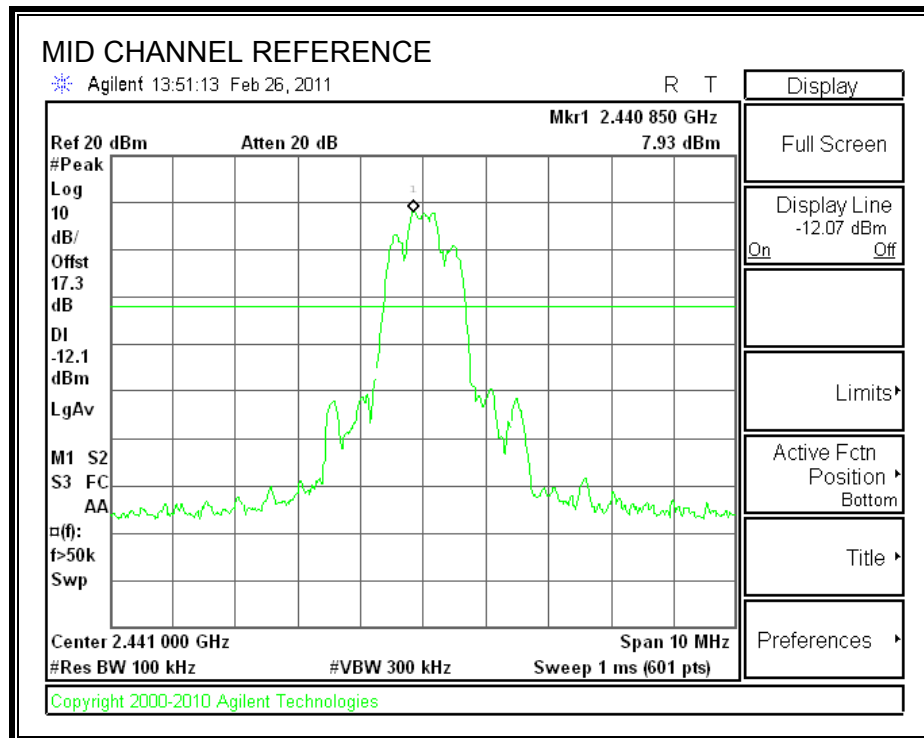
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

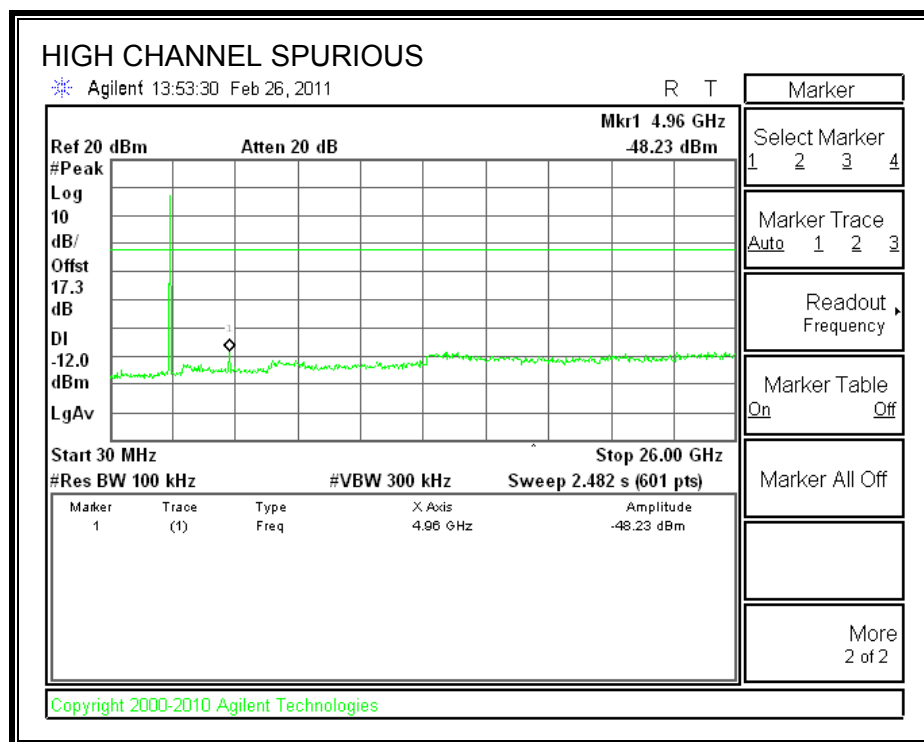
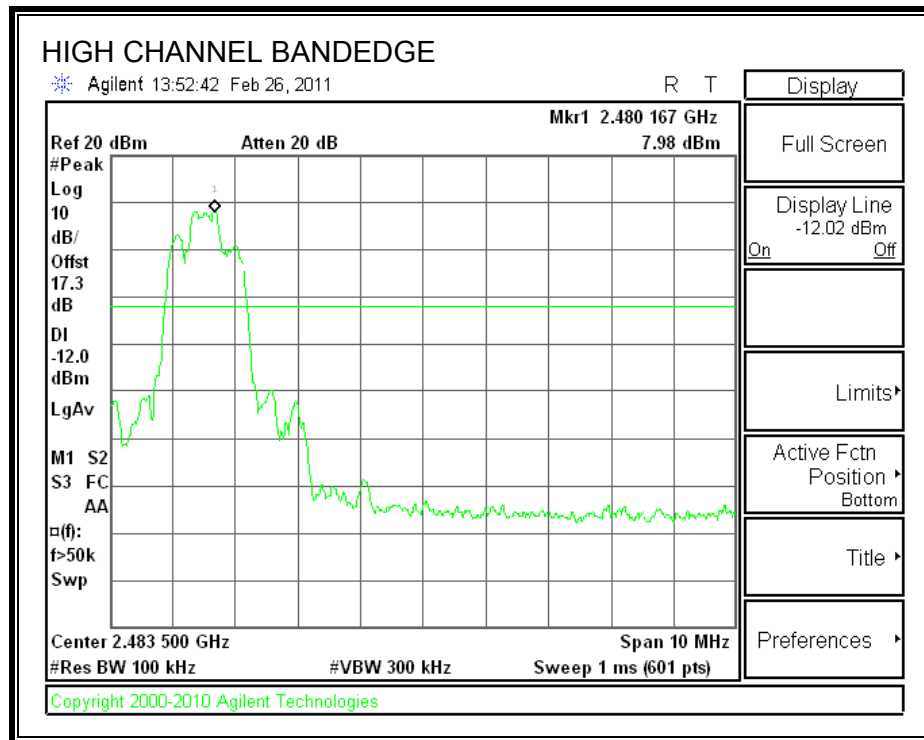
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

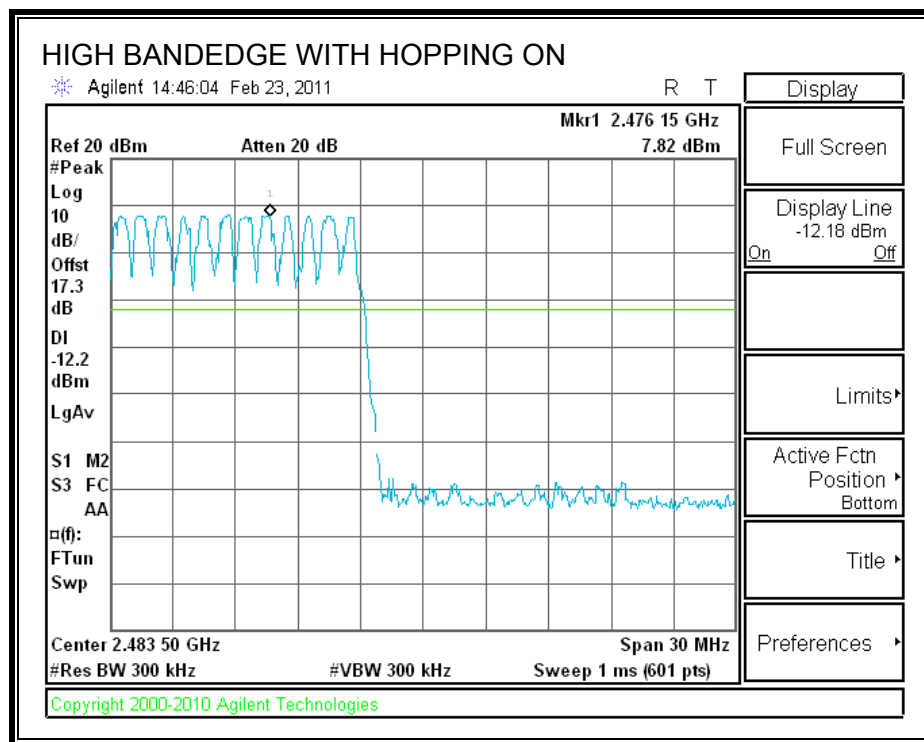
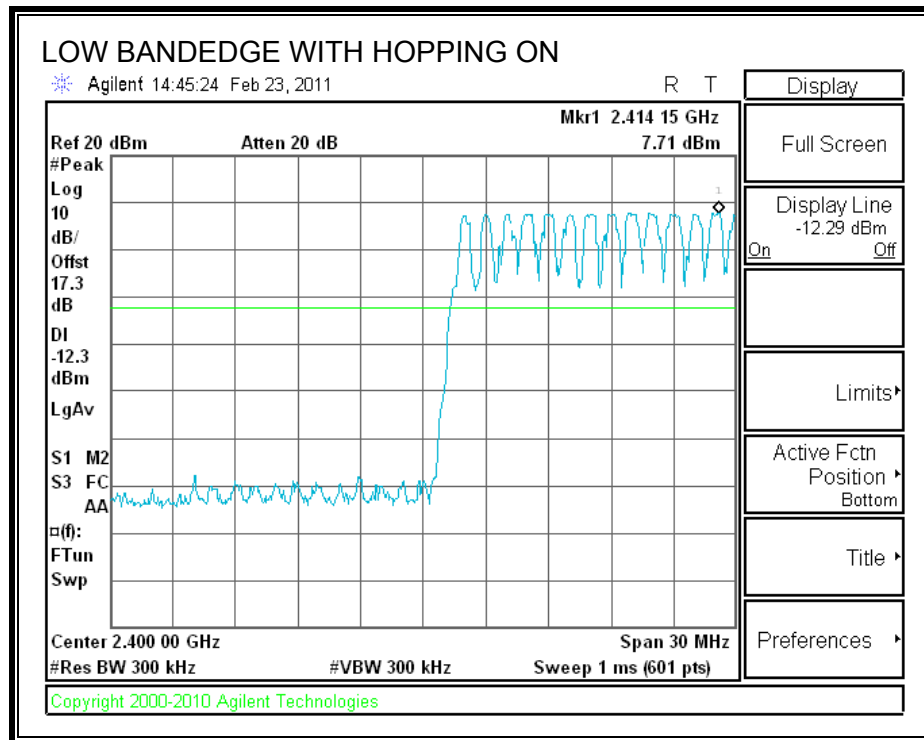
RESULTS

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 ($\mu\text{V/m}$) at 3 m	Field Strength Limit (dB $\mu\text{V/m}$) 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.

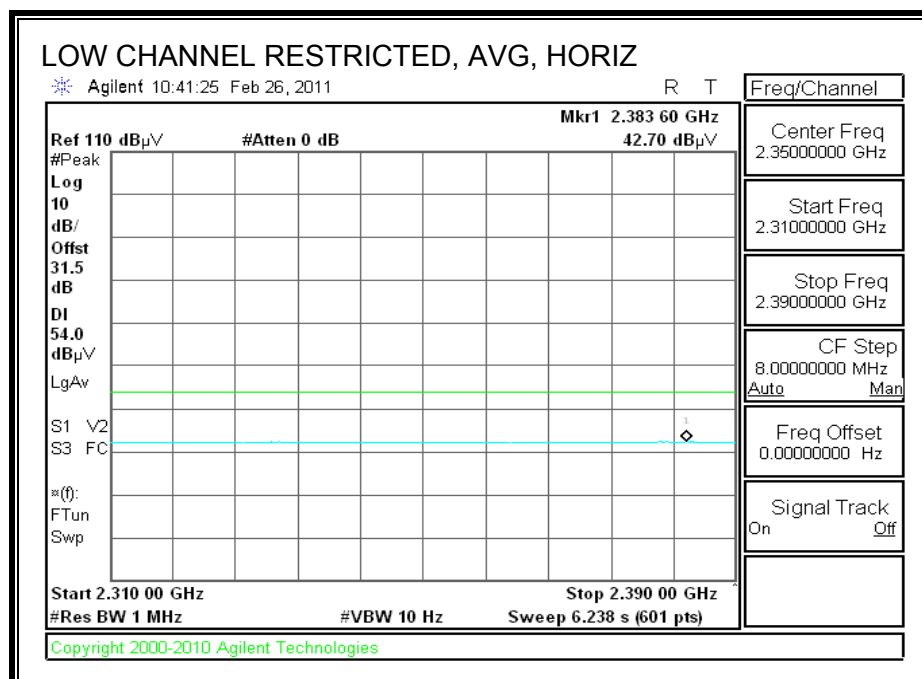
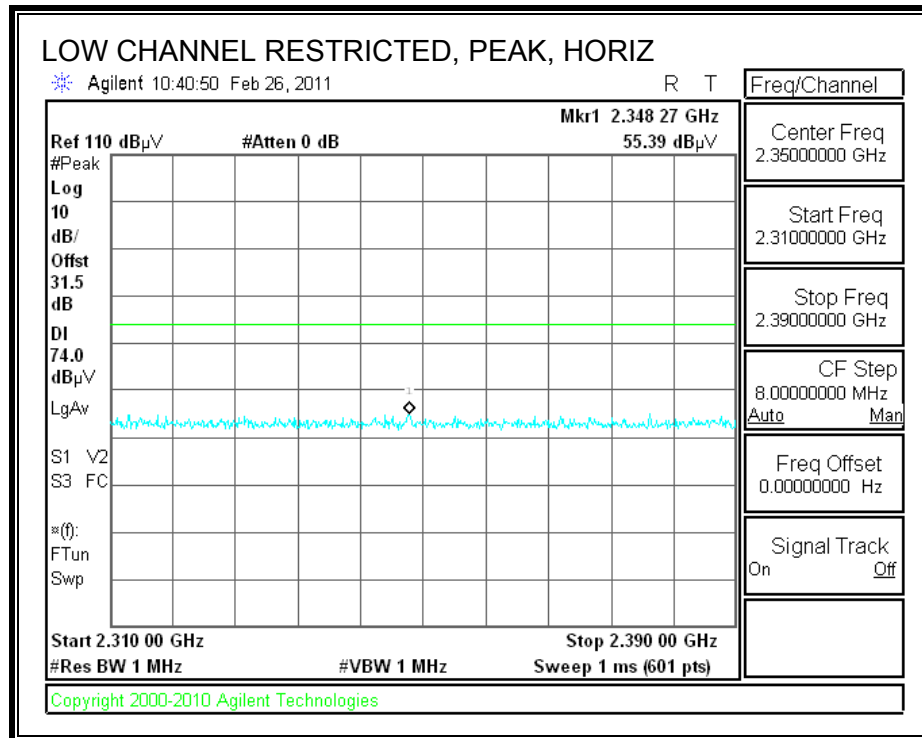
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

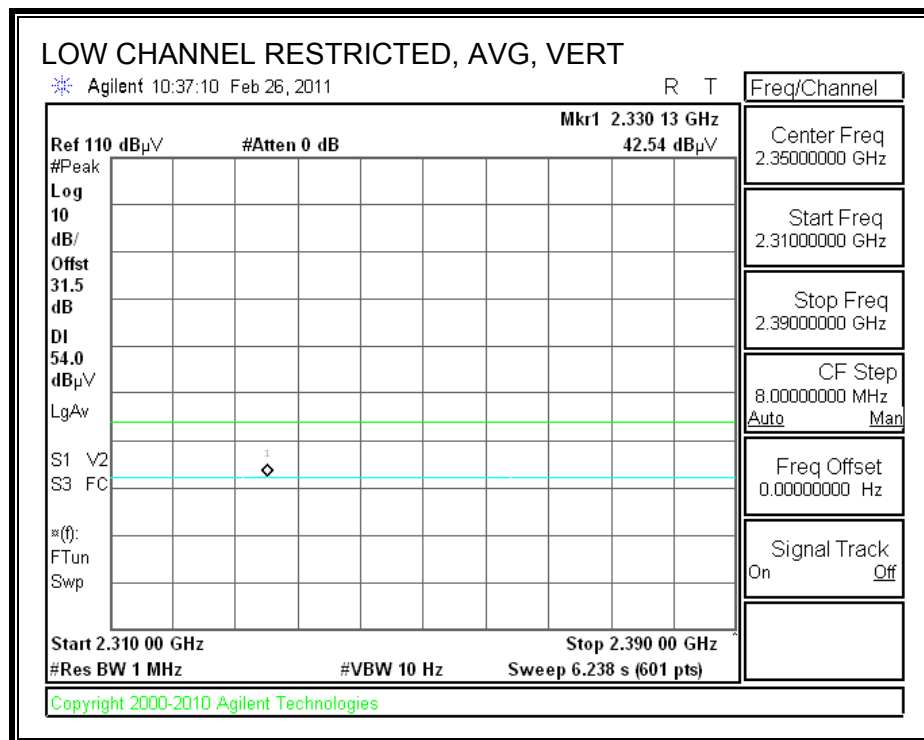
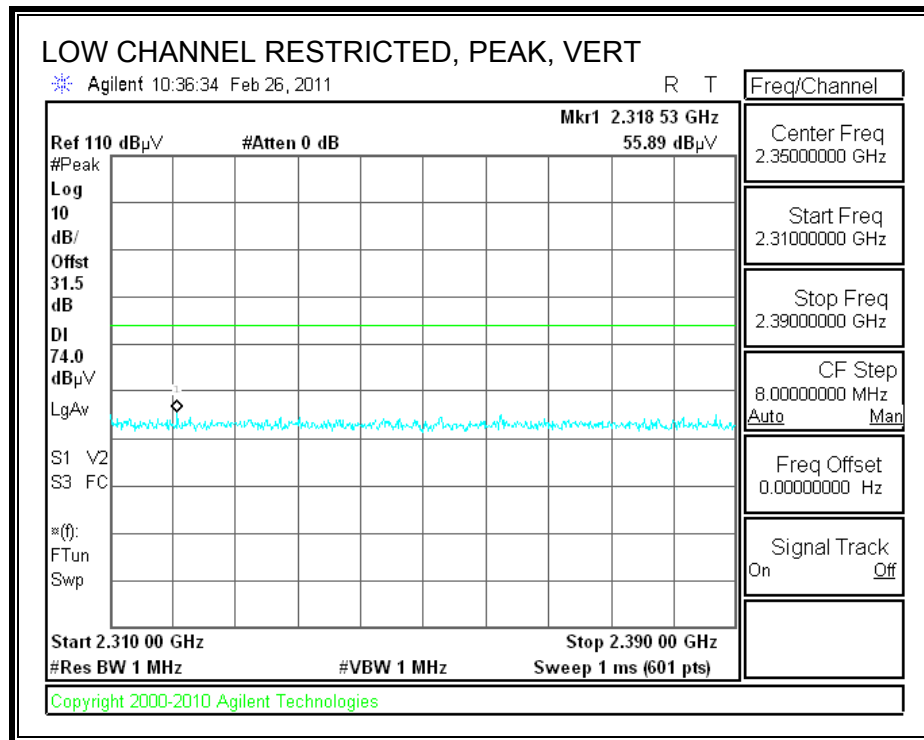
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

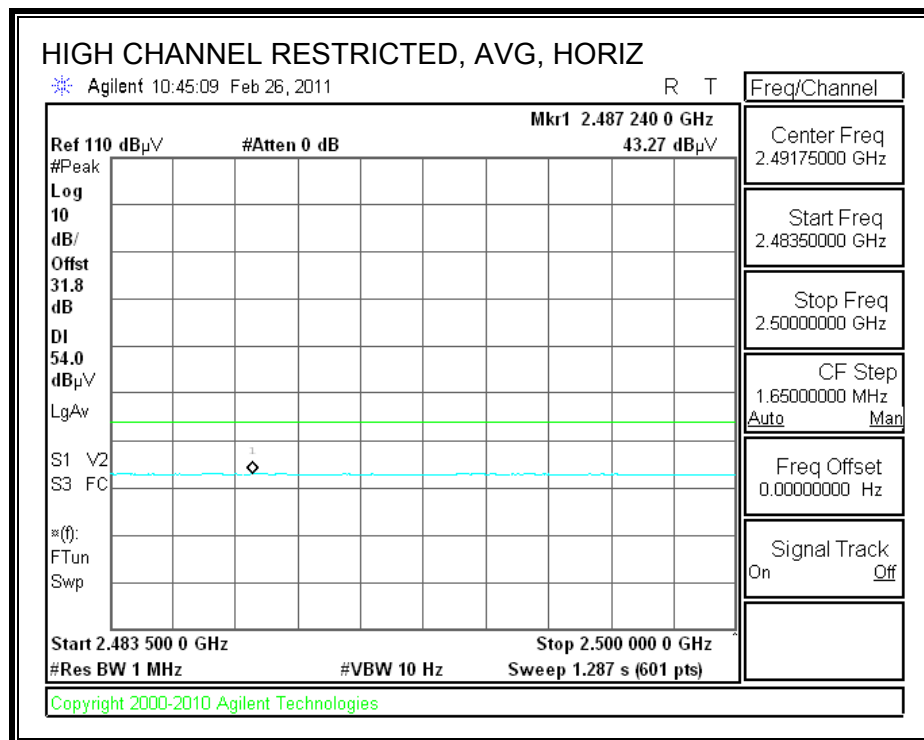
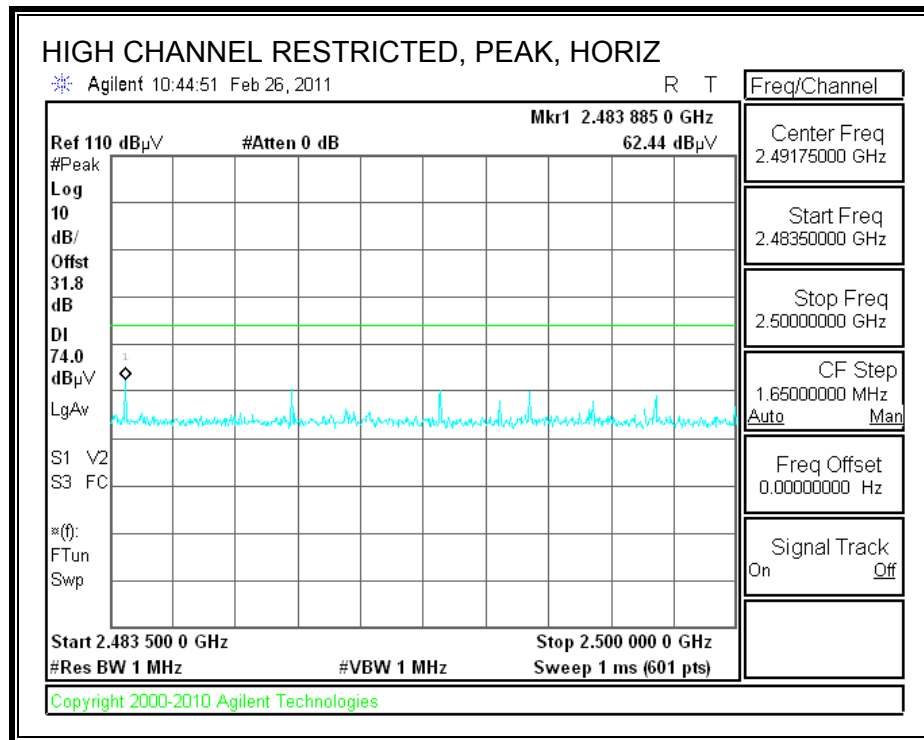
8.2. TRANSMITTER ABOVE 1 GHz

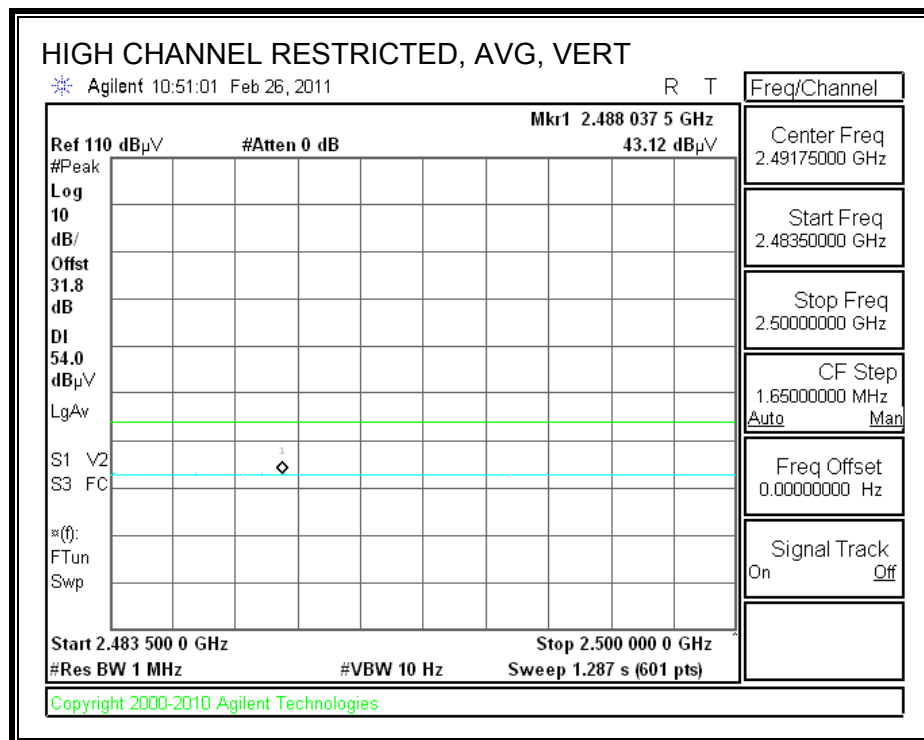
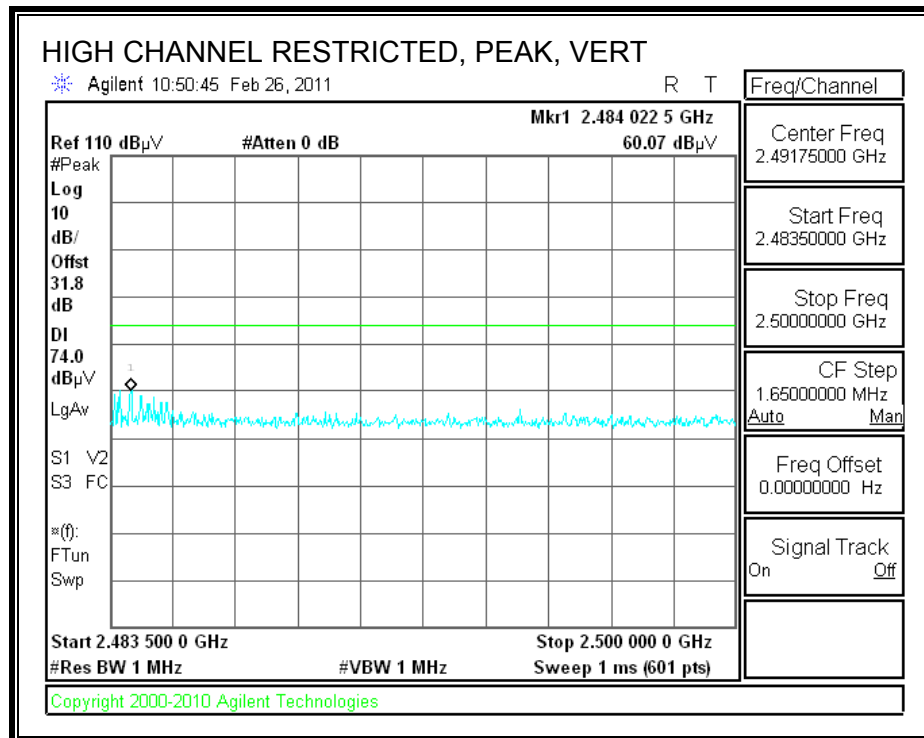
8.2.1. BASIC DATA RATE GFSK MODULATION

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: Chin Pang
 Date: 02/26/11
 Project #: 11113692
 Company: Samsung
 Test Target: FCC 15.247
 Mode Oper: TX, 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

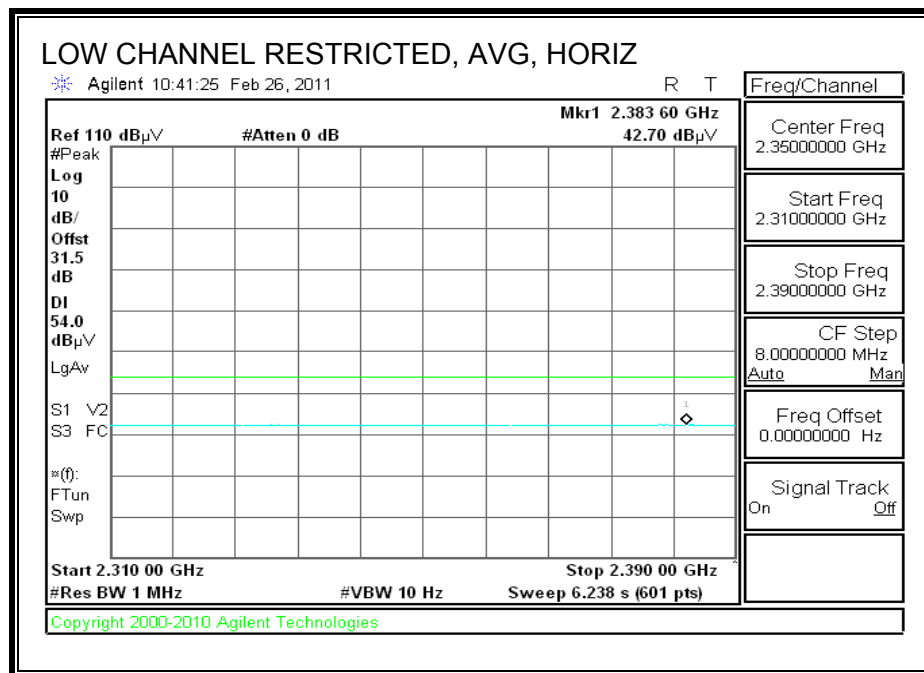
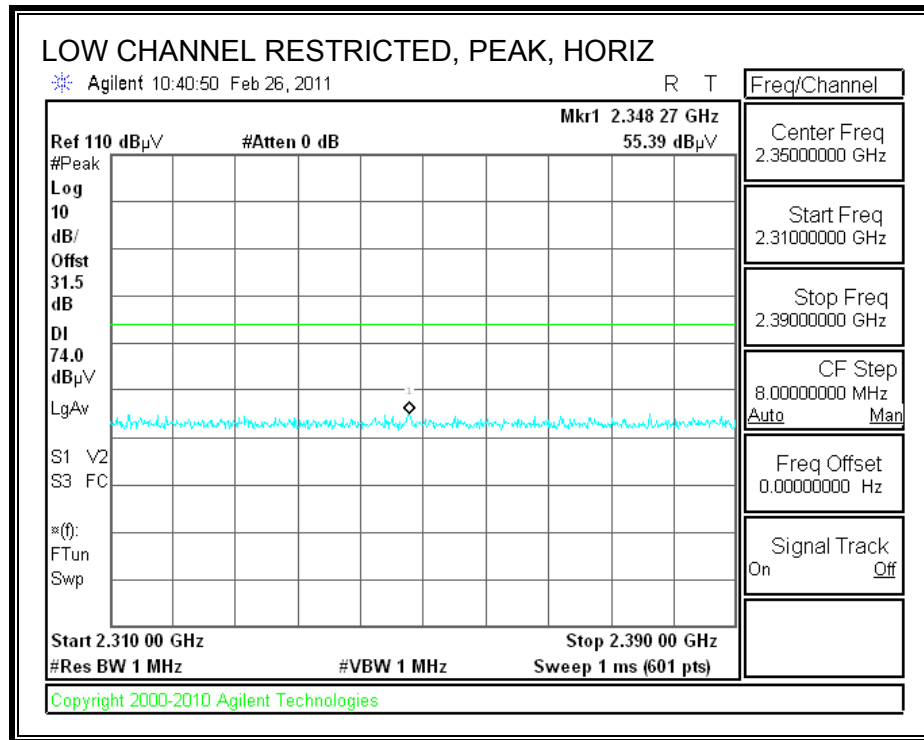
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det. P/A/QP	Notes
Low Ch, 2402MHz													
4.804	3.0	49.9	32.8	5.8	-34.8	0.0	0.0	53.6	74.0	-20.4	H	P	
4.804	3.0	31.5	32.8	5.8	-34.8	0.0	0.0	35.2	54.0	-18.8	H	A	
4.804	3.0	47.9	32.8	5.8	-34.8	0.0	0.0	51.6	74.0	-22.4	V	P	
4.804	3.0	30.7	32.8	5.8	-34.8	0.0	0.0	34.4	54.0	-19.6	V	A	
Mid Ch, 2441MHz													
4.882	3.0	53.1	32.8	5.8	-34.8	0.0	0.0	56.9	74.0	-17.1	H	P	
4.882	3.0	32.6	32.8	5.8	-34.8	0.0	0.0	36.4	54.0	-17.6	H	A	
7.323	3.0	36.2	35.2	7.3	-34.1	0.0	0.0	44.6	74.0	-29.5	H	P	
7.323	3.0	24.3	35.2	7.3	-34.1	0.0	0.0	32.6	54.0	-21.4	H	A	
4.882	3.0	50.8	32.8	5.8	-34.8	0.0	0.0	54.7	74.0	-19.3	V	P	
4.882	3.0	31.8	32.8	5.8	-34.8	0.0	0.0	35.7	54.0	-18.3	V	A	
7.323	3.0	35.0	35.2	7.3	-34.1	0.0	0.0	43.4	74.0	-30.6	V	P	
7.323	3.0	23.1	35.2	7.3	-34.1	0.0	0.0	31.5	54.0	-22.5	V	A	
High Ch, 2480MHz													
4.960	3.0	53.0	32.9	5.9	-34.8	0.0	0.0	57.0	74.0	-17.0	H	P	
4.960	3.0	32.9	32.9	5.9	-34.8	0.0	0.0	36.9	54.0	-17.1	H	A	
7.440	3.0	37.4	35.4	7.3	-34.1	0.0	0.0	46.0	74.0	-28.0	H	P	
7.440	3.0	25.1	35.4	7.3	-34.1	0.0	0.0	33.8	54.0	-20.2	H	A	
4.960	3.0	47.2	32.9	5.9	-34.8	0.0	0.0	51.2	74.0	-22.8	V	P	
4.960	3.0	30.7	32.9	5.9	-34.8	0.0	0.0	34.7	54.0	-19.3	V	A	
7.440	3.0	35.4	35.4	7.3	-34.1	0.0	0.0	44.0	74.0	-30.0	V	P	
7.440	3.0	23.0	35.4	7.3	-34.1	0.0	0.0	31.7	54.0	-22.4	V	A	

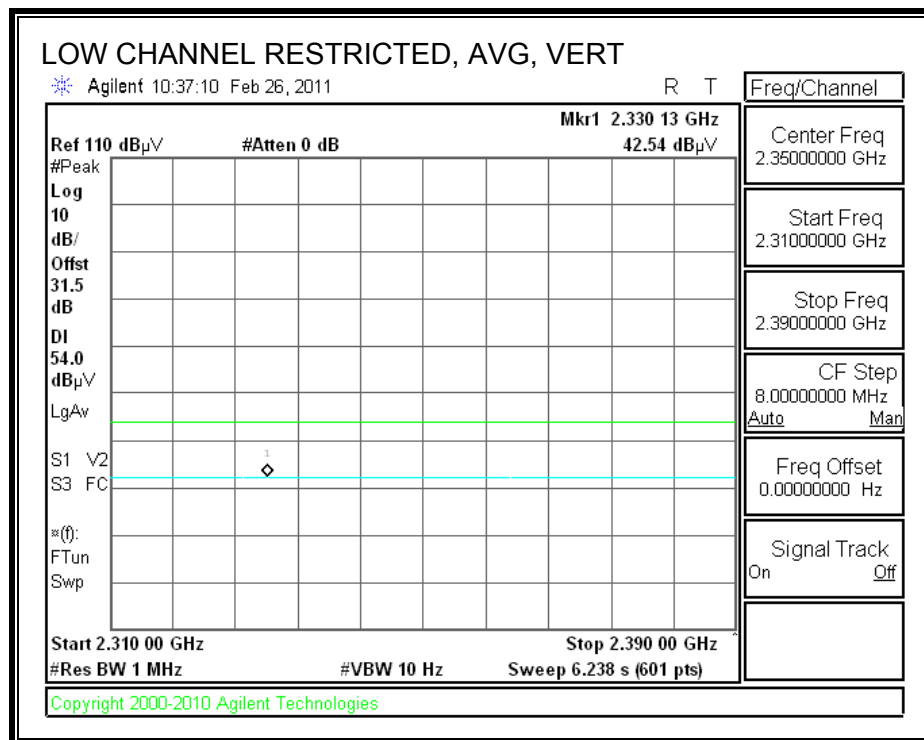
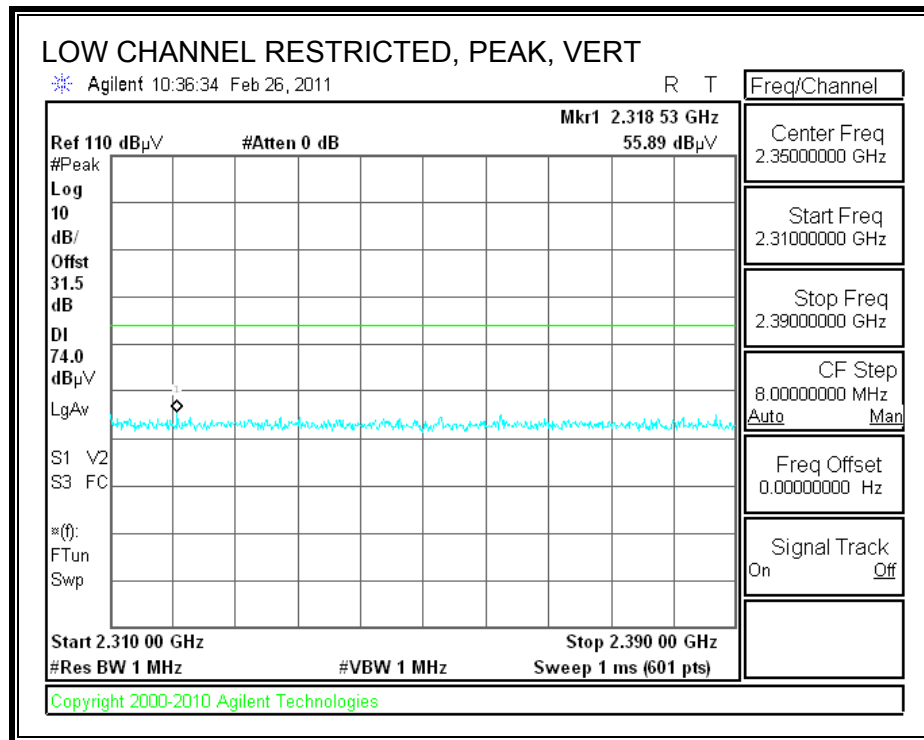
Rev. 4.1.2.7

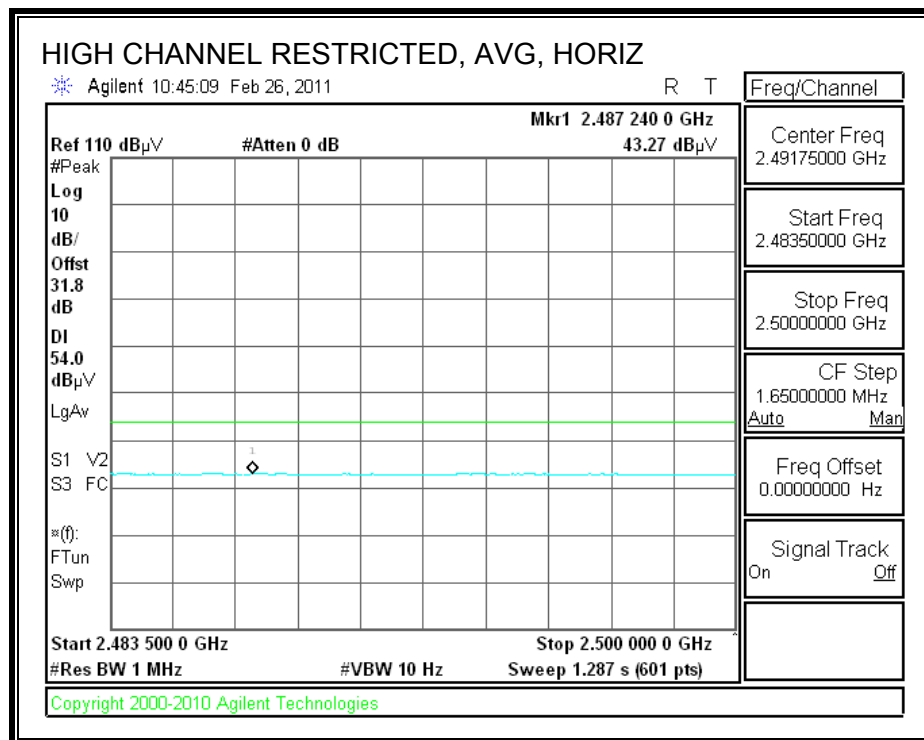
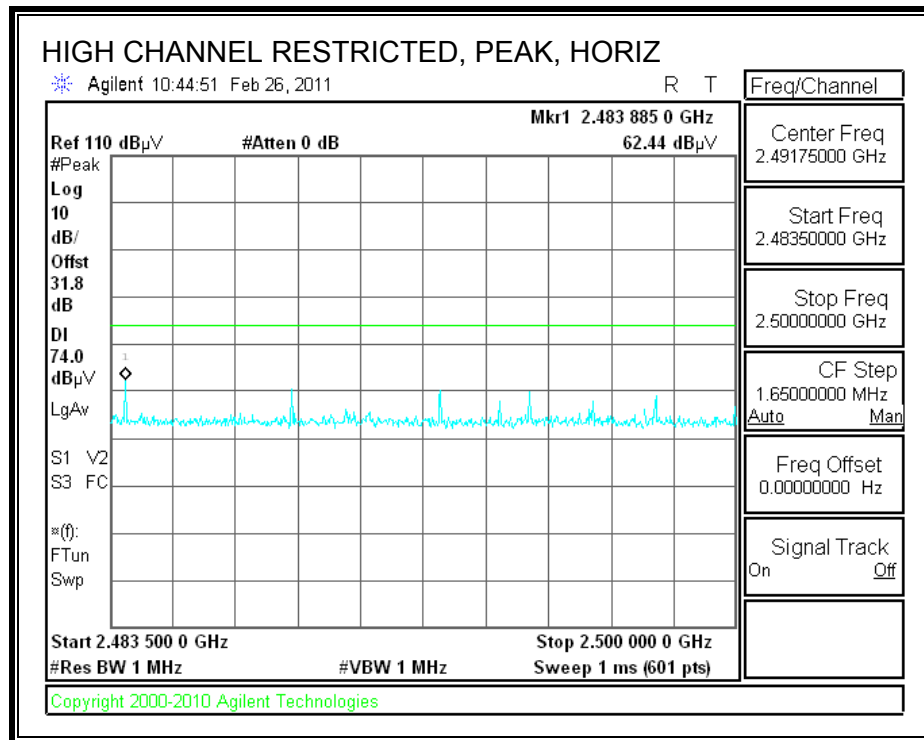
Note: No other emissions were detected above the system noise floor.

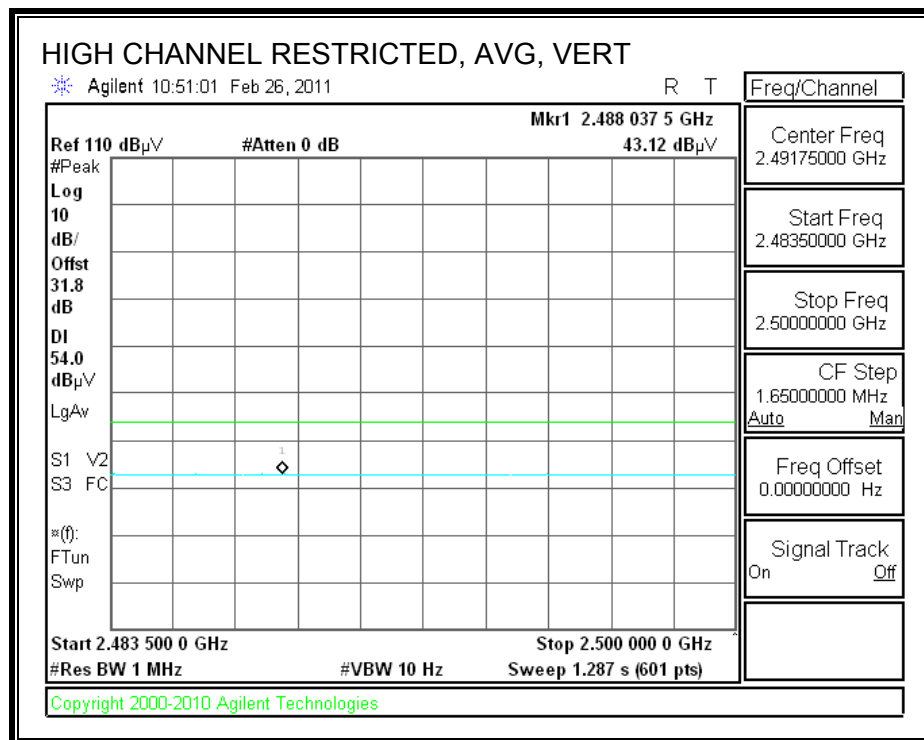
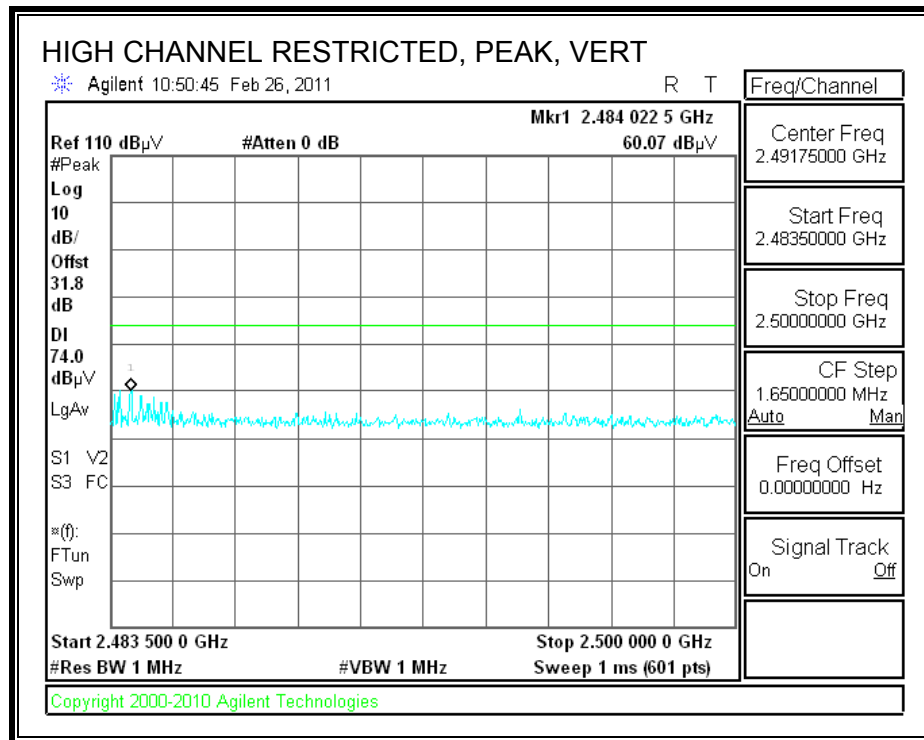
8.2.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



RESTRICTED 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: Chin Pang
 Date: #####
 Project #: 11113692
 Company: Samsung
 Test Target: FCC 15.247
 Mode Oper: TX, 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

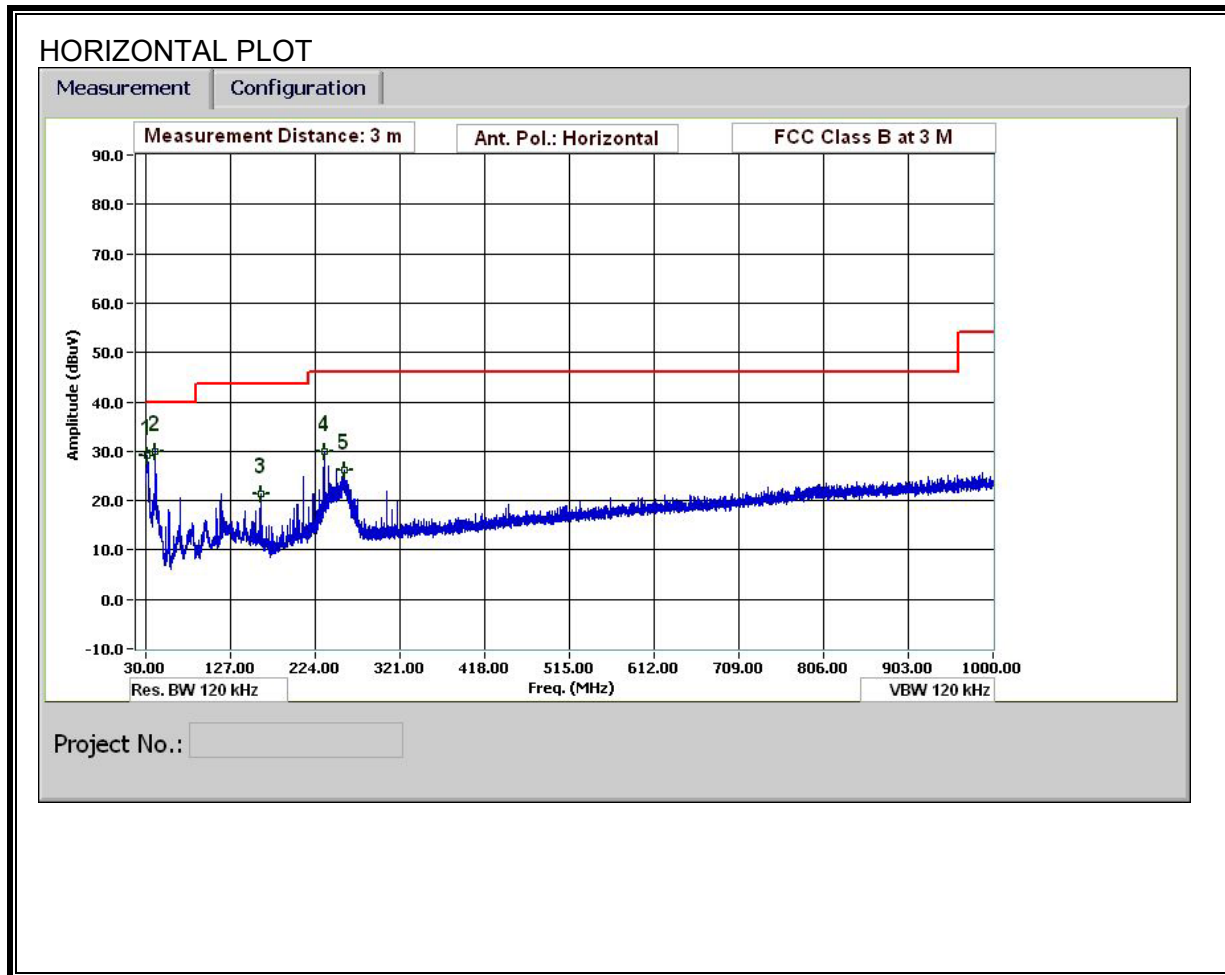
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch, 2402MHz													
4.804	3.0	49.2	32.7	5.8	-34.8	0.0	0.0	52.8	74.0	-21.2	V	P	
4.804	3.0	34.5	32.7	5.8	-34.8	0.0	0.0	38.1	54.0	-15.9	V	A	
4.804	3.0	46.6	32.7	5.8	-34.8	0.0	0.0	50.3	74.0	-23.7	H	P	
4.804	3.0	32.7	32.7	5.8	-34.8	0.0	0.0	36.3	54.0	-17.7	H	A	
Mid Ch, 2441MHz													
4.882	3.0	49.1	32.8	5.8	-34.8	0.0	0.0	52.9	74.0	-21.1	V	P	
4.882	3.0	34.2	32.8	5.8	-34.8	0.0	0.0	38.0	54.0	-16.0	V	A	
7.323	3.0	35.8	35.2	7.3	-34.1	0.0	0.0	44.2	74.0	-29.8	V	P	
7.323	3.0	23.2	35.2	7.3	-34.1	0.0	0.0	31.6	54.0	-22.4	V	A	
4.882	3.0	48.5	32.8	5.8	-34.8	0.0	0.0	52.3	74.0	-21.7	H	P	
4.882	3.0	34.0	32.8	5.8	-34.8	0.0	0.0	37.8	54.0	-16.2	H	A	
7.323	3.0	37.8	35.2	7.3	-34.1	0.0	0.0	46.2	74.0	-27.8	H	P	
7.323	3.0	25.4	35.2	7.3	-34.1	0.0	0.0	33.7	54.0	-20.3	H	A	
High Ch, 2480MHz													
4.960	3.0	46.2	32.8	5.9	-34.8	0.0	0.0	50.1	74.0	-23.9	V	P	
4.960	3.0	32.6	32.8	5.9	-34.8	0.0	0.0	36.5	54.0	-17.5	V	A	
7.440	3.0	35.5	35.4	7.3	-34.1	0.0	0.0	44.1	74.0	-29.9	V	P	
7.440	3.0	23.1	35.4	7.3	-34.1	0.0	0.0	31.8	54.0	-22.2	V	A	
4.960	3.0	46.8	32.8	5.9	-34.8	0.0	0.0	50.6	74.0	-23.4	H	P	
4.960	3.0	34.3	32.8	5.9	-34.8	0.0	0.0	38.2	54.0	-15.8	H	A	
7.440	3.0	36.8	35.6	7.3	-34.1	0.0	0.0	45.7	74.0	-28.3	H	P	
7.440	3.0	25.4	35.6	7.3	-34.1	0.0	0.0	34.3	54.0	-19.7	H	A	

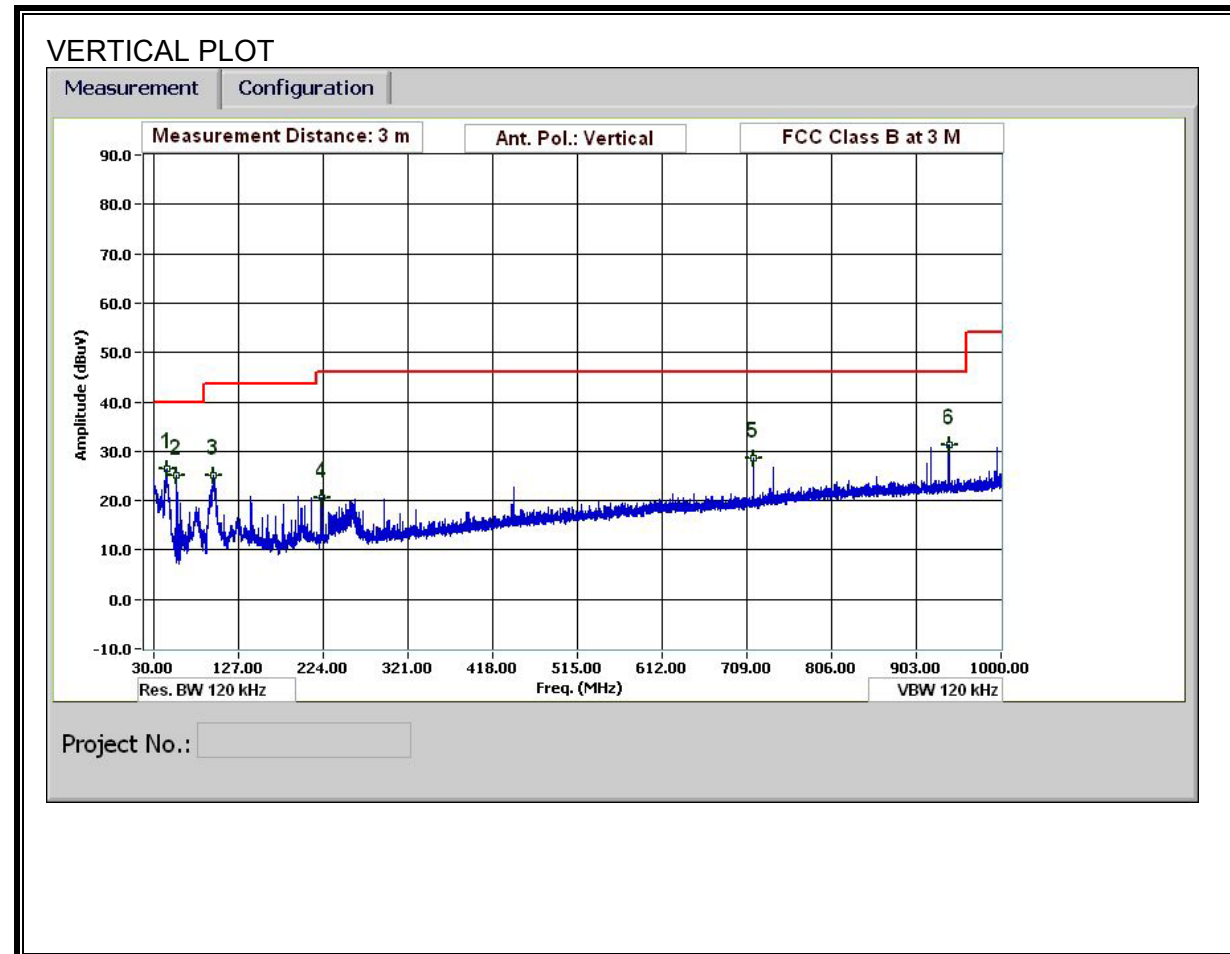
Rev. 4.1.2.7

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

30-1000MHz Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Chin Pang
 Date: 02-23-11
 Project #: 11113692
 Company: Samsung
 Test Target: FCC 15.247
 Mode Oper: BT, TX (Worst Case)

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters
 Read Analyzer Reading Filter Filter Insert Loss
 AF Antenna Factor Corr. Calculated Field Strength
 CL Cable Loss Limit Field Strength Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
31.8	3.0	38.8	19.5	0.5	29.7	0.0	0.0	29.1	40.0	-10.9	H	P	
40.68	3.0	45.4	13.7	0.6	29.6	0.0	0.0	30.0	40.0	-10.0	H	P	
161.765	3.0	38.9	10.7	1.2	29.3	0.0	0.0	21.5	43.5	-22.0	H	P	
234.008	3.0	45.5	11.9	1.4	28.8	0.0	0.0	29.9	46.0	-16.1	H	P	
257.289	3.0	41.5	12.0	1.5	28.8	0.0	0.0	26.2	46.0	-19.8	H	P	
44.641	3.0	44.1	11.3	0.6	29.6	0.0	0.0	26.3	40.0	-13.7	V	P	
55.801	3.0	46.1	7.9	0.6	29.6	0.0	0.0	25.0	40.0	-15.0	V	P	
98.523	3.0	44.1	9.7	0.9	29.5	0.0	0.0	25.1	43.5	-18.4	V	P	
221.768	3.0	36.0	11.9	1.4	28.9	0.0	0.0	20.4	46.0	-25.6	V	P	
716.908	3.0	35.8	19.5	2.6	29.5	0.0	0.0	28.5	46.0	-17.5	V	P	
940.238	3.0	34.7	22.0	3.1	28.5	0.0	0.0	31.2	46.0	-14.8	V	P	

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

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.20	44.72	--	28.07	0.00	63.45	53.45	-18.73	-25.38	L1
0.41	38.85	--	27.10	0.00	57.73	47.73	-18.88	-20.63	L1
4.01	44.41	--	29.49	0.00	56.00	46.00	-11.59	-16.51	L1
0.20	42.27	--	23.76	0.00	63.45	53.45	-21.18	-29.69	L2
0.41	38.74	--	18.26	0.00	57.73	47.73	-18.99	-29.47	L2
3.80	40.85	--	23.80	0.00	56.00	46.00	-15.15	-22.20	L2
6 Worst Data									

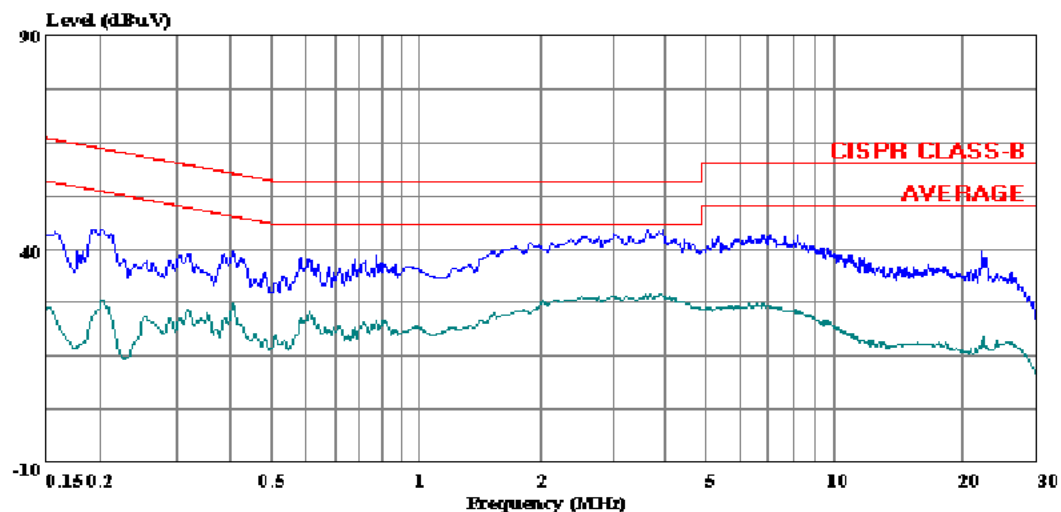
LINE 1 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 11I13692.EMI

Date: 02-23-2011 Time: 18:49:41



Trace: 5

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Chin Pang
Project # : 11I13692
Company : Samsung
Configuration: EUT with AC Adapter and earphone
EUT Descript : Samsung mobile phone with GSM850
 : /1900, 802.11bgn and BT ver 3.0
Mode : TX (Worst Case)
Target : FCC 15C
Voltage : 115VAC 60Hz
 : L1: Blue (Peak), Green (Average)

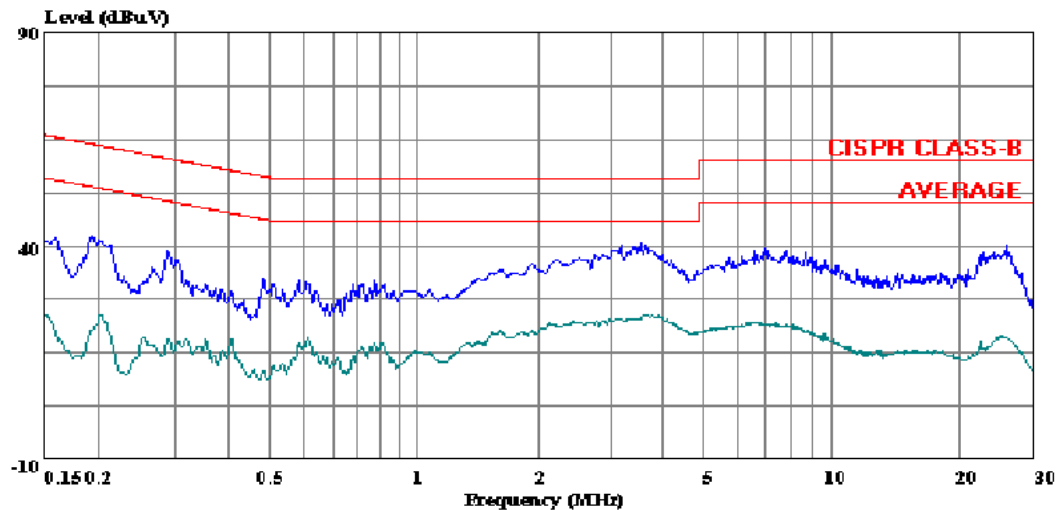
LINE 2 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 11I13692.EMI

Date: 02-23-2011 Time: 18:55:29



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: Chin Pang
Project # : 11I13692
Company : Samsung
Configuration: EUT with AC Adapter and earphone
EUT Descript : Samsung mobile phone with GSM850
 : /1900, 802.11bgn and BT ver 3.0
Mode : TX (Worst Case)
Target : FCC 15C
Voltage : 115VAC 60Hz
 : L2: Blue(Peak), Green (Average)