FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

BLUETOOTH LOW ENERGY

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n & NFC

MODEL NUMBER: SM-C115L

FCC ID: A3LSMC115L

REPORT NUMBER: 14U17495-3, Revision A

ISSUE DATE: May 2, 2014

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

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	4/10/14	Initial Issue	P. Kim
A	5/2/14	Updated plots	P. Zhang

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 4

2. TEST METHODOLOGY 5

3. FACILITIES AND ACCREDITATION 5

4. CALIBRATION AND UNCERTAINTY 5

4.1. MEASURING INSTRUMENT CALIBRATION 5

4.2. SAMPLE CALCULATION 5

4.3. MEASUREMENT UNCERTAINTY 5

5. EQUIPMENT UNDER TEST 6

5.1. DESCRIPTION OF EUT 6

5.2. MAXIMUM OUTPUT POWER 6

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 6

5.4. WORST-CASE CONFIGURATION AND MODE 7

5.5. DESCRIPTION OF TEST SETUP 8

6. TEST AND MEASUREMENT EQUIPMENT 10

7. SUMMARY 11

8. ANTENNA PORT TEST RESULTS 11

8.1. 6 dB BANDWIDTH 12

8.2. 99% BANDWIDTH 15

8.3. OUTPUT POWER 18

8.4. AVERAGE POWER 21

8.5. POWER SPECTRAL DENSITY 22

8.6. CONDUCTED SPURIOUS EMISSIONS 25

9. RADIATED TEST RESULTS 29

9.1. LIMITS AND PROCEDURE 29

9.2. TRANSMITTER ABOVE 1 GHz 30

9.3. WORST-CASE BELOW 1 GHz 43

10. AC POWER LINE CONDUCTED EMISSIONS 46

11. SETUP PHOTOS 50

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: **SAMSUNG ELECTRONICS CO., LTD.**

EUT DESCRIPTION: **GSM/WCDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC**

MODEL: **SM-C115L**

SERIAL NUMBER: **FL-032-V (Conducted), FL-032-S (Radiated)**

DATE TESTED: **FEBRUARY 25 – MARCH 18, 2014**

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

Approved & Released For
UL Verification Services Inc. By:

PHILIP KIM
CONSUMER TECHNOLOGY DIVISION
PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

CHARLES VERGONIO
CONSUMER TECHNOLOGY DIVISION
TEST TECHNICIAN
UL Verification Services Inc.

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, 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 Verification Services Inc. 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:

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/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC

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	8.81	7.60

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.4 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	EP-TA10EWE	N/A	N/A
Earphone	SAMSUNG	N/A	N/A	N/A

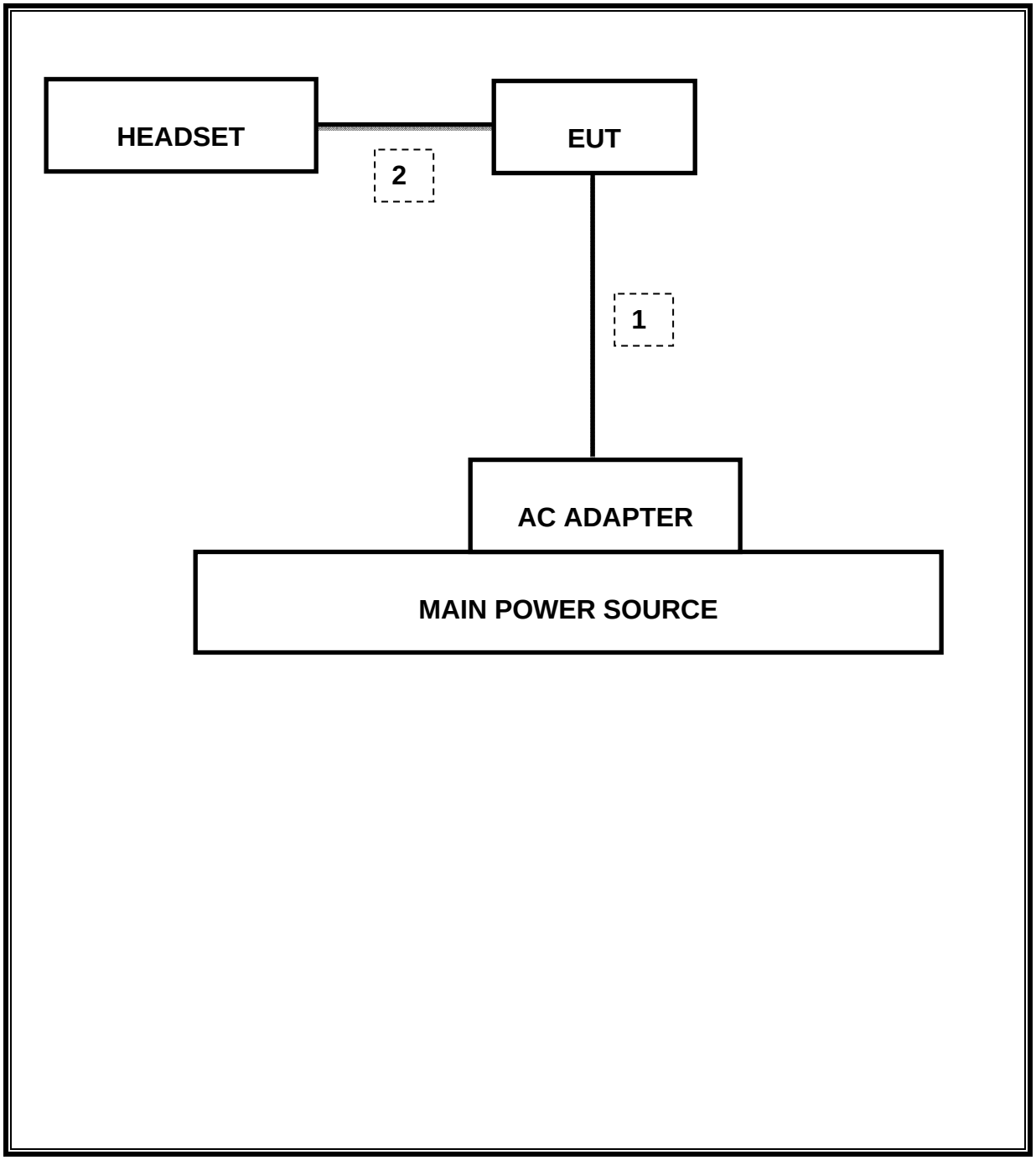
I/O CABLES

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	4/1/2014
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	5/8/2014
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

The model FCC ID: A3LSMC115L shares the same enclosure and circuit board as mode FCC ID: A3LSMC115. The WLAN/Bluetooth/NFC circuitry and layout, including antenna, are almost identical between the two units. The WLAN/Bluetooth antenna and surrounding circuitry is the same between these two units.

After confirming through preliminary radiated emissions that the performance of the A3LSMC115L WLAN remains representative of this model (FCC ID A3LSM C115) test data for FCC ID: A3LSM C115 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. Other differences between the two FCC IDs are in the WWAN RF Transceiver, connectivity part, components and placement. WWAN SAR and EMC has been fully retested for FCC ID: A3LSMC115L.

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	0.729MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-44.17dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	8.81dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-5.88dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	36.07dBuV(AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	43.7dBuV/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.

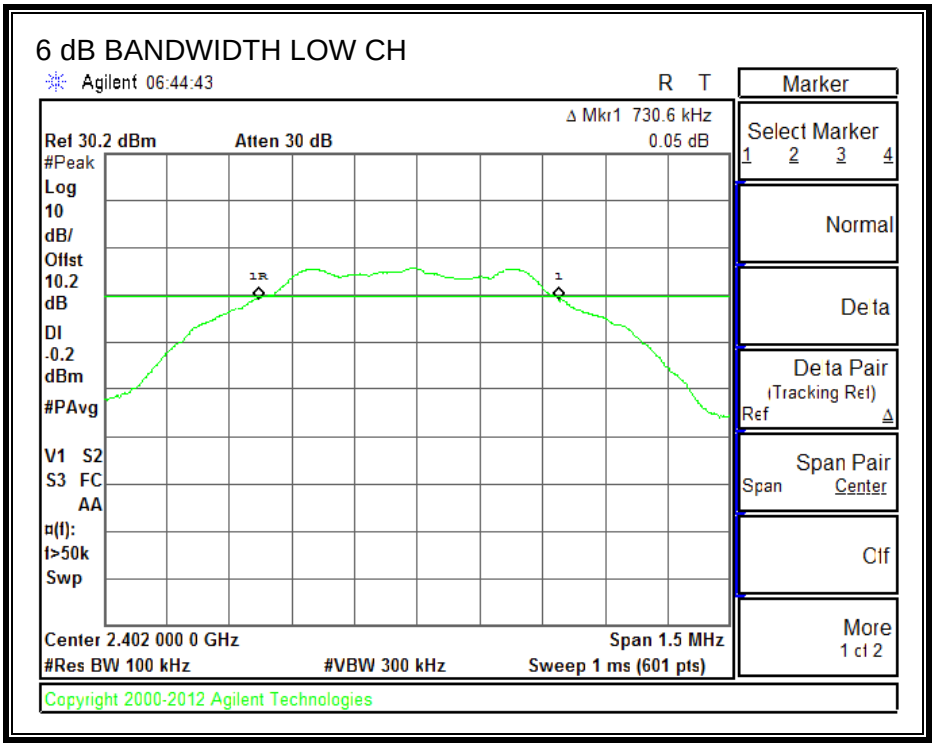
TEST PROCEDURE

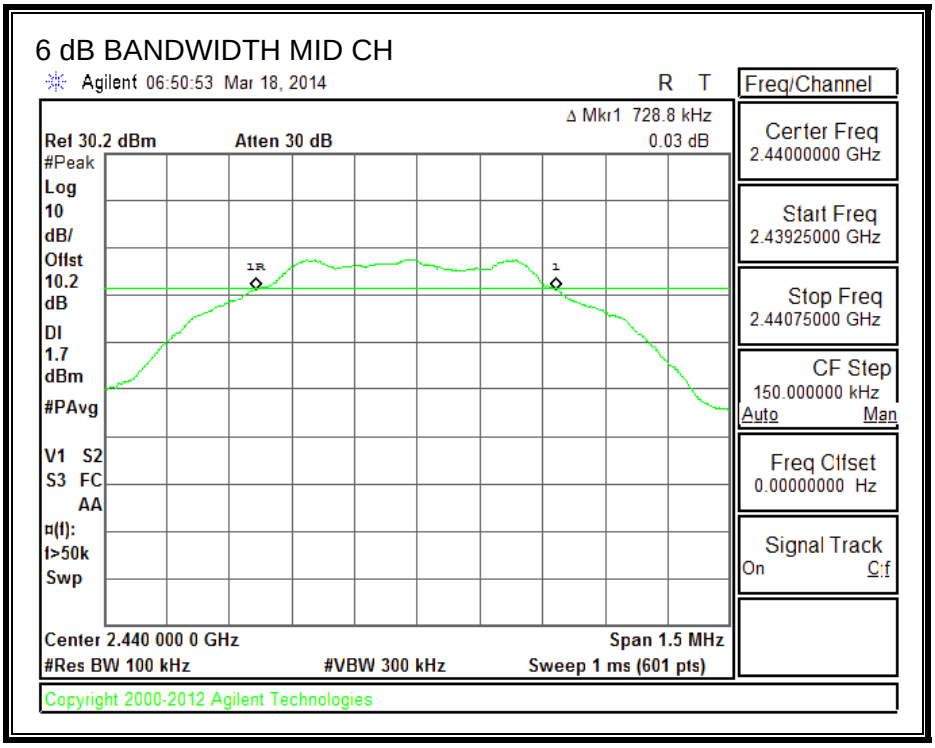
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

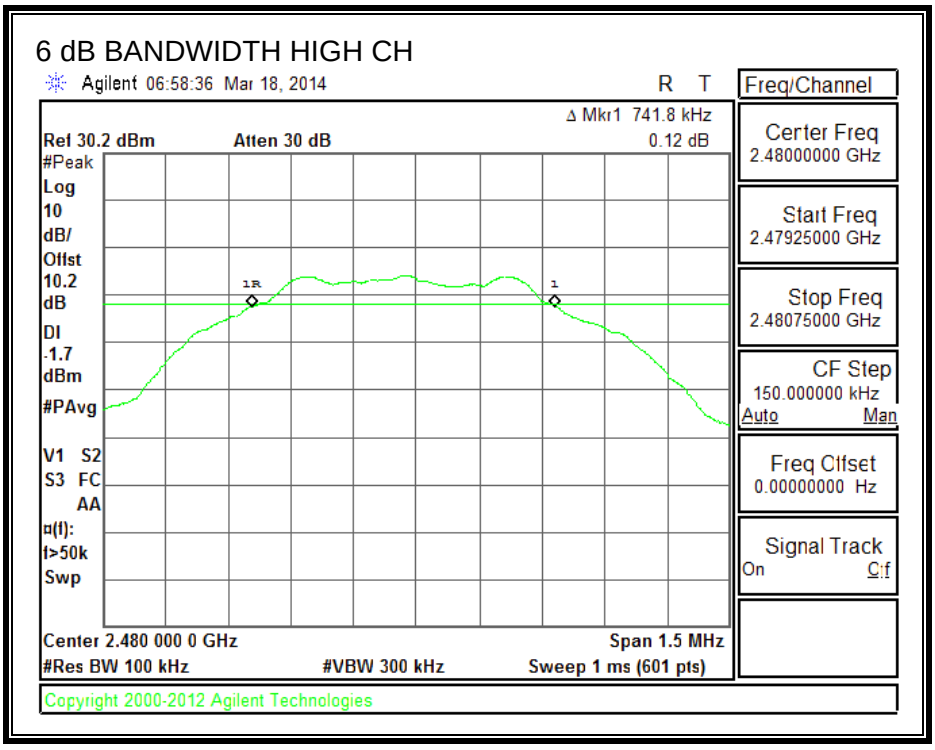
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.7310	0.5
Middle	2440	0.7290	0.5
High	2480	0.7420	0.5

6 dB BANDWIDTH







8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

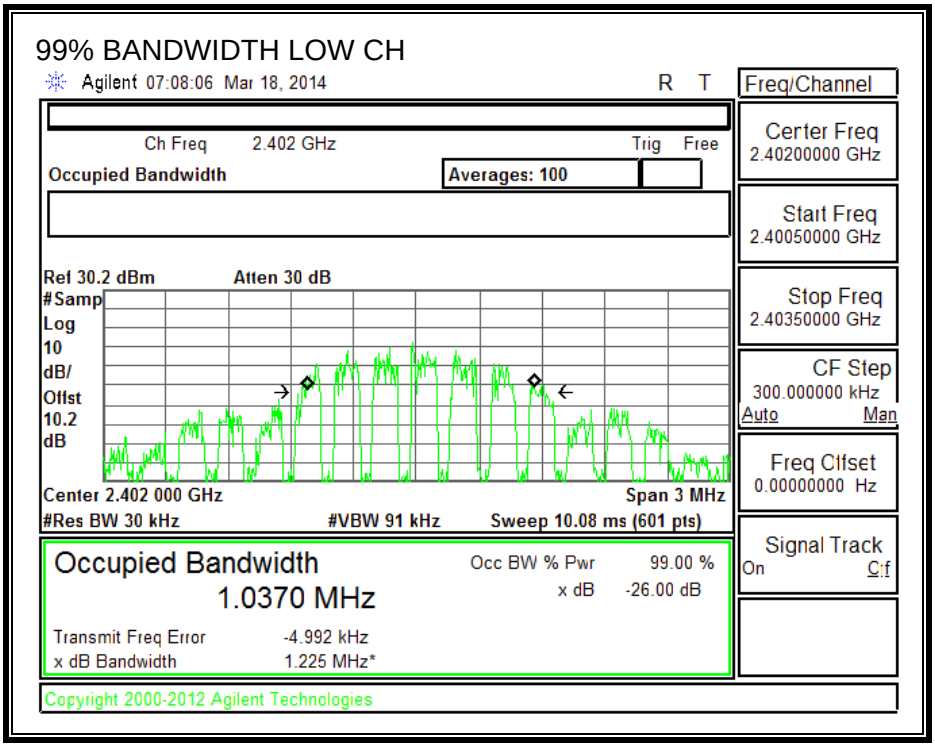
TEST PROCEDURE

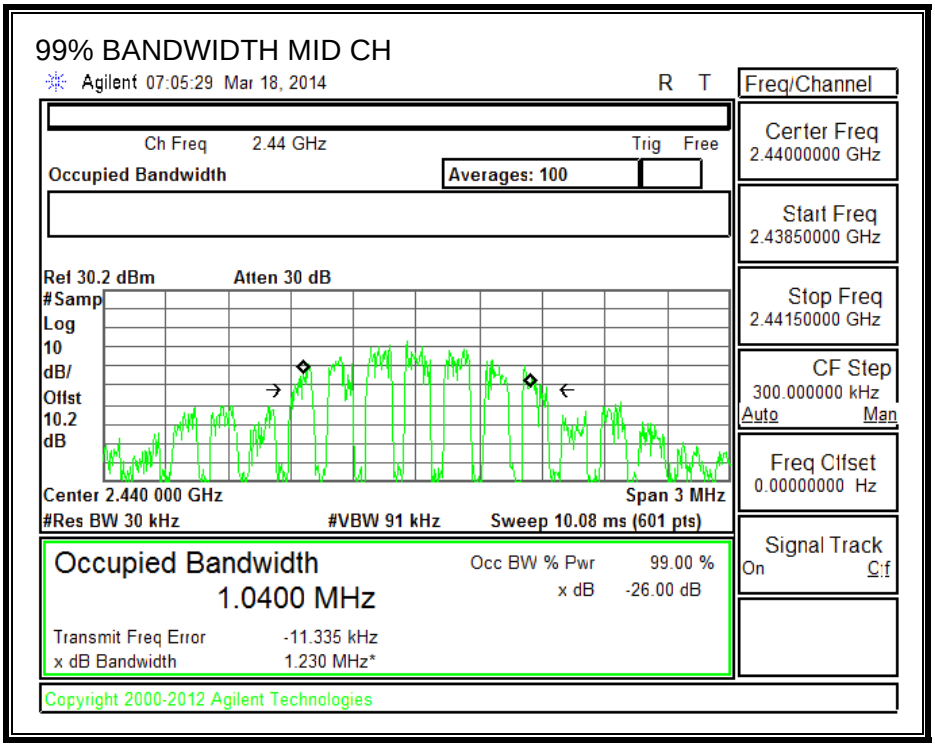
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function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

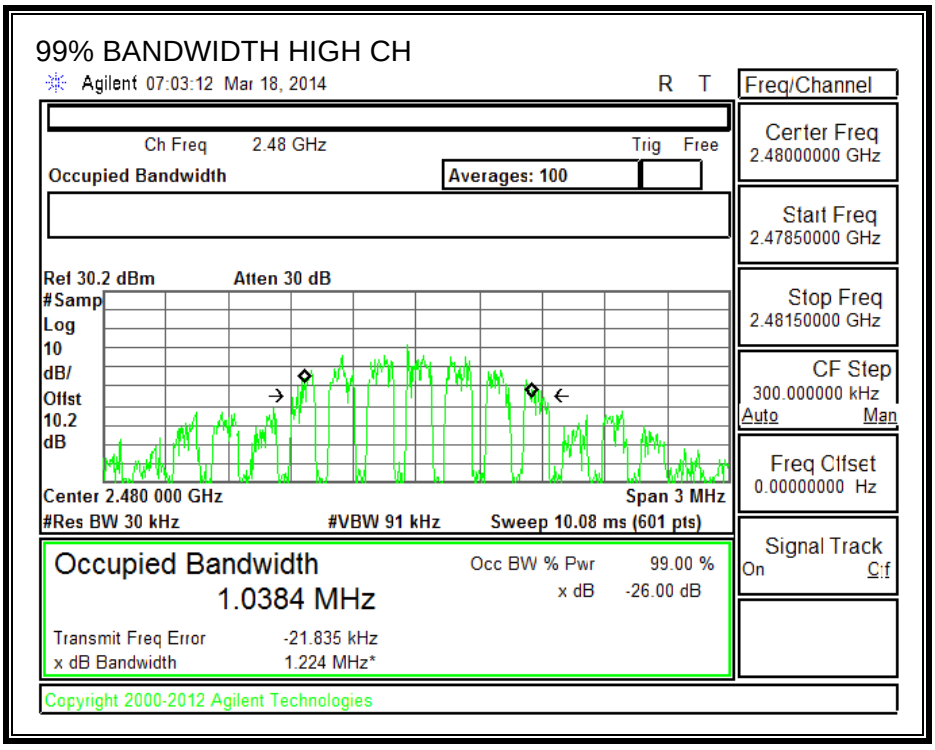
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0370
Middle	2440	1.0400
High	2480	1.0384

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.

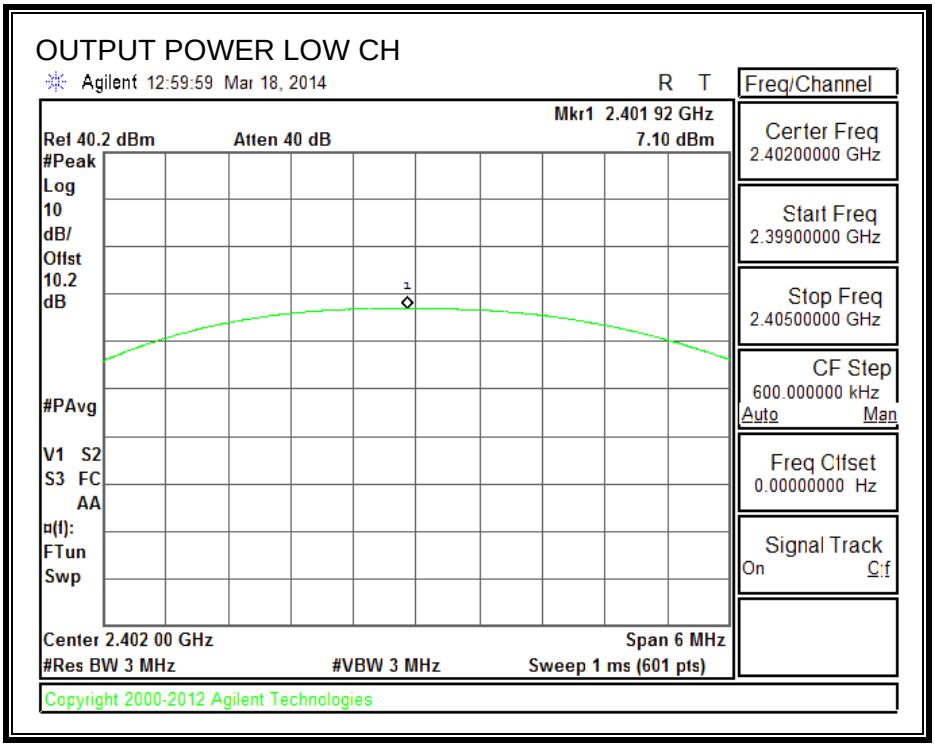
TEST PROCEDURE

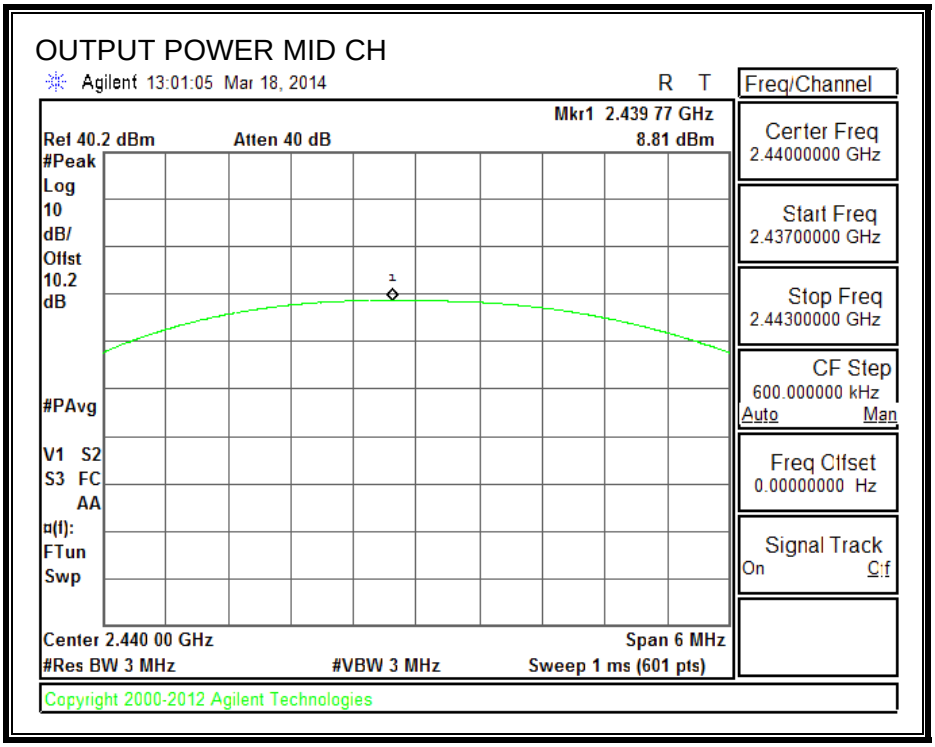
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyze.

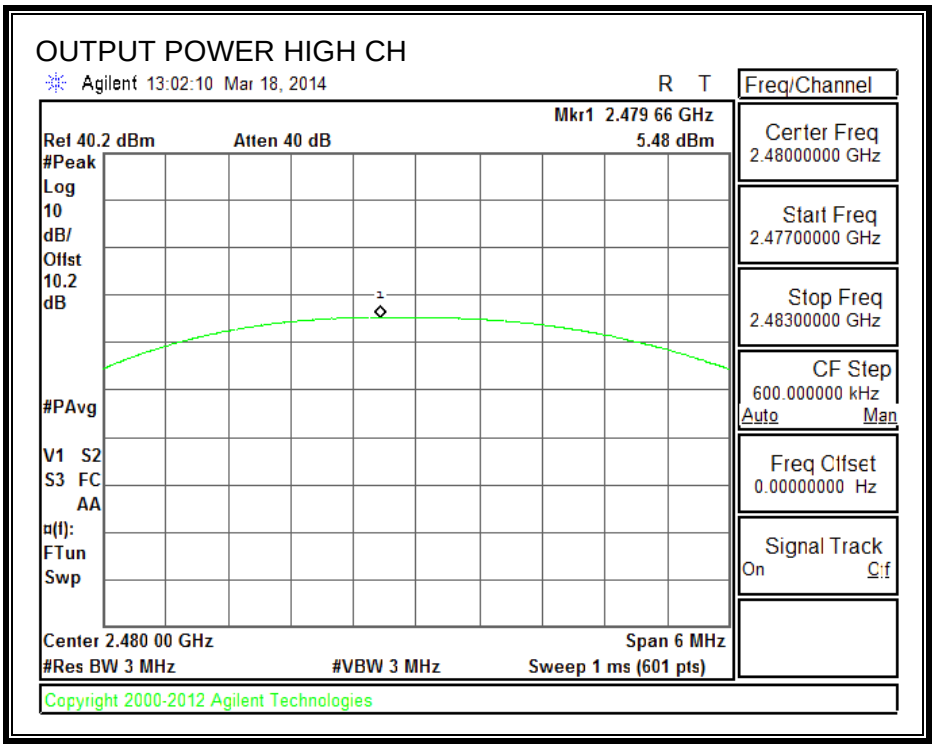
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.100	30	-22.900
Middle	2440	8.810	30	-21.190
High	2480	5.480	30	-24.520

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 10.4 dB (including 10 dB pad and 0.4 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	6.76
Middle	2440	8.51
High	2480	5.09

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.

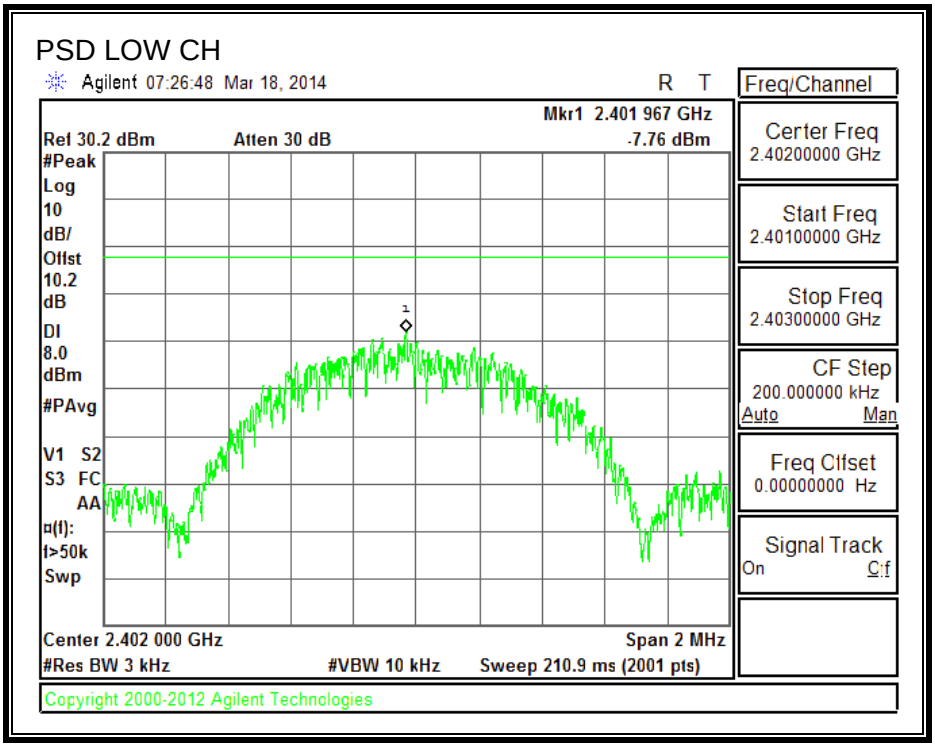
TEST PROCEDURE

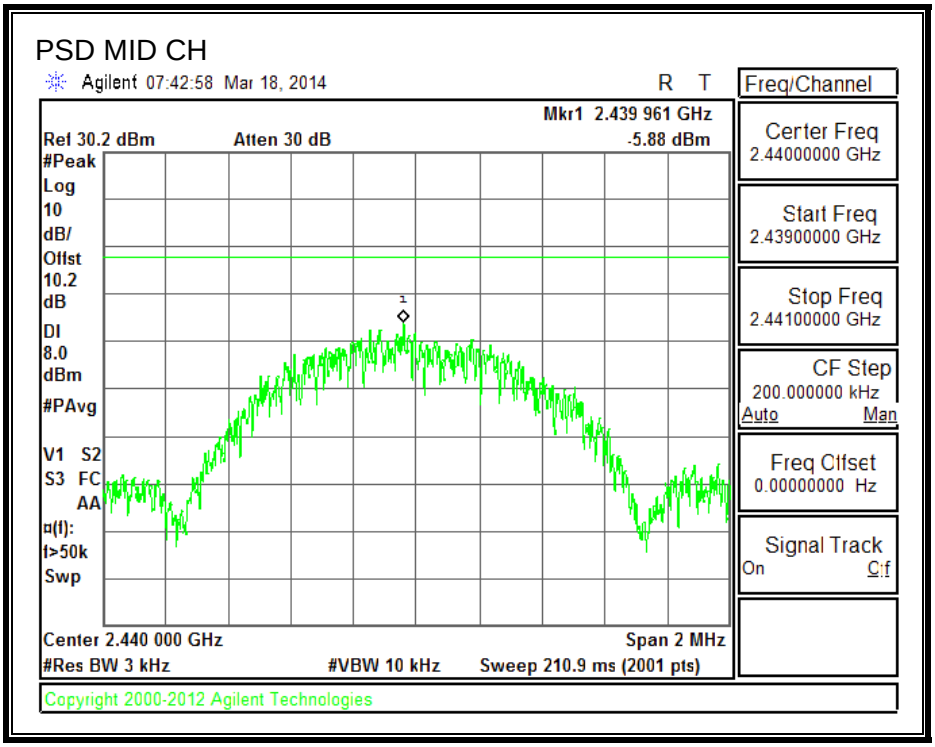
Power Spectral Density was performed utilizing the “Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

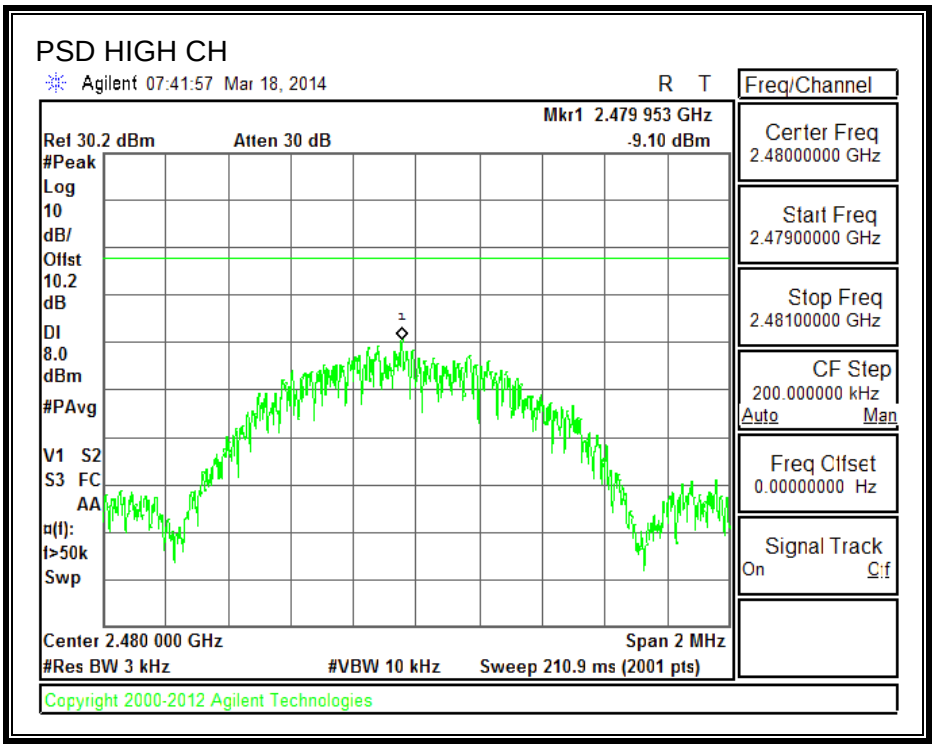
RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-7.76	8	-15.76
Middle	2440	-5.88	8	-13.88
High	2480	-9.10	8	-17.10

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.

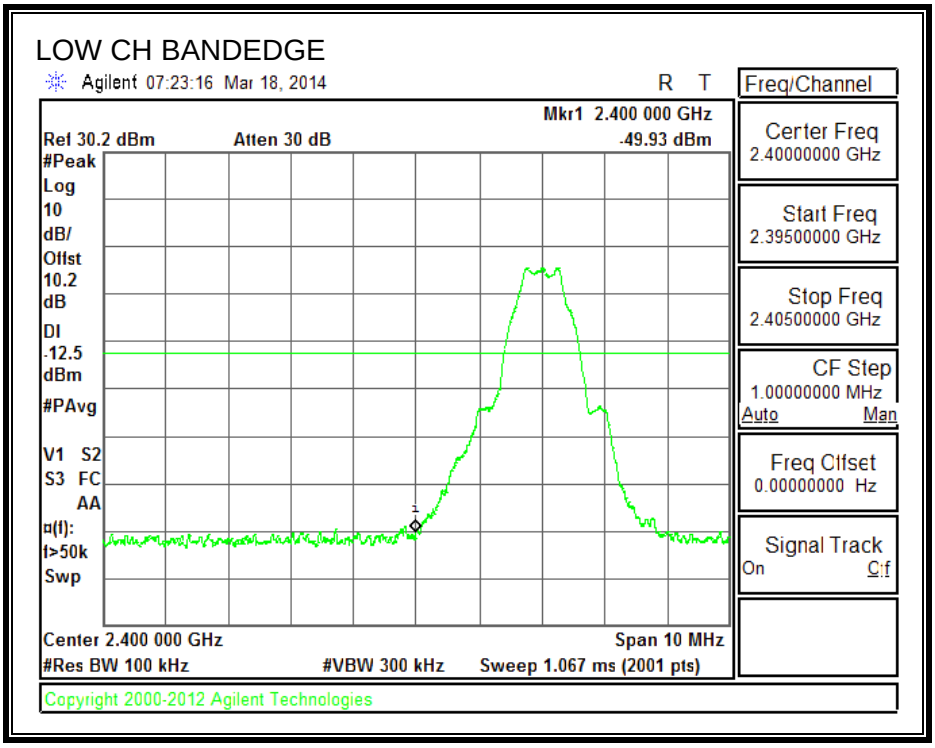
TEST PROCEDURE

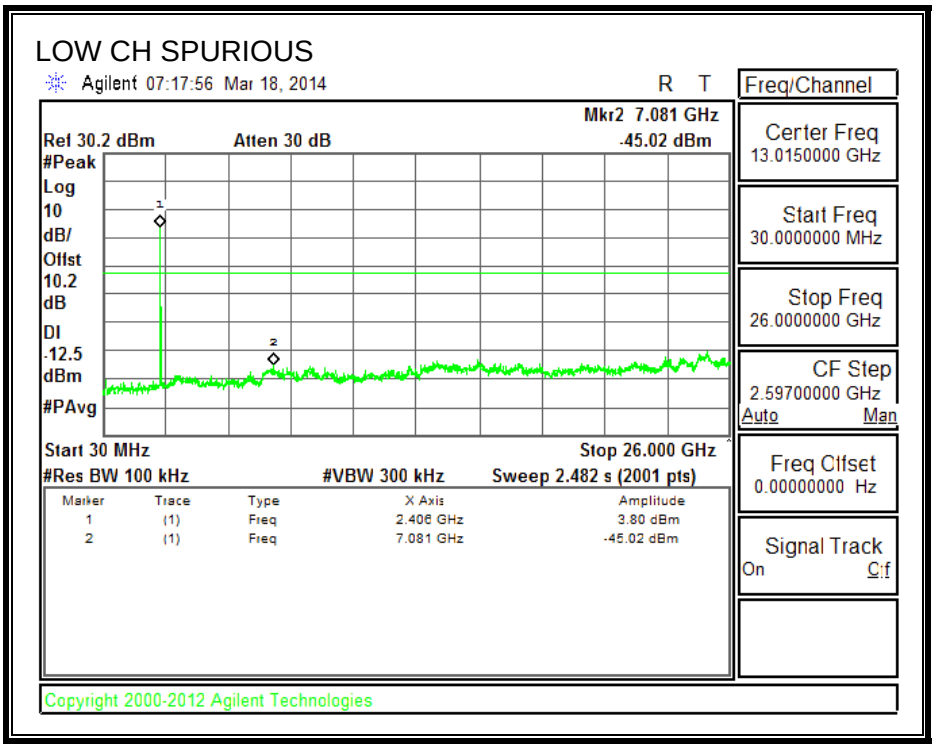
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

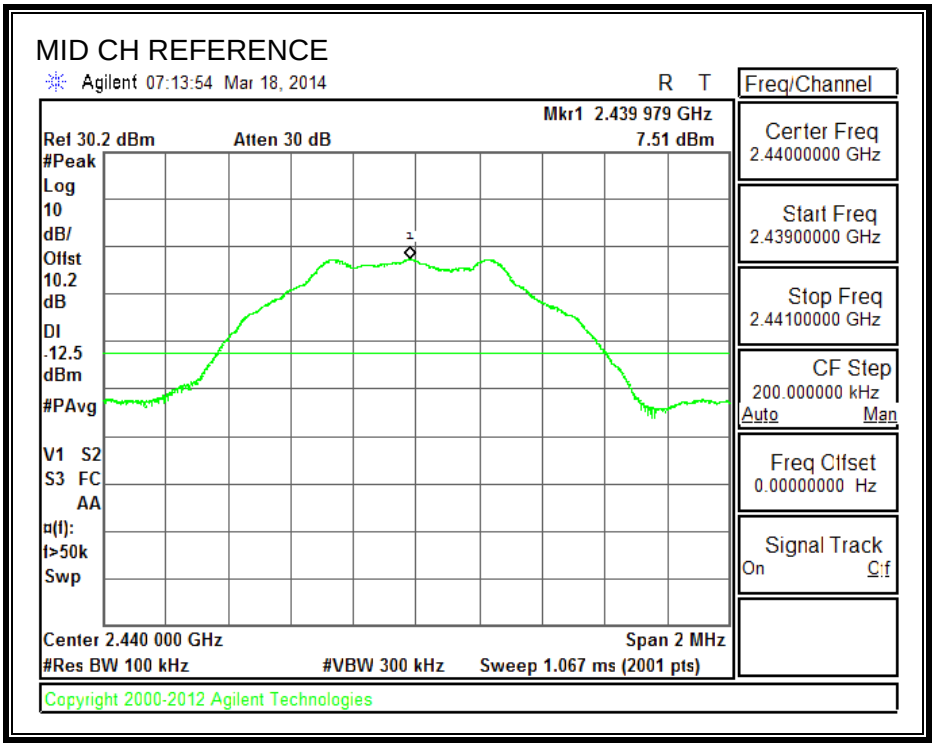
RESULTS

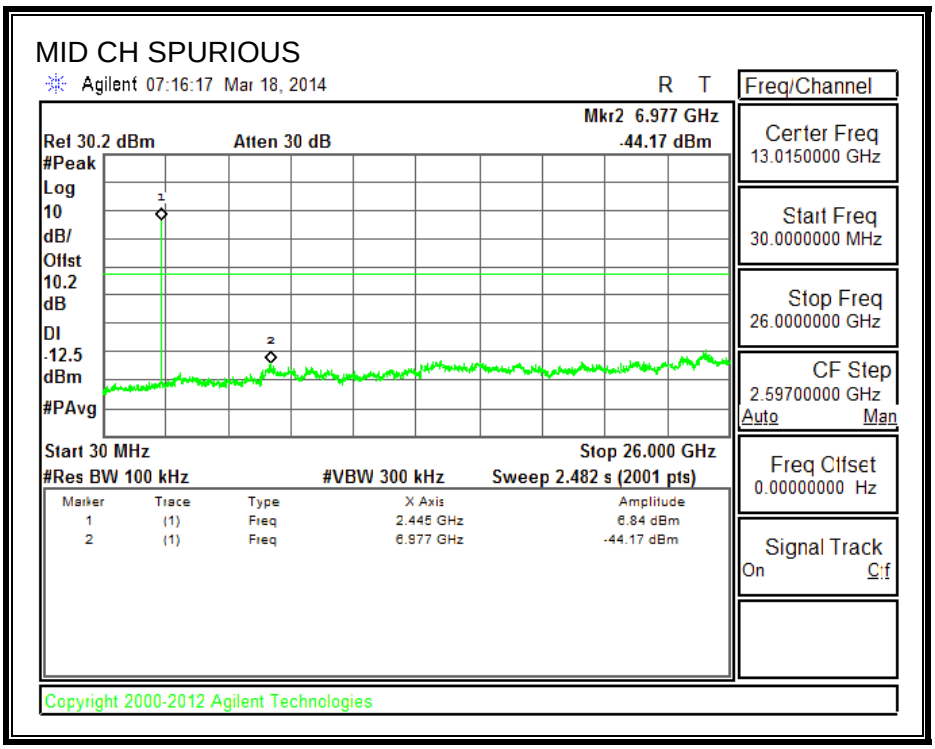
SPURIOUS EMISSIONS, LOW CHANNEL



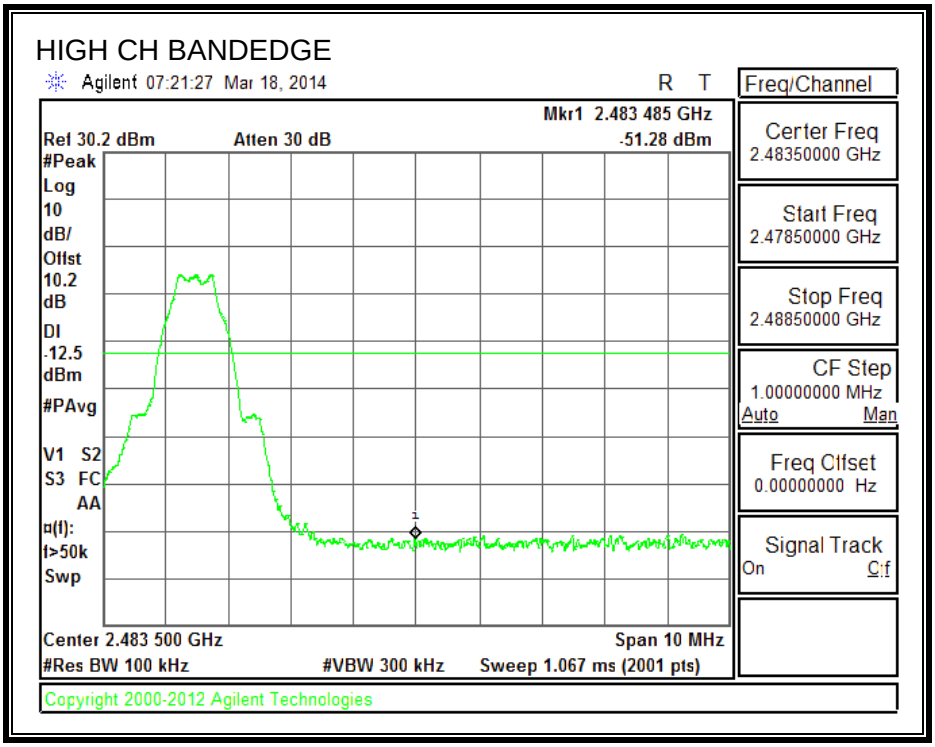


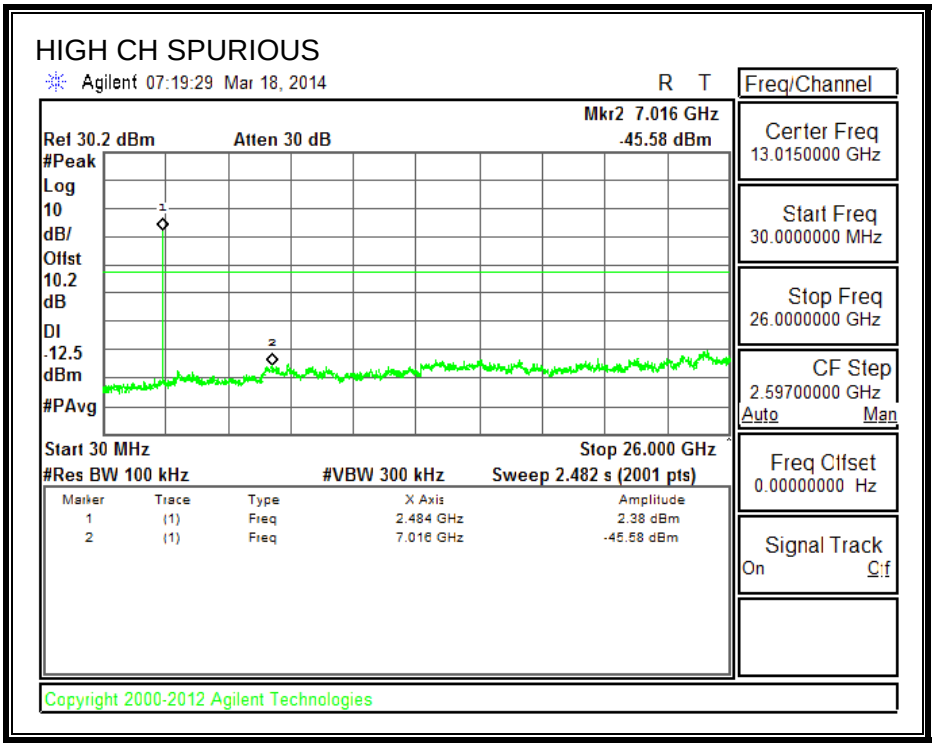
SPURIOUS EMISSIONS, MID CHANNEL





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 = 10log(1/0.624)=2.05dB (Spectrum Analyzer round it up to 2.1dB)

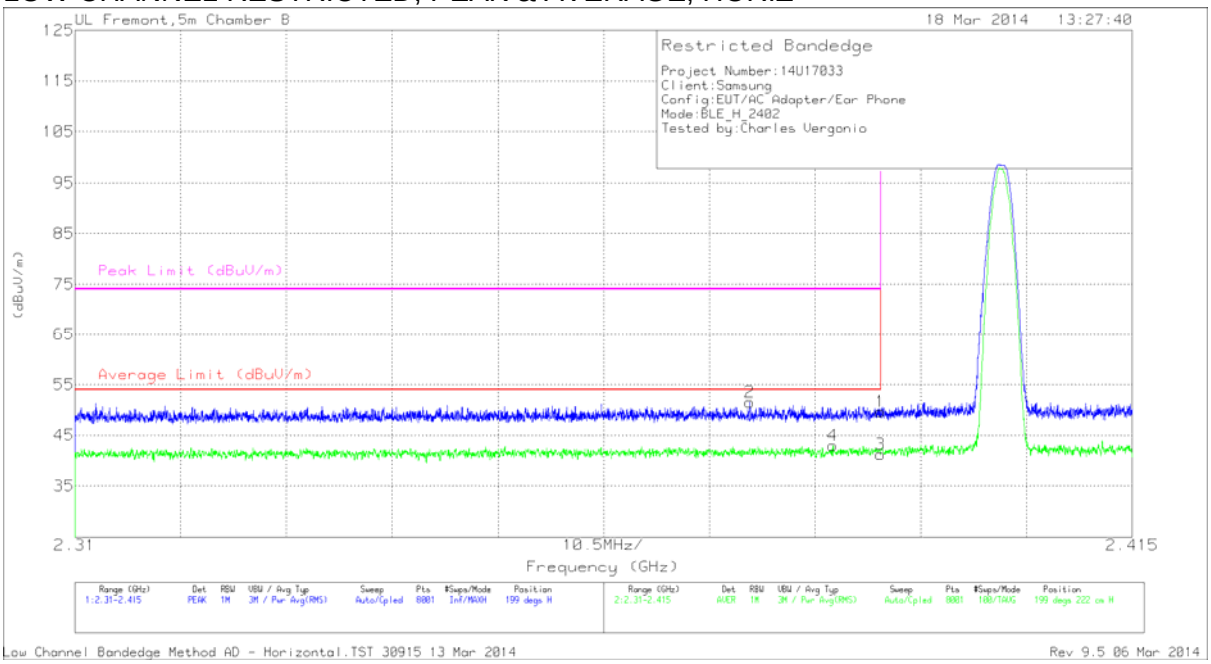
The spectrum from 1GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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)

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt 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	* 2.39	40.51	PK	32.1	-22.9	0	49.71	-	-	74	-24.29	199	222	H
2	* 2.377	42.38	PK	32	-22.9	0	51.48	-	-	74	-22.52	199	222	H
3	* 2.39	29.92	RMS	32.1	-22.9	2.1	41.22	54	-12.78	-	-	199	222	H
4	* 2.385	31.62	RMS	32.1	-22.9	2.1	42.92	54	-11.08	-	-	199	222	H

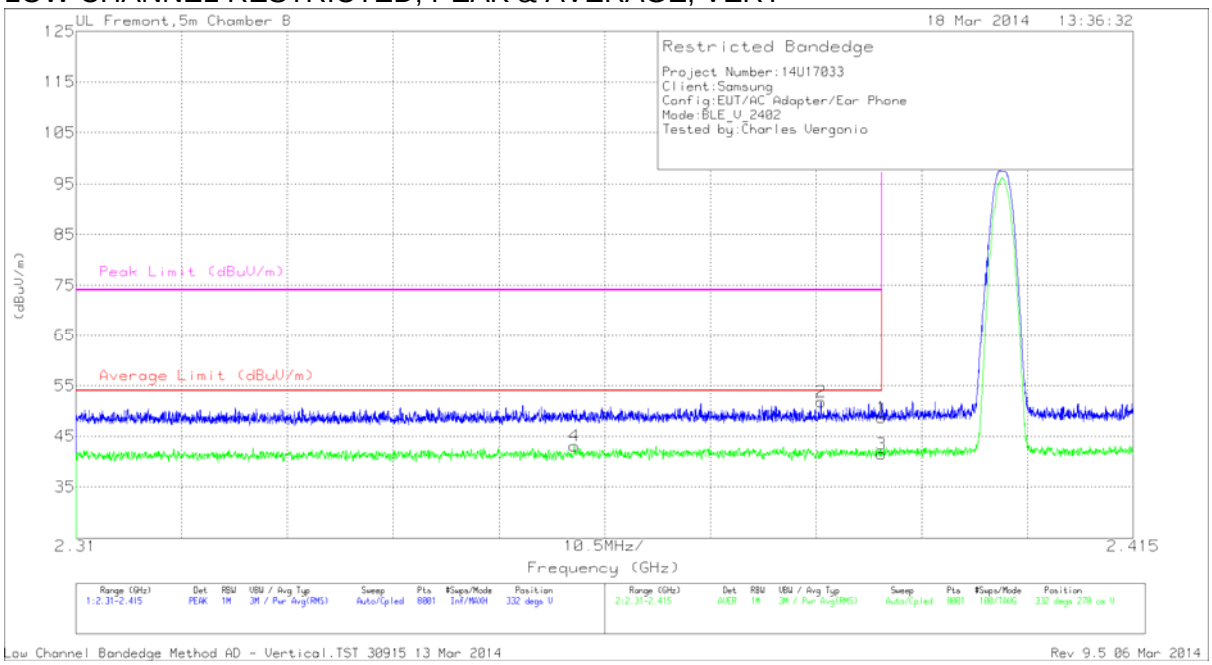
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	39.49	PK	32.1	-22.9	0	48.69	-	-	74	-25.31	332	278	V
2	* 2.384	42.55	PK	32.1	-22.9	0	51.75	-	-	74	-22.25	332	278	V
3	* 2.39	30.13	RMS	32.1	-22.9	2.1	41.43	54	-12.57	-	-	332	278	V
4	* 2.359	31.98	RMS	31.9	-22.9	2.1	43.08	54	-10.92	-	-	332	278	V

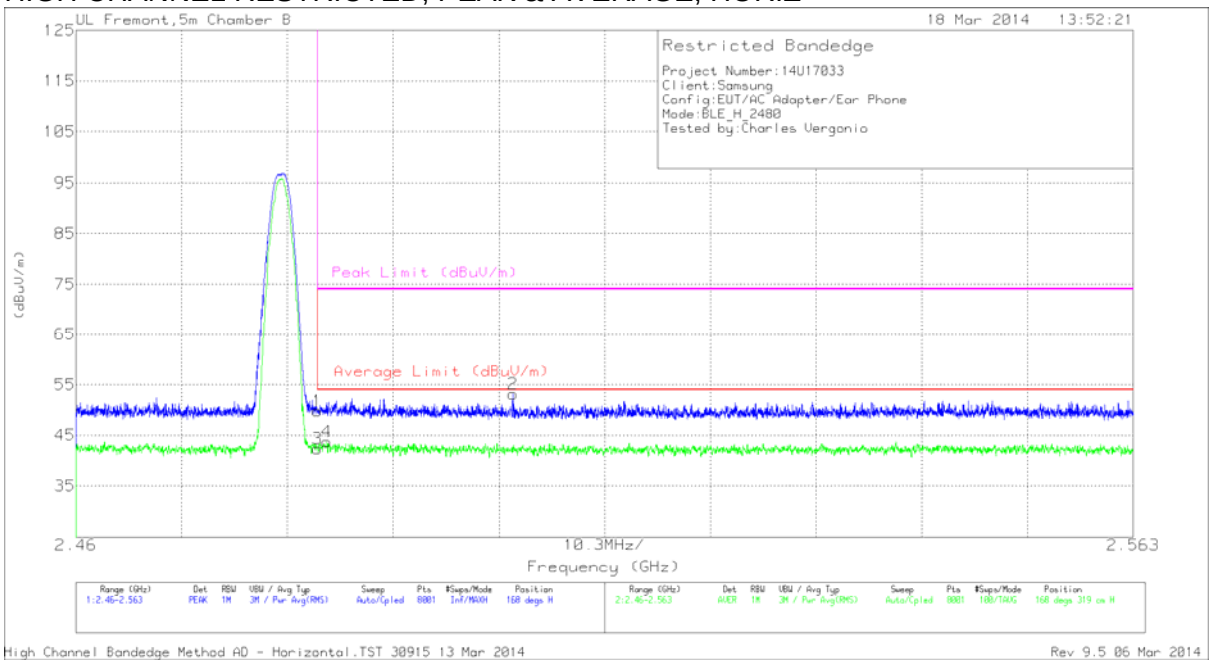
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



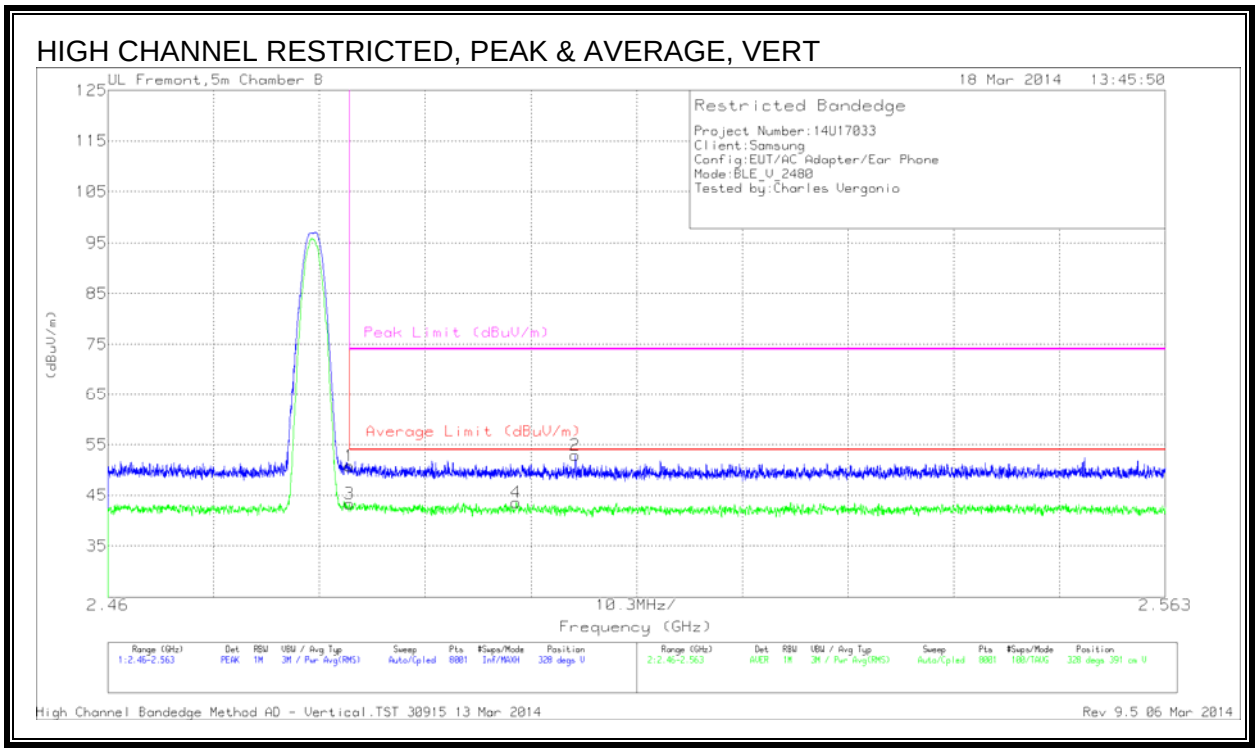
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40	PK	32.4	-22.6	0	49.8	-	-	74	-24.2	168	319	H
3	* 2.484	30.42	RMS	32.4	-22.6	2.1	42.32	54	-11.68	-	-	168	319	H
4	* 2.484	31.8	RMS	32.4	-22.6	2.1	43.7	54	-10.3	-	-	168	319	H
2	2.503	43.51	PK	32.4	-22.8	0	53.11	-	-	74	-20.89	168	319	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 T345 (dB/m)	Amp/Cbl/Flt 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	41.04	PK	32.4	-22.6	0	50.84	-	-	74	-23.16	328	391	V
3	* 2.484	31.44	RMS	32.4	-22.6	2.1	43.34	54	-10.66	-	-	328	391	V
4	* 2.5	31.87	RMS	32.4	-22.8	2.1	43.57	54	-10.43	-	-	328	391	V
2	2.506	43.3	PK	32.4	-22.8	0	52.9	-	-	74	-21.1	328	391	V

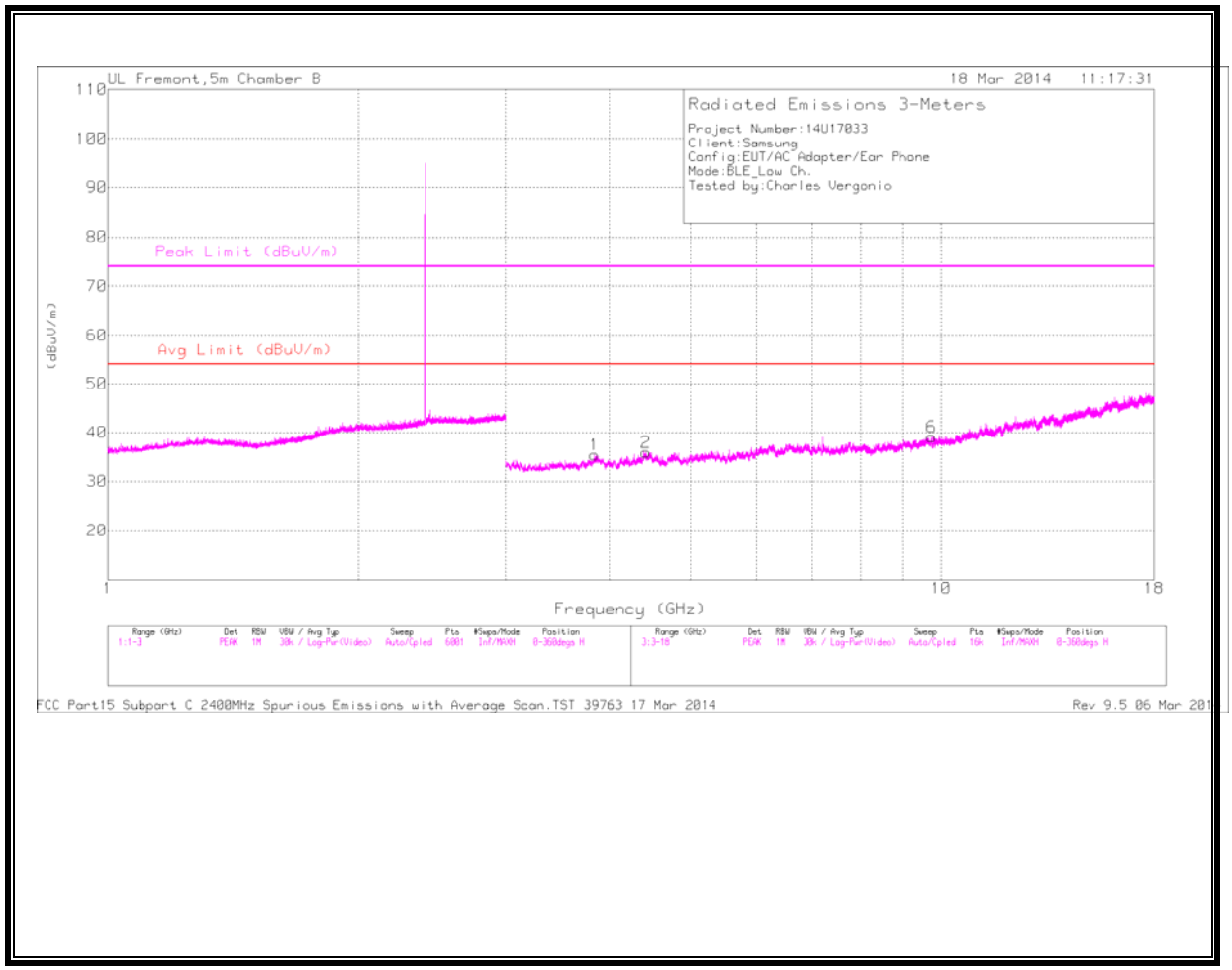
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

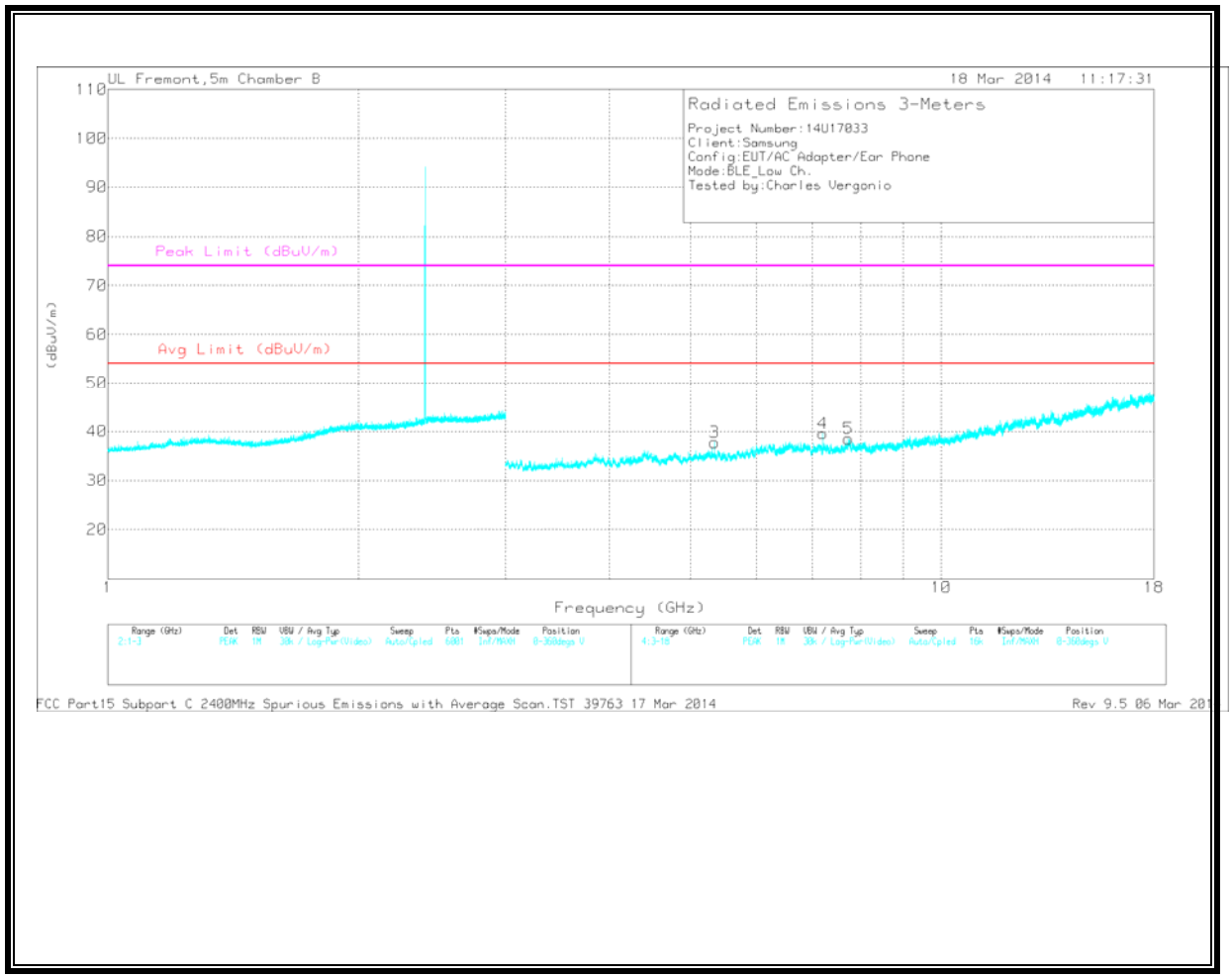
HARMONICS AND SPURIOUS EMISSIONS

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.

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

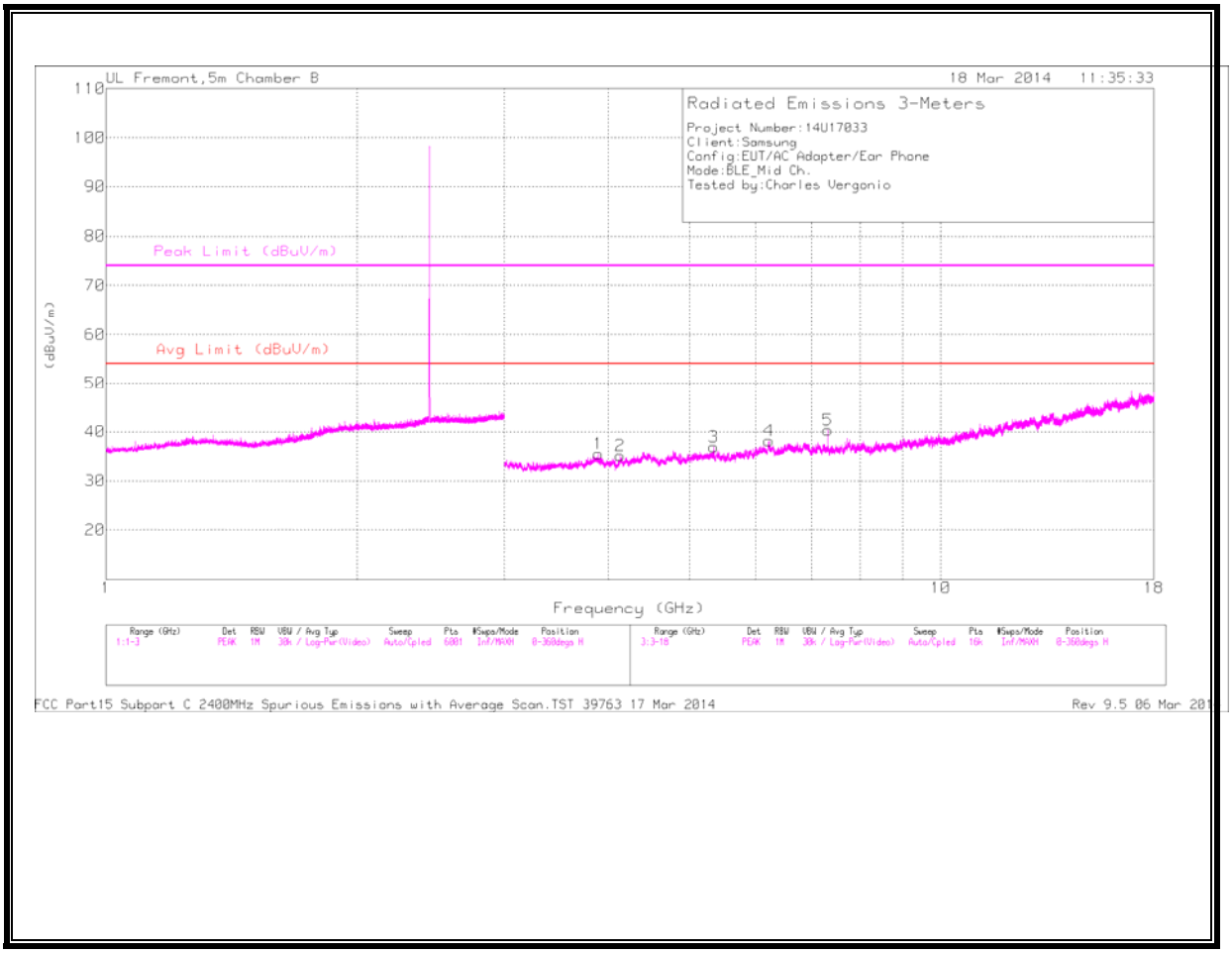
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.837	39.66	PK2	33.7	-30.2	0	43.16	54	-10.84	74	-30.84	1	100	H
* 7.733	37.77	PK2	35.7	-26.1	0	47.37	54	-6.63	74	-26.63	1	100	V
4.421	39.44	PK2	33.8	-29.4	0	43.84	54	-10.16	74	-30.16	1	100	H
5.347	39.65	PK2	34.5	-28.7	0	45.45	54	-8.55	74	-28.55	1	100	V
7.208	37.74	PK2	35.5	-26.9	0	46.34	54	-7.66	74	-27.66	1	100	V
9.732	34.7	PK2	36.9	-24	0	47.6	54	-6.4	74	-26.4	1	100	H

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

PK2 - KDB558074 Method: Maximum Peak

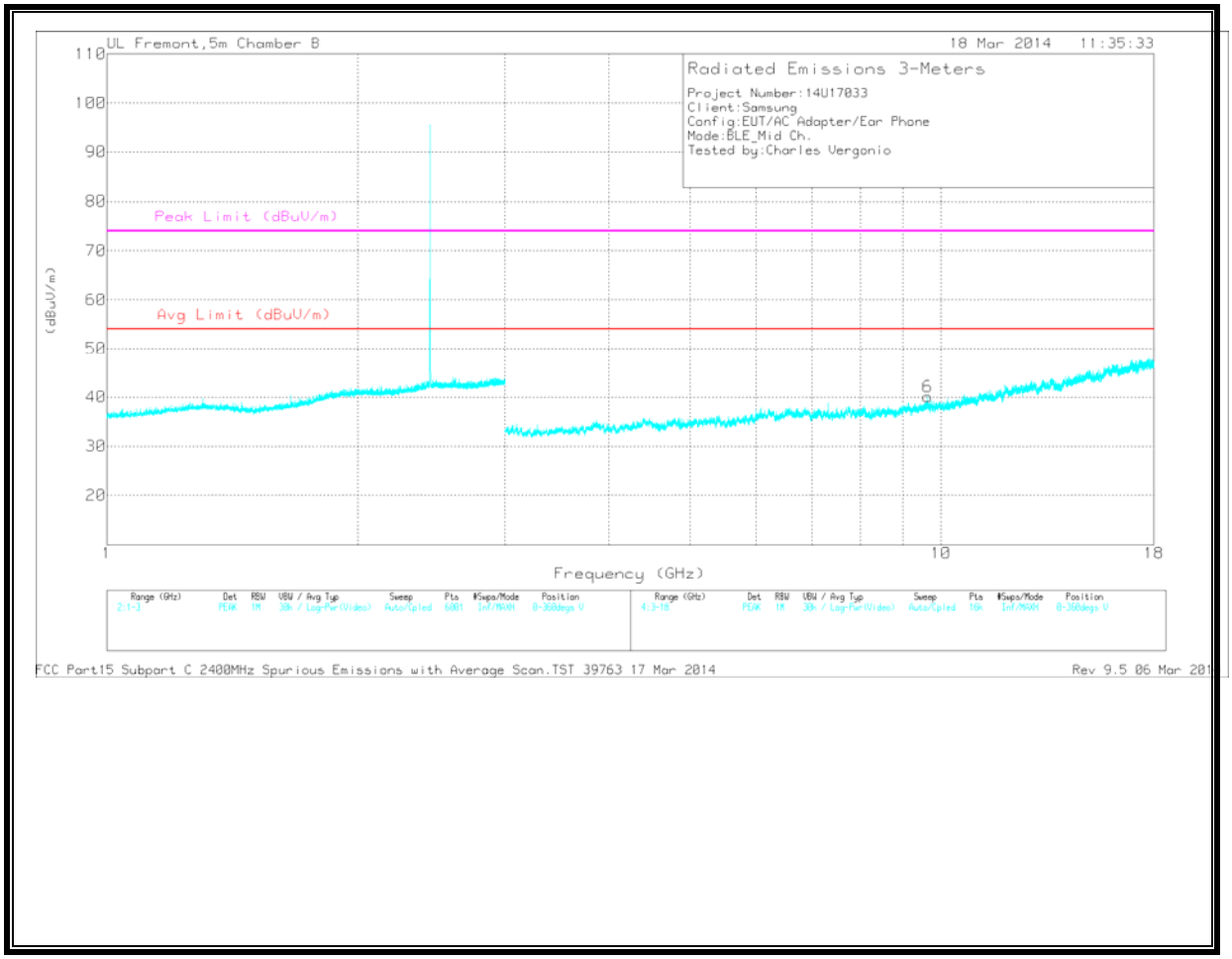
MID CHANNEL

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

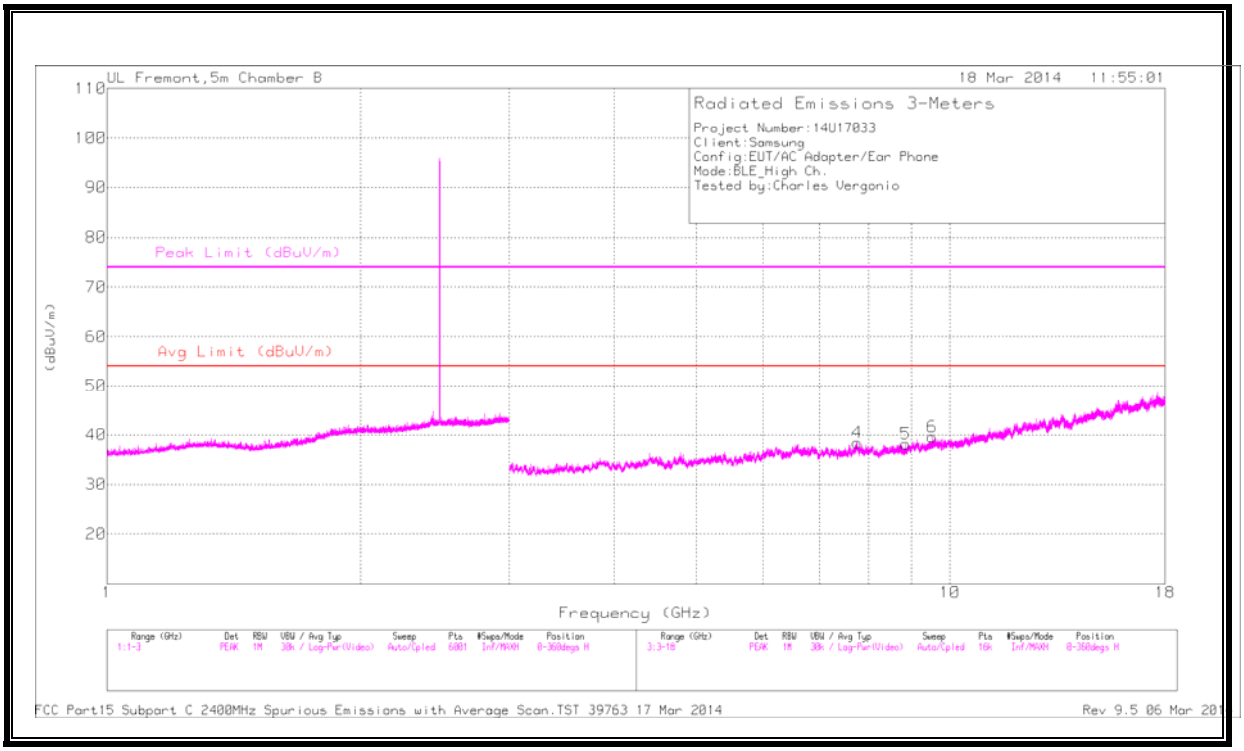
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ FItr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.89	39.26	PK2	33.8	-30.4	0	42.66	54	-11.34	74	-31.34	1	100	H
* 4.132	39.55	PK2	33.6	-29.9	0	43.25	54	-10.75	74	-30.75	1	100	H
* 7.32	41.02	PK2	35.6	-27.7	0	48.92	54	-5.08	74	-25.08	185	247	H
* 7.32	31.95	MAv1	35.6	-27.7	2.1	41.95	54	-12.05	74	-32.05	185	247	H
5.348	39.14	PK2	34.5	-28.7	0	44.94	54	-9.06	74	-29.06	1	100	H
6.225	40.16	PK2	35.4	-27.9	0	47.66	54	-6.34	74	-26.34	1	100	H
9.635	35.7	PK2	36.8	-24.3	0	48.2	54	-5.8	74	-25.8	185	247	V

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

PK2 - KDB558074 Method: Maximum Peak

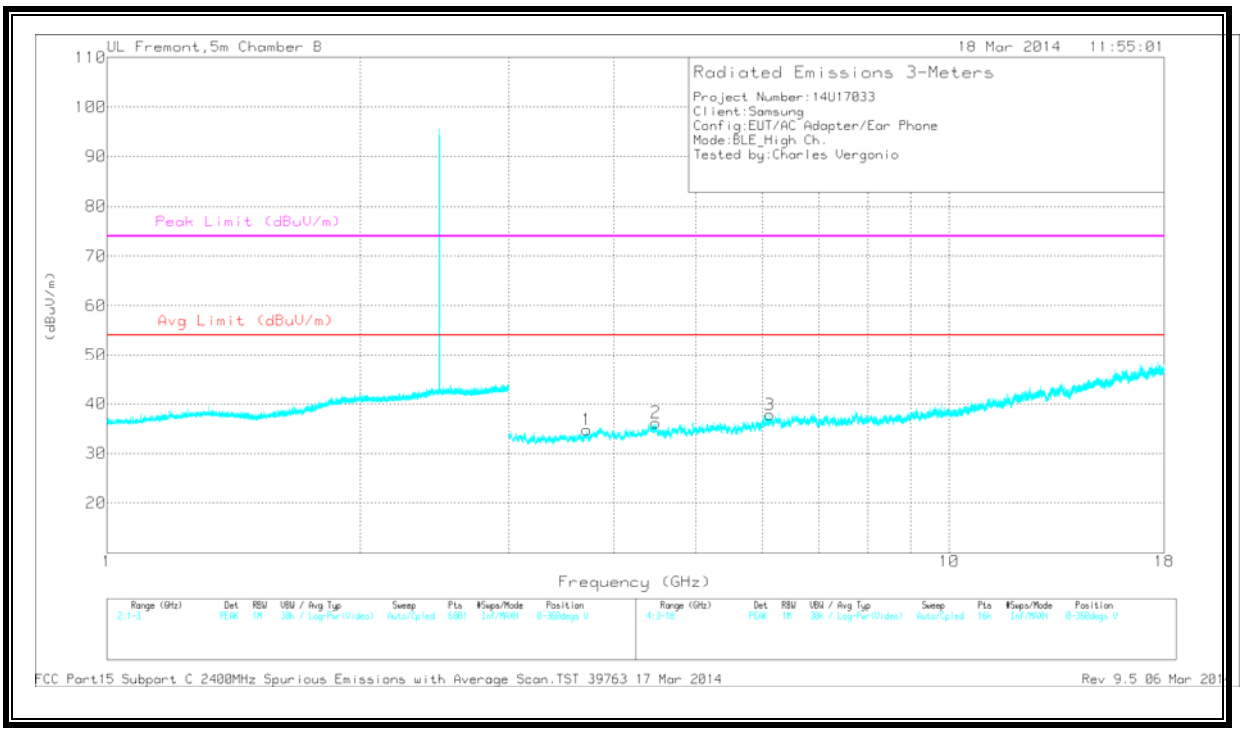
MAv1 - KDB558074 Option 1 Maximum RMS Average

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

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Avg Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.717	41.16	PK2	33.4	-31.3	0	43.26	54	-10.74	74	-30.74	360	100	V
4.483	39.84	PK2	34	-29.2	0	44.64	54	-9.36	74	-29.36	360	100	V
6.125	39.59	PK2	35.3	-29.1	0	45.79	54	-8.21	74	-28.21	360	100	V
7.761	37.93	PK2	35.7	-26	0	47.63	54	-6.37	74	-26.37	360	100	H
8.865	35.81	PK2	36	-25.9	0	45.91	54	-8.09	74	-28.09	360	100	H
9.516	35.18	PK2	36.6	-24.6	0	47.18	54	-6.82	74	-26.82	360	100	H

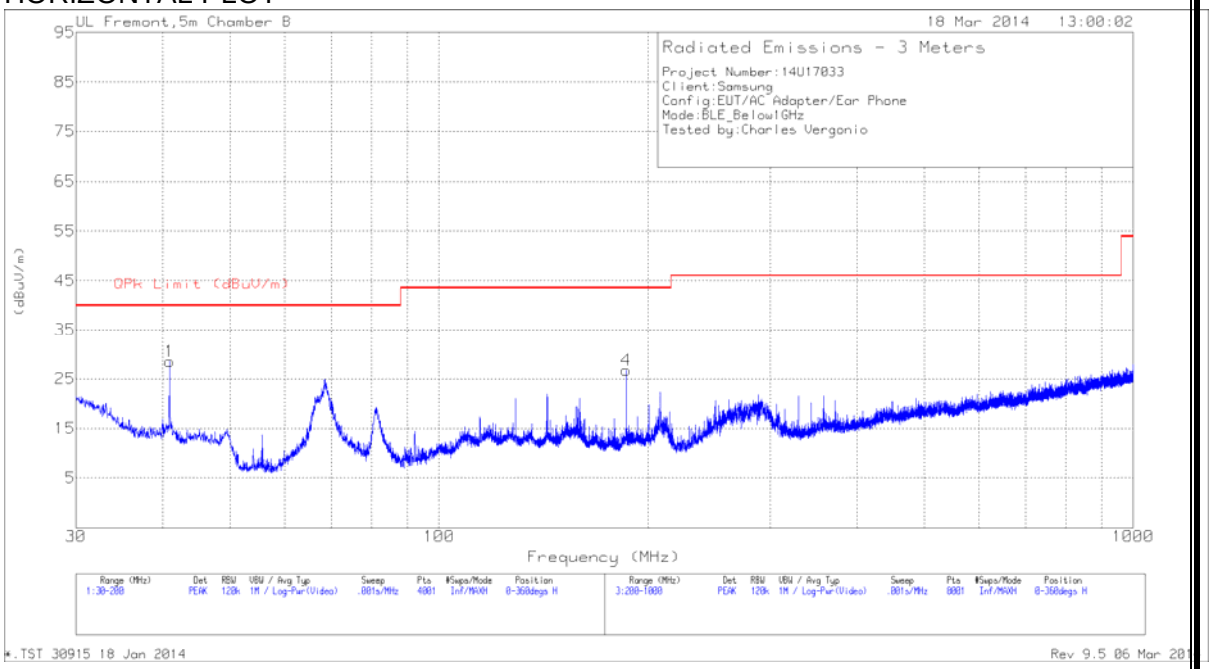
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

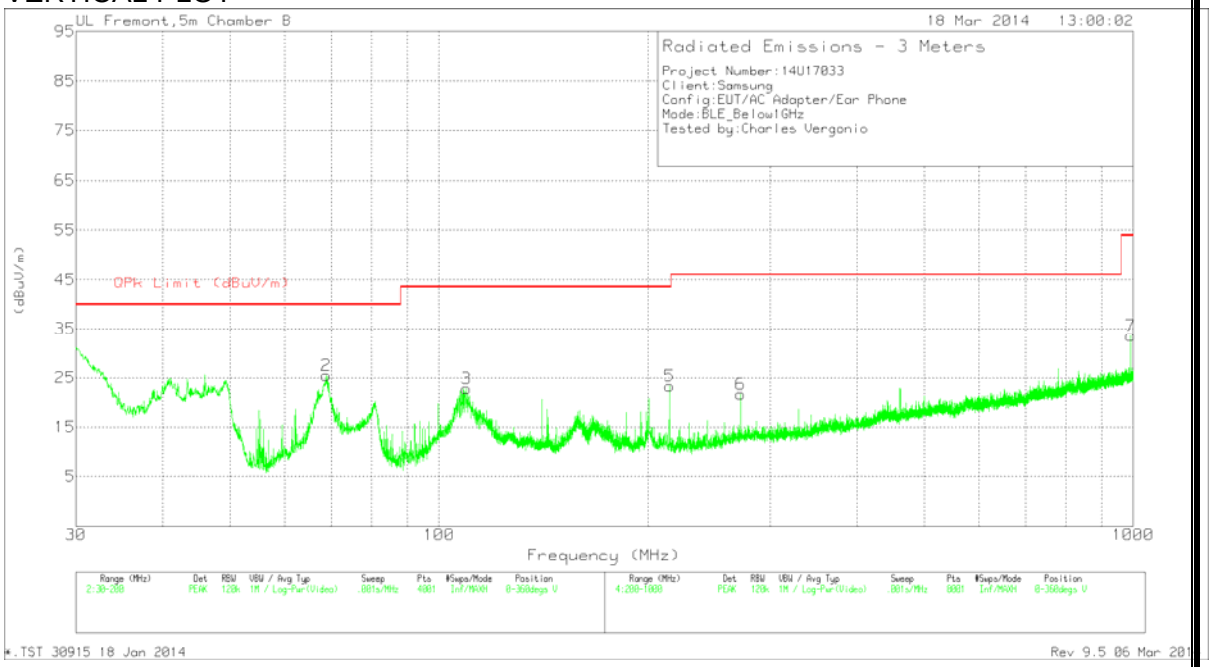
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 109.56	38.23	PK	12.6	-28	0	22.83	43.5	-20.67	0-360	101	V
6	* 272	34.93	PK	13	-26.3	0	21.63	43.5	-21.87	0-360	101	V
7	* 990.8	33.48	PK	22.6	-22.5	0	33.58	46.5	-12.92	0-360	101	V
1	40.9225	44.37	PK	12.9	-28.7	0	28.57	40	-11.43	0-360	100	H
2	68.8025	45.72	PK	8.1	-28.4	0	25.42	40	-14.58	0-360	101	V
4	186.145	42.56	PK	11.3	-27.1	0	26.76	43.5	-16.74	0-360	100	H
5	214.8	39.75	PK	10.4	-26.8	0	23.35	43.5	-20.15	0-360	200	V

* - 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 dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
1	.15	41.53	PK	1.4	0	42.93	66	-23.07	-	-
2	.15	21.64	Av	1.4	0	23.04	-	-	56	-32.96
3	.195	40.4	PK	1	0	41.4	63.8	-22.4	-	-
4	.195	19.5	Av	1	0	20.5	-	-	53.8	-33.3
5	.555	37.51	PK	.3	0	37.81	56	-18.19	-	-
6	.555	35.77	Av	.3	0	36.07	-	-	46	-9.93
7	.708	26.42	PK	.3	0	26.72	56	-29.28	-	-
8	.708	18.32	Av	.3	0	18.62	-	-	46	-27.38
9	1.14	25.6	PK	.2	0	25.8	56	-30.2	-	-
10	1.14	16.21	Av	.2	0	16.41	-	-	46	-29.59
11	4.1505	23.97	PK	.2	.1	24.27	56	-31.73	-	-
12	4.1505	8.3	Av	.2	.1	8.6	-	-	46	-37.4
13	6.27	22.28	PK	.2	.1	22.58	60	-37.42	-	-
14	6.27	7.93	Av	.2	.1	8.23	-	-	50	-41.77
15	8.178	23.06	PK	.2	.1	23.36	60	-36.64	-	-
16	8.178	14.18	Av	.2	.1	14.48	-	-	50	-35.52
17	9.0465	22.8	PK	.2	.1	23.1	60	-36.9	-	-
18	9.0465	7.83	Av	.2	.1	8.13	-	-	50	-41.87
19	24.3735	20.52	PK	.3	.2	21.02	60	-38.98	-	-
20	24.3735	3.69	Av	.3	.2	4.19	-	-	50	-45.81
21	29.0445	19.16	PK	.3	.3	19.76	60	-40.24	-	-
22	29.0445	1.92	Av	.3	.3	2.52	-	-	50	-47.48

Line-L2 .15 - 30MHz

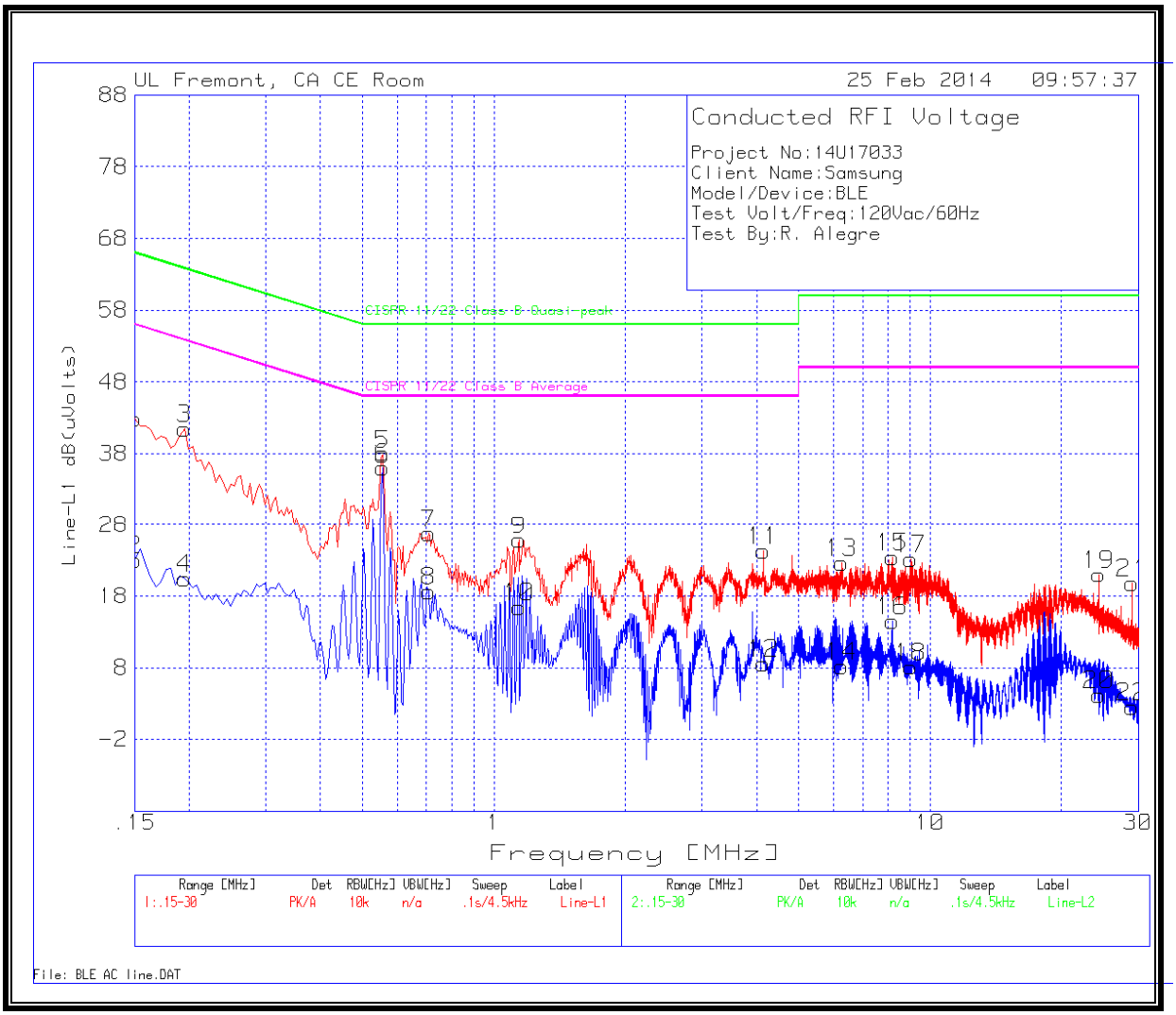
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
23	.1545	41.93	PK	1.4	0	43.33	65.8	-22.47	-	-
24	.1545	19.51	Av	1.4	0	20.91	-	-	55.8	-34.89
25	.177	40.79	PK	1.2	0	41.99	64.6	-22.61	-	-
26	.177	19.75	Av	1.2	0	20.95	-	-	54.6	-33.65
27	.5415	33.21	PK	.3	0	33.51	56	-22.49	-	-
28	.5415	25.33	Av	.3	0	25.63	-	-	46	-20.37
29	.8025	17.01	PK	.3	0	17.31	56	-38.69	-	-
30	.8025	4.33	Av	.3	0	4.63	-	-	46	-41.37
31	1.2525	15.5	PK	.2	0	15.7	56	-40.3	-	-
32	1.2525	-.02	Av	.2	0	.18	-	-	46	-45.82
33	1.3965	15.05	PK	.2	.1	15.35	56	-40.65	-	-
34	1.3965	2.84	Av	.2	.1	3.14	-	-	46	-42.86
35	1.653	14.25	PK	.2	.1	14.55	56	-41.45	-	-
36	1.653	.35	Av	.2	.1	.65	-	-	46	-45.35
37	2.8275	14.36	PK	.2	.1	14.66	56	-41.34	-	-
38	2.8275	0	Av	.2	.1	.3	-	-	46	-45.7
39	3.21	13.06	PK	.2	.1	13.36	56	-42.64	-	-
40	3.21	-2.05	Av	.2	.1	-1.75	-	-	46	-47.75
41	8.367	21.72	PK	.2	.1	22.02	60	-37.98	-	-
42	8.367	9.03	Av	.2	.1	9.33	-	-	50	-40.67
43	9.213	21.57	PK	.2	.1	21.87	60	-38.13	-	-
44	9.213	5.81	Av	.2	.1	6.11	-	-	50	-43.89
45	9.4875	20.74	PK	.2	.1	21.04	60	-38.96	-	-
46	9.4875	6.4	Av	.2	.1	6.7	-	-	50	-43.3
47	19.689	21.25	PK	.3	.2	21.75	60	-38.25	-	-
48	19.689	8.85	Av	.3	.2	9.35	-	-	50	-40.65
49	27.5865	18.28	PK	.3	.3	18.88	60	-41.12	-	-
50	27.5865	5.67	Av	.3	.3	6.27	-	-	50	-43.73

PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS