



FCC CFR47 PART 15 SUBPART C

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

GSM Phone + Bluetooth & WLAN 2.4GHz b/g/n

MODEL NUMBER: SM-G350E

FCC ID: A3LSMG350E

REPORT NUMBER: 14I17784-3

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Prepared for

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	5/17/14	Initial Issue	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM Phone + Bluetooth & WLAN 2.4GHz b/g/n
MODEL: SM-G350E
SERIAL NUMBER: FL-179-D (Conducted); FL-179-A (Radiated)
DATE TESTED: MAY 9-17, 2014

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

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

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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 18000 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 GSM Phone + Bluetooth & DTS 2.4GHz b/g/n.

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	BLE	5.64	3.66

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2.24 dBi.

5.4. SOFTWARE AND FIRMWARE

Software version was G350EXXU0ANDA.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	ETA0U10EBE	N/A	N/A
Earphone	SAMSUNG	N/A	N/A	N/A

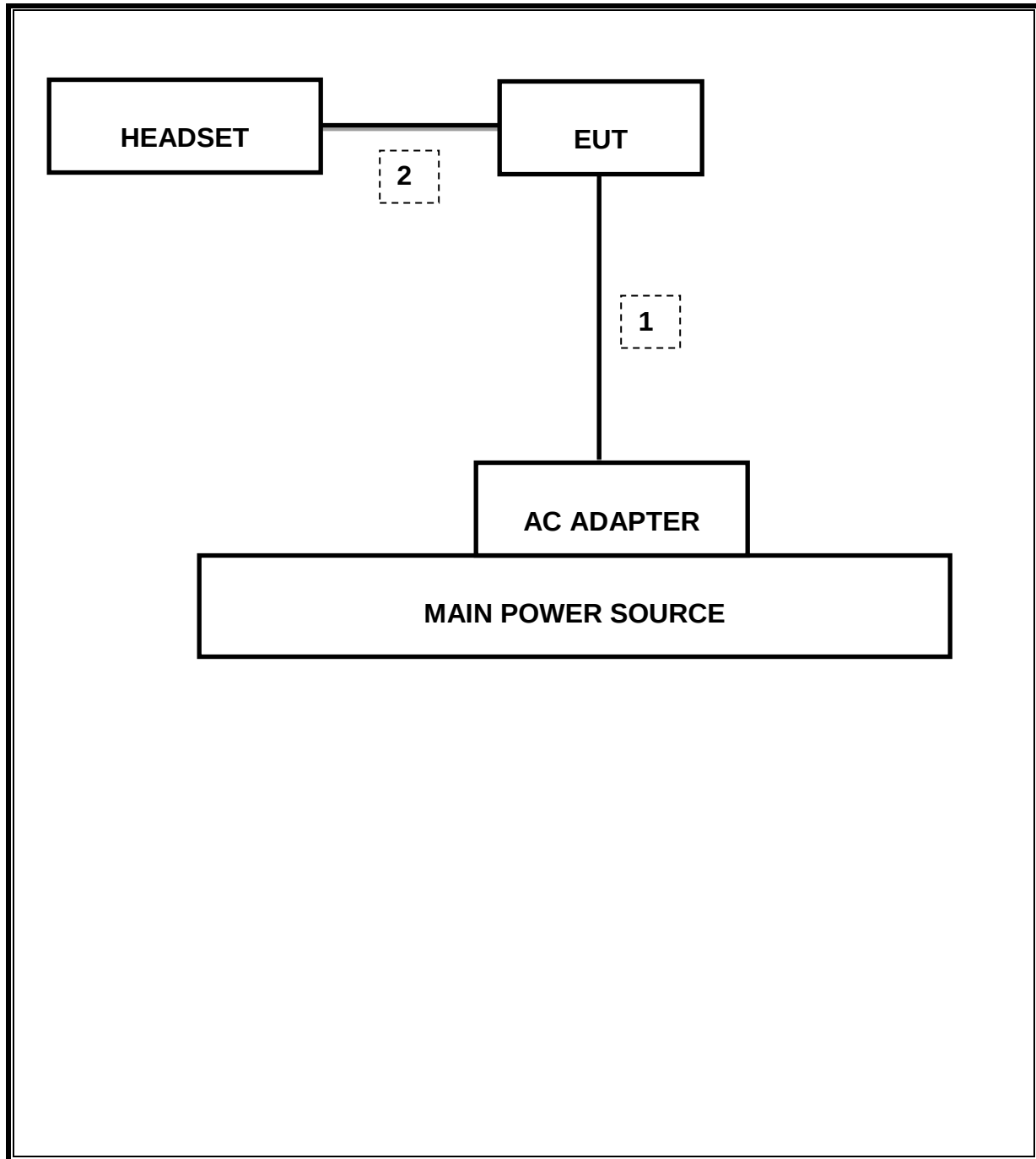
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

EUT was set in the Hidden menu mode to enable BLE communications.

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
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	4/1/2015
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	2/26/2015
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/8/2014
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	5/8/2015
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/2014
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	N/A	3/6/2015
Antenna, Horn, 18 GHz	ETS	3117	C01022	2/21/2015
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/2014
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2014
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2014
LISN, 30 MHz	FCC	50/250-25-2	C00626	1/14/2015

7. SUMMARY

8.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	737KHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.95dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	5.64dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-7.71dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	43.00dBuV(AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	40.64dBuV/m

ANTENNA PORT TEST RESULTS

8.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

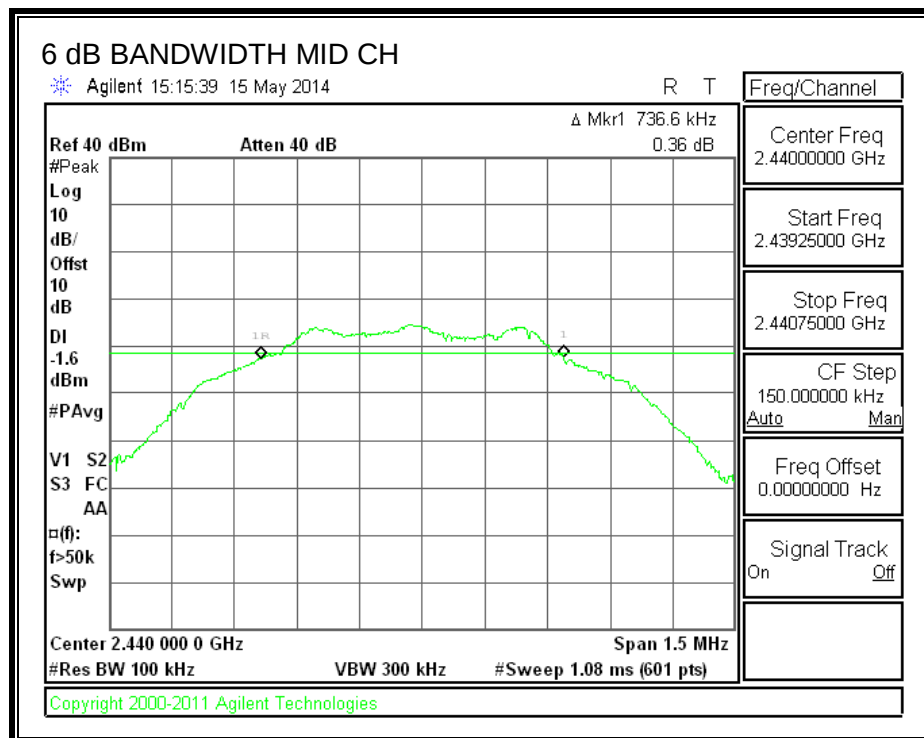
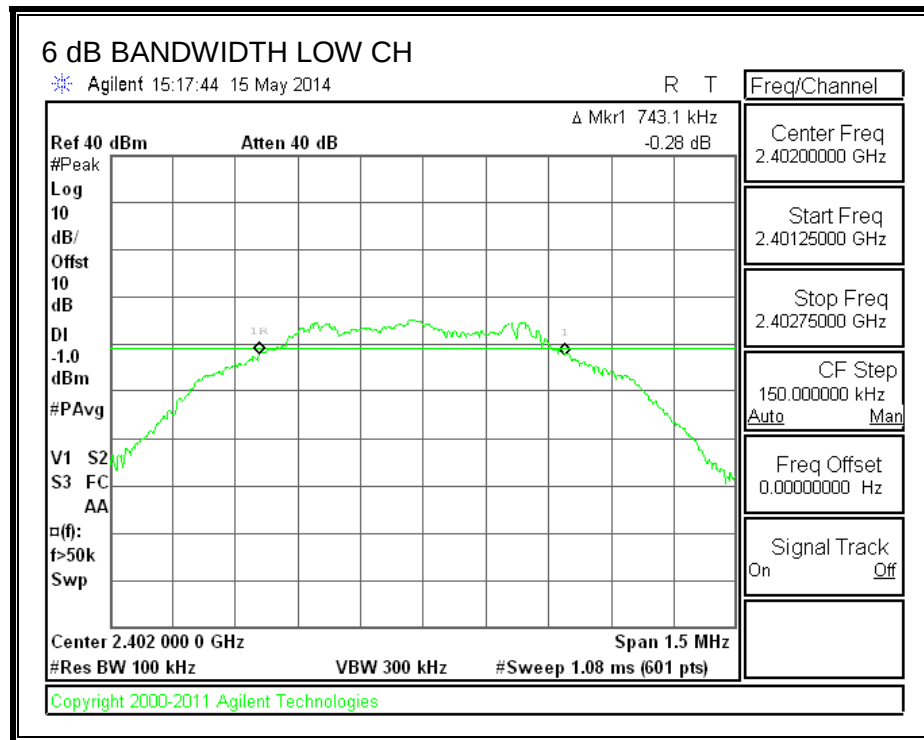
TEST PROCEDURE

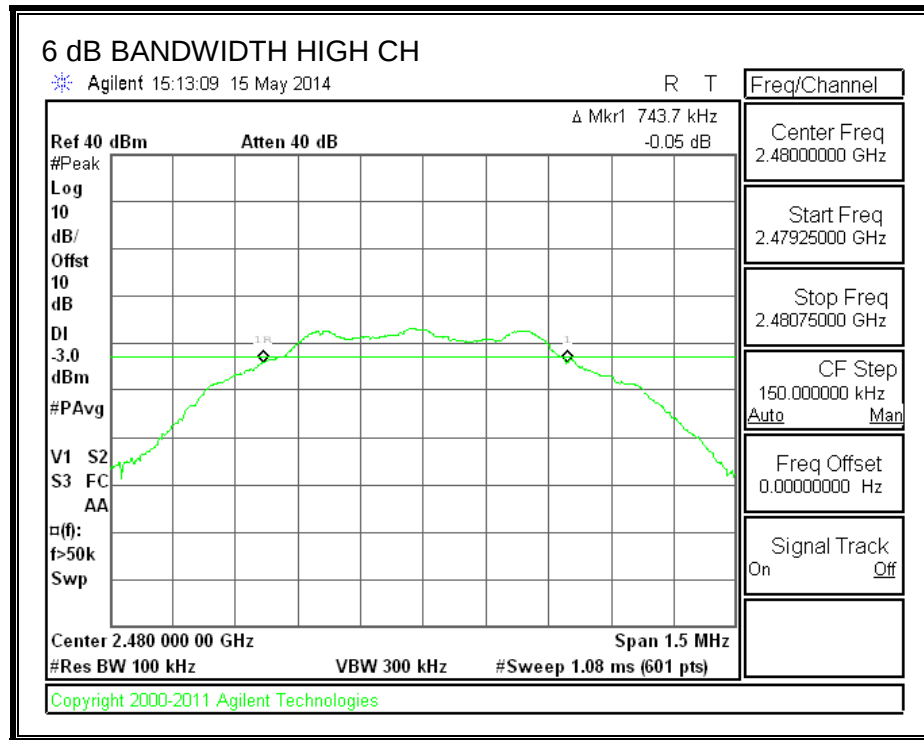
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.7430	0.5
Middle	2440	0.7370	0.5
High	2480	0.7440	0.5

6 dB BANDWIDTH





8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

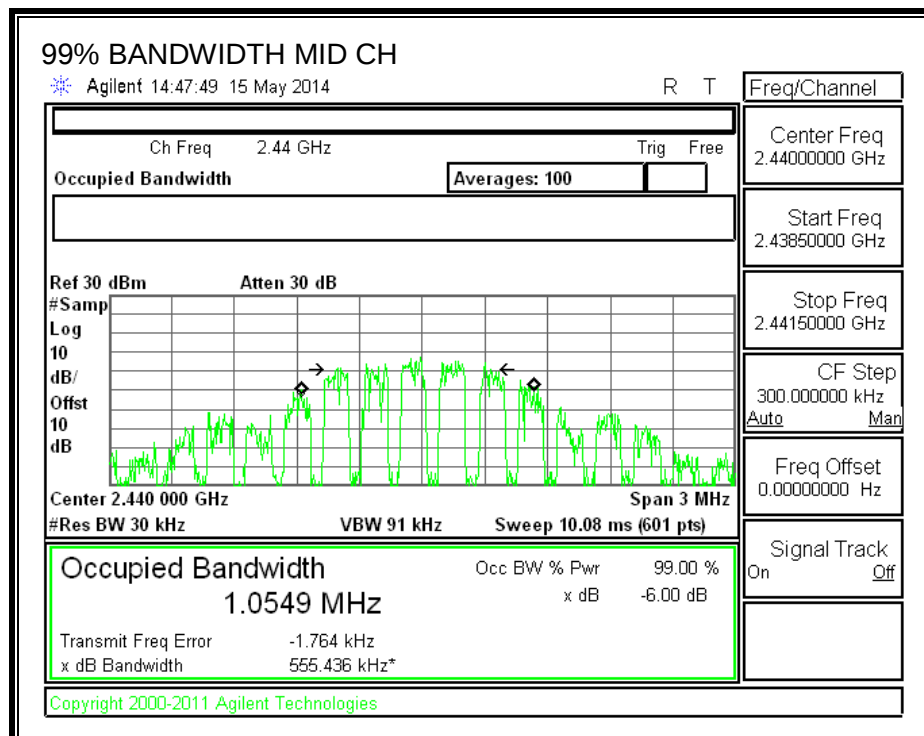
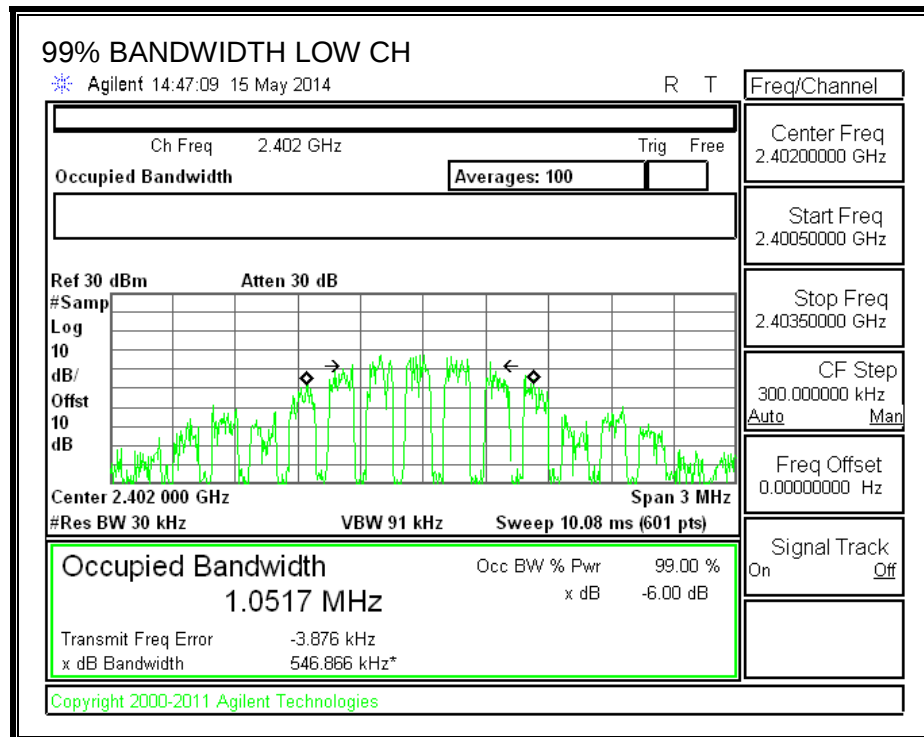
TEST PROCEDURE

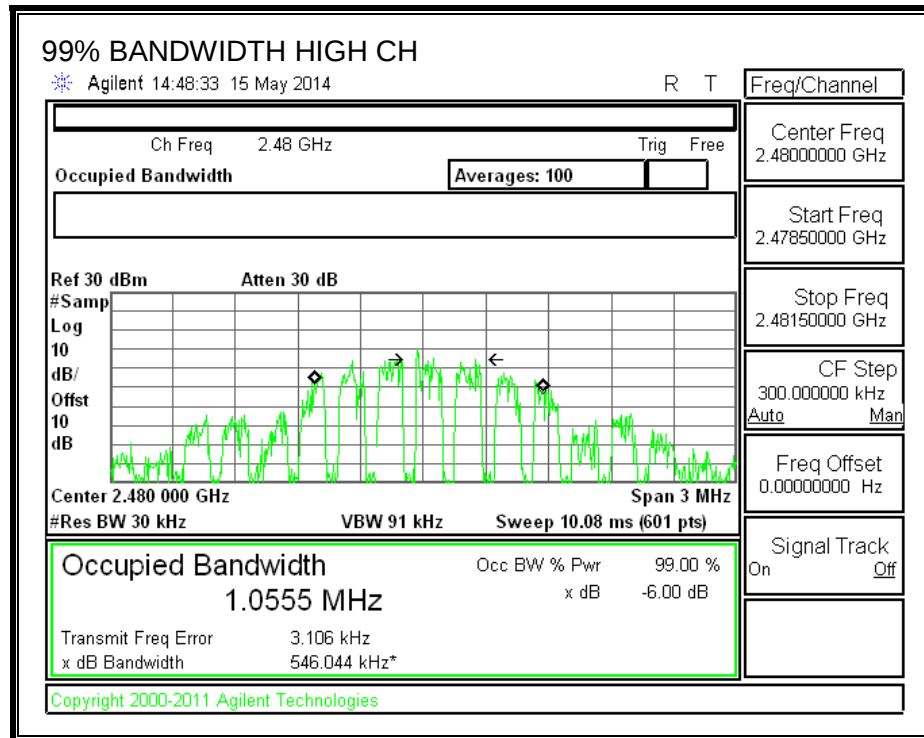
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0517
Middle	2440	1.0549
High	2480	1.0555

99% BANDWIDTH





8.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

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

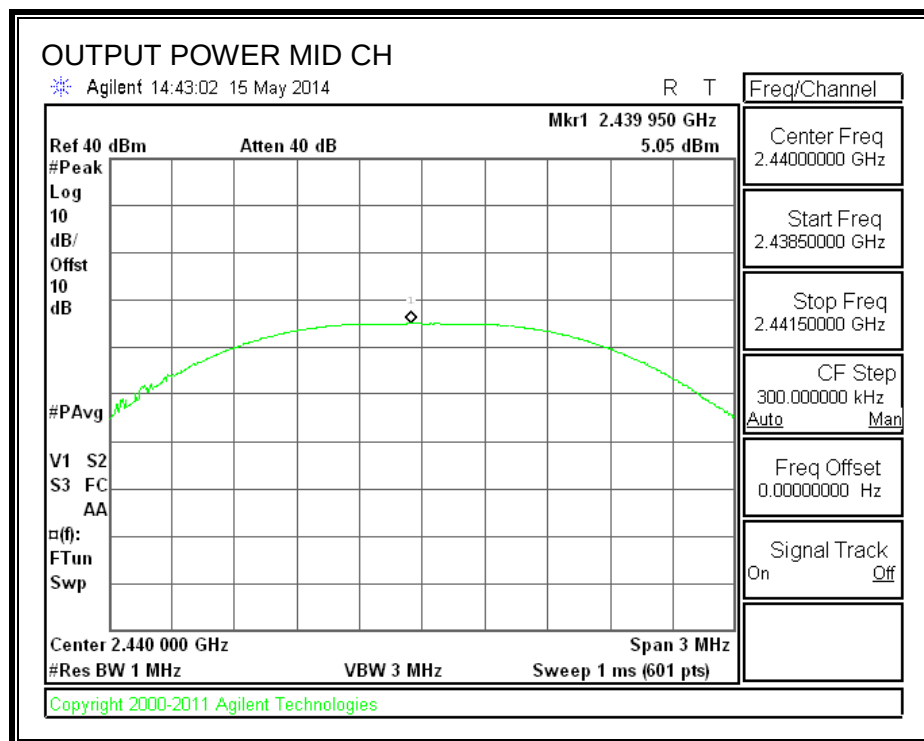
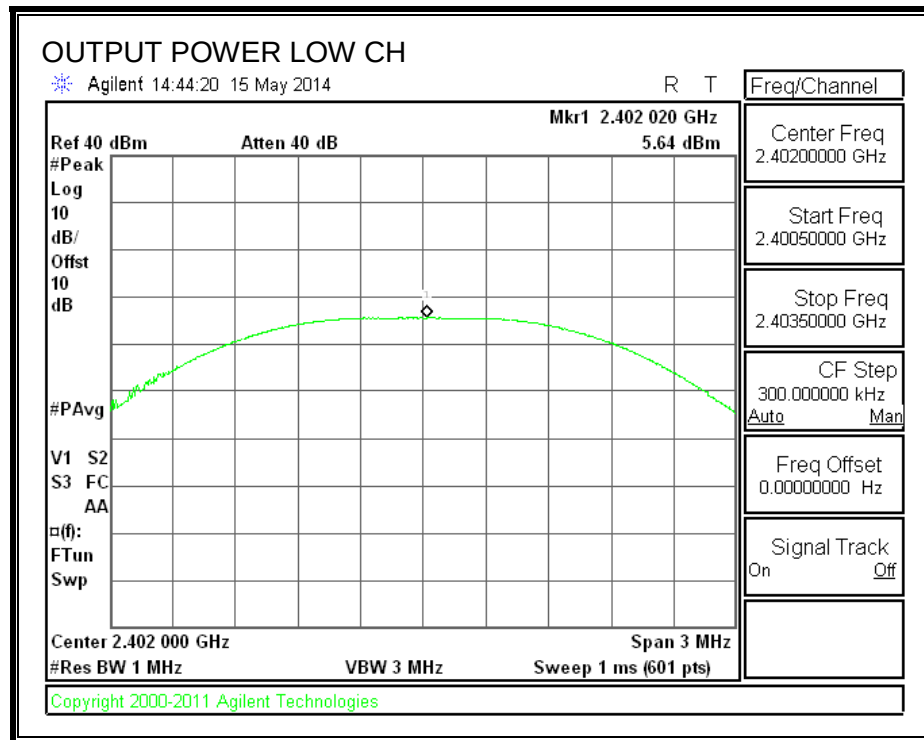
TEST PROCEDURE

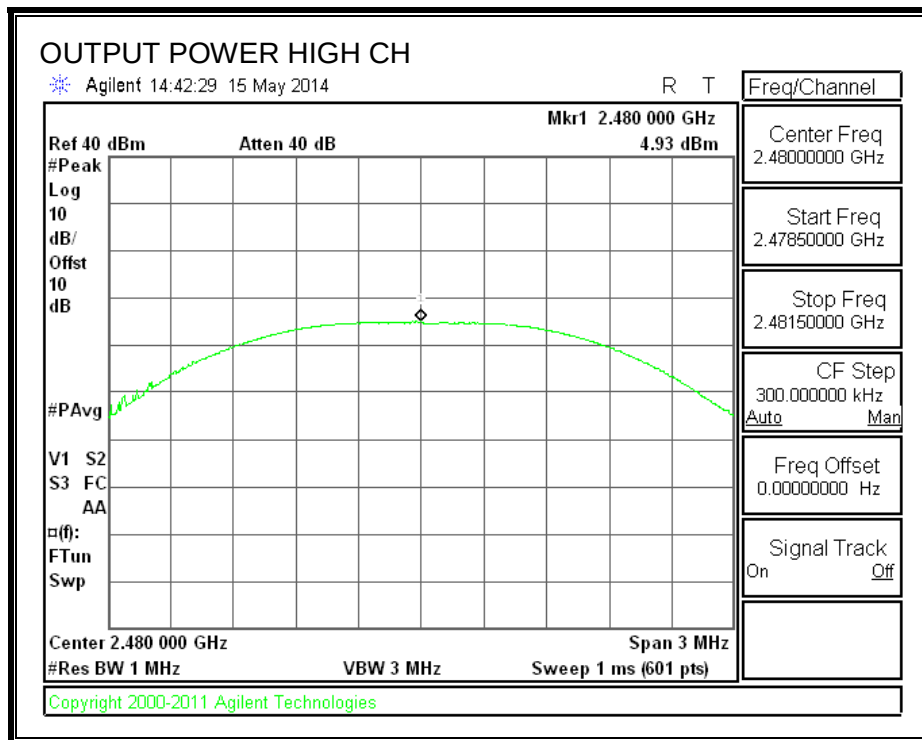
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyze.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	5.640	30	-24.360
Middle	2440	5.050	30	-24.950
High	2480	4.930	30	-25.070

OUTPUT POWER





8.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 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)	AV power (dBm)
Low	2402	4.8
Middle	2440	3.8
High	2480	2.8

8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

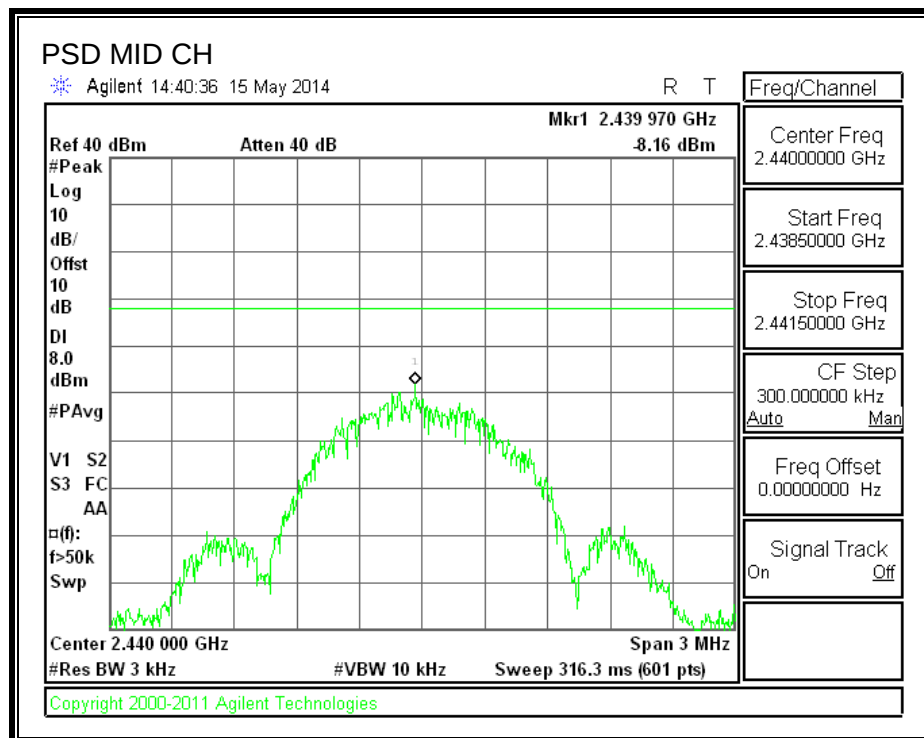
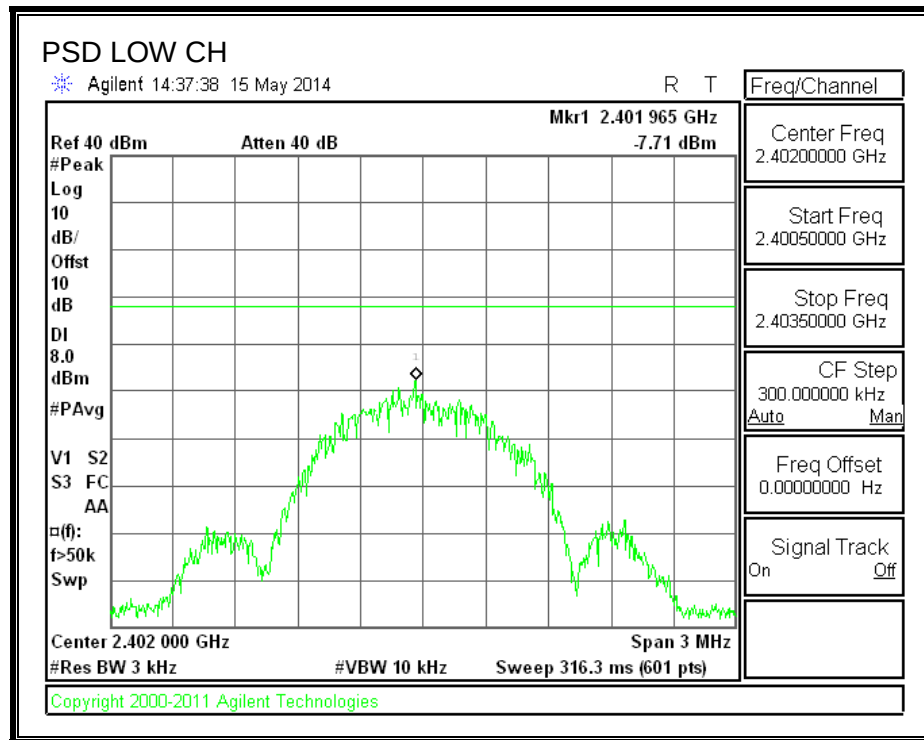
TEST PROCEDURE

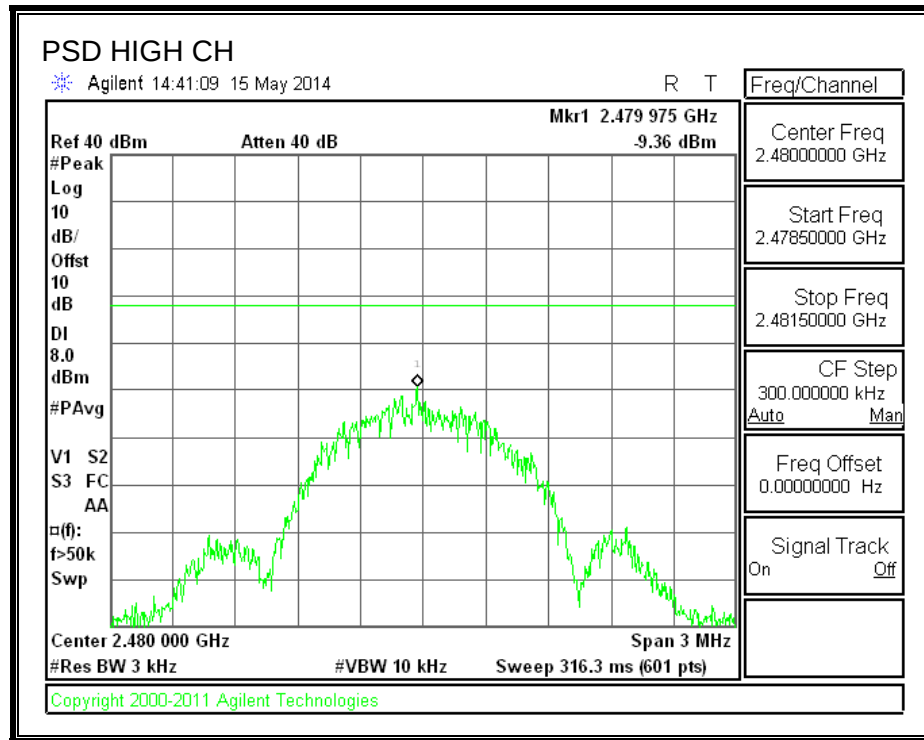
Power Spectral Density was performed utilizing the "Method PKPSD (Peak PSD)" under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-7.71	8	-15.71
Middle	2440	-8.16	8	-16.16
High	2480	-9.36	8	-17.36

POWER SPECTRAL DENSITY





8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

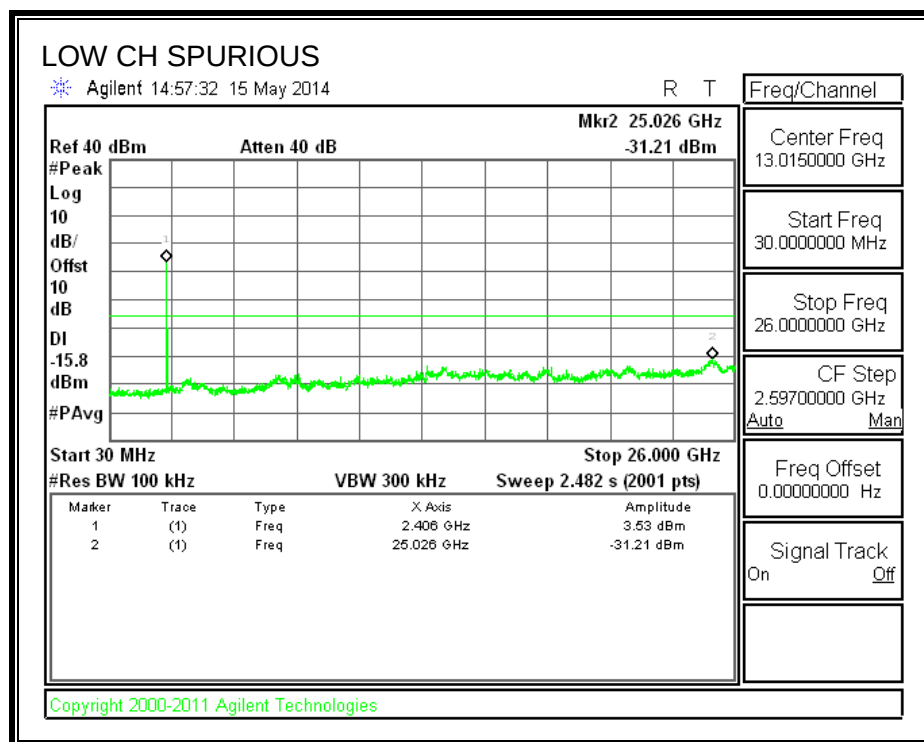
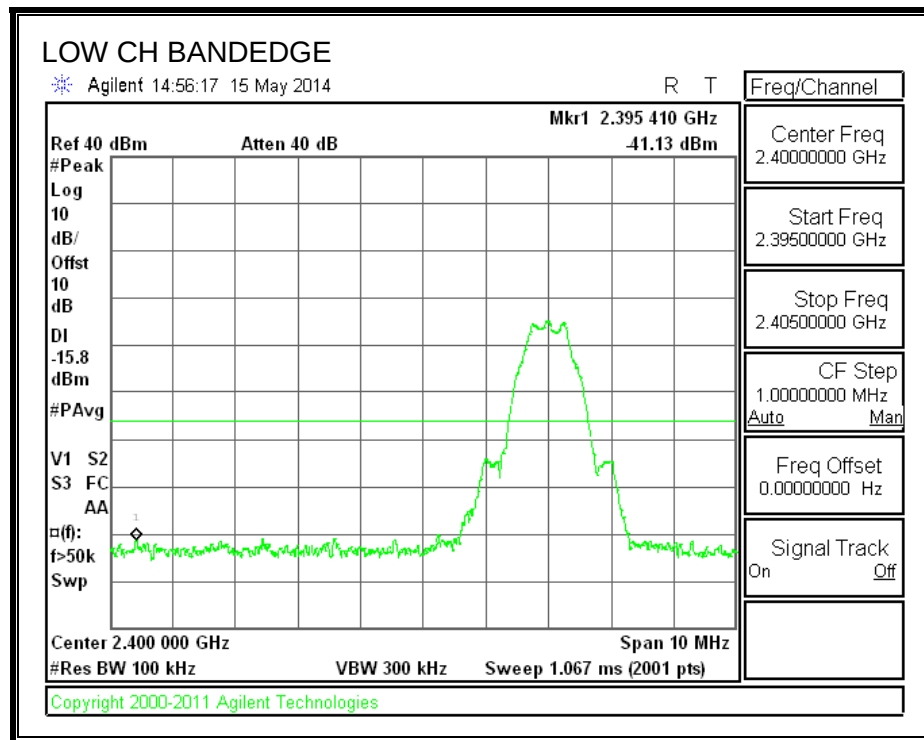
TEST PROCEDURE

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.

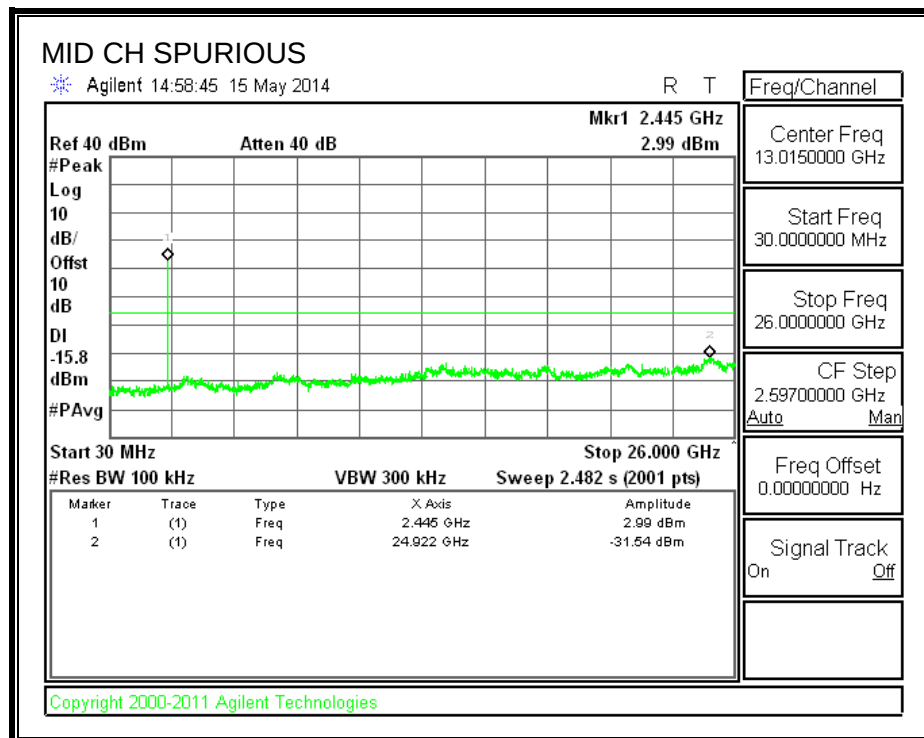
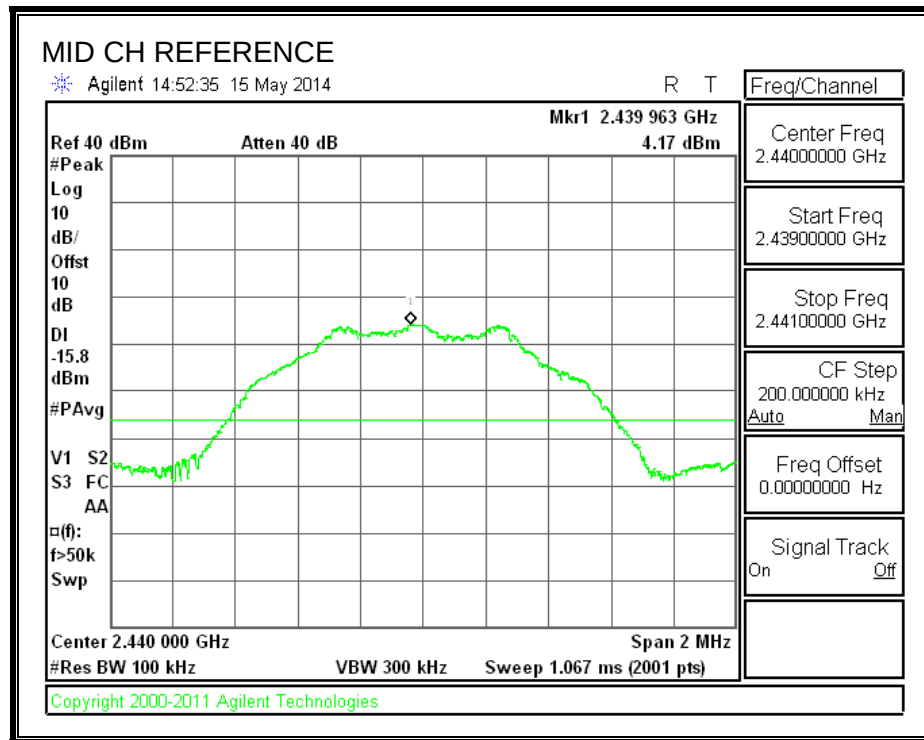
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

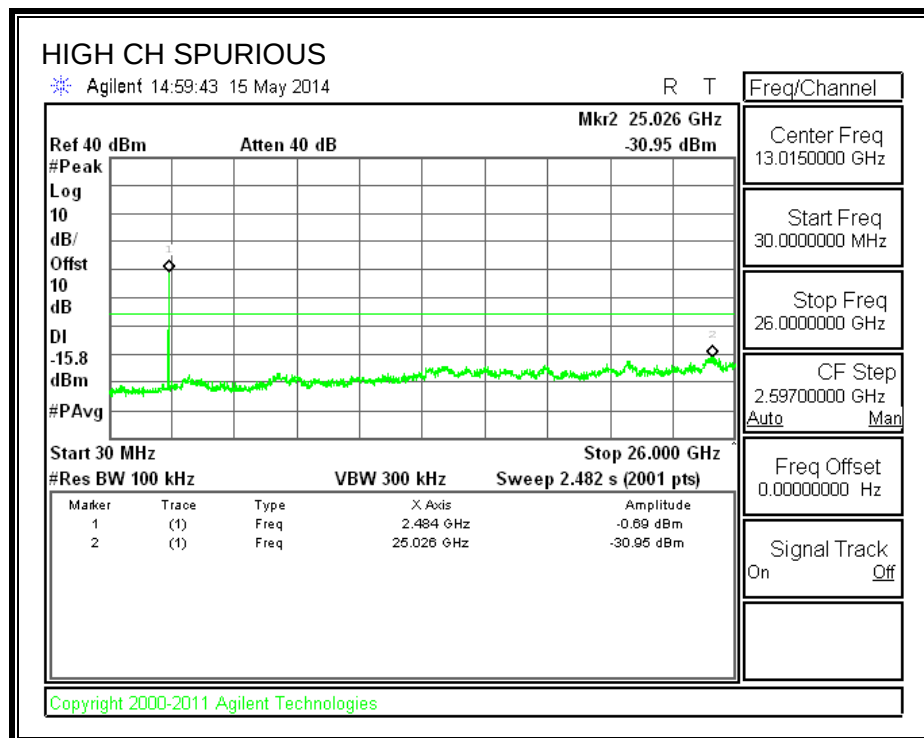
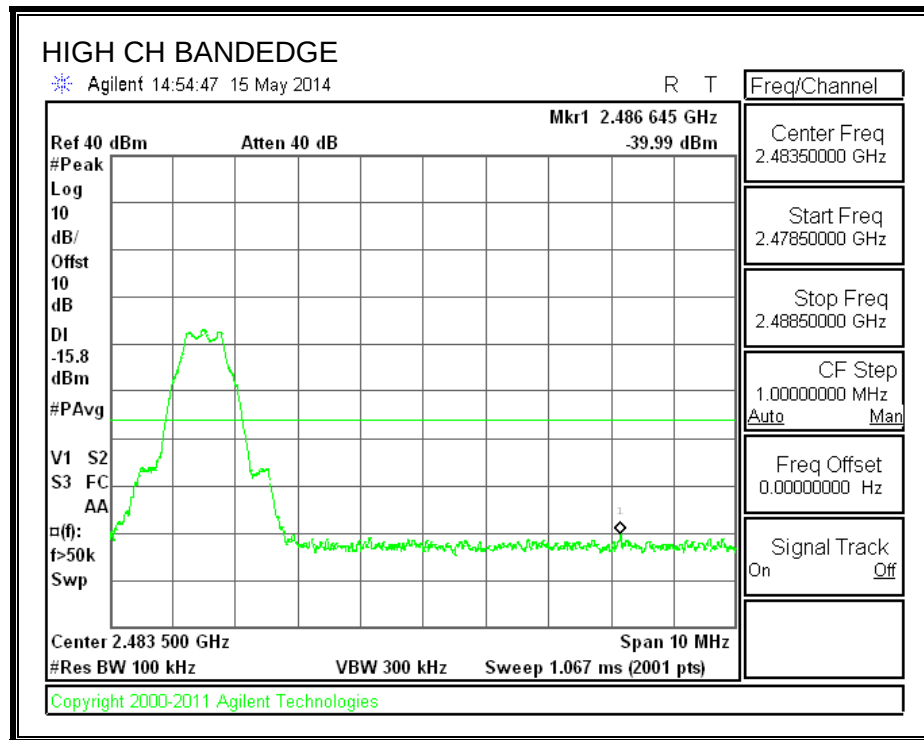
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4 - 2009. 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.

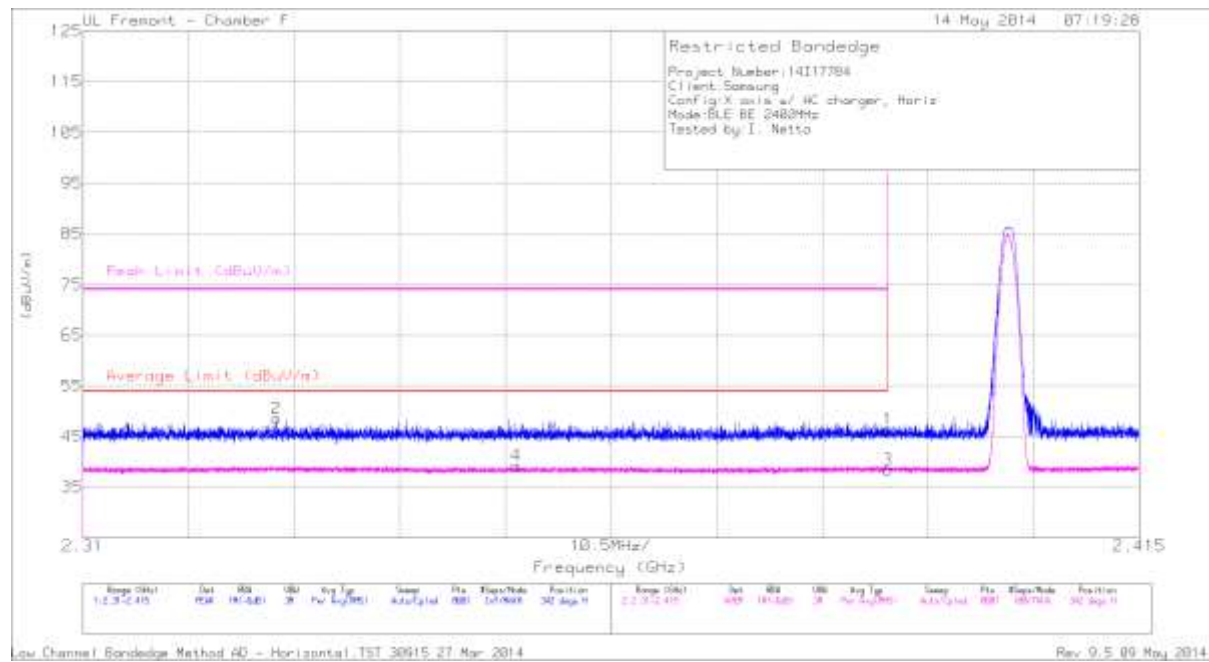
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10 \log (1/x)$. For this sample: DCF = $10 \log (1/0.618) = 2.08 \text{ dB}$ (Spectrum Analyzer round it up to 2.1dB)

The spectrum from 1GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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

9.2. TRANSMITTER ABOVE 1 GHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



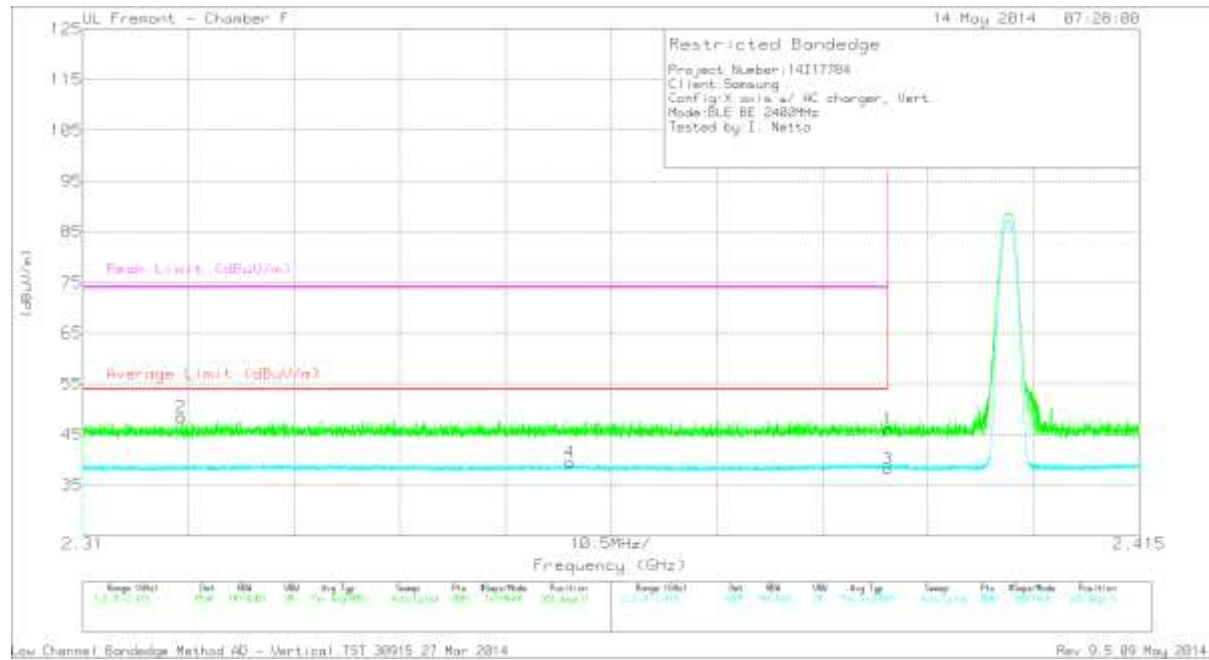
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.02	PK	32.2	-23.8	0	46.42	-	-	74	-27.58	342	319	H
2	* 2.329	40.18	PK	31.9	-23.5	0	48.58	-	-	74	-25.42	342	319	H
3	* 2.39	28.05	RMS	32.2	-23.8	2.1	38.55	54	-15.45	-	-	342	319	H
4	* 2.353	28.9	RMS	32	-23.7	2.1	39.3	54	-14.7	-	-	342	319	H

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

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

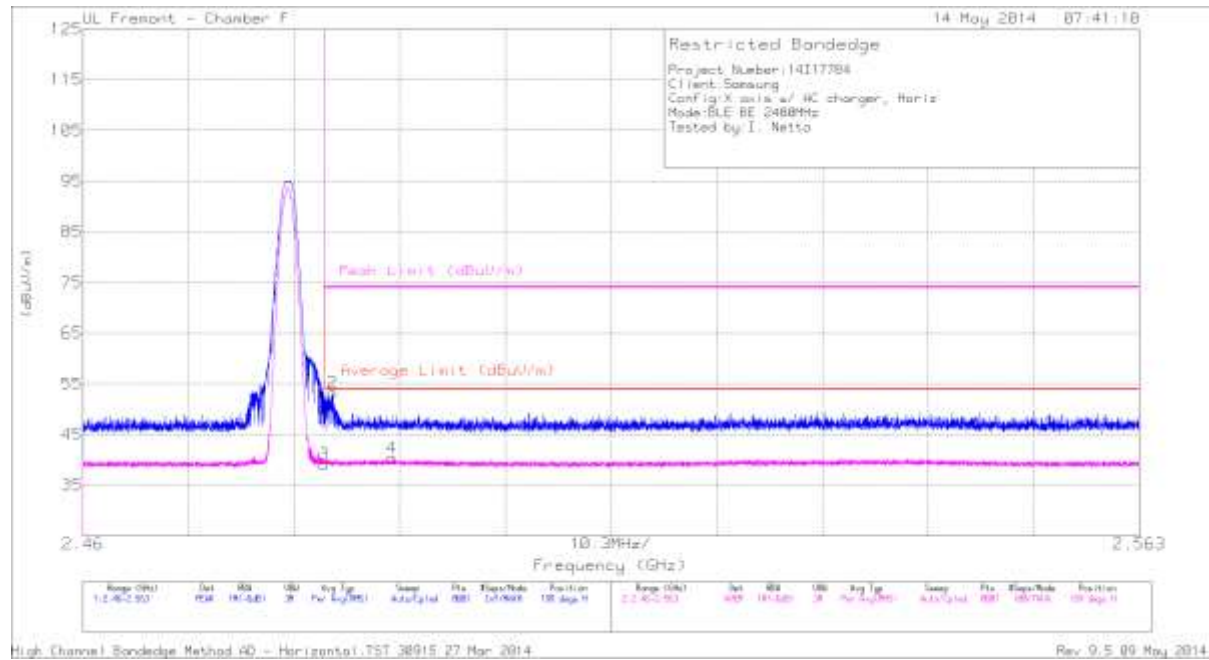


* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEGE (HIGH CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.43	PK	32.6	-23	0	50.03	-	-	74	-23.97	199	264	H
2	* 2.484	43.57	PK	32.6	-22.9	0	53.27	-	-	74	-20.73	199	264	H
3	* 2.484	27.42	RMS	32.6	-23	2.1	39.12	54	-14.88	-	-	199	264	H
4	* 2.49	28.52	RMS	32.6	-22.9	2.1	40.32	54	-13.68	-	-	199	264	H

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

PK - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

VERTICAL



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.637	32.17	PK	33.2	-31.1	34.27	-	-	74	-39.73	0-360	99	H
2	* 4.16	31.03	PK	33.6	-30.1	34.53	-	-	74	-39.47	0-360	99	H
3	* 4.804	33.37	PK	34.2	-29.4	38.17	-	-	74	-35.83	0-360	202	H
4	* 4.926	32.12	PK	34.2	-30.8	35.52	-	-	74	-38.48	0-360	202	V
5	* 7.52	29.38	PK	35.6	-26.8	38.18	-	-	74	-35.82	0-360	99	V
6	9.938	30.6	PK	37	-23.5	44.1	-	-	-	-	0-360	202	V

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

PK - Peak detector

Radiated Emissions

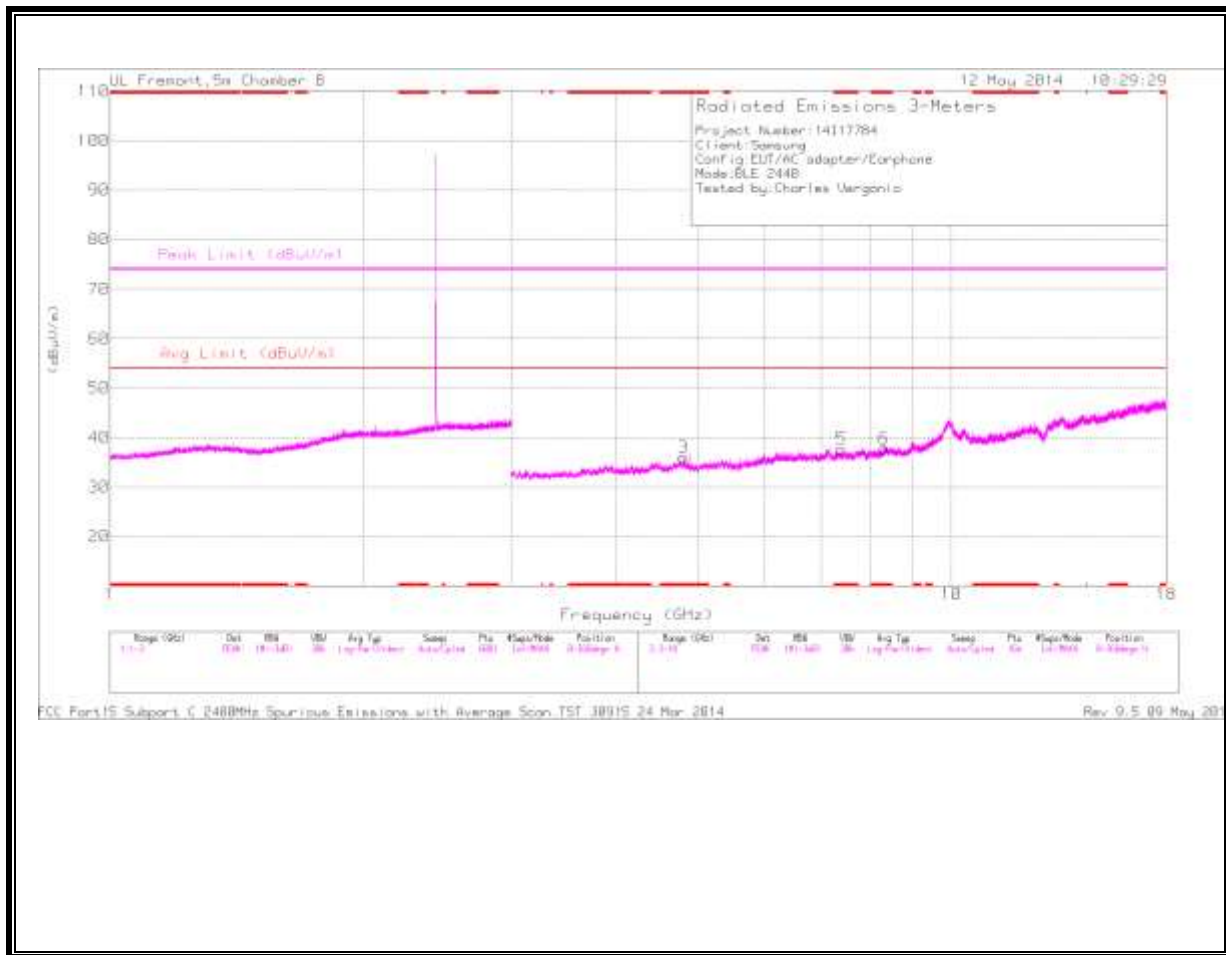
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.638	41.03	PK2	33.2	-31.1	43.13	-	-	74	-30.87	360	100	H
* 4.162	40.44	PK2	33.6	-30.1	43.94	-	-	74	-30.06	360	100	H
* 4.805	40.22	PK2	34.2	-29.4	45.02	-	-	74	-28.98	360	100	H
* 4.925	41.26	PK2	34.2	-30.8	44.66	-	-	74	-29.34	360	100	V
* 7.52	38.21	PK2	35.6	-26.8	47.01	-	-	74	-26.99	360	100	V
9.937	40.16	PK2	37	-23.5	53.66	-	-	-	-	360	100	V

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

PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL

HORIZONTAL



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

VERTICAL



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

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.805	31.28	PK	34.2	-29.4	36.08	-	-	74	-37.92	0-360	99	H
5	* 7.395	29.16	PK	35.6	-27.1	37.66	-	-	74	-36.34	0-360	202	H
6	* 8.313	27.51	PK	35.7	-25.4	37.81	-	-	74	-36.19	0-360	202	H
1	* 3.716	32.82	PK	33.4	-31.4	34.82	-	-	74	-39.18	0-360	99	V
2	* 3.778	32.67	PK	33.6	-31	35.27	-	-	74	-38.73	0-360	99	V
4	* 4.88	35.08	PK	34.2	-30.6	38.68	-	-	74	-35.32	0-360	99	V

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

PK - Peak detector

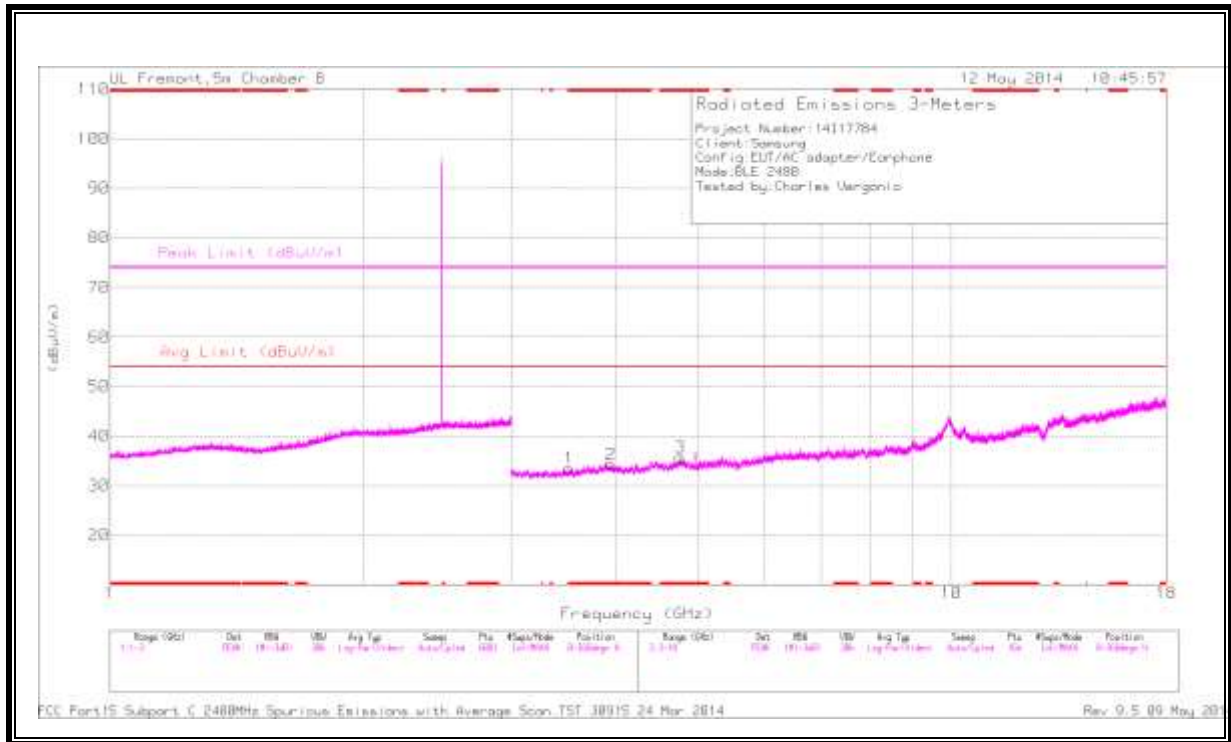
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.806	41.2	PK2	34.2	-29.4	46	-	-	74	-28	359	100	H
* 7.396	37.88	PK2	35.6	-27.1	46.38	-	-	74	-27.62	359	100	H
* 8.313	37.08	PK2	35.7	-25.4	47.38	-	-	74	-26.62	359	100	H
* 3.716	41.76	PK2	33.4	-31.4	43.76	-	-	74	-30.24	359	100	V
* 3.777	40.63	PK2	33.6	-31	43.23	-	-	74	-30.77	359	100	V
* 4.878	40.85	PK2	34.2	-30.6	44.45	-	-	74	-29.55	359	100	V

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

PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



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

VERTICAL



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

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.514	32.02	PK	32.8	-31.3	33.52	-	-	74	-40.48	0-360	201	H
2	* 3.939	31.09	PK	33.7	-30.5	34.29	-	-	74	-39.71	0-360	201	H
3	* 4.76	30.84	PK	34.2	-29.3	35.74	-	-	74	-38.26	0-360	201	H
4	* 4.96	33.24	PK	34.2	-30.4	37.04	-	-	74	-36.96	0-360	99	V
5	* 7.351	29.57	PK	35.6	-28	37.17	-	-	74	-36.83	0-360	99	V
6	* 8.205	28.99	PK	35.7	-26.4	38.29	-	-	74	-35.71	0-360	99	V

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

PK - Peak detector

Radiated Emissions

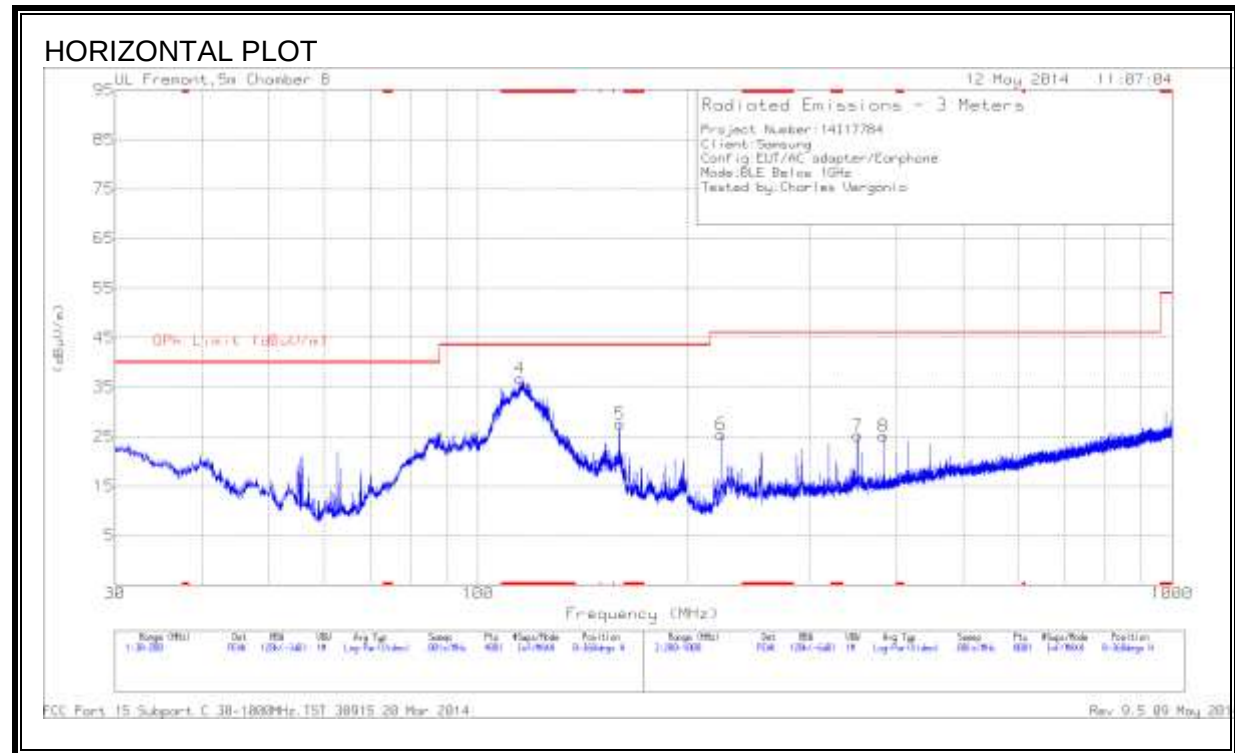
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.513	41.06	PK2	32.8	-31.3	42.56	-	-	74	-31.44	359	100	H
* 3.941	41.24	PK2	33.7	-30.5	44.44	-	-	74	-29.56	359	100	H
* 4.759	40.46	PK2	34.2	-29.3	45.36	-	-	74	-28.64	359	100	H
* 4.959	40.26	PK2	34.2	-30.4	44.06	-	-	74	-29.94	359	100	V
* 7.35	39.09	PK2	35.6	-28	46.69	-	-	74	-27.31	359	100	V
* 8.206	37.57	PK2	35.7	-26.4	46.87	-	-	74	-27.13	359	100	V

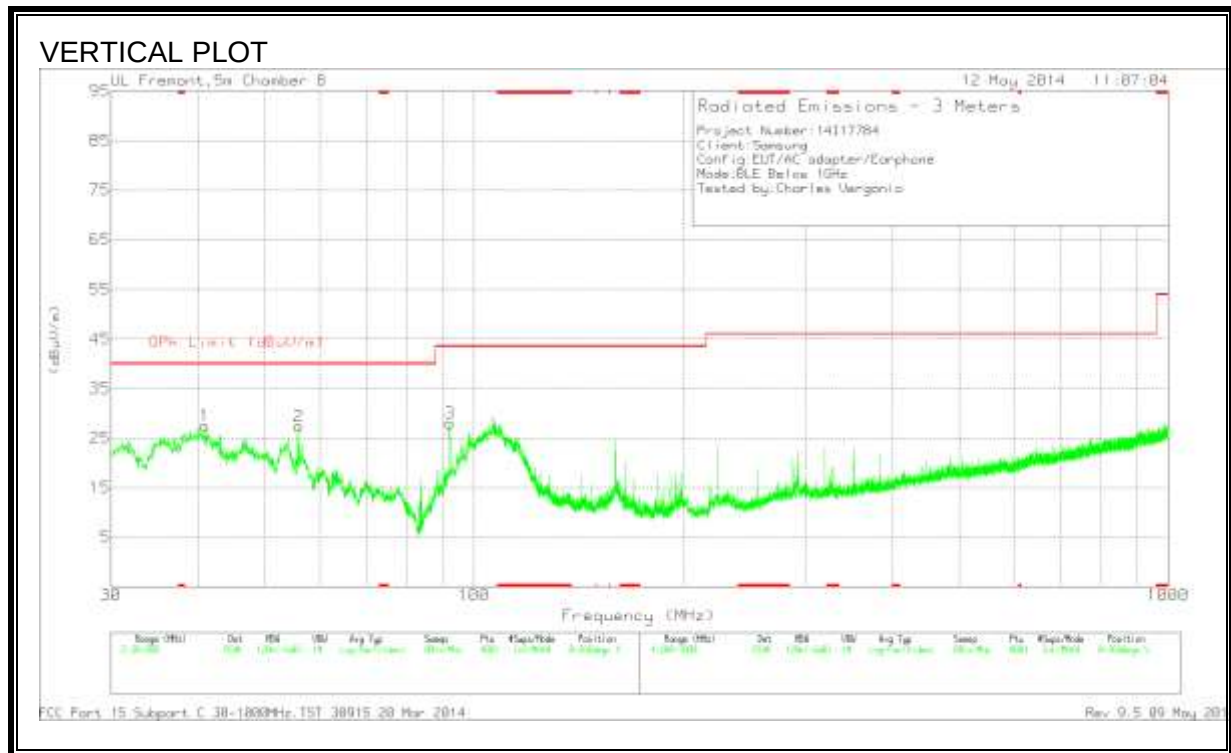
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

9.3. WORST-CASE BELOW 1 GHz

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





Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 114.8725	51.21	PK	13.4	-27.9	36.71	43.52	-6.81	0-360	300	H
1	40.965	42.85	PK	13.2	-28.6	27.45	40	-12.55	0-360	101	V
2	55.9675	48.62	PK	7.2	-28.5	27.32	40	-12.68	0-360	101	V
3	92.305	47.97	PK	8.2	-28.1	28.07	43.52	-15.45	0-360	101	V
5	160.0075	42.73	PK	12.1	-27.3	27.53	43.52	-15.99	0-360	200	H
6	224	41.31	PK	10.8	-26.7	25.41	46.02	-20.61	0-360	101	H
7	352	36.73	PK	14.3	-25.8	25.23	46.02	-20.79	0-360	101	H
8	384	35.99	PK	15	-25.9	25.09	46.02	-20.93	0-360	101	H

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

PK - Peak detector

10. 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

ANSI C63.4 - 2009

RESULTS

6 WORST EMISSIONS

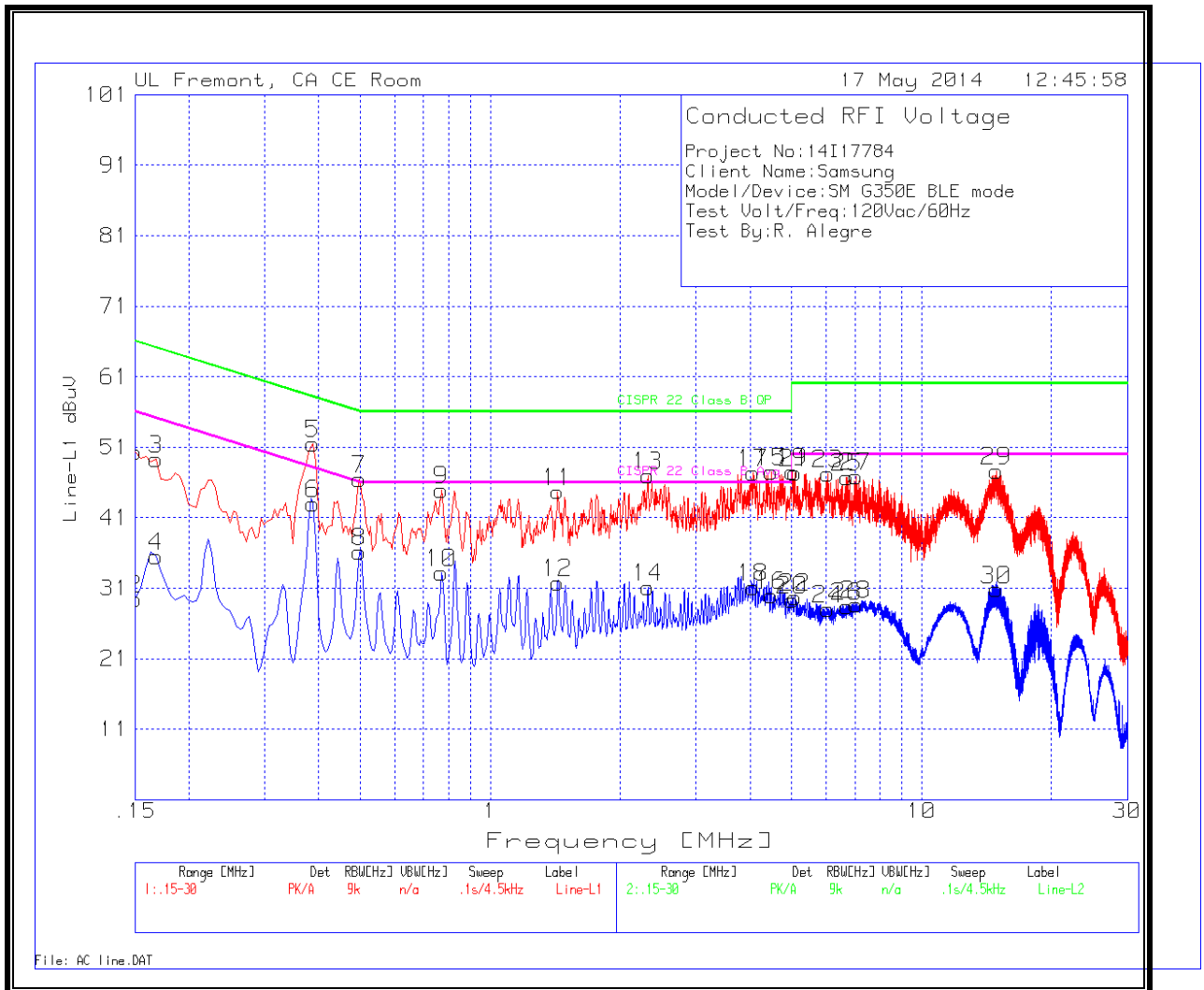
Line-L1 .15 - 30MHz

Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.15	48.89	PK	1.4	0	50.29	66	-15.71	-	-
2	.15	28.02	Av	1.4	0	29.42	-	-	56	-26.58
3	.168	48.15	PK	1.2	0	49.35	65.1	-15.75	-	-
4	.168	34.3	Av	1.2	0	35.5	-	-	55.1	-19.6
5	.3885	51.05	PK	.4	0	51.45	58.1	-6.65	-	-
6	.3885	42.6	Av	.4	0	43	-	-	48.1	-5.1
7	.4965	46.03	PK	.4	0	46.43	56.1	-9.67	-	-
8	.4965	35.77	Av	.4	0	36.17	-	-	46.1	-9.93
9	.771	44.56	PK	.3	0	44.86	56	-11.14	-	-
10	.771	32.86	Av	.3	0	33.16	-	-	46	-12.84
11	1.4325	44.42	PK	.2	.1	44.72	56	-11.28	-	-
12	1.4325	31.46	Av	.2	.1	31.76	-	-	46	-14.24
13	2.319	46.66	PK	.2	.1	46.96	56	-9.04	-	-
14	2.319	30.78	Av	.2	.1	31.08	-	-	46	-14.92
17	4.074	47.11	PK	.2	.1	47.41	56	-8.59	-	-
18	4.074	30.82	Av	.2	.1	31.12	-	-	46	-14.88
15	4.488	47.15	PK	.2	.1	47.45	56	-8.55	-	-
16	4.488	29.7	Av	.2	.1	30	-	-	46	-16
19	5.01	47.22	PK	.2	.1	47.52	60	-12.48	-	-
20	5.01	28.97	Av	.2	.1	29.27	-	-	50	-20.73
21	5.0955	47.09	PK	.2	.1	47.39	60	-12.61	-	-
22	5.0955	29.46	Av	.2	.1	29.76	-	-	50	-20.24
23	6.0585	46.9	PK	.2	.1	47.2	60	-12.8	-	-
24	6.0585	27.68	Av	.2	.1	27.98	-	-	50	-22.02
25	6.72	46.41	PK	.2	.1	46.71	60	-13.29	-	-
26	6.72	28.06	Av	.2	.1	28.36	-	-	50	-21.64
27	7.0485	46.59	PK	.2	.1	46.89	60	-13.11	-	-
28	7.0485	28.34	Av	.2	.1	28.64	-	-	50	-21.36
29	14.9235	47.22	PK	.2	.2	47.62	60	-12.38	-	-
30	14.9235	30.4	Av	.2	.2	30.8	-	-	50	-19.2

Line-L2 .15 - 30MHz

Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
31	.159	49.5	PK	1.4	0	50.9	65.5	-14.6	-	-
32	.159	30.92	Av	1.4	0	32.32	-	-	55.5	-23.18
33	.222	48.88	PK	.9	0	49.78	62.7	-12.92	-	-
34	.222	35.2	Av	.9	0	36.1	-	-	52.7	-16.6
35	.3885	51.6	PK	.5	0	52.1	58.1	-6	-	-
36	.3885	40.89	Av	.5	0	41.39	-	-	48.1	-6.71
37	.5055	45.54	PK	.4	0	45.94	56	-10.06	-	-
38	.5055	32.14	Av	.4	0	32.54	-	-	46	-13.46
39	.8385	44.28	PK	.3	.1	44.68	56	-11.32	-	-
40	.8385	28.21	Av	.3	.1	28.61	-	-	46	-17.39
41	2.1795	45.3	PK	.2	.1	45.6	56	-10.4	-	-
42	2.1795	26.76	Av	.2	.1	27.06	-	-	46	-18.94
43	4.0245	46.86	PK	.2	.1	47.16	56	-8.84	-	-
44	4.0245	29.02	Av	.2	.1	29.32	-	-	46	-16.68
45	4.362	46.11	PK	.2	.1	46.41	56	-9.59	-	-
46	4.362	28.49	Av	.2	.1	28.79	-	-	46	-17.21
47	7.2105	45.56	PK	.2	.1	45.86	60	-14.14	-	-
48	7.2105	27.82	Av	.2	.1	28.12	-	-	50	-21.88
49	14.712	46.98	PK	.3	.2	47.48	60	-12.52	-	-
50	14.712	27.74	Av	.3	.2	28.24	-	-	50	-21.76

LINE 1 RESULTS



LINE 2 RESULTS

