



FCC CFR47 PART 15 SUBPART C

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

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

MODEL NUMBER: SM-G130U

FCC ID: A3LSMG130U

REPORT NUMBER: 14I18156-3

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Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Issue			
Rev.	Date	Revisions	Revised By
--	6/30/14	Initial Issue	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD
EUT DESCRIPTION: GSM/WCDMA Phone + Bluetooth & WLAN 2.4GHz b/g/n
MODEL: SM-G130U
SERIAL NUMBER: FL-205-A, FL-205-B, FL-205-C (Radiated), FL-205-D (Conducted)
DATE TESTED: MAY 28-JUNE 4, 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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LAB ENGINEER
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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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable
Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 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/WCDMA Phone + Bluetooth & WLAN 2.4GHz b/g/n.

The model FCC ID: A3LSMG130U shares the same enclosure and circuit board as mode FCC ID: A3LSMG130M. The WWAN/WLAN/Bluetooth circuitry and layout, including antenna, are almost identical between the two units. Only different between these two units is A3LSMG130U removed WCDMA B1 duplexer, disabled WCDMA band 5 and add WCDMA Band 8 capability.

After confirming through preliminary radiated emissions that the performance of the A3LSMG130M BLE data remain representative of this model (FCC ID A3LSMG130U) test data for FCC ID: A3LSMG130M is being submitted for this application.

Radiated emissions were fully re-evaluated against 15B requirements for digital devices and results indicated no significant differences between the two versions.

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	8.14	6.52

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.26 dBi.

5.4. 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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	SM-G130U	N/A	N/A
Earphone	Samsung	GH59	N/A	N/A

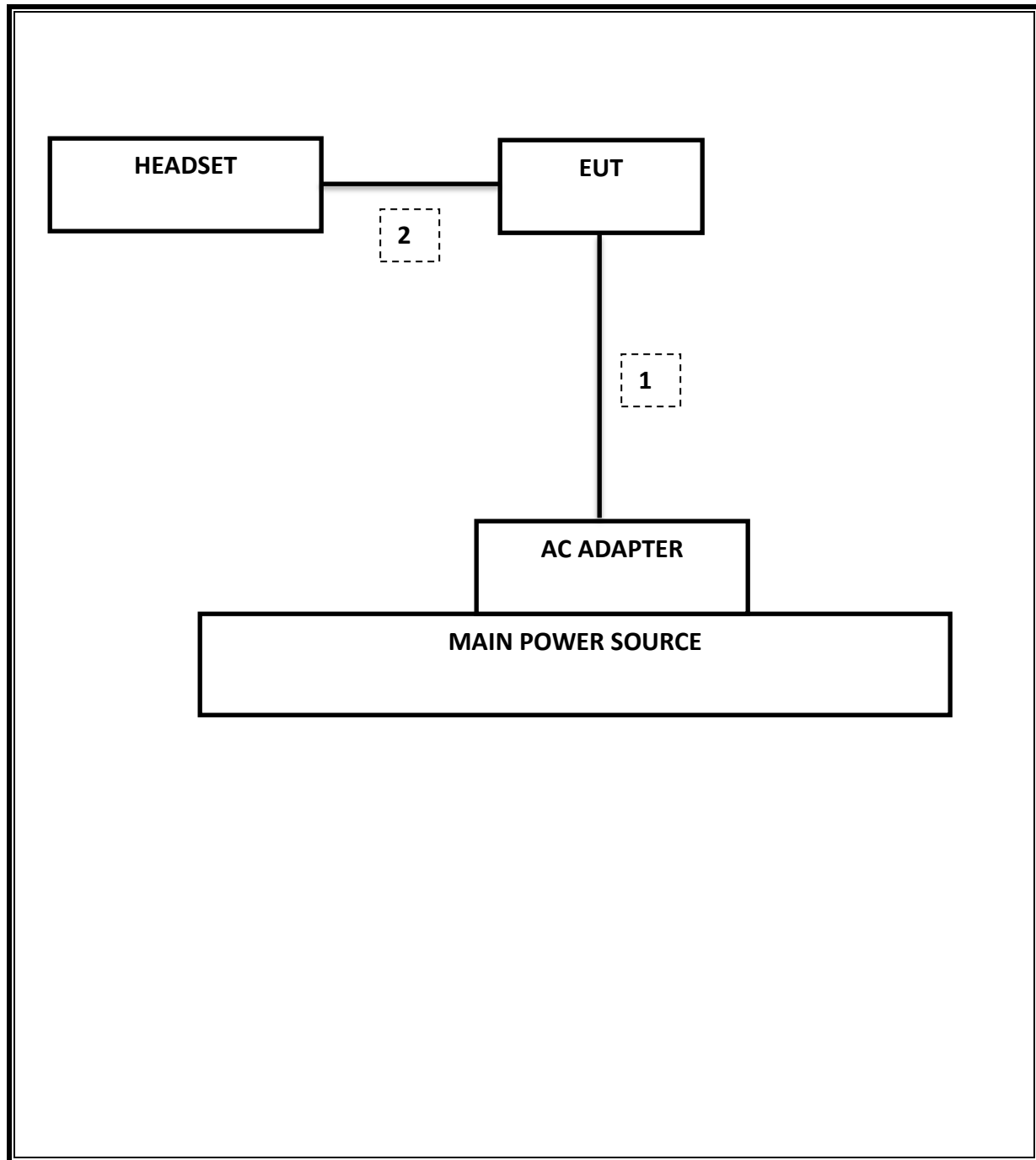
I/O CABLES

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

The EUT is continuously communicating to the Bluetooth tester during the tests.

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
Antenna, Biconolog, 30MHz-100MHz	Sunol Sciences	JB1	C01171	02/13/15
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/14
CBT Bluetooth Tester	R & S	CBT	None	07/12/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/14
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/15
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR

7. SUMMARY

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	0.705MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-49.16dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	8.14dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-6.13dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	45.38dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	42.48dBuV/m

8. ANTENNA PORT TEST RESULTS

8.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

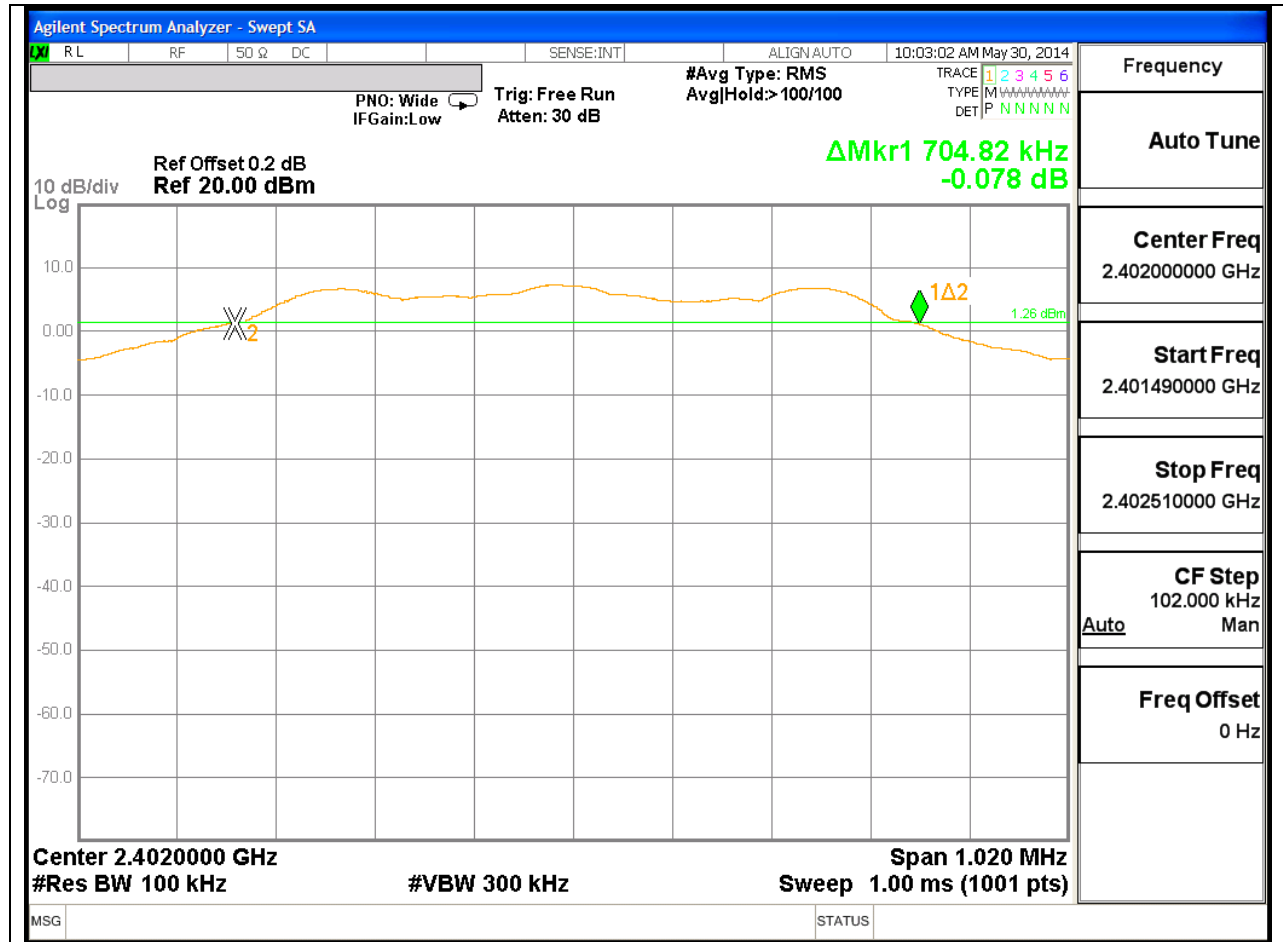
The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

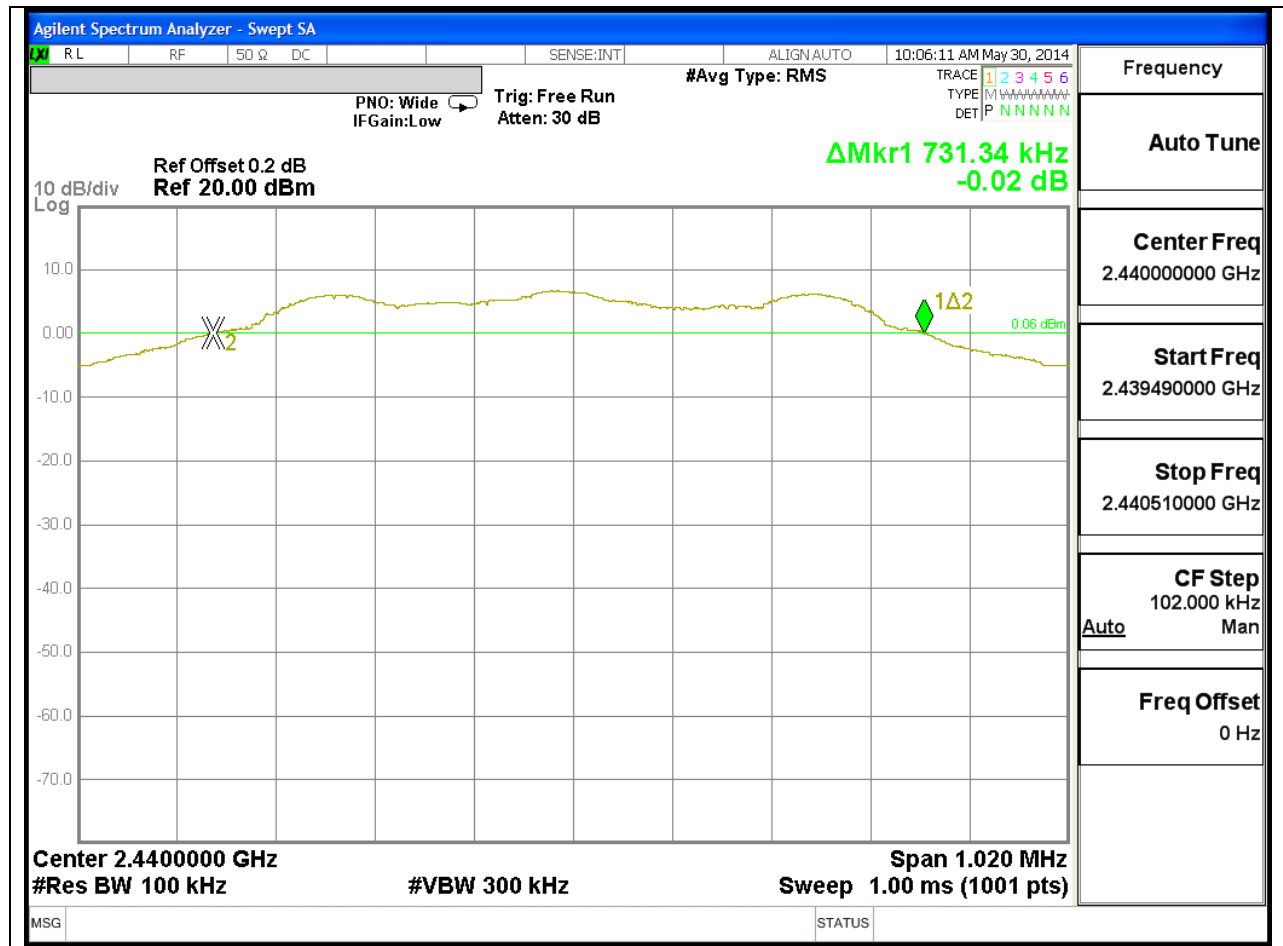
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

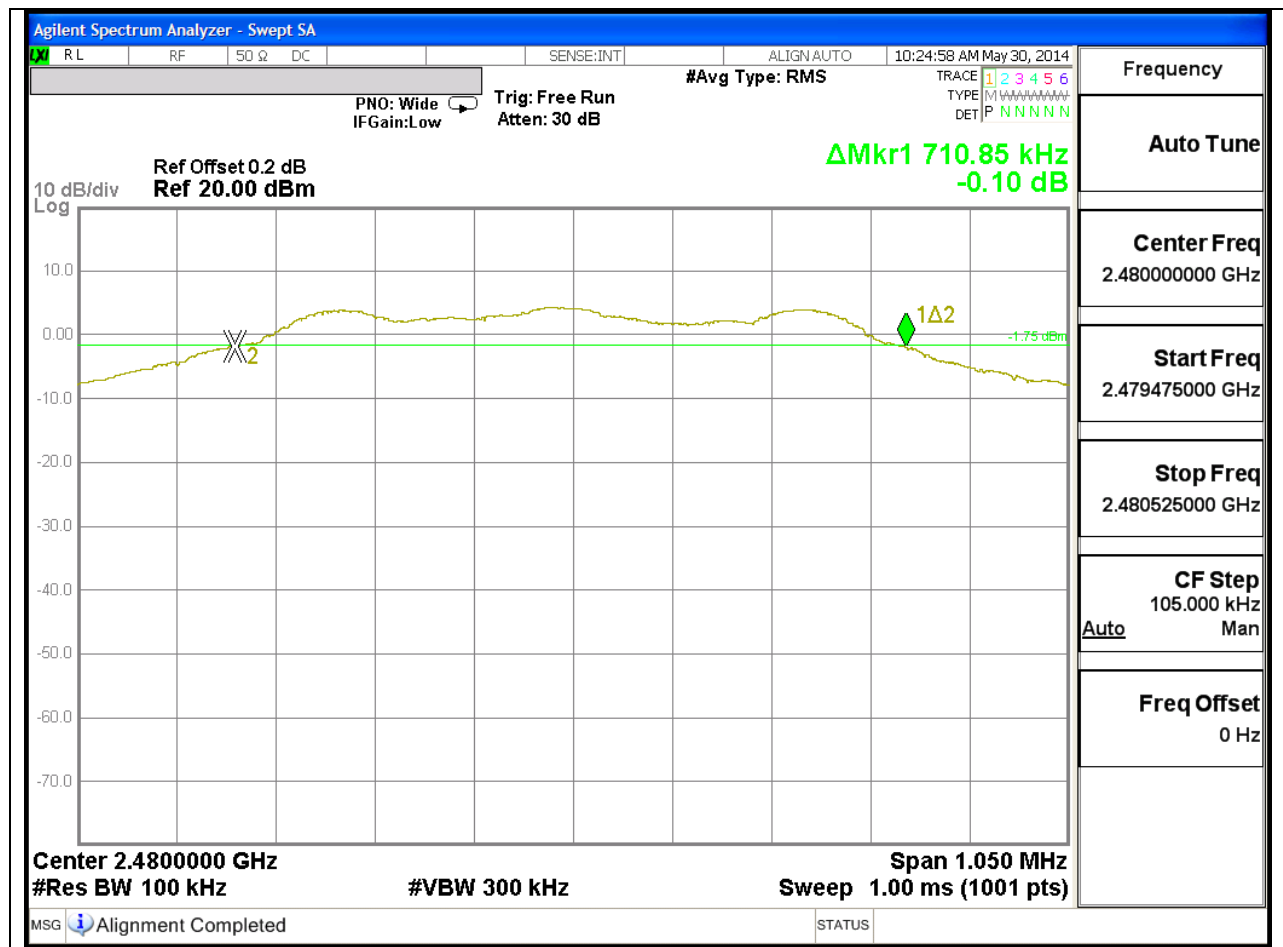
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.7050	0.5
Middle	2440	0.7313	0.5
High	2480	0.7109	0.5

6 dB BANDWIDTH PLOTS**LOW CHANNEL**

MID CHANNEL



HIGH CHANNEL



8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

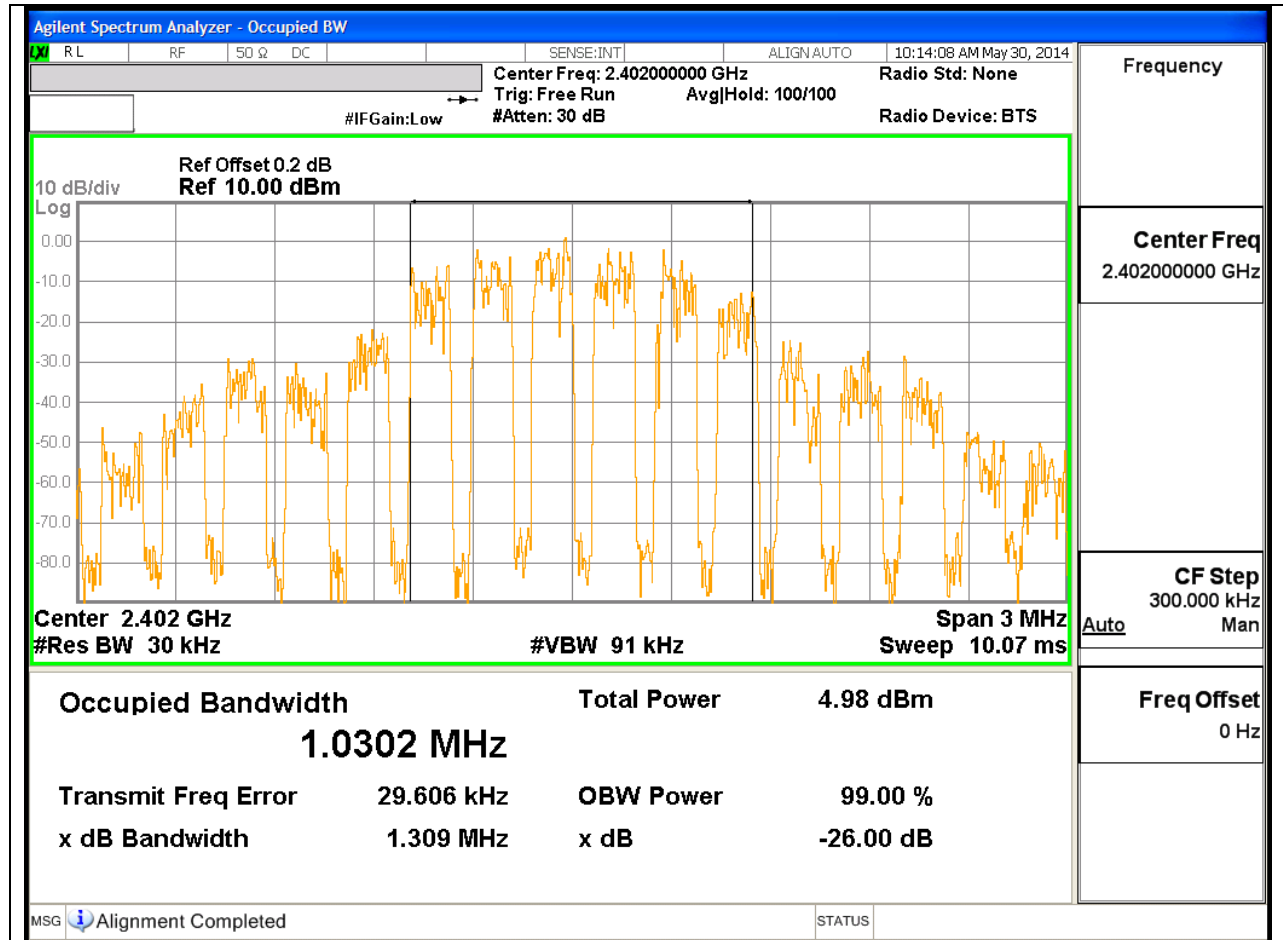
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function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

RESULTS

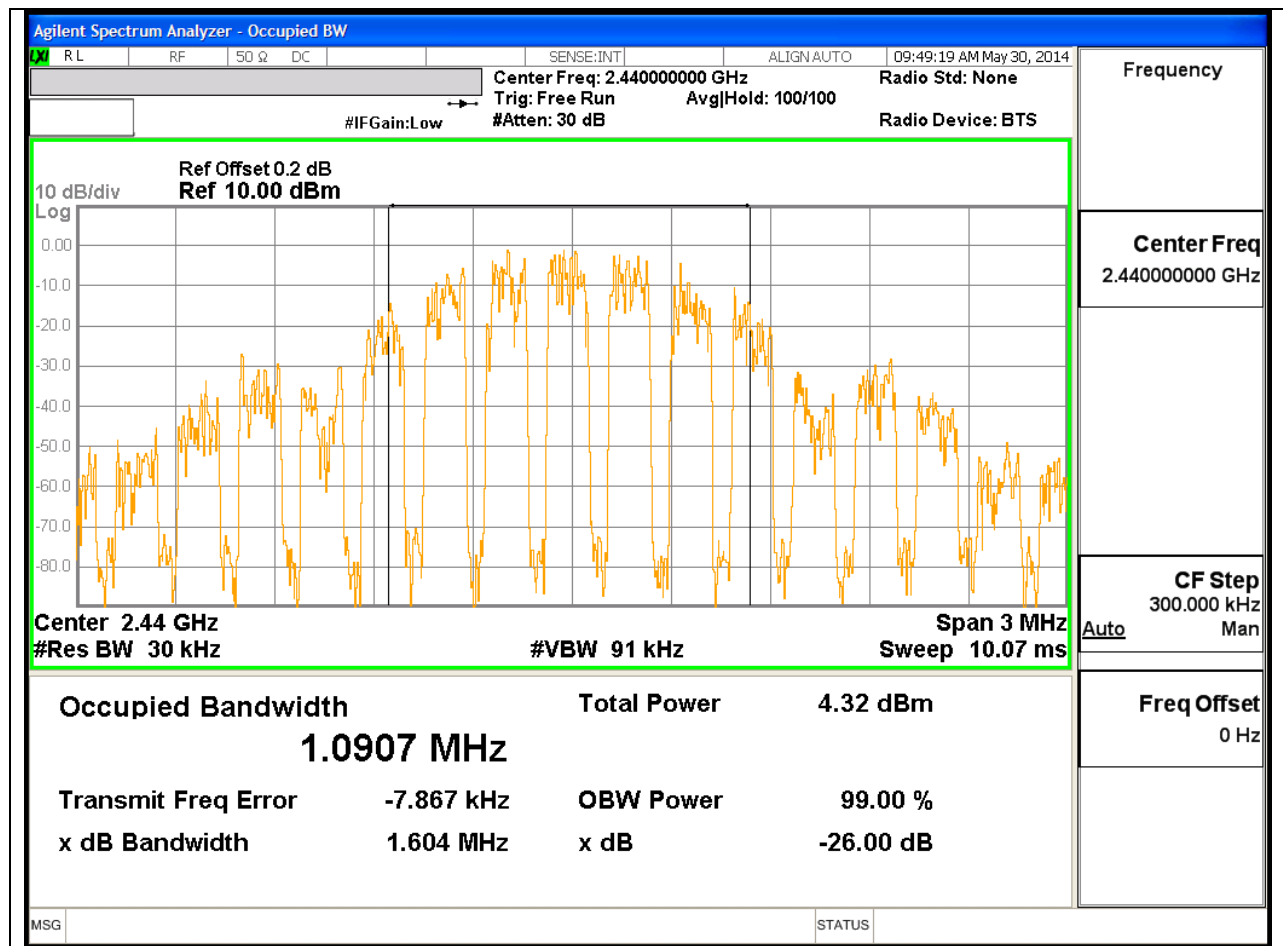
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0302
Middle	2440	1.0907
High	2480	1.0054

99% BANDWIDTH PLOTS

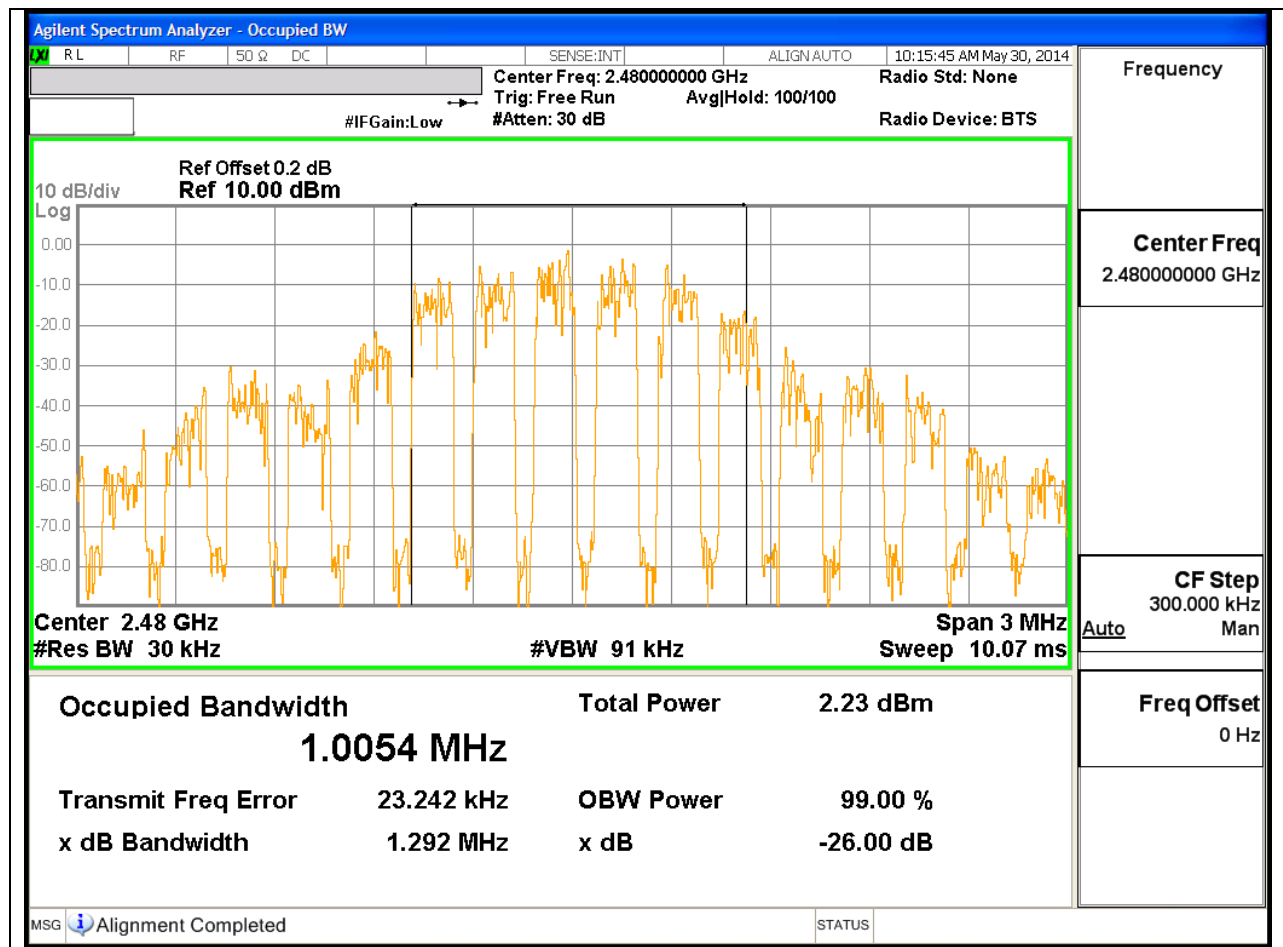
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



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

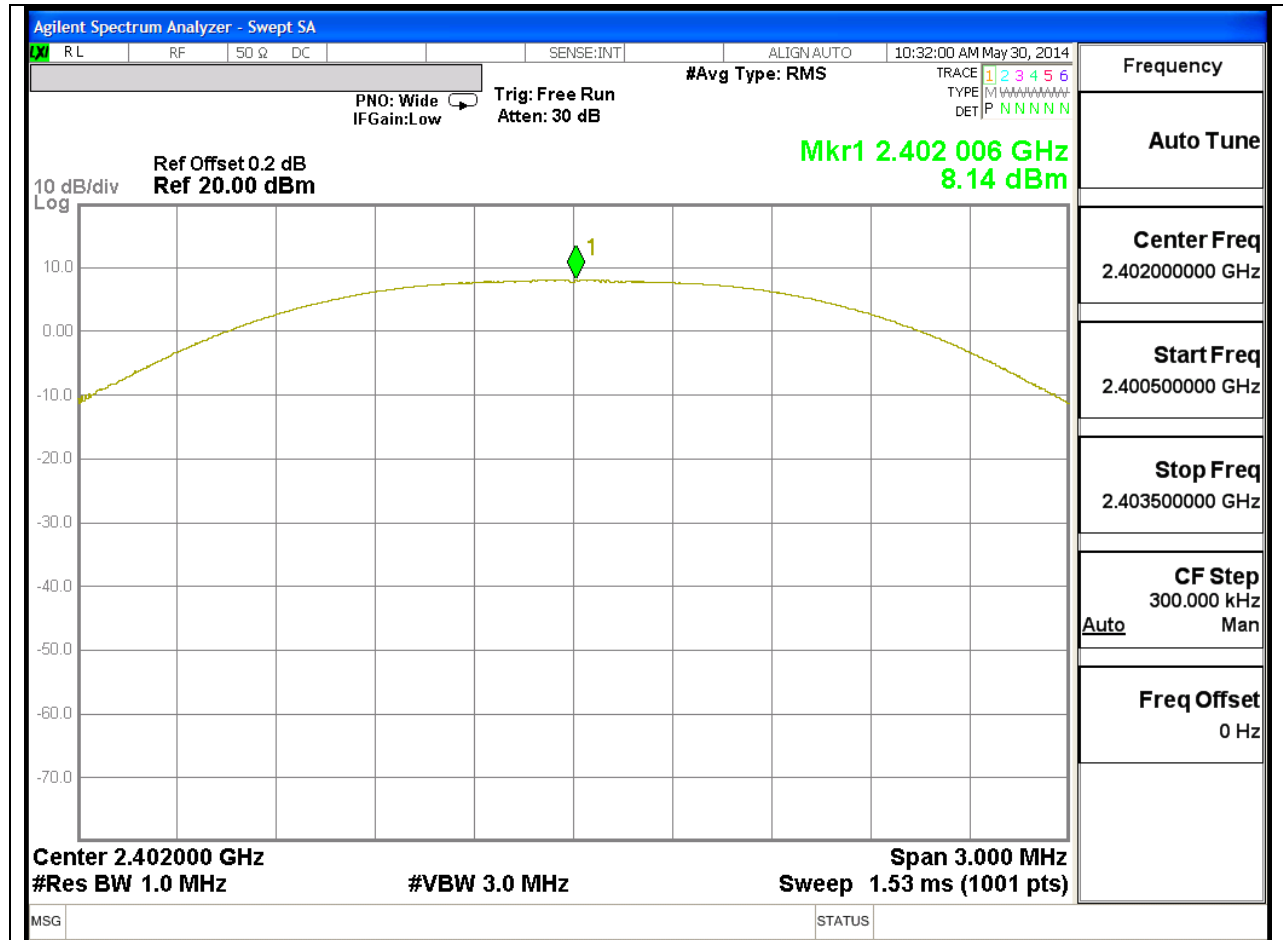
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyzer.

RESULTS

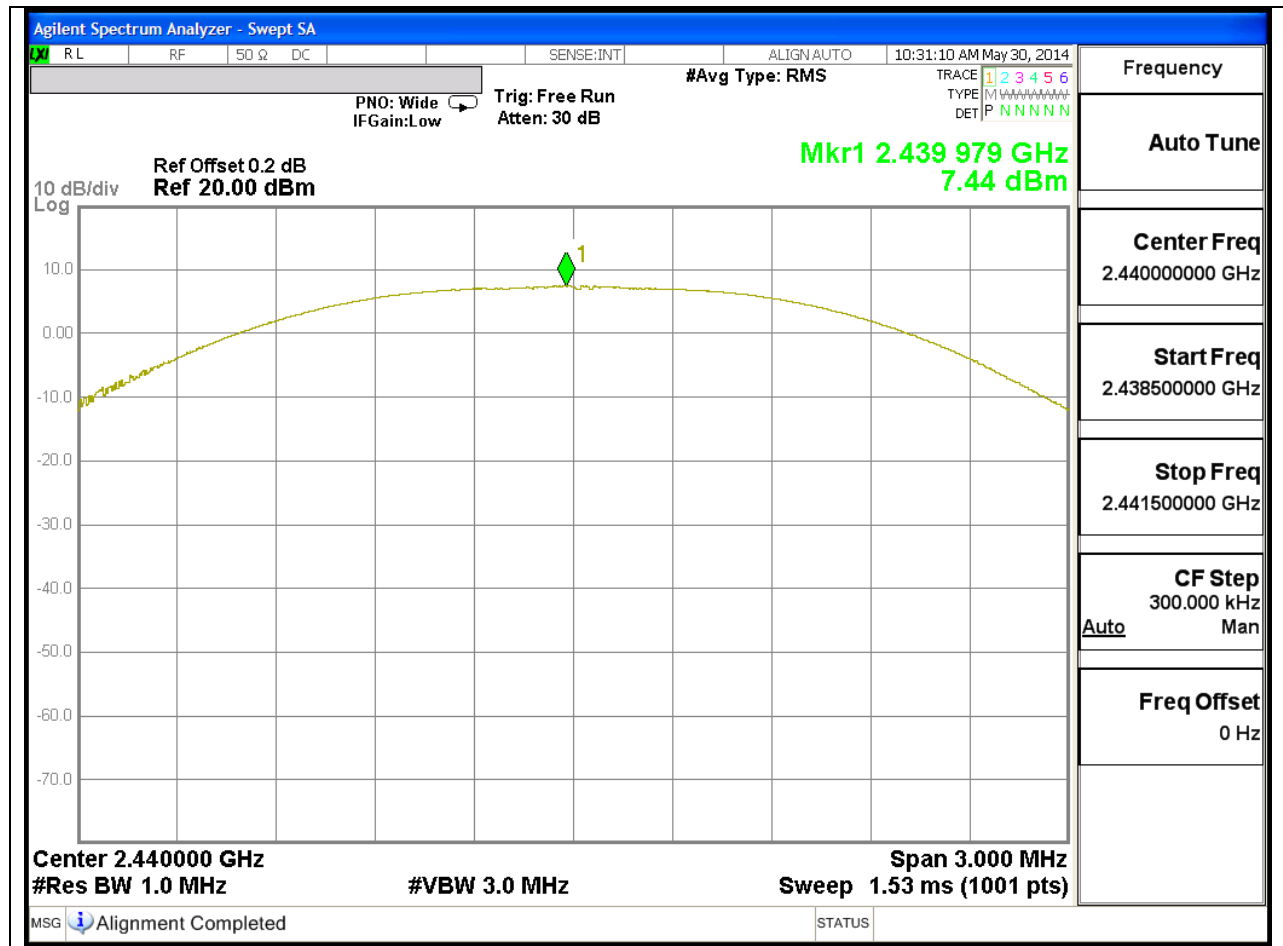
Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.140	30	-21.860
Middle	2440	7.440	30	-22.560
High	2480	5.030	30	-24.970

OUTPUT POWER PLOTS

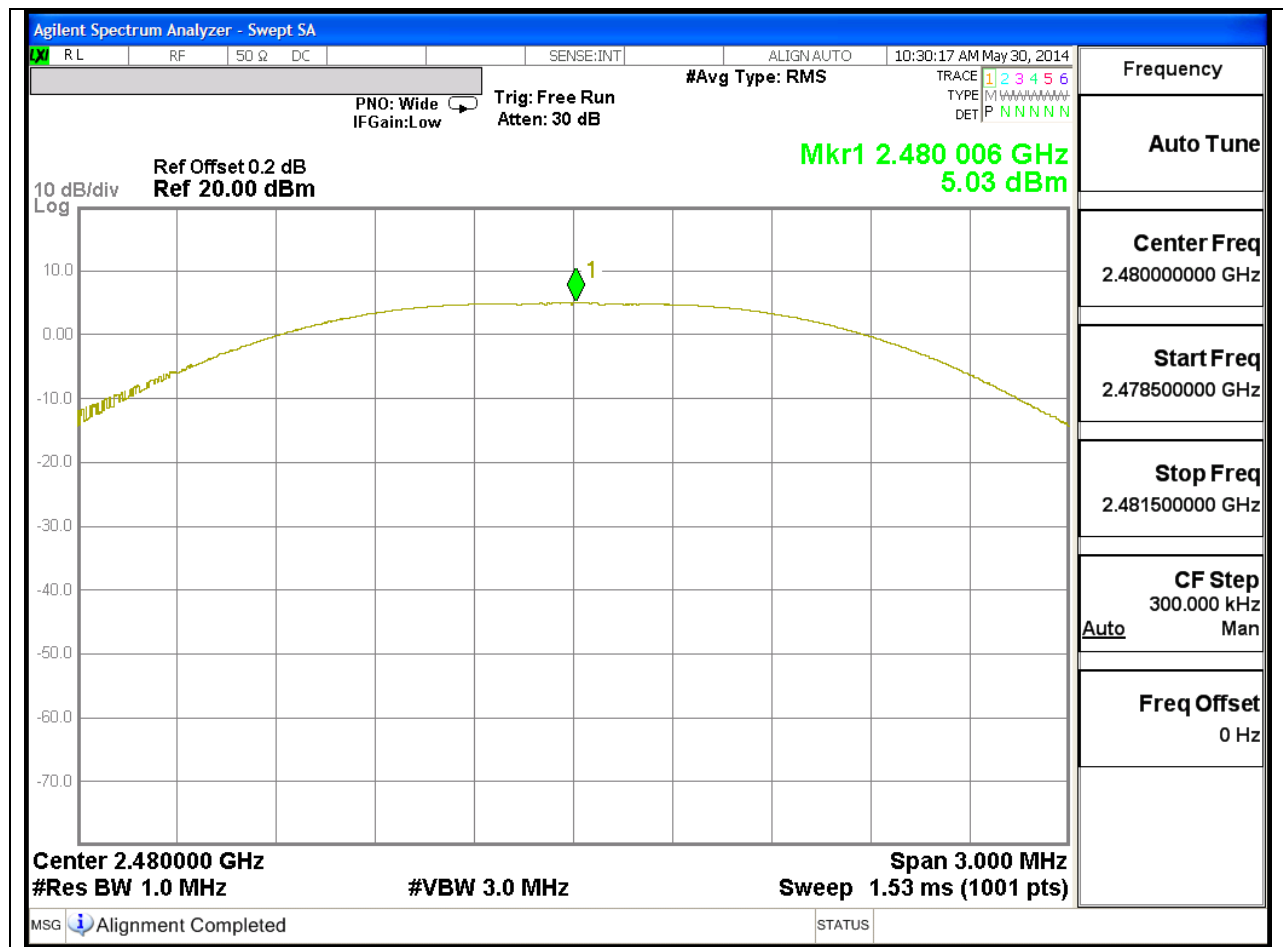
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



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	5.2
Middle	2440	5.3
High	2480	4.4

8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

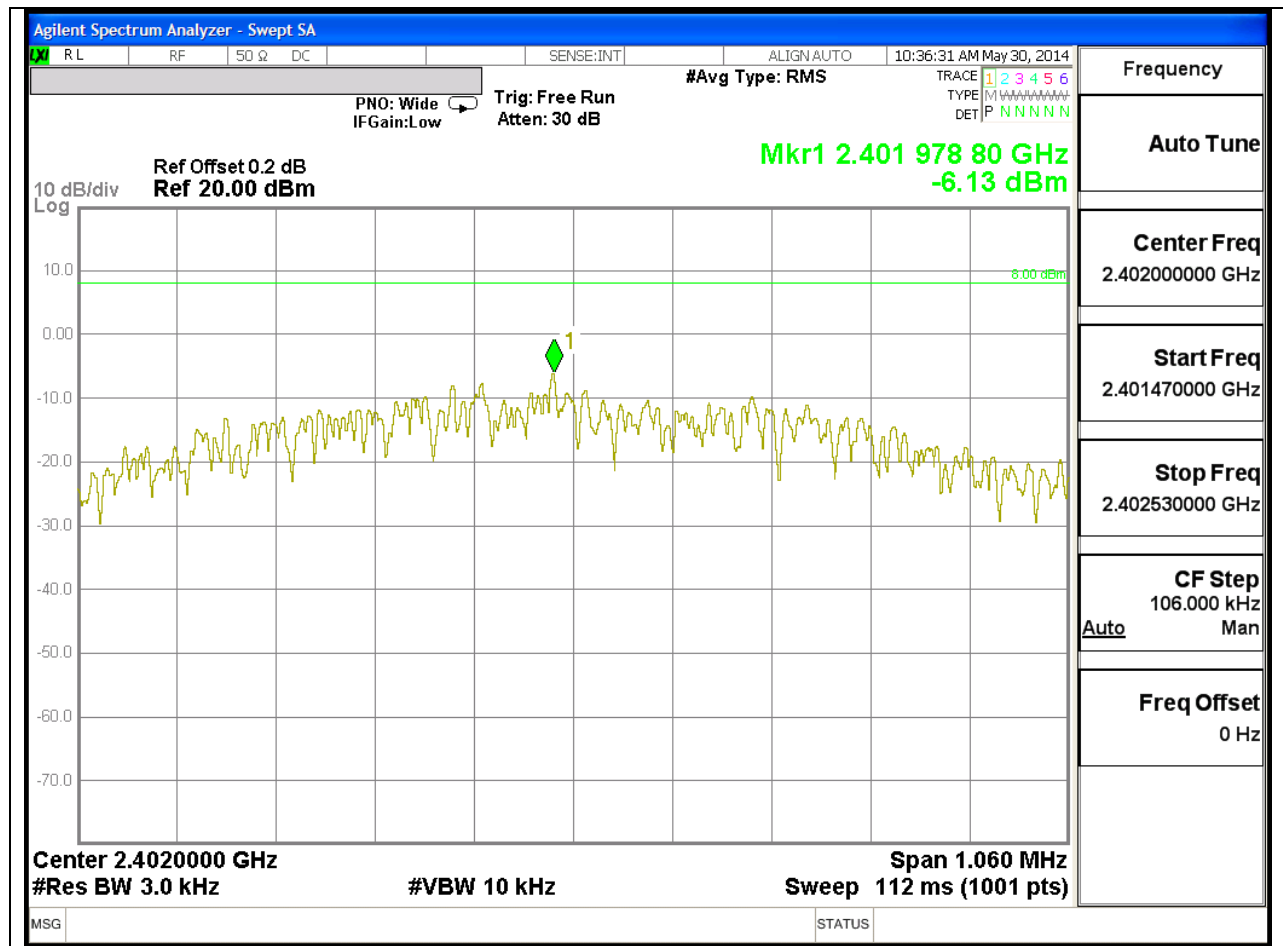
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

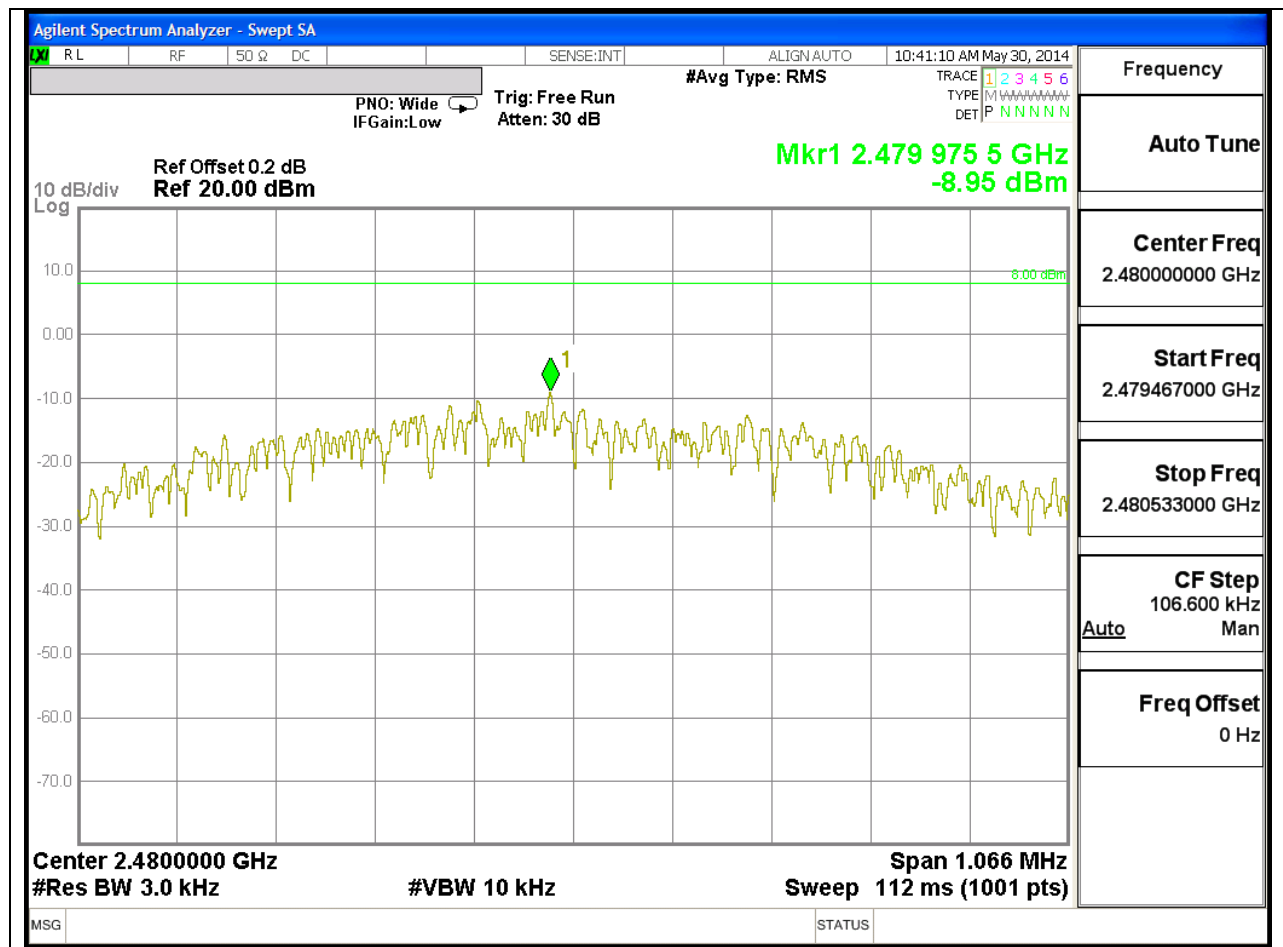
Power Spectral Density was performed utilizing the “Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-6.13	8	-14.13
Middle	2440	-6.82	8	-14.82
High	2480	-8.95	8	-16.95

POWER SPECTRAL DENSITY PLOTS**LOW CHANNEL**

HIGH CHANNEL



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

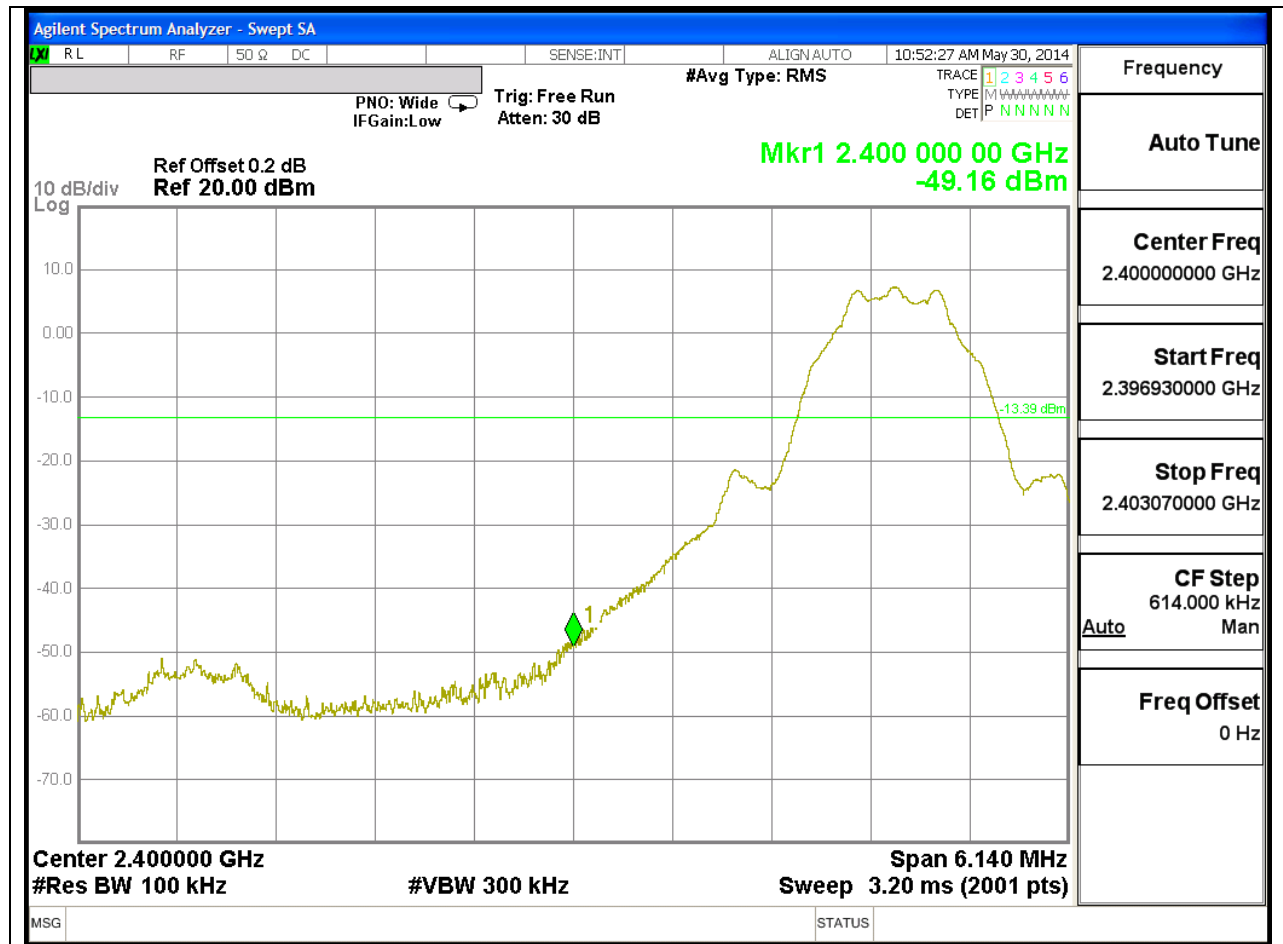
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

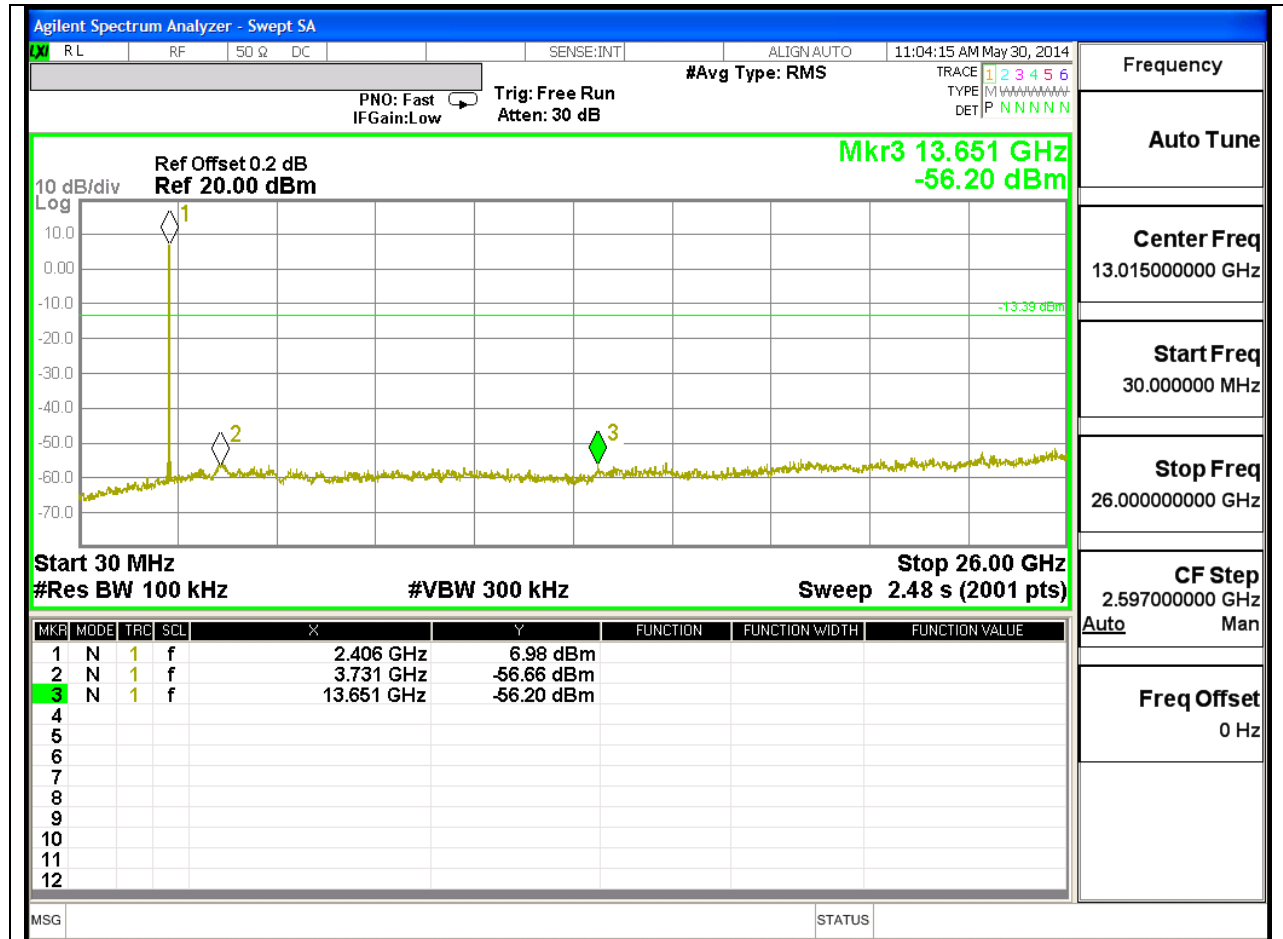
RESULTS

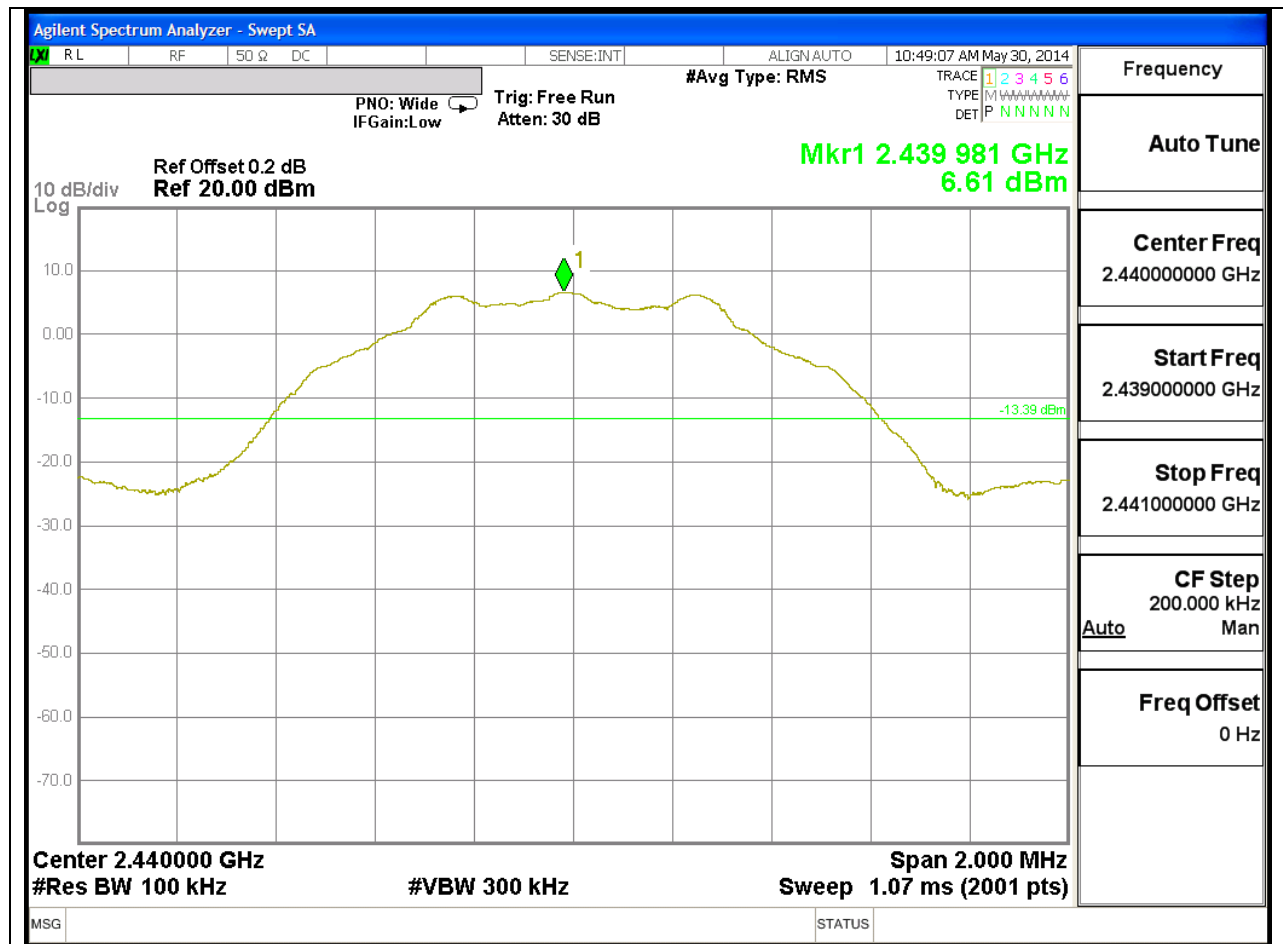
SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE

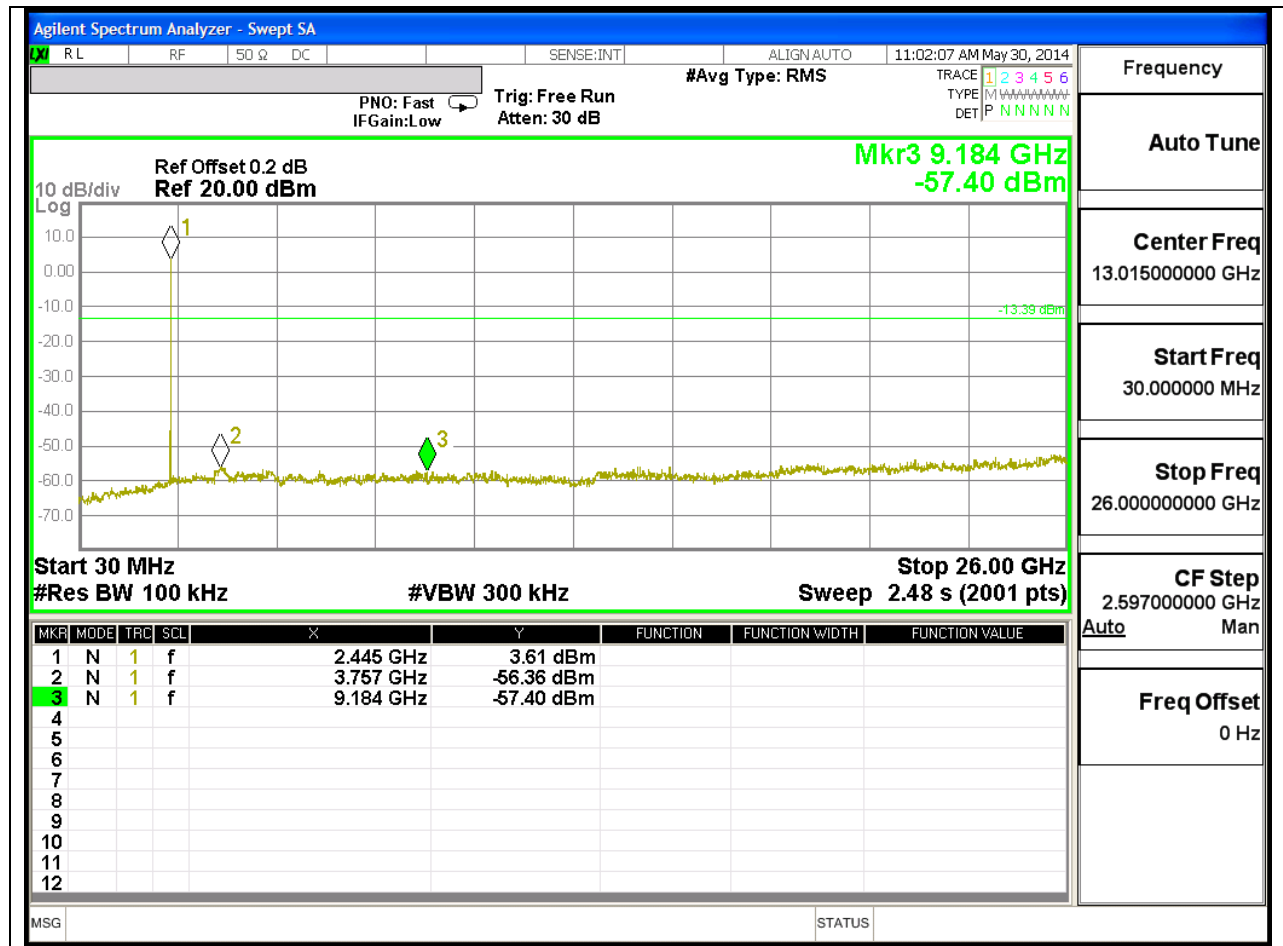


LOW CHANNEL SPURIOUS

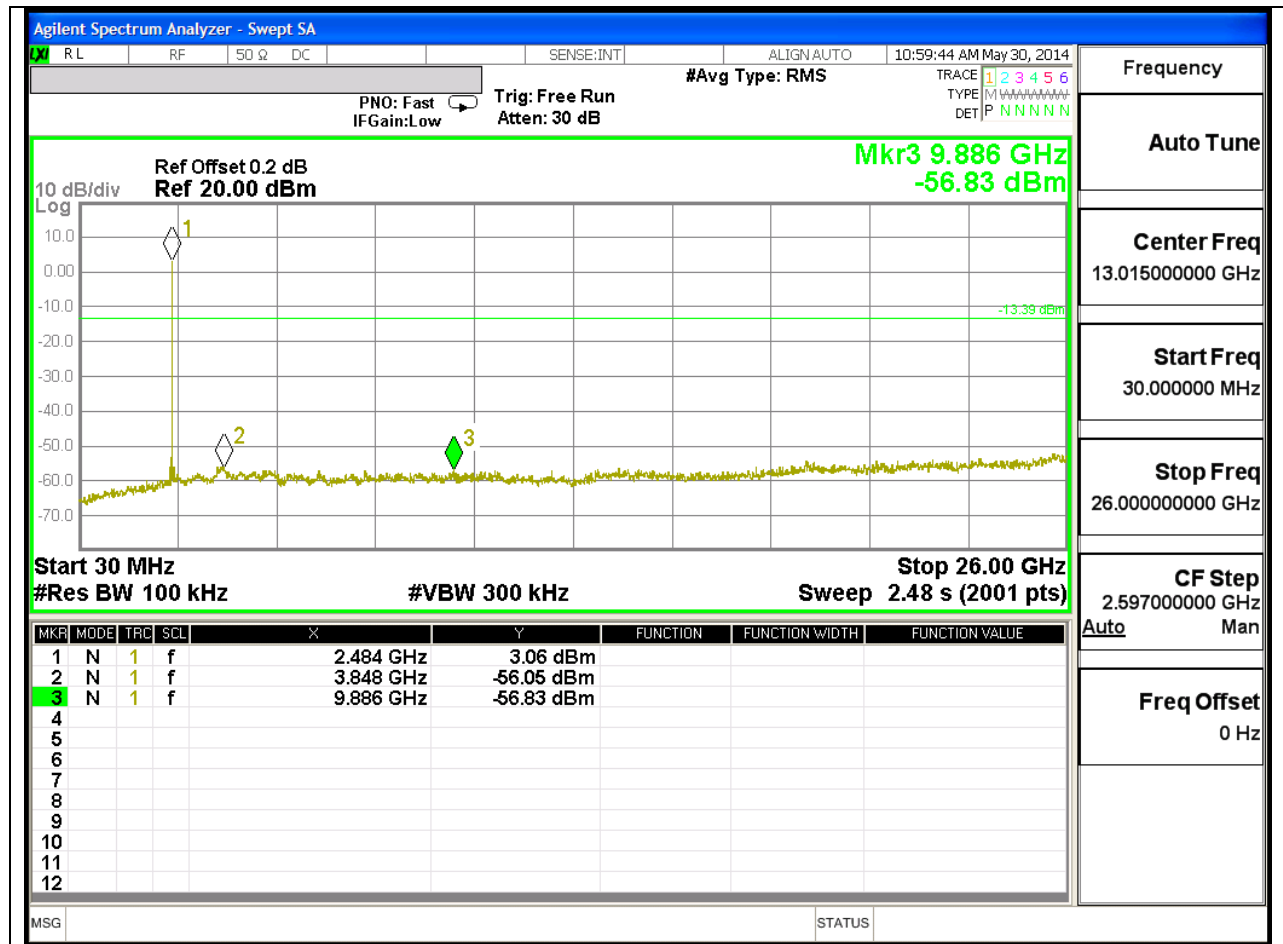


SPURIOUS EMISSIONS, MID CHANNEL**MID CHANNEL REFERENCE**

MID CHANNEL SPURIOUS



HIGH CHANNEL SPURIOUS



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

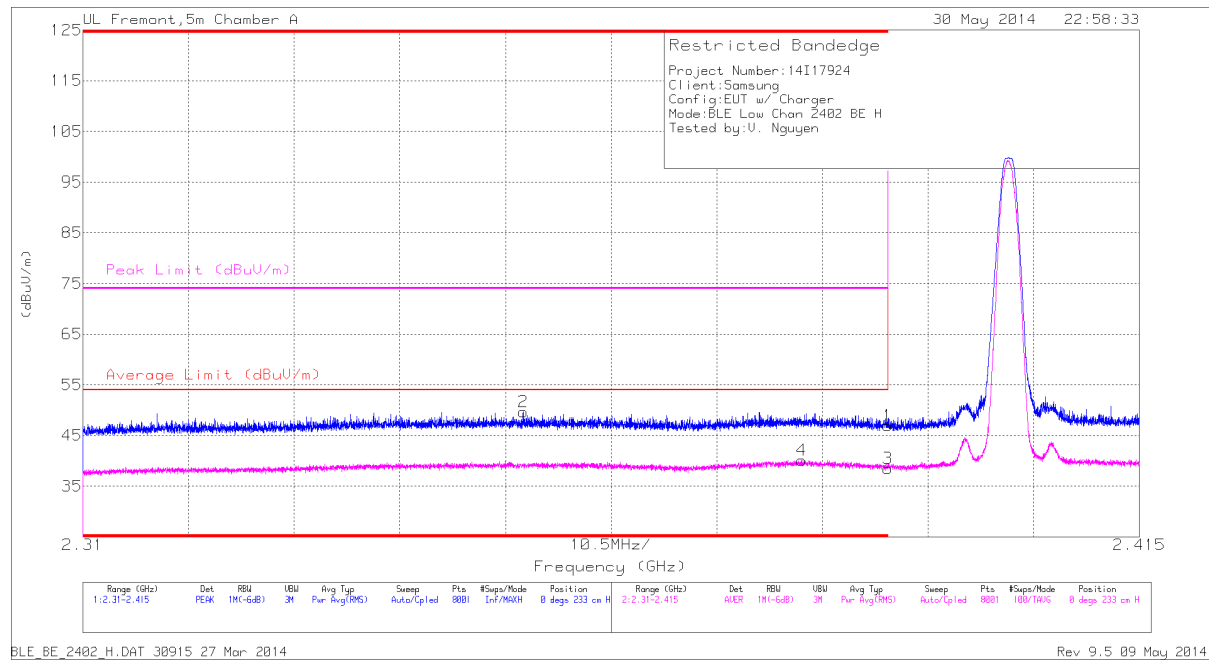
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable 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)

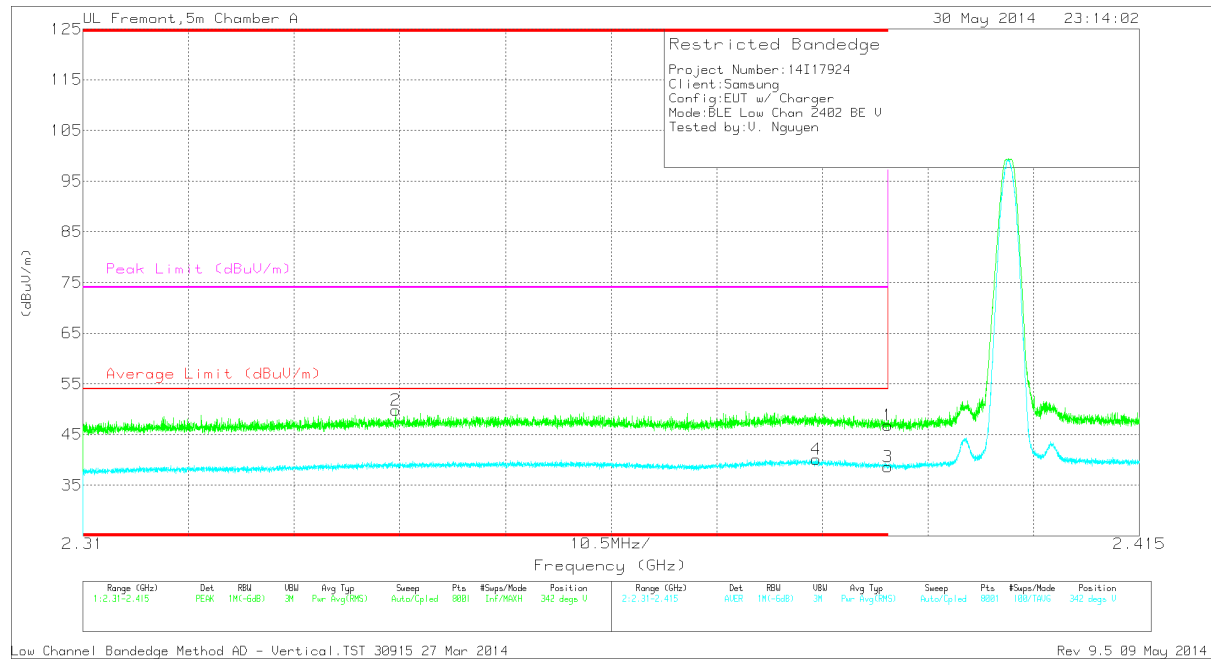


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.14	PK	32.2	-24.4	0	46.94	-	-	74	-27.06	0	233	H
2	* 2.354	41.51	PK	31.9	-23.7	0	49.71	-	-	74	-24.29	0	233	H
3	* 2.39	28.58	RMS	32.2	-24.4	2.1	38.48	54	-15.52	-	-	0	233	H
4	* 2.381	29.45	RMS	32.2	-23.6	2.1	40.15	54	-13.85	-	-	0	233	H

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

PK - Peak detector

RMS - RMS detection

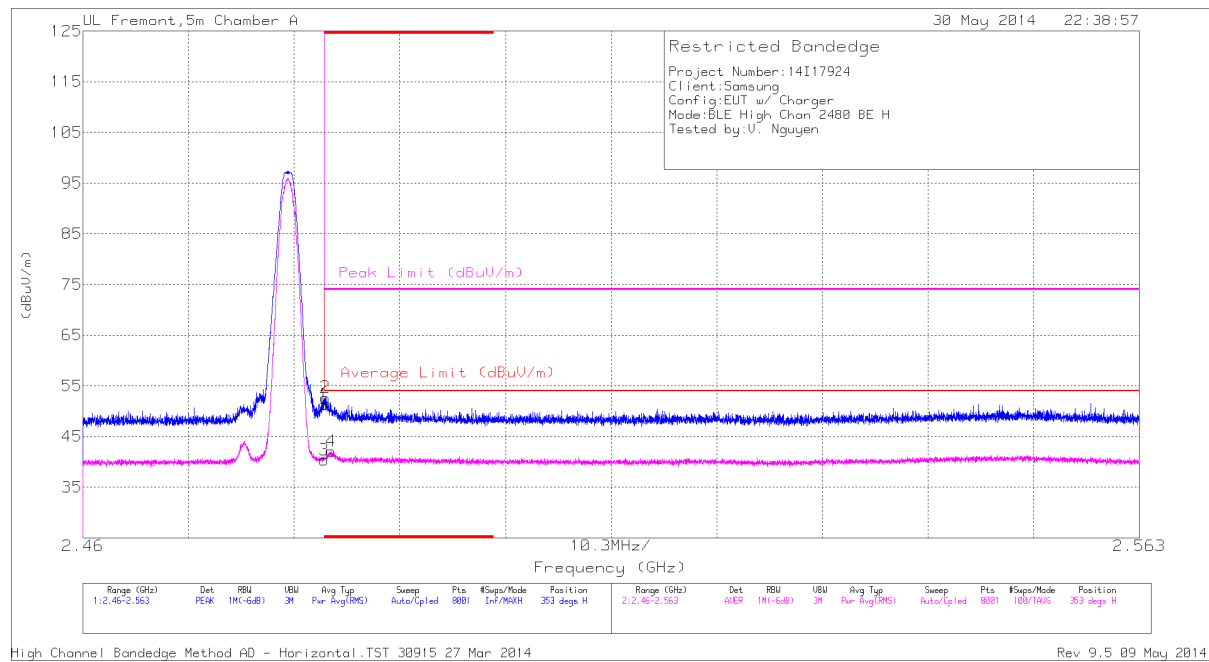
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.39	38.99	PK	32.2	-24.4	0	46.79	-	-	74	-27.21	342	294	V
2	* 2.341	41.74	PK	31.8	-23.8	0	49.74	-	-	74	-24.26	342	294	V
3	* 2.39	28.74	RMS	32.2	-24.4	2.1	38.64	54	-15.36	-	-	342	294	V
4	* 2.383	29.52	RMS	32.2	-23.7	2.1	40.12	54	-13.88	-	-	342	294	V

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

PK - Peak detector

RMS - RMS detection

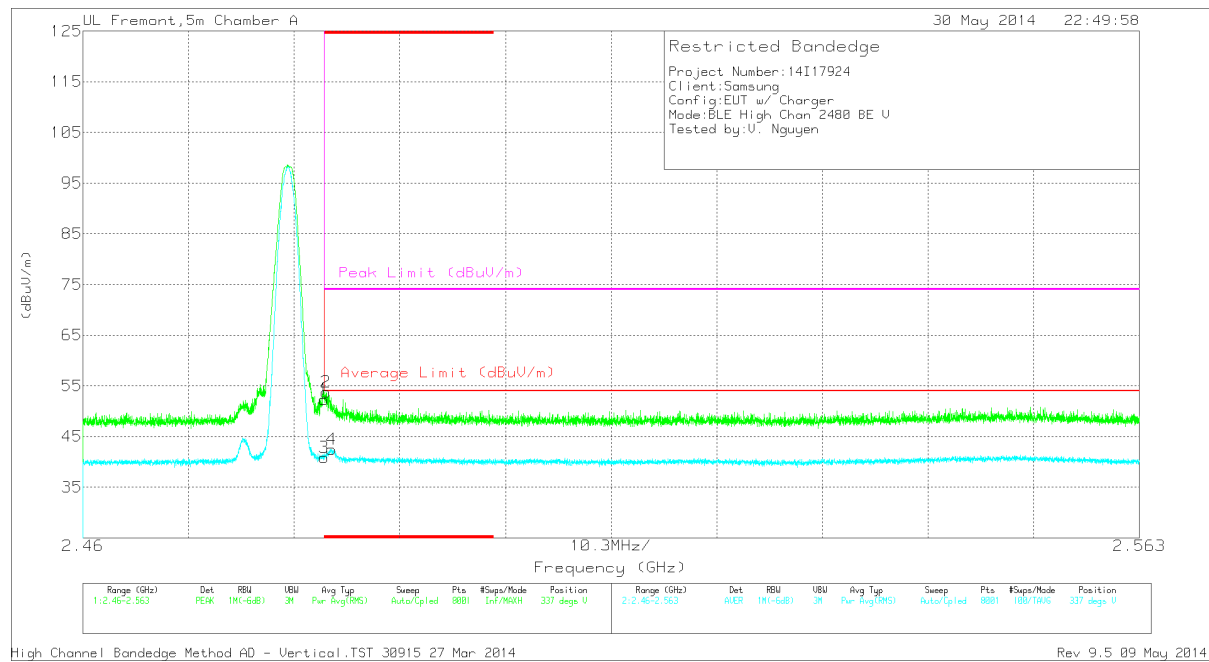
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	42.12	PK	32.7	-23.5	0	51.32	-	-	74	-22.68	353	340	H
2	* 2.484	43.51	PK	32.7	-23.5	0	52.71	-	-	74	-21.29	353	340	H
3	* 2.484	29.11	RMS	32.7	-23.5	2.1	40.41	54	-13.59	-	-	353	340	H
4	* 2.484	30.74	RMS	32.7	-23.5	2.1	42.04	54	-11.96	-	-	353	340	H

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

PK - Peak detector

RMS - RMS detection

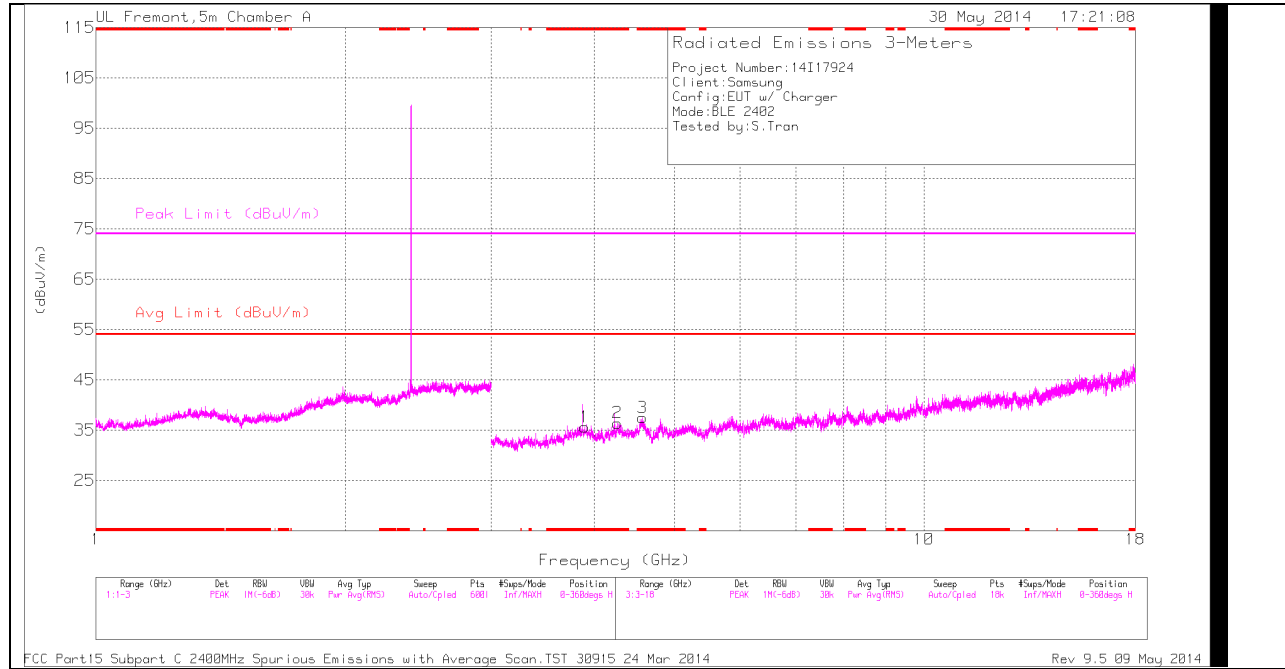
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fit r/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	43.04	PK	32.7	-23.5	0	52.24	-	-	74	-21.76	337	339	V
2	* 2.484	44.59	PK	32.7	-23.5	0	53.79	-	-	74	-20.21	337	339	V
3	* 2.484	29.56	RMS	32.7	-23.5	2.1	40.86	54	-13.14	-	-	337	339	V
4	* 2.484	31.18	RMS	32.7	-23.5	2.1	42.48	54	-11.52	-	-	337	339	V

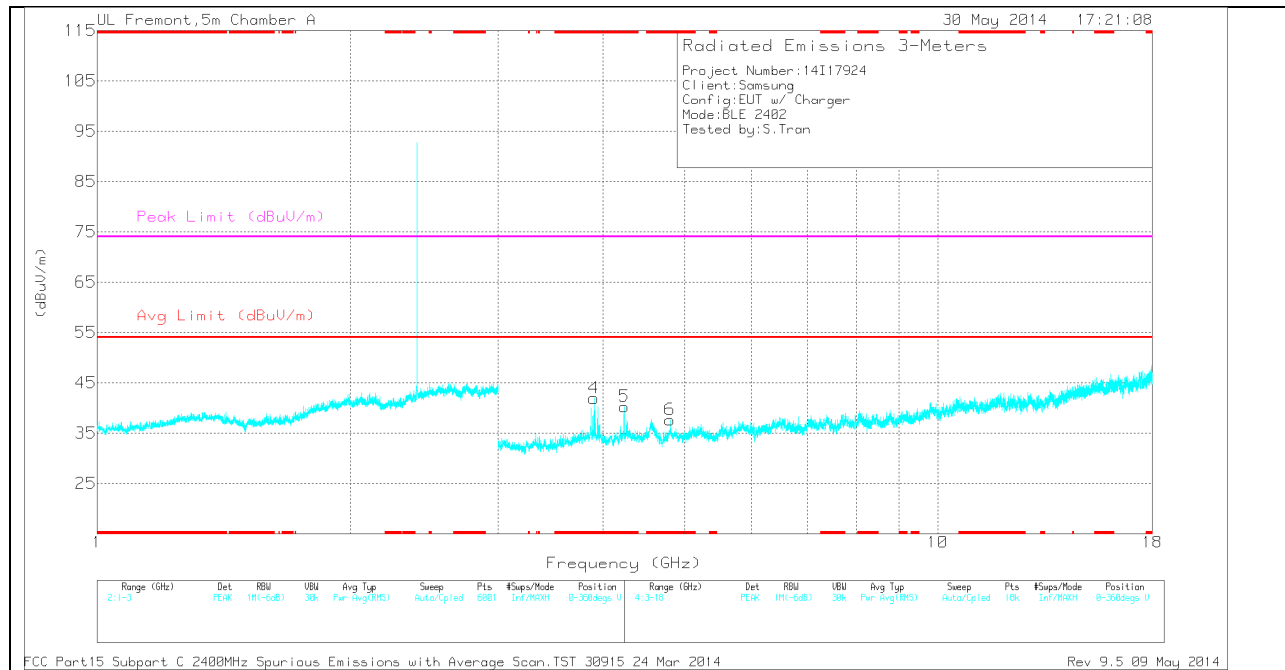
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS**LOW CHANNEL HORIZONTAL**

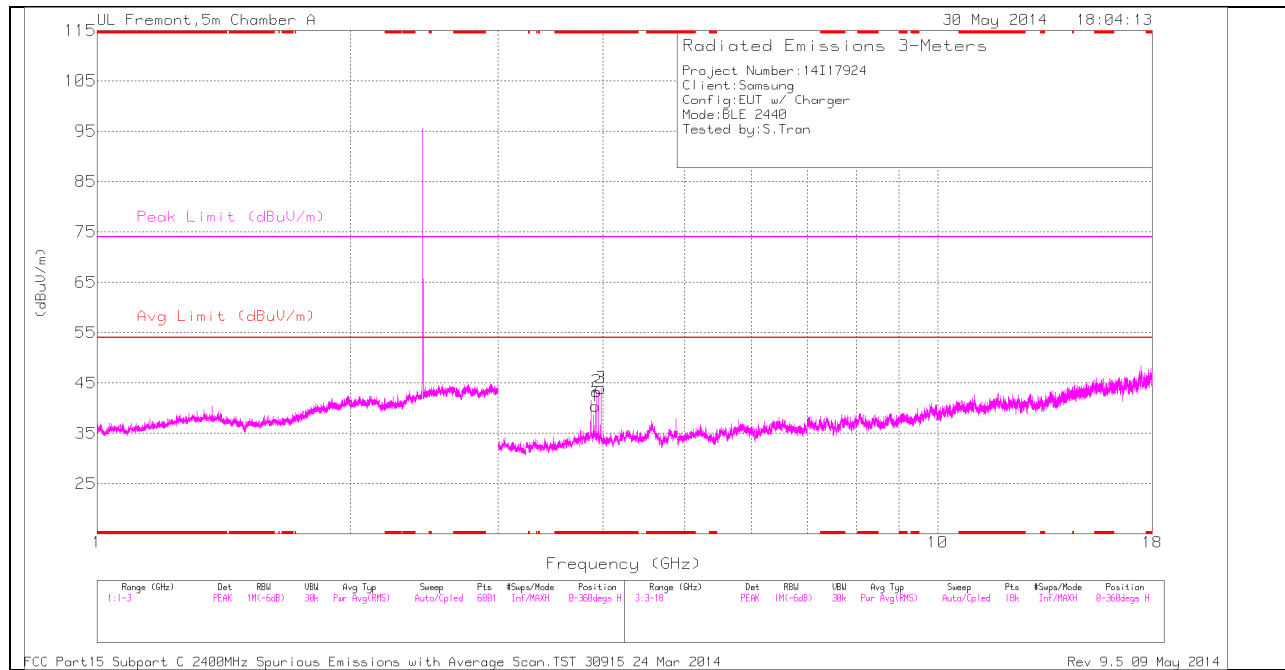
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL

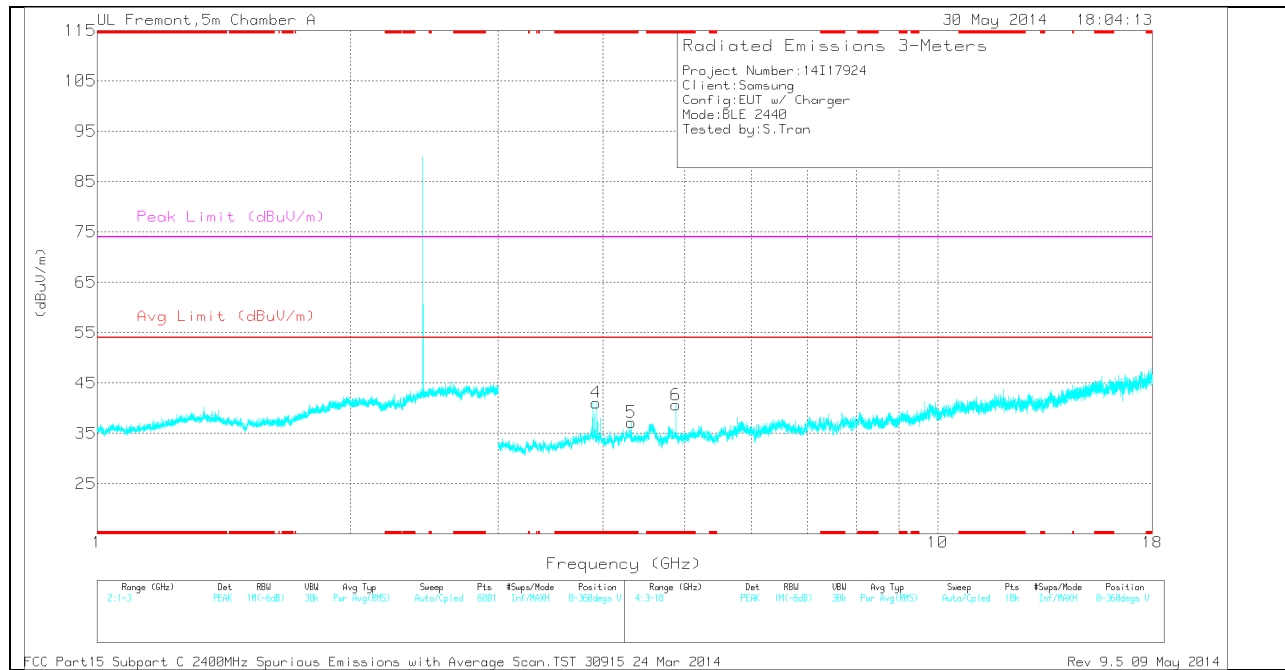
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filt /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.895	32.39	PK	33.8	-30.6	0	35.59	-	-	74	-38.41	0-360	100	H
4	* 3.9	38.72	PK	33.8	-30.6	0	41.92	-	-	74	-32.08	0-360	100	V
5	* 4.242	36.47	PK	34	-30.2	0	40.27	-	-	74	-33.73	0-360	100	V
2	* 4.262	31.2	PK	34	-28.8	0	36.4	-	-	74	-37.6	0-360	100	H
3	* 4.572	32.06	PK	33.9	-28.5	0	37.46	-	-	74	-36.54	0-360	200	H
6	* 4.803	33.76	PK	34	-30.1	0	37.66	-	-	74	-36.34	0-360	100	V

MID CHANNEL HORIZONTAL

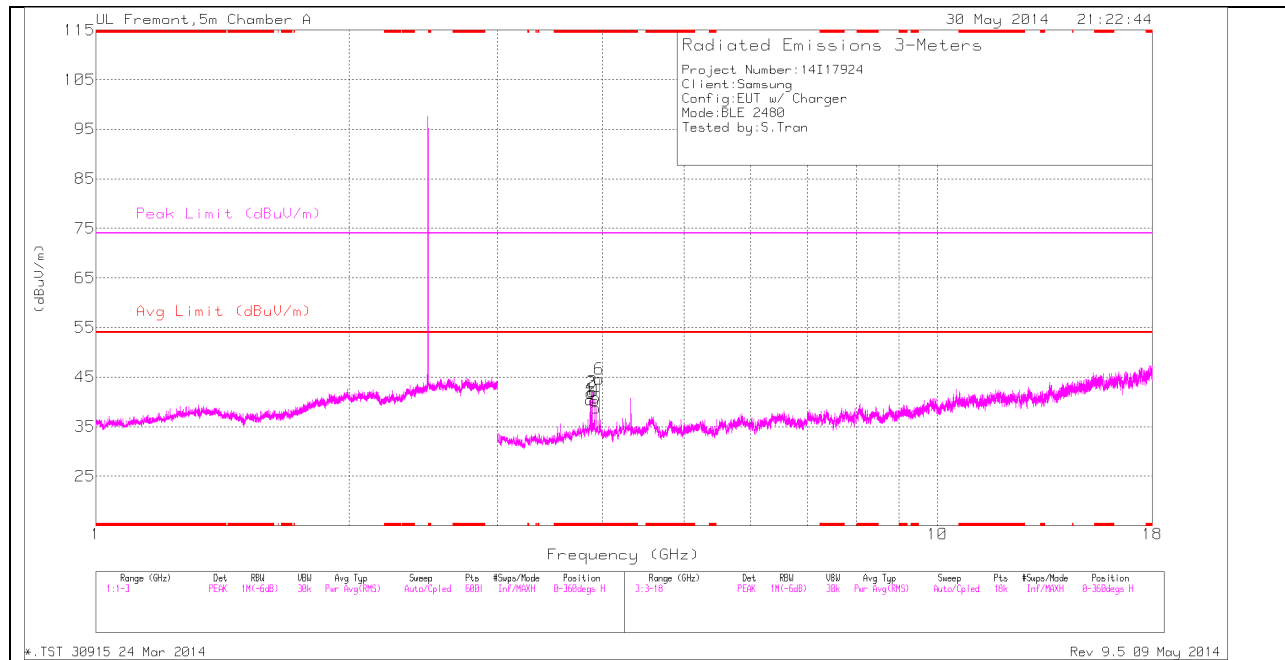
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL

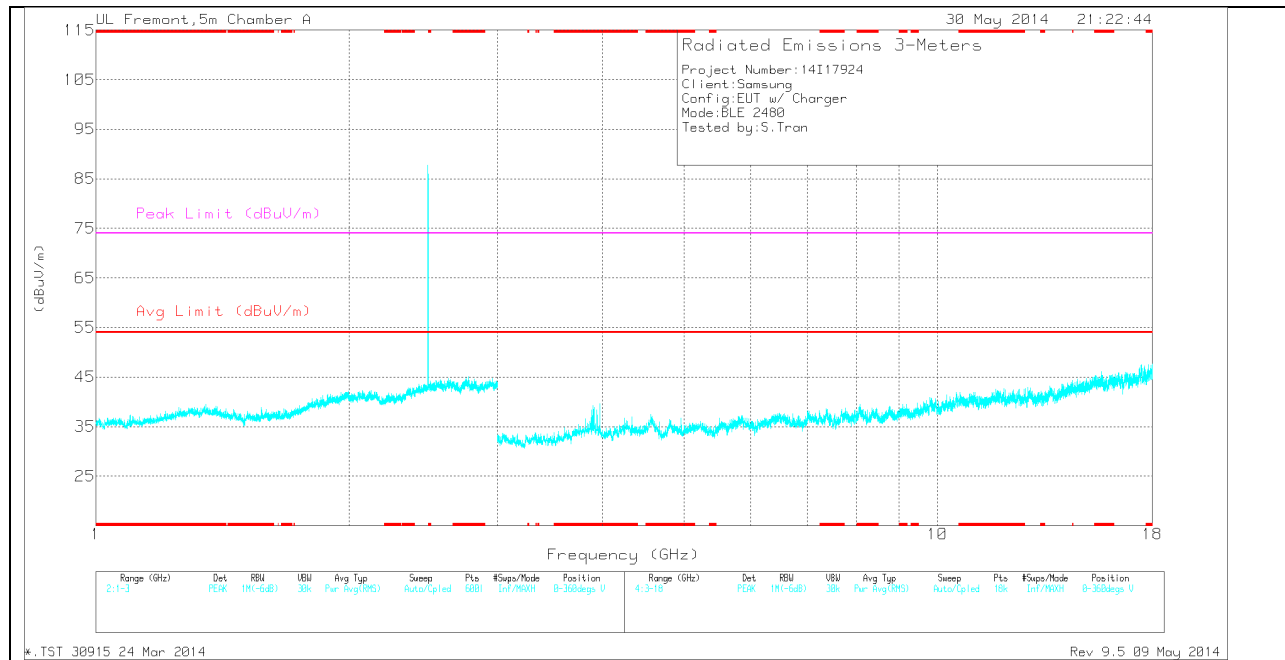
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filt /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.916	37.08	PK	33.8	-30.5	0	40.38	-	-	74	-33.62	0-360	200	H
2	* 3.93	40.13	PK	33.8	-30.6	0	43.33	-	-	74	-30.67	0-360	200	H
3	* 3.975	40.57	PK	33.7	-30.3	0	43.97	-	-	74	-30.03	0-360	200	H
4	* 3.923	38.19	PK	33.8	-30.9	0	41.09	-	-	74	-32.91	0-360	201	V
5	* 4.322	34.18	PK	34	-31	0	37.18	-	-	74	-36.82	0-360	201	V
6	* 4.879	34.83	PK	34	-28.2	0	40.63	-	-	74	-33.37	0-360	201	V

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.

HIGH CHANNEL 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.

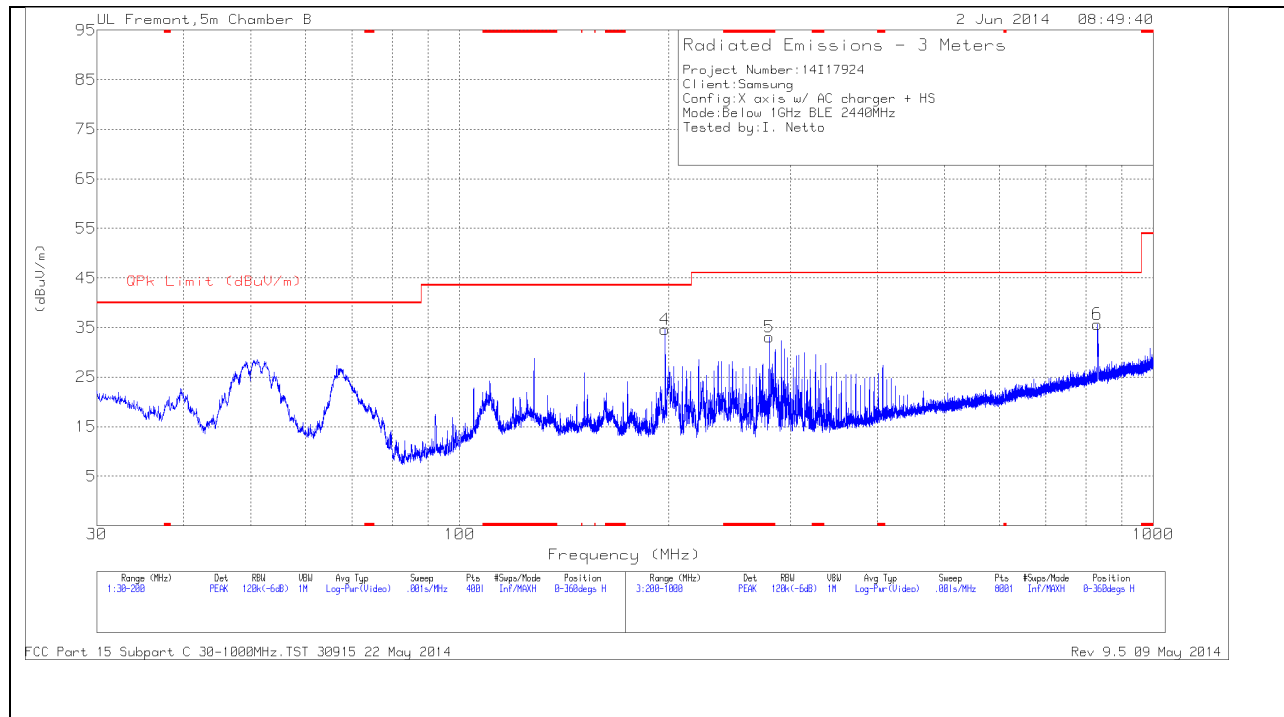
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filt /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.866	37.37	PK	33.7	-30.7	0	40.37	-	-	74	-33.63	0-360	201	H
2	* 3.877	39.11	PK	33.8	-31.1	0	41.81	-	-	74	-32.19	0-360	201	H
3	* 3.887	39.04	PK	33.8	-30.8	0	42.04	-	-	74	-31.96	0-360	201	H
4	* 3.915	36.88	PK	33.8	-30.4	0	40.28	-	-	74	-33.72	0-360	201	H
5	* 3.929	35.59	PK	33.8	-30.6	0	38.79	-	-	74	-35.21	0-360	201	H
6	* 3.962	41.23	PK	33.7	-30.4	0	44.53	-	-	74	-29.47	0-360	100	H

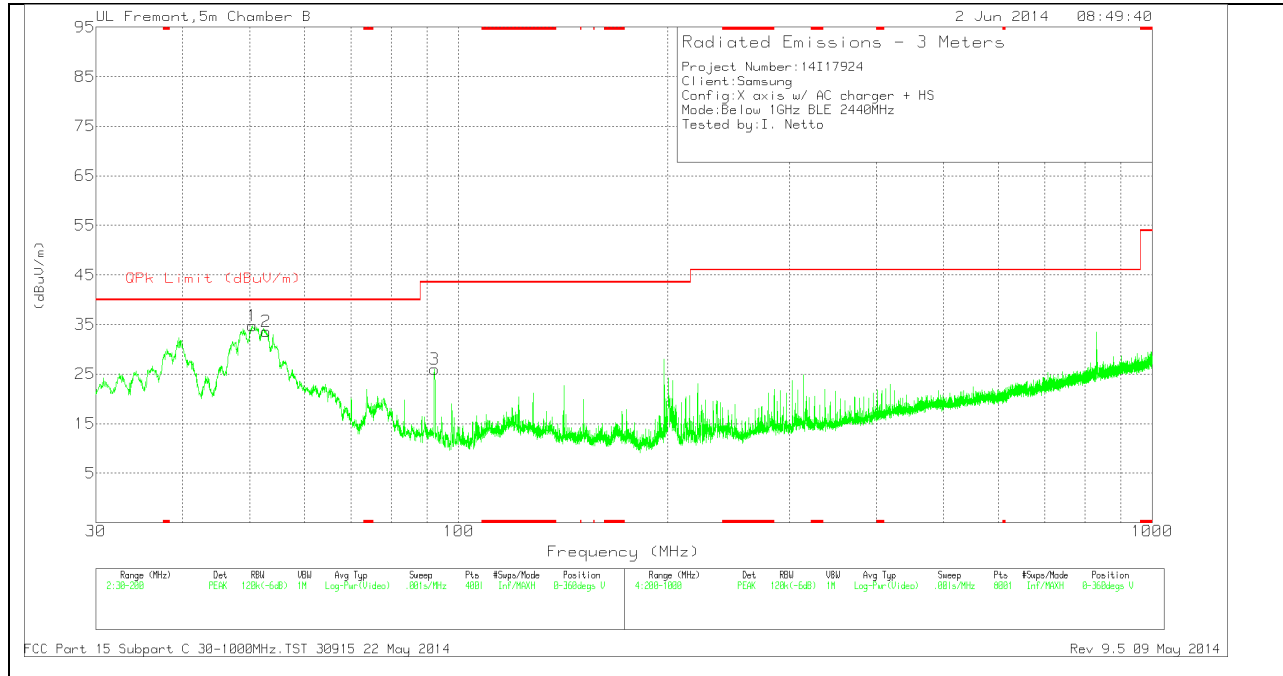
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

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
5	* 279.3	45.79	PK	13.4	-26.1	33.09	46.02	-12.93	0-360	101	H
1	50.4425	55.4	PK	7.9	-28.6	34.7	40	-5.3	0-360	101	V
2	52.7375	54.79	PK	7.4	-28.6	33.59	40	-6.41	0-360	101	V
3	92.3475	45.85	PK	8.2	-28.1	25.95	43.52	-17.57	0-360	101	V
4	197.8325	49.44	PK	12.1	-26.9	34.64	43.52	-8.88	0-360	101	H
6	831.1	37.79	PK	21.6	-23.7	35.69	46.02	-10.33	0-360	300	H

PK - Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 30915 9 Jul 2013 Rev 9.5 12 Jun 2013

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

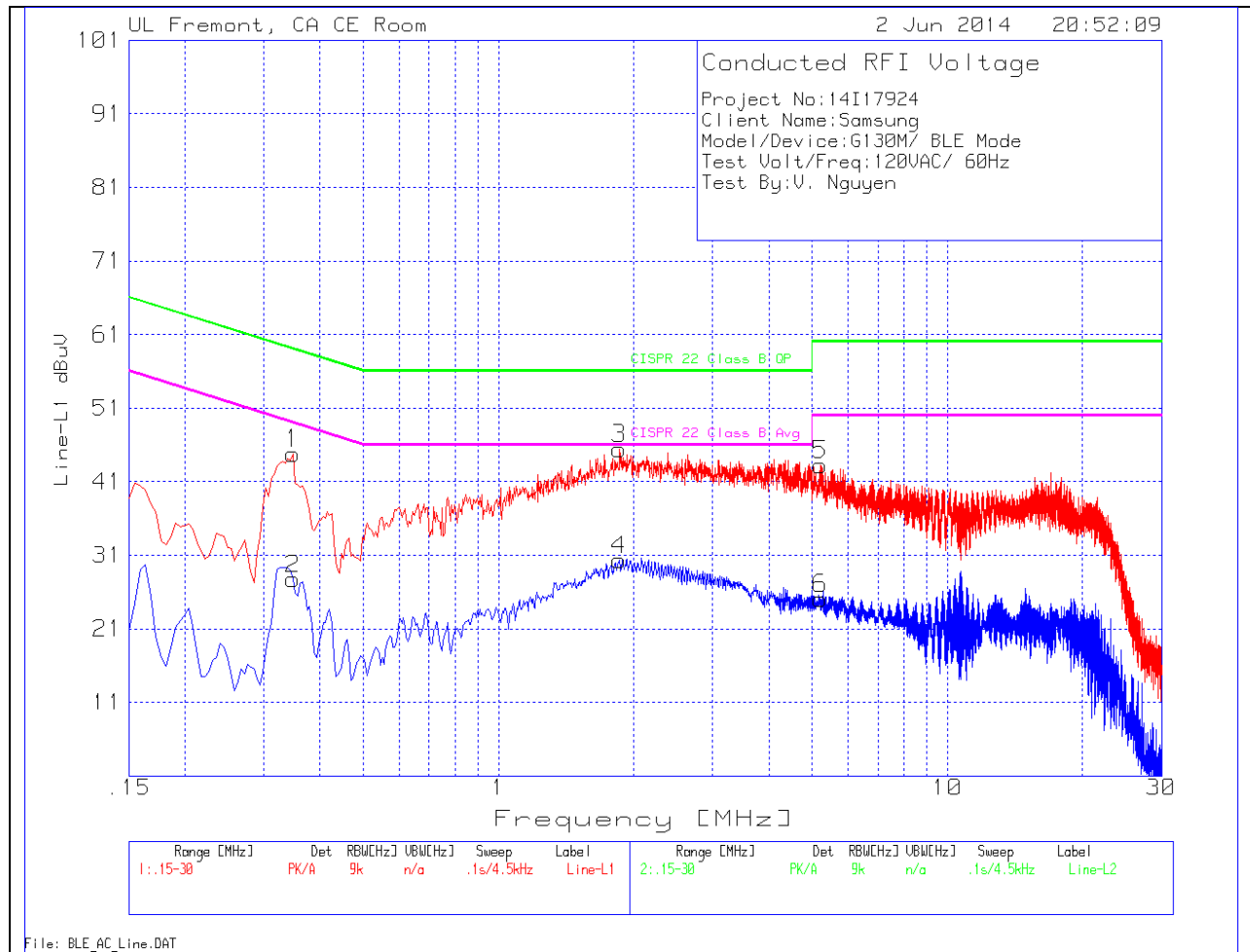
Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

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

TEST PROCEDURE

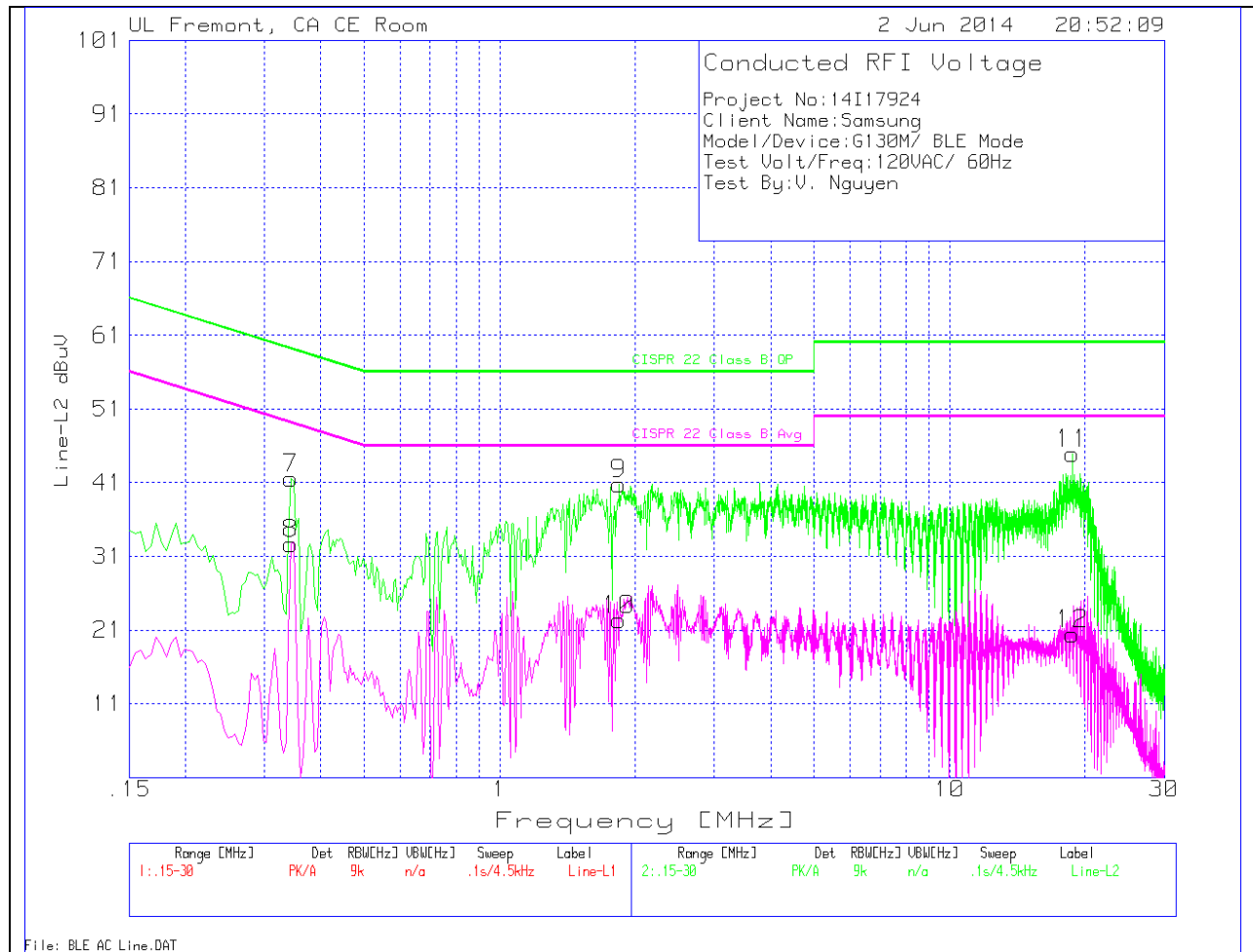
ANSI C63.4 - 2009

RESULTS

6 WORST EMISSIONS**LINE 1 PLOT****LINE 1 RESULTS****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	.348	44.27	PK	.5	0	44.77	59	-14.23	-	-
2	.348	27.21	Av	.5	0	27.71	-	-	49	-21.29
3	1.86	45.08	PK	.2	.1	45.38	56	-10.62	-	-
4	1.86	29.99	Av	.2	.1	30.29	-	-	46	-15.71
5	5.217	42.99	PK	.2	.1	43.29	60	-16.71	-	-
6	5.217	24.78	Av	.2	.1	25.08	-	-	50	-24.92

LINE 2 PLOT



LINE 2 RESULTS

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)
7	.3435	41.06	PK	.5	0	41.56	59.1	-17.54	-	-
8	.3435	32.14	Av	.5	0	32.64	-	-	49.1	-16.46
9	1.842	40.44	PK	.2	.1	40.74	56	-15.26	-	-
10	1.842	22.06	Av	.2	.1	22.36	-	-	46	-23.64
11	18.771	44.43	PK	.3	.2	44.93	60	-15.07	-	-
12	18.771	19.95	Av	.3	.2	20.45	-	-	50	-29.55