



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

**GT-S7273T~802.11 bgn 1x1+ BT4.0 +basic rates +EDR+GSM/WCDMA850/1900MHz
Bar phone**

MODEL NUMBER: GT-S7273T

FCC ID: A3LGTS7273T

REPORT NUMBER: 13I15168-5, REVISION A

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Prepared for
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NVLAP LAB CODE 200065-0

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT	7
5.2. MAXIMUM OUTPUT POWER	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.4. SOFTWARE AND FIRMWARE	7
5.5. WORST-CASE CONFIGURATION AND MODE	8
5.6. DESCRIPTION OF TEST SETUP	9
6. TEST AND MEASUREMENT EQUIPMENT	12
7. ANTENNA PORT TEST RESULTS	13
7.1.1. 20 dB BANDWIDTH	13
7.1.2. HOPPING FREQUENCY SEPARATION	16
7.1.3. NUMBER OF HOPPING CHANNELS	18
7.1.4. AVERAGE TIME OF OCCUPANCY	21
7.1.5. OUTPUT POWER	25
7.1.6. AVERAGE POWER	29
7.1.7. CONDUCTED SPURIOUS EMISSIONS	30
7.2. ENHANCED DATA RATE 8PSK MODULATION	35
7.2.1. 20 dB BANDWIDTH	35
7.2.2. HOPPING FREQUENCY SEPARATION	38
7.2.3. NUMBER OF HOPPING CHANNELS	40
7.2.4. AVERAGE TIME OF OCCUPANCY	42
7.2.5. OUTPUT POWER	46
7.2.6. AVERAGE POWER	49
7.2.7. CONDUCTED SPURIOUS EMISSIONS	50
8. RADIATED TEST RESULTS	55
8.1. LIMITS AND PROCEDURE	55
8.2. TRANSMITTER ABOVE 1 GHz	56
8.2.1. BASIC DATA RATE GFSK MODULATION	56
8.2.2. ENHANCED DATA RATE 8PSK MODULATION	69
8.3. WORST-CASE BELOW 1 GHz	82

9. AC POWER LINE CONDUCTED EMISSIONS.....	85
10. SETUP PHOTOS	89

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-S7273T~802.11 bgn 1x1+ BT4.0 +basic rates
+EDR+GSM/WCDMA850/1900MHz Bar phone

MODEL: GT-S7273T

SERIAL NUMBER: (CONDUCTED) 4D05C26B05D13000
(RADIATED) 4D05E6BE77523000

DATE TESTED: May 15 to May 17, 2013

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

UL 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
WISE ENGINEER
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:

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

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

BAR PHONE WITH BLUETOOTH

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	12.55	17.99
2402 - 2480	Enhanced 8PSK	12.34	17.14

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 0.51 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was rev. 1.0.

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

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	ETA3U30IBE	DW2C710DS15	N/A
Headset	Samsung	GT-C33221	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	USB	Shielded	1.0	N/A

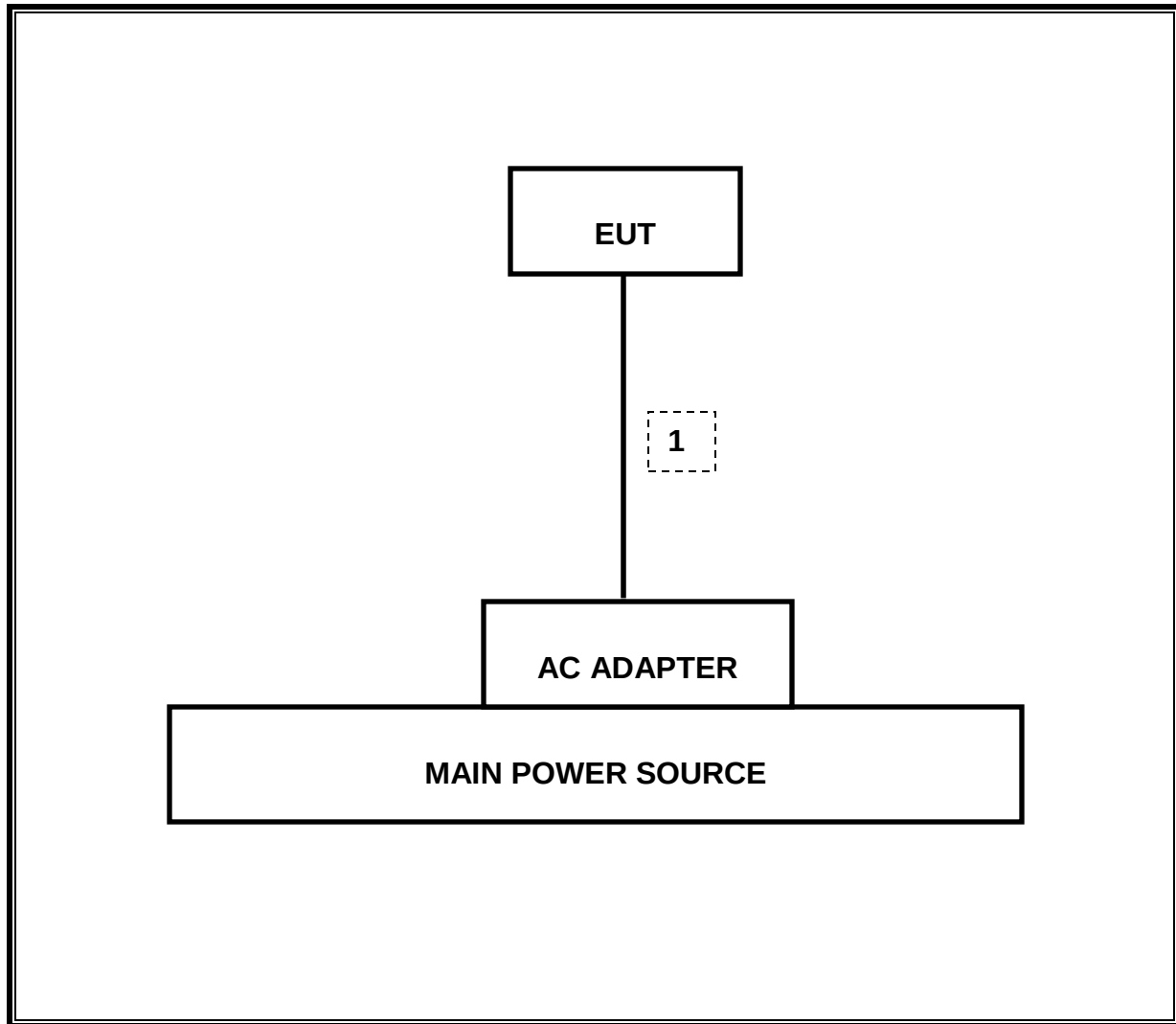
I/O CABLES (RADIATED SETUP)

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

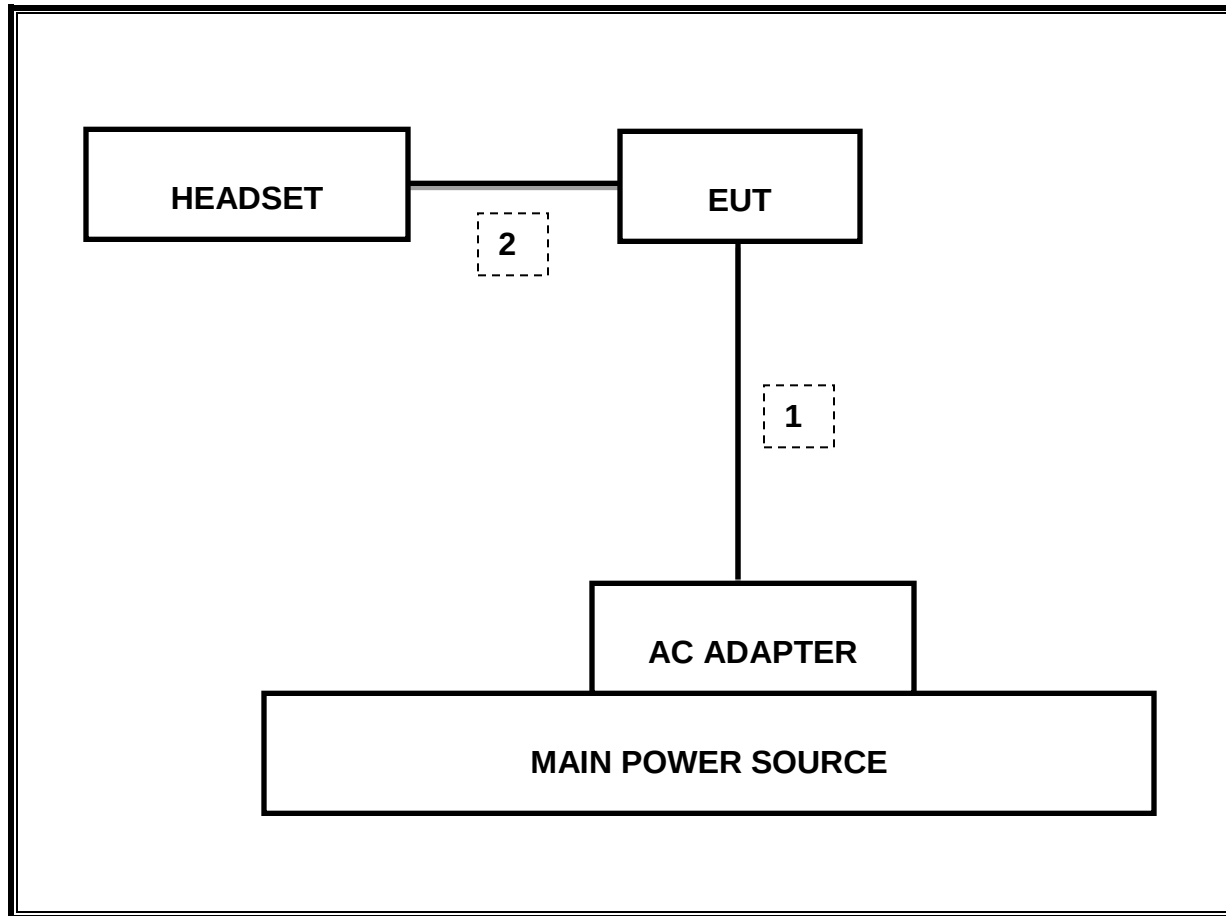
TEST SETUP

The EUT is with an AC adapter that was tested in the worst case orientation and configuration, where applicable, during the tests. Test software exercised the radio.

SETUP DIAGRAM FOR TESTS (CONDUCTED SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED 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
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	03/28/14
Antenna, Horn, 18 GHz	ETS	3117	C01006	12/11/13
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/13
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/13
CBT Bluetooth Tester	R & S	CBT	None	04/11/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/13
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/14
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	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.

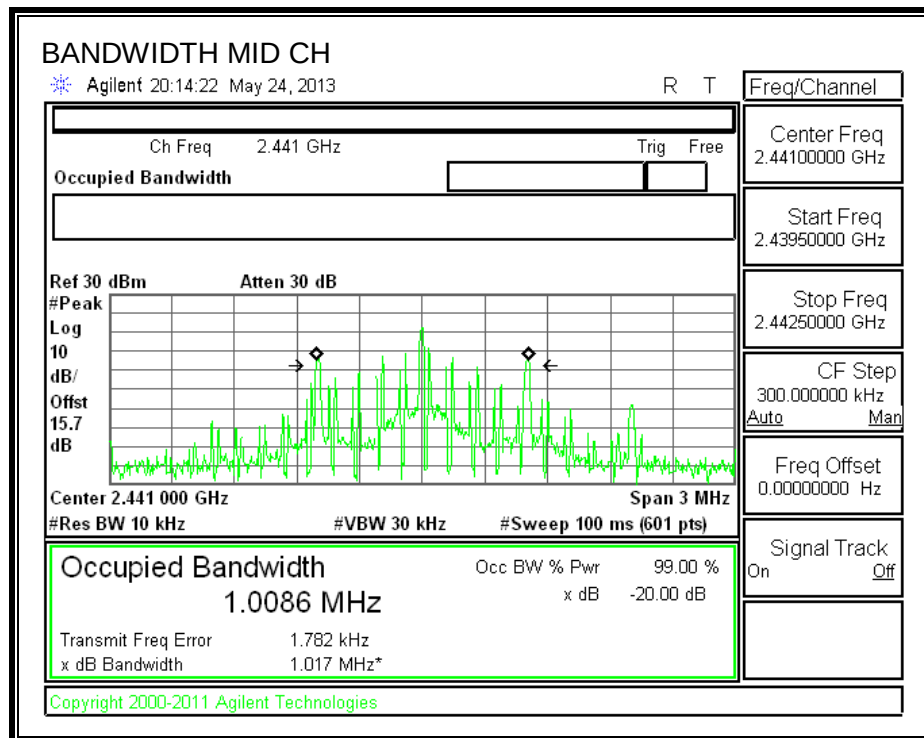
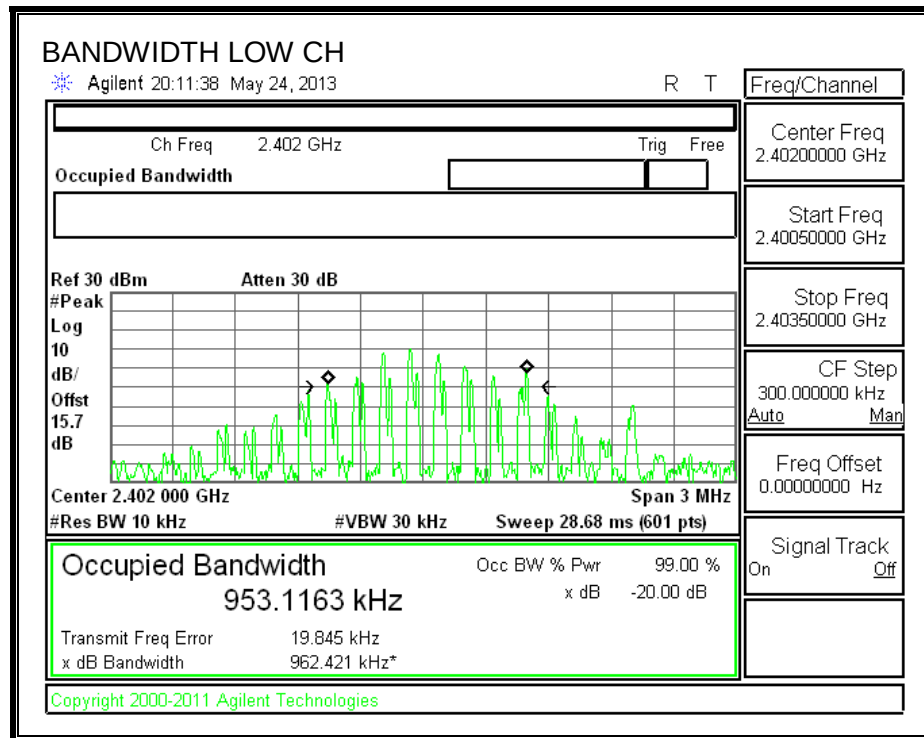
TEST PROCEDURE

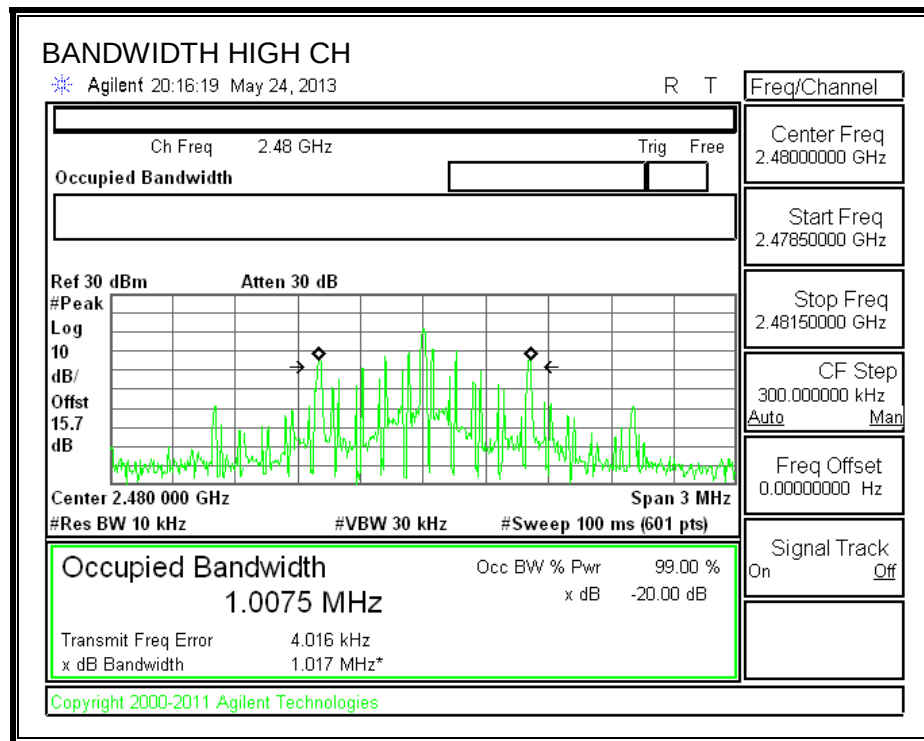
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	2402	962.42
Middle	2441	1017.00
High	2480	1017.00

20 dB 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.

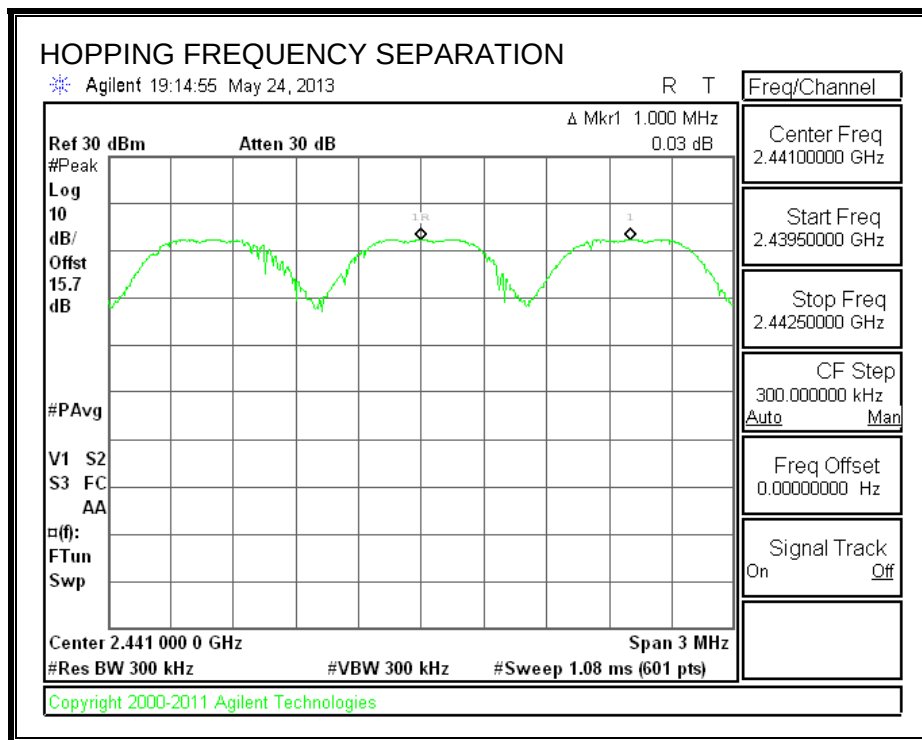
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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



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.

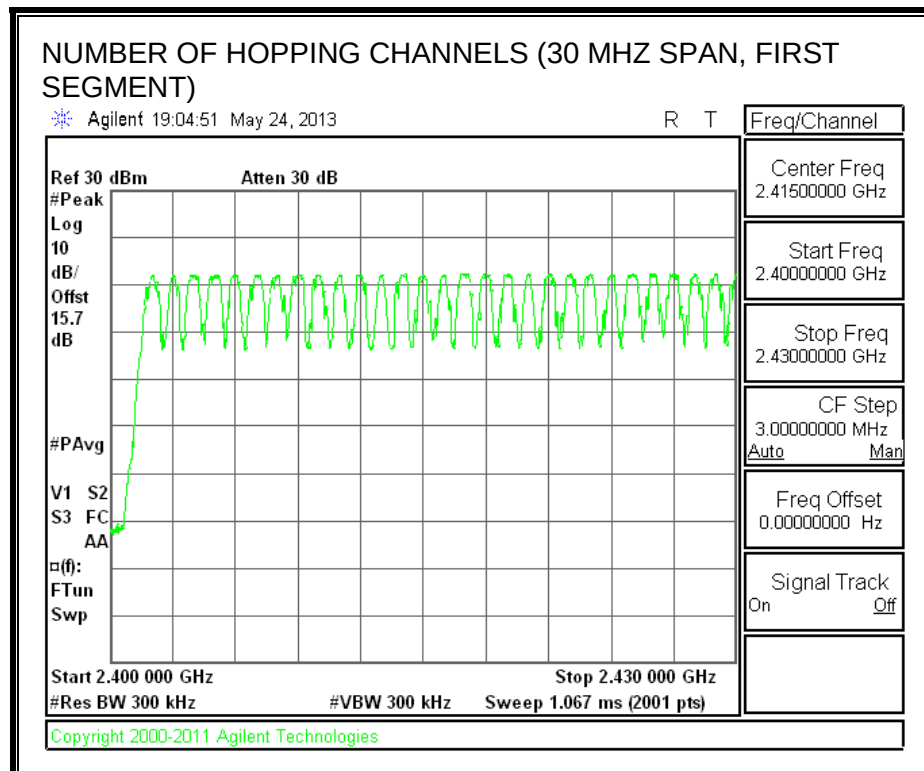
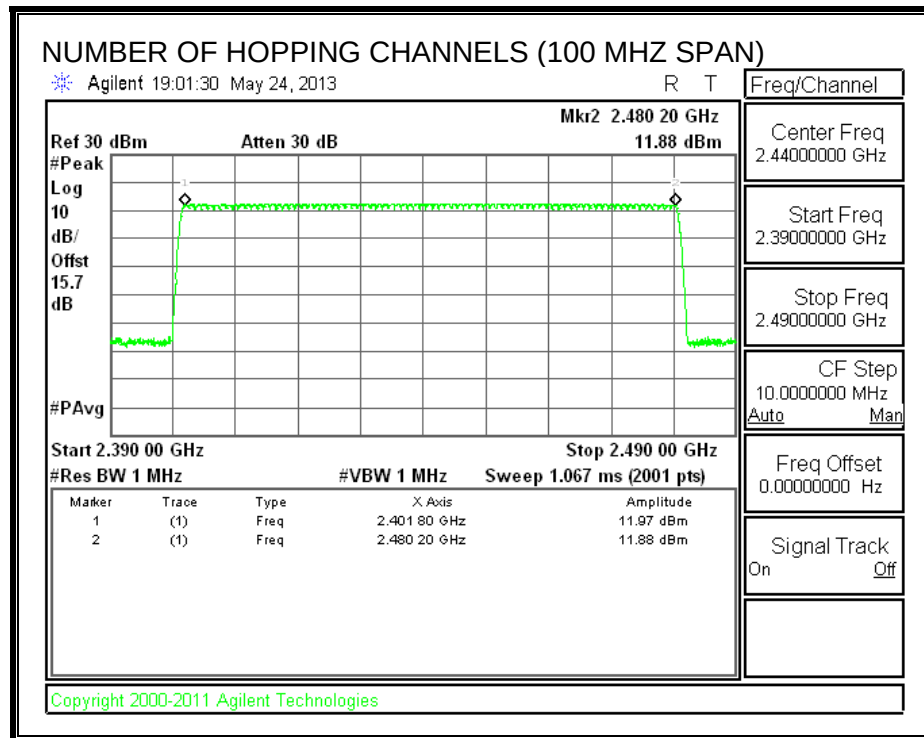
TEST PROCEDURE

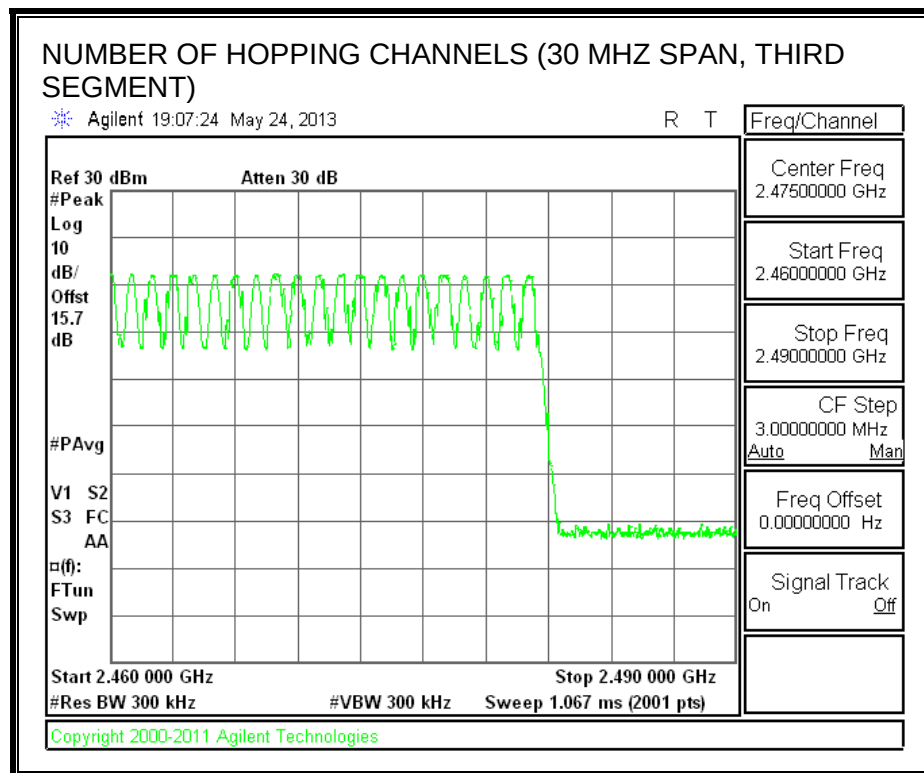
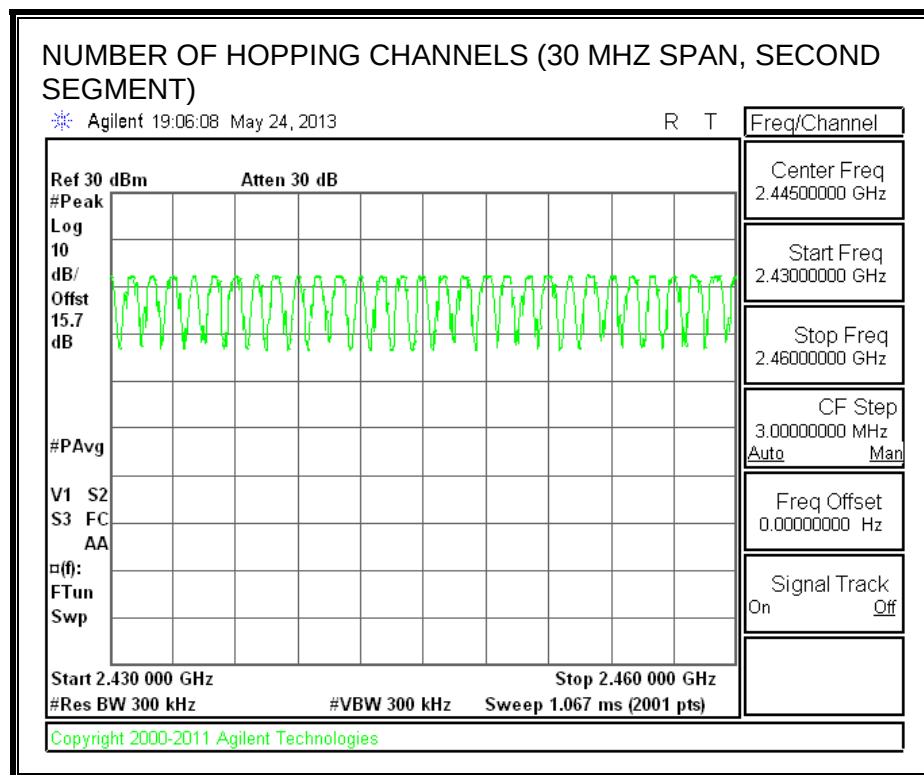
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

Normal Mode: 77 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.

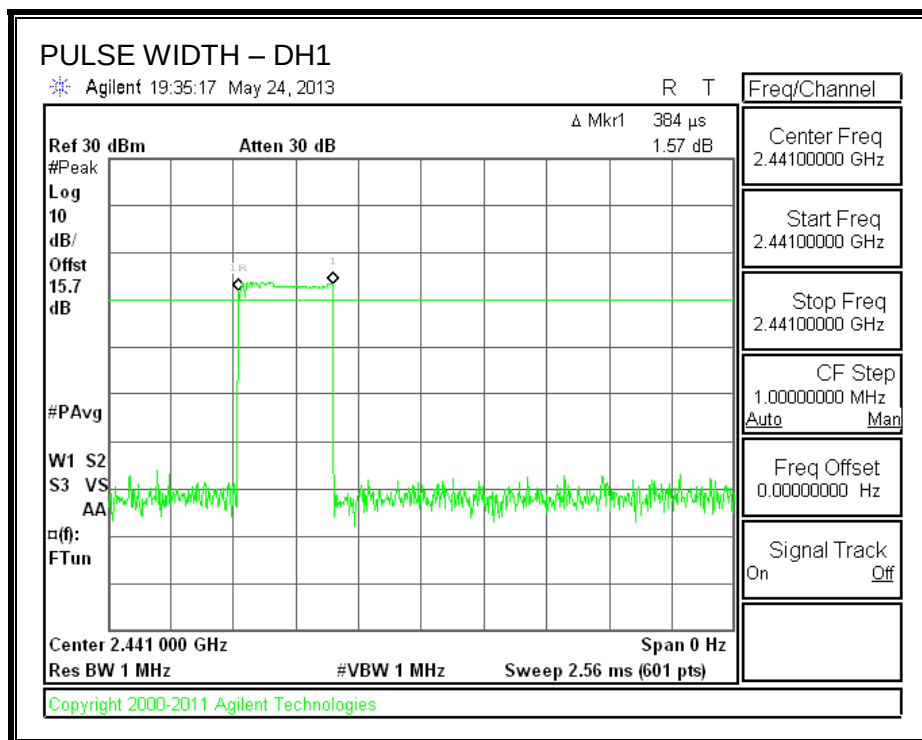
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{pulse width}$.

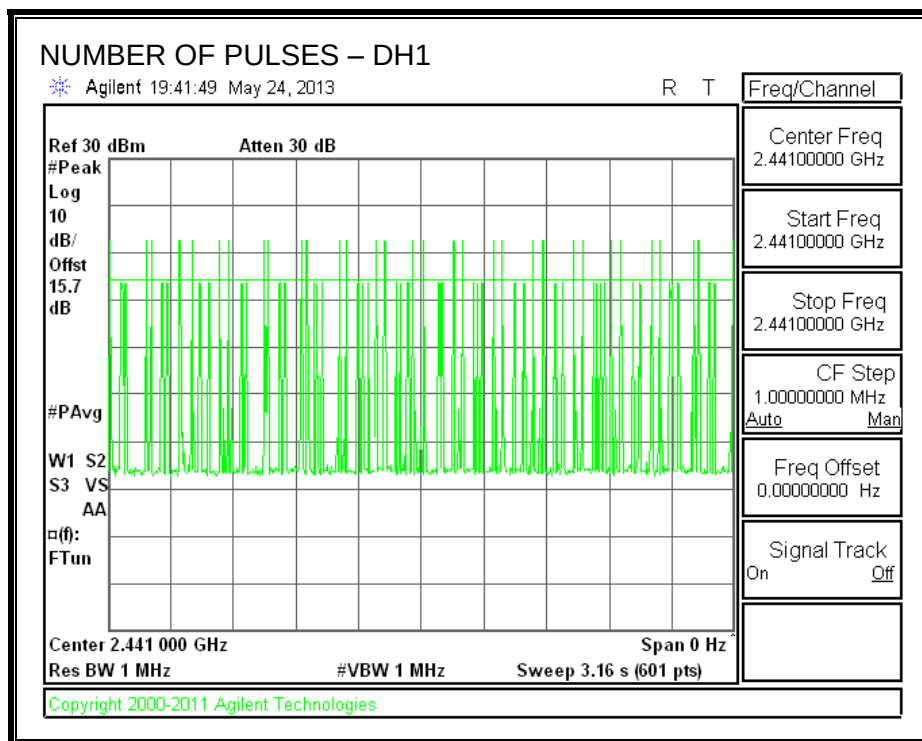
RESULTS

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	0.384	30	0.115	0.4	-0.285
DH3	1.638	15	0.246	0.4	-0.154
DH5	2.883	10	0.288	0.4	-0.112

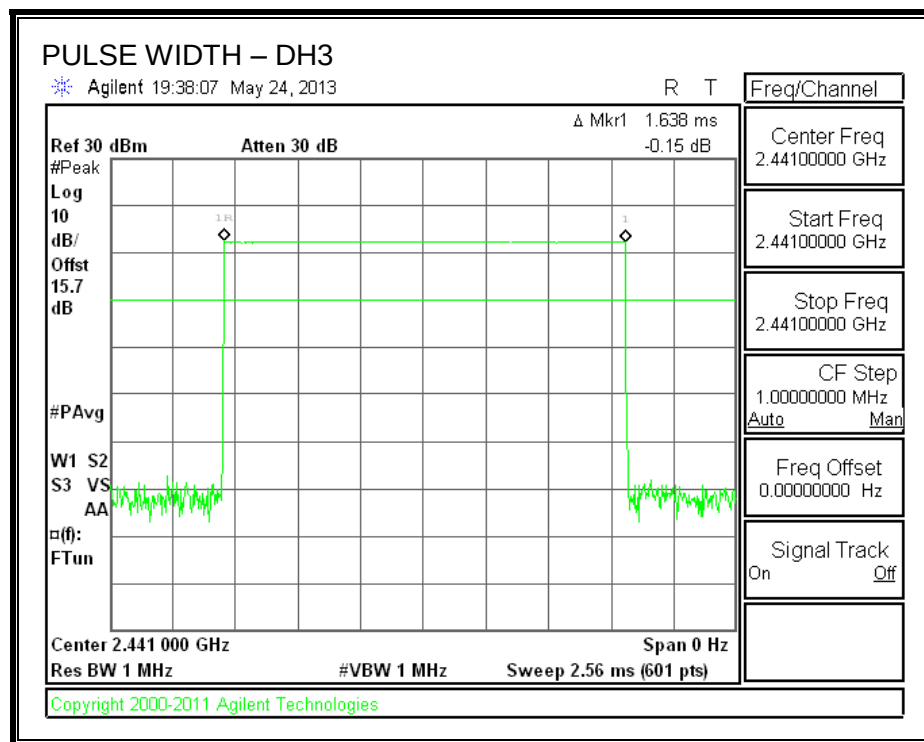
PULSE WIDTH - DH1



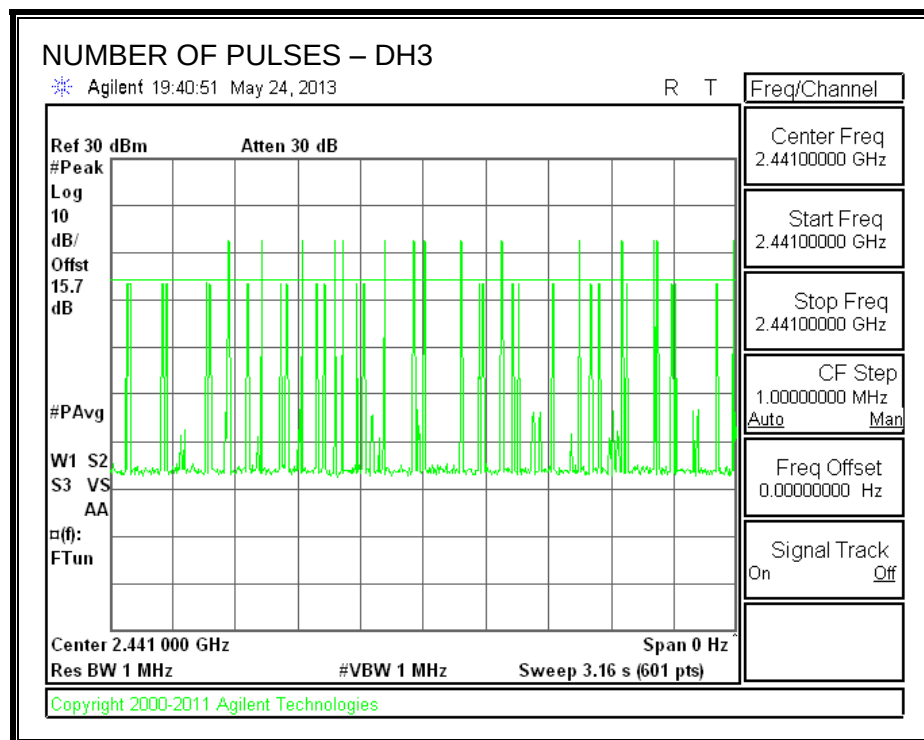
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD - DH1



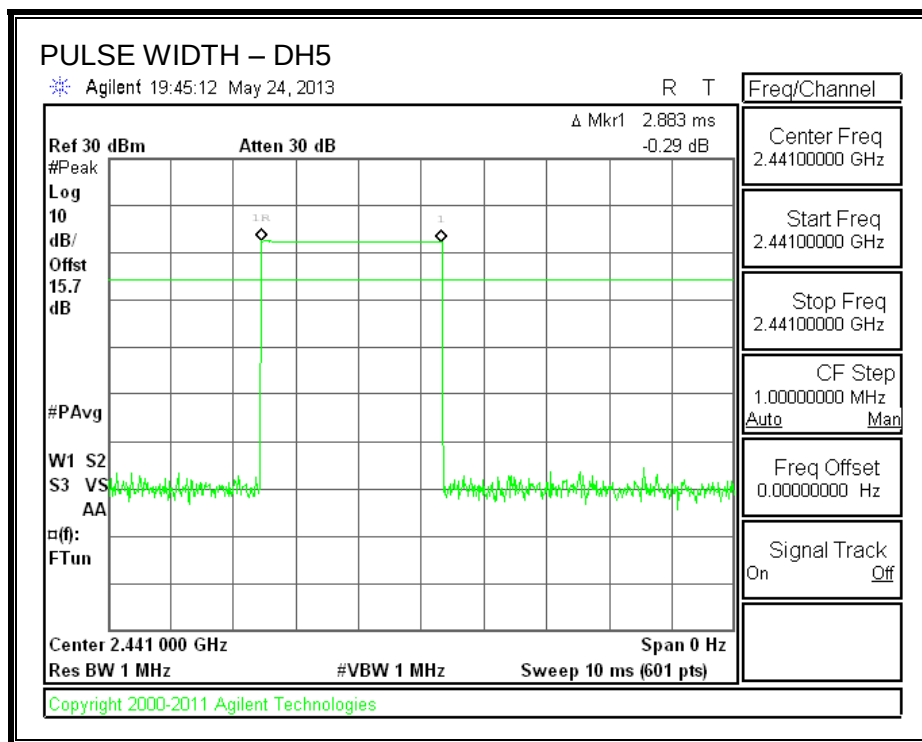
PULSE WIDTH – DH3



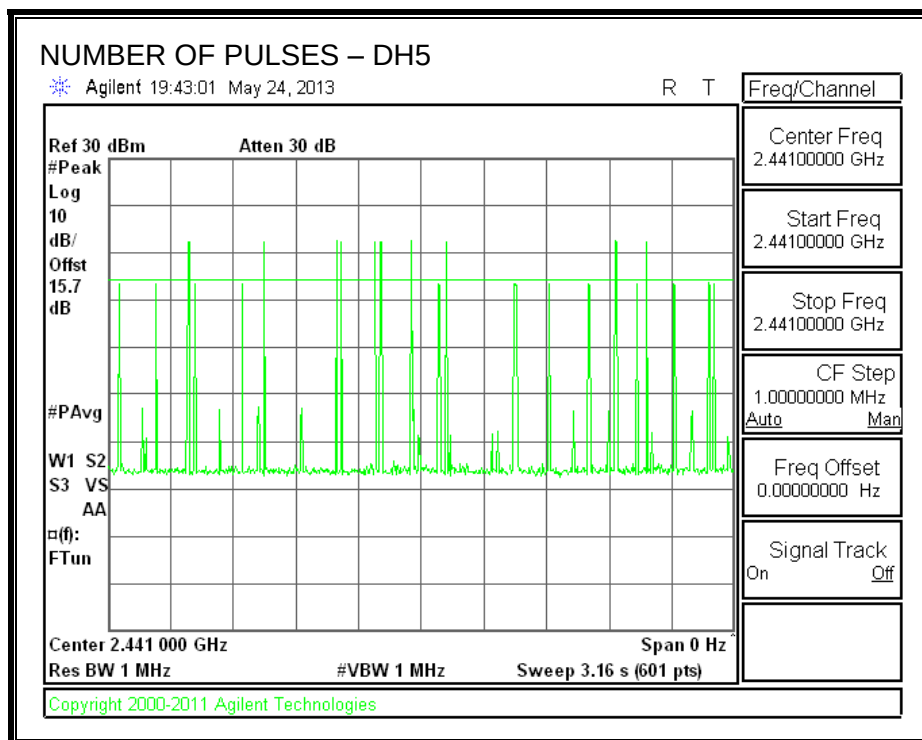
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



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 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.

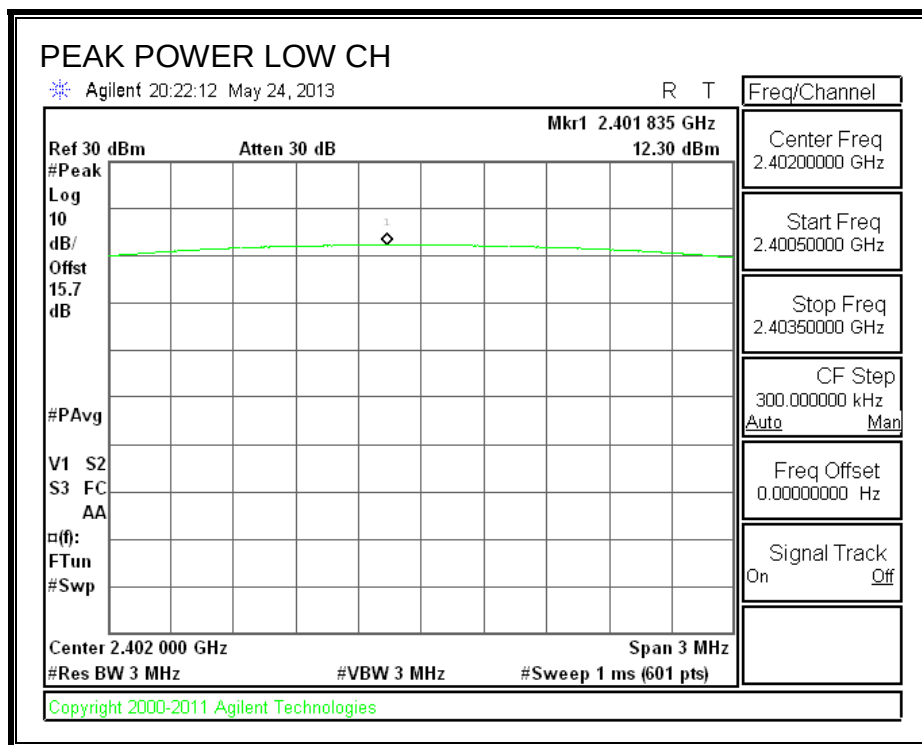
TEST PROCEDURE

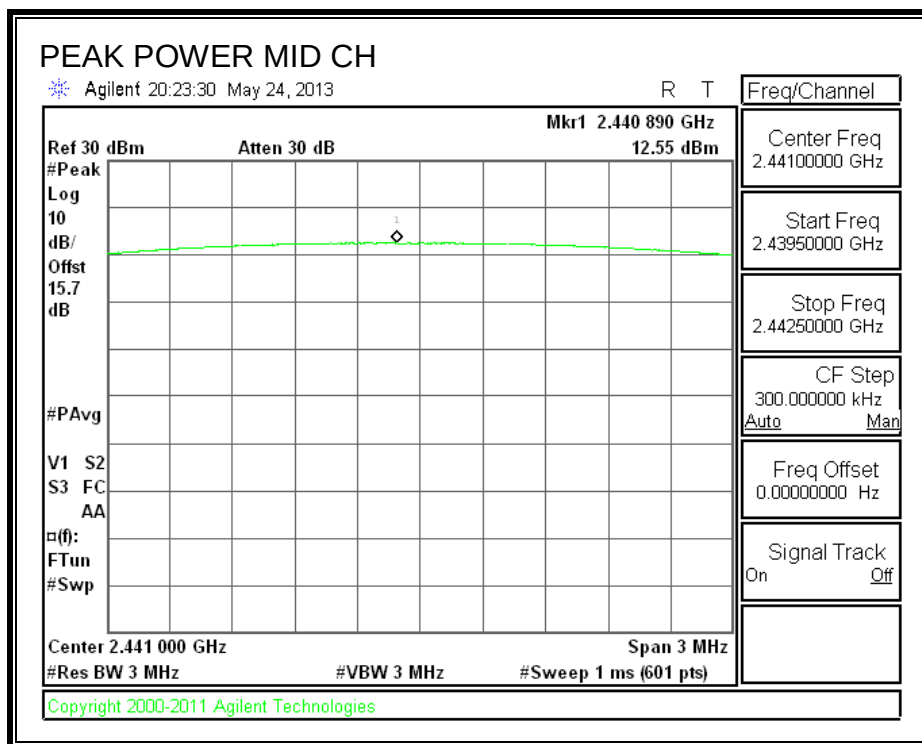
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

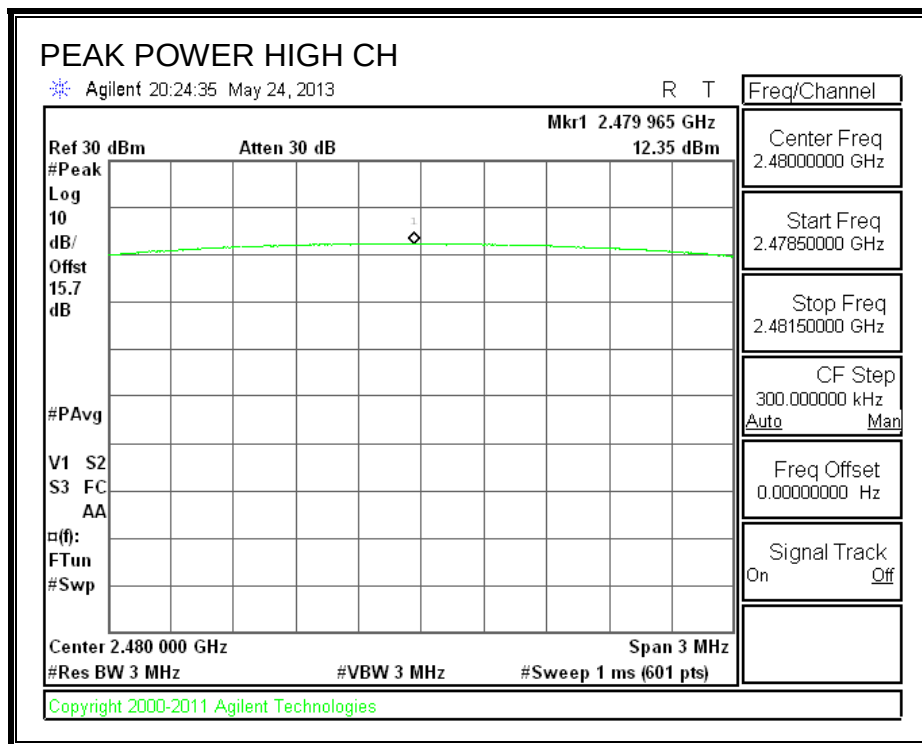
RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.30	30	-17.70
Middle	2441	12.55	30	-17.45
High	2480	12.35	30	-17.65

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 10.7 dB (including 10 dB pad and .7 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	10.05
Middle	2441	10.34
High	2480	9.55

7.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

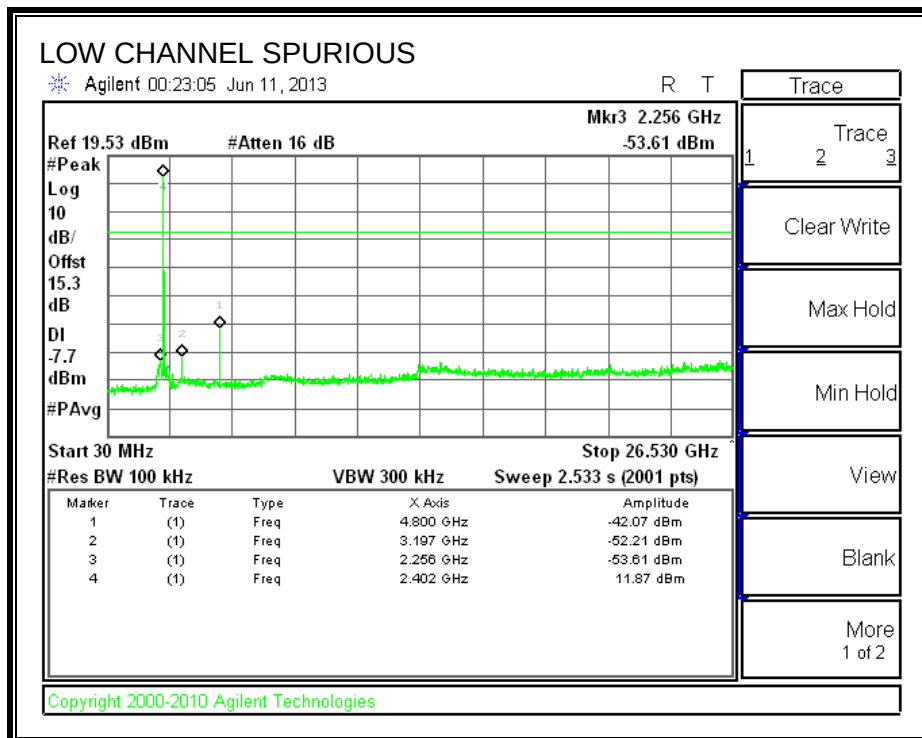
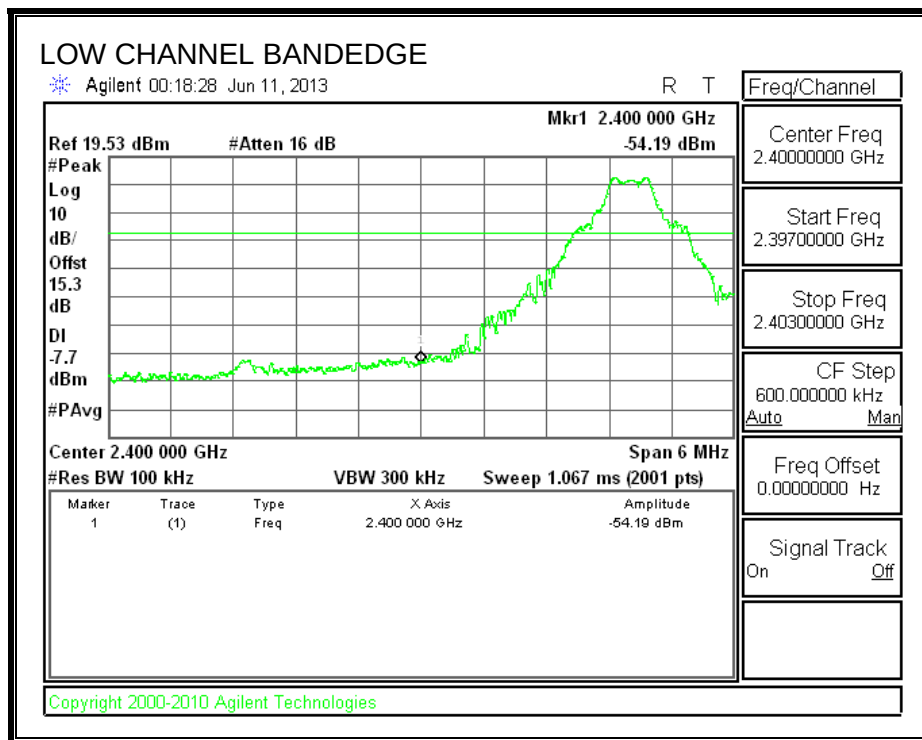
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

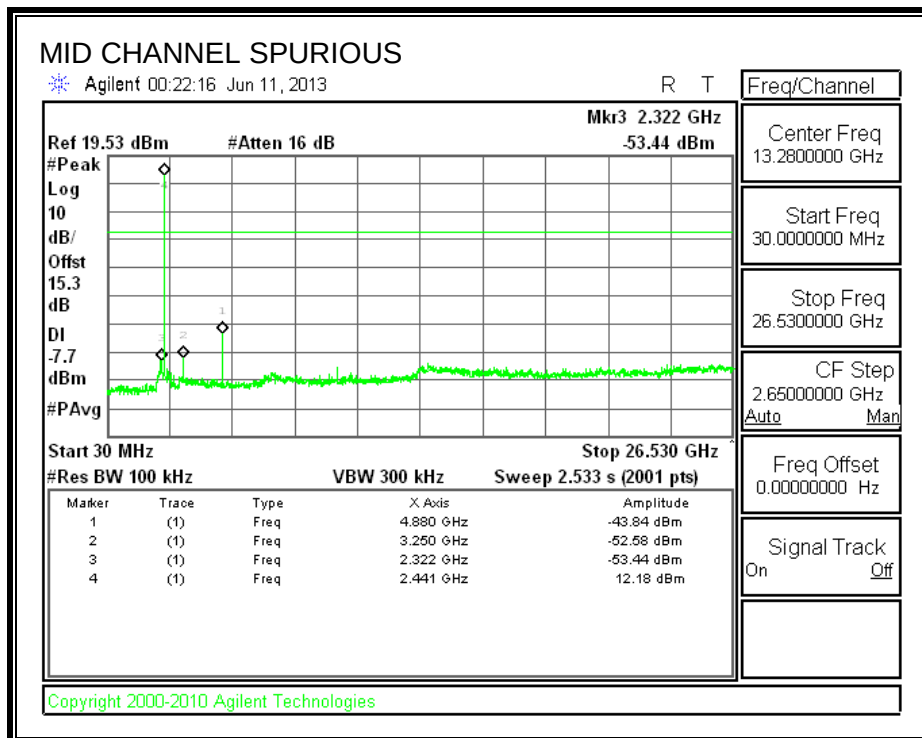
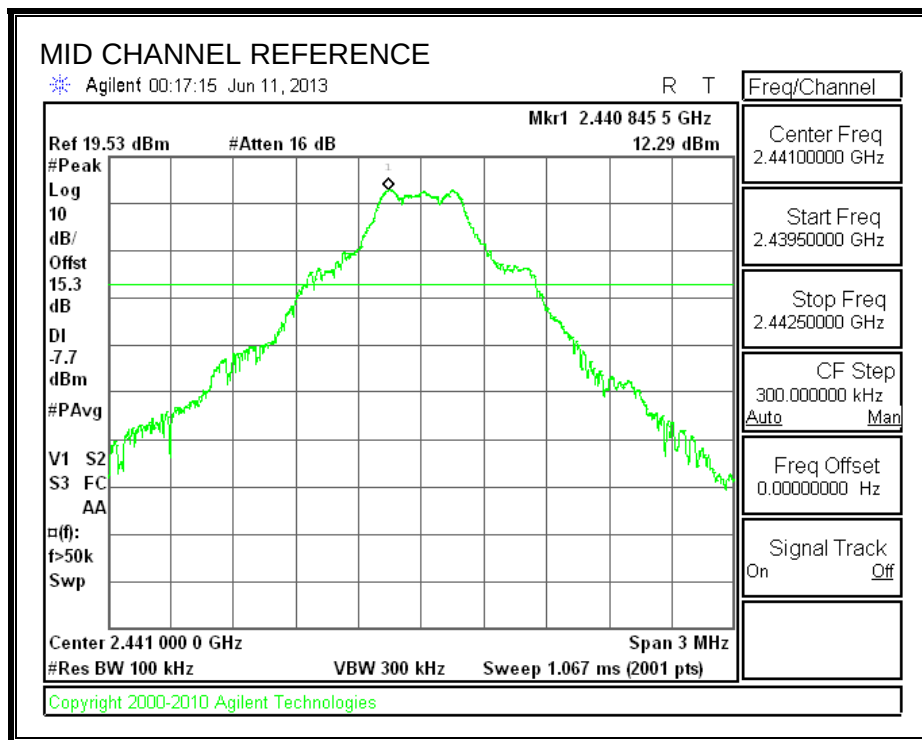
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

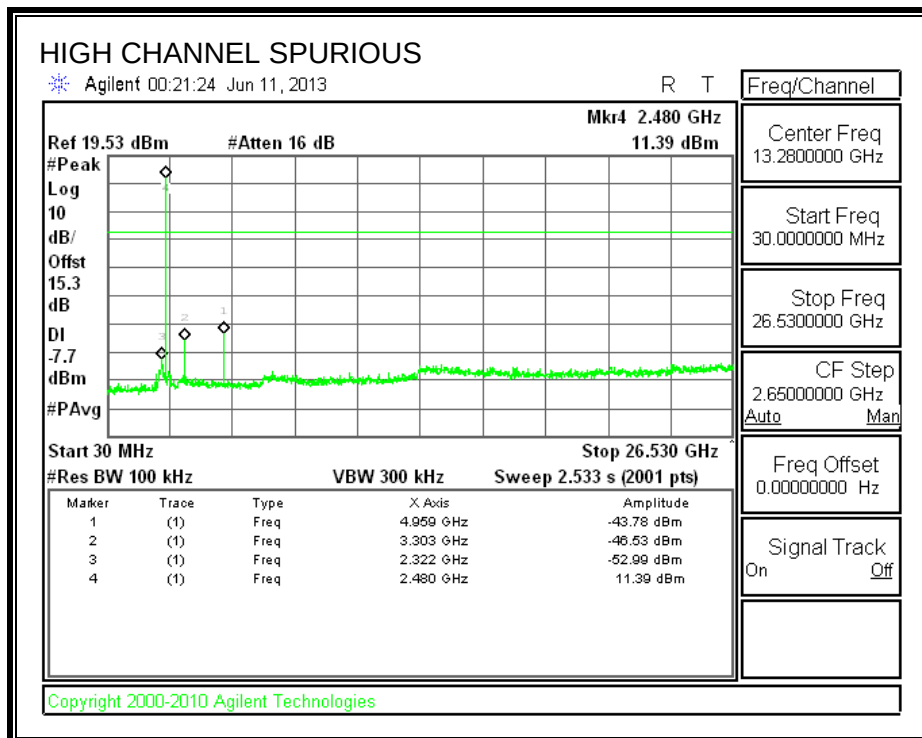
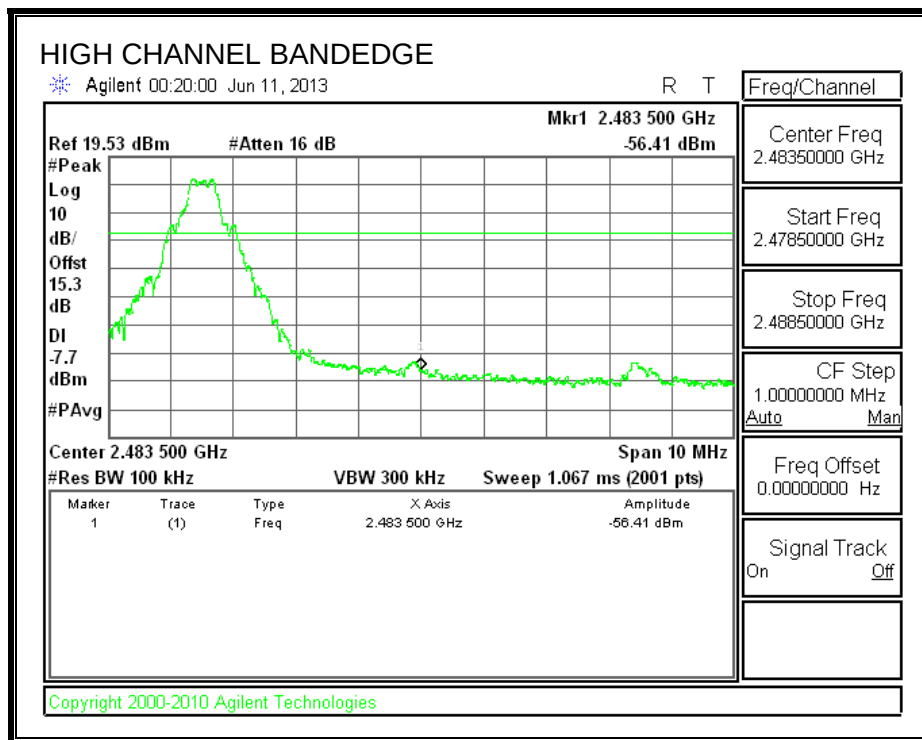
SPURIOUS EMISSIONS, LOW CHANNEL



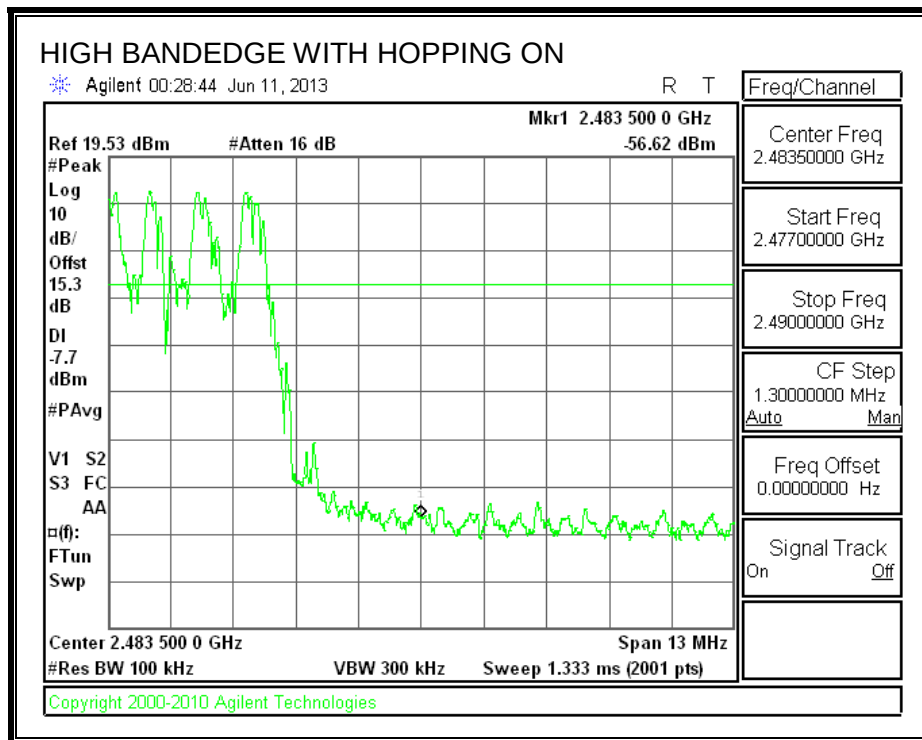
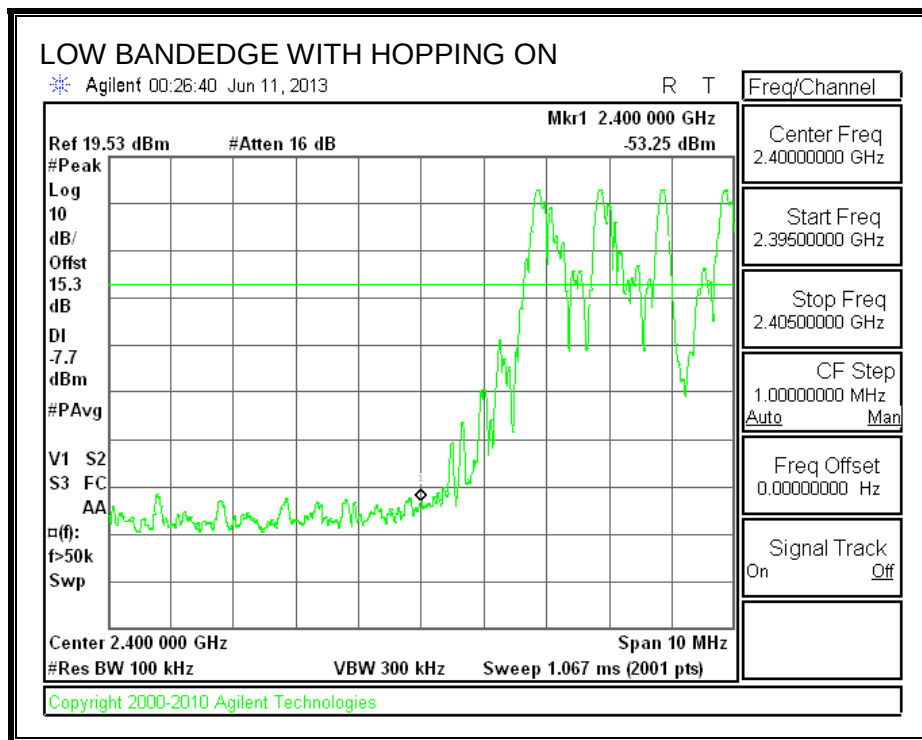
SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



SPURIOUS BANDEGE EMISSIONS WITH HOPPING ON



7.2. ENHANCED DATA RATE 8PSK MODULATION

7.2.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

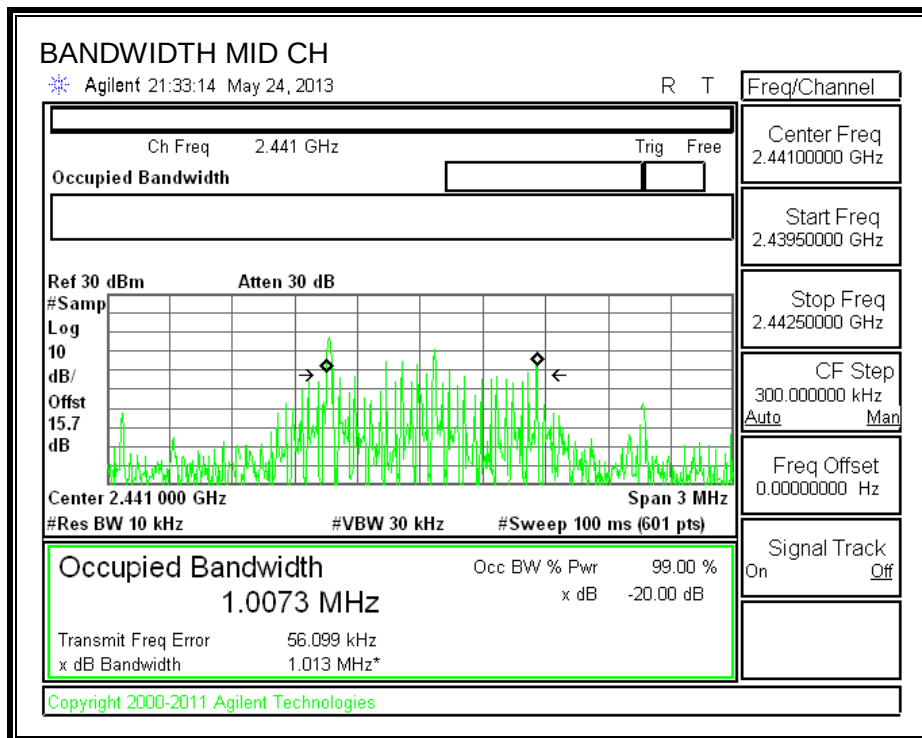
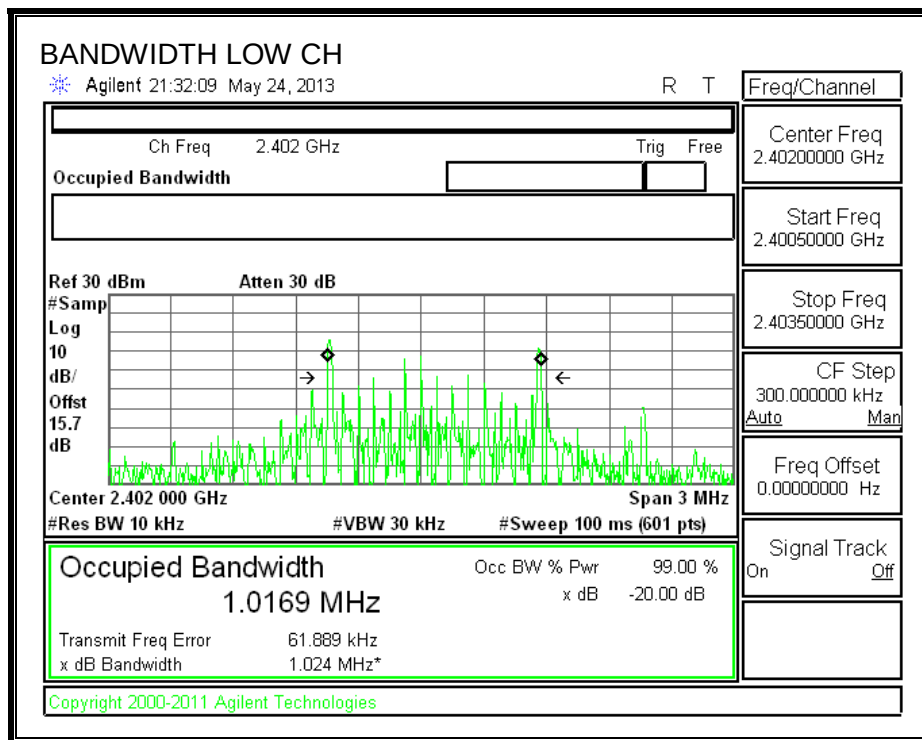
TEST PROCEDURE

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)	99% Bandwidth (MHz)
Low	2402	1024	1.3528
Middle	2441	1013	1.3662
High	2480	1014	1.3603

20 dB 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.

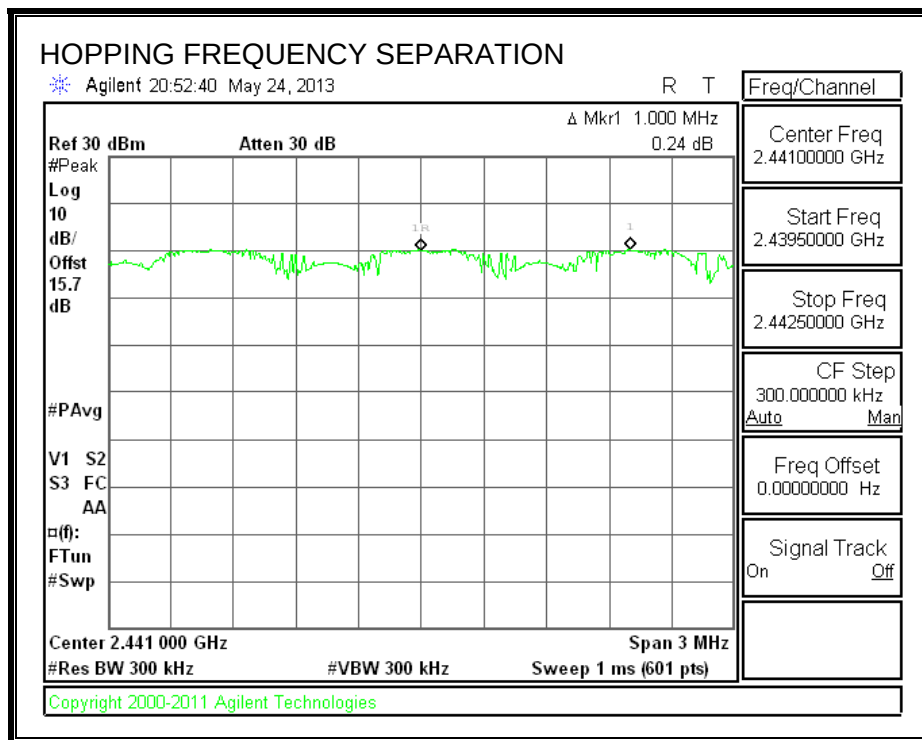
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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



7.2.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

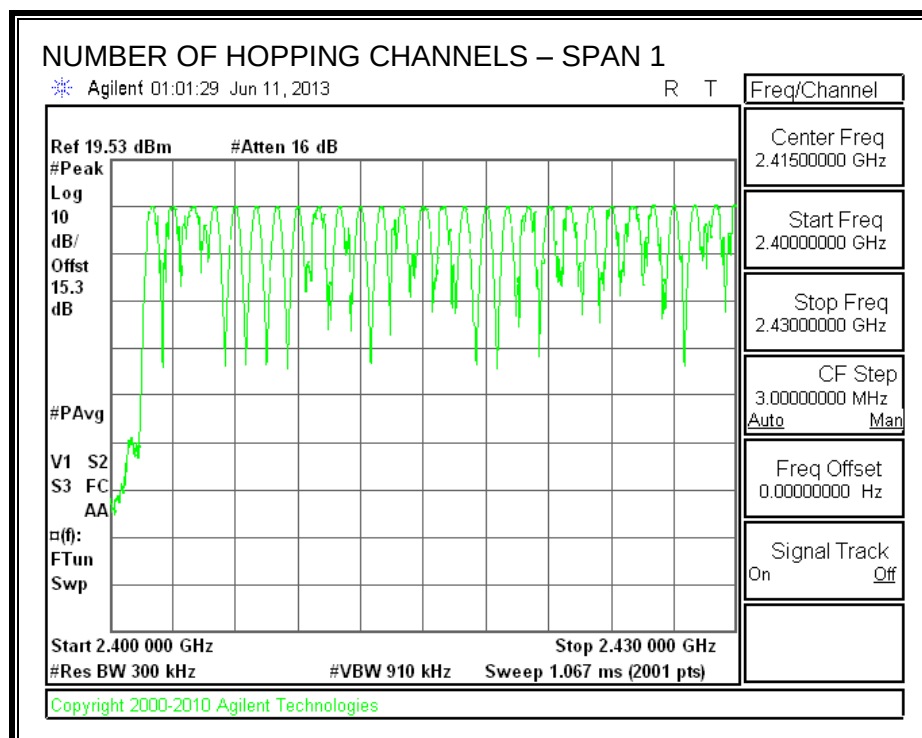
Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

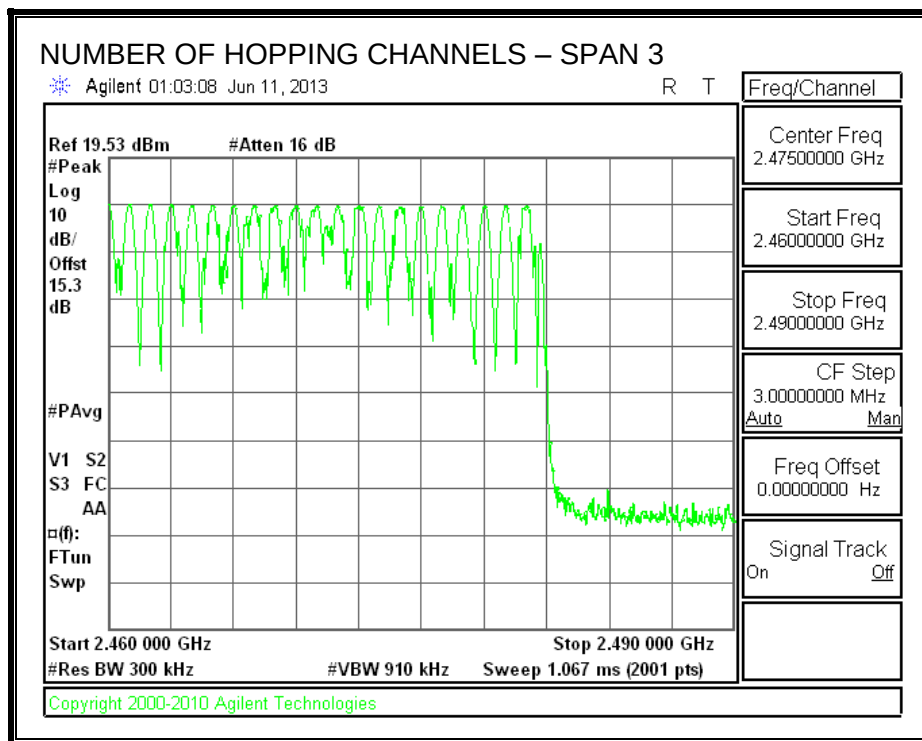
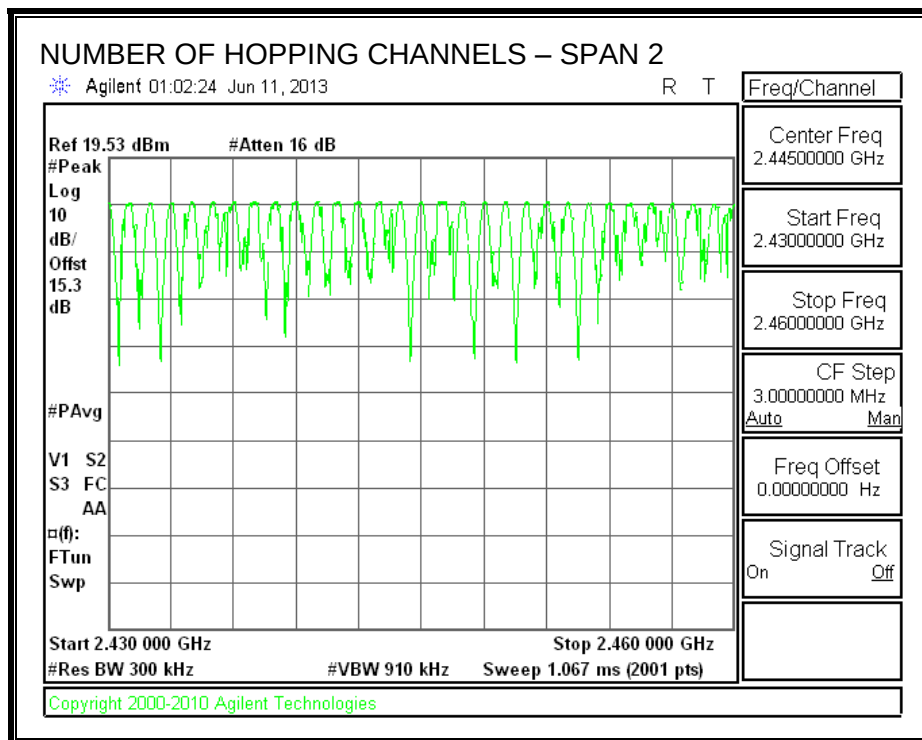
TEST PROCEDURE

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.





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

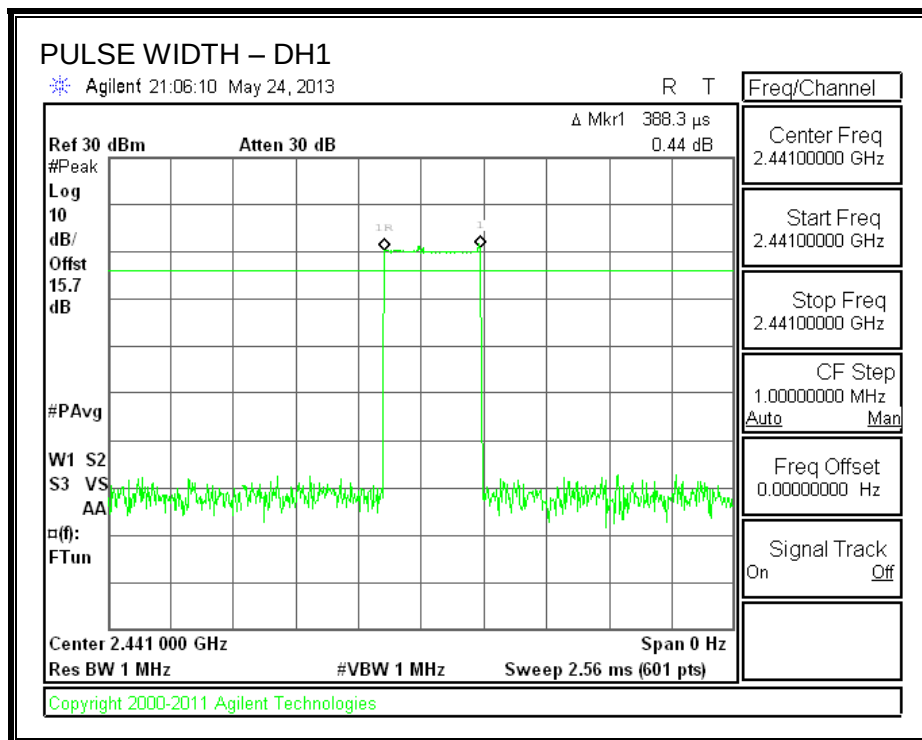
The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

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

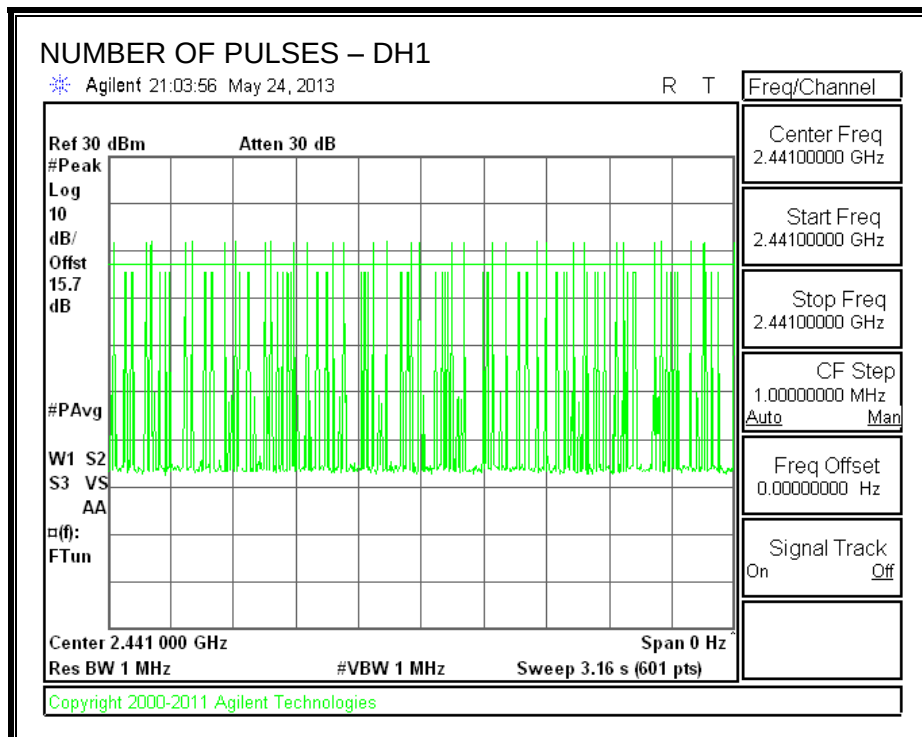
RESULTS

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK (EDR) Mode					
DH1	0.3883	32	0.124	0.4	-0.276
DH3	1.638	12	0.197	0.4	-0.203
DH5	2.892	5	0.145	0.4	-0.255

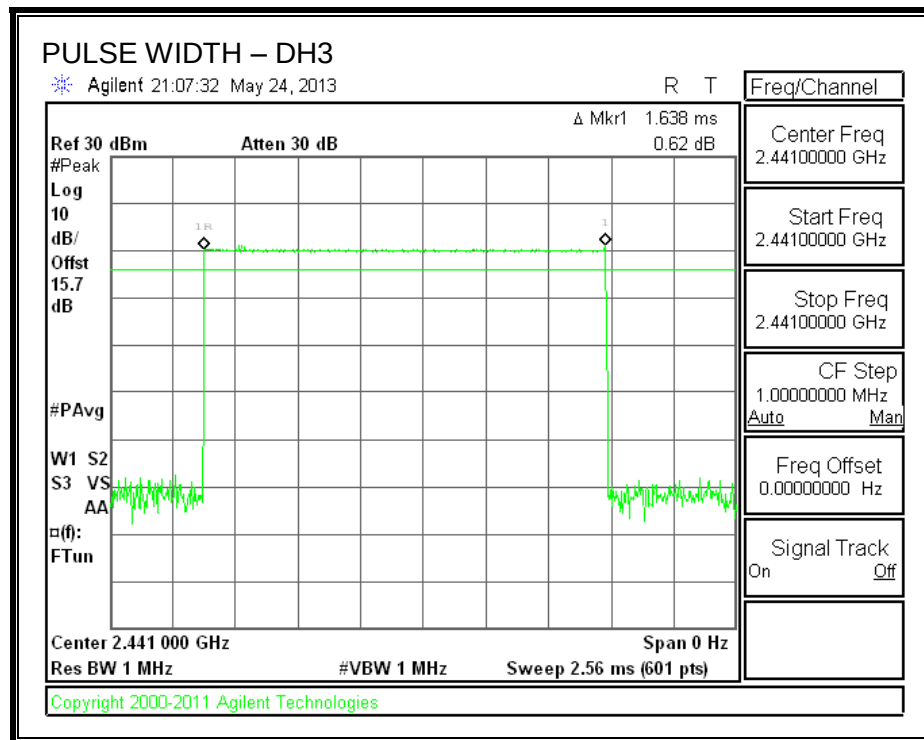
PULSE WIDTH - DH1



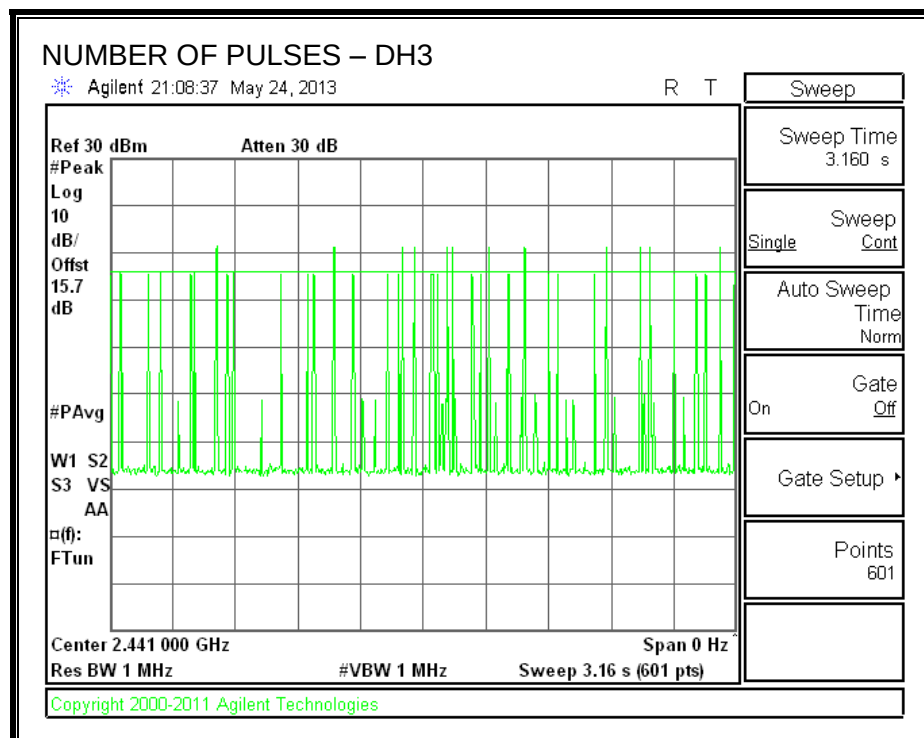
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1



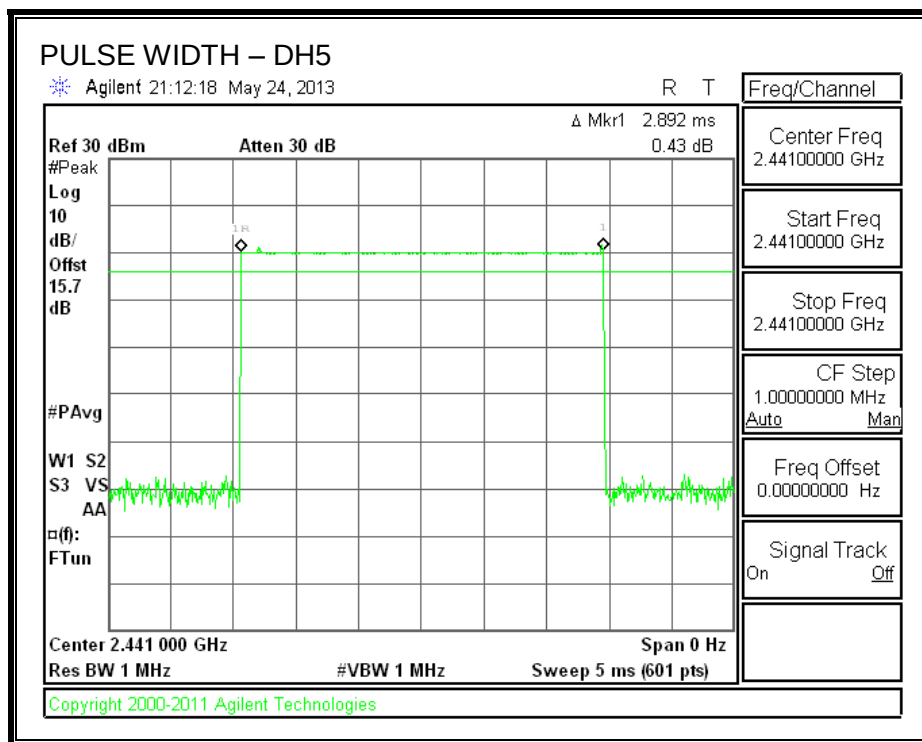
PULSE WIDTH – DH3



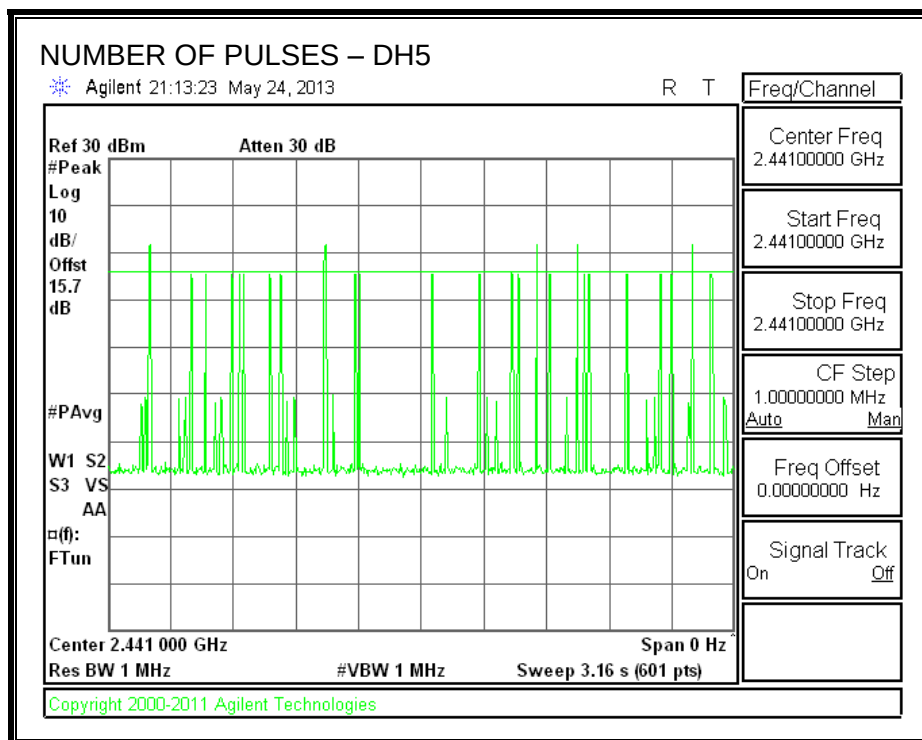
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5



7.2.5. 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.

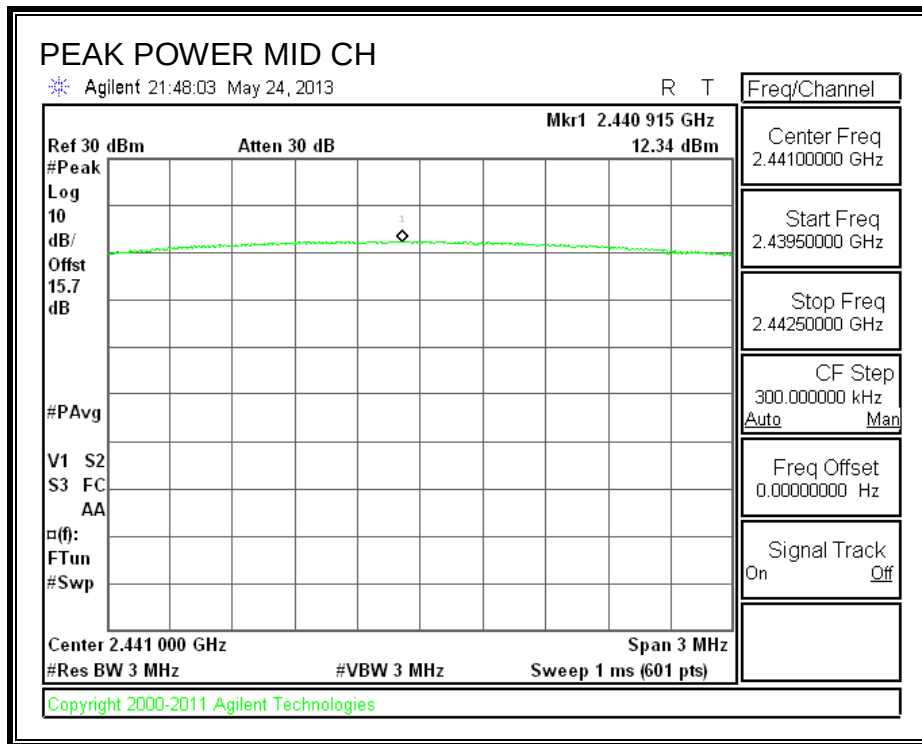
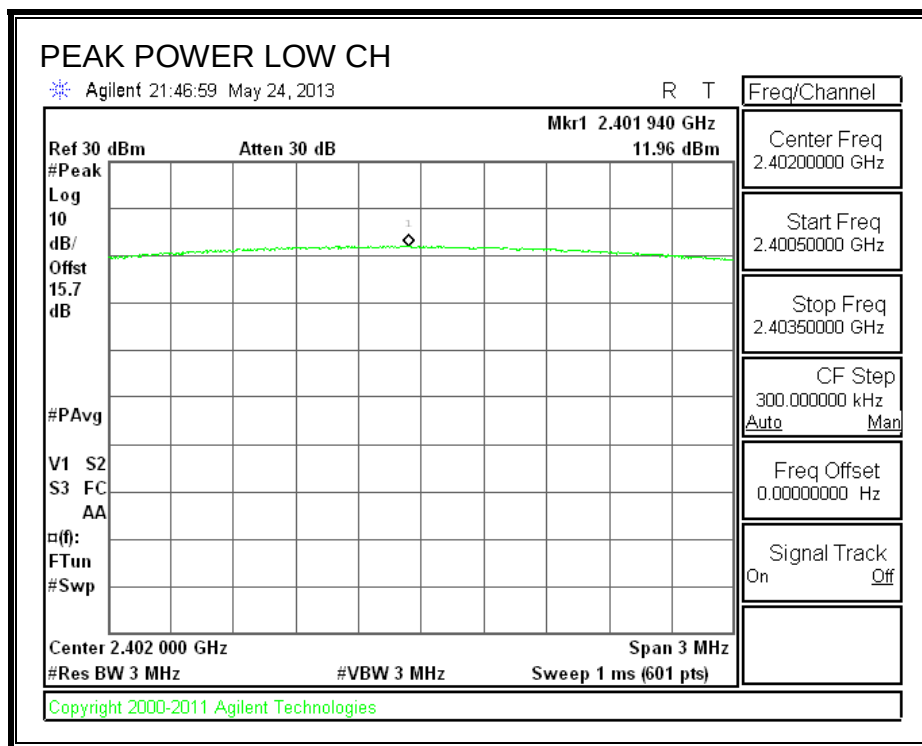
TEST PROCEDURE

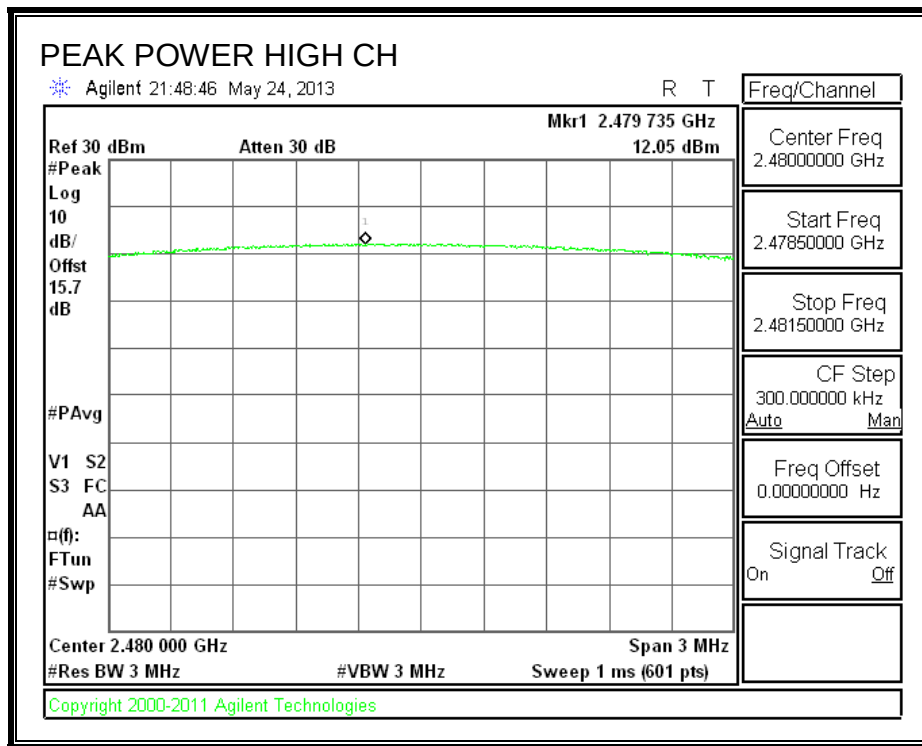
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.96	30	-18.04
Middle	2441	12.34	30	-17.66
High	2480	12.05	30	-17.95

OUTPUT POWER





7.2.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and .7 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	10.40
Middle	2441	10.47
High	2480	10.30

7.2.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

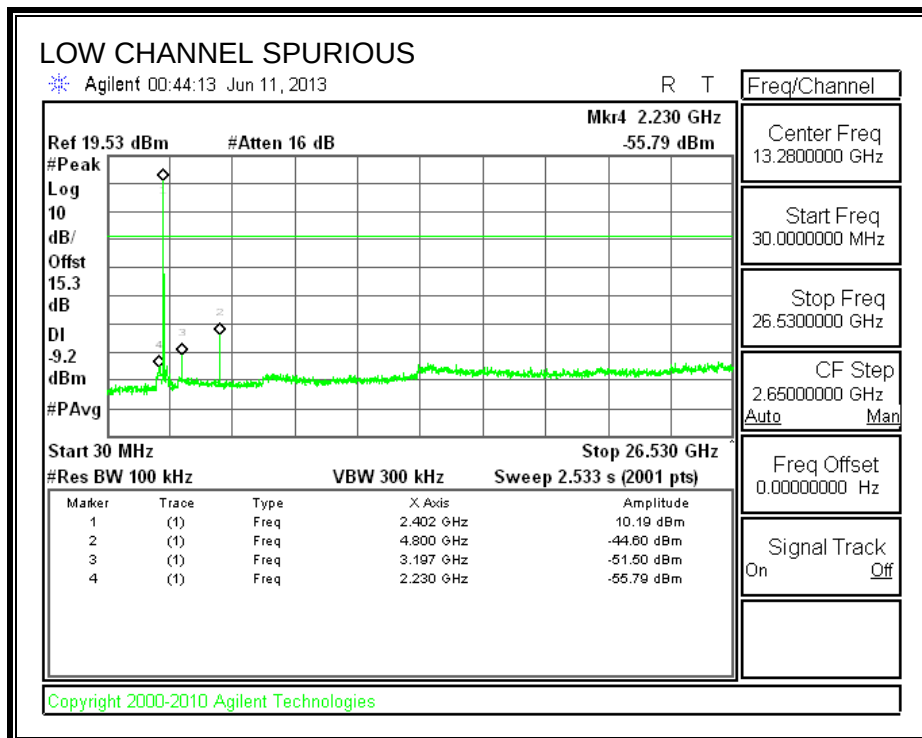
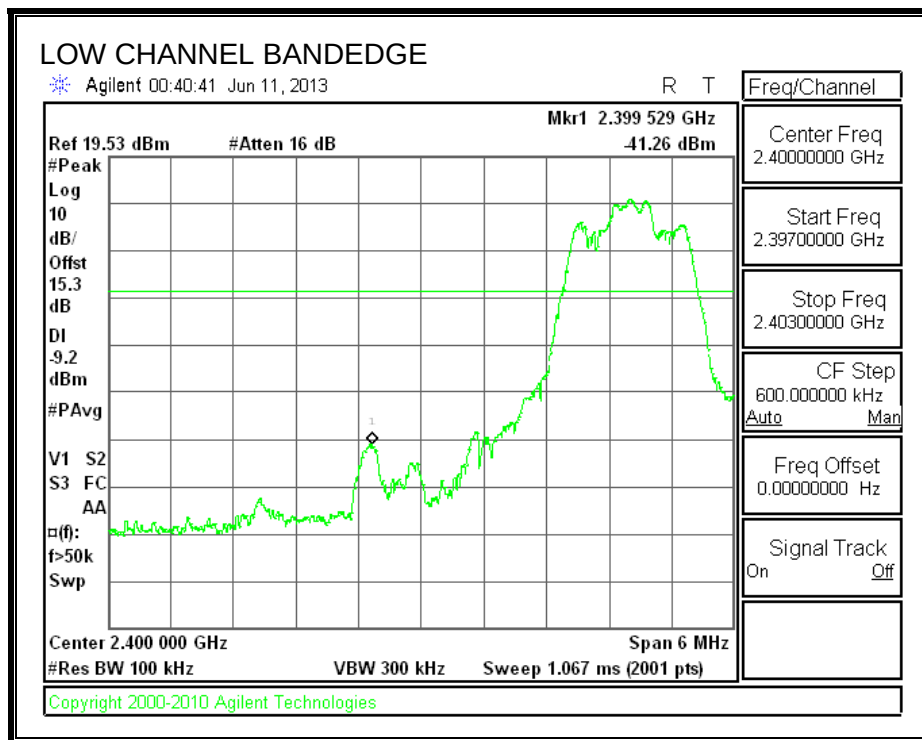
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

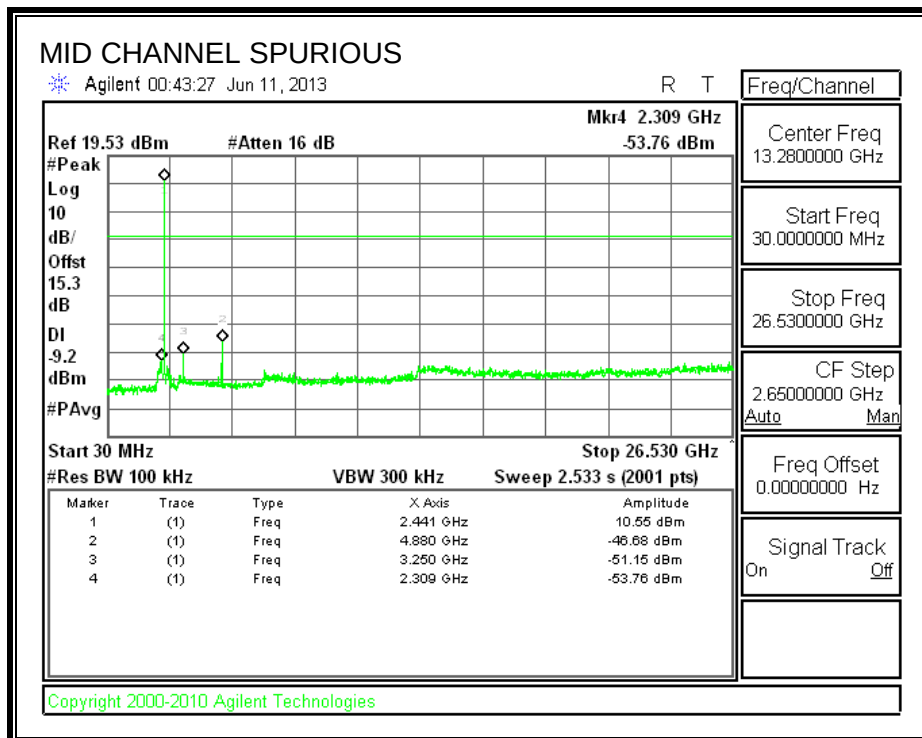
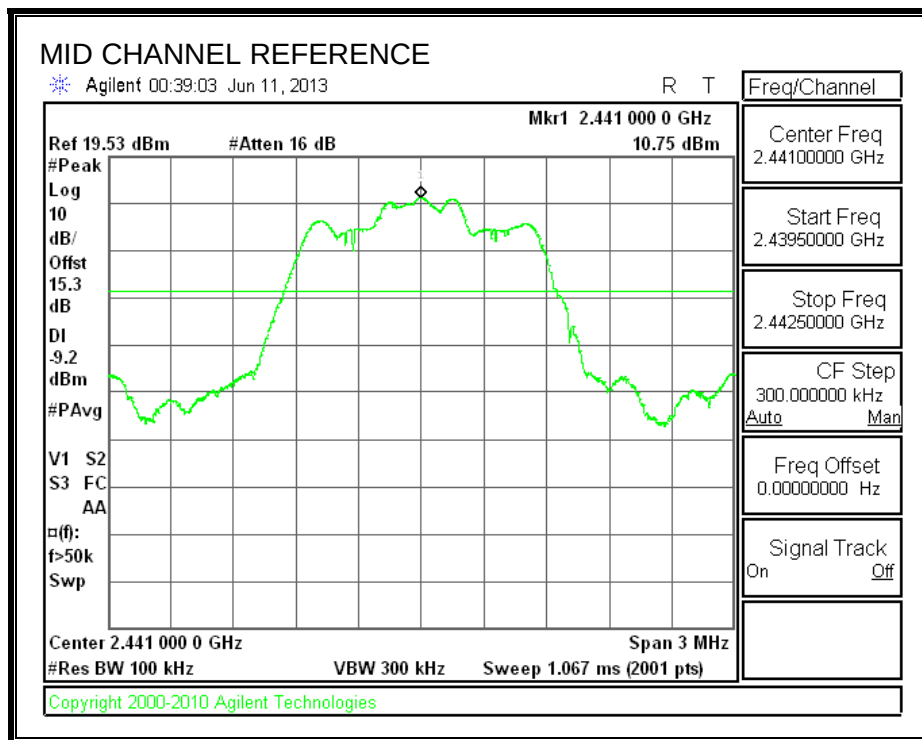
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

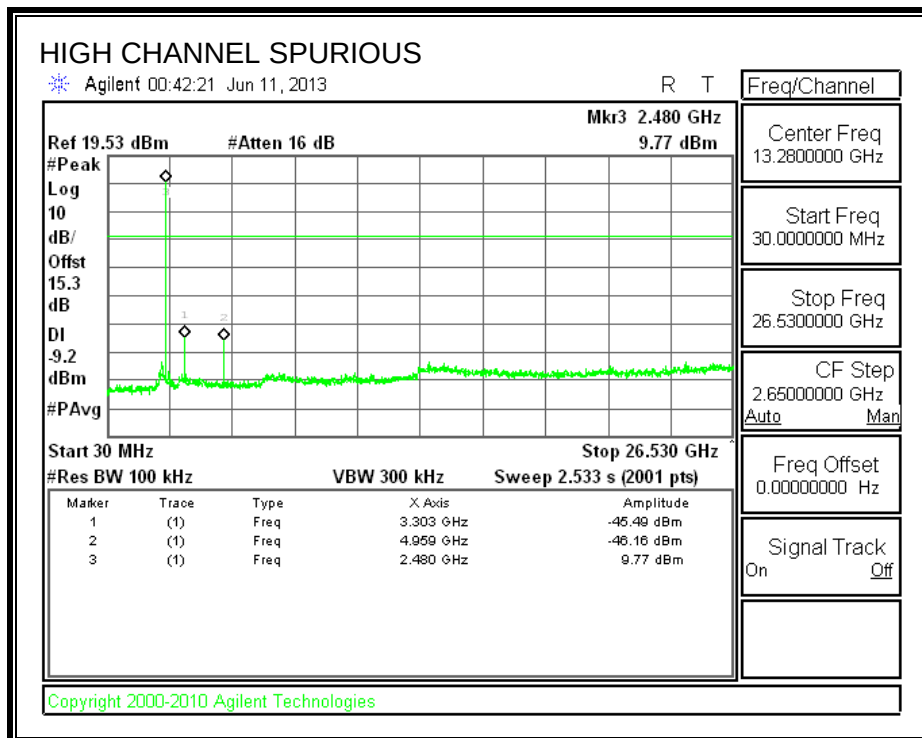
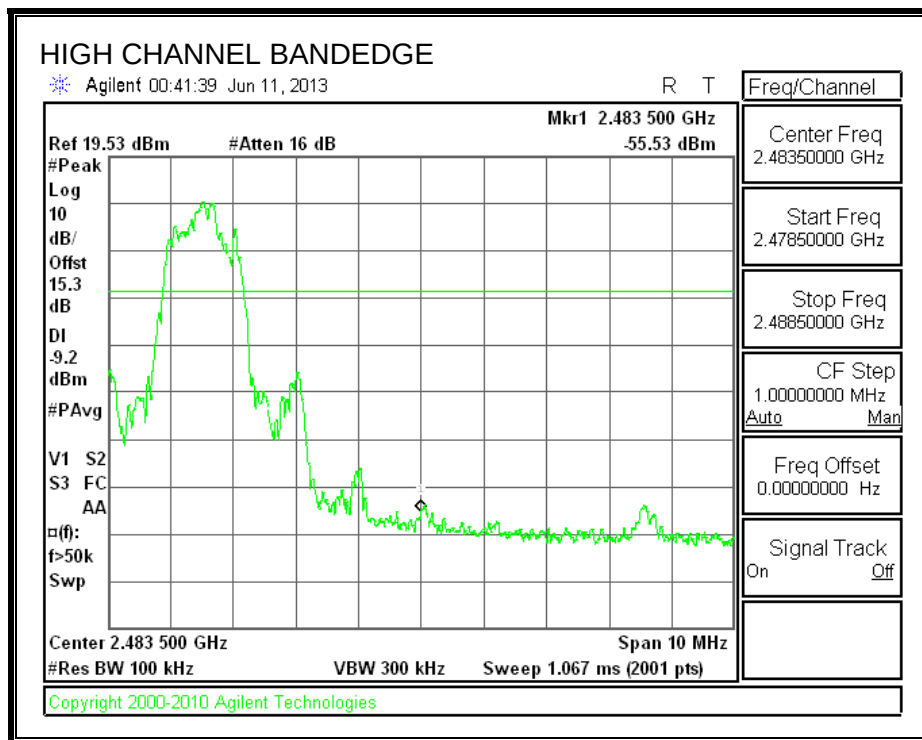
SPURIOUS EMISSIONS, LOW CHANNEL



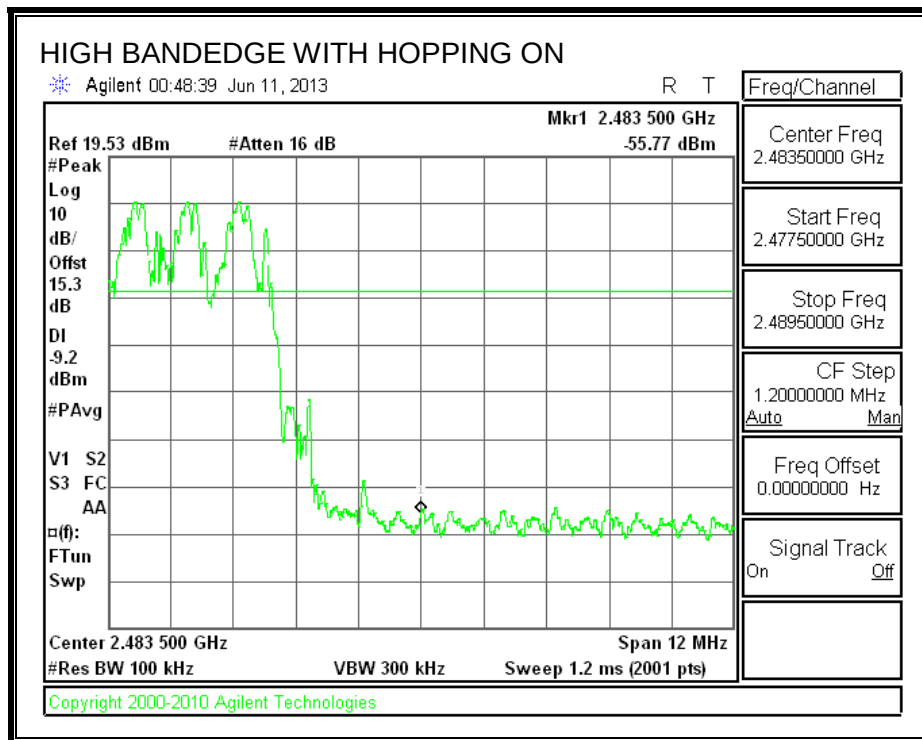
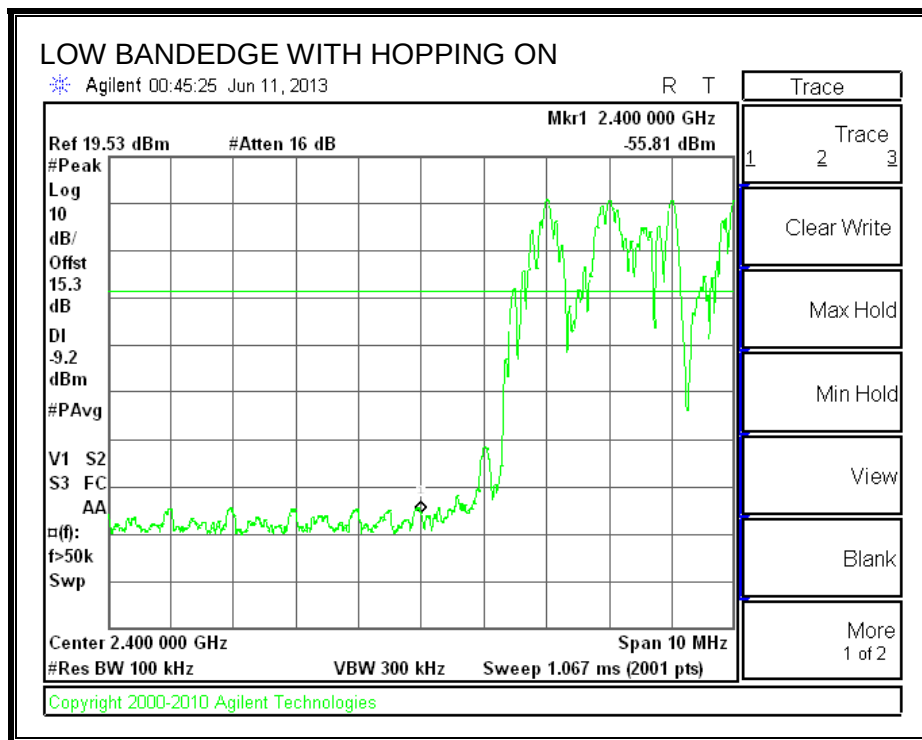
SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



SPURIOUS 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.

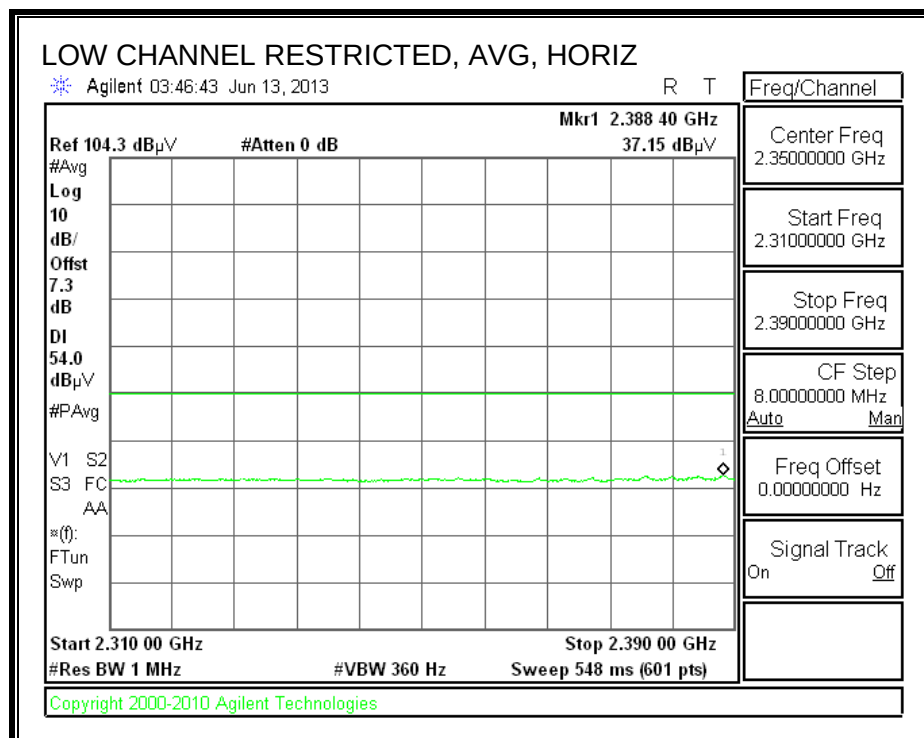
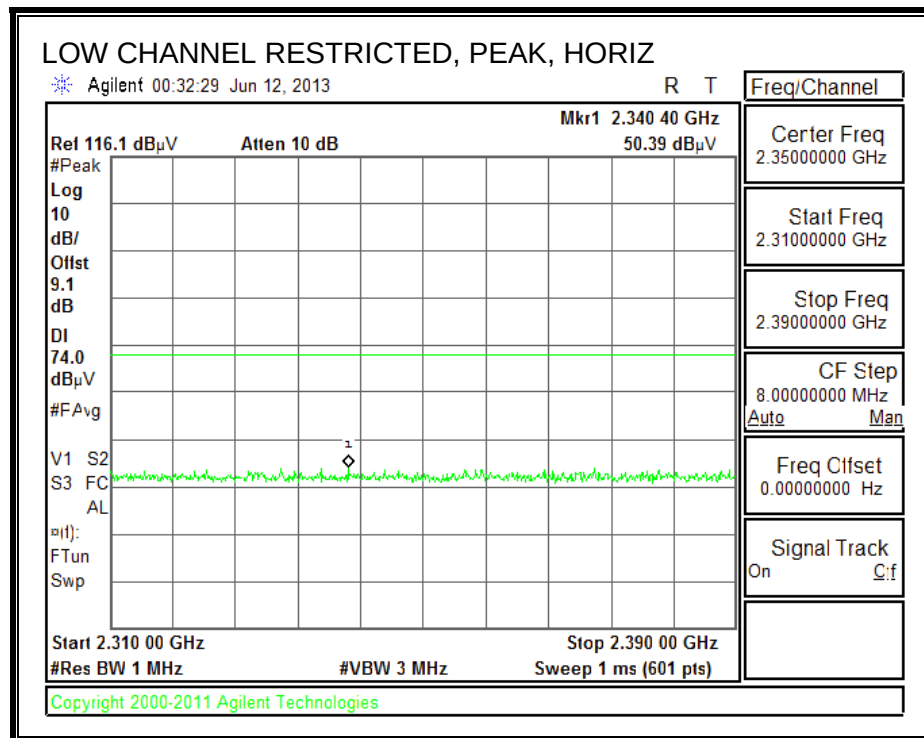
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

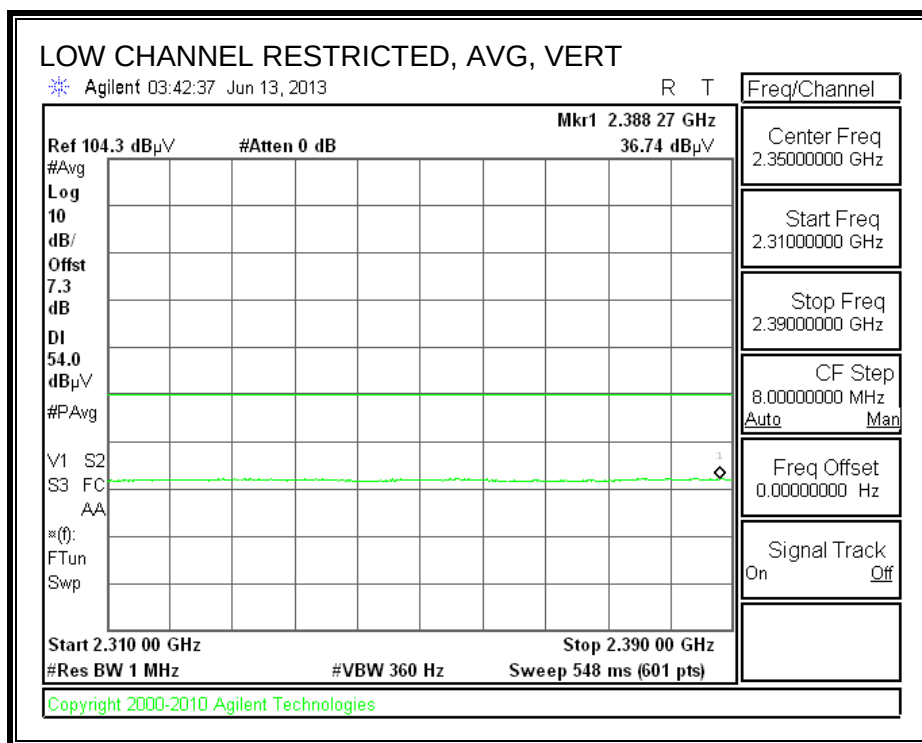
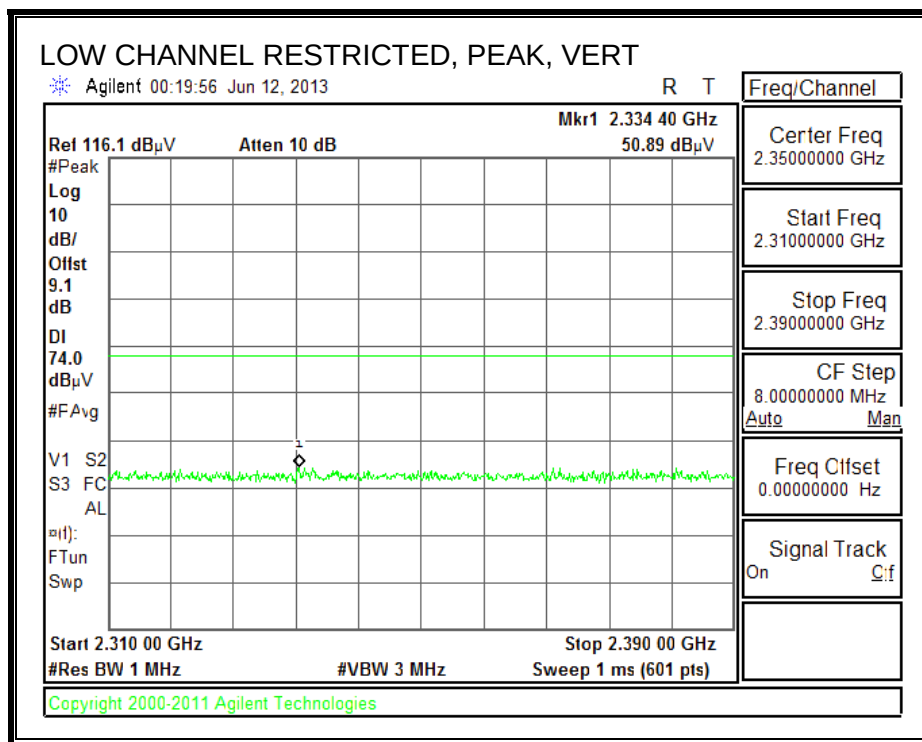
8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. BASIC DATA RATE GFSK MODULATION

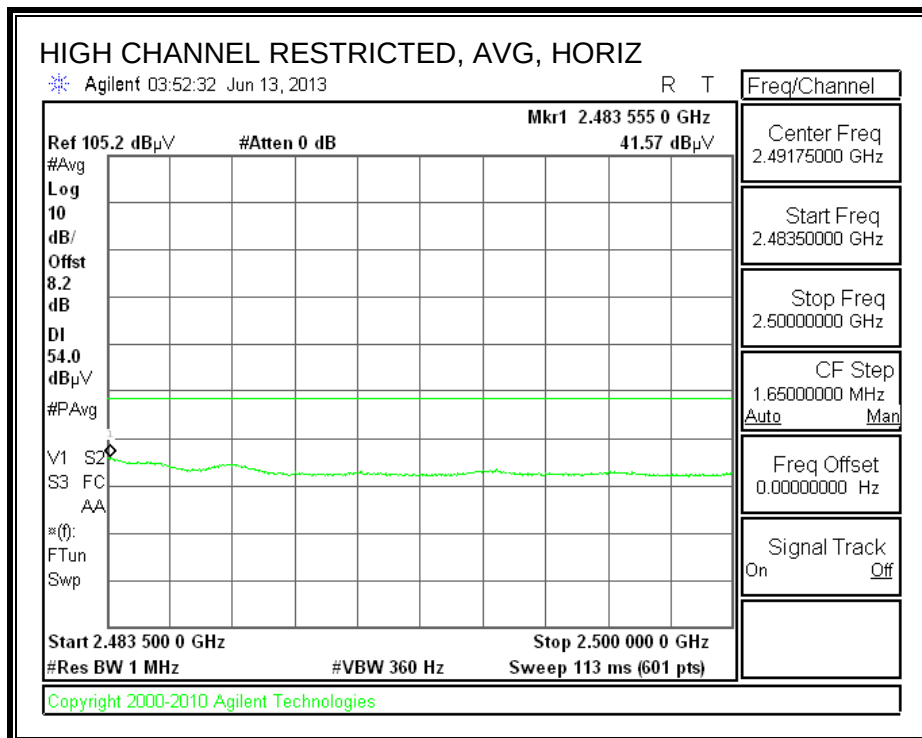
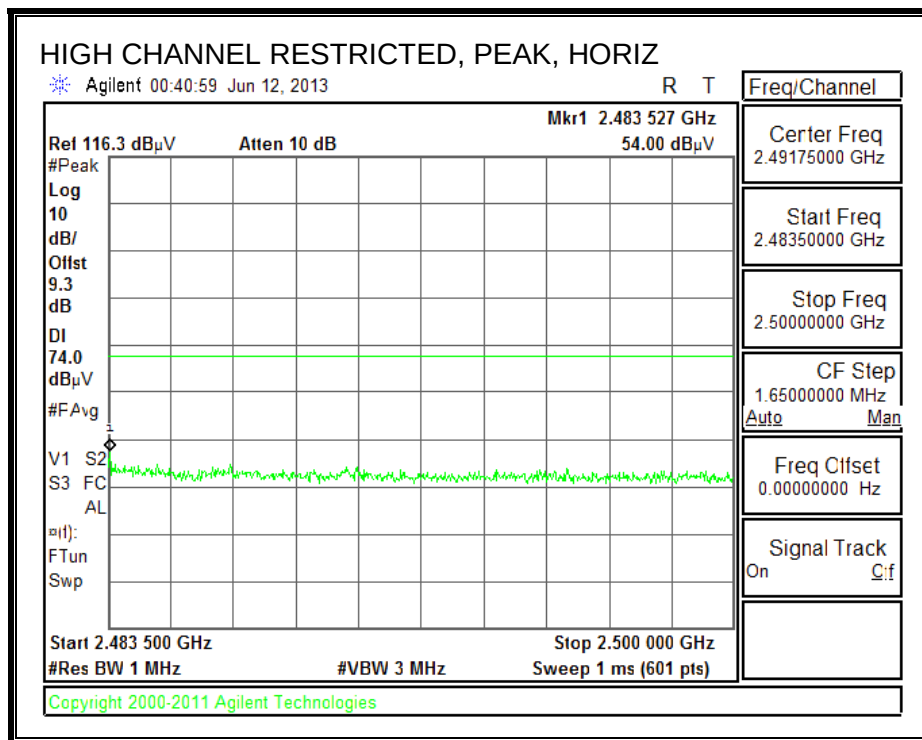
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



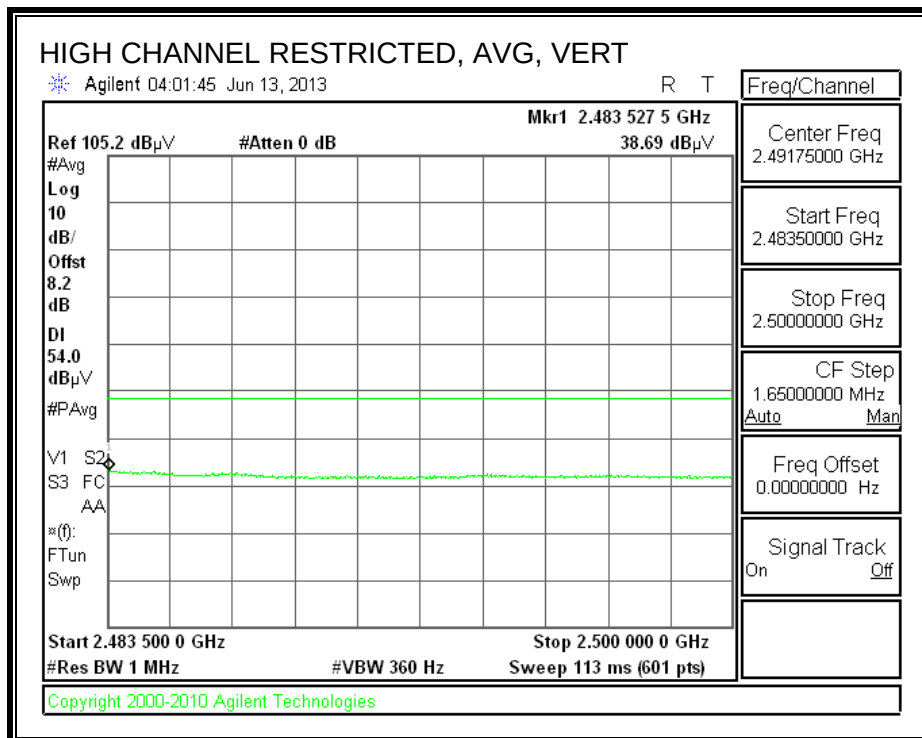
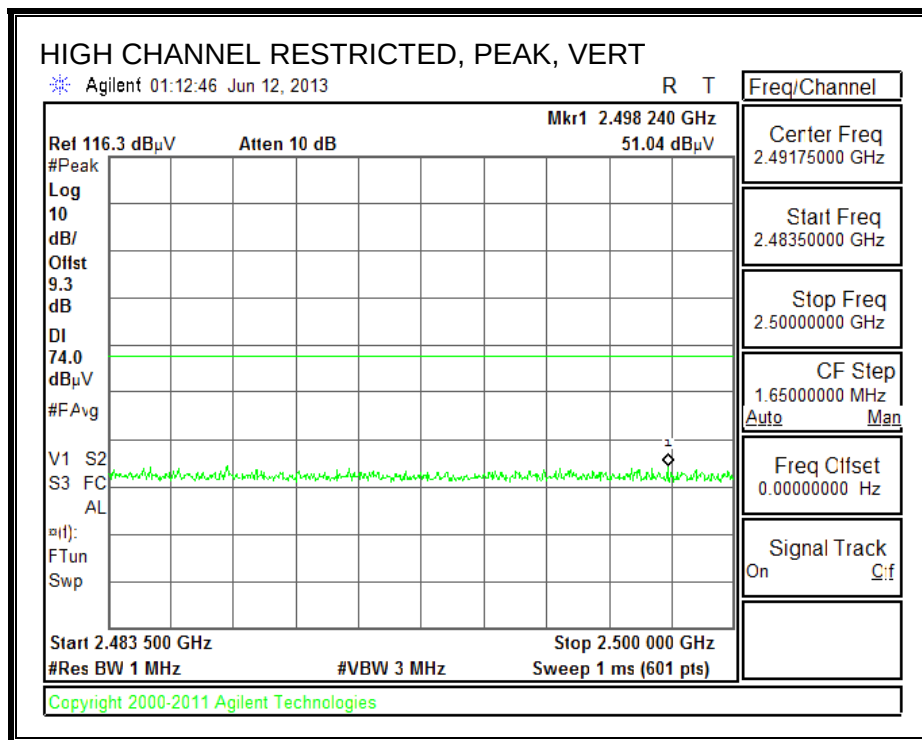
RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)



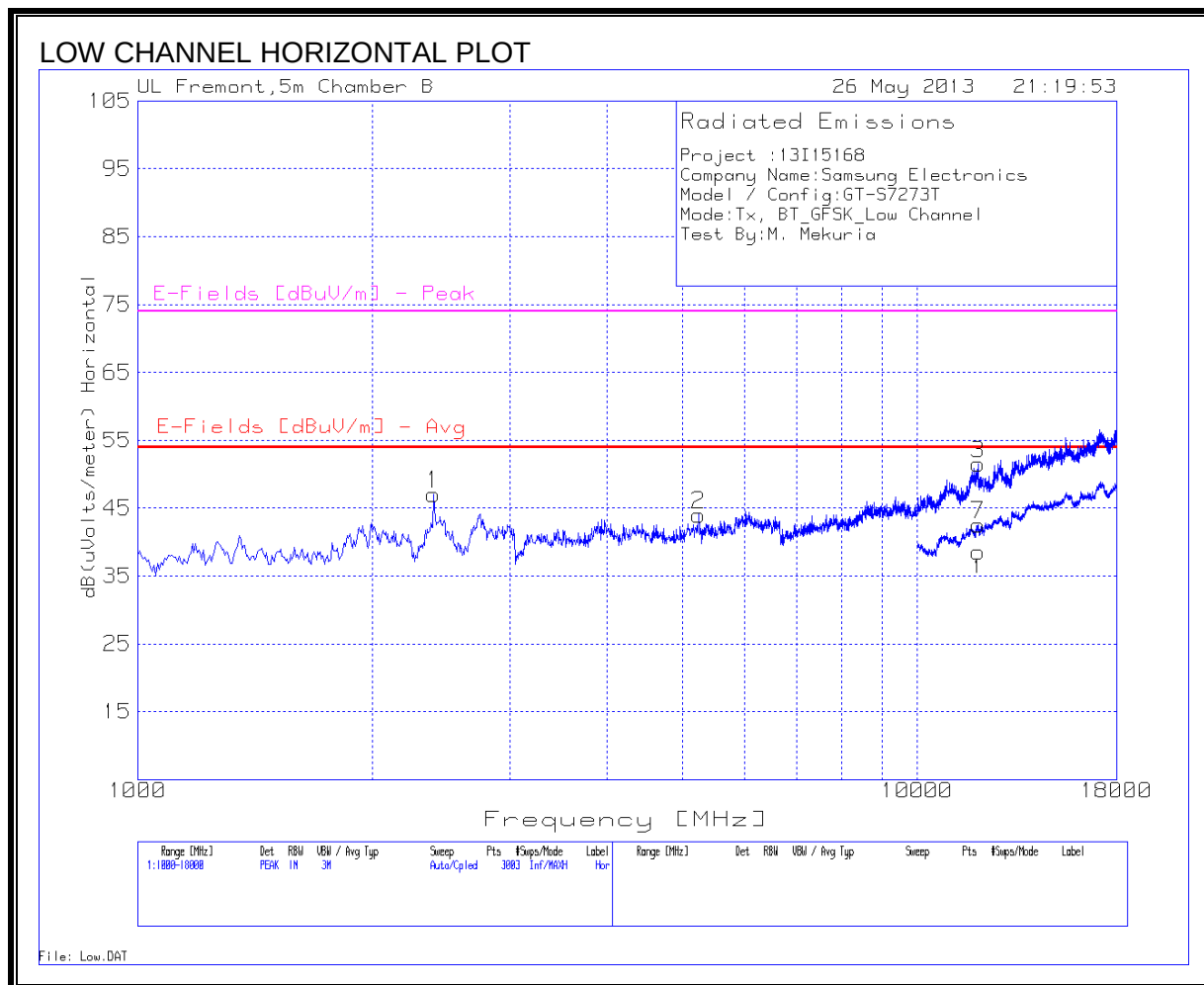
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

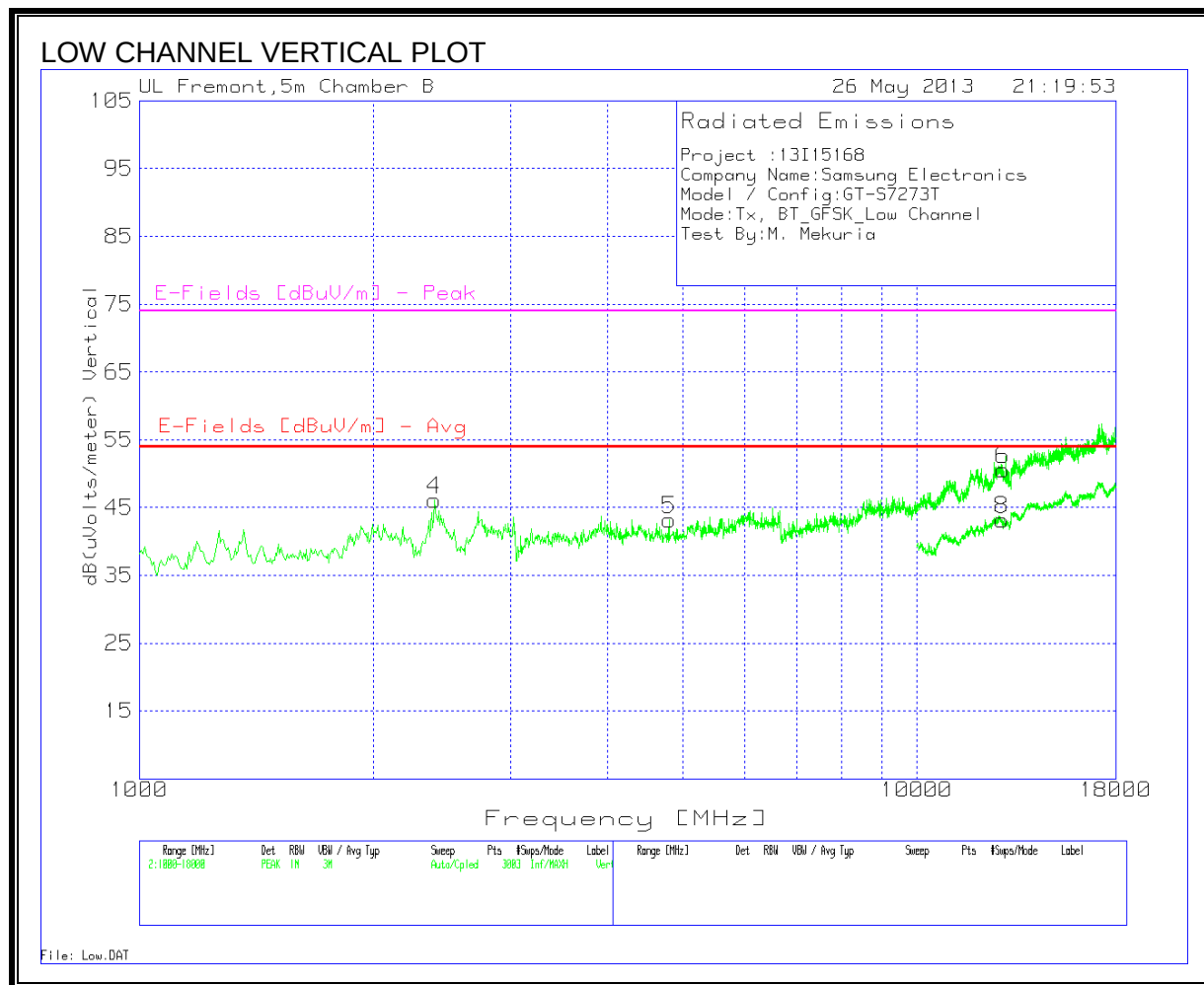


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS





LOW CHANNEL DATA

Project :13I15168

Company Name:Samsung Electronics

Model / Config:GT-57273T

Mode:Tx, BT_GFSK_Low Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2398.734	46.54	PK	32.1	-36.9	4.4	0.9	47.04	53.97	-6.93	74	-26.96	200	Hor
2	5241.506	38.01	PK	34.2	-35.5	7.1	0.2	44.01	53.97	-9.96	74	-29.99	101	Hor
3	11957.695	36.47	PK	38.8	-35.7	11.4	0.5	51.47	53.97	-2.5	74	-22.53	200	Hor

Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2398.734	45.64	PK	32.1	-36.9	4.4	0.9	46.14	53.97	-7.83	74	-27.86	100	Vert
5	4799.8	38.09	PK	33.9	-35.7	6.7	0.2	43.19	53.97	-10.78	74	-30.81	100	Vert
6	12897.735	33.48	PK	39.1	-34.3	11.9	0.4	50.58	53.97	-3.39	74	-23.42	200	Vert

Horizontal 10000 - 18000MHz

Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	11967.016	27.43	PK	38.8	-35.7	11.4	0.6	42.53	53.97	-11.44	74	-31.47	100	Hor

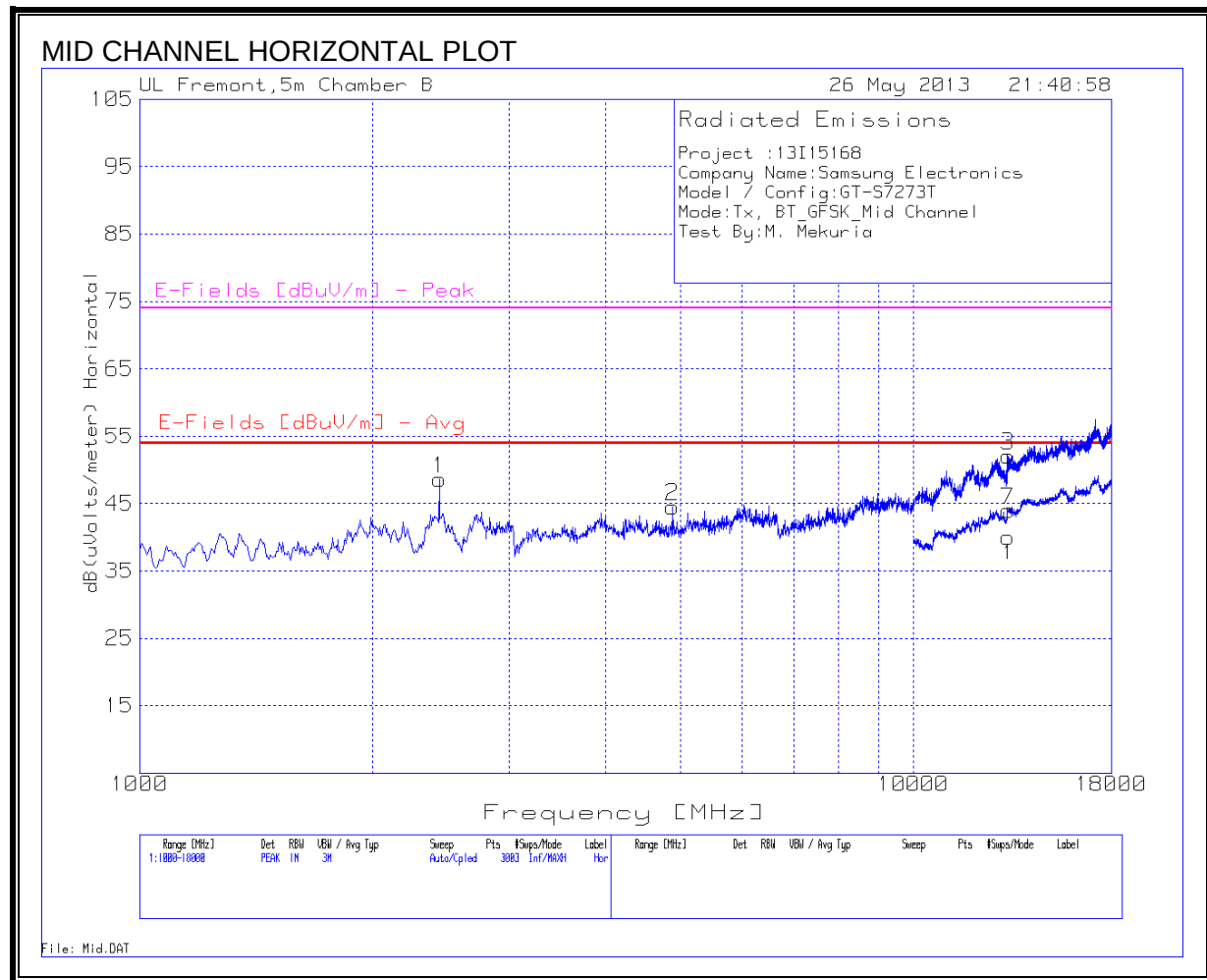
Vertical 10000 - 18000MHz

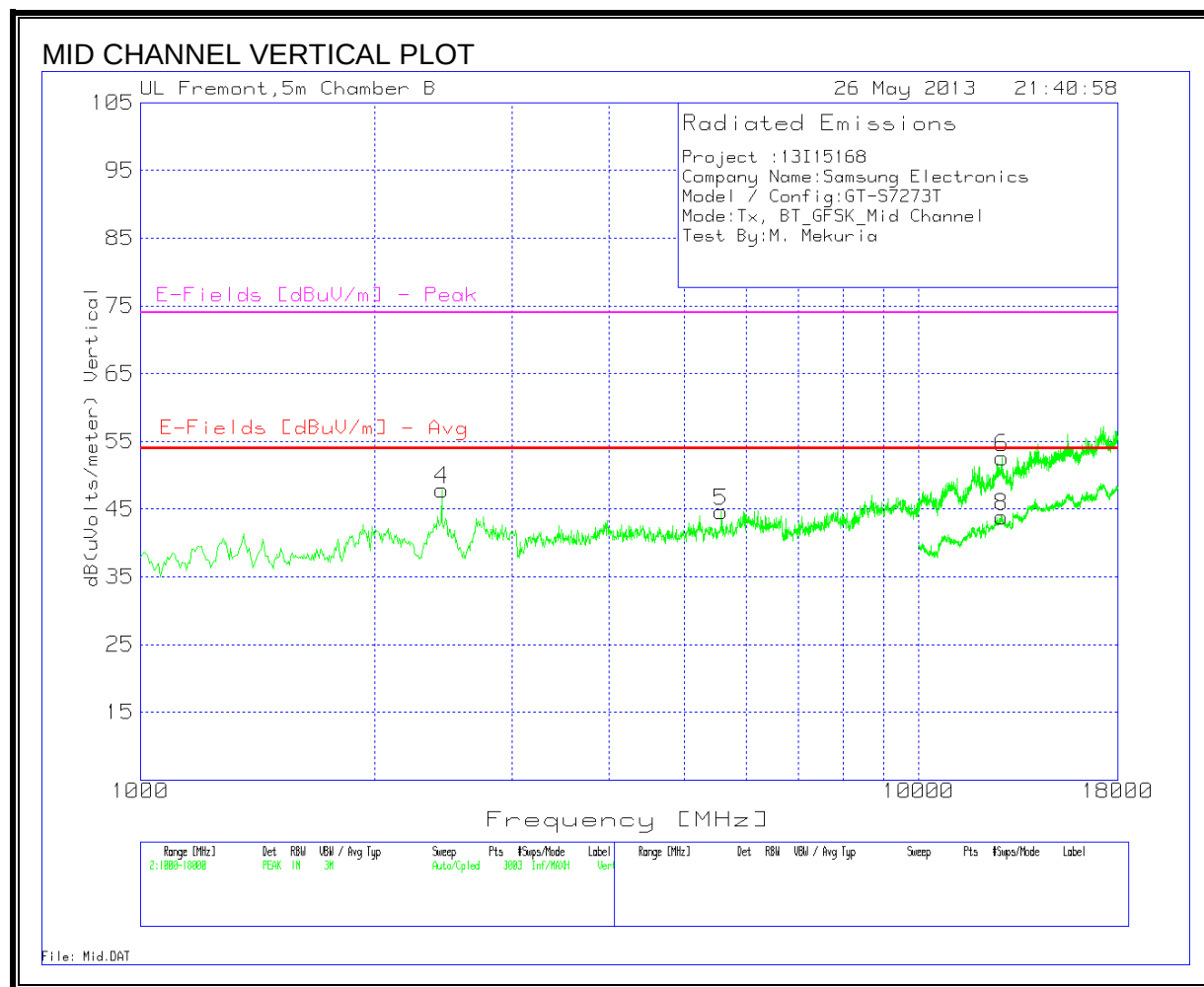
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	12866.567	25.95	PK	39.1	-34.3	11.9	0.5	43.15	53.97	-10.82	74	-30.85	200	Vert

PK - Peak detector

QP - Quasi-Peak detector

Av - Average detector





MID CHANNEL DATA

Project :13I15168

Company Name:Samsung Electronics

Model / Config:GT-S7273T

Mode:Tx, BT_GFSK_Mid Channel

Test By:M. Mekuria

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2438.374	47.76	PK	32.3	-36.9	4.5	0.9	48.56	53.97	-5.41	74	-25.44	200	Hor
2	4879.081	39.2	PK	34	-35.7	6.8	0.2	44.5	53.97	-9.47	74	-29.5	101	Hor
3	13248.83	34.5	PK	39.1	-34	12.1	0.4	52.1	53.97	-1.87	74	-21.9	101	Hor

Vertical 1000 - 18000MHz

Marker No.	Test Frequency	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2438.374	47.03	PK	32.3	-36.9	4.5	0.9	47.83	53.97	-6.14	74	-26.17	200	Vert
5	5575.616	38.09	PK	34.4	-35.5	7.4	0.2	44.59	53.97	-9.38	74	-29.41	100	Vert
6	12778.81	35.83	PK	39.1	-34.5	11.8	0.4	52.63	53.97	-1.34	74	-21.37	100	Vert

Horizontal 10000 - 18000MHz

Marker No.	Test Frequency	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	13250.38	26.23	PK	39.2	-34	12.1	0.4	43.93	53.97	-10.04	74	-30.07	100	Hor

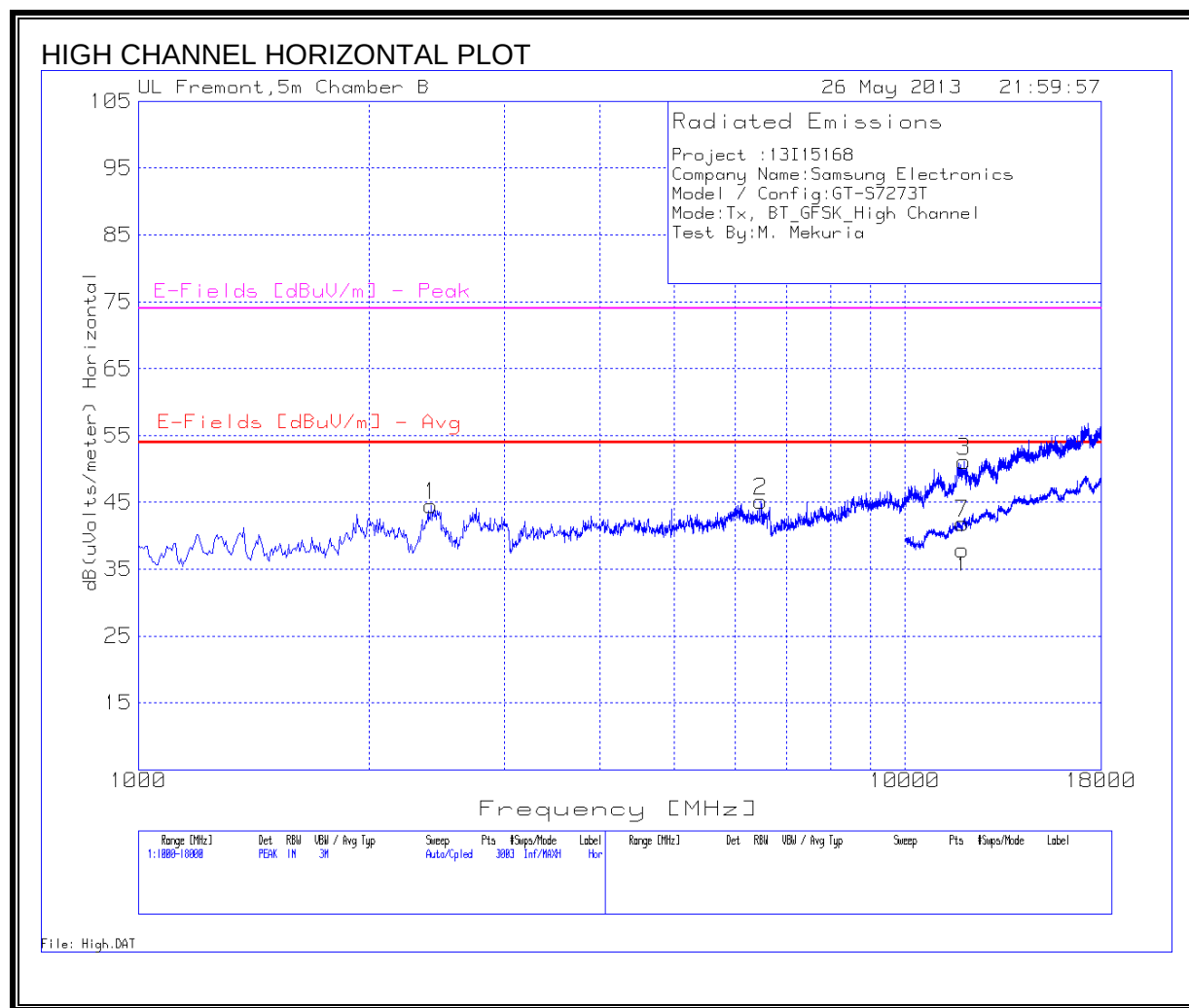
Vertical 10000 - 18000MHz

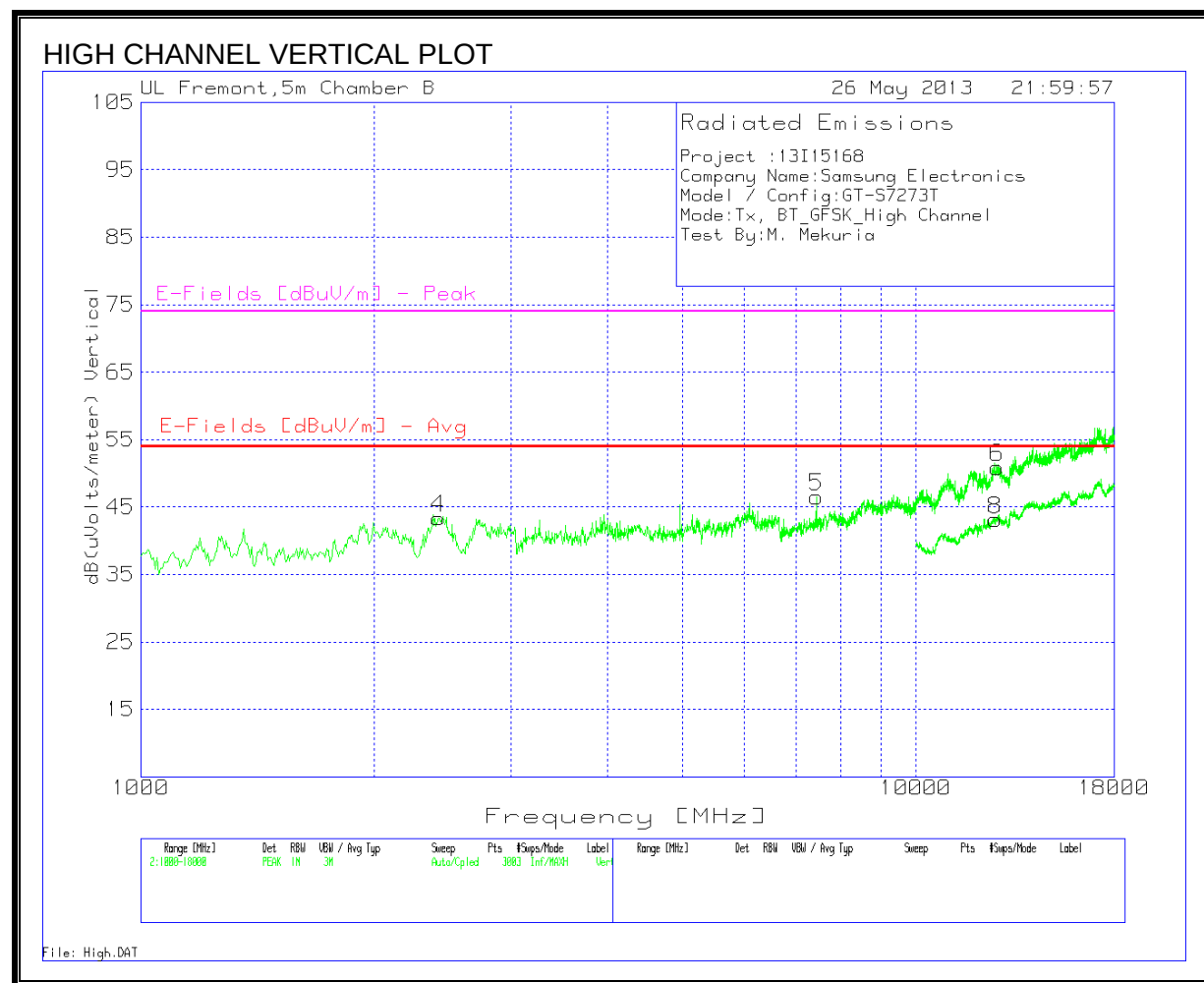
Marker No.	Test Frequency	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	12774.61	27.04	PK	39.1	-34.5	11.8	0.4	43.84	53.97	-10.13	74	-30.16	200	Vert

PK - Peak detector

QP - Quasi-Peak detector

Av - Average detector



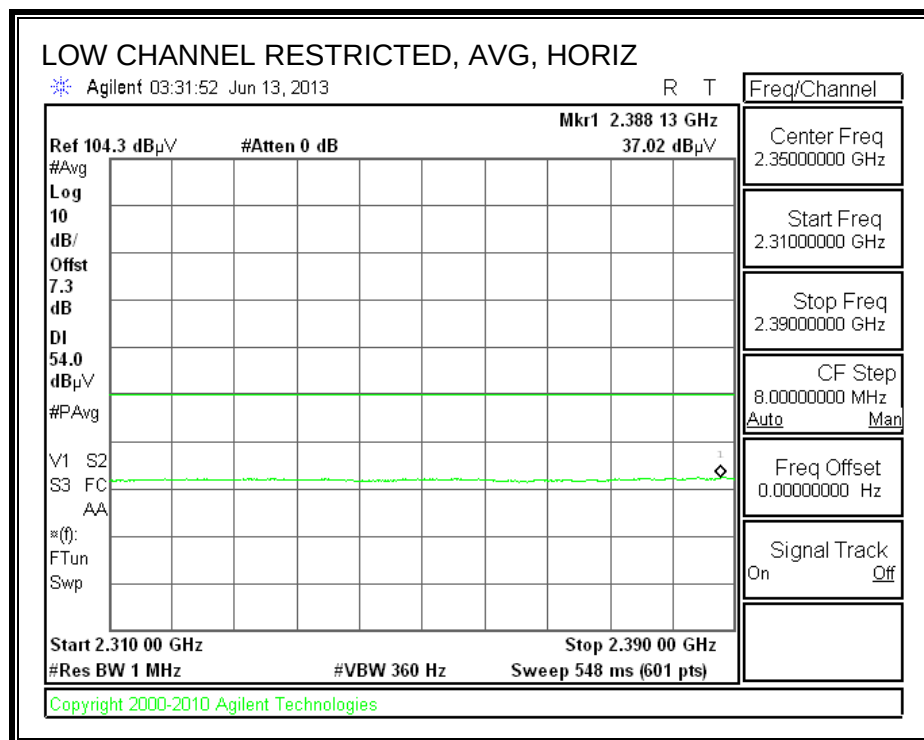
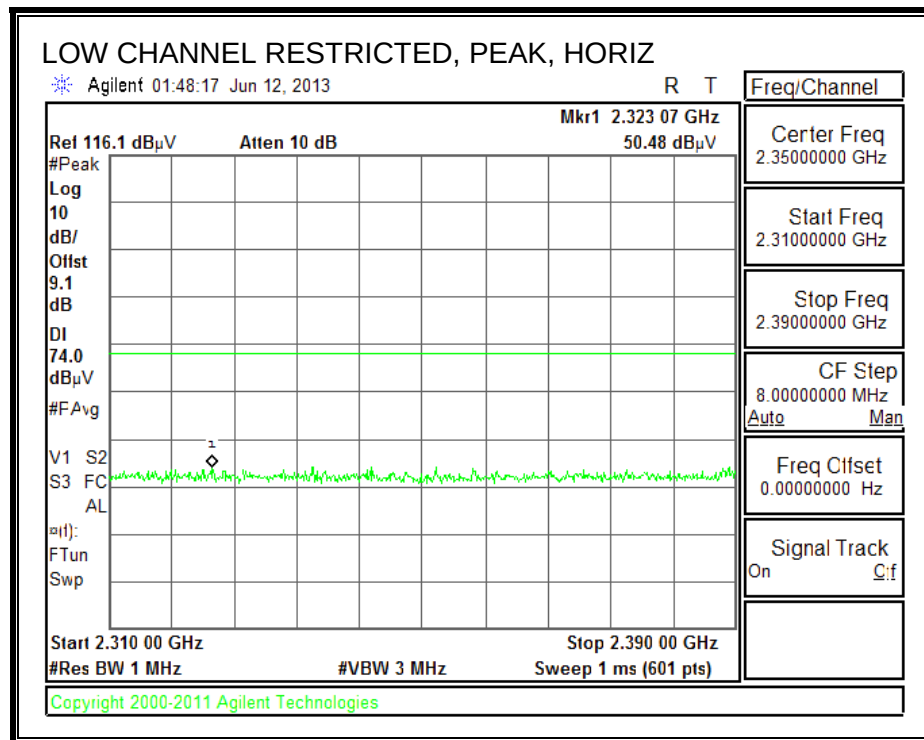


HIGH CHANNEL DATA

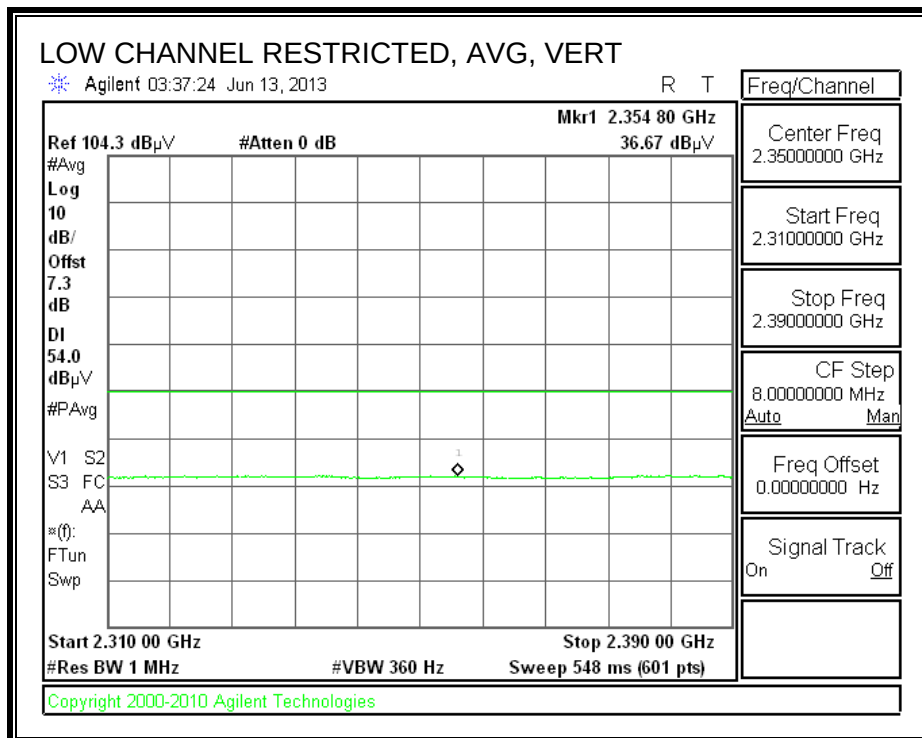
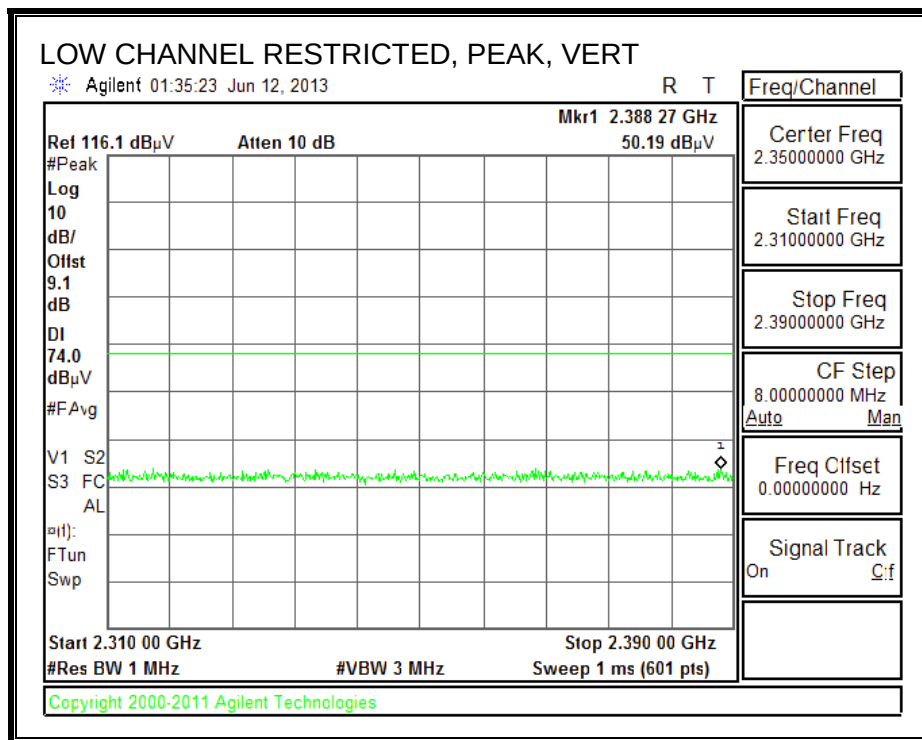
Project :13I15168														
Company Name:Samsung Electronics														
Model / Config:GT-S7273T														
Mode:Tx, BT_GFSK_High Channel														
Test By:M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2410.06	43.98	PK	32.2	-36.9	4.4	0.9	44.58	53.97	-9.39	74	-29.42	200	Hor
2	6487.342	37.01	PK	35.5	-35.6	8.1	0.2	45.21	53.97	-8.76	74	-28.79	200	Hor
3	11940.706	36.08	PK	38.7	-35.7	11.4	0.7	51.18	53.97	-2.79	74	-22.82	101	Hor
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2421.386	42.69	PK	32.2	-36.9	4.5	0.9	43.39	53.97	-10.58	74	-30.61	200	Vert
5	7438.708	37.78	PK	35.4	-35.8	8.8	0.3	46.48	53.97	-7.49	74	-27.52	100	Vert
6	12722.185	34.1	PK	39.2	-34.6	11.8	0.4	50.9	53.97	-3.07	74	-23.1	100	Vert
Horizontal 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	11875.062	26.79	PK	38.7	-35.7	11.4	0.7	41.89	53.97	-12.08	74	-32.11	200	Hor
Vertical 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	12666.667	26.43	PK	39.2	-34.7	11.8	0.4	43.13	53.97	-10.84	74	-30.87	100	Vert
PK - Peak detector														
QP - Quasi-Peak detector														
Av - Average detector														

8.2.2. ENHANCED DATA RATE 8PSK MODULATION

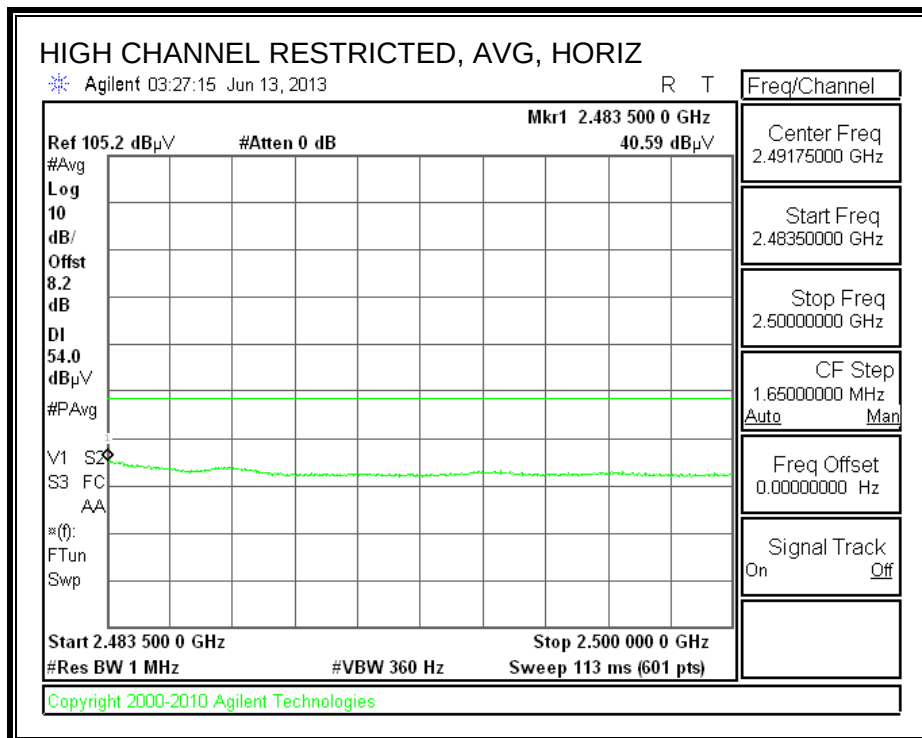
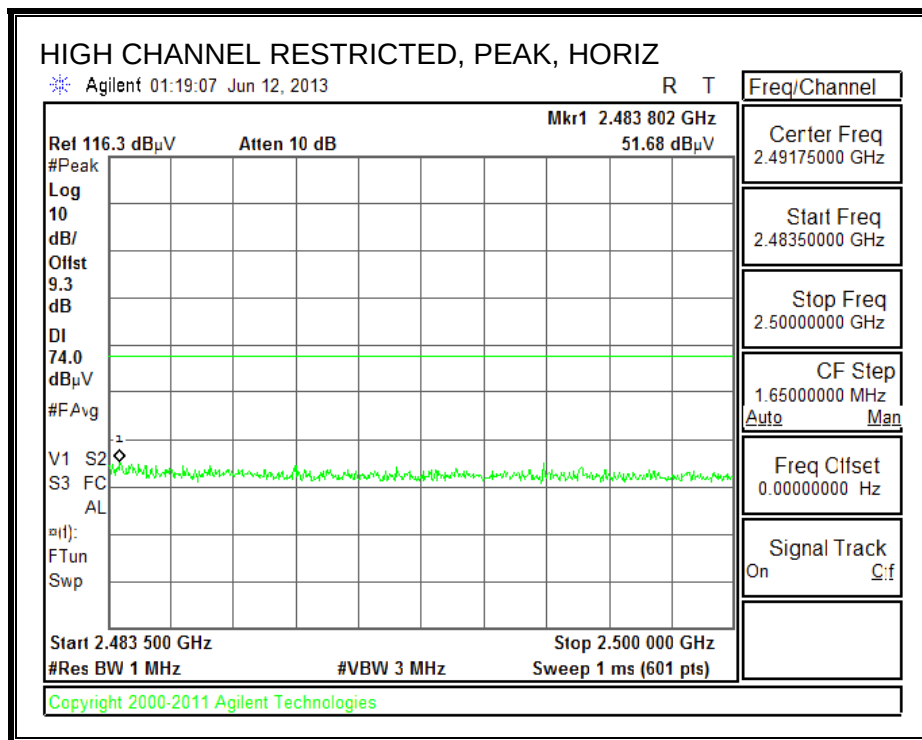
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



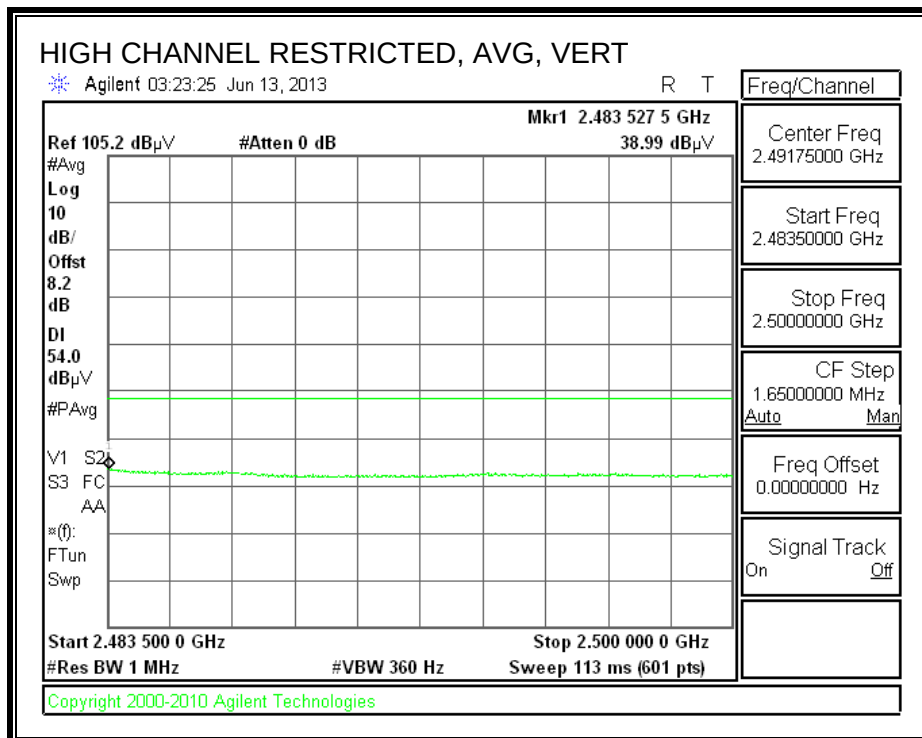
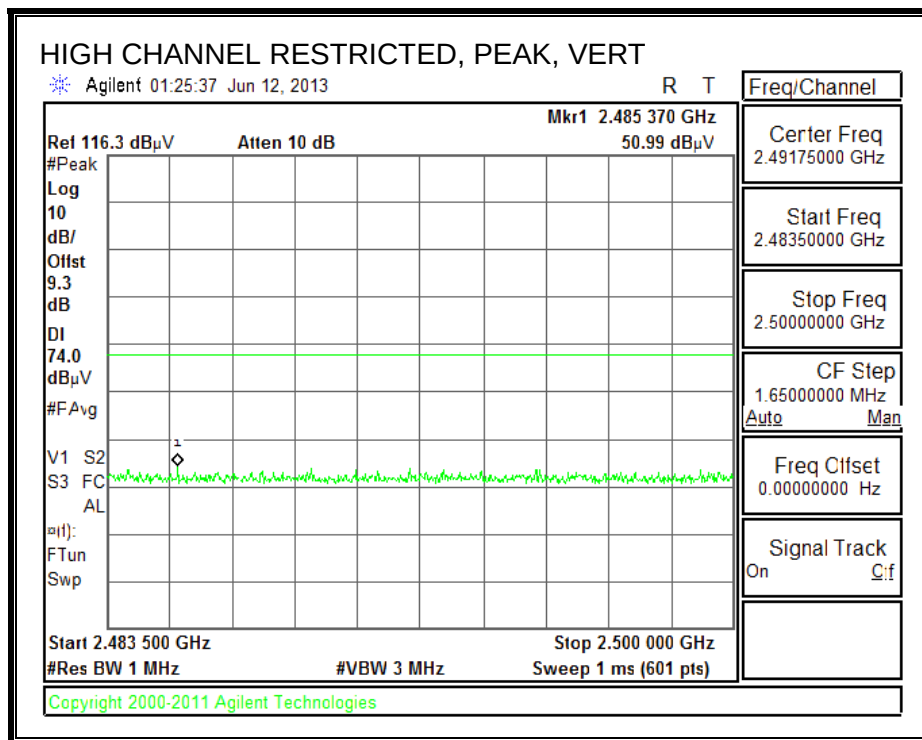
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



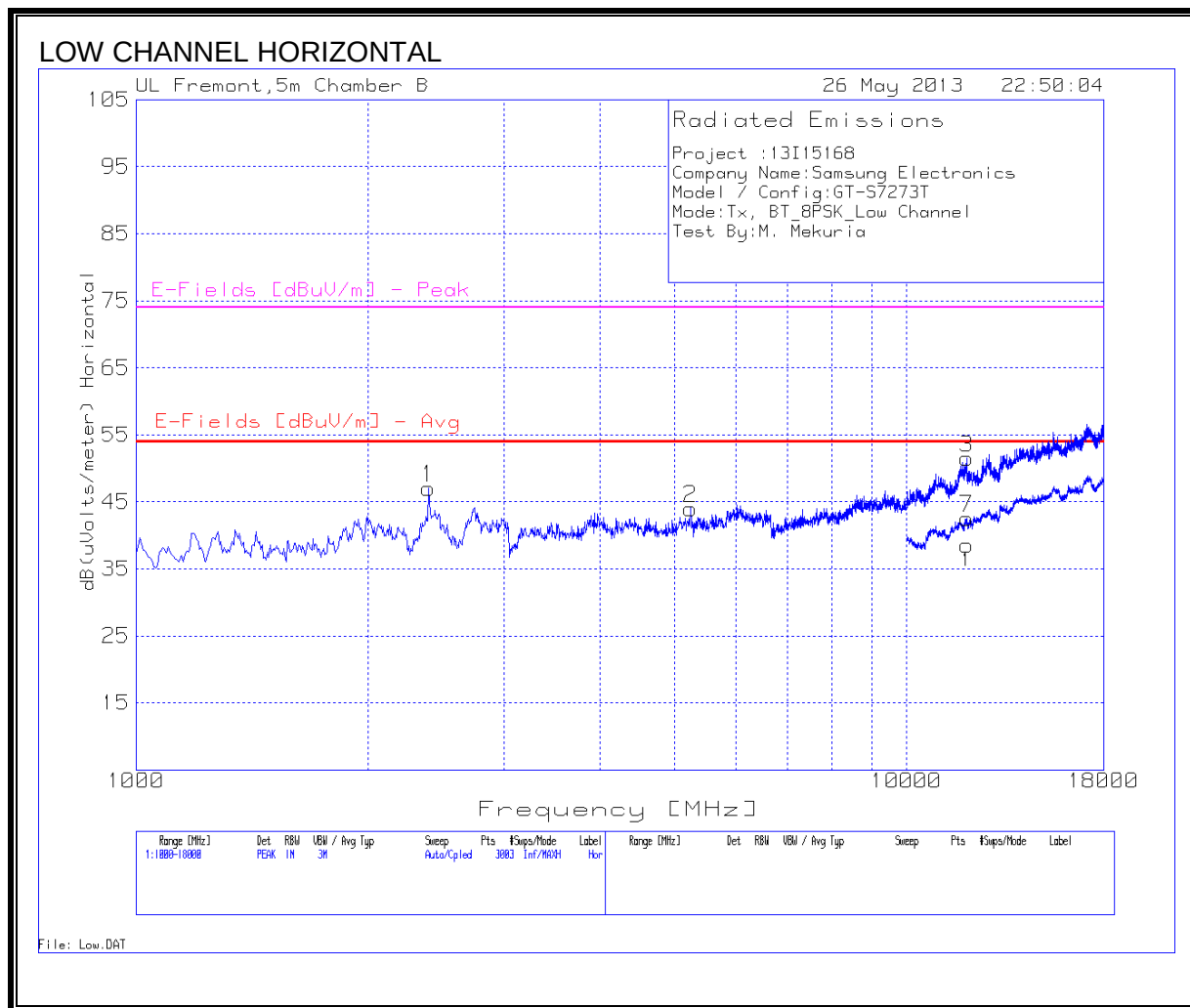
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

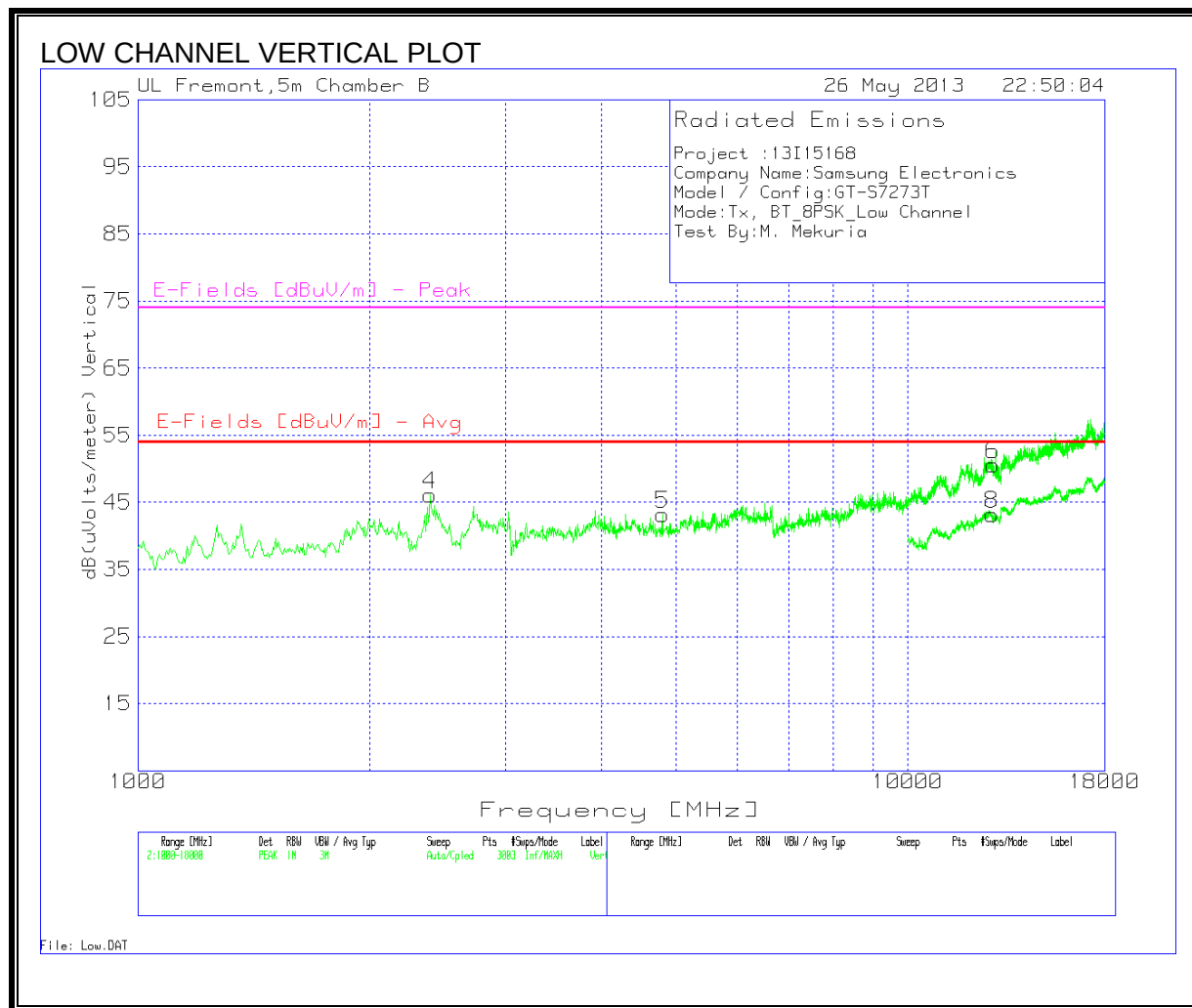


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



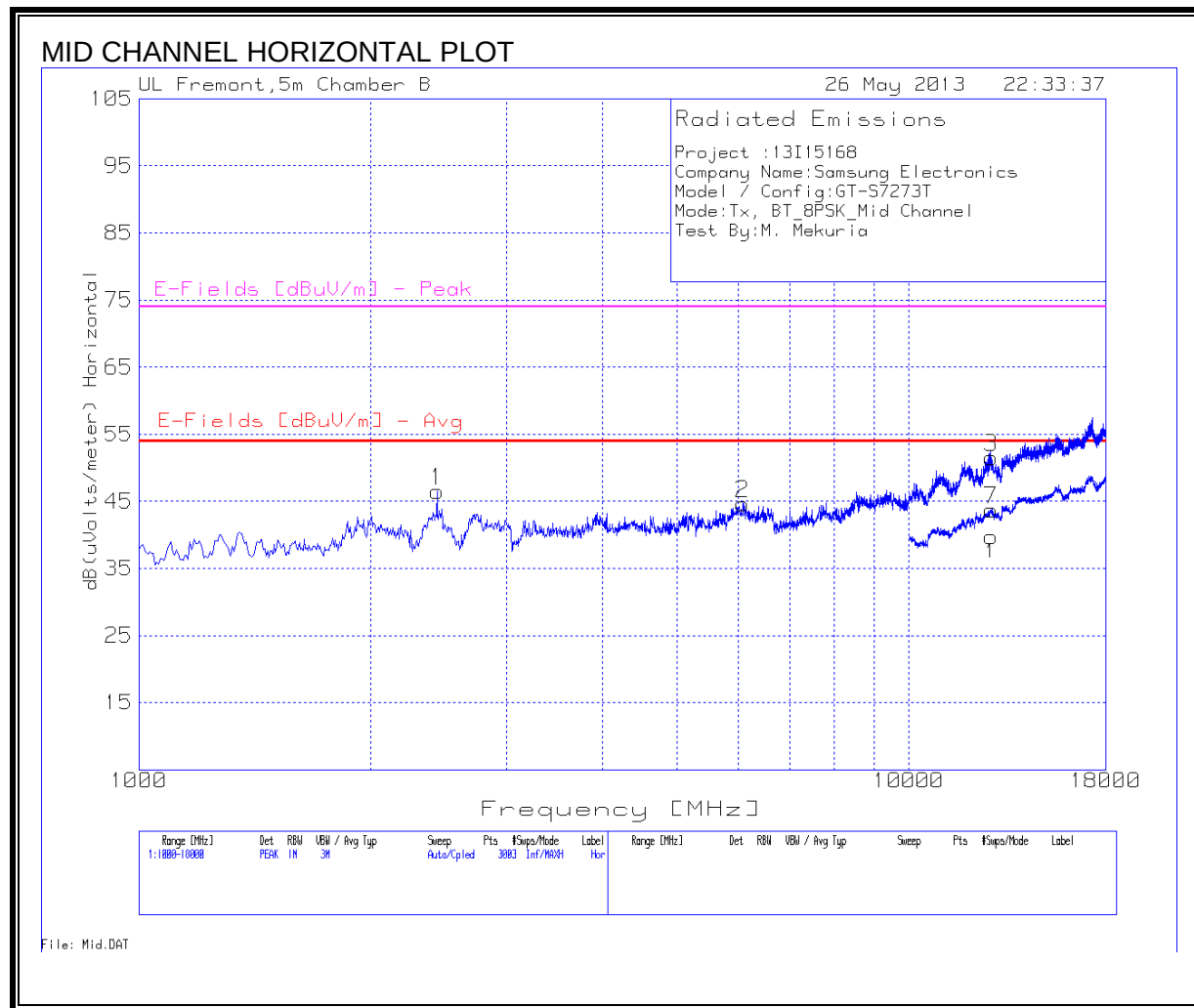
HARMONICS AND SPURIOUS EMISSIONS

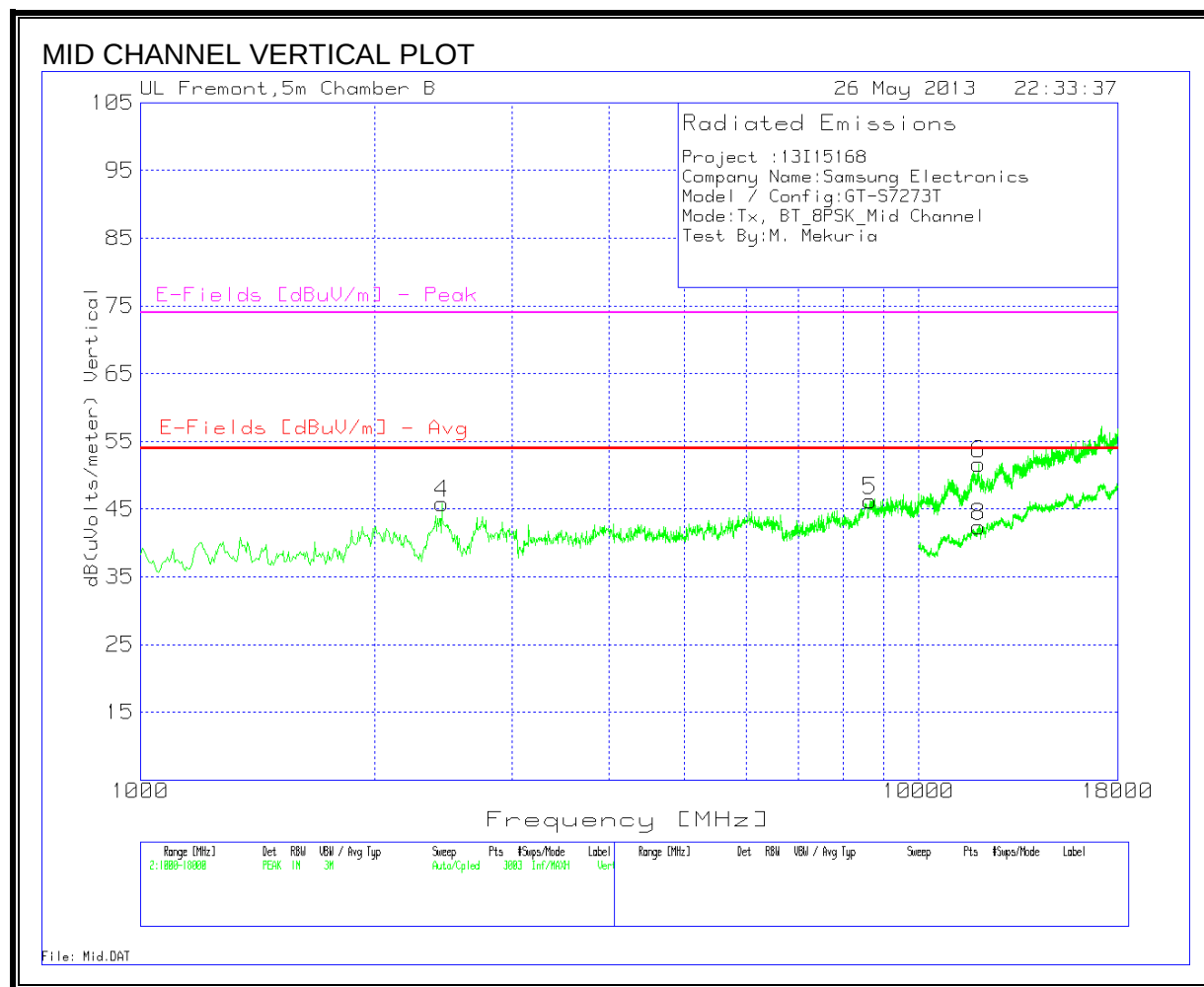




LOW CHANNEL DATA

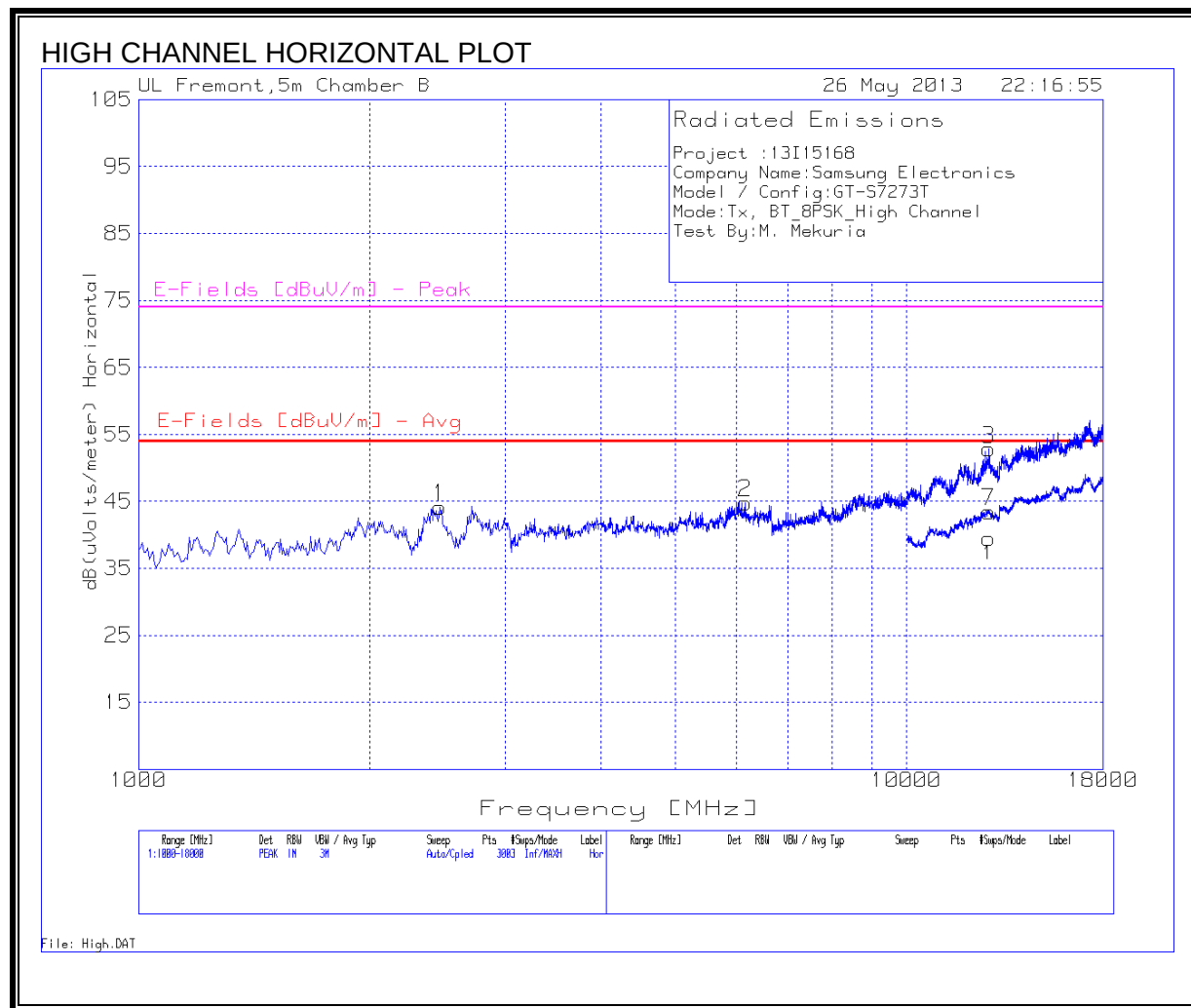
Project :13I15168														
Company Name:Samsung Electronics														
Model / Config:GT-S7273T														
Mode:Tx, BT_8PSK_Low Channel														
Test By:M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2398.734	46.54	PK	32.1	-36.9	4.4	0.9	47.04	53.97	-6.93	74	-26.96	200	Hor
2	5241.506	38.01	PK	34.2	-35.5	7.1	0.2	44.01	53.97	-9.96	74	-29.99	101	Hor
3	11957.695	36.47	PK	38.8	-35.7	11.4	0.5	51.47	53.97	-2.5	74	-22.53	200	Hor
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2398.734	45.64	PK	32.1	-36.9	4.4	0.9	46.14	53.97	-7.83	74	-27.86	100	Vert
5	4799.8	38.09	PK	33.9	-35.7	6.7	0.2	43.19	53.97	-10.78	74	-30.81	100	Vert
6	12897.735	33.48	PK	39.1	-34.3	11.9	0.4	50.58	53.97	-3.39	74	-23.42	200	Vert
Horizontal 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	11967.016	27.43	PK	38.8	-35.7	11.4	0.6	42.53	53.97	-11.44	74	-31.47	100	Hor
Vertical 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	12866.567	25.95	PK	39.1	-34.3	11.9	0.5	43.15	53.97	-10.82	74	-30.85	200	Vert
PK - Peak detector														
QP - Quasi-Peak detector														
Av - Average detector														

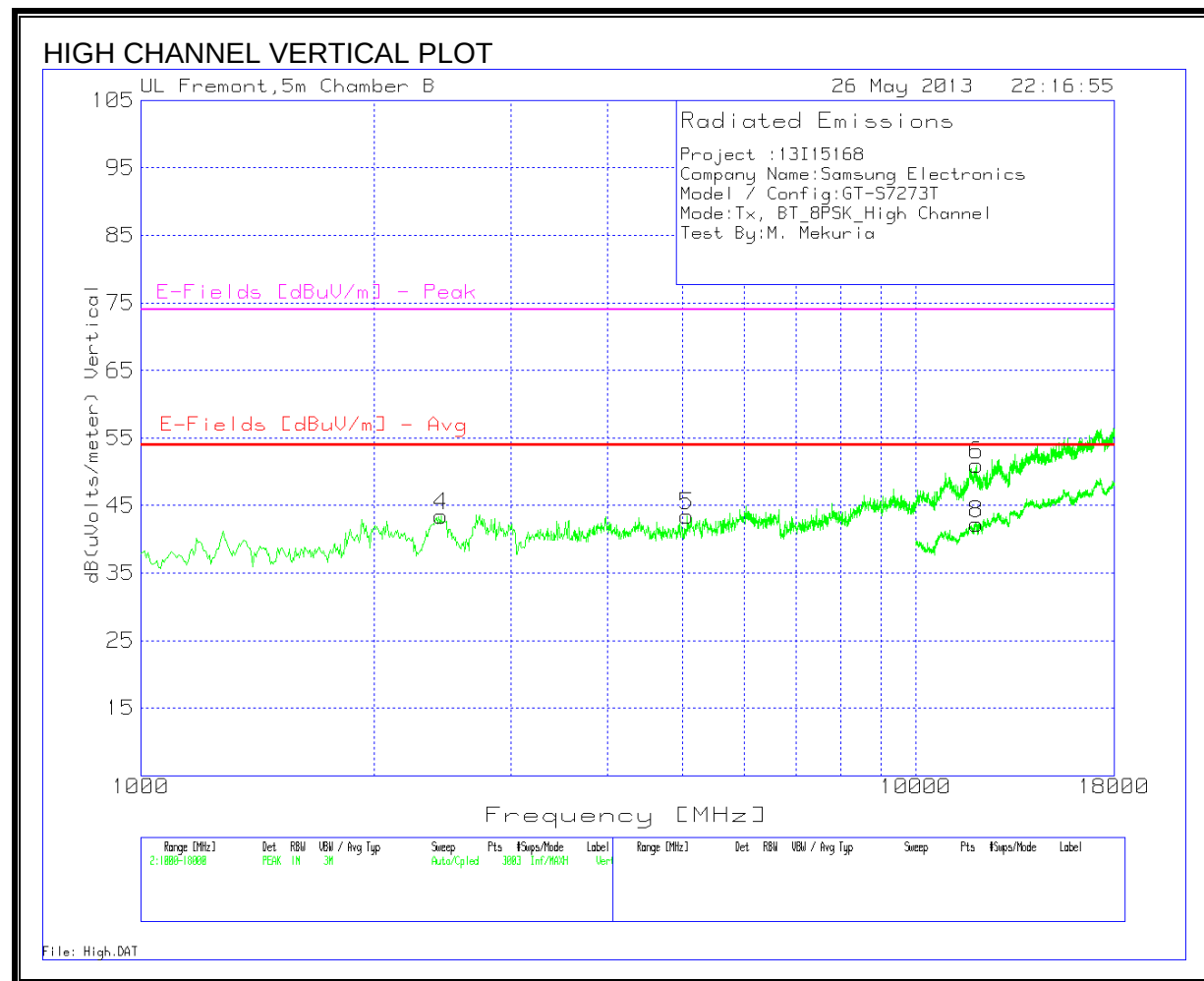




MID CHANNEL DATA

Project :13I15168														
Company Name:Samsung Electronics														
Model / Config:GT-S7273T														
Mode:Tx, BT_8PSK_Mid Channel														
Test By:M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2438.374	45.75	PK	32.3	-36.9	4.5	0.9	46.55	53.97	-7.42	74	-27.45	101	Hor
2	6090.939	37.01	PK	35.3	-35.6	7.8	0.2	44.71	53.97	-9.26	74	-29.29	101	Hor
3	12778.814	34.73	PK	39.1	-34.5	11.8	0.4	51.53	53.97	-2.44	74	-22.47	101	Hor
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading(d BuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2438.374	45	PK	32.3	-36.9	4.5	0.9	45.8	53.97	-8.17	74	-28.2	100	Vert
5	8661.892	36.54	PK	35.8	-36	9.6	0.3	46.24	53.97	-7.73	74	-27.76	200	Vert
6	11935.043	36.51	PK	38.7	-35.7	11.4	0.7	51.61	53.97	-2.36	74	-22.39	200	Vert
Horizontal 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading(d BuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	12782.609	26.89	PK	39.1	-34.5	11.8	0.4	43.69	53.97	-10.28	74	-30.31	200	Hor
Vertical 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading(d BuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	11935.032	27.3	PK	38.7	-35.7	11.4	0.7	42.4	53.97	-11.57	74	-31.6	200	Vert
PK - Peak detector														
QP - Quasi-Peak detector														
Av - Average detector														



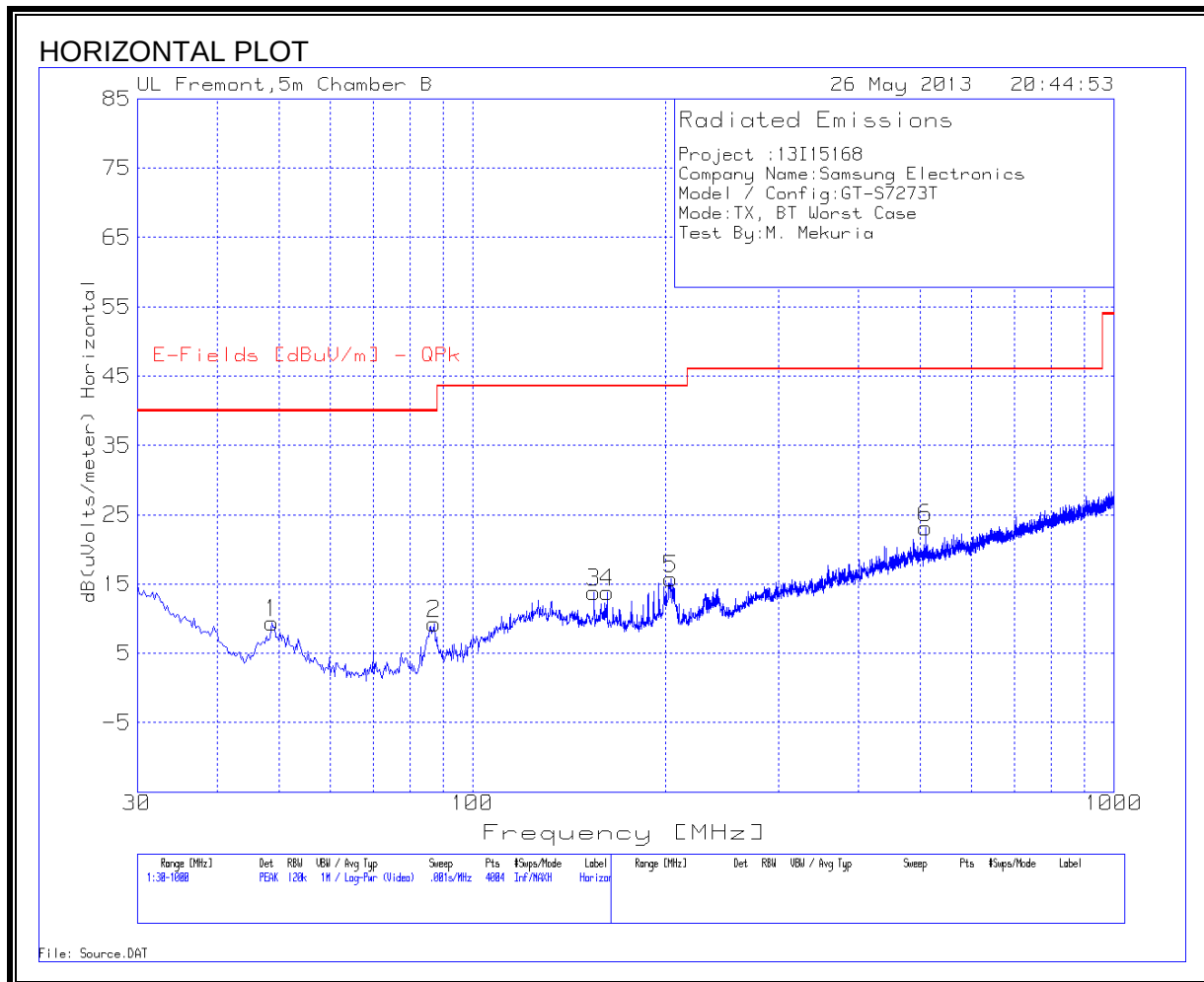


HIGH CHANNEL DATA

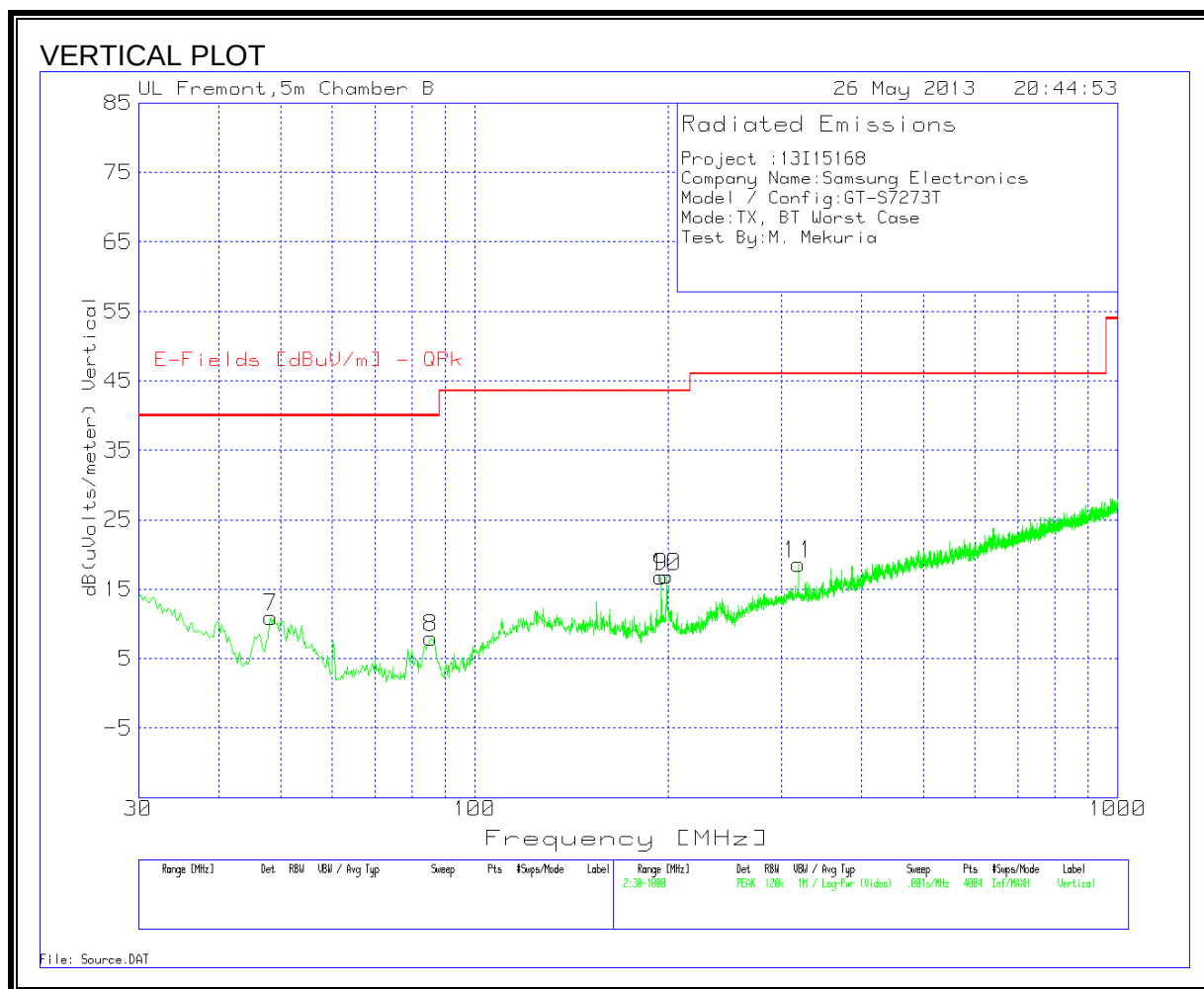
Company Name: Samsung Electronics														
Model / Config: GT-S7273T														
Mode: Tx, BT_8PSK_High Channel														
Test By: M. Mekuria														
Horizontal 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
1	2466.689	43.16	PK	32.4	-36.8	4.5	0.9	44.16	53.97	-9.81	74	-29.84	101	Hor
2	6170.22	36.99	PK	35.4	-35.6	7.8	0.2	44.79	53.97	-9.18	74	-29.21	200	Hor
3	12795.803	35.89	PK	39.1	-34.5	11.8	0.5	52.79	53.97	-1.18	74	-21.21	200	Hor
Vertical 1000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
4	2438.374	42.71	PK	32.3	-36.9	4.5	0.9	43.51	53.97	-10.46	74	-30.49	100	Vert
5	5071.619	37.91	PK	34	-35.6	6.9	0.2	43.41	53.97	-10.56	74	-30.59	100	Vert
6	11969.021	35.84	PK	38.8	-35.7	11.4	0.7	51.04	53.97	-2.93	74	-22.96	100	Vert
Horizontal 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
7	12784.608	26.65	PK	39.1	-34.5	11.8	0.4	43.45	53.97	-10.52	74	-30.55	100	Hor
Vertical 10000 - 18000MHz														
Marker No.	Test Frequency	Meter Reading[dBuV]	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]	Polarity
8	11971.014	27.12	PK	38.8	-35.7	11.4	0.6	42.22	53.97	-11.75	74	-31.78	100	Vert
PK - Peak detector														
QP - Quasi-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 :13I15168

Company Name:Samsung Electronics

Model / Config:GT-S7273T

Mode:TX, BT Worst Case

Test By:M. Mekuria

Horizontal 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T243 Antenna Factor dB/m	T10 preamp/Cable loss [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
1	48.6585	30.06	PK	8.2	-28.9	9.36	40	-30.64	400	Horz
2	87.1871	30.63	PK	7.2	-28.5	9.33	40	-30.67	200	Horz
3	154.7939	29.27	PK	12.2	-27.7	13.77	43.52	-29.75	300	Horz
4	162.0635	29.55	PK	11.9	-27.6	13.85	43.52	-29.67	200	Horz
5	203.9845	31.74	PK	11.2	-27.2	15.74	43.52	-27.78	100	Horz
6	508.5786	31.68	PK	17.7	-26.3	23.08	46.02	-22.94	200	Horz

Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T243 Antenna Factor dB/m	T10 preamp/Cable loss [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
7	48.1739	31.42	PK	8.4	-28.9	10.92	40	-29.08	200	Vert
8	85.4909	29.4	PK	7.2	-28.6	8	40	-32	200	Vert
9	195.2611	32.37	PK	11.7	-27.3	16.77	43.52	-26.75	200	Vert
10	198.8958	31.85	PK	12.3	-27.3	16.85	43.52	-26.67	200	Vert
11	319.328	31.22	PK	13.8	-26.4	18.62	46.02	-27.4	400	Vert

PK - Peak detector

QP - Quasi-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.

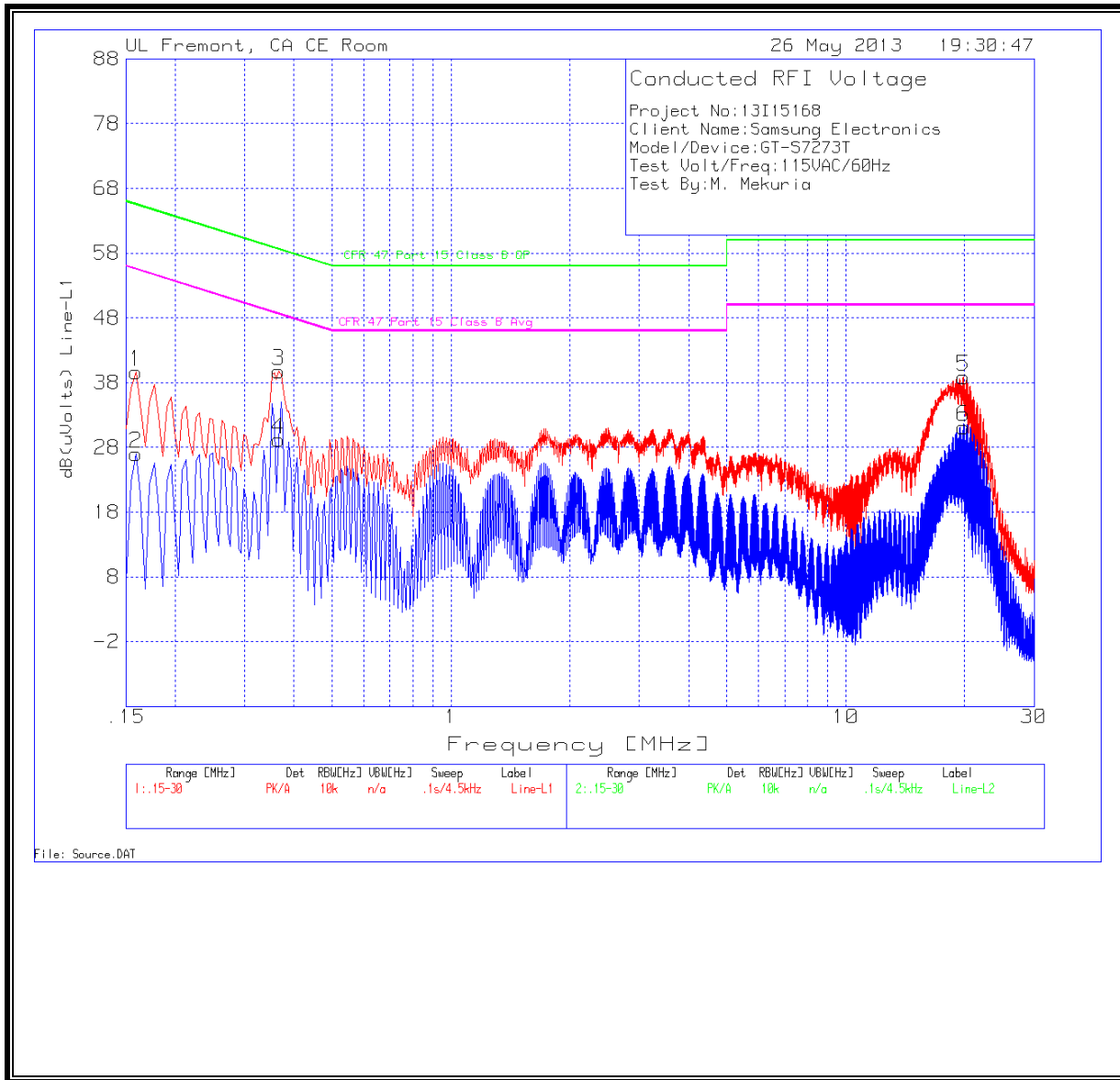
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

Project No:13I15168									
Client Name:Samsung Electronics									
Model/Device:GT-S7273T									
Test Volt/Freq:115VAC/60Hz									
Test By:M. Mekuria									
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
0.159	39.53	PK	0.1	0	39.63	65.5	-25.87	-	-
0.159	26.93	Av	0.1	0	27.03	-	-	55.5	-28.47
0.366	39.66	PK	0.1	0	39.76	58.6	-18.84	-	-
0.366	29.1	Av	0.1	0	29.2	-	-	48.6	-19.4
19.833	38.34	PK	0.3	0.2	38.84	60	-21.16	-	-
19.833	30.63	Av	0.3	0.2	31.13	-	-	50	-18.87
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
0.159	36.4	PK	0.1	0	36.5	65.5	-29	-	-
0.159	21.65	Av	0.1	0	21.75	-	-	55.5	-33.75
0.357	37.81	PK	0.1	0	37.91	58.8	-20.89	-	-
0.357	26.06	Av	0.1	0	26.16	-	-	48.8	-22.64
17.853	43.32	PK	0.2	0.2	43.72	60	-16.28	-	-
17.853	26.92	Av	0.2	0.2	27.32	-	-	50	-22.68
PK - Peak detector									
QP - Quasi-Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS

