



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

**GT-I8552B~802.11 B/G/N 1X1 HT20, + BT3.0+ GSM850/1900 AND
WCDMA850MHZ BAR PHONE**

MODEL NUMBER: GT-I8552B

FCC ID: A3LGTI8552B

REPORT NUMBER: 13I14969-1

ISSUE DATE: APRIL 18, 2013

Prepared for

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

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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
	4/19/13	Initial Creation	P.Kim

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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: GT-I8552B~802.11 B/G/N 1X1 HT20, + BT3.0+ GSM850/1900 &
WCDMA850MHZ BAR PHONE

MODEL: GT-I8552B

SERIAL NUMBER: FK-089-C (EMISSION) AND FK-089-D (CONDUCTION)

DATE TESTED: APRIL 04 TO 18, 2013

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

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:



PHILIP KIM
WISE PROGRAM MANAGER
UL CCS

DANNY VU
EMC TECHNICIAN
UL CCS

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 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 a bar-style cell phone featuring 802.11b/g/n WLAN, Bluetooth, GPS and 2.4 GHz mobile hotspot, GSM850/1900 & WCDMA850MHz capability.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	5.81	3.81
2402 - 2480	Enhanced 8PSK	5.89	3.88

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an F PCB antenna with a maximum gain of -7dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was REV 1.0 and the software was GT-S6310.

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

5.1. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung Electronics	ETA0U80UBE	FK-089-B	DoC
Headset	Samsung Electronics	N/A	FK-089-B	DoC

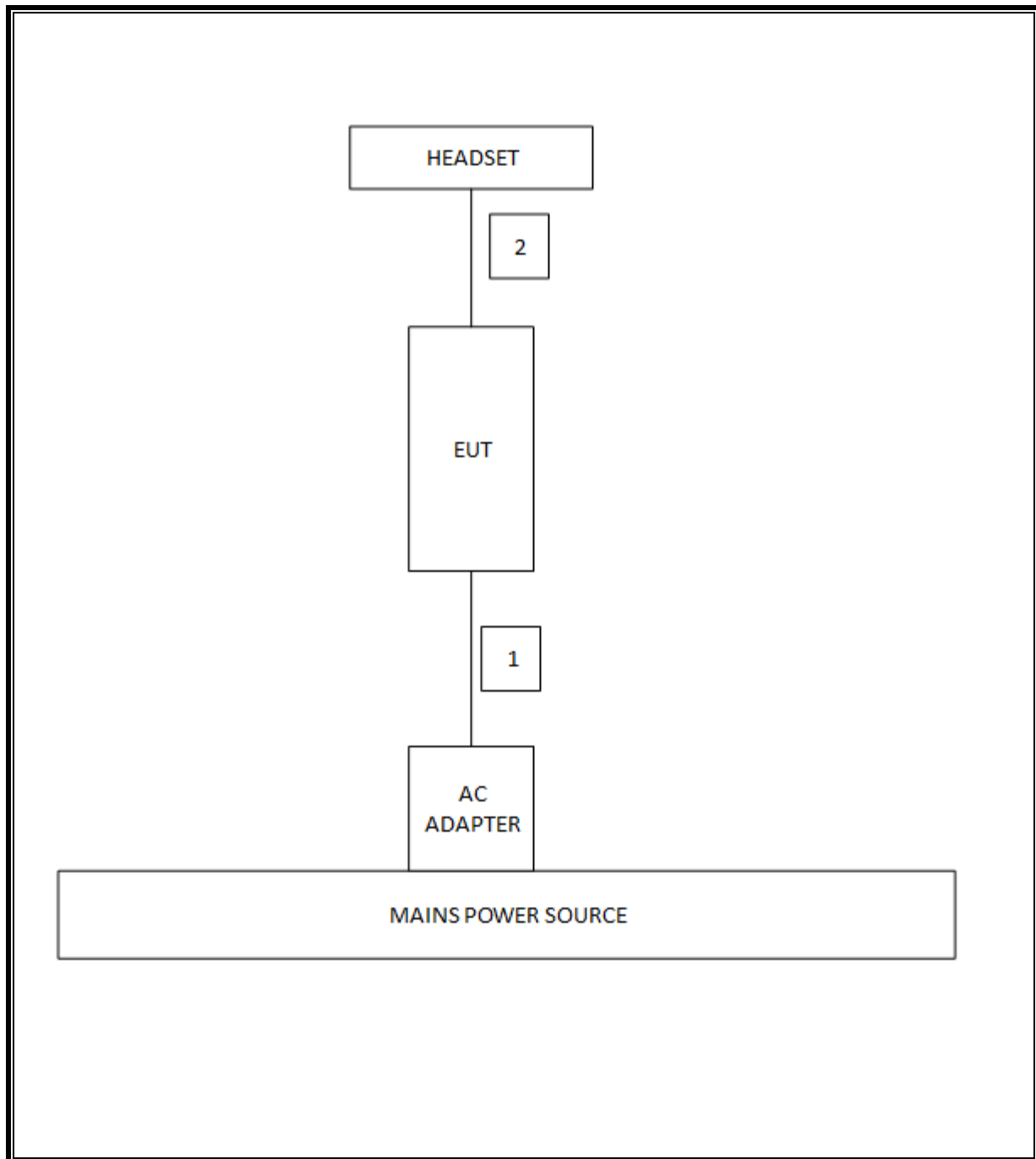
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	1.0m	N/A
2	Headset	1	Audio	Un-Shielded	1.5m	N/A

TEST SETUP

The EUT is a stand-alone unit that was tested in the worst case orientation and configuration, where applicable, during the tests. Test software exercised the radio.

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 Due
Antenna, Horn, 18 GHz	EMCO	3115	C00872	09/20/13
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	07/28/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/13
Spectrum Analyzer, 26.5 GHz	Agilent	E4440A	N/A	03/19/14
CBT Bluetooth Tester	R & S	CBT	N/A	05/15/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/21/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00558	02/21/14
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR
Bilog 30-2000MHz	Sunol	JB1	C01071	07/26/13
Power meter	HP	437B	T226	06/25/13
Power Sensor	HP	8481A	T233	06/26/13
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	01/14/14
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	03/07/14

7. ANTENNA PORT TEST RESULTS

7.1. BASIC DATA RATE GFSK MODULATION

7.1.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

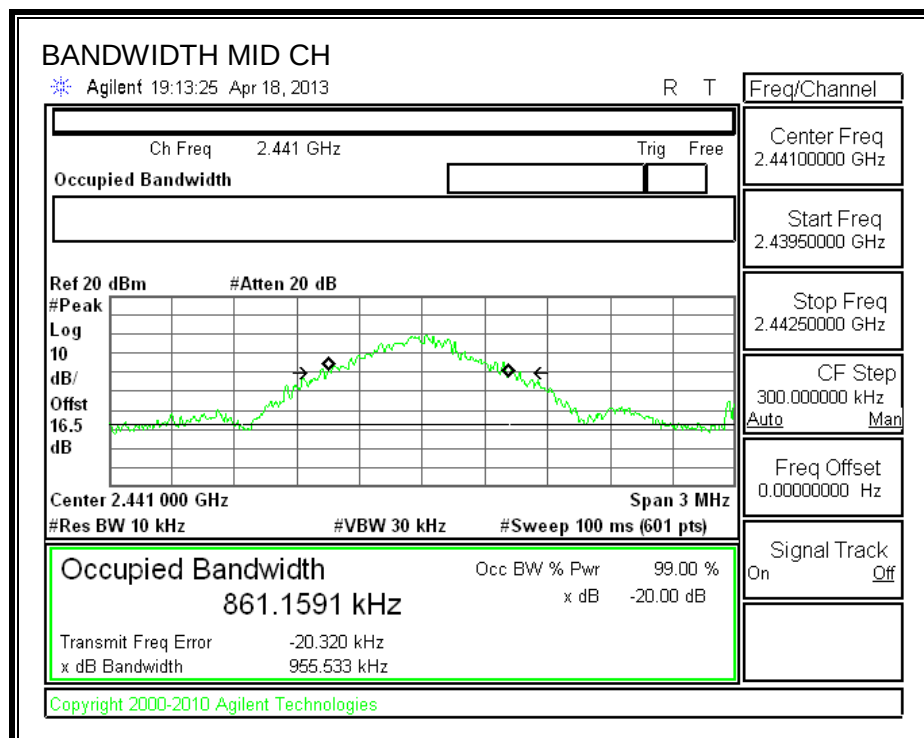
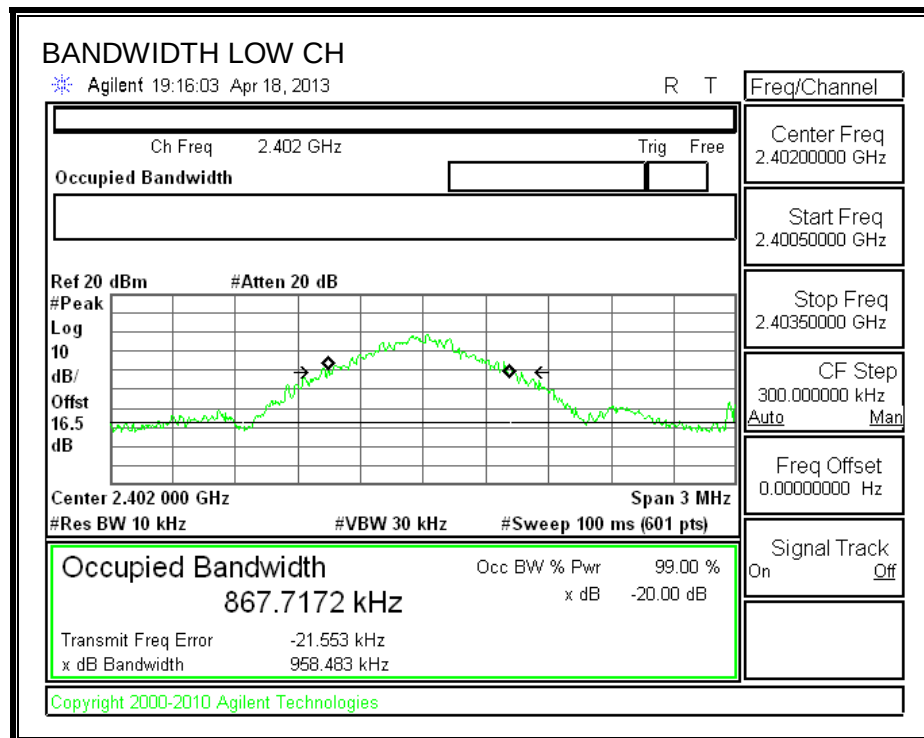
TEST PROCEDURE

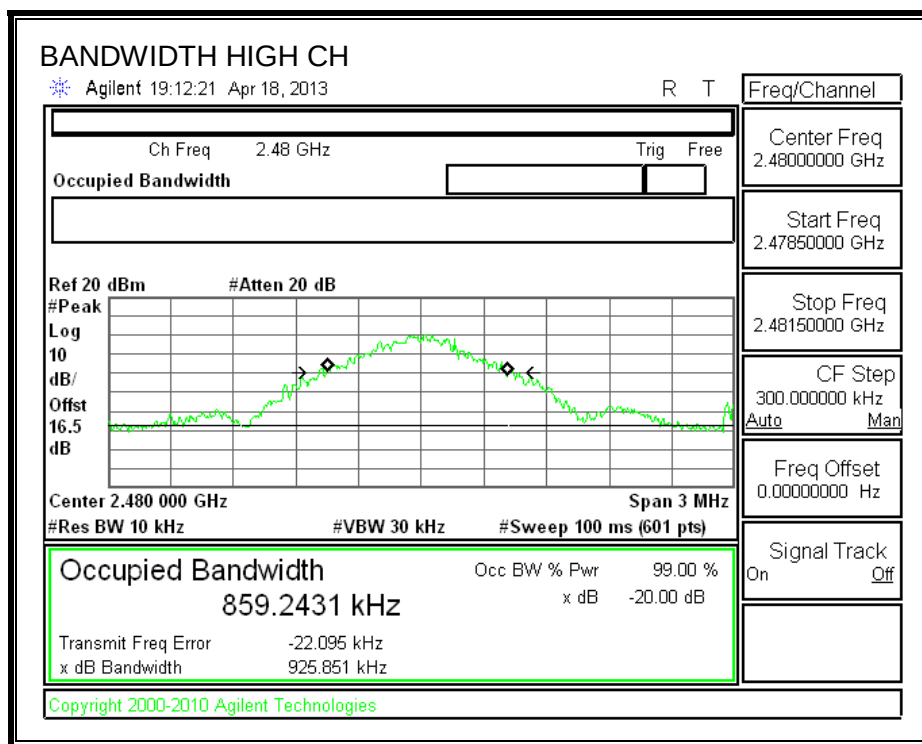
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

RESULTS:

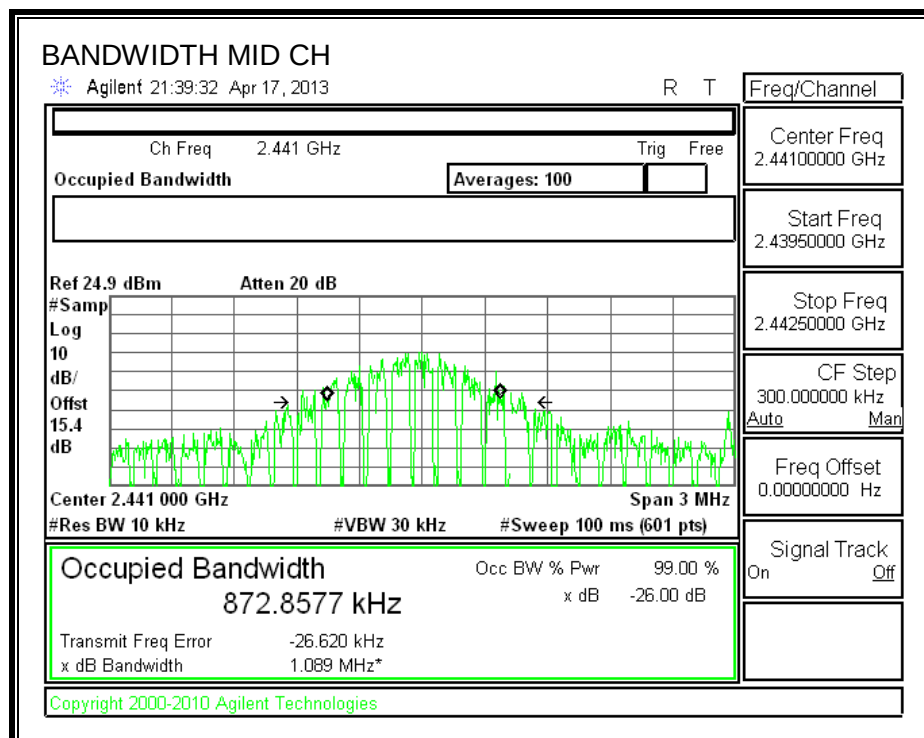
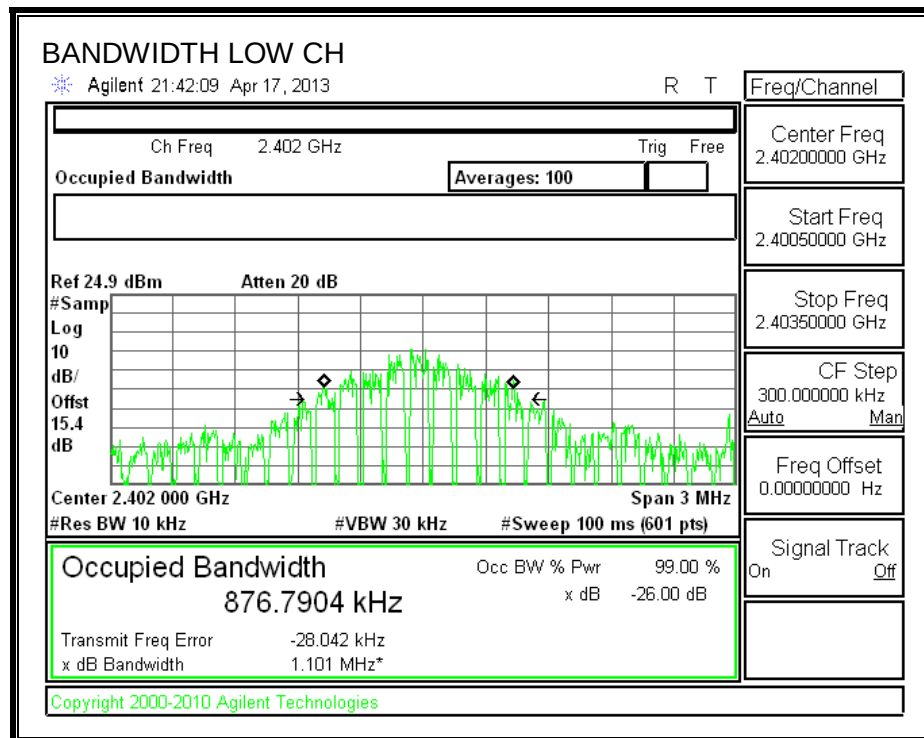
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	958.48	1101
Middle	2441	955.53	1089
High	2480	925.85	1091

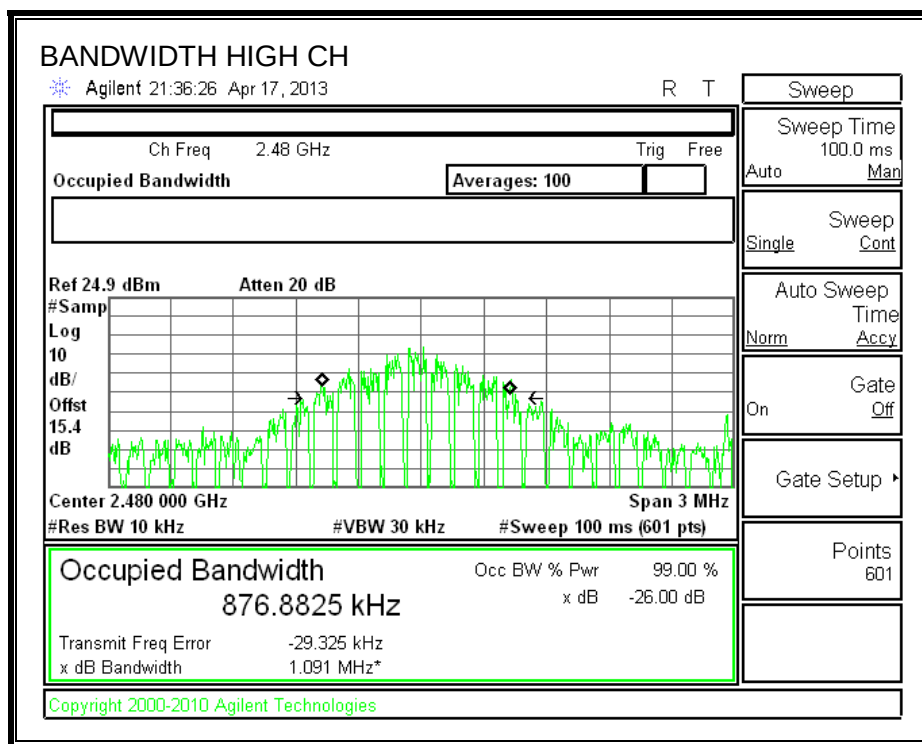
20 dB BANDWIDTH





99% BANDWIDTH





7.1.2. 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 hopping channel, whichever is greater.

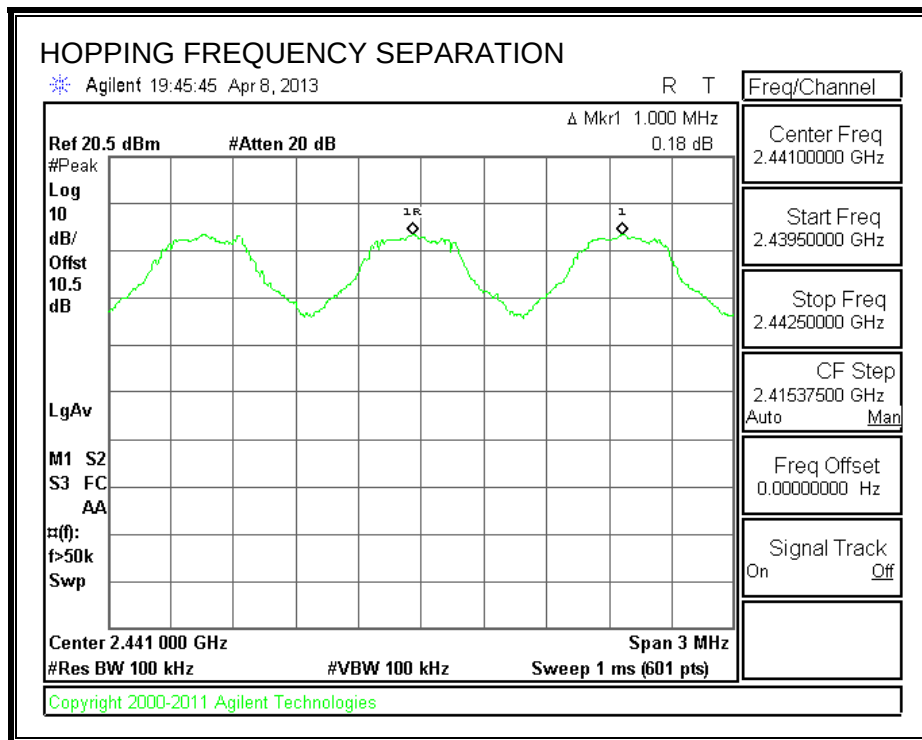
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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



7.1.3. 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.

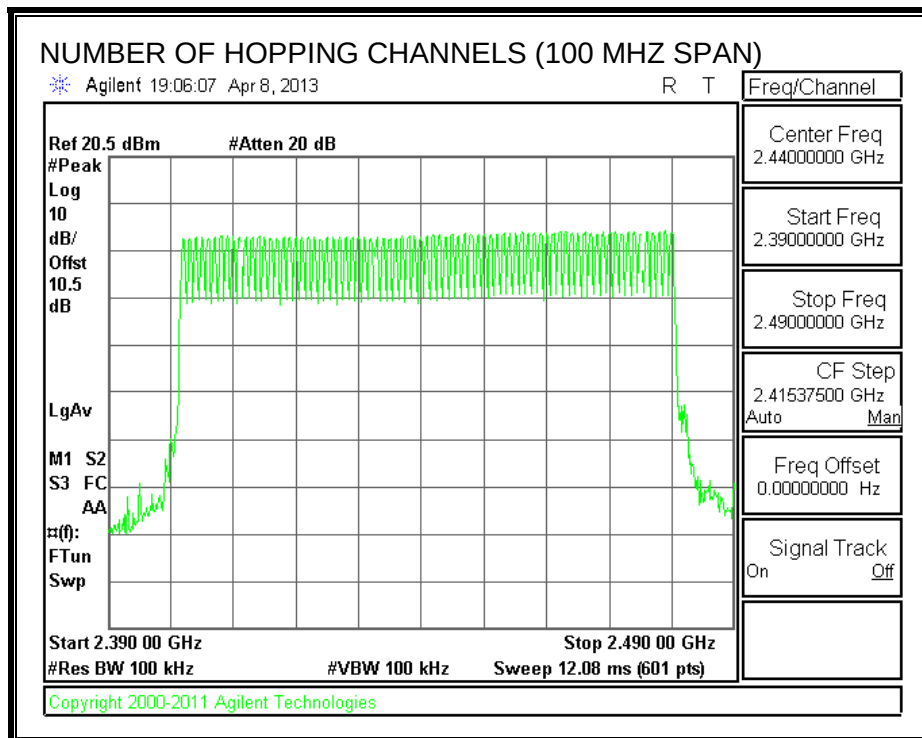
TEST PROCEDURE

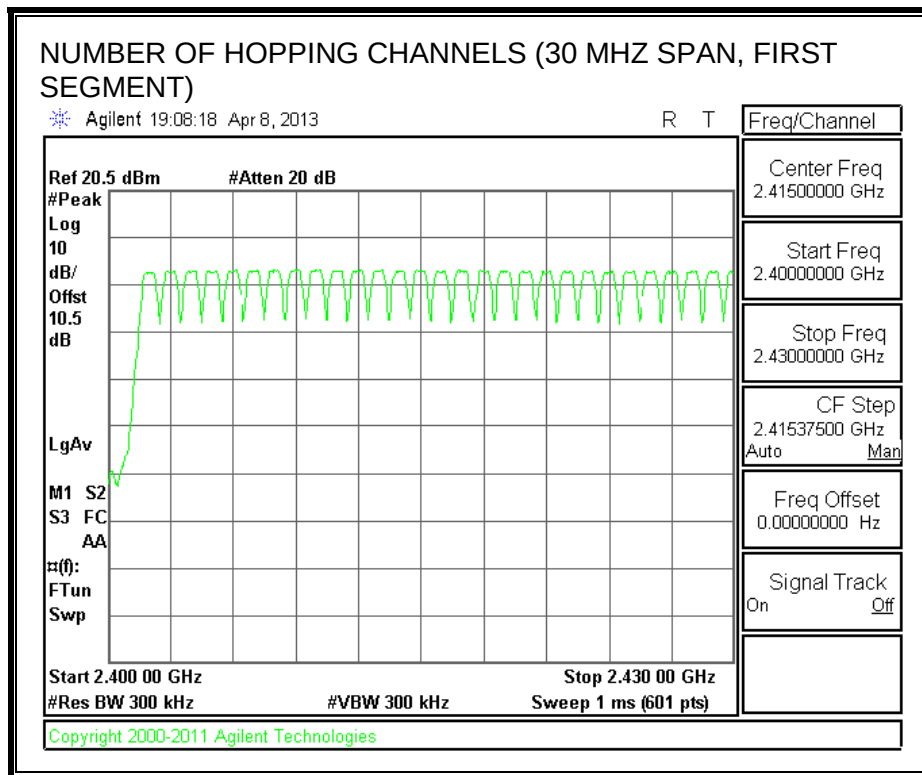
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

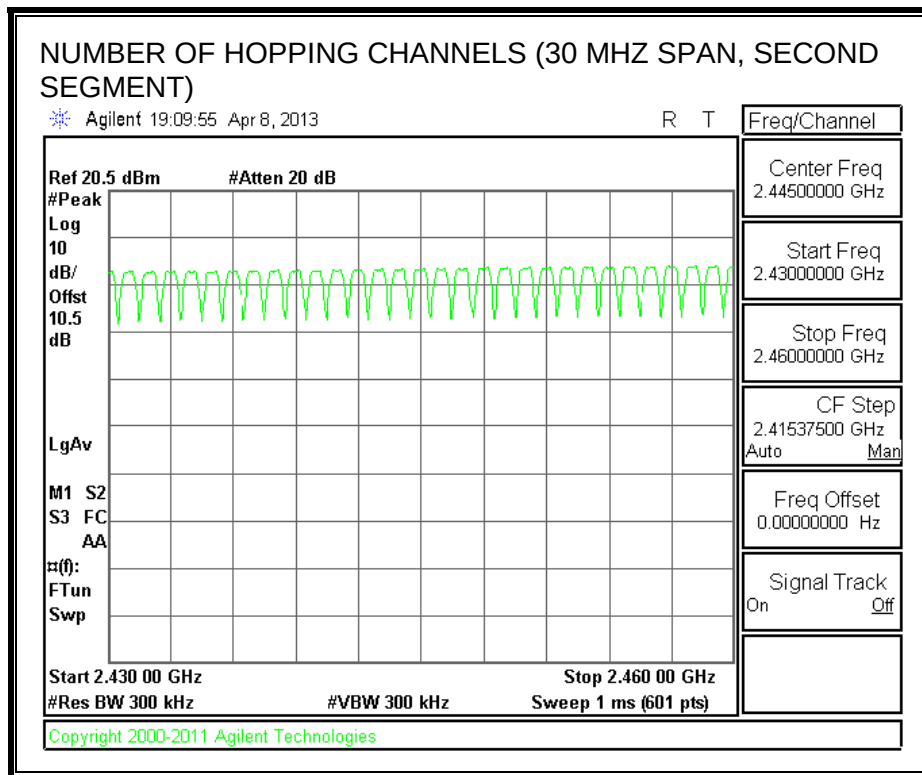
RESULTS

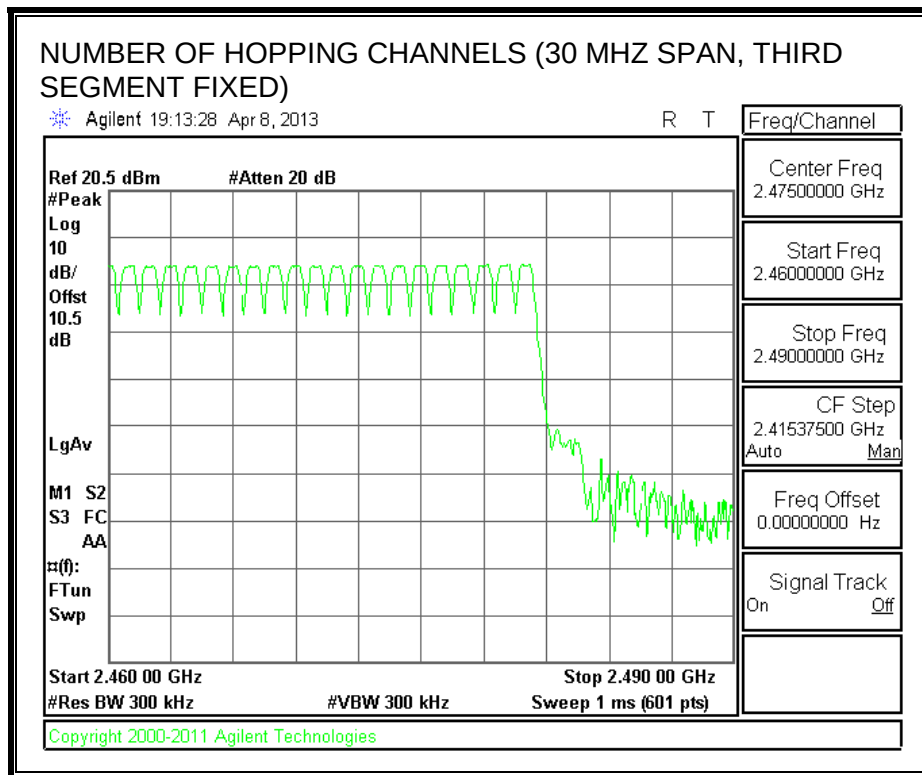
Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS









7.1.4. 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

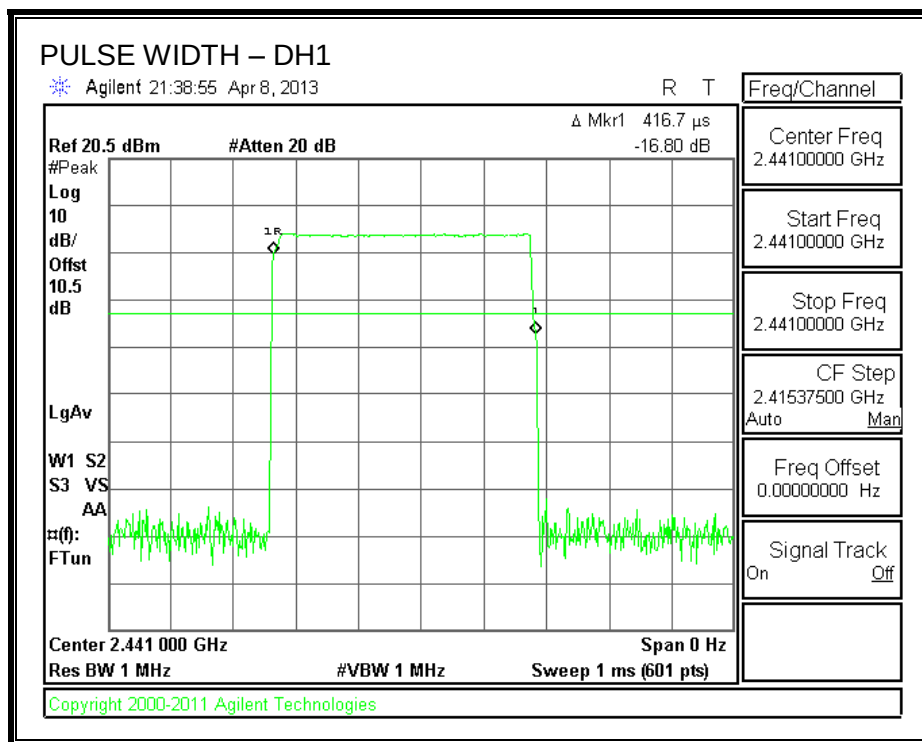
The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

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

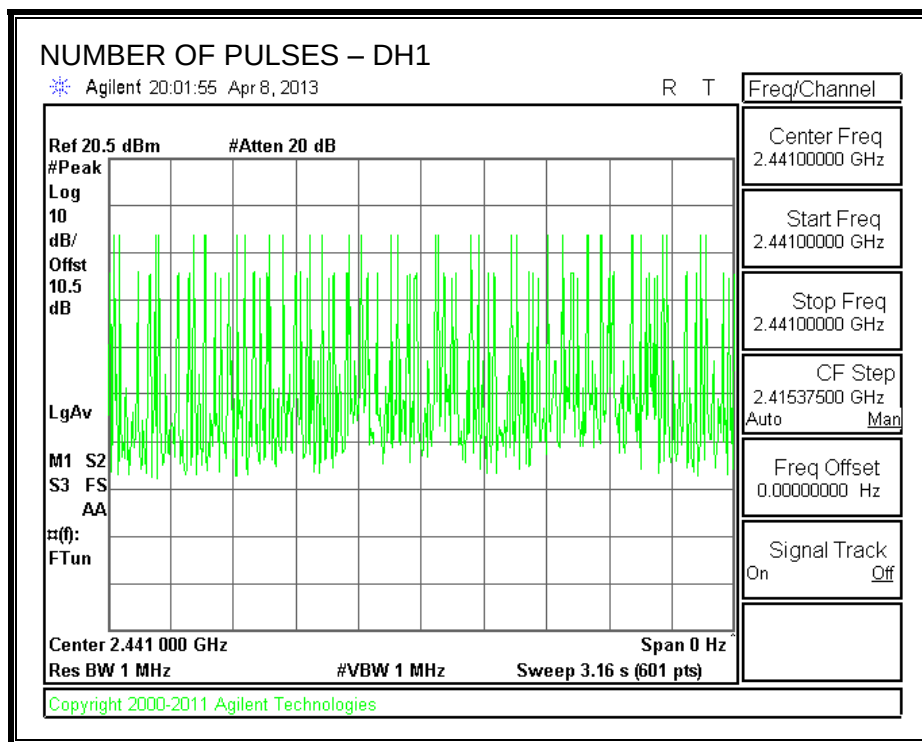
RESULTS

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.417	36	0.150	0.4	-0.250
DH3	1.66	23	0.382	0.4	-0.018
DH5	2.887	13	0.375	0.4	-0.025

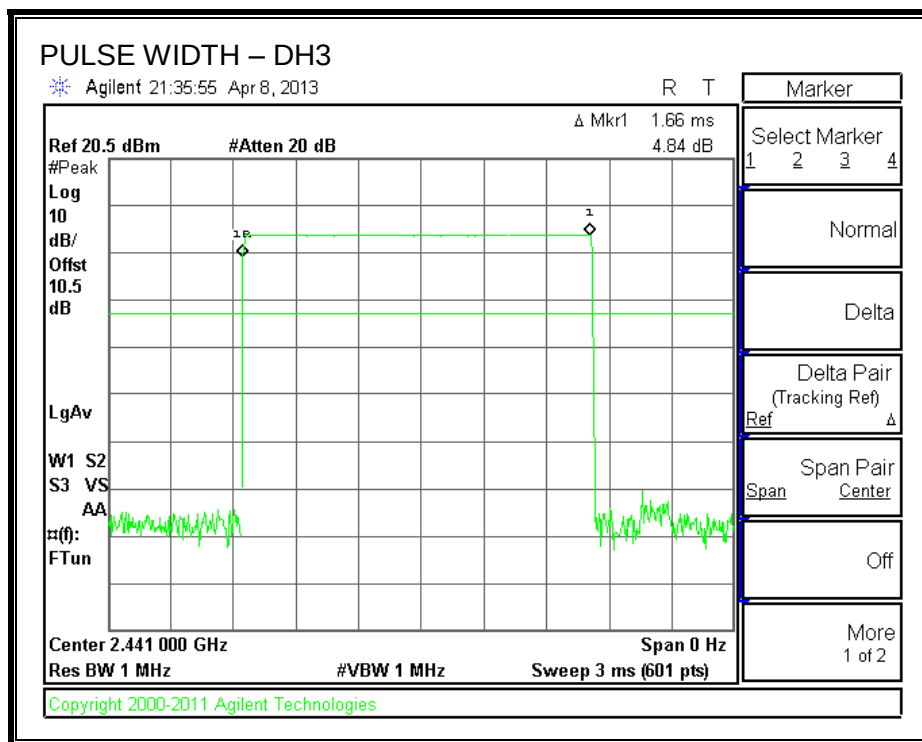
PULSE WIDTH - DH1



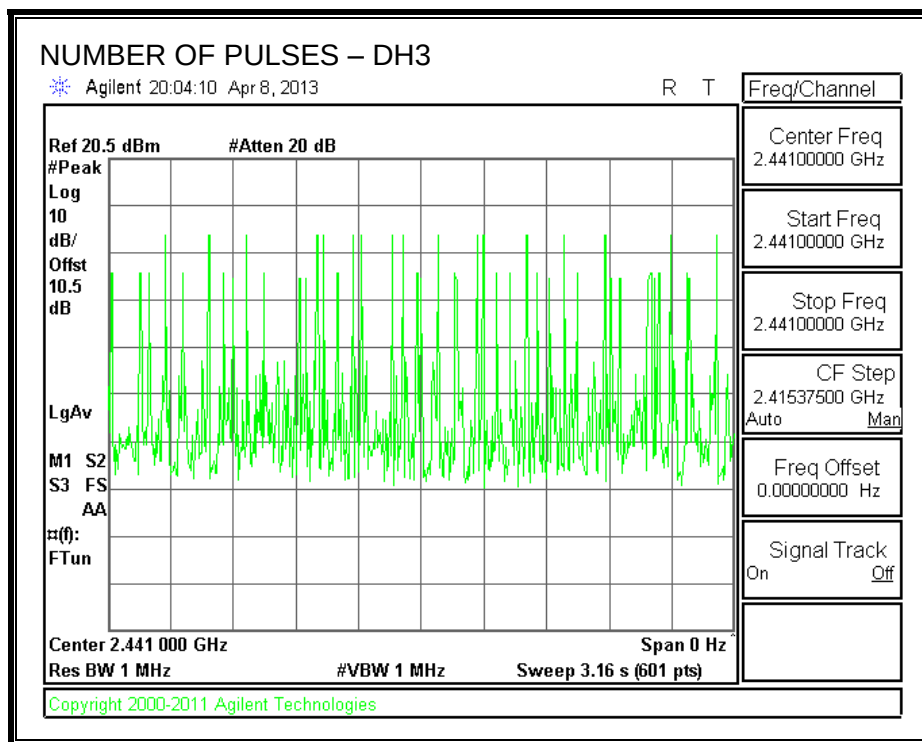
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



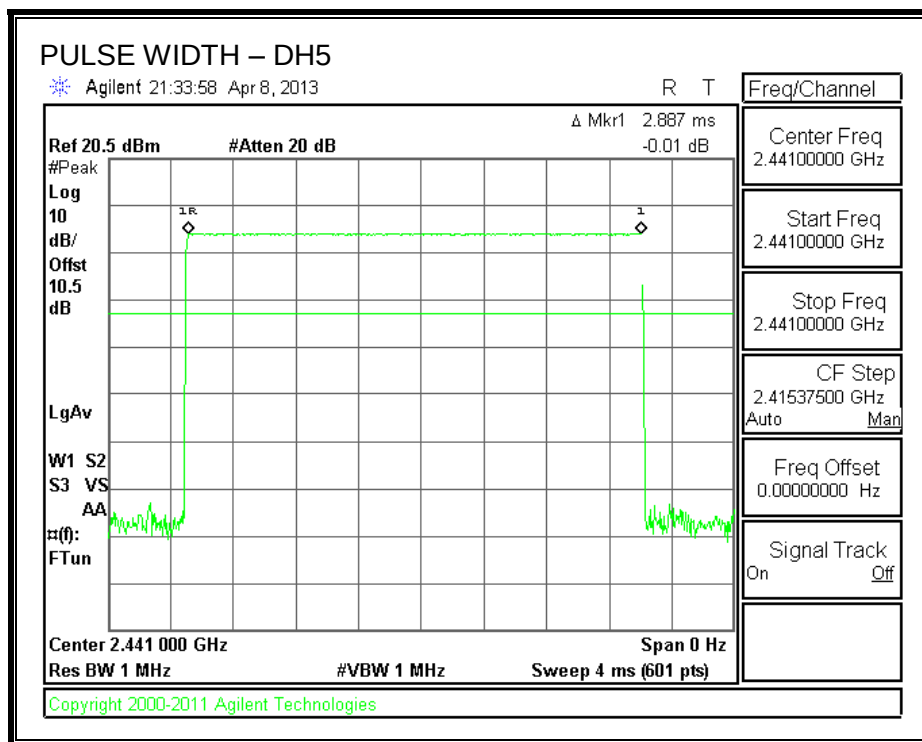
PULSE WIDTH – DH3



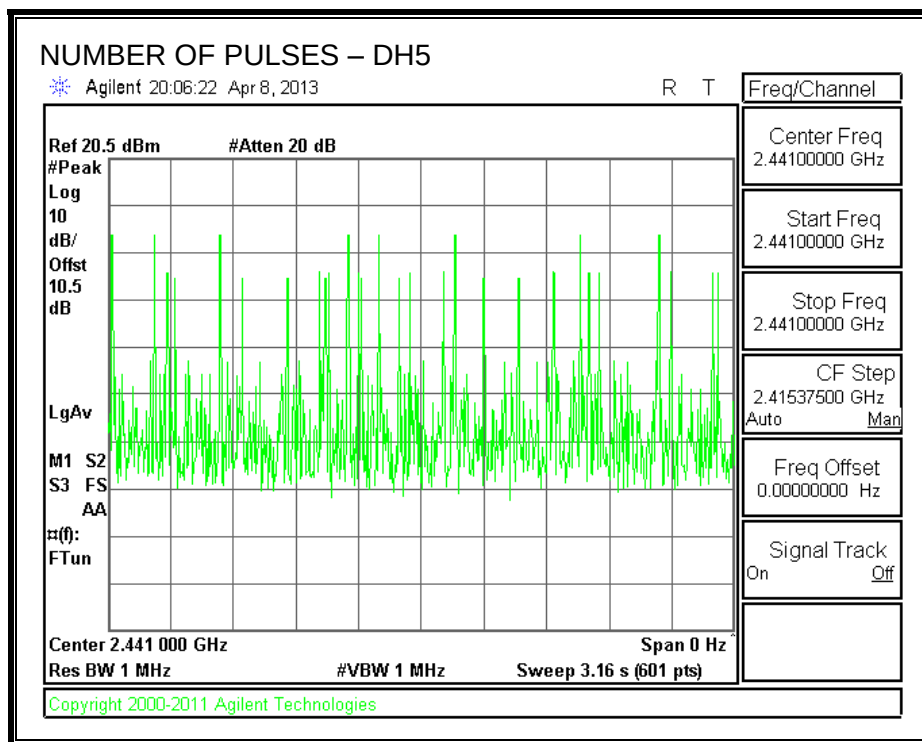
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



7.1.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

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

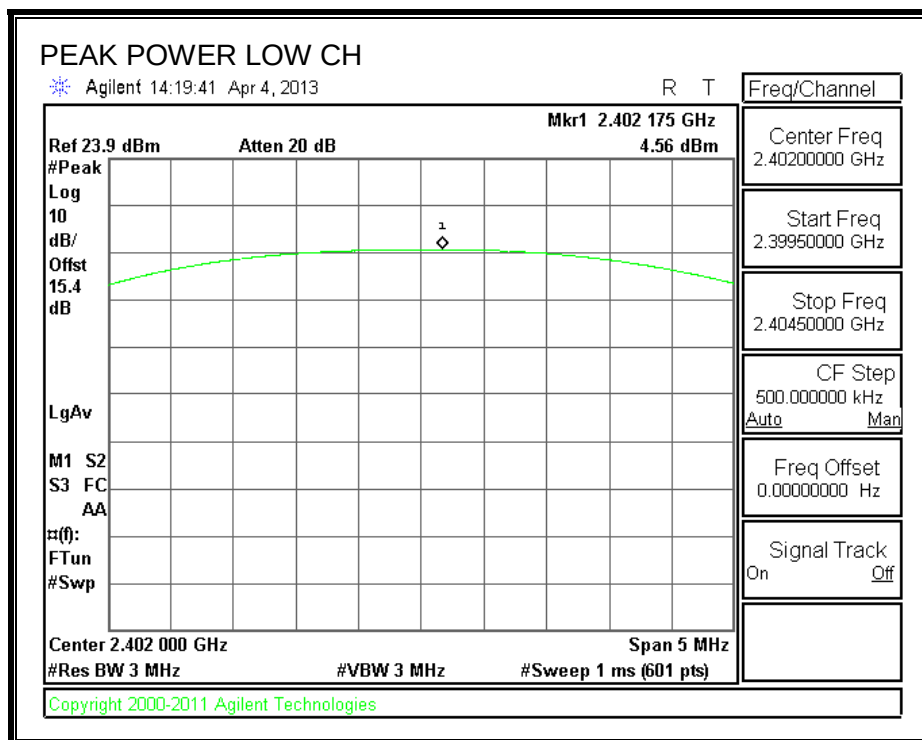
TEST PROCEDURE

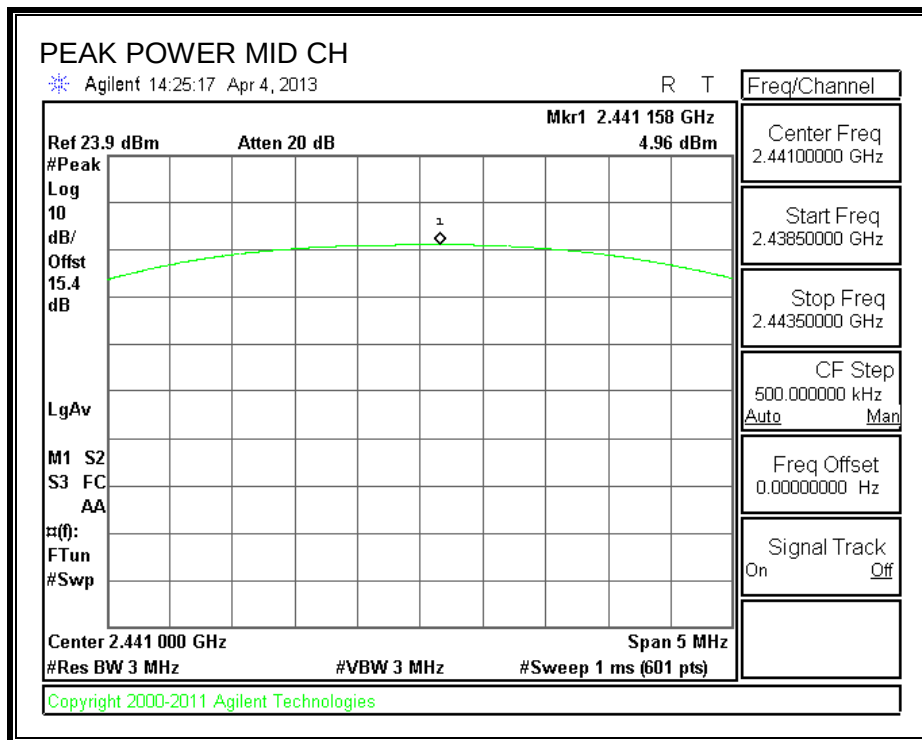
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

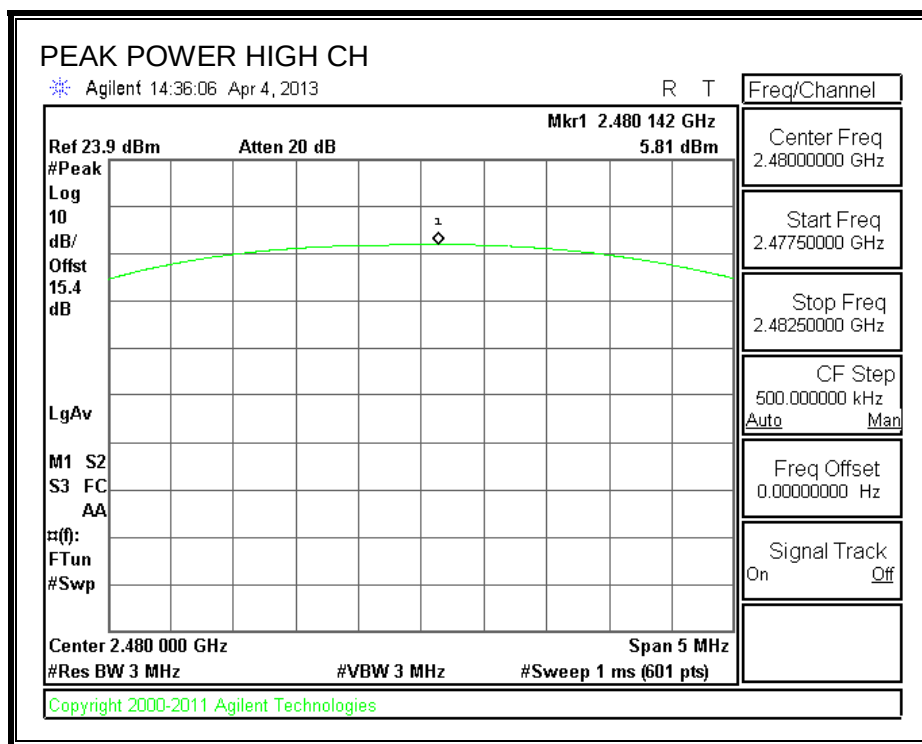
RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.56	30	-25.44
Middle	2441	4.96	30	-25.04
High	2480	5.81	30	-24.19

OUTPUT POWER







7.1.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 16 dB (including 16 dB pad and 1 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	5.00
Middle	2441	5.40
High	2480	6.00

7.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

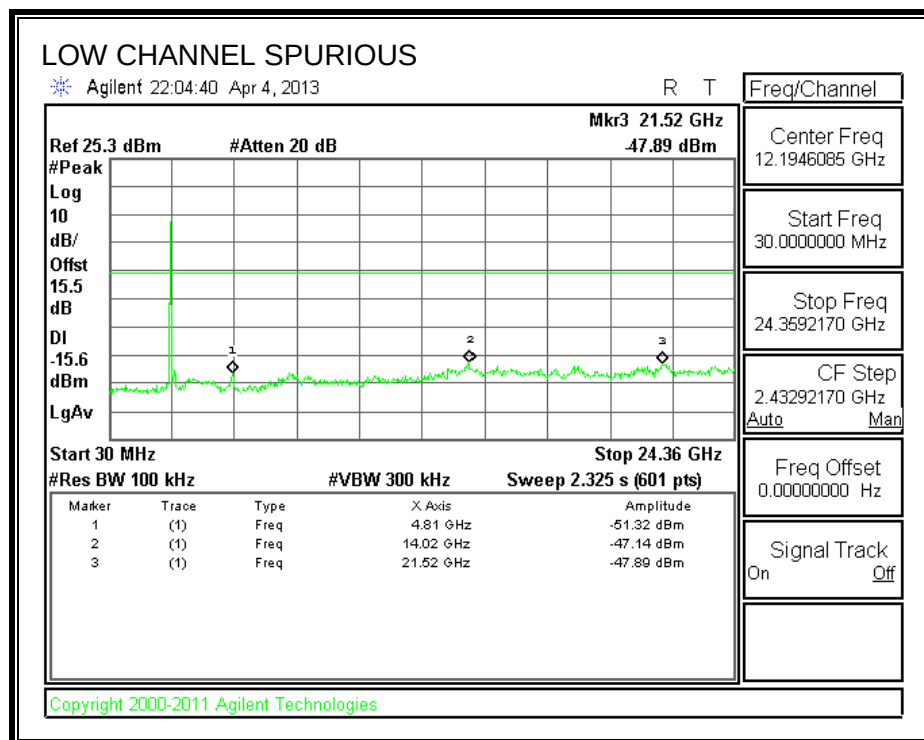
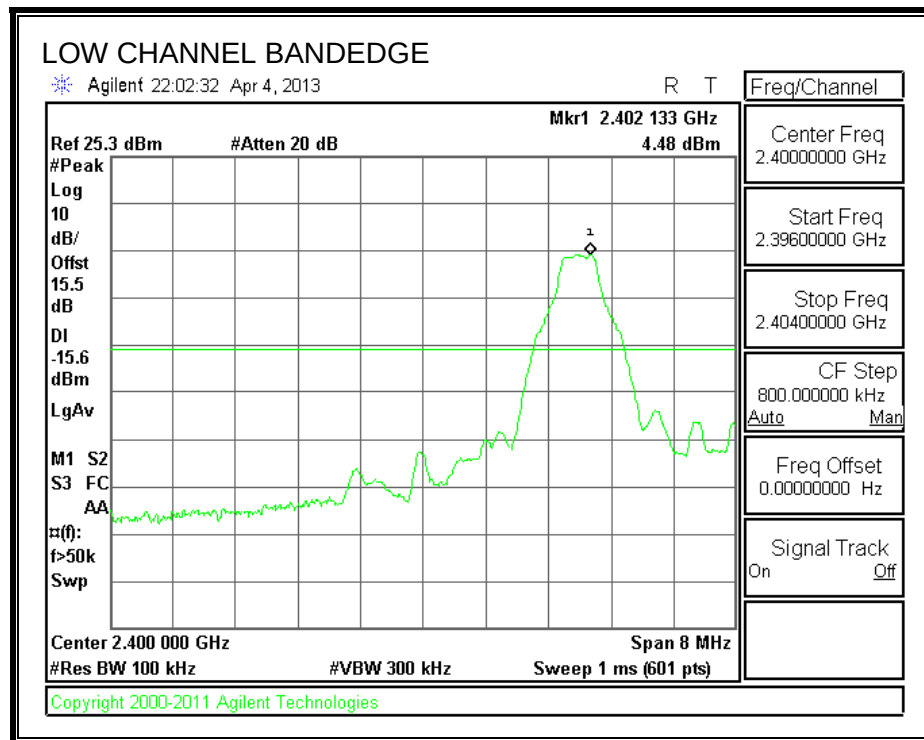
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

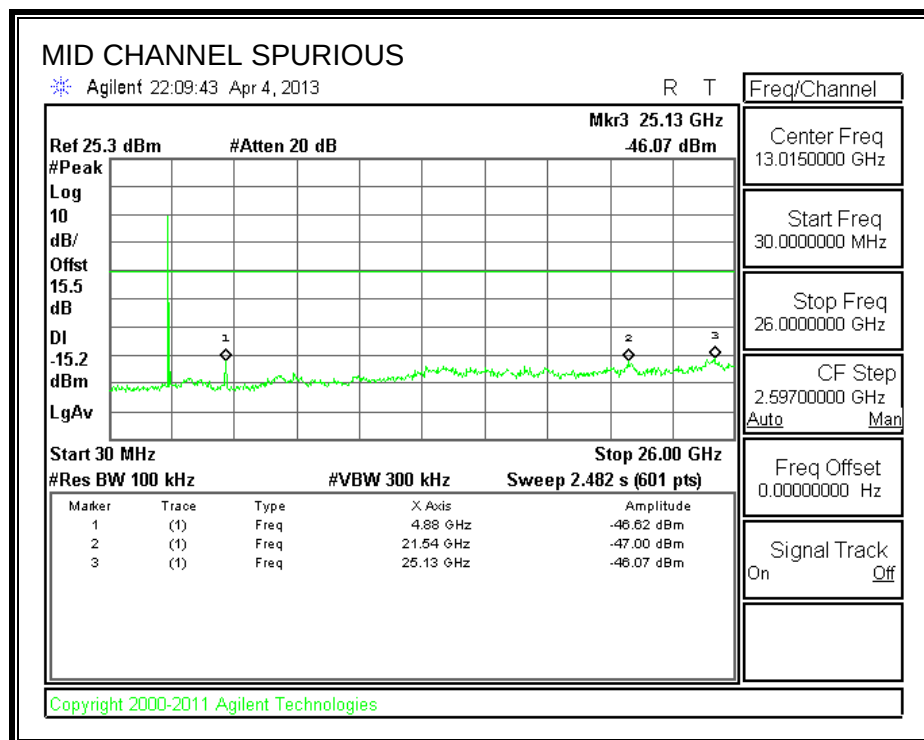
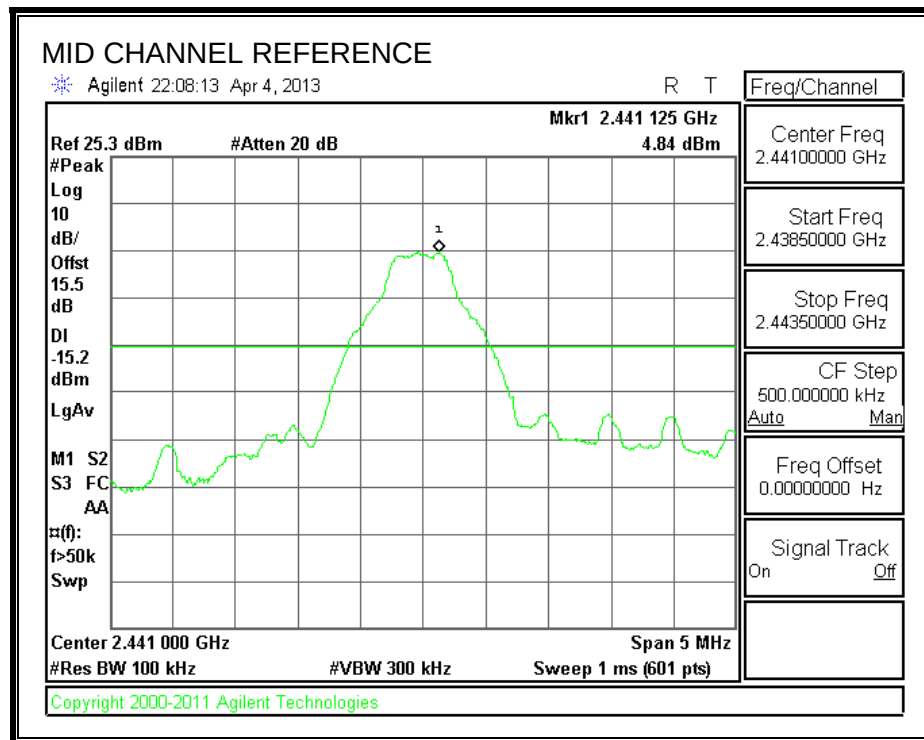
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

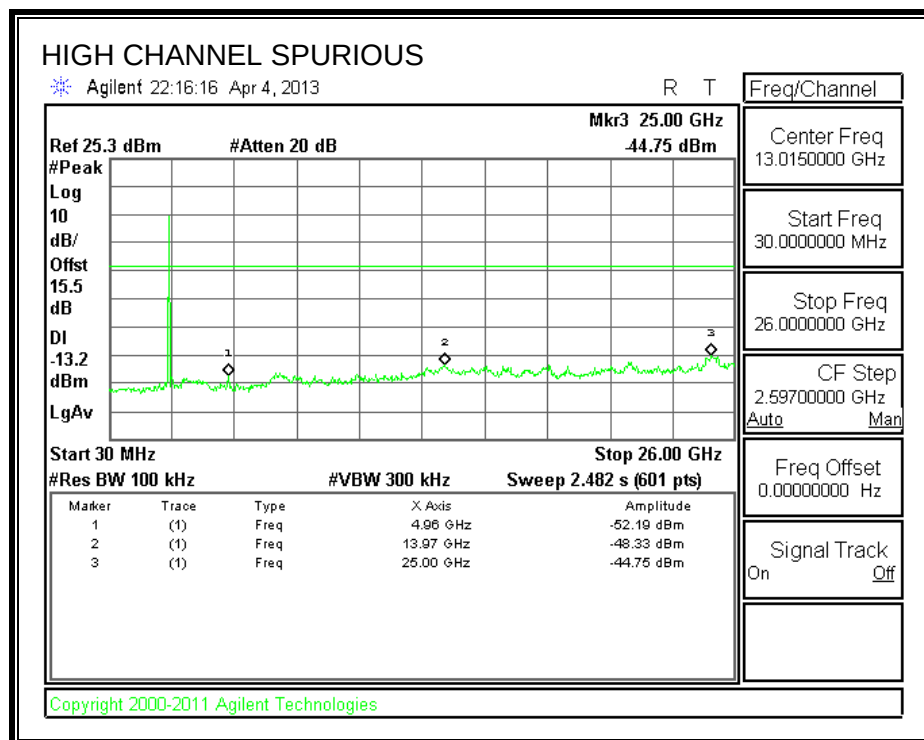
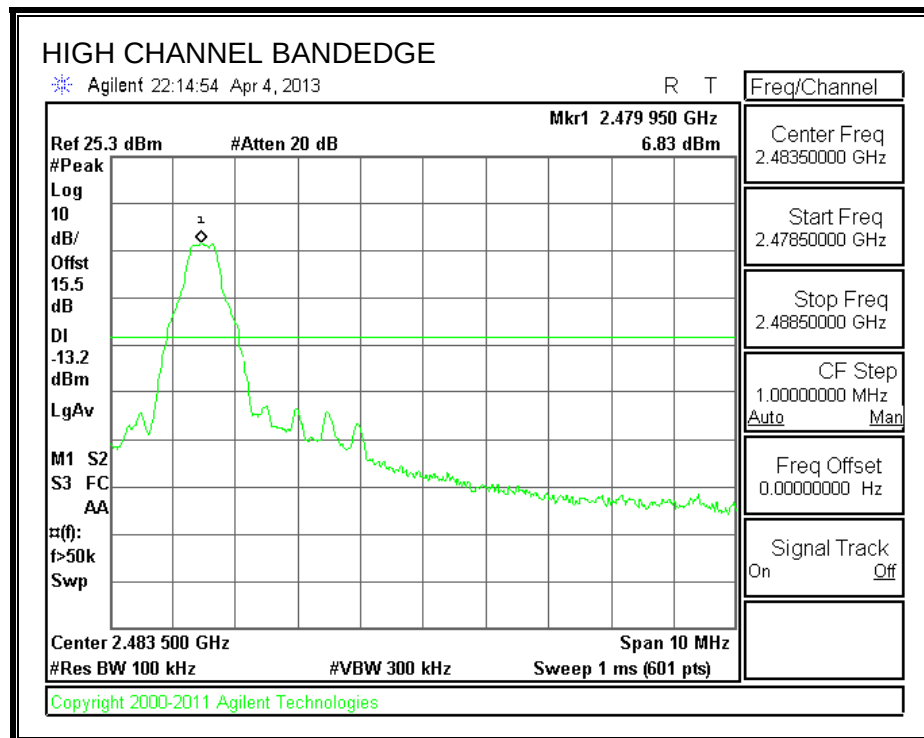
SPURIOUS EMISSIONS, LOW CHANNEL



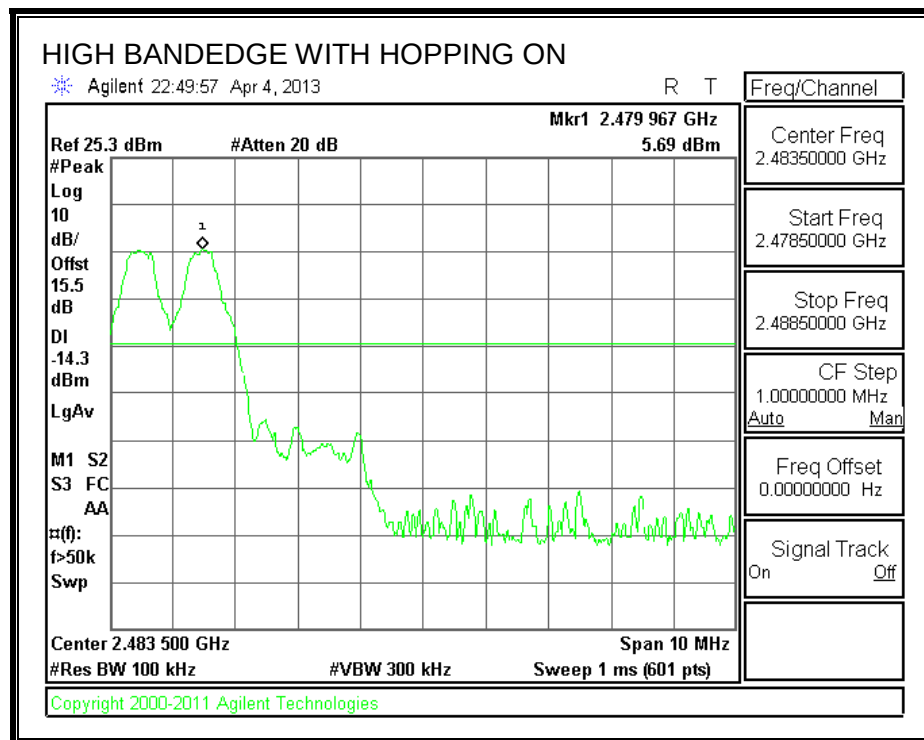
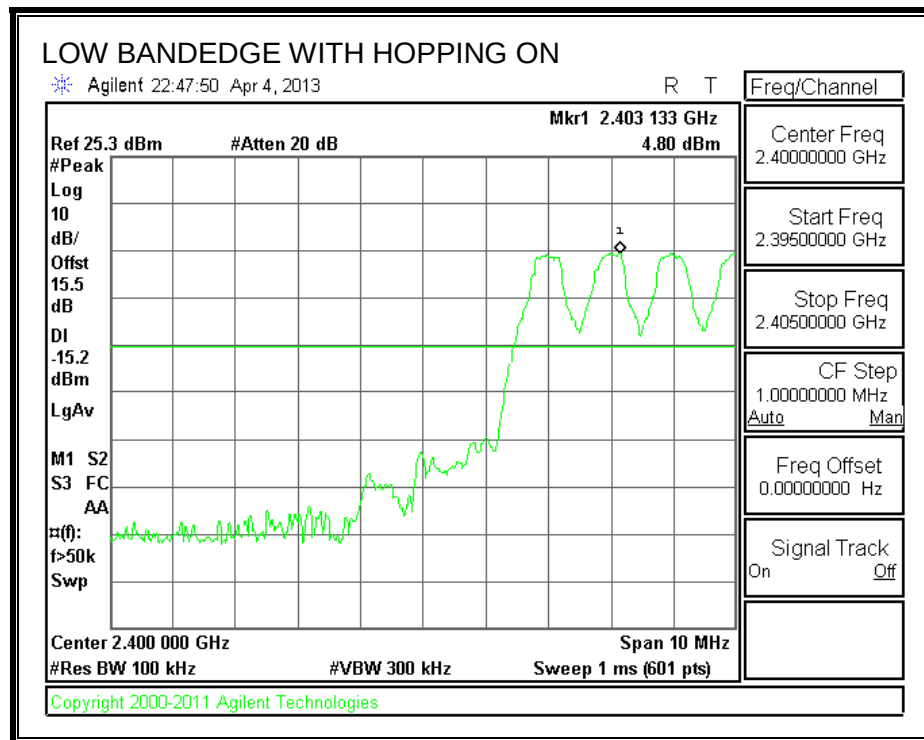
SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



7.2. ENHANCED DATA RATE 8PSK MODULATION

7.2.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

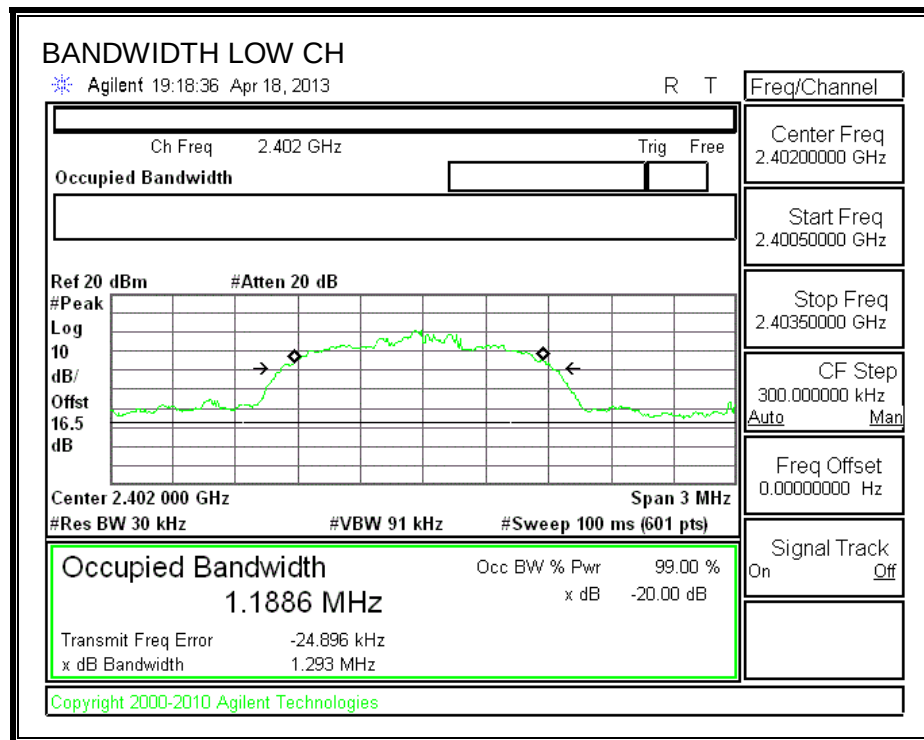
TEST PROCEDURE

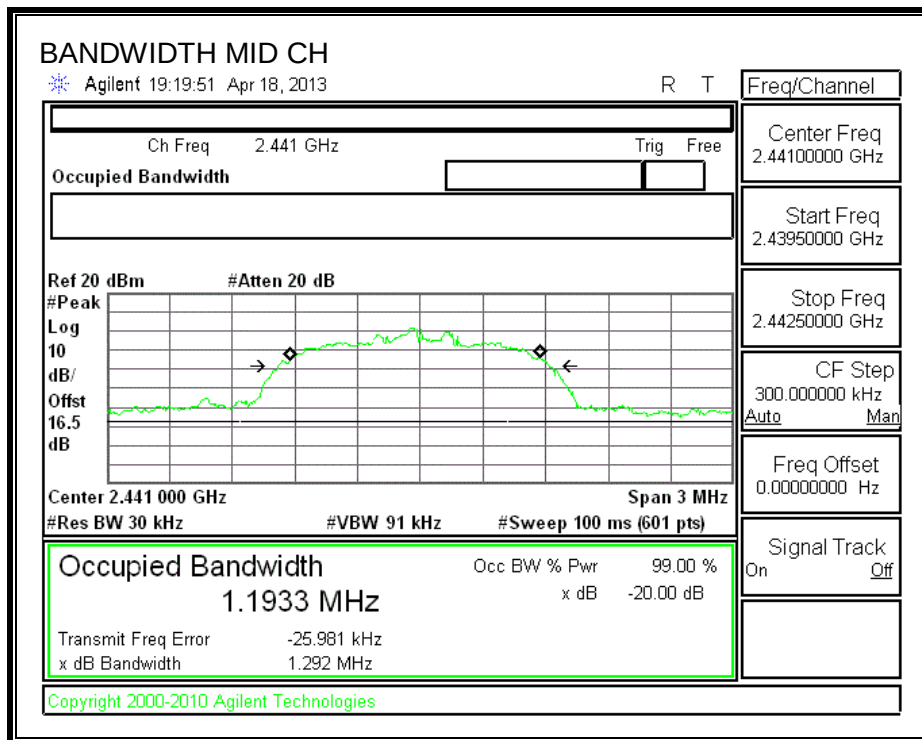
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

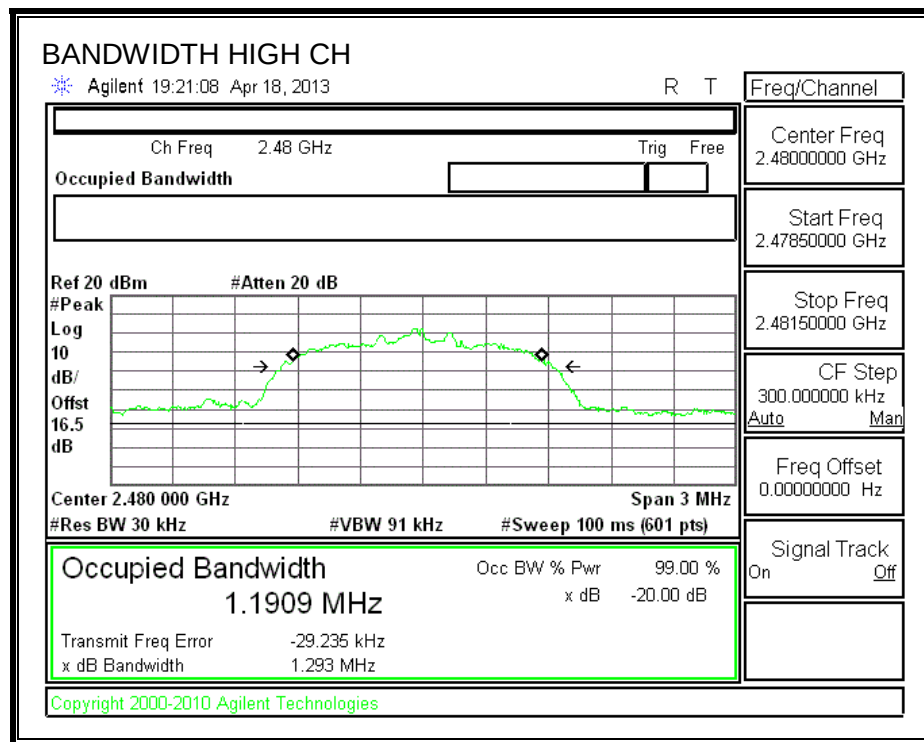
RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	1293	1371
Middle	2441	1292	1371
High	2480	1293	1371

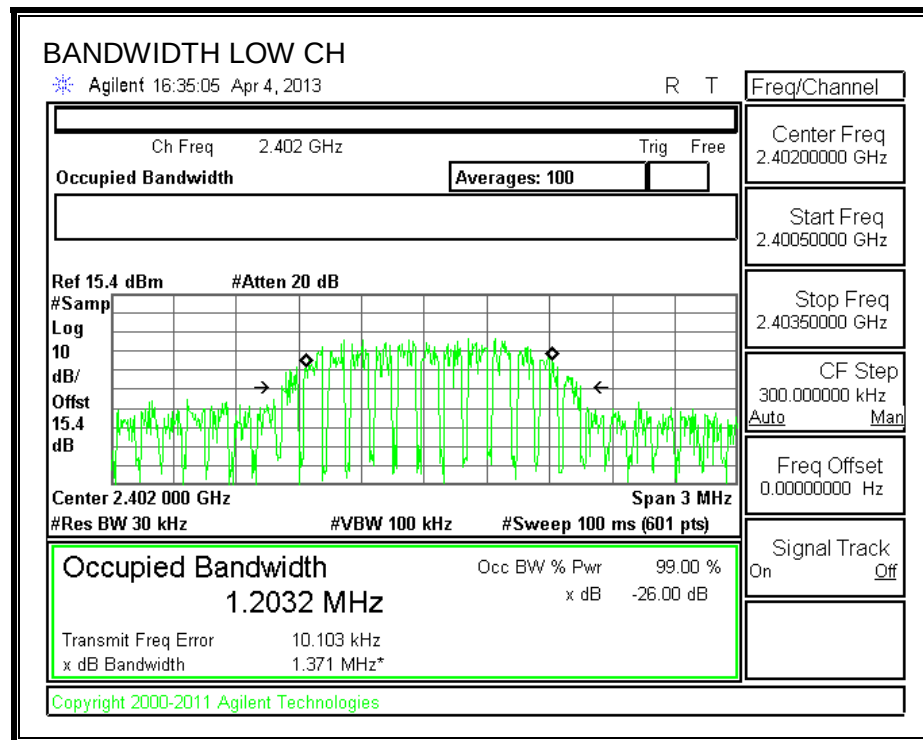
20 dB BANDWIDTH

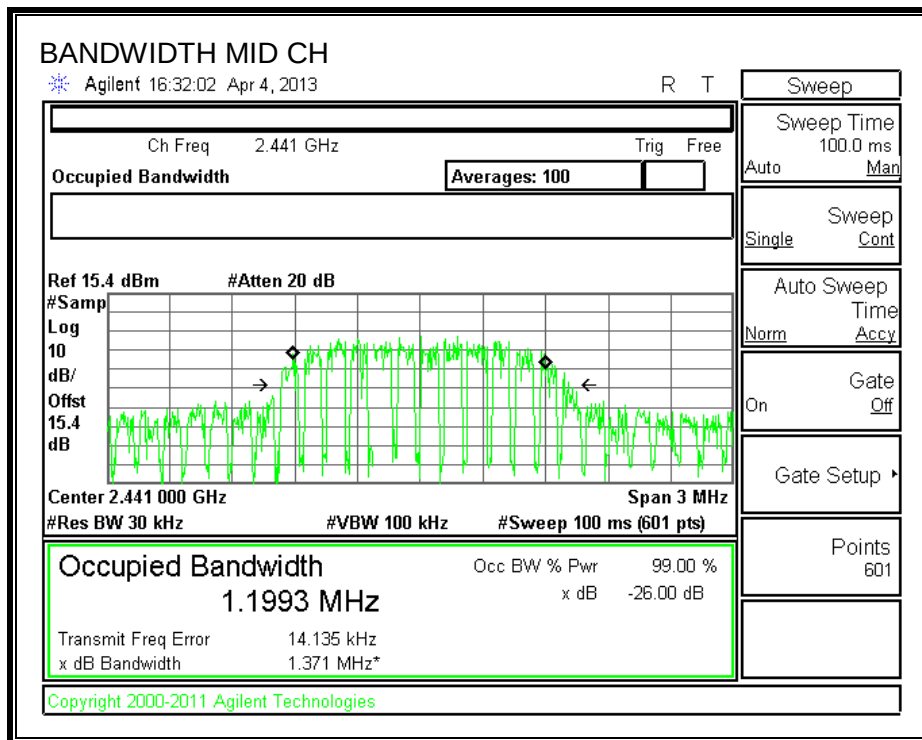


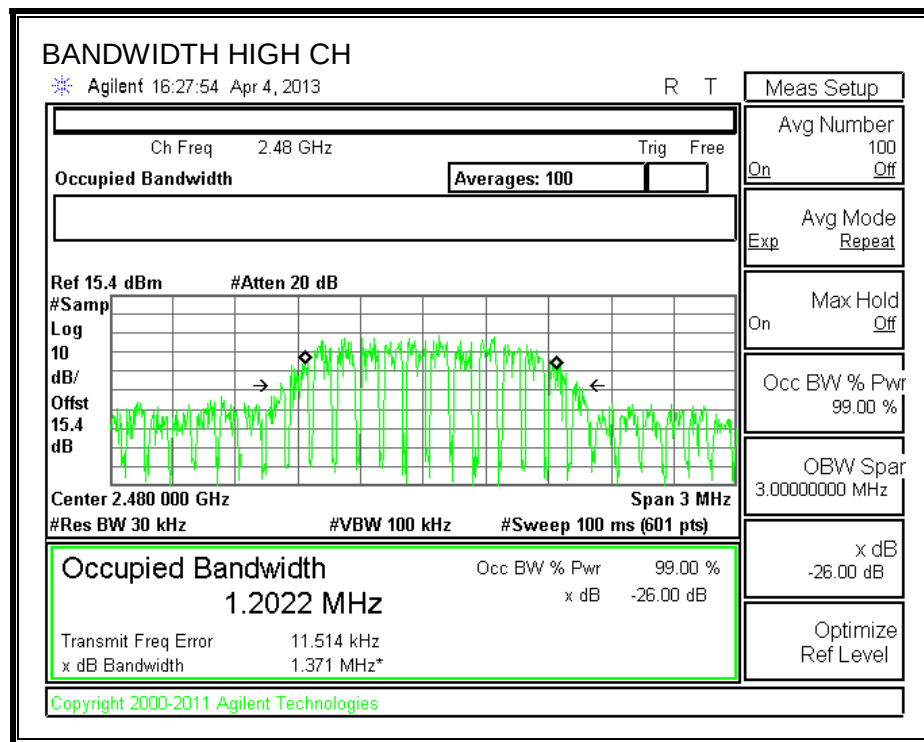




99% BANDWIDTH







7.2.2. 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 hopping channel, whichever is greater.

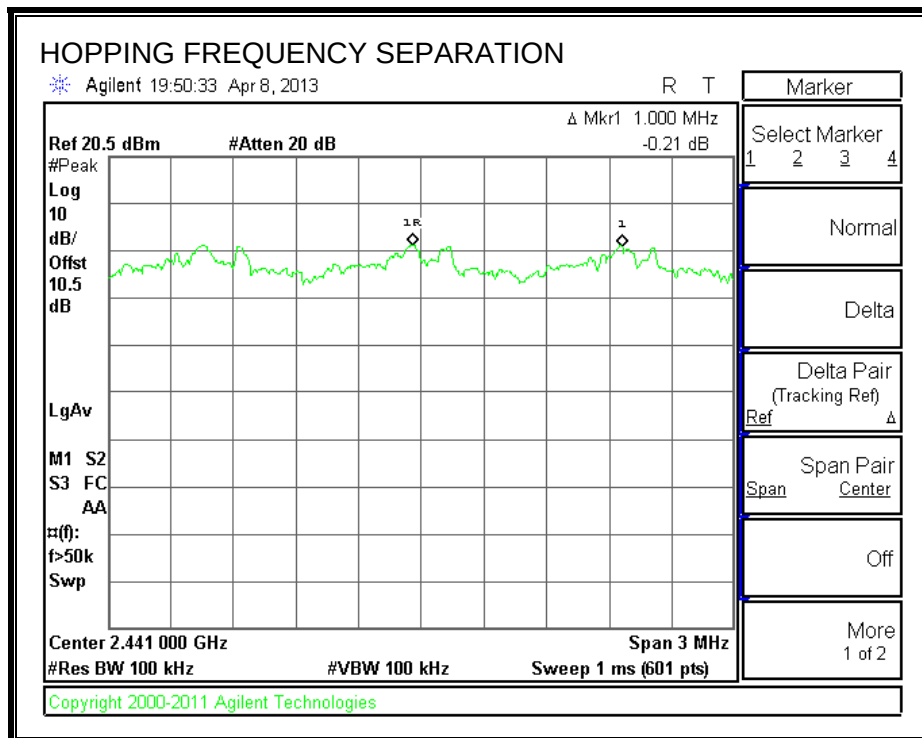
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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



7.2.3. 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.

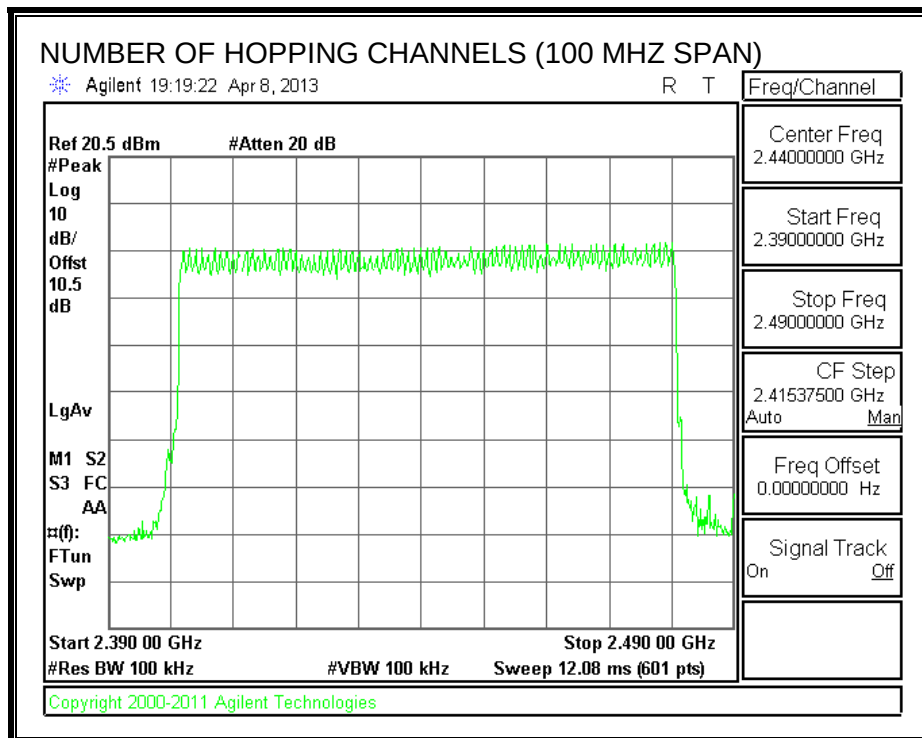
TEST PROCEDURE

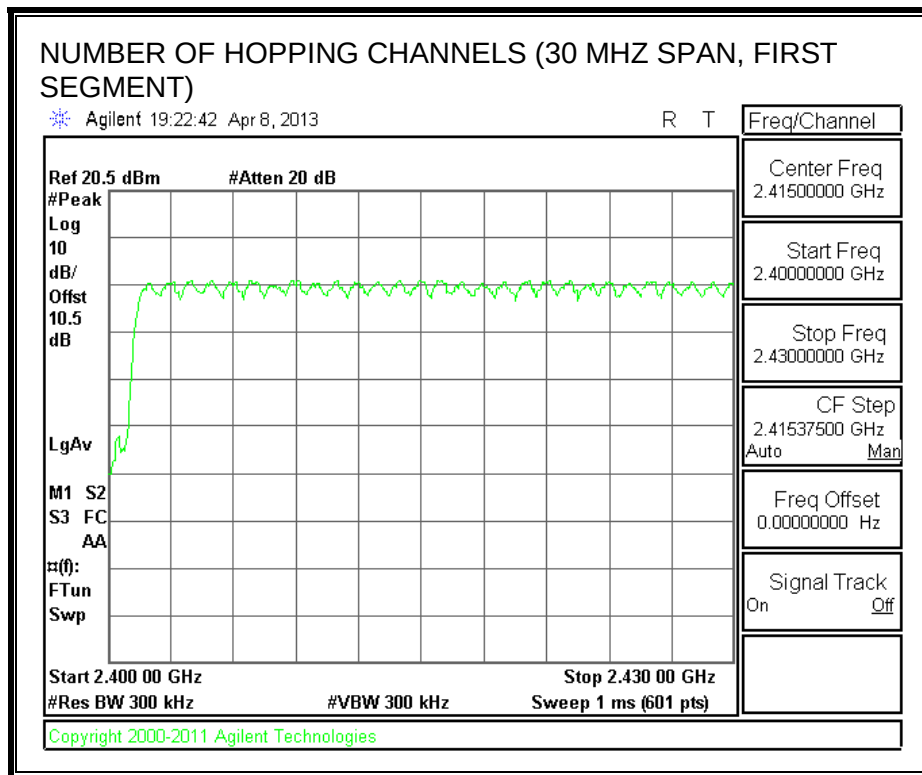
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

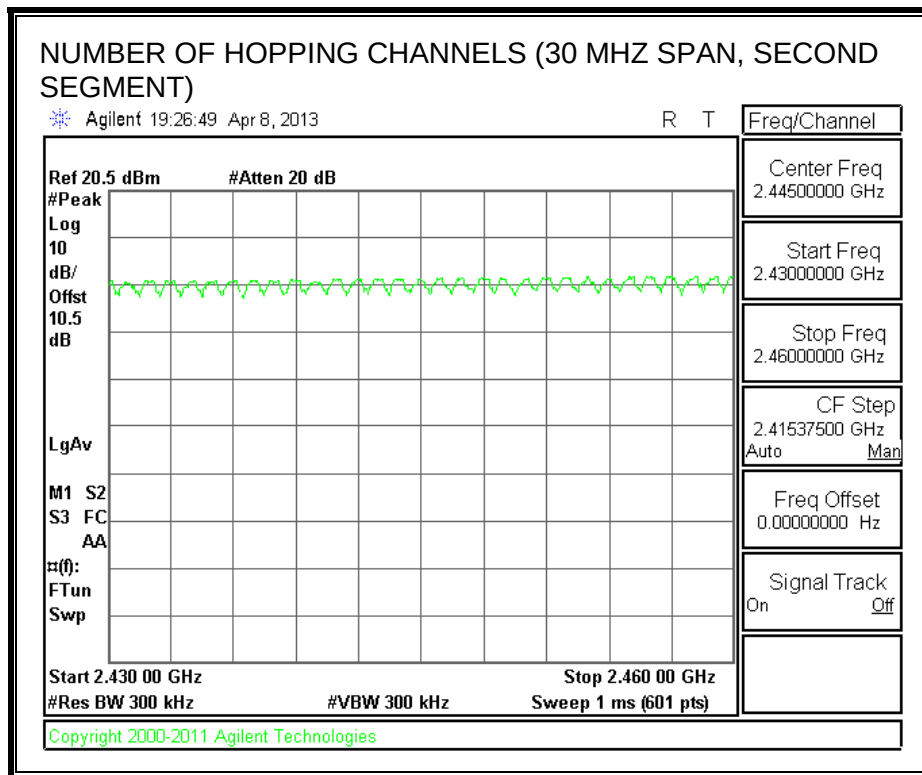
RESULTS

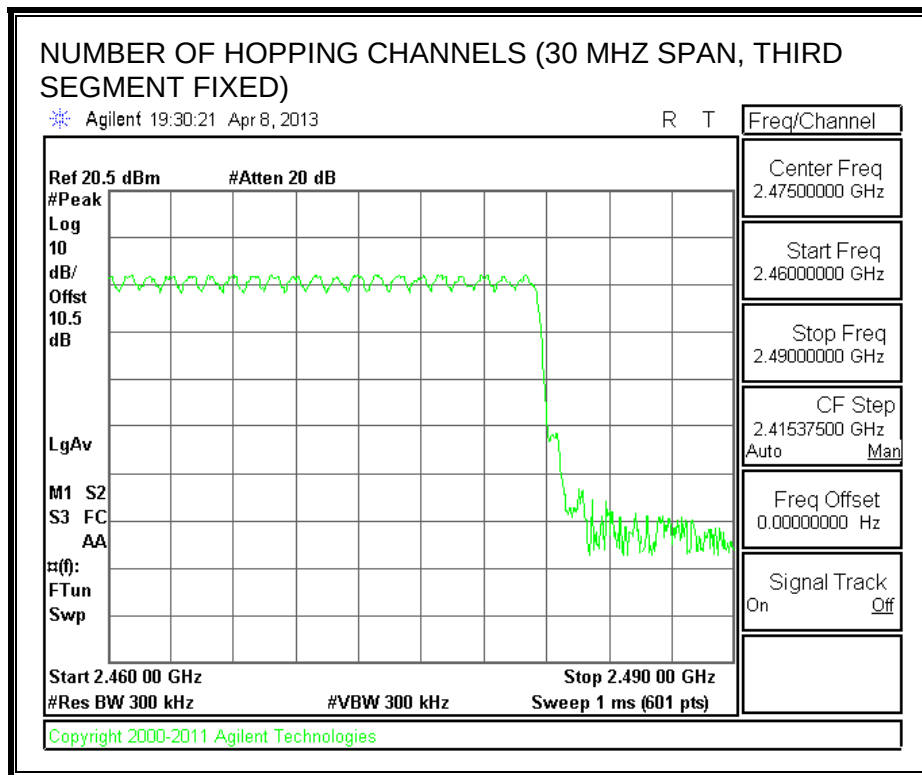
Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS









7.2.4. 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 $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

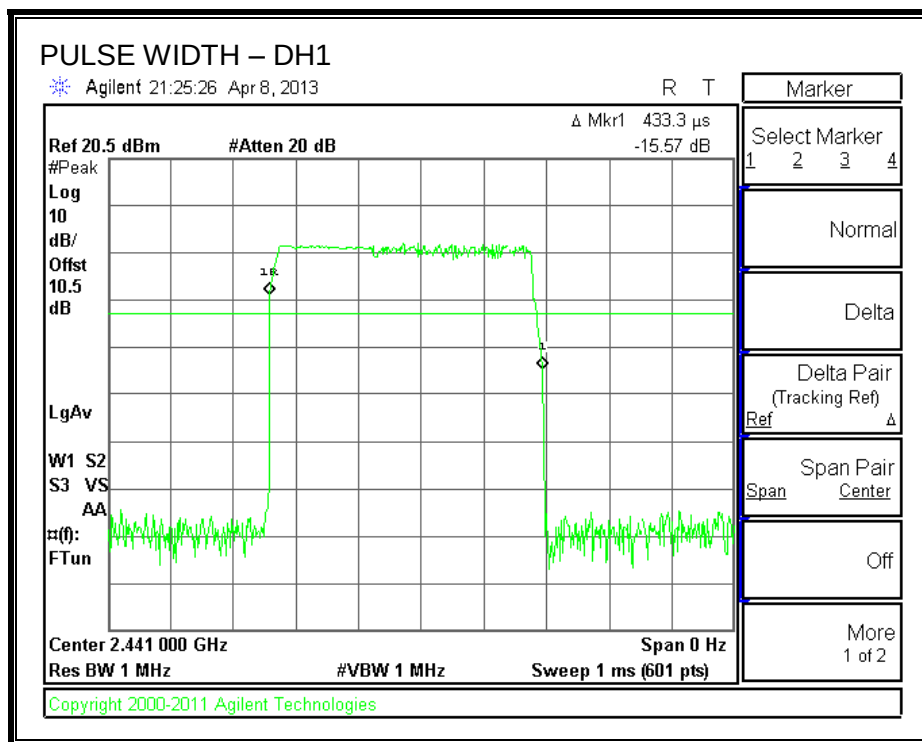
RESULTS

Time Of Occupancy = $10 * xx \text{ pulses} * yy \text{ msec} = zz \text{ msec}$

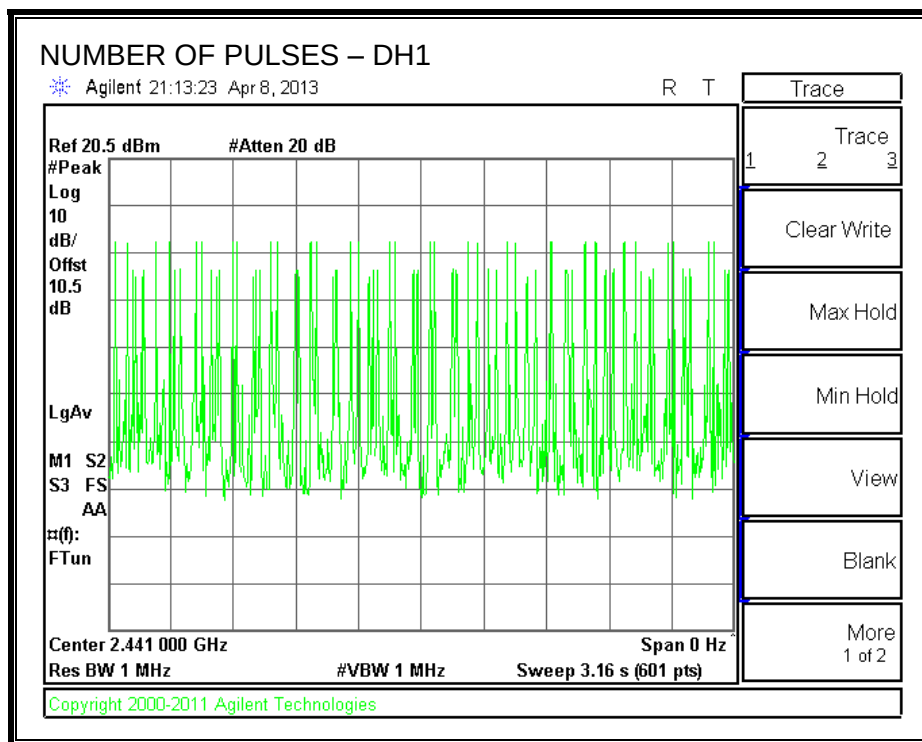
8PSK (EDR) Mode

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of (sec)	Limit (sec)	Margin (sec)
DH1	0.433	40	0.173	0.4	-0.227
DH3	1.635	19	0.311	0.4	-0.089
DH5	2.92	13	0.380	0.4	-0.020

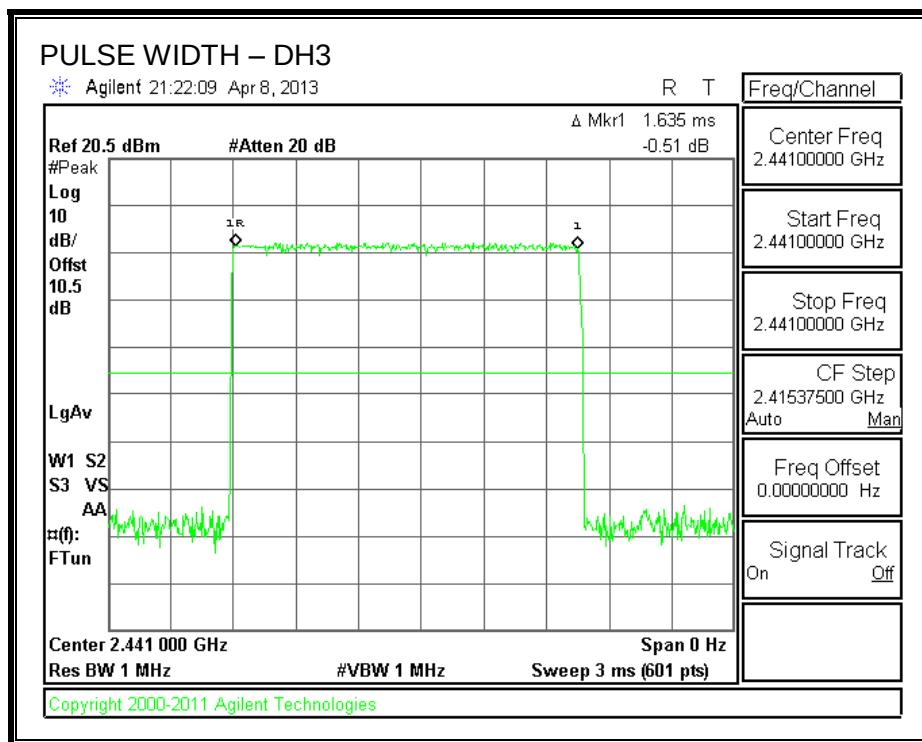
PULSE WIDTH - DH1



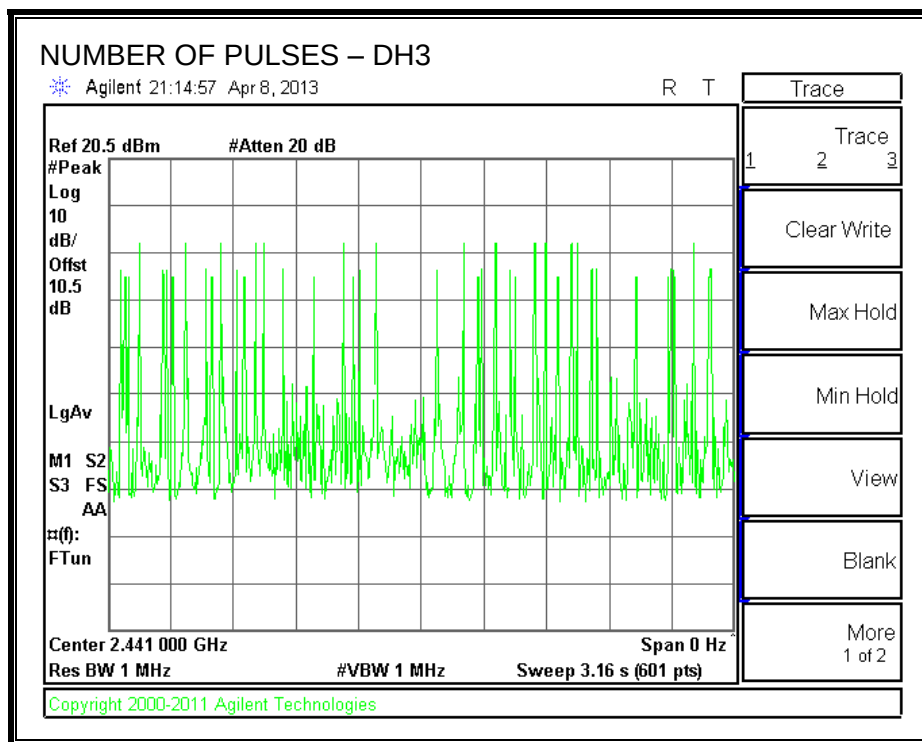
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



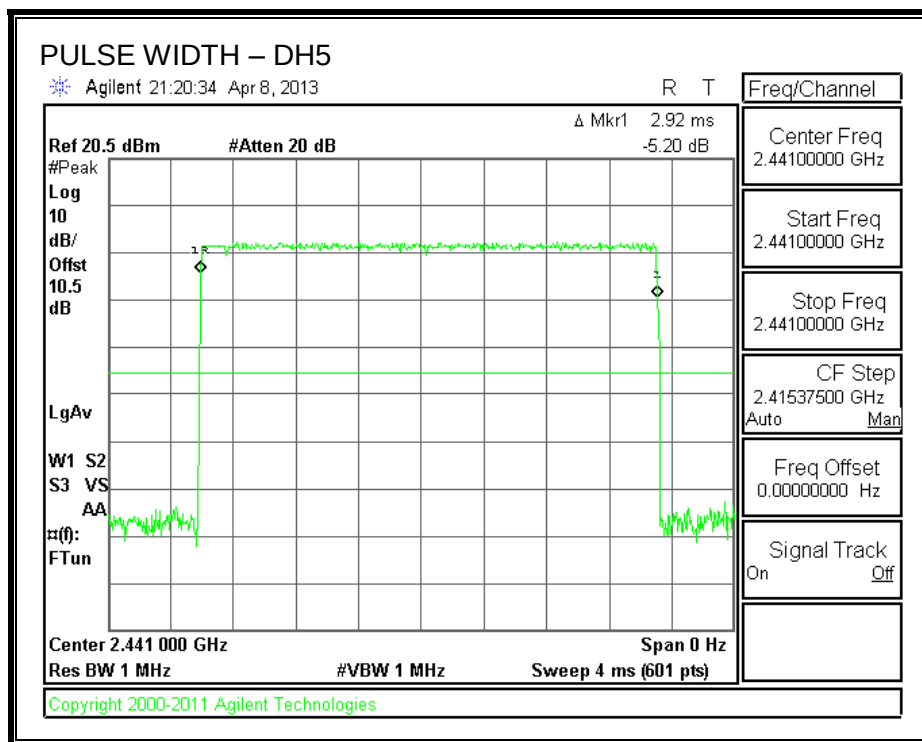
PULSE WIDTH – DH3



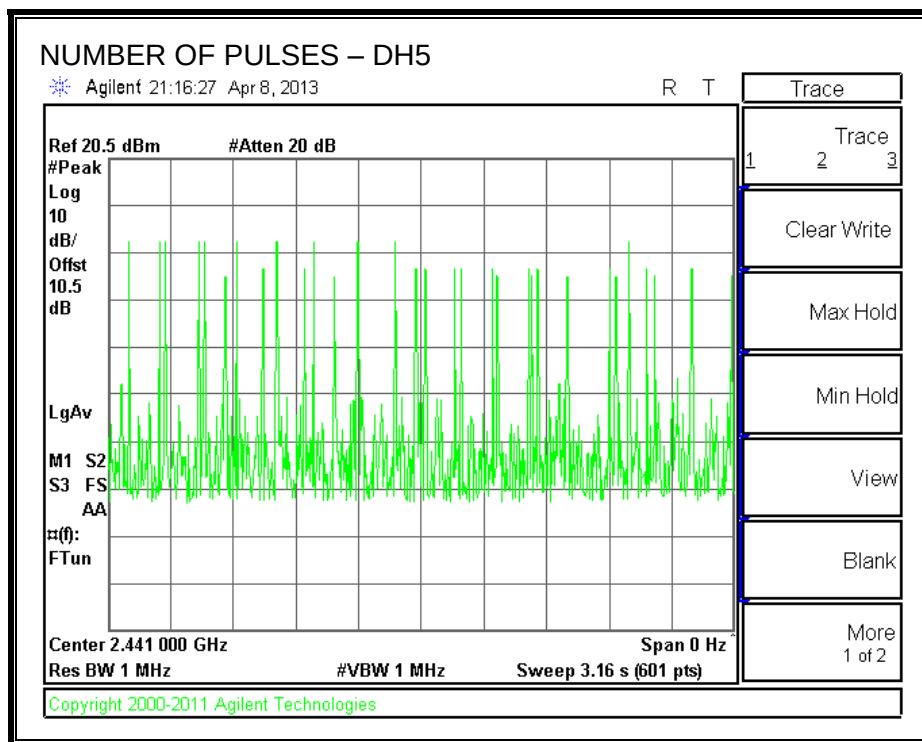
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



7.2.5. 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 16 dB (including 15 dB pad and 1dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	1.60
Middle	2441	2.10
High	2480	3.00

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.

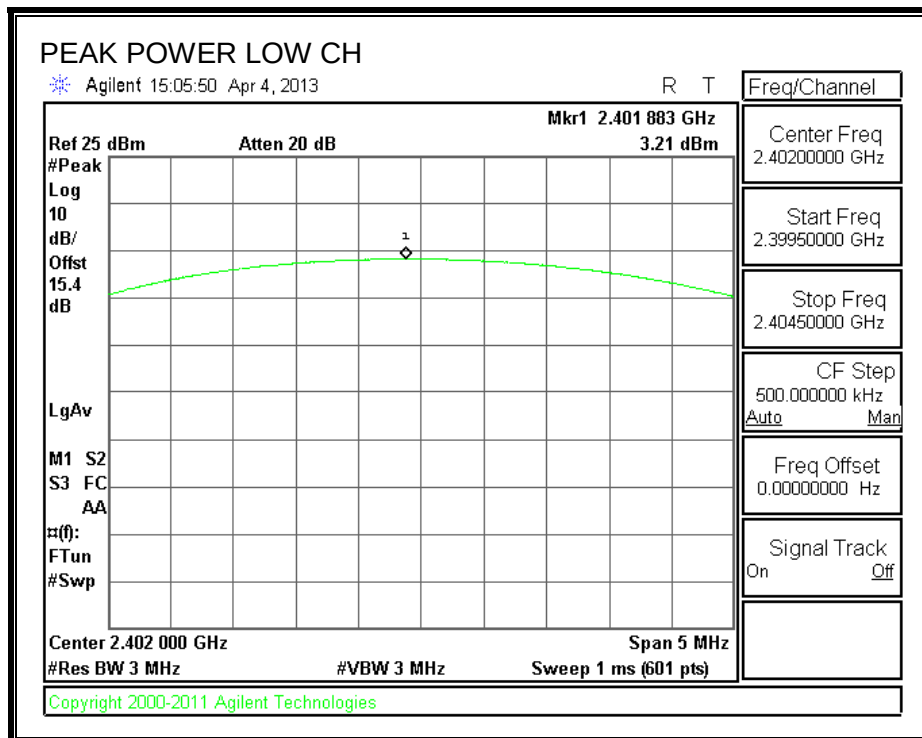
TEST PROCEDURE

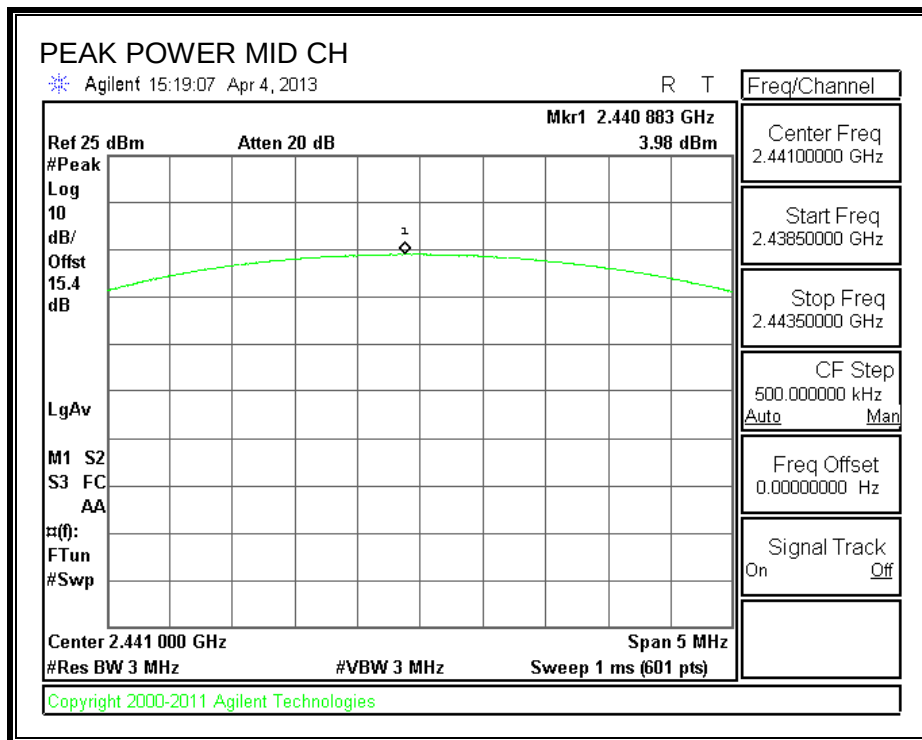
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

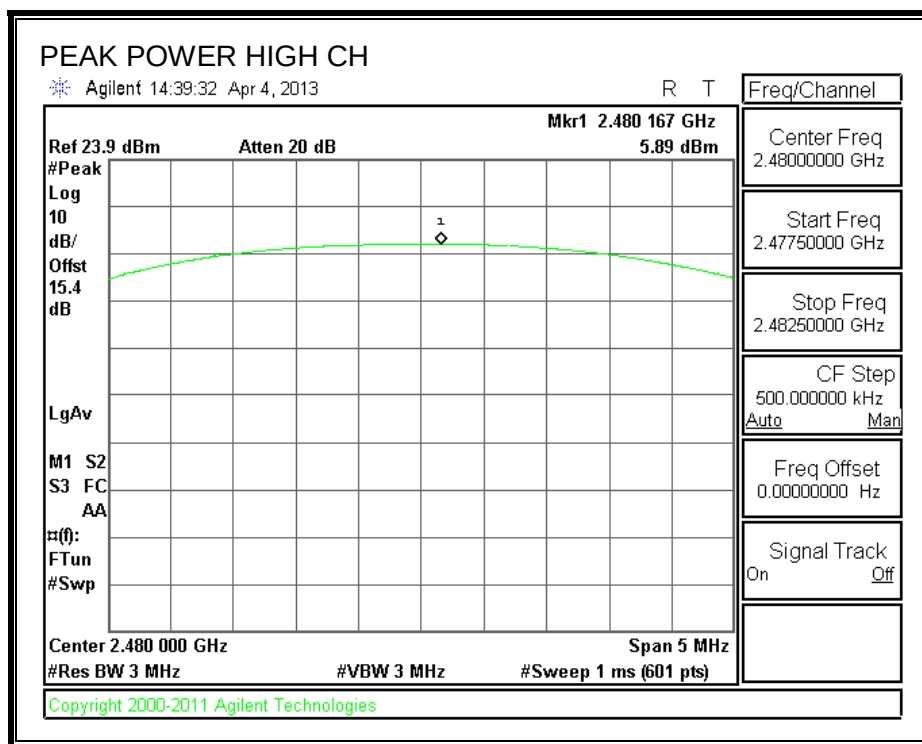
RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	3.12	30	-26.88
Middle	2441	3.98	30	-26.02
High	2480	5.89	30	-24.11

OUTPUT POWER







7.2.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

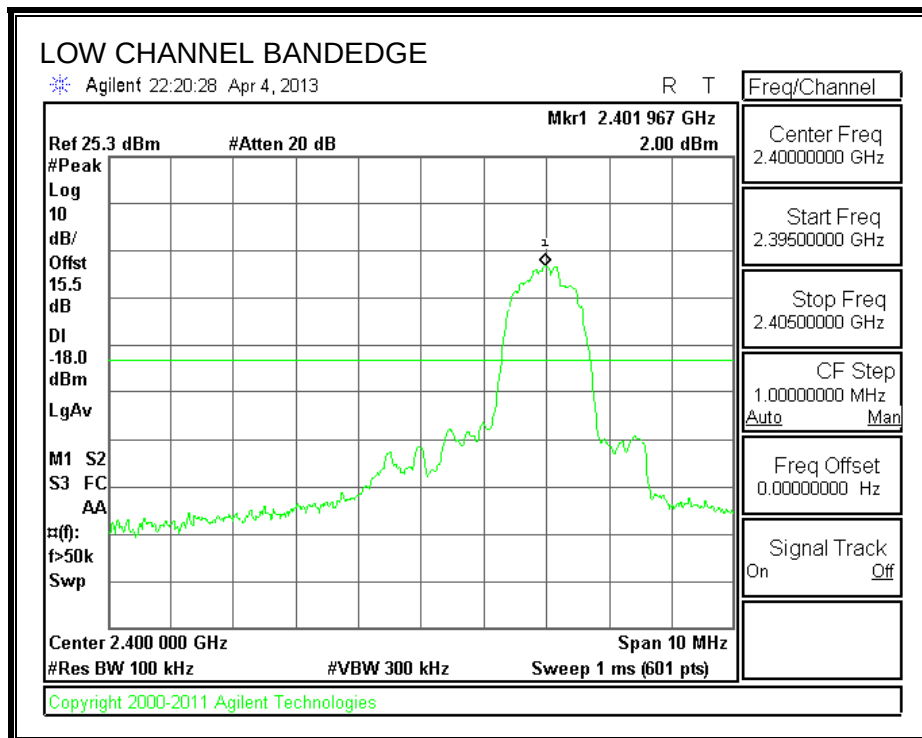
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

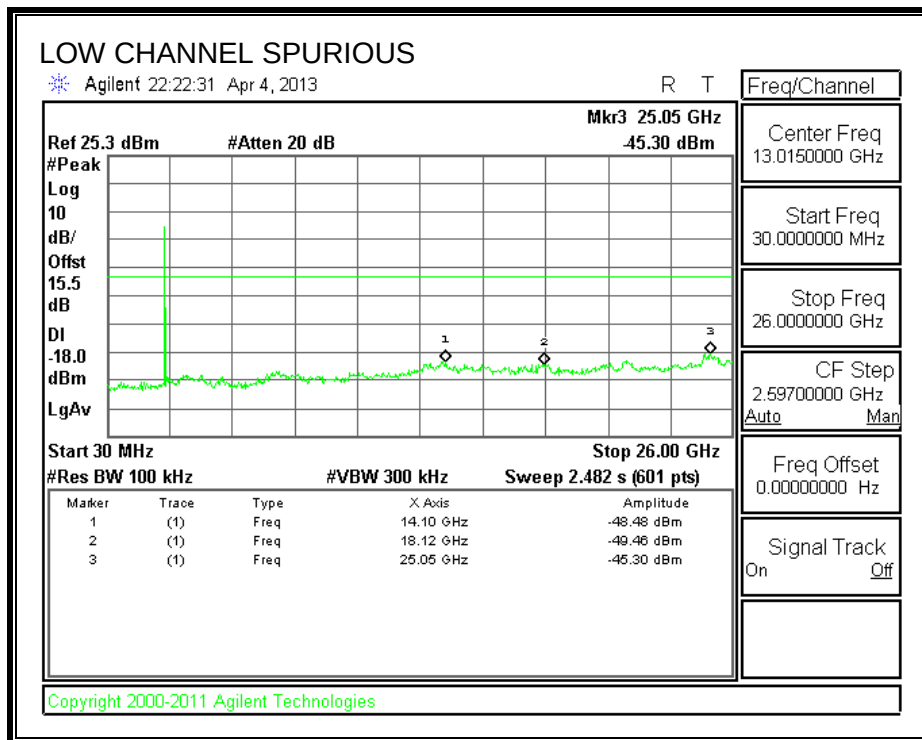
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

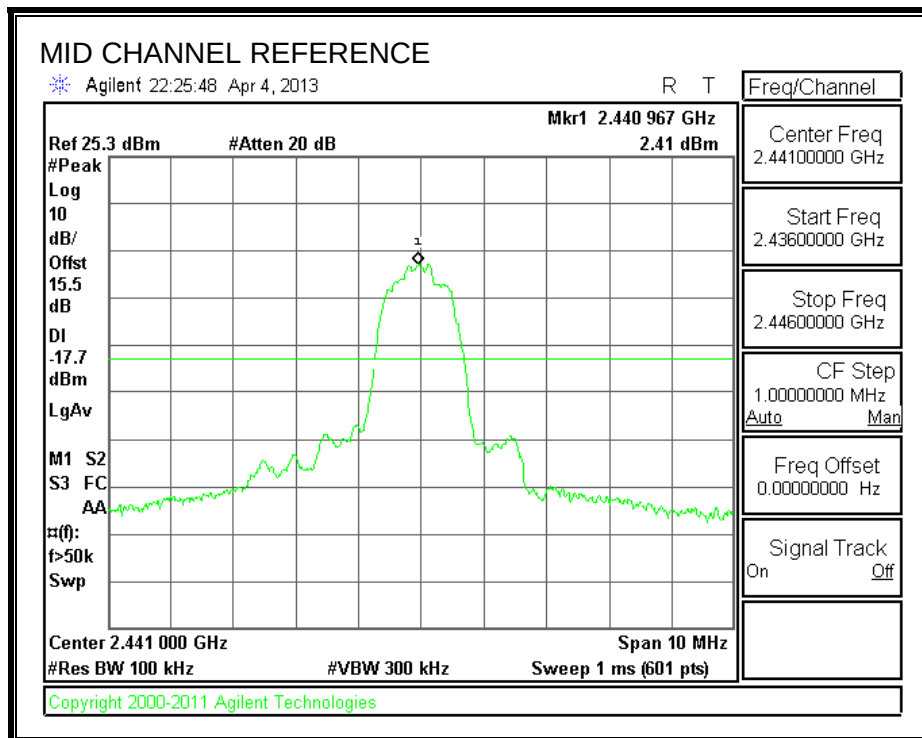
RESULTS

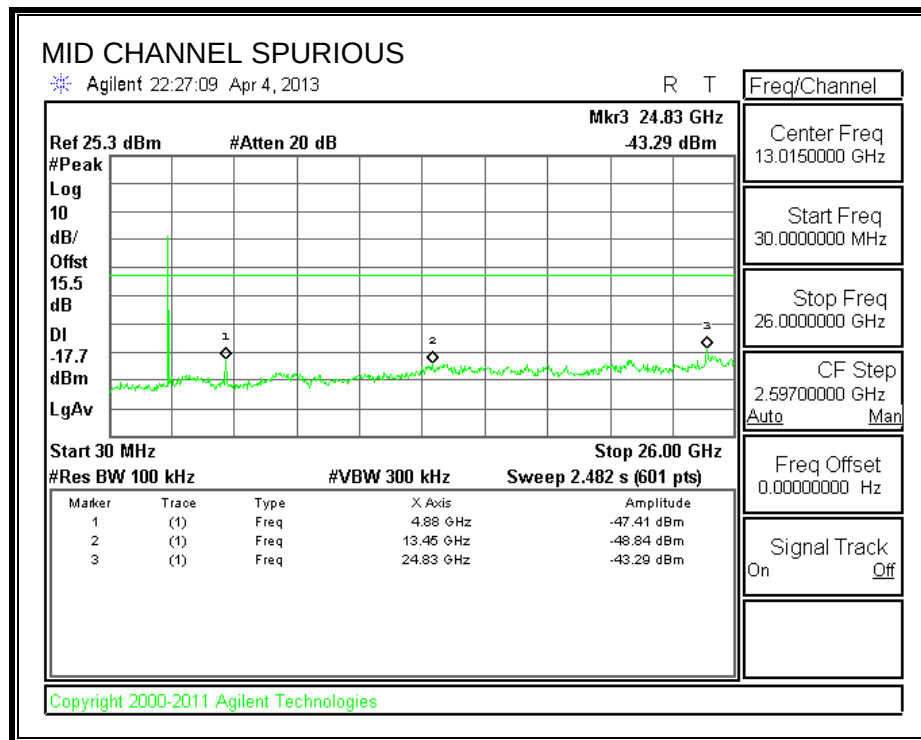
SPURIOUS EMISSIONS, LOW CHANNEL



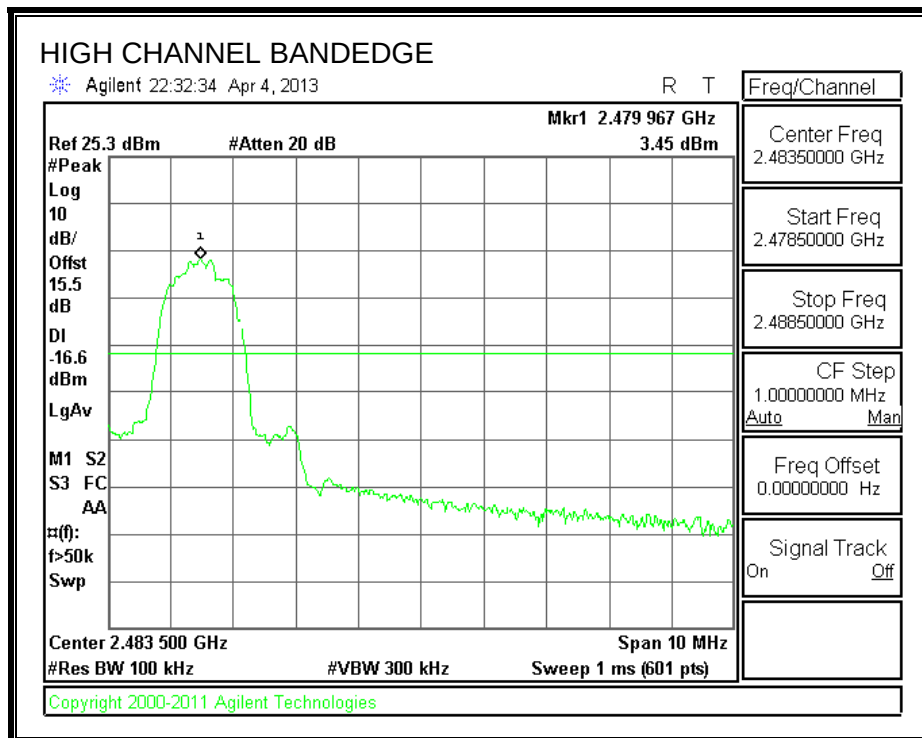


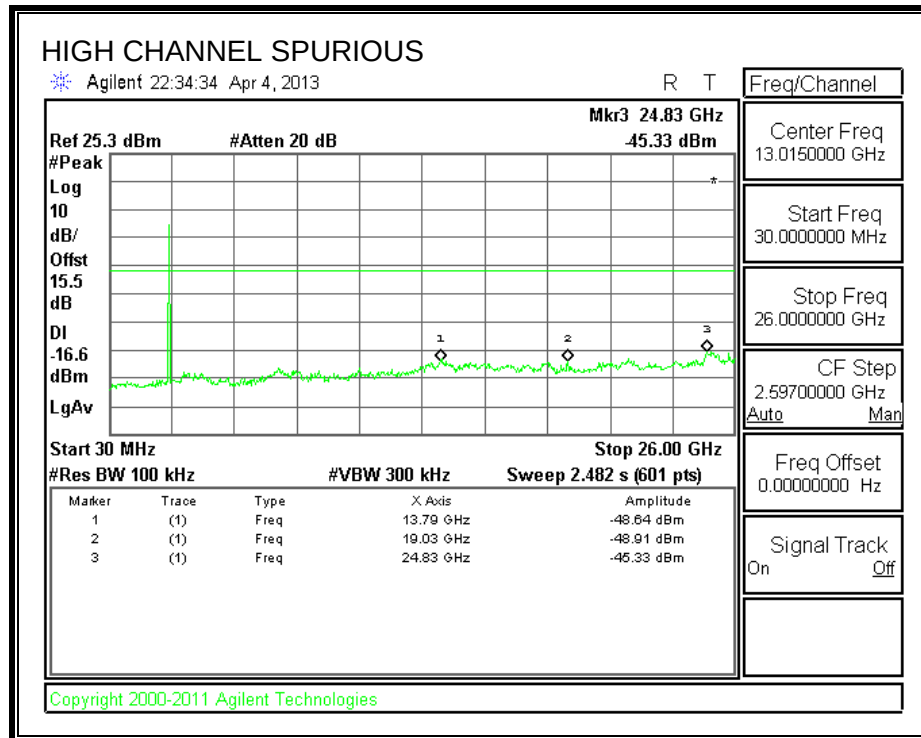
SPURIOUS EMISSIONS, MID CHANNEL



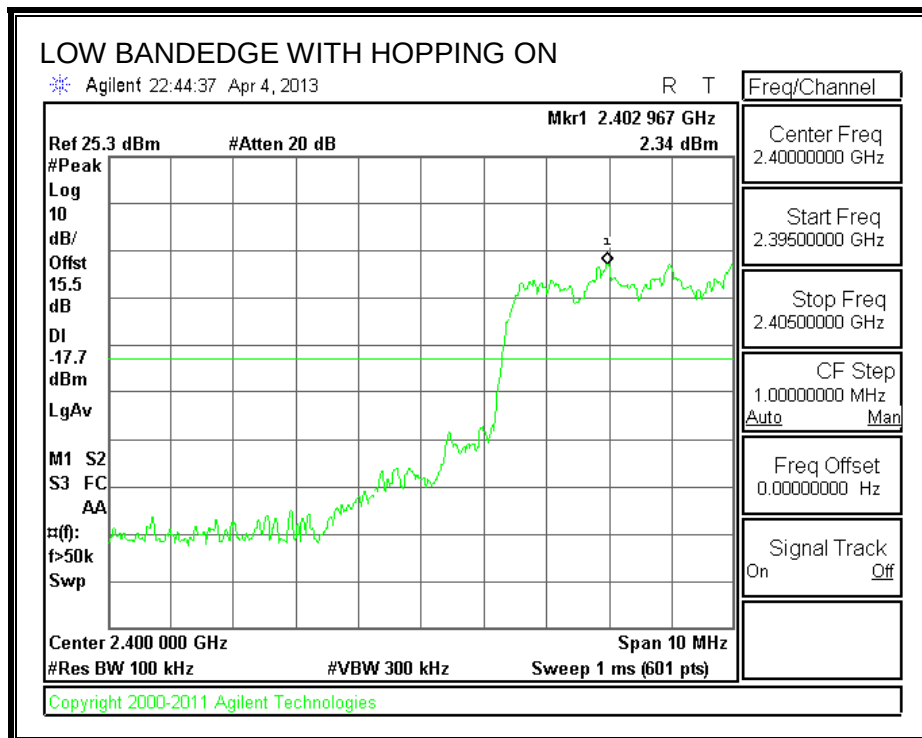


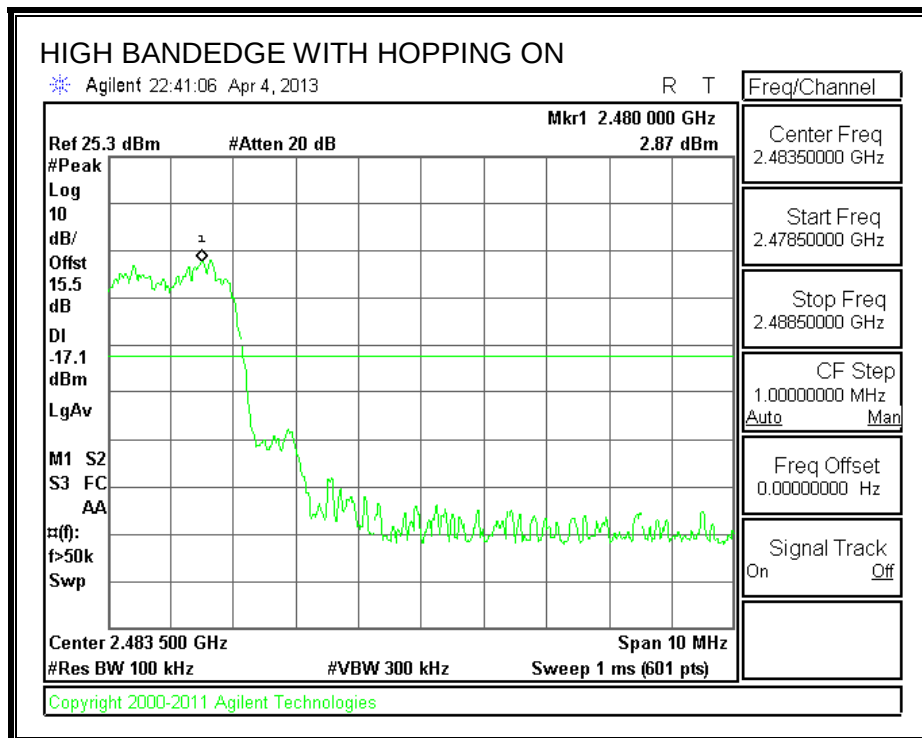
SPURIOUS EMISSIONS, HIGH CHANNEL





SPURIOUS BANEDGE EMISSIONS WITH HOPPING ON





8. RADIATED TEST RESULTS

8.1.1. 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.

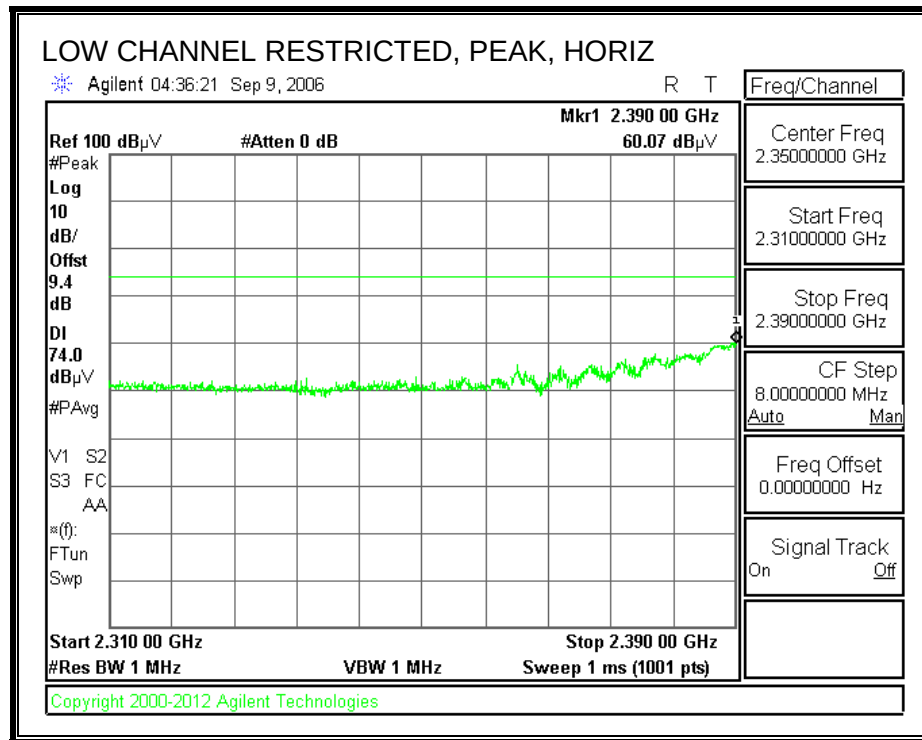
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

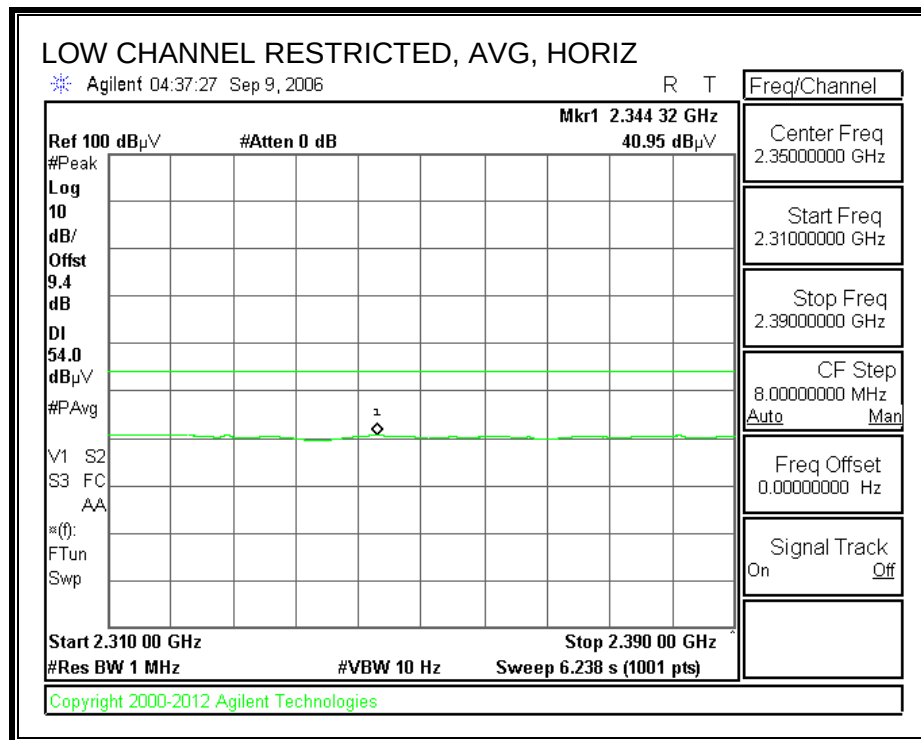
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

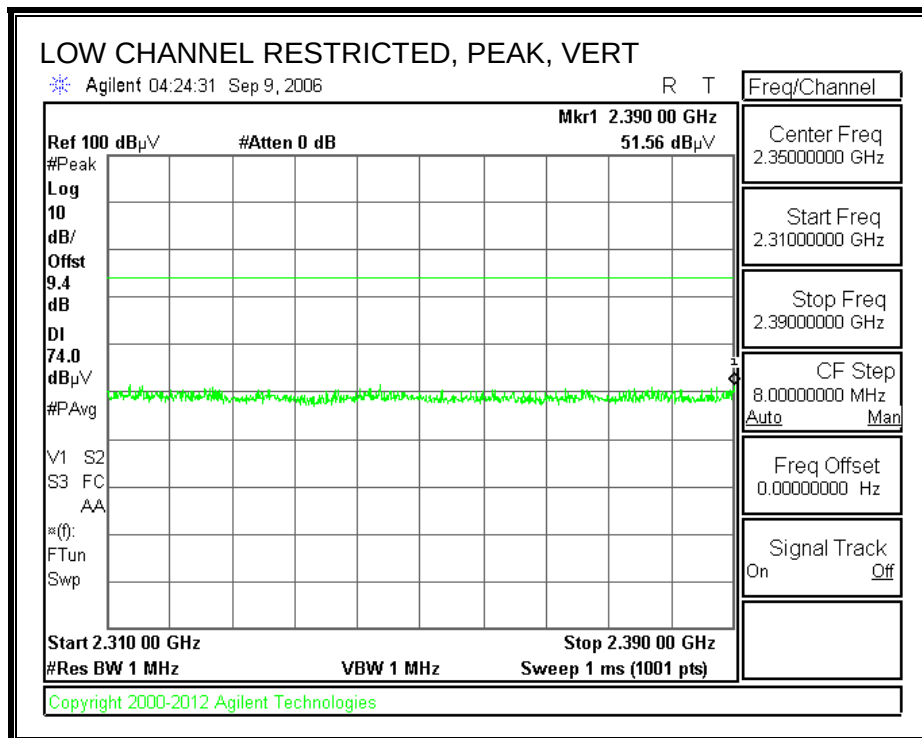
8.2.1. BASIC DATA RATE GFSK MODULATION

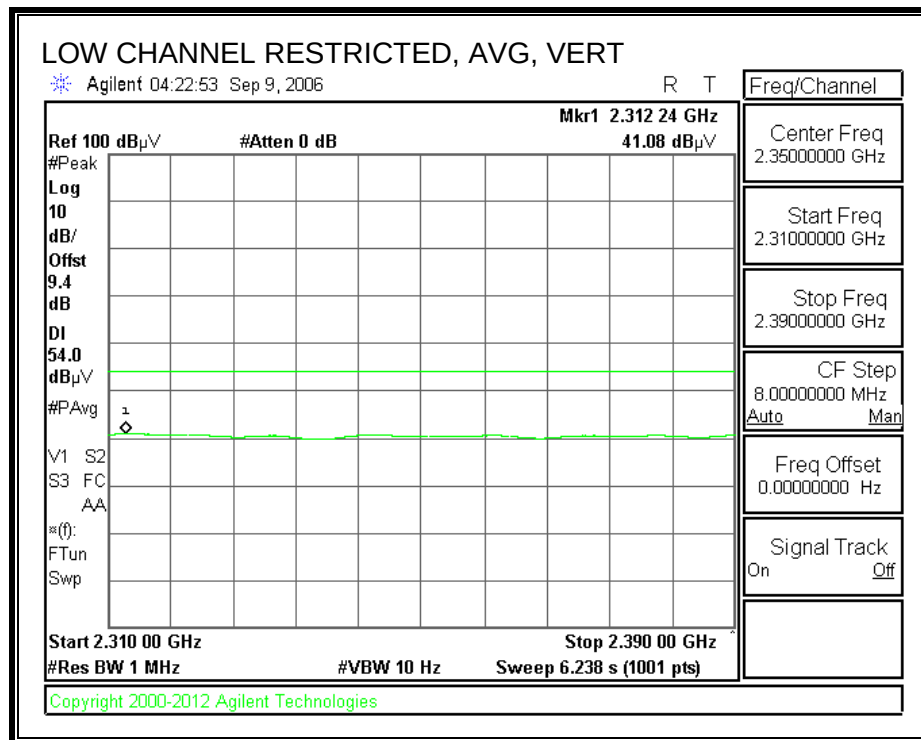
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



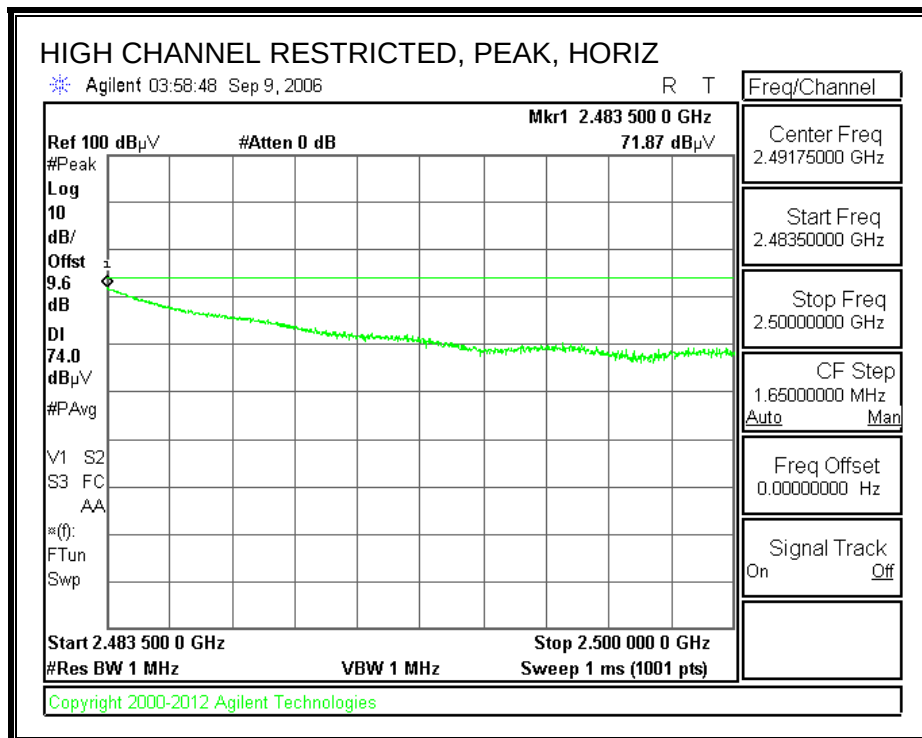


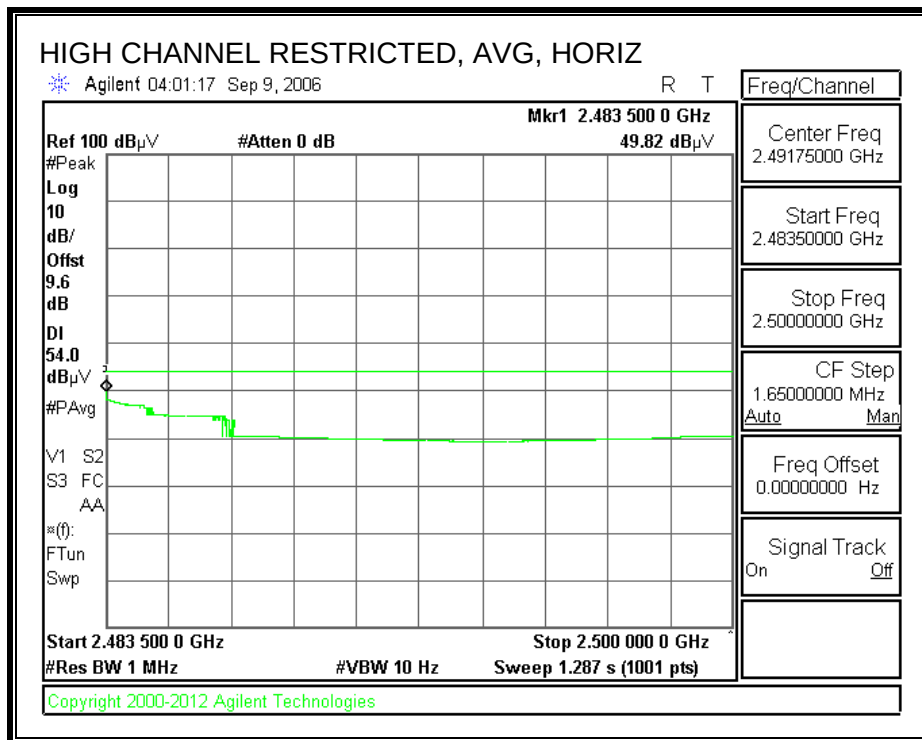
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



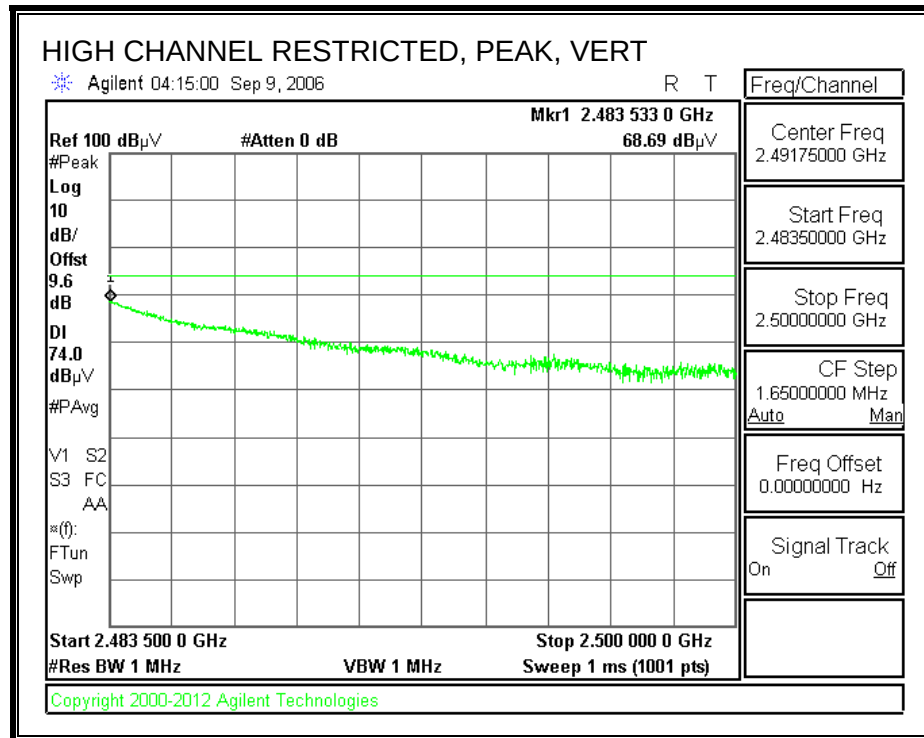


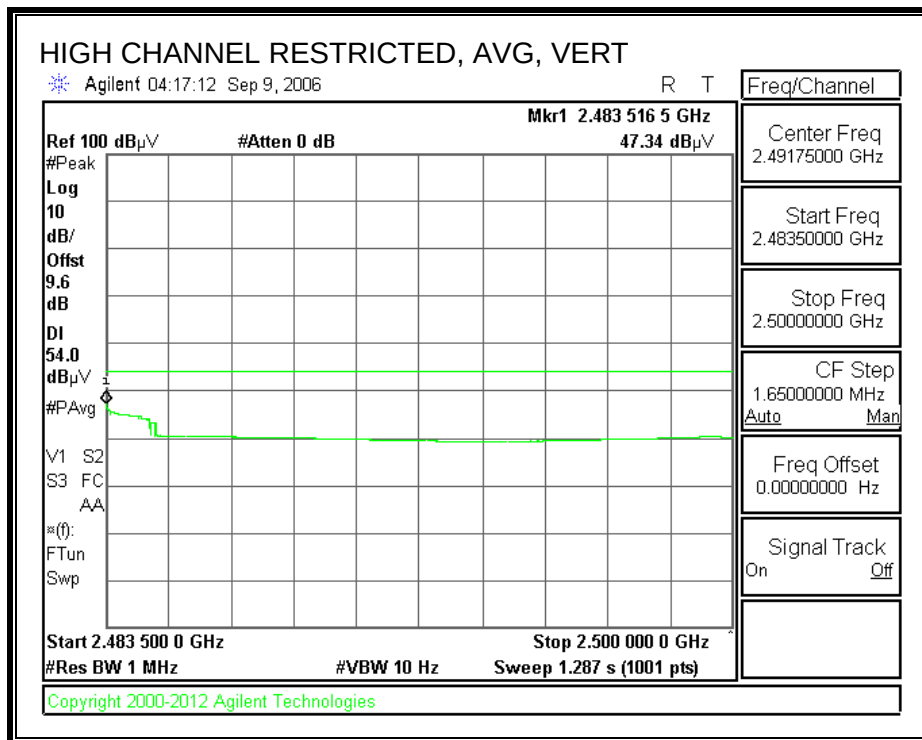
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





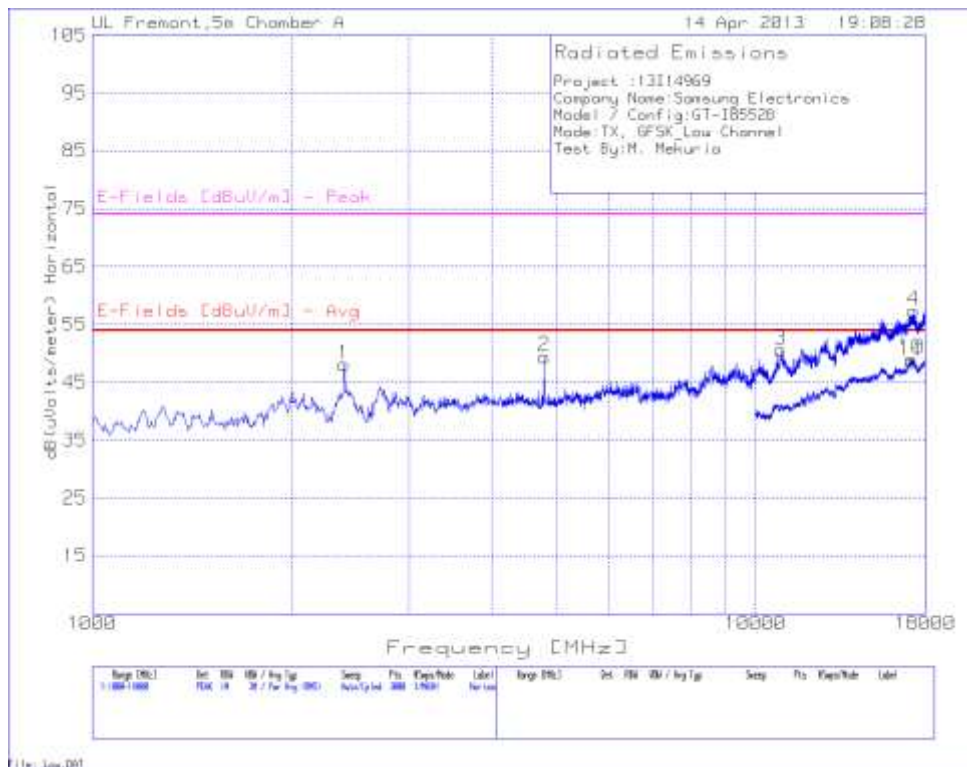
RESTRICTED BANDEGE (HIGH CHANNEL, VERTICAL)

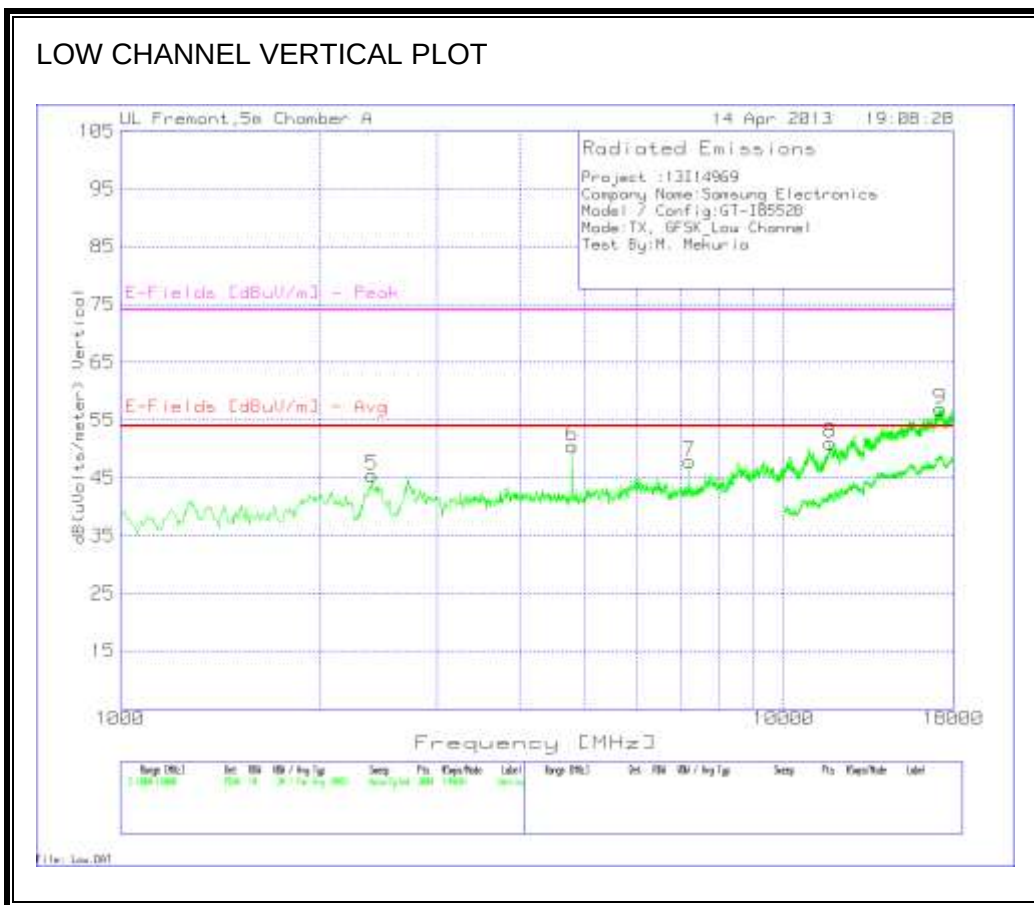




HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT





Low Channel

Project :13I14969

Company Name:Samsung Electronics

Model / Config:GT-I8552B

Mode:TX, GFSK_Low Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2398.734	47.53	PK	32.1	-36.9	4.4	0.9	48.03	53.97	-5.94	74	-25.97	100	Horz
2	4799.8	44.34	PK	33.9	-35.7	6.7	0.2	49.44	53.97	-4.53	74	-24.56	100	Horz
3	10904.397	36.66	PK	37.9	-35.6	10.9	0.7	50.56	53.97	-3.41	74	-23.44	200	Horz
4	17292.139	36.11	PK	41	-34.4	14.1	0.5	57.31	53.97	3.34	74	-16.69	100	Horz
5	17160.42	27.86	PK	40.9	-34.2	14.1	0.4	49.06	53.97	-4.91	74	-24.94	200	Horz
6	17156.422	27.48	PK	40.9	-34.2	14.1	0.4	48.68	53.97	-5.29	74	-25.32	100	Horz

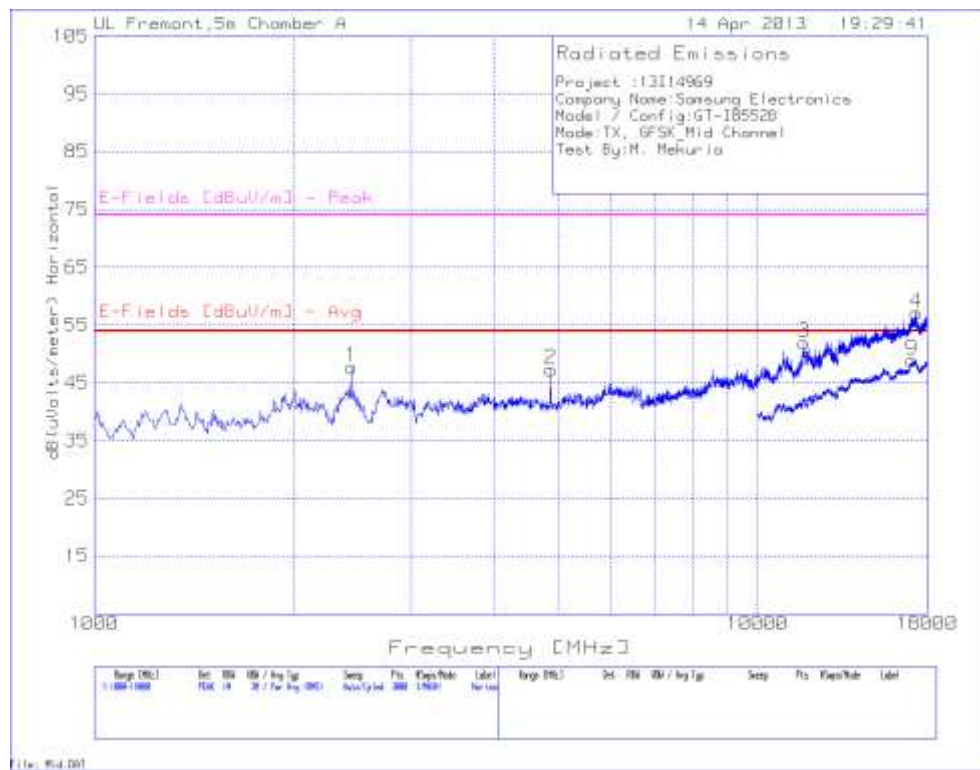
Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	2398.734	44.92	PK	32.1	-36.9	4.4	0.9	45.42	53.97	-8.55	74	-28.58	200	Vert
8	4799.8	45.36	PK	33.9	-35.7	6.7	0.2	50.46	53.97	-3.51	74	-23.54	100	Vert
9	7206.529	39.28	PK	35.4	-35.8	8.6	0.3	47.78	53.97	-6.19	74	-26.22	100	Vert
10	11748.168	36.25	PK	38.5	-35.7	11.3	0.7	51.05	53.97	-2.92	74	-22.95	200	Vert
11	17224.184	35.87	PK	40.9	-34.3	14.1	0.4	56.97	53.97	3	74	-17.03	200	Vert

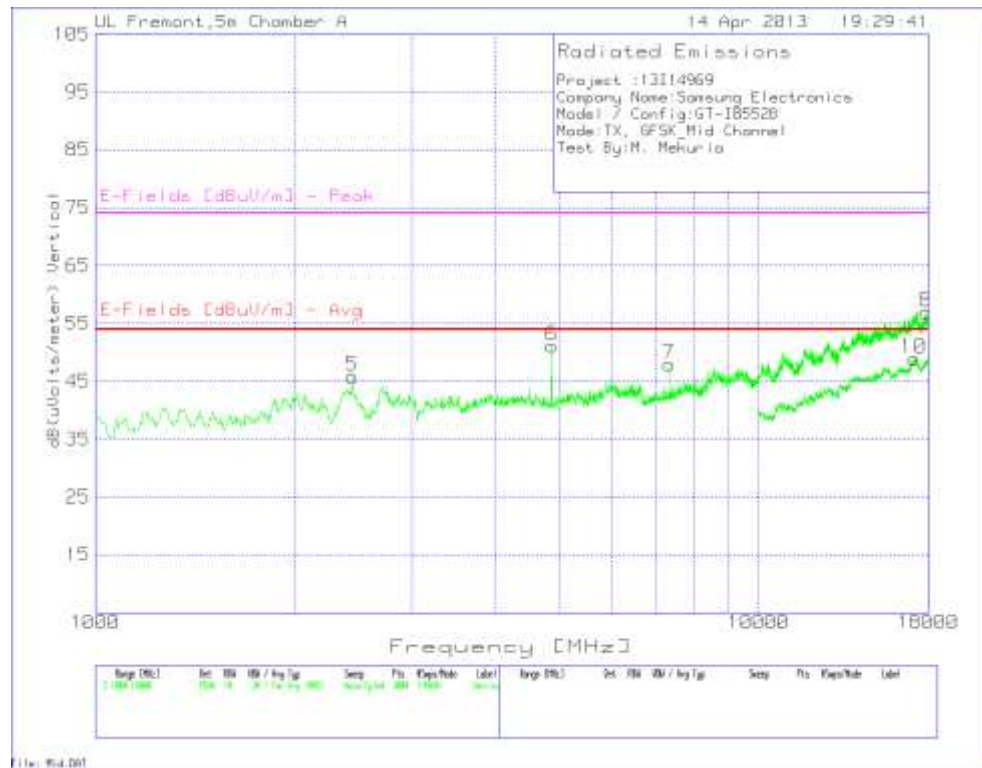
PK - Peak detector

Av - Average detector

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



Mid Channel

Project :13I14969

Company Name:Samsung Electronics

Model / Config:GT-I8552B

Mode:TX, GFSK_Mid Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

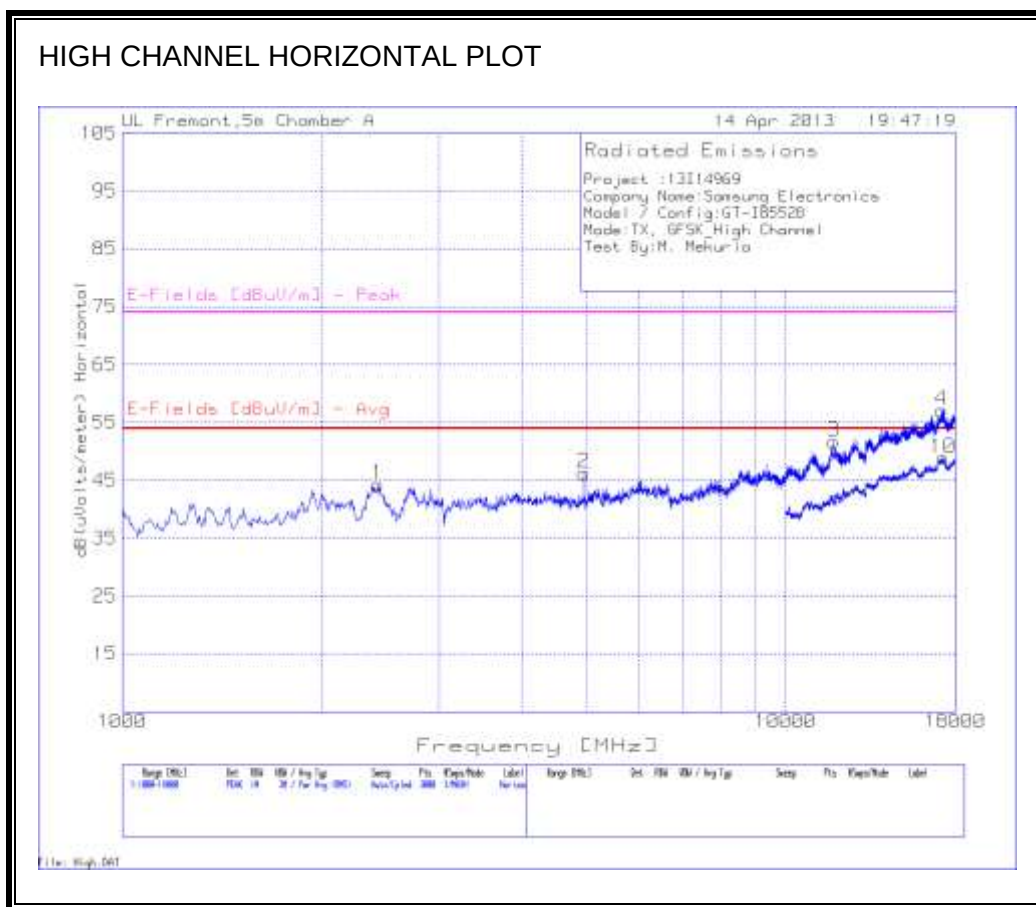
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2438.374	46.94	PK	32.3	-36.9	4.5	0.9	47.74	53.97	-6.23	74	-26.26	100	Horz
2	4879.081	41.96	PK	34	-35.7	6.8	0.2	47.26	53.97	-6.71	74	-26.74	100	Horz
3	11748.168	37.19	PK	38.5	-35.7	11.3	0.7	51.99	53.97	-1.98	74	-22.01	200	Horz
4	17365.756	35.91	PK	40.9	-34.4	14.2	0.5	57.11	53.97	3.14	74	-16.89	100	Horz
5	17104.448	27.71	PK	40.9	-34.2	14	0.5	48.91	53.97	-5.06	74	-25.09	200	Horz

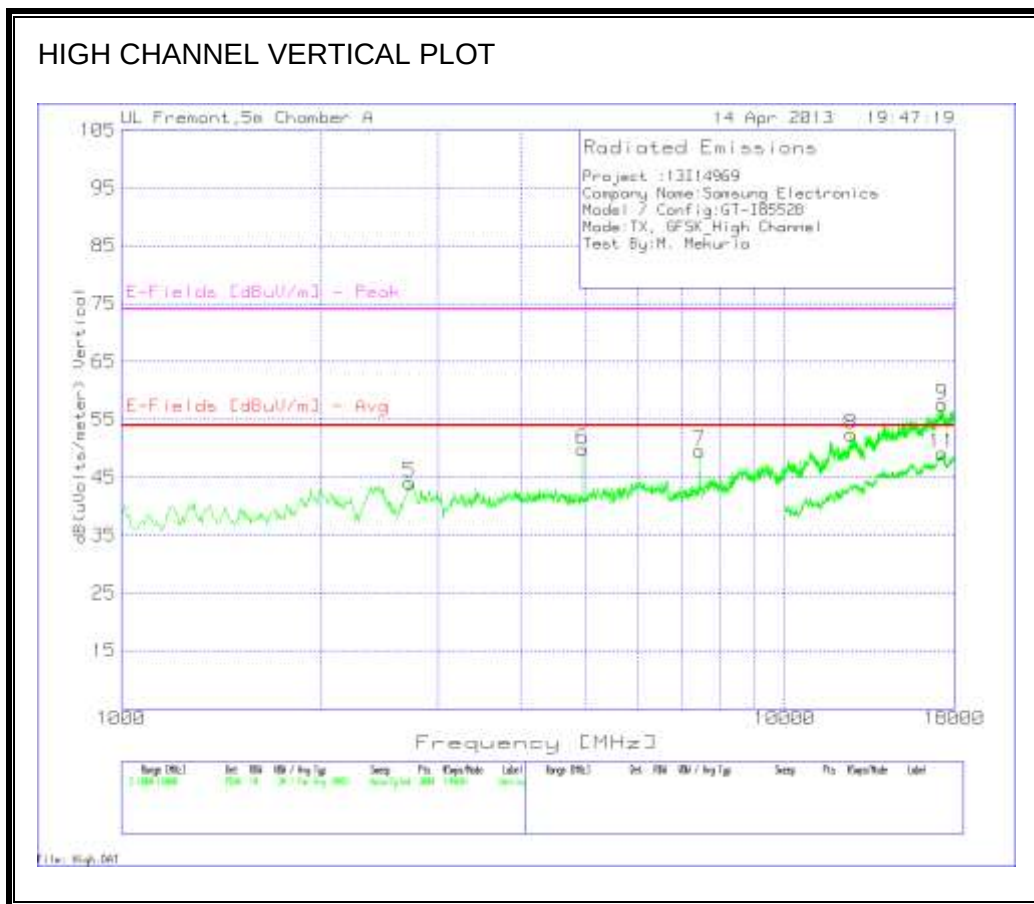
Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	2438.374	45.02	PK	32.3	-36.9	4.5	0.9	45.82	53.97	-8.15	74	-28.18	200	Vert
7	4879.081	45.86	PK	34	-35.7	6.8	0.2	51.16	53.97	-2.81	74	-22.84	100	Vert
8	7325.45	39.57	PK	35.3	-35.8	8.7	0.2	47.97	53.97	-6	74	-26.03	100	Vert
9	17858.428	35.29	PK	41.6	-34.9	14.4	0.6	56.99	53.97	3.02	74	-17.01	200	Vert
10	17132.434	27.64	PK	40.9	-34.2	14	0.5	48.84	53.97	-5.13	74	-25.16	100	Vert

PK - Peak detector

Av - Average detector



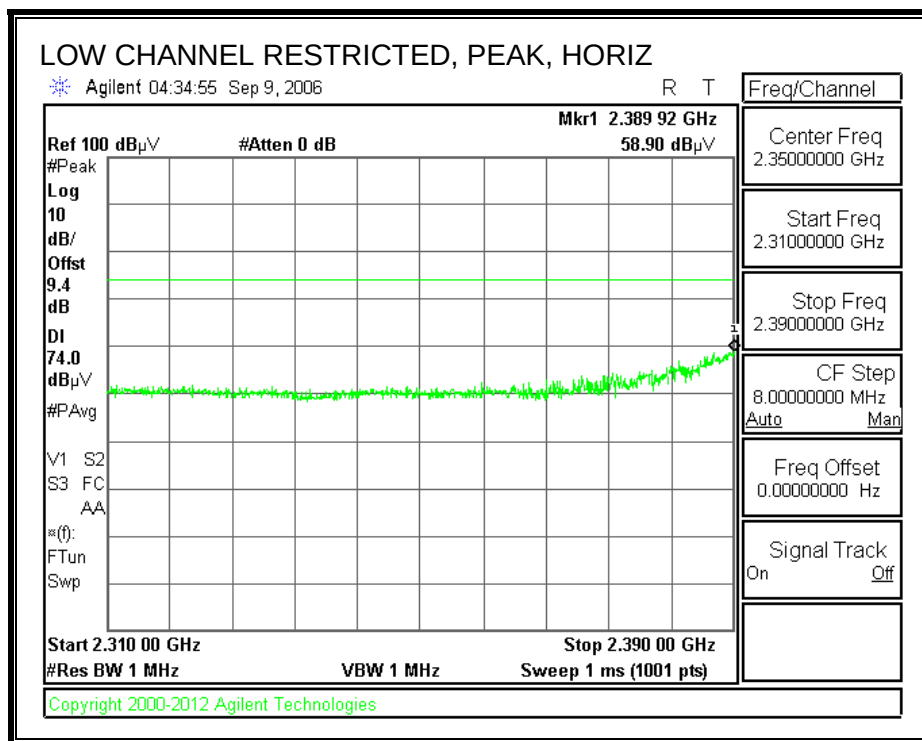


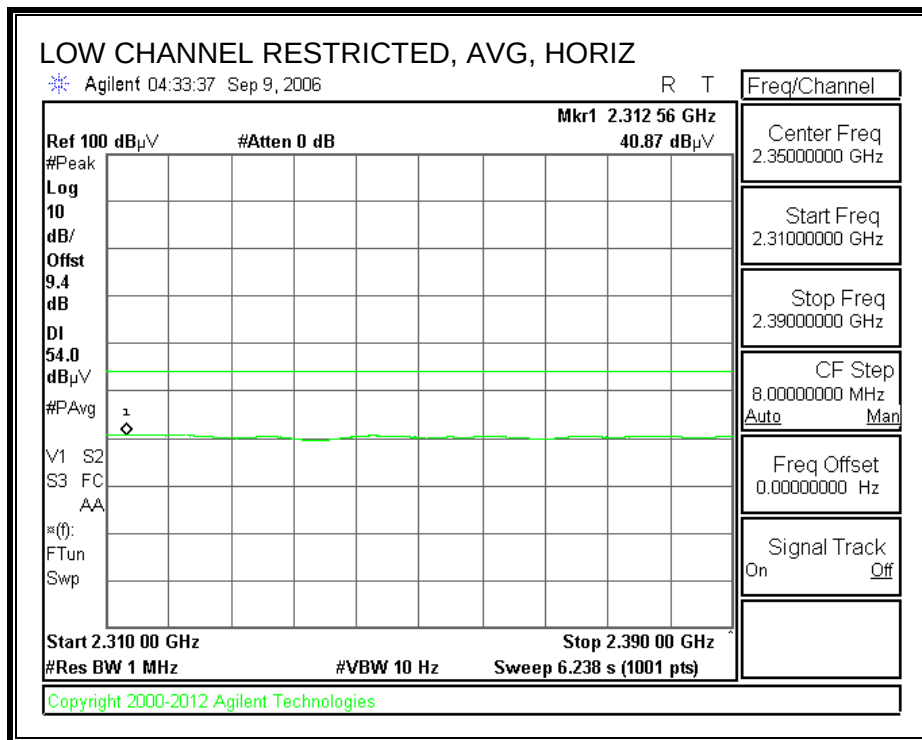
High Channel

Project :13I14969														
Company Name:Samsung Electronics														
Model / Config:GT-I8552B														
Mode:TX, GFSK_High Channel														
Test By:M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2427.049	43.58	PK	32.2	-36.9	4.5	0.9	44.28	53.97	-9.69	74	-29.72	200	Horz
2	4958.361	40.82	PK	33.9	-35.6	6.9	0.2	46.22	53.97	-7.75	74	-27.78	100	Horz
3	11810.46	36.78	PK	38.6	-35.7	11.3	0.7	51.68	53.97	-2.29	74	-22.32	200	Horz
4	17161.892	35.93	PK	40.9	-34.2	14.1	0.4	57.13	53.97	3.16	74	-16.87	100	Horz
5	17244.378	27.62	PK	40.9	-34.3	14.1	0.5	48.82	53.97	-5.15	74	-25.18	100	Horz
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	2721.519	42.47	PK	32.7	-36.8	4.8	0.9	44.07	53.97	-9.9	74	-29.93	100	Vert
7	4958.892	46.04	PK	33.9	-35.6	6.9	0.2	51.44	53.97	-2.53	74	-22.56	100	Vert
8	4958.892	36.28	Av	33.9	-35.6	6.9	0.2	41.68	53.97	-12.29	74	-32.32	100	Vert
9	7439.71	39.91	PK	35.4	-35.8	8.8	0.3	48.61	53.97	-5.36	74	-25.39	168	Vert
10	7439.98	29.22	Av	35.4	-35.8	8.8	0.3	37.92	53.97	-16.05	74	-36.08	168	Vert
11	12603.264	35.85	PK	39.2	-34.8	11.7	0.5	52.45	53.97	-1.52	74	-21.55	100	Vert
12	17258.161	36.18	PK	41	-34.3	14.1	0.6	57.58	53.97	3.61	74	-16.42	200	Vert
13	17256.372	27.73	PK	41	-34.3	14.1	0.6	49.13	53.97	-4.84	74	-24.87	200	Vert

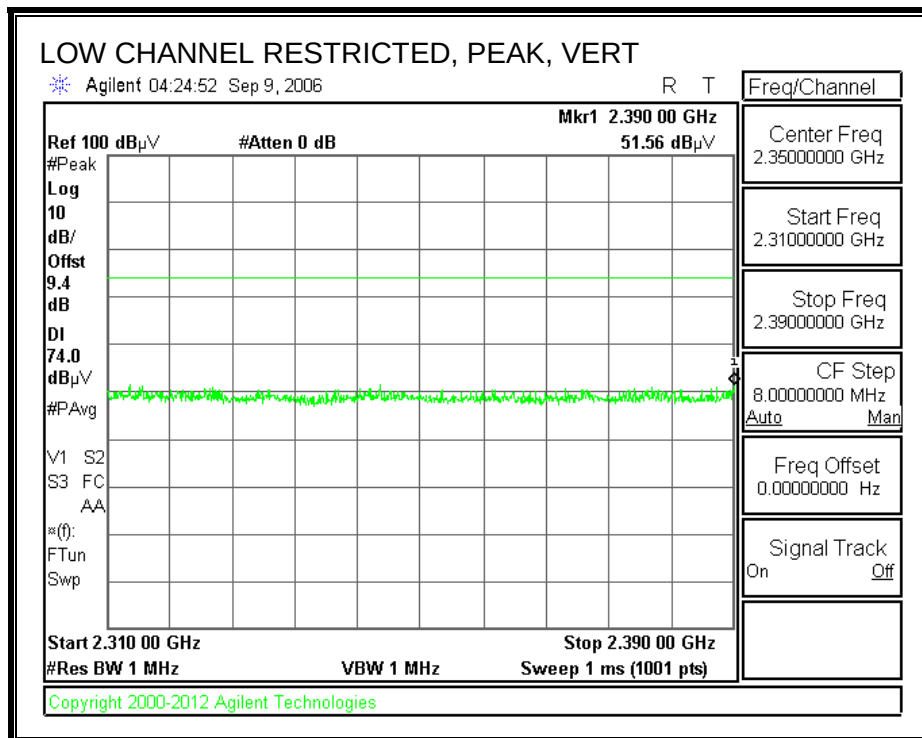
8.2.2. ENHANCED DATA RATE 8PSK MODULATION

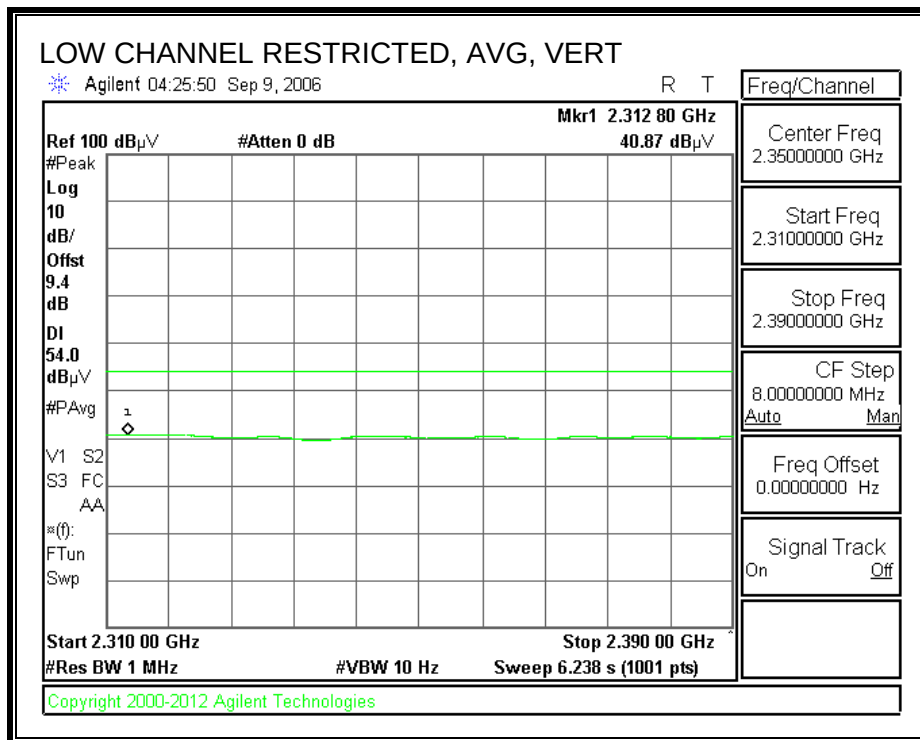
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



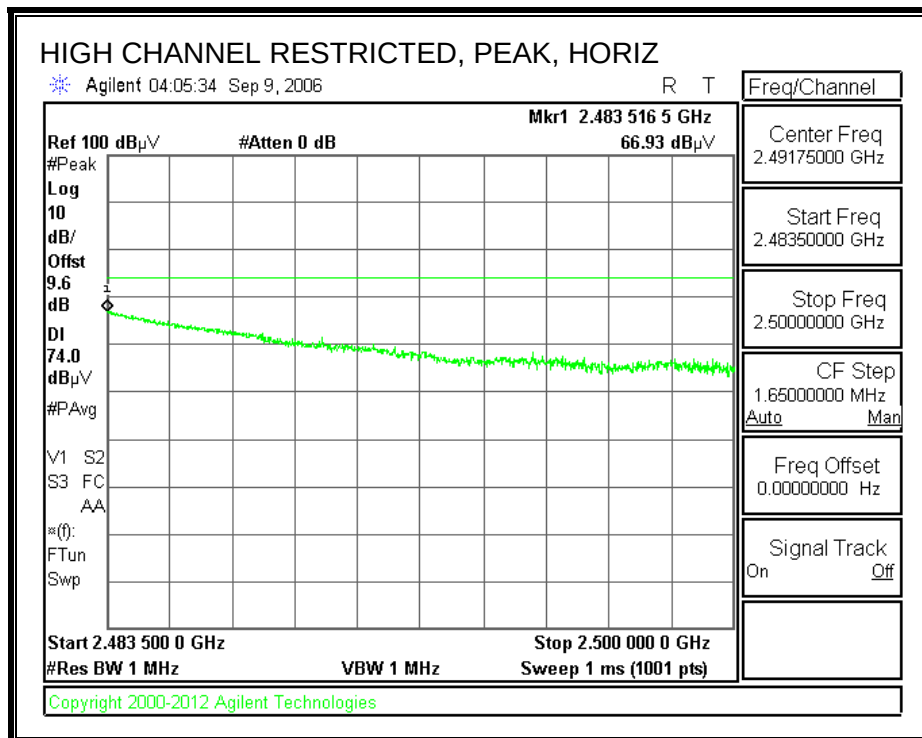


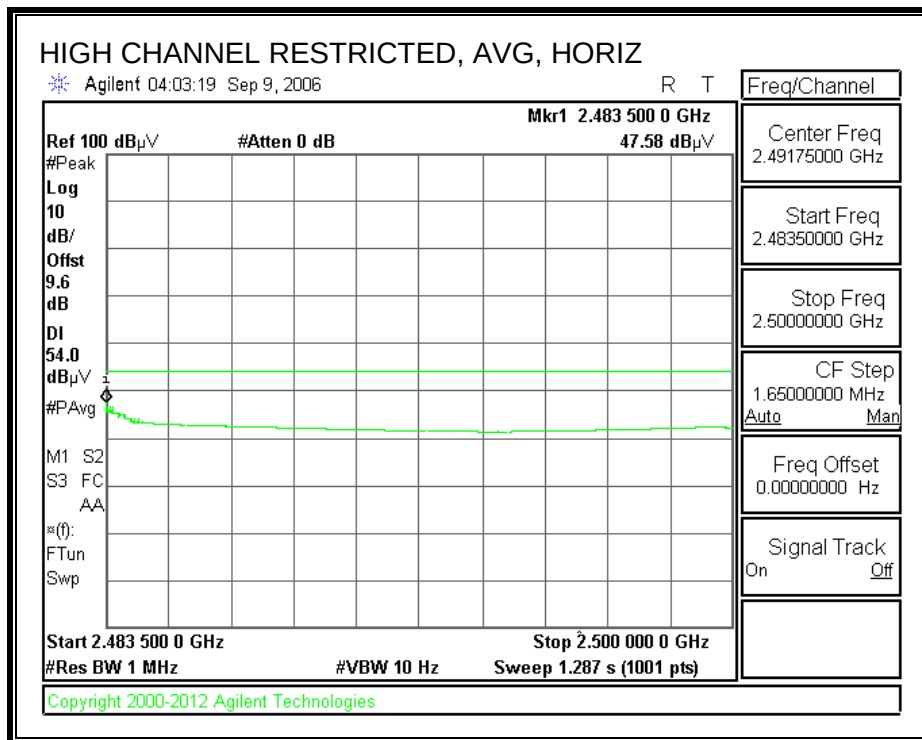
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



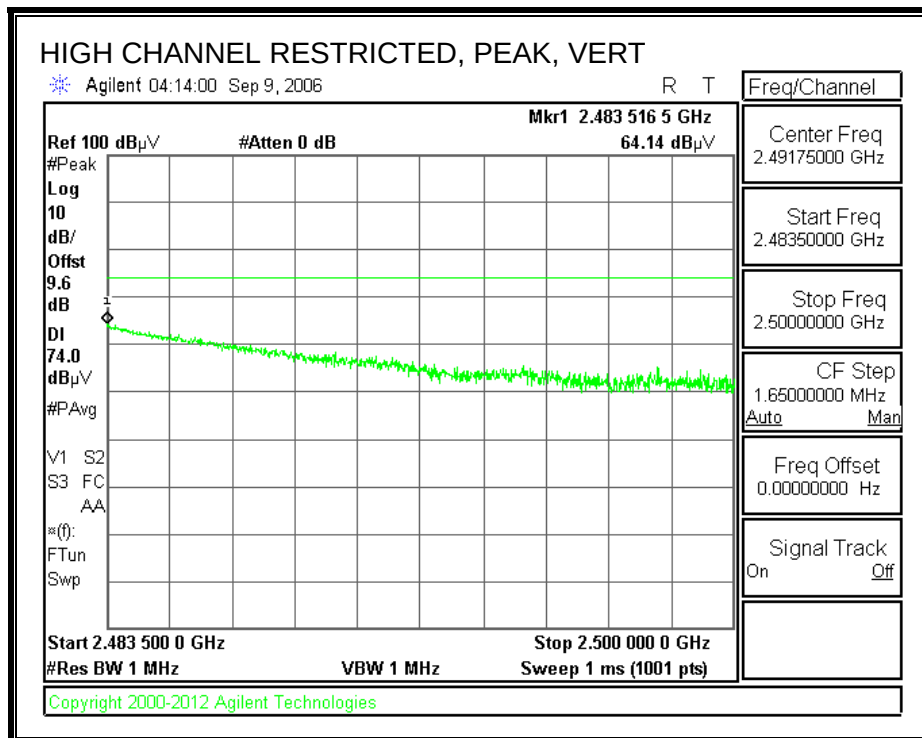


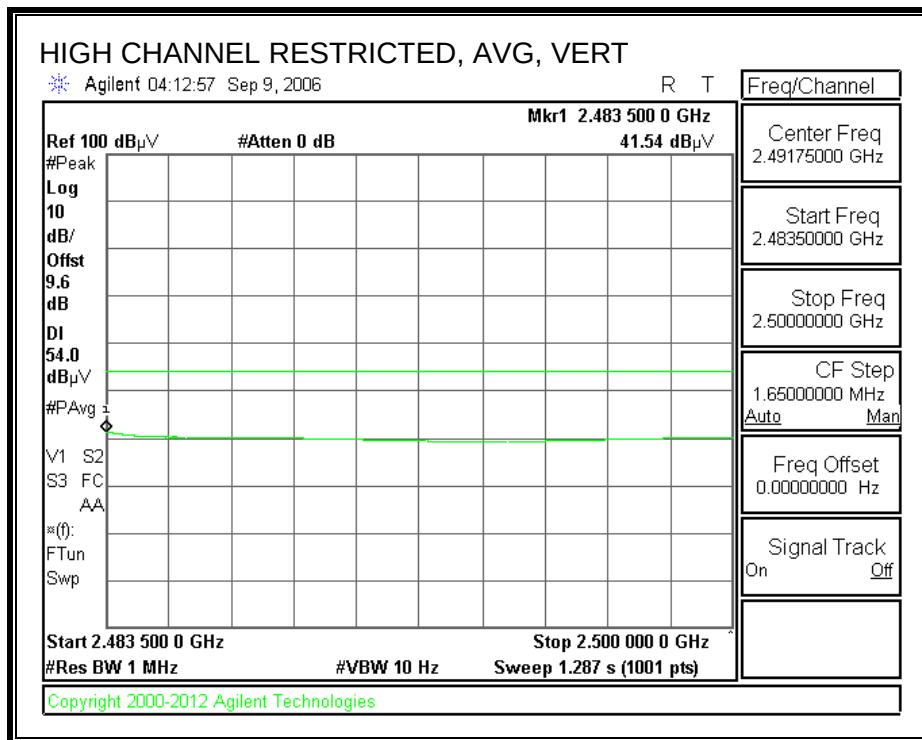
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





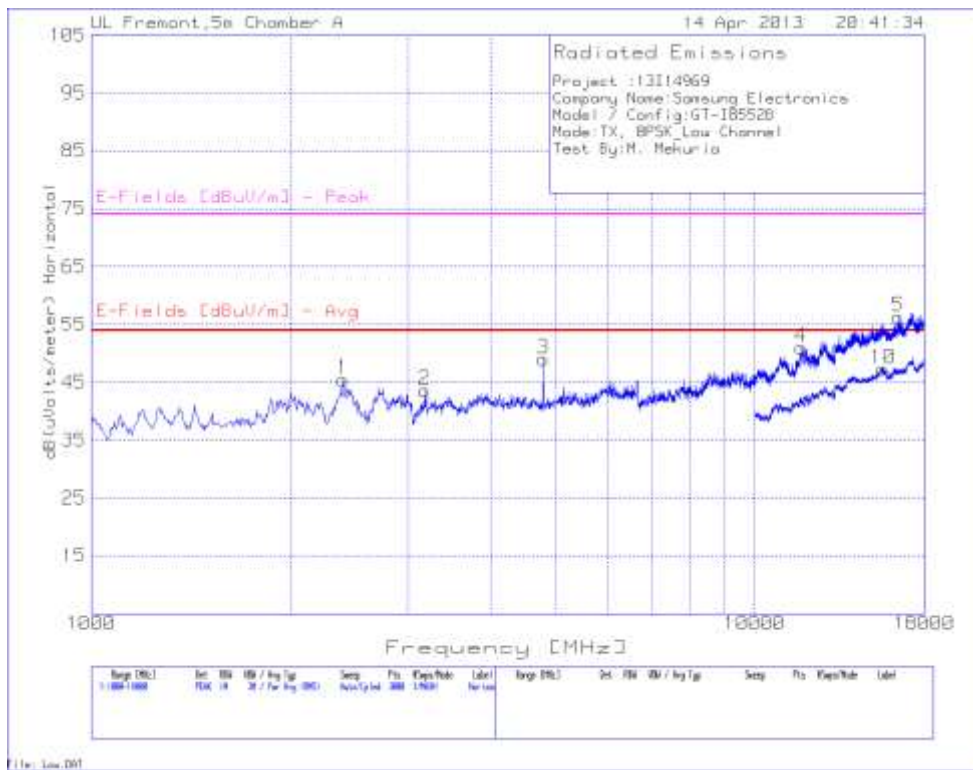
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



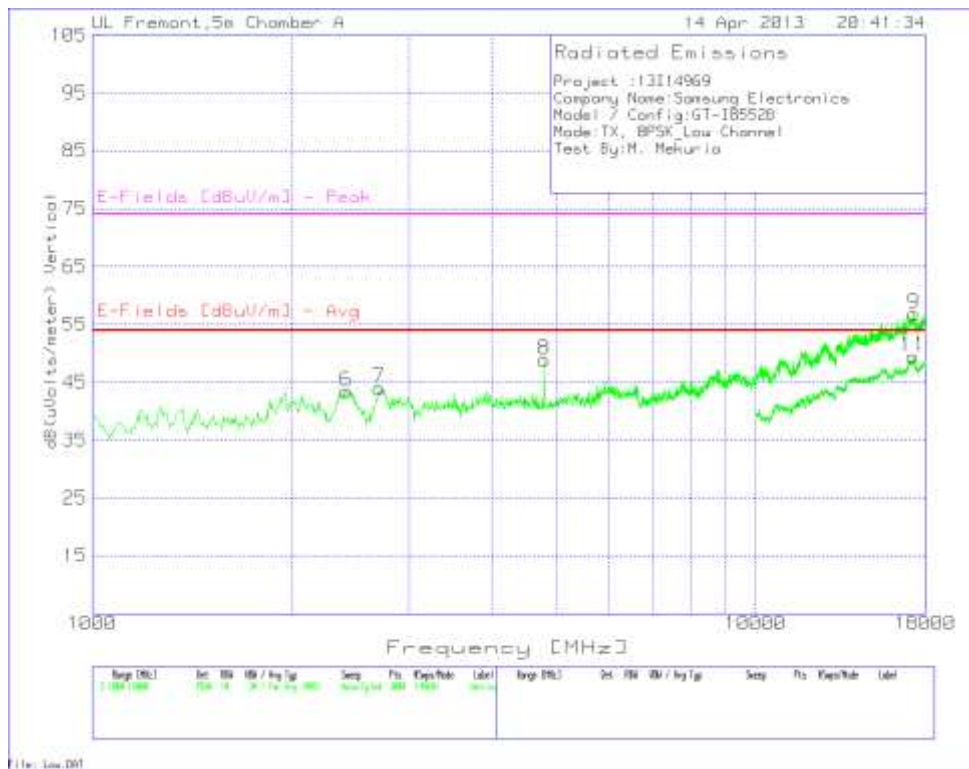


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



Low Channel

Project :13I14969

Company Name:Samsung Electronics

Model / Config:GT-I8552B

Mode:TX, 8PSK_Low Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2398.734	44.9	PK	32.1	-36.9	4.4	0.9	45.4	53.97	-8.57	74	-28.6	100	Horz
2	3185.876	41.02	PK	33.5	-36.6	5.2	0.5	43.62	53.97	-10.35	74	-30.38	200	Horz
3	4799.8	43.95	PK	33.9	-35.7	6.7	0.2	49.05	53.97	-4.92	74	-24.95	200	Horz
4	11753.831	36.05	PK	38.6	-35.7	11.3	0.7	50.95	53.97	-3.02	74	-23.05	200	Horz
5	16442.705	36.14	PK	40.8	-34.8	13.7	0.4	56.24	53.97	2.27	74	-17.76	100	Horz
10	15613.193	28.24	PK	40.5	-35.1	13.3	0.3	47.24	53.97	-6.73	74	-26.76	200	Horz

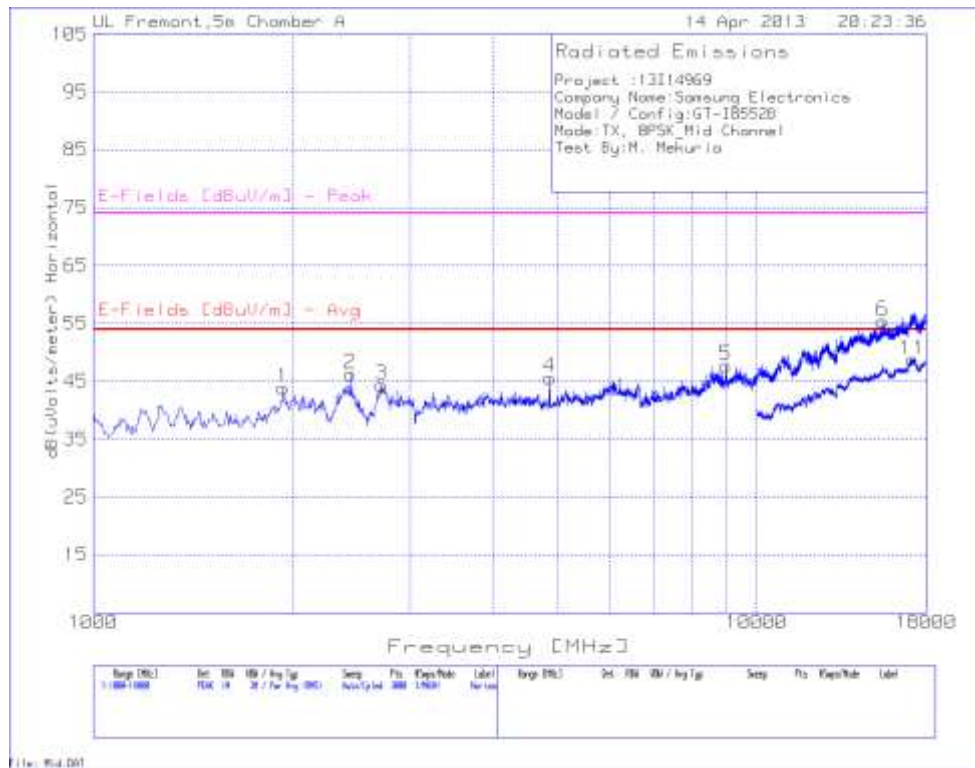
Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	2415.723	42.77	PK	32.2	-36.9	4.5	0.9	43.47	53.97	-10.5	74	-30.53	200	Vert
7	2704.53	42.55	PK	32.7	-36.8	4.7	0.9	44.05	53.97	-9.92	74	-29.95	200	Vert
8	4799.8	43.74	PK	33.9	-35.7	6.7	0.2	48.84	53.97	-5.13	74	-25.16	100	Vert
9	17303.464	35.53	PK	41	-34.4	14.1	0.6	56.83	53.97	2.86	74	-17.17	100	Vert
11	17264.368	27.97	PK	41	-34.3	14.1	0.6	49.37	53.97	-4.6	74	-24.63	100	Vert

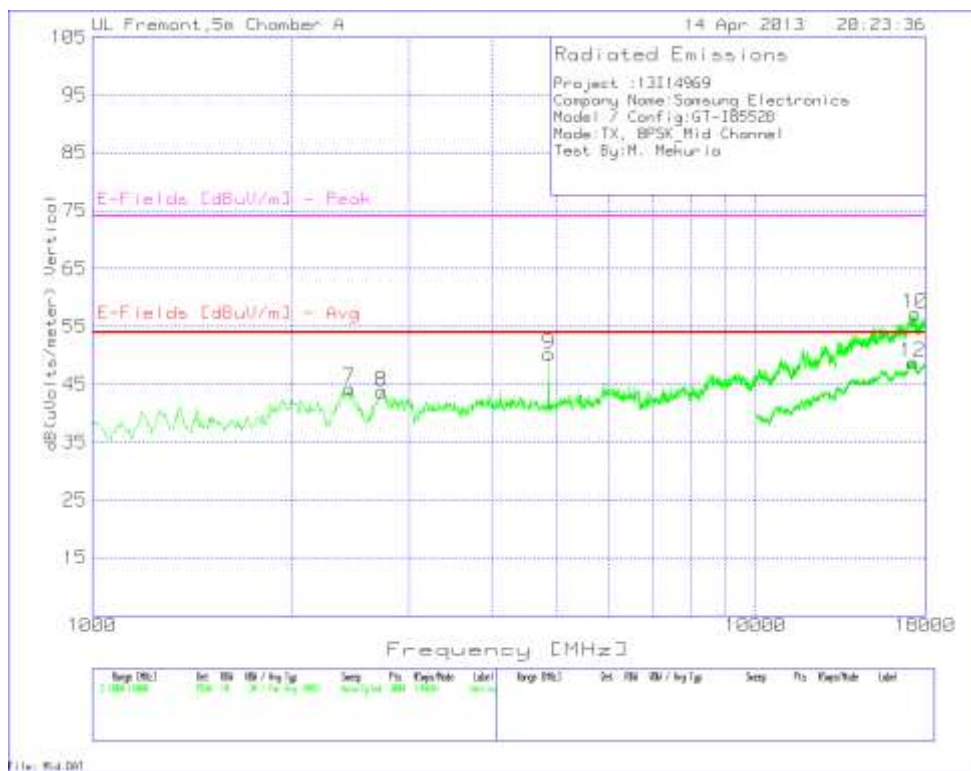
PK - Peak detector

QP - Quasi-Peak detector

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



Mid Channel

Project :13I14969

Company Name:Samsung Electronics

Model / Config:GT-I8552B

Mode:TX, 8PSK_Mid Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	1934.377	44.3	PK	31.8	-37.2	4	0.9	43.8	53.97	-10.17	74	-30.2	100	Horz
2	2438.374	45.48	PK	32.3	-36.9	4.5	0.9	46.28	53.97	-7.69	74	-27.72	100	Horz
3	2721.519	42.75	PK	32.7	-36.8	4.8	0.9	44.35	53.97	-9.62	74	-29.65	100	Horz
4	4879.081	40.29	PK	34	-35.7	6.8	0.2	45.59	53.97	-8.38	74	-28.41	100	Horz
5	8996.003	37.68	PK	35.9	-36.1	9.8	0.4	47.68	53.97	-6.29	74	-26.32	200	Horz
6	15502.665	36.24	PK	40.6	-35.1	13.2	0.4	55.34	53.97	1.37	74	-18.66	200	Horz
7	17188.406	27.49	PK	40.9	-34.3	14.1	0.5	48.69	53.97	-5.28	74	-25.31	100	Horz

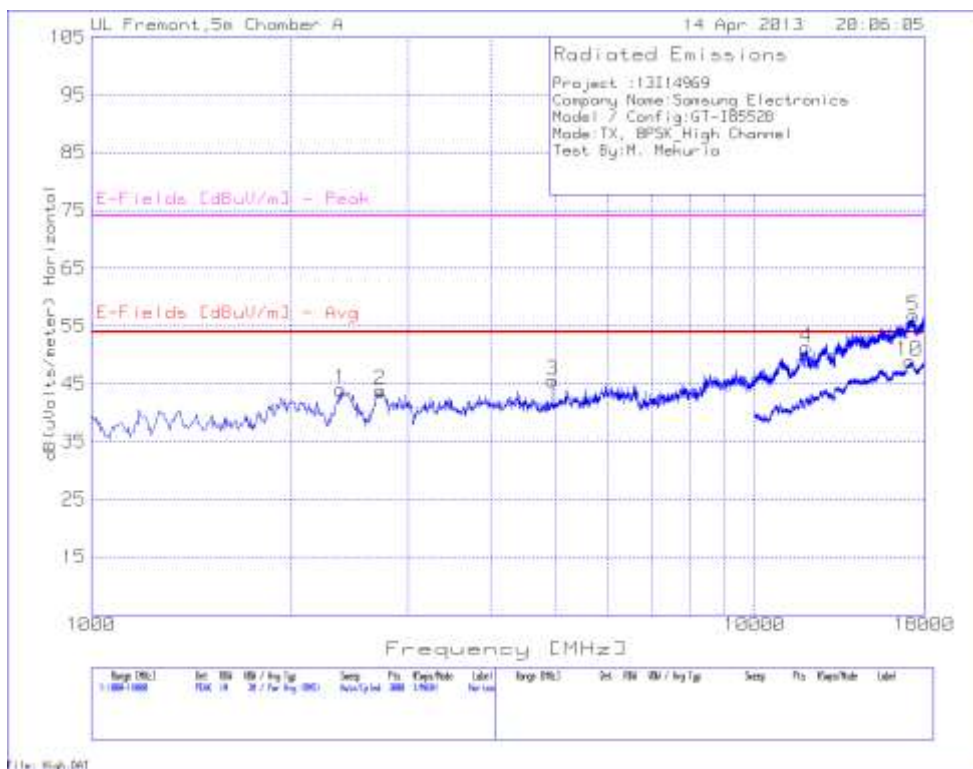
Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	2438.374	43.5	PK	32.3	-36.9	4.5	0.9	44.3	53.97	-9.67	74	-29.7	200	Vert
9	2732.845	42.18	PK	32.7	-36.8	4.8	0.9	43.78	53.97	-10.19	74	-30.22	100	Vert
10	4879.081	44.92	PK	34	-35.7	6.8	0.2	50.22	53.97	-3.75	74	-23.78	100	Vert
11	17388.408	36.04	PK	40.9	-34.5	14.2	0.6	57.24	53.97	3.27	74	-16.76	200	Vert
12	17272.364	27.44	PK	41	-34.3	14.1	0.5	48.74	53.97	-5.23	74	-25.26	200	Vert

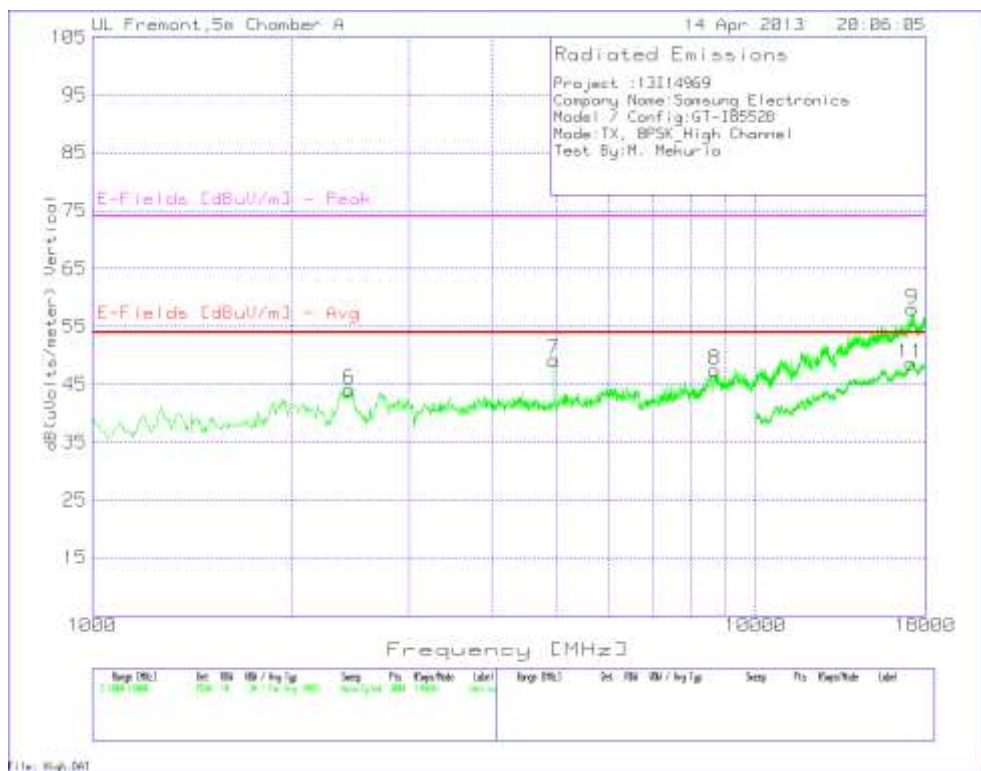
PK - Peak detector

Av - Average detector

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT

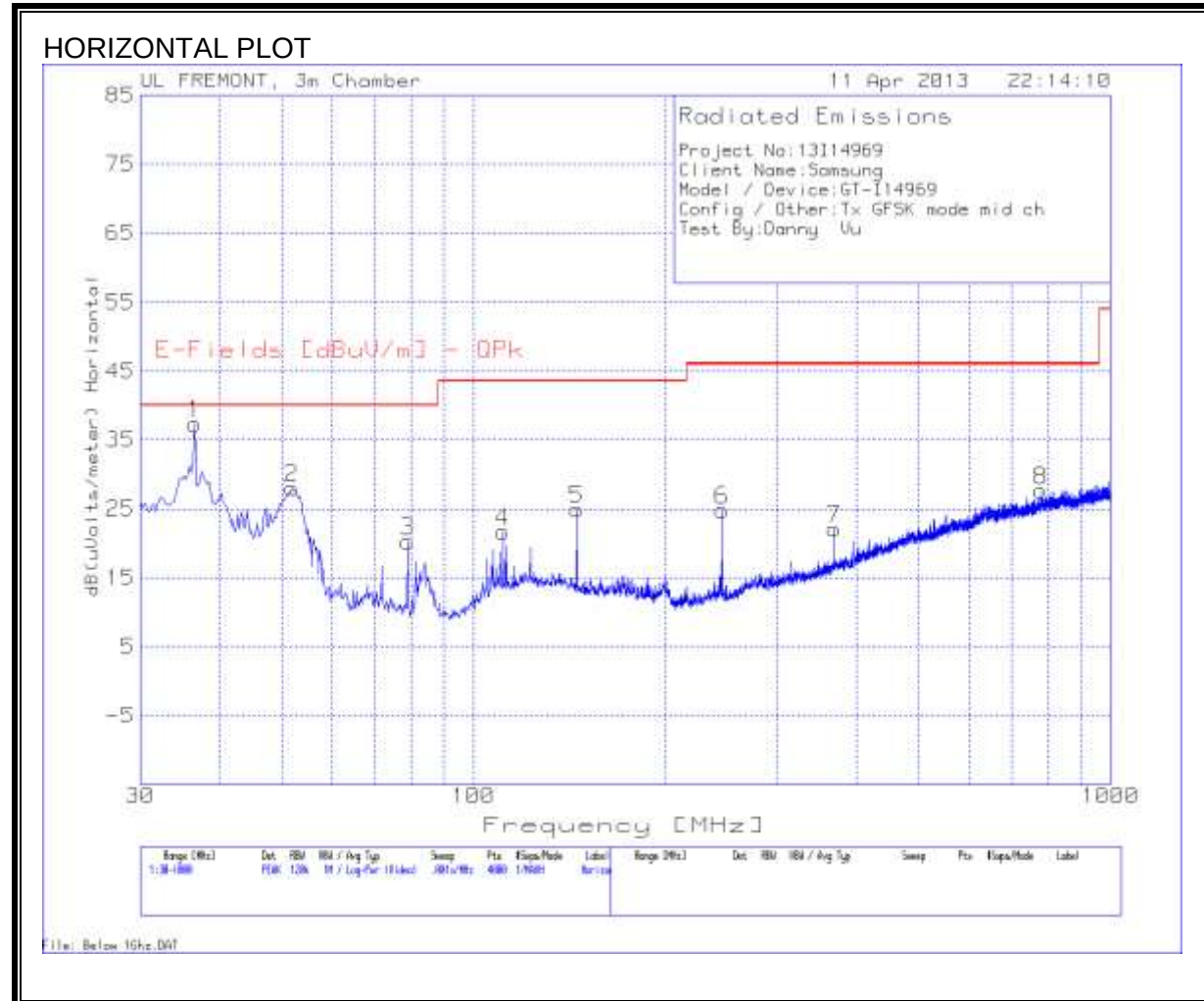


High Channel

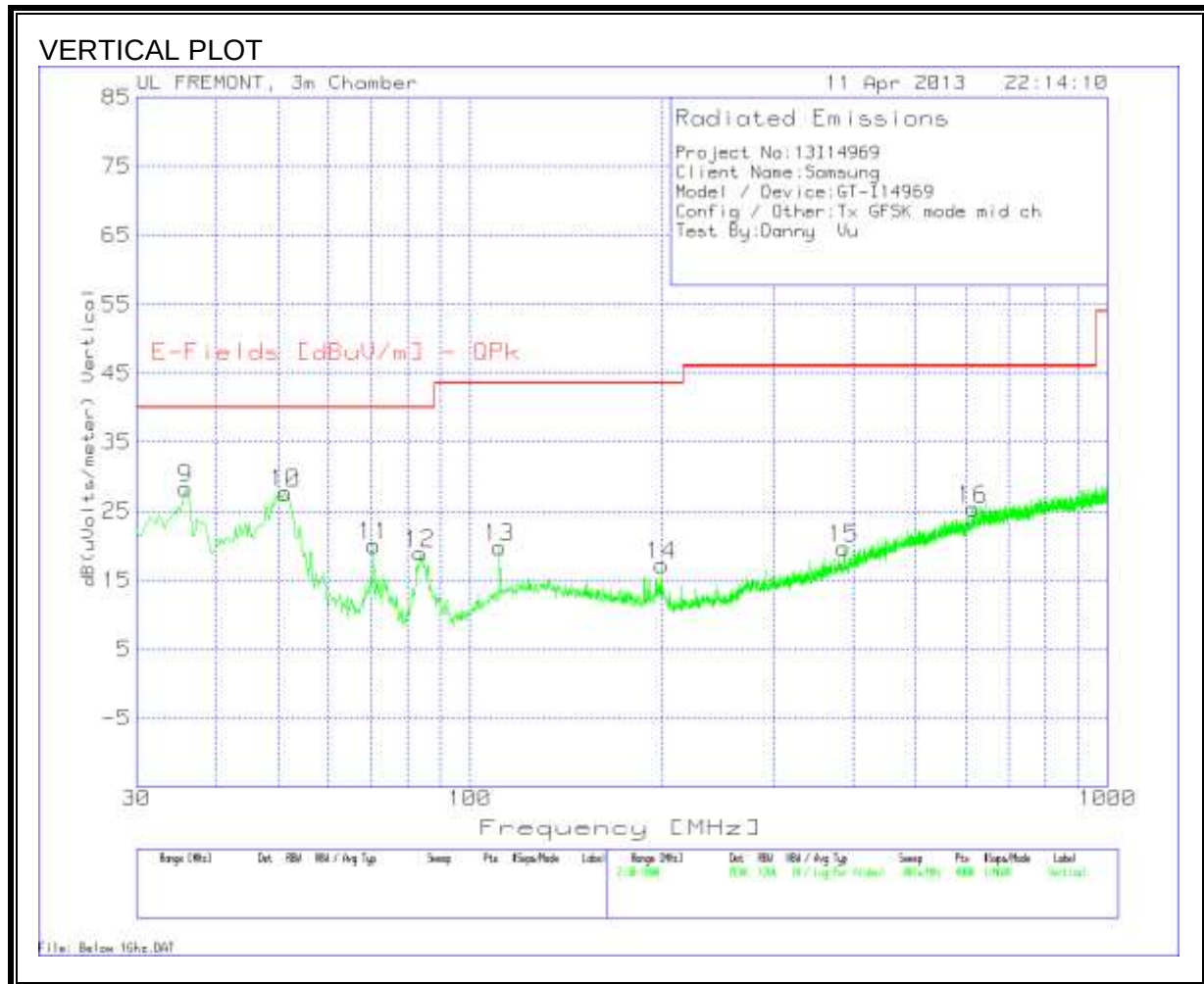
Project :13I14969														
Company Name:Samsung Electronics														
Model / Config:GT-I8552B														
Mode:TX, 8PSK_High Channel														
Test By:M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2376.083	43.56	PK	32	-36.9	4.4	0.9	43.96	53.97	-10.01	74	-30.04	100	Horz
2	2727.182	42.28	PK	32.7	-36.8	4.8	0.9	43.88	53.97	-10.09	74	-30.12	200	Horz
3	4958.361	40.19	PK	33.9	-35.6	6.9	0.2	45.59	53.97	-8.38	74	-28.41	100	Horz
4	11974.684	36.43	PK	38.8	-35.7	11.4	0.4	51.33	53.97	-2.64	74	-22.67	100	Horz
5	17348.767	35.66	PK	41	-34.4	14.1	0.4	56.76	53.97	2.79	74	-17.24	200	Horz
10	17148.426	27.63	PK	40.9	-34.2	14	0.5	48.83	53.97	-5.14	74	-25.17	200	Horz
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
6	2444.037	43.38	PK	32.3	-36.9	4.5	0.9	44.18	53.97	-9.79	74	-29.82	100	Vert
7	4958.361	43.79	PK	33.9	-35.6	6.9	0.2	49.19	53.97	-4.78	74	-24.81	100	Vert
8	8690.207	37.62	PK	35.8	-36	9.6	0.4	47.42	53.97	-6.55	74	-26.58	200	Vert
9	17235.51	36.8	PK	40.9	-34.3	14.1	0.5	58	53.97	4.03	74	-16	200	Vert
11	17144.428	27.36	PK	40.9	-34.2	14	0.5	48.56	53.97	-5.41	74	-25.44	100	Vert
PK - Peak detector														
Av - Average detector														

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)



HORIZONTAL AND VERTICAL DATA

Project No:13I14969										
Client Name:Samsung										
Model / Device:GT-I14969										
Config / Other:Tx GFSK mode mid ch										
Test By:Danny Vu										
Horizontal 30 - 1000MHz										
Marker No.	Test Frequency	Meter Reading	Detector	T130 Ant Factor [dB/m]	T64 preamp/cable loss [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
1	36.5426	48.78	PK	16.2	-27.6	37.38	40	-2.62	99	Horz
2	51.8086	48.5	PK	7	-27.4	28.1	40	-11.9	201	Horz
3	78.9483	39.94	PK	7.5	-27.2	20.24	40	-19.76	201	Horz
4	111.4189	35.69	PK	12.8	-26.8	21.69	43.52	-21.83	99	Horz
5	145.3435	38.82	PK	12.8	-26.7	24.92	43.52	-18.6	99	Horz
6	245.6633	39.19	PK	11.5	-25.9	24.79	46.02	-21.23	99	Horz
7	368.5186	32.47	PK	15	-25.4	22.07	46.02	-23.95	99	Horz
8	779.7327	28.9	PK	21.4	-22.6	27.7	46.02	-18.32	301	Horz
Vertical 30 - 1000MHz										
Marker No.	Test Frequency	Meter Reading	Detector	T130 Ant Factor [dB/m]	T64 preamp/cable loss [dB]	dB(uVolts/meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
9	35.8156	39.14	PK	16.8	-27.6	28.34	40	-11.66	201	Vert
10	51.324	47.98	PK	7.1	-27.4	27.68	40	-12.32	201	Vert
11	70.7095	39.24	PK	8	-27.2	20.04	40	-19.96	300	Vert
12	83.5523	38.84	PK	7.2	-27.1	18.94	40	-21.06	201	Vert
13	111.4189	33.8	PK	12.8	-26.8	19.8	43.52	-23.72	300	Vert
14	199.8651	30.6	PK	12.8	-26.2	17.2	43.52	-26.32	201	Vert
15	386.4502	29.83	PK	15.1	-25.3	19.63	46.02	-26.39	400	Vert
16	615.4409	29.59	PK	19.1	-23.4	25.29	46.02	-20.73	400	Vert
PK - Peak detector										
Av - Average detector										

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

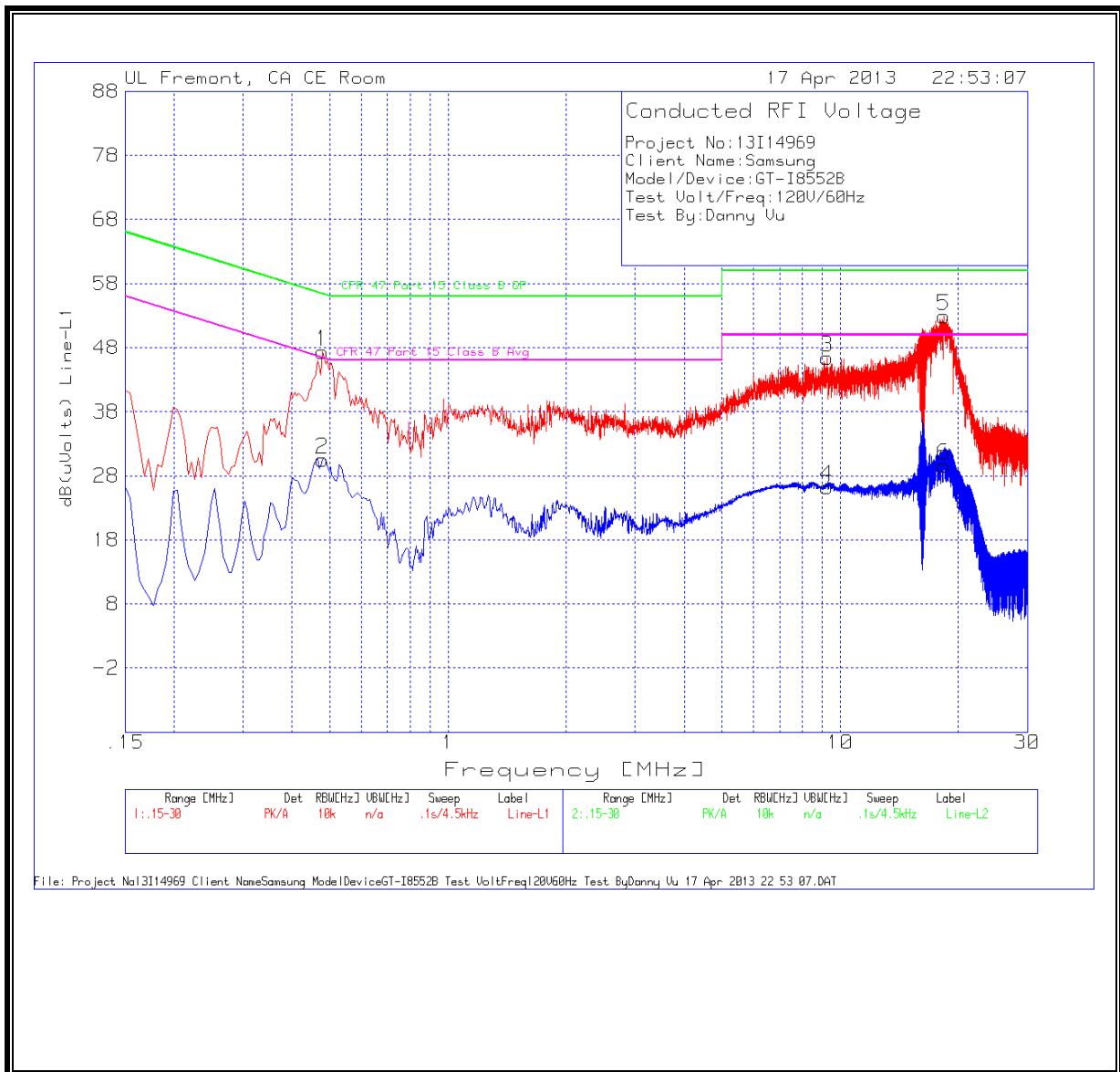
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project No:13I14969									
Client Name:Samsung									
Model/Device:GT-I8552B									
Test Volt/Freq:120V/60Hz									
Test By:Danny Vu									
Line-L1 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CFR 47 Part 15 Class B QP	Margin	CFR 47 Part 15 Class B Avg	Margin
0.4785	47.26	PK	0.1	0	47.36	56.4	-9.04	-	-
0.4785	30.41	Av	0.1	0	30.51	-	-	46.4	-15.89
9.2535	46.2	PK	0.1	0.1	46.4	60	-13.6	-	-
9.2535	26.02	Av	0.1	0.1	26.22	-	-	50	-23.78
18.402	52.52	PK	0.2	0.2	52.92	60	-7.08	-	-
18.402	29.28	Av	0.2	0.2	29.68	-	-	50	-20.32
Line-L2 .15 - 30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L2.TXT (dB)	LC Cables 2&3.TXT (dB)	dB(uVolts)	CFR 47 Part 15 Class B QP	Margin	CFR 47 Part 15 Class B Avg	Margin
0.4605	31.83	PK	0.1	0	31.93	56.7	-24.77	-	-
0.4605	17.95	Av	0.1	0	18.05	-	-	46.7	-28.65
0.7215	25.74	PK	0.1	0	25.84	56	-30.16	-	-
0.7215	11.73	Av	0.1	0	11.83	-	-	46	-34.17
19.2525	53.05	PK	0.3	0.2	53.55	60	-6.45	-	-
19.2525	27.47	Av	0.3	0.2	27.97	-	-	50	-22.03
PK - Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS

