FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

Cellular Phone with Bluetooth and WLAN Radios

MODEL NUMBER: A1522

FCC ID: BCG-E2817A
IC: 579C-E2817A

REPORT NUMBER: 14U17676-E2 Revision B

ISSUE DATE: AUGUST 05, 2014

Prepared for
APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	7/23/14	Initial Issue	F. de Anda
A	7/30/14	Update- sections 1, 2, 5, 7 and 8	F. de Anda
B	08/05/14	Address TCB Questions	T. Lee

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: Cellular Phone with Bluetooth and WLAN Radios

MODEL: A1522

SERIAL NUMBER: C39MV008G30C

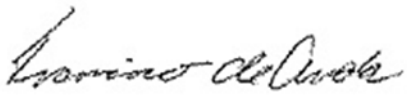
DATE TESTED: JUNE 21, 2014 - JULY 21, 2014

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 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.

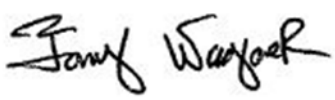
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. 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:



FRANCISCO DE ANDA
PROJECT LEAD
UL VERIFICATION SERVICES INC.

Tested By:



Tony Wagoner
EMC ENGINEER
UL VERIFICATION SERVICES INC.

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.

Per FCC guidance, radiated tests are performed for A1522 to ensure that there is no deviation in EM fields between Model A1522 and Model A1524.

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
	☐ Chamber G
	☐ Chamber H

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 1000 MHz	±4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Model A1522 is a mobile phone with multimedia functions (music, application support, and video), Cellular GSM/GPRS/EGPRS/CDMA2000/EVDO Rev.A/ EVDO Rev.B /WCDMA/HSPA+/DC-HSDPA/LTE FDD & Carrier Aggregation radio, IEEE 802.11a/b/g/n/ac radio, Bluetooth radio and NFC. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

For Maximum output power, refer to Model A1524 BLUETOOTH report.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PiFA antenna, with a maximum gain of 0.81 dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was Bluetool 1.8.5

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated with AC adapter and Headset, and the worst case was found to be at X (Flatbed) position without AC adapter and headset.

The worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was including headset, AC charger and the mode and channel with the highest output power.

There are three vendors of the WiFi/Bluetooth radio modules: variant 1, variant 2 and variant 3 and they have the same mechanical outline, same on board antenna, matching circuit, antenna structure and same specification. Baseline testing was performed on all three variants to determine the worst case on all conducted power and radiated emissions.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Apple	A1401	60812	NA
Earphone	Apple	NA	NA	NA
Laptop	Apple	A1278	C02HJ0A7DTY4	NA

I/O CABLES (RADIATED ABOVE 1 GHZ)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
None used						

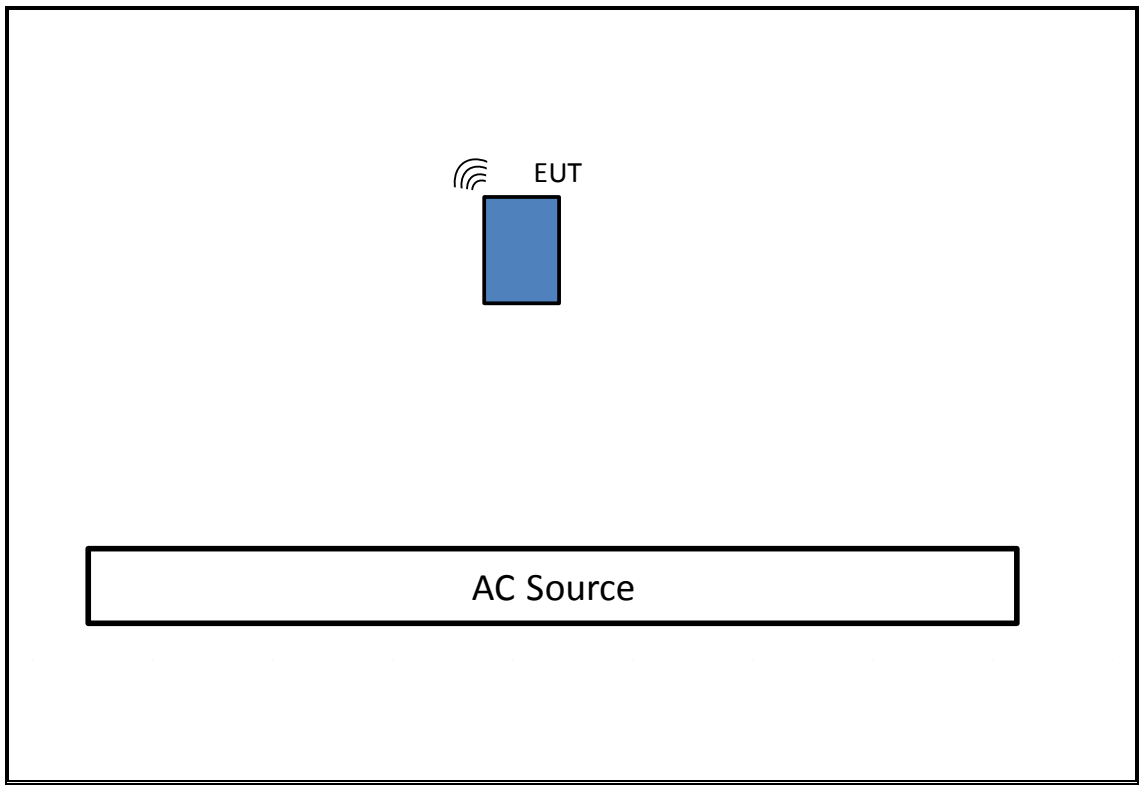
I/O CABLES (BELOW 1GHZ & AC LINE CONDUCTED TESTS)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	US115	Un-Shielded	80cm	NA
2	DC	1	USB	Un-Shielded	1m	NA
3	Audio	1	Jack	Un-Shielded	0.5m	NA

TEST SETUP- RADIATED-ABOVE 1 GHZ

The EUT was tested battery powered. Test software exercised the EUT.

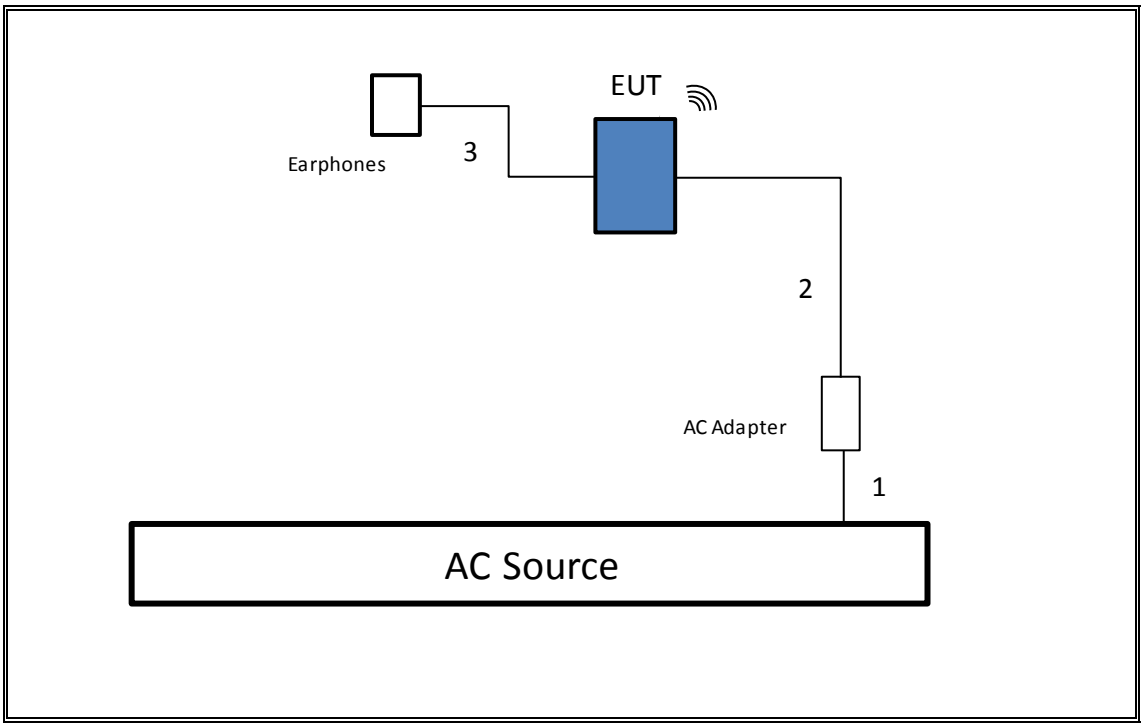
SETUP DIAGRAM



TEST SETUP- BELOW 1GHZ & AC LINE CONDUCTED TESTS

The EUT was tested with earphones connected and powered by AC adapter. Test software exercised the EUT.

SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Antenna, Horn, 18 GHz	ETS Lindgren	3117	F00131	02/18/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	11/28/14
Peak / Average Power Sensor	Agilent / HP	N1911A	F00153	03/06/15
Wideband Power Sensor	Agilent	N1921A	F00361	10/02/14
Peak Power Meter	Agilent / HP	E9323A	F00025	04/03/15
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	F00129	02/22/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	F00168	03/28/15
Preamplifier, 1300 MHz	Sonoma	310	F00008	05/27/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	F00165	03/25/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	F00092	09/05/14
LISN, 30 MHz	FCC	LISN-50/250-25-2	C00626	01/14/15

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

For on time and duty cycle data, refer to Model A1524 BLUETOOTH report.
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8. ANTENNA PORT TEST RESULTS

For antenna port data, refer to Model A1524 BLUETOOTH report.

9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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 3 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.

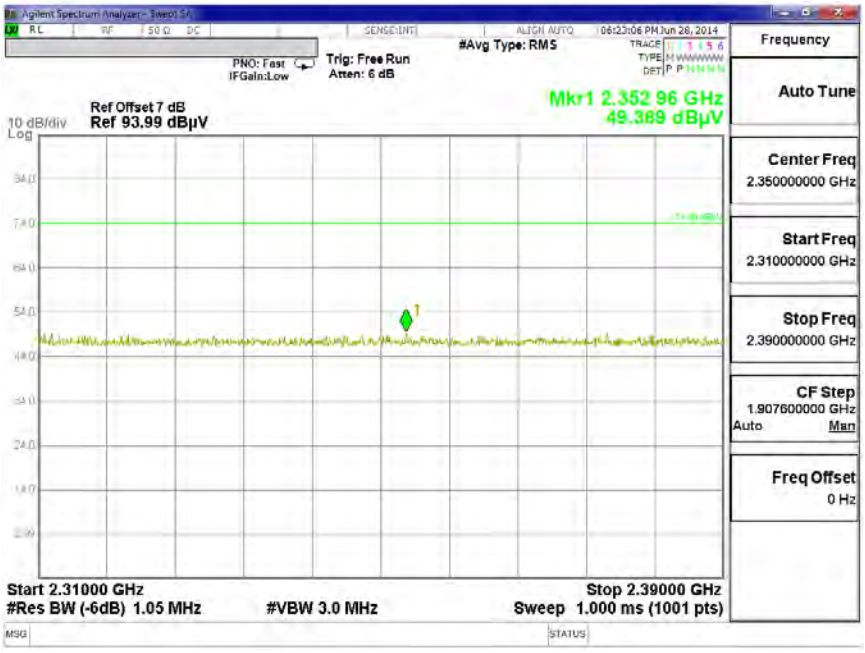
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1GHz

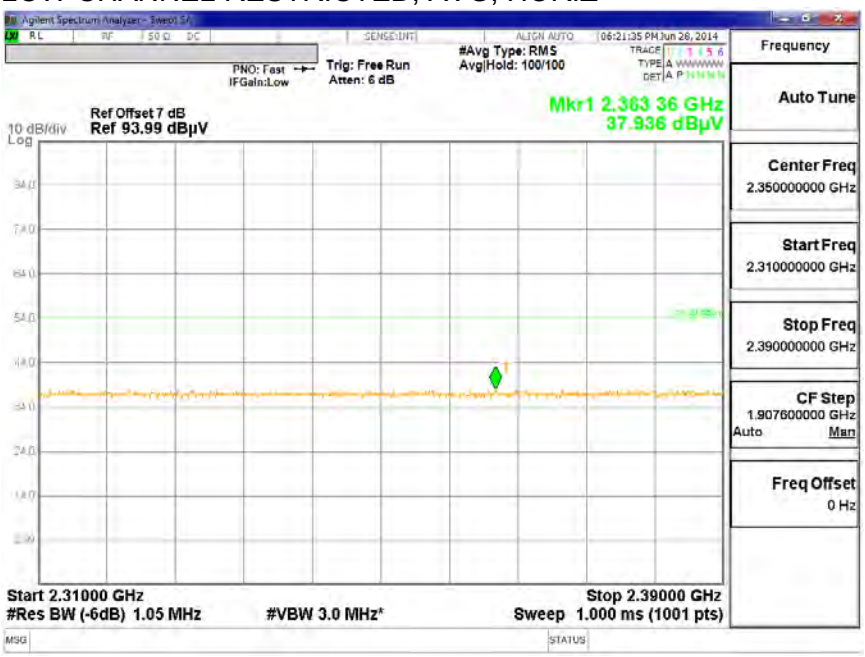
9.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

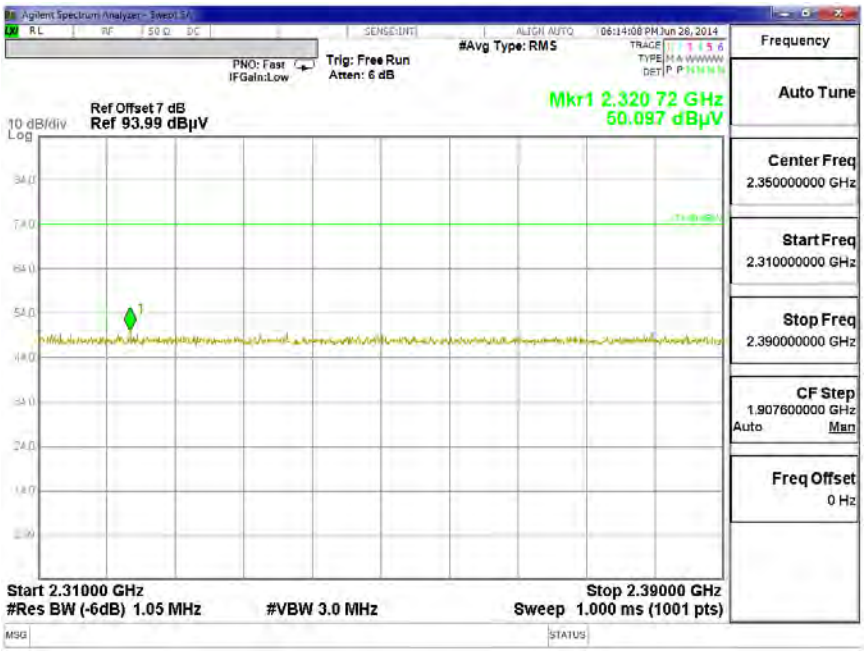


LOW CHANNEL RESTRICTED, AVG, HORIZ



RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

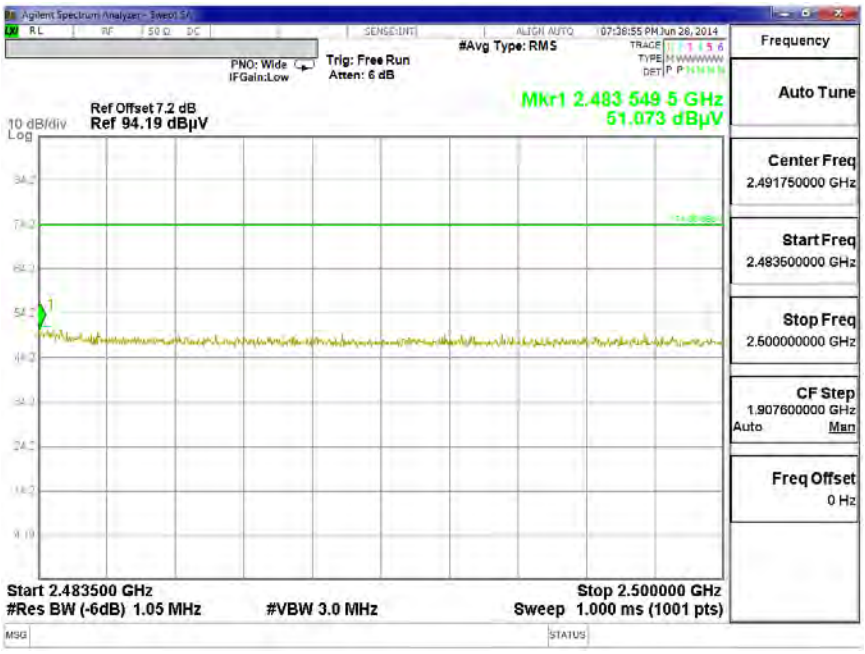
LOW CHANNEL RESTRICTED, PEAK, VERT



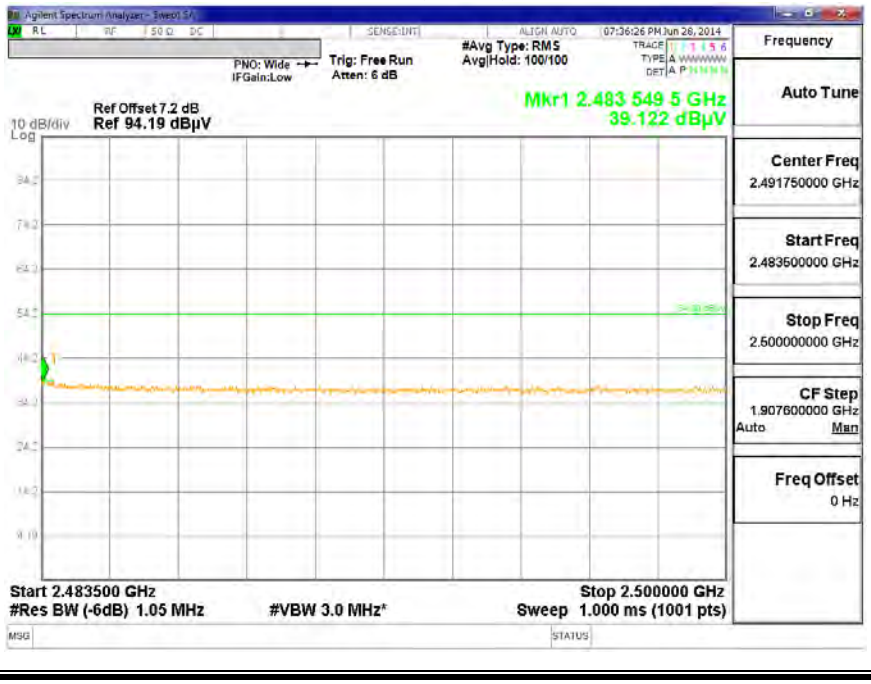
LOW CHANNEL RESTRICTED, AVG, VERT

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

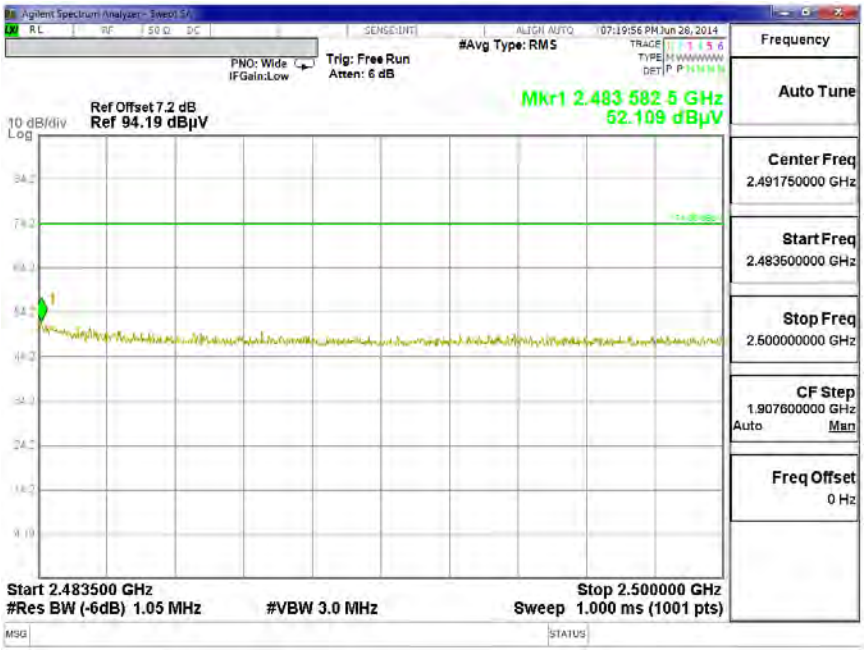


HIGH CHANNEL RESTRICTED, AVG, HORIZ

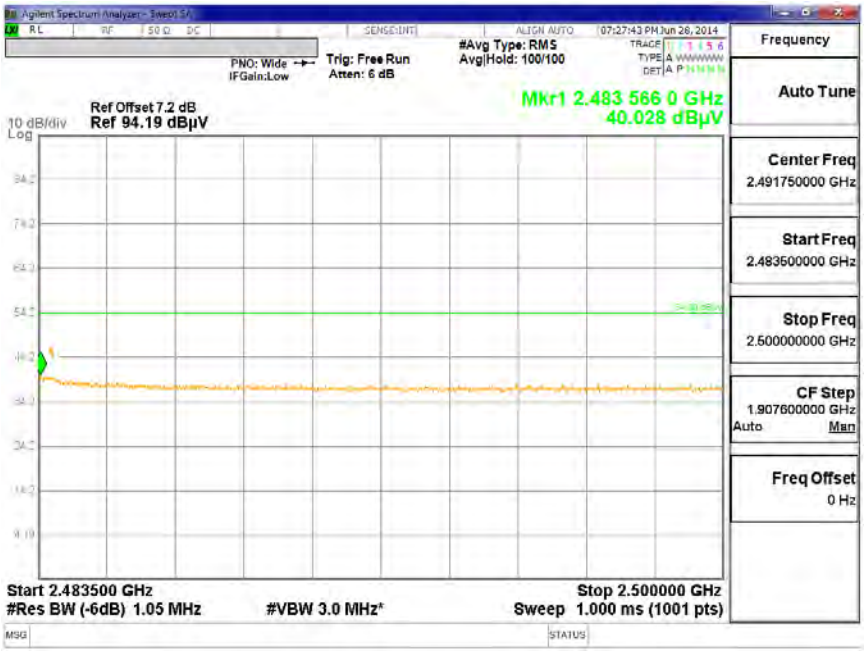


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT

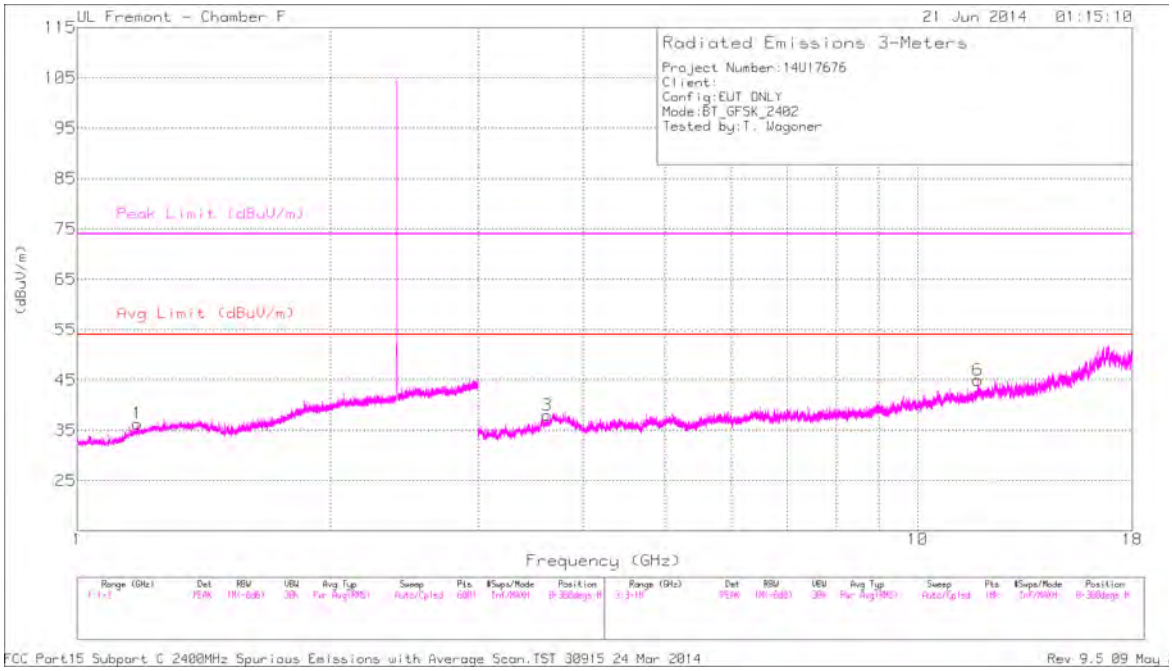


HIGH CHANNEL RESTRICTED, AVG, VERT

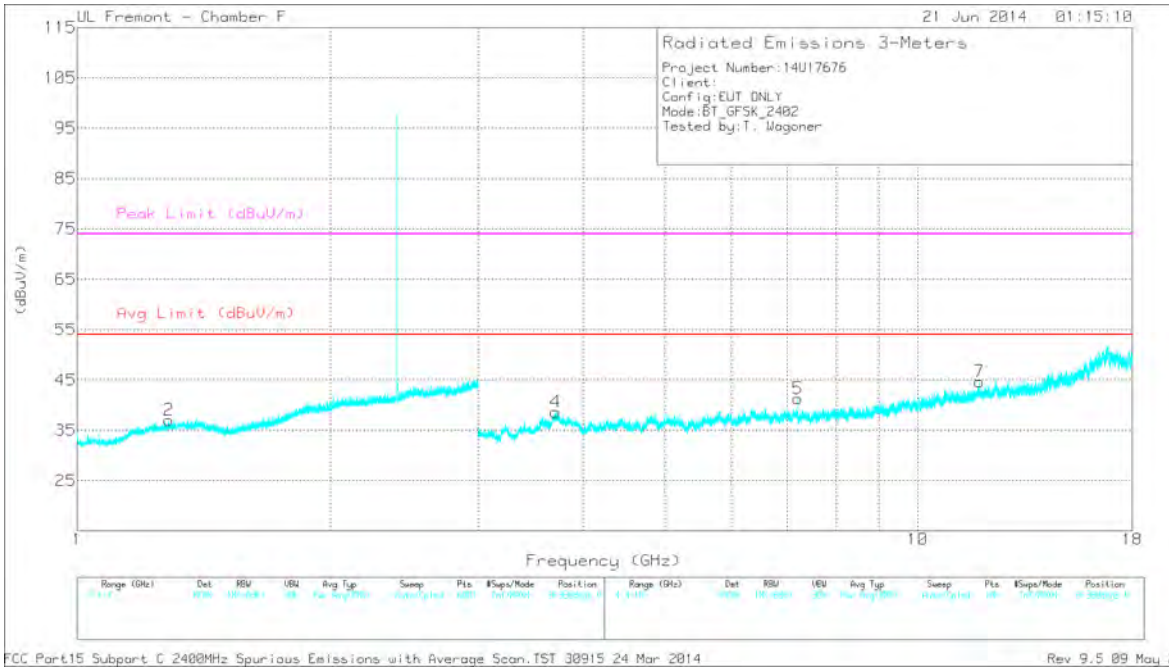


LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.181	35.72	PK3	28.7	-26.3	0	38.12	-	-	74	-35.88	1	101	H
* 1.176	28.86	VB1T	28.6	-26.4	1.2	32.26	54	-21.74	-	-	1	101	H
* 1.287	42.39	PK3	29.9	-27.1	0	45.19	-	-	74	-28.81	10	119	V
* 1.282	29.36	VB1T	29.9	-27.1	1.2	33.36	54	-20.64	-	-	10	119	V
* 3.622	38.6	PK3	34.9	-29.4	0	44.1	-	-	74	-29.9	1	126	H
* 3.625	26.02	VB1T	34.9	-29.4	1.2	32.72	54	-21.28	-	-	1	126	H
* 11.793	31.36	PK3	38.7	-21.6	0	48.46	-	-	74	-25.54	163	207	H
* 11.788	22.04	VB1T	38.7	-21.6	1.2	40.34	54	-13.66	-	-	163	207	H
* 3.713	36.62	PK3	34.8	-29.4	0	42.02	-	-	74	-31.98	117	102	V
* 3.715	27.06	VB1T	34.8	-29.5	1.2	33.56	54	-20.44	-	-	117	102	V
* 11.84	32.01	PK3	38.8	-21.5	0	49.31	-	-	74	-24.69	103	202	V
* 11.844	22.09	VB1T	38.8	-21.7	1.2	40.39	54	-13.61	-	-	103	202	V

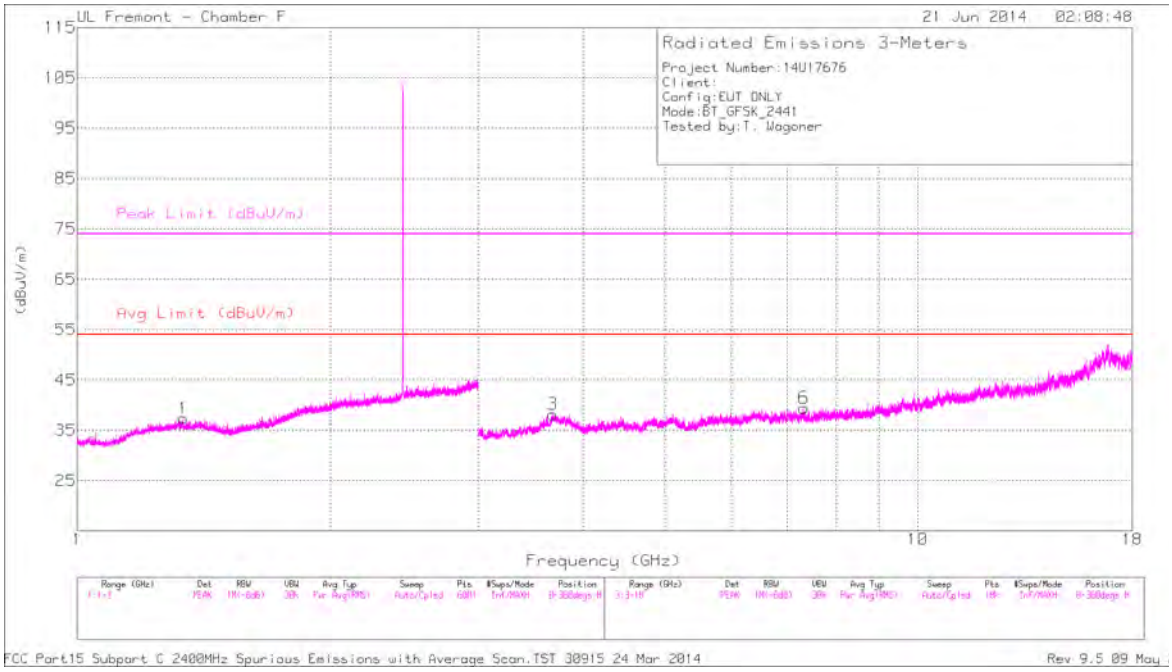
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

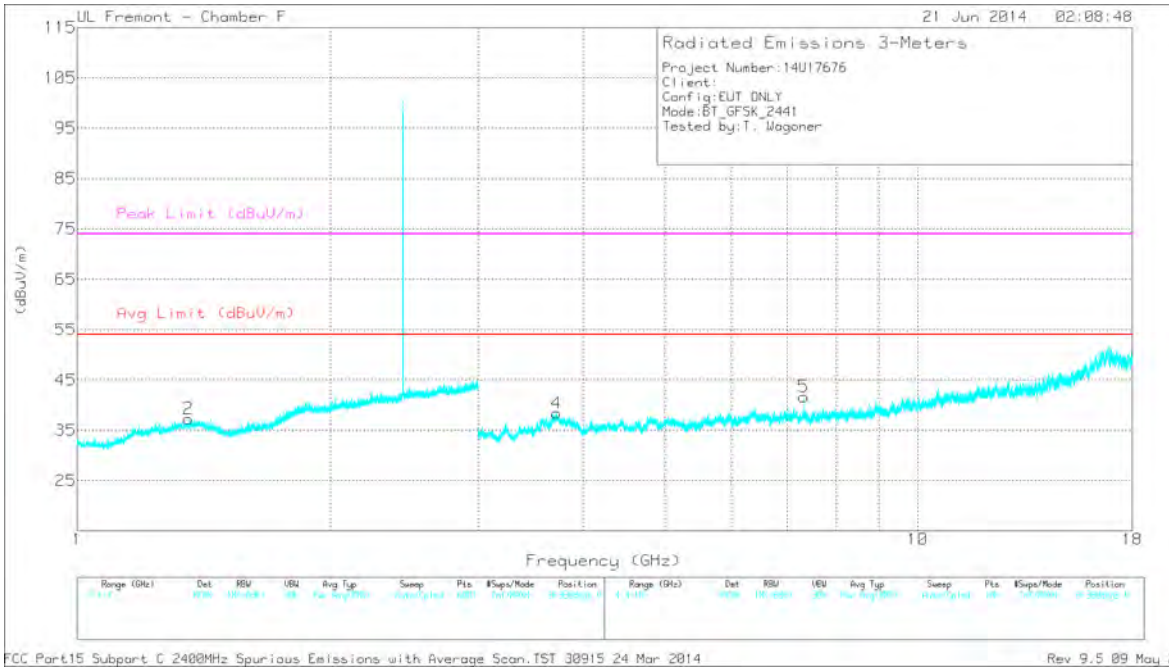
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.334	42.11	PK3	29.8	-26.5	0	45.41	-	-	74	-28.59	2	100	H
* 1.333	29.22	VB1T	29.8	-26.5	1.2	33.72	54	-20.28	-	-	2	100	H
* 1.36	41.61	PK3	29.6	-26.1	0	45.11	-	-	74	-28.89	5	102	V
* 1.354	28.91	VB1T	29.6	-26.3	1.2	33.41	54	-20.59	-	-	5	102	V
* 3.684	42.72	PK3	34.9	-29.2	0	48.42	-	-	74	-25.58	5	102	H
* 3.681	30.55	VB1T	34.9	-29.2	1.2	37.45	54	-16.55	-	-	5	102	H
* 7.32	37.56	PK3	35.6	-26.7	0	46.46	-	-	74	-27.54	5	102	H
* 7.323	25.5	VB1T	35.6	-26.7	1.2	35.6	54	-18.4	-	-	5	102	H
* 3.724	35.87	PK3	34.7	-29.5	0	41.07	-	-	74	-32.93	205	199	V
* 3.724	27.3	VB1T	34.7	-29.5	1.2	33.7	54	-20.3	-	-	205	199	V
* 7.324	33.88	PK3	35.6	-26.7	0	42.78	-	-	74	-31.22	356	103	V
* 7.323	29.88	VB1T	35.6	-26.7	1.2	39.98	54	-14.02	-	-	356	103	V

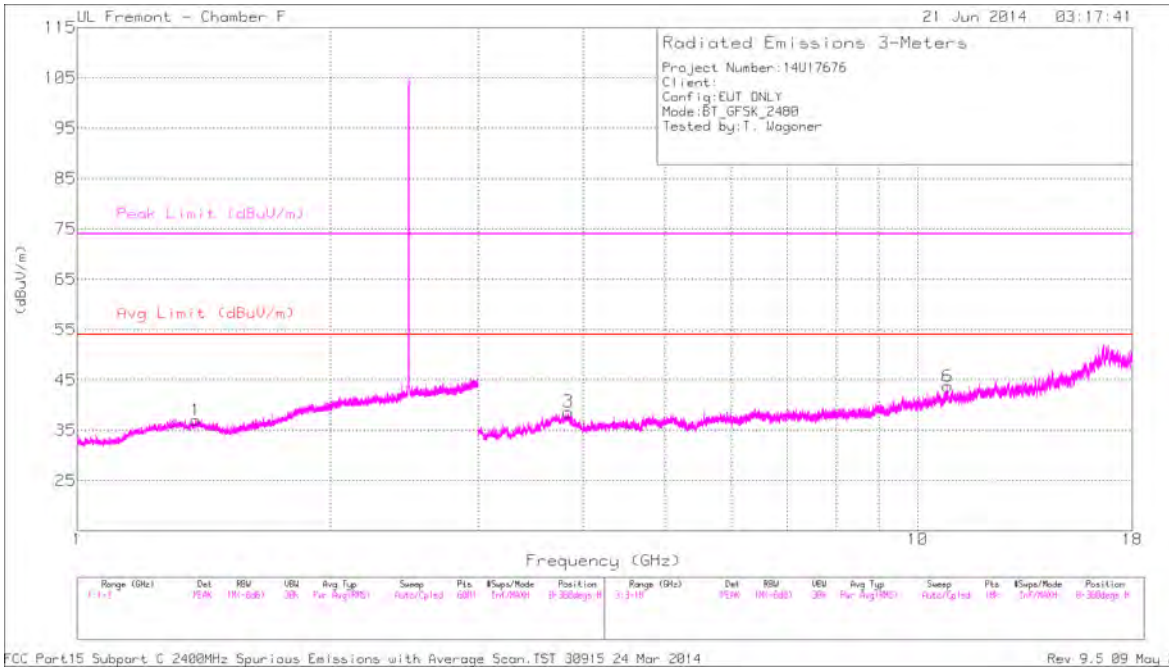
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

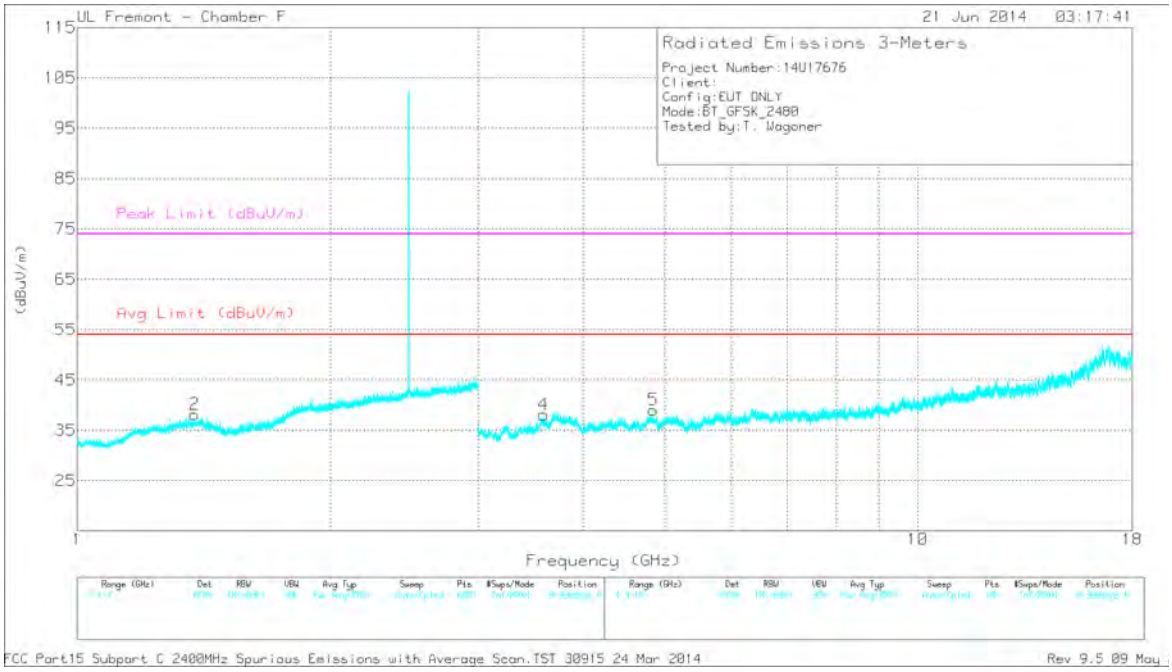
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.382	42.4	PK3	29.4	-25.8	0	46	-	-	74	-28	0	101	H
* 1.387	28.9	VB1T	29.3	-25.7	1.2	33.7	54	-20.3	-	-	0	101	H
* 1.376	41.79	PK3	29.4	-26	0	45.19	-	-	74	-28.81	5	105	V
* 1.378	29.16	VB1T	29.4	-25.9	1.2	33.86	54	-20.14	-	-	5	105	V
* 3.849	39.88	PK3	34.2	-29.1	0	44.98	-	-	74	-29.02	233	161	H
* 3.847	31.7	VB1T	34.2	-29	1.2	38.1	54	-15.9	-	-	233	161	H
* 10.854	29.22	PK3	38.1	-21.7	0	45.62	-	-	74	-28.38	68	196	H
* 10.863	21.71	VB1T	38.1	-21.7	1.2	39.31	54	-14.69	-	-	68	196	H
* 3.587	36.18	PK3	34.9	-28.7	0	42.38	-	-	74	-31.62	11	111	V
* 3.588	26.88	VB1T	34.9	-28.7	1.2	34.28	54	-19.72	-	-	11	111	V
* 4.85	33.78	PK3	34.1	-27.4	0	40.48	-	-	74	-33.52	151	230	V
* 4.846	25.05	VB1T	34.1	-27.3	1.2	33.05	54	-20.95	-	-	151	230	V

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

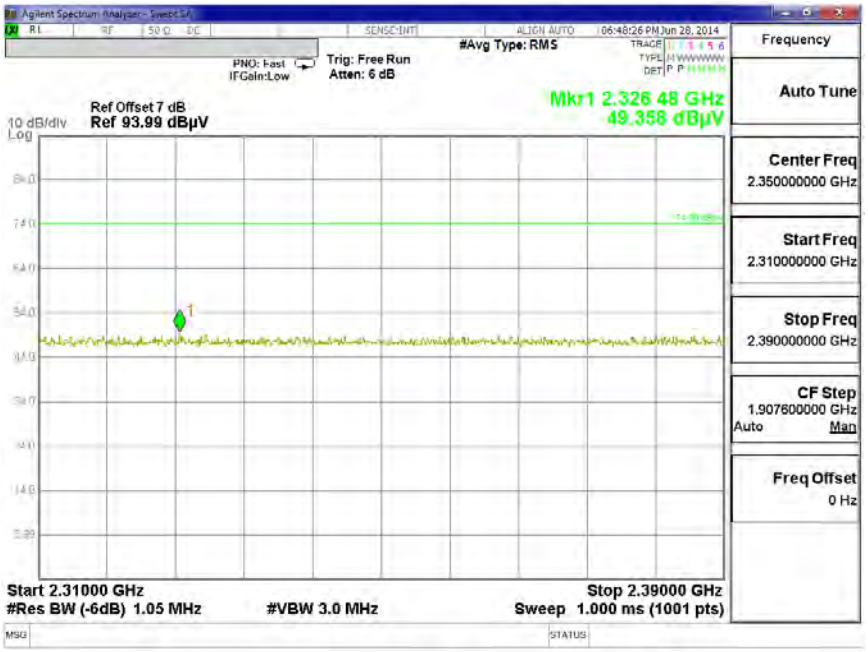
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

9.2.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

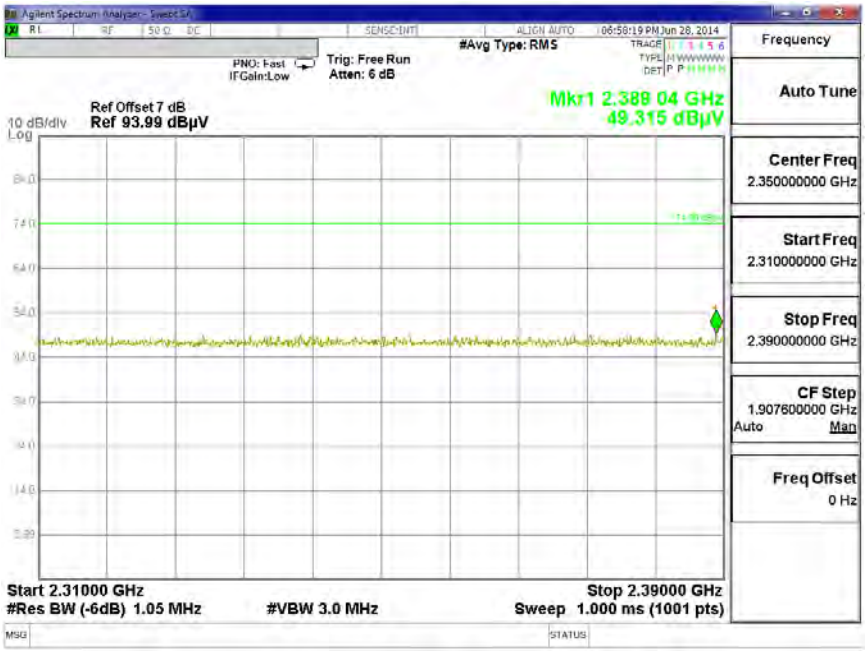
LOW CHANNEL RESTRICTED, PEAK, HORIZ



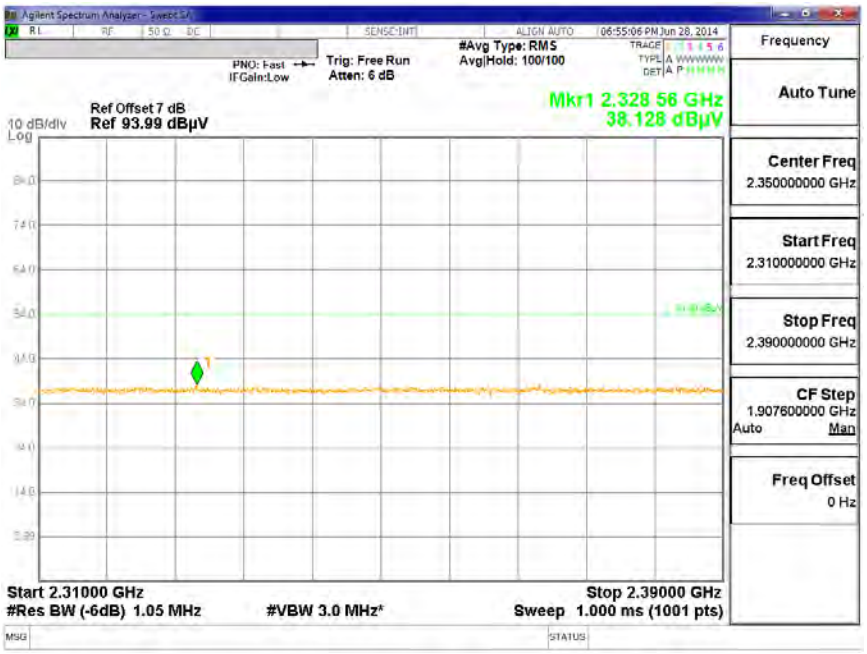
LOW CHANNEL RESTRICTED, AVG, HORIZ

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

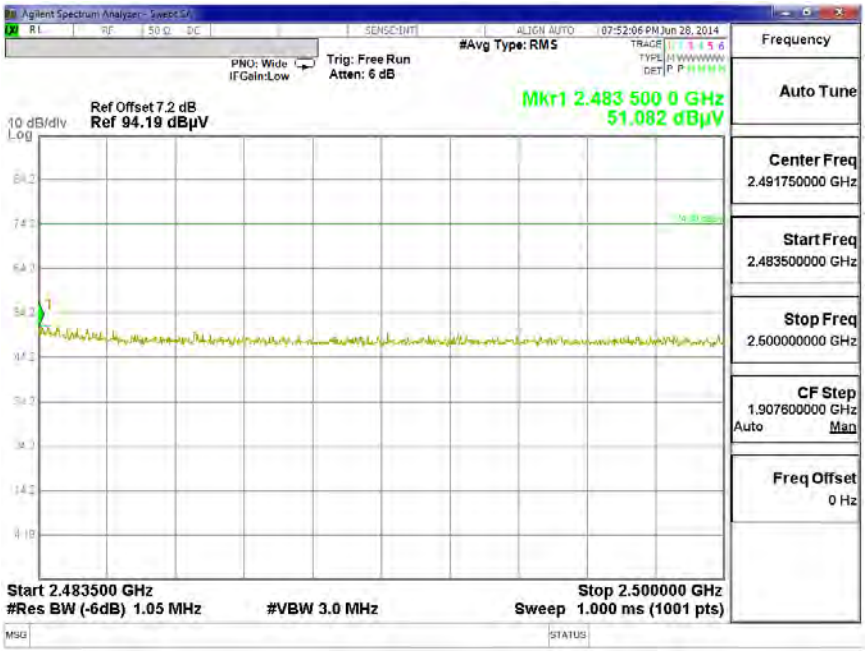


LOW CHANNEL RESTRICTED, AVG, VERT

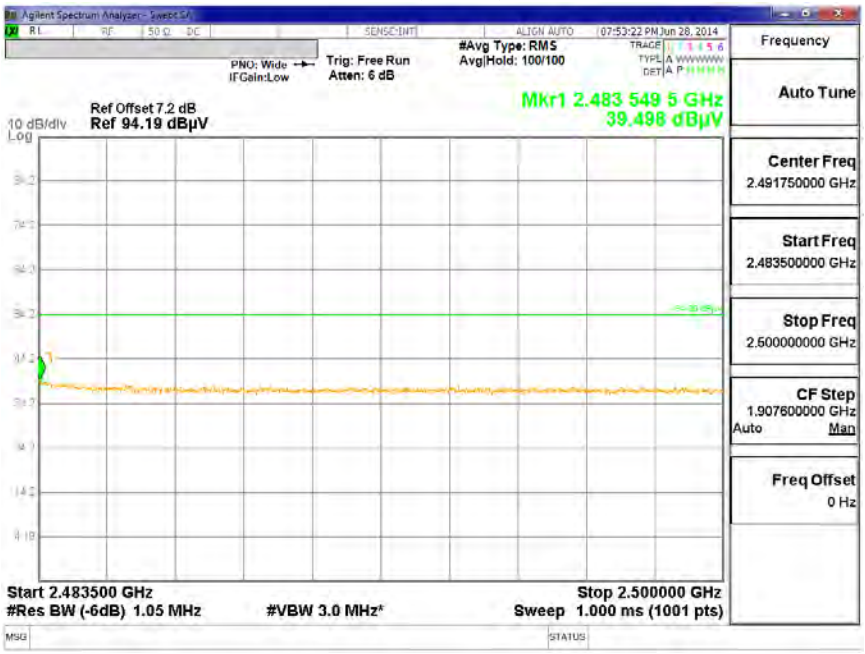


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

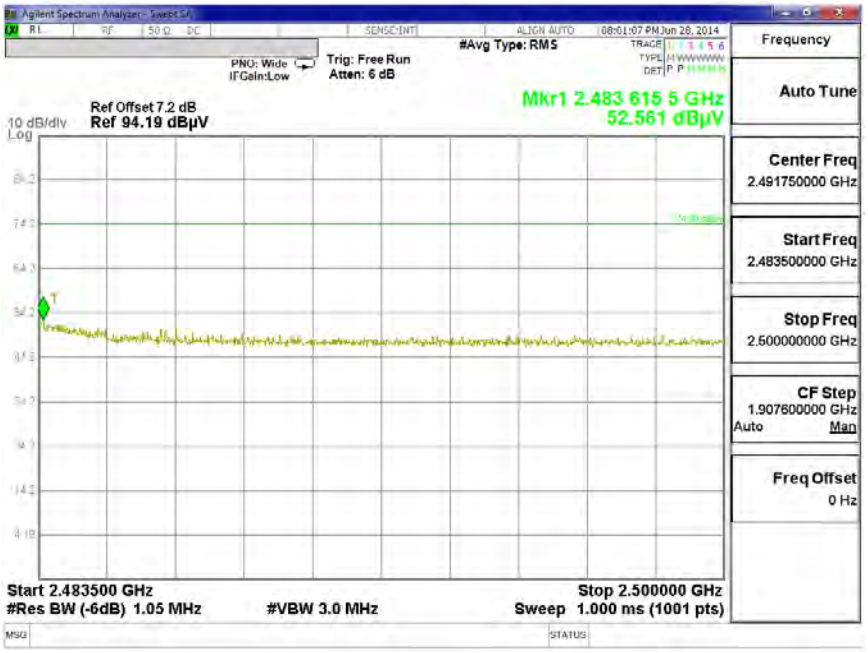


HIGH CHANNEL RESTRICTED, AVG, HORIZ

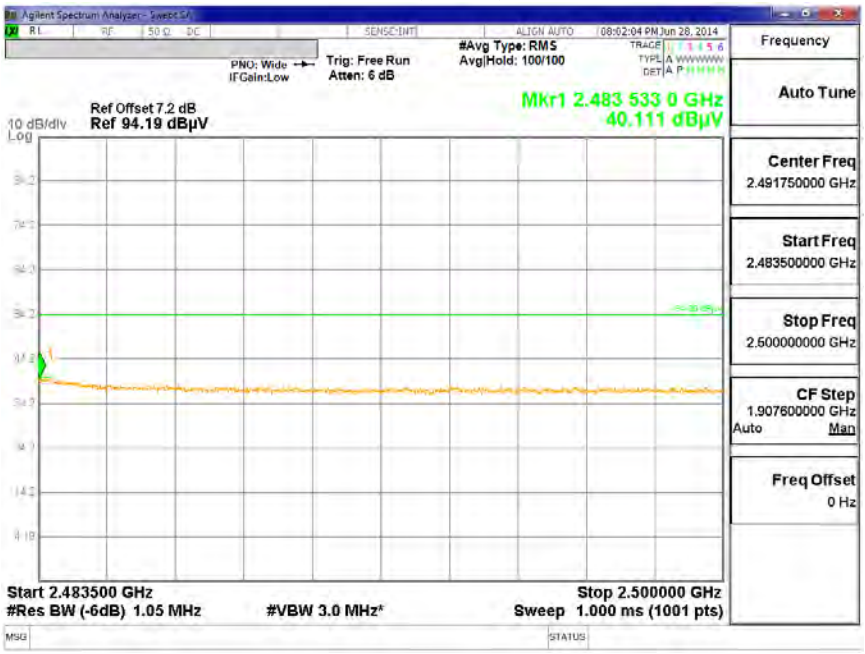


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT

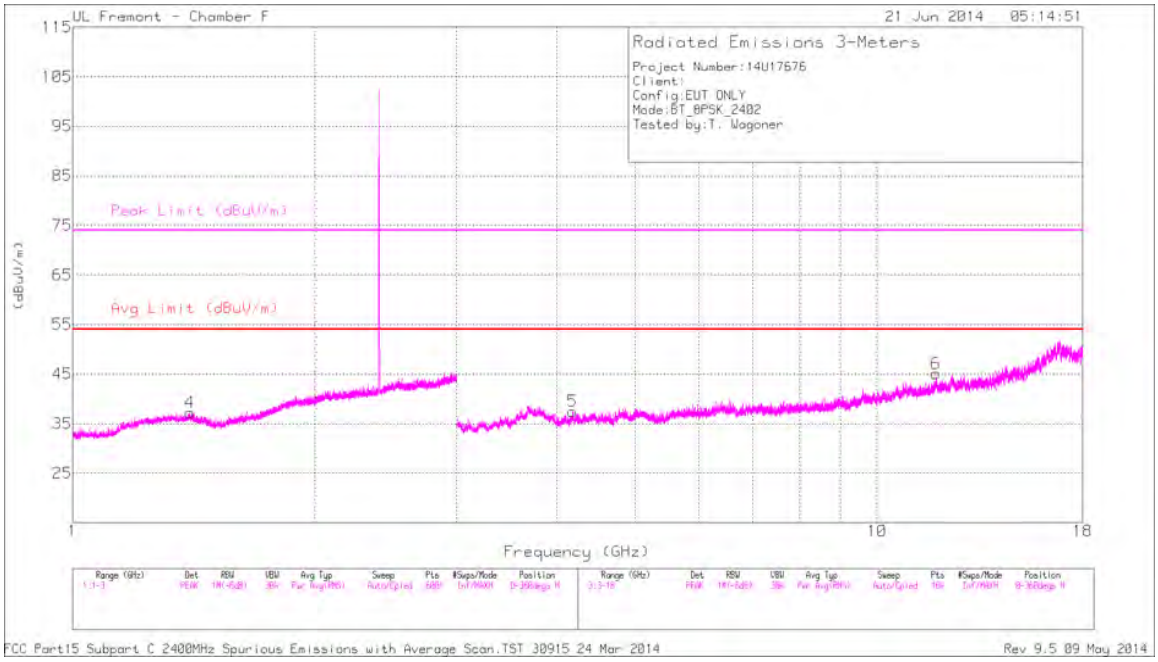


HIGH CHANNEL RESTRICTED, AVG, VERT

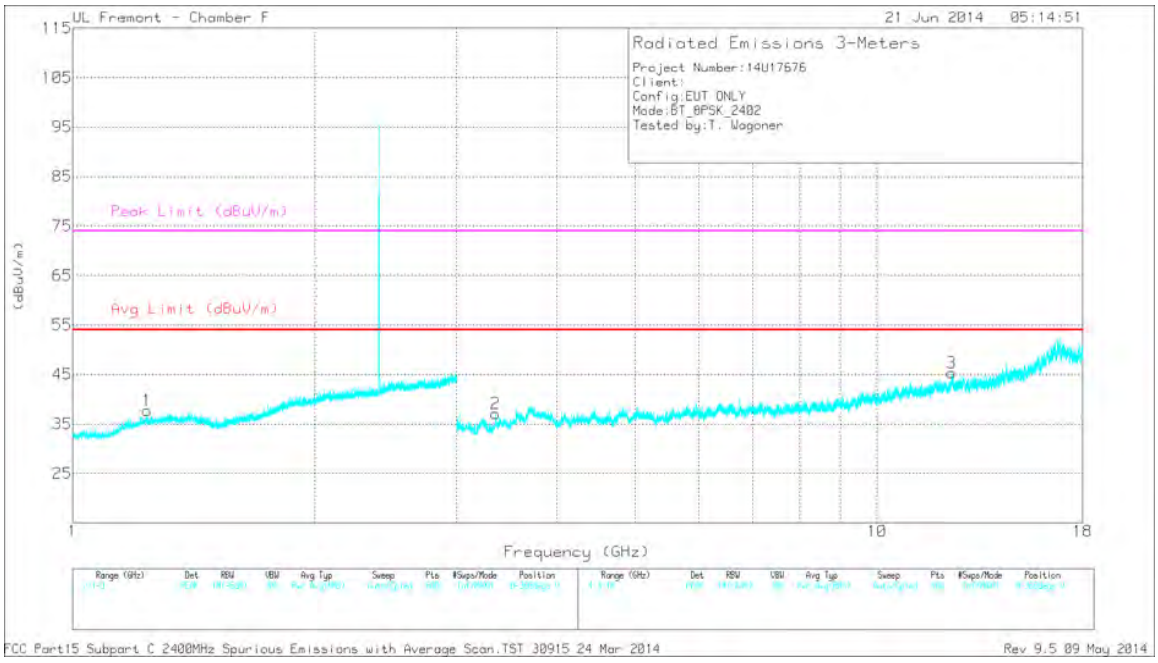


LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.393	35.12	PK3	29.3	-25.7	0	38.72	-	-	74	-35.28	1	101	H
* 1.398	29.15	VB1T	29.3	-25.6	1.2	34.05	54	-19.95	-	-	1	101	H
* 1.241	36.31	PK3	29.4	-26.5	0	39.21	-	-	74	-34.79	237	344	V
* 1.241	28.96	VB1T	29.4	-26.5	1.2	33.06	54	-20.94	-	-	237	344	V
* 4.179	37.77	PK3	33.7	-28.5	0	42.97	-	-	74	-31.03	0	103	H
* 4.178	29.73	VB1T	33.7	-28.5	1.2	36.13	54	-17.87	-	-	0	103	H
* 11.835	31.86	PK3	38.8	-21.4	0	49.26	-	-	74	-24.74	0	103	H
* 11.842	22.19	VB1T	38.8	-21.6	1.2	40.59	54	-13.41	-	-	0	103	H
* 3.354	34.99	PK3	33.9	-29.4	0	39.49	-	-	74	-34.51	7	105	V
* 3.353	27.24	VB1T	33.9	-29.4	1.2	32.94	54	-21.06	-	-	7	105	V
* 12.368	31.28	PK3	38.9	-21.1	0	49.08	-	-	74	-24.92	166	168	V
* 12.369	22.52	VB1T	38.9	-21.1	1.2	41.52	54	-12.48	-	-	166	168	V

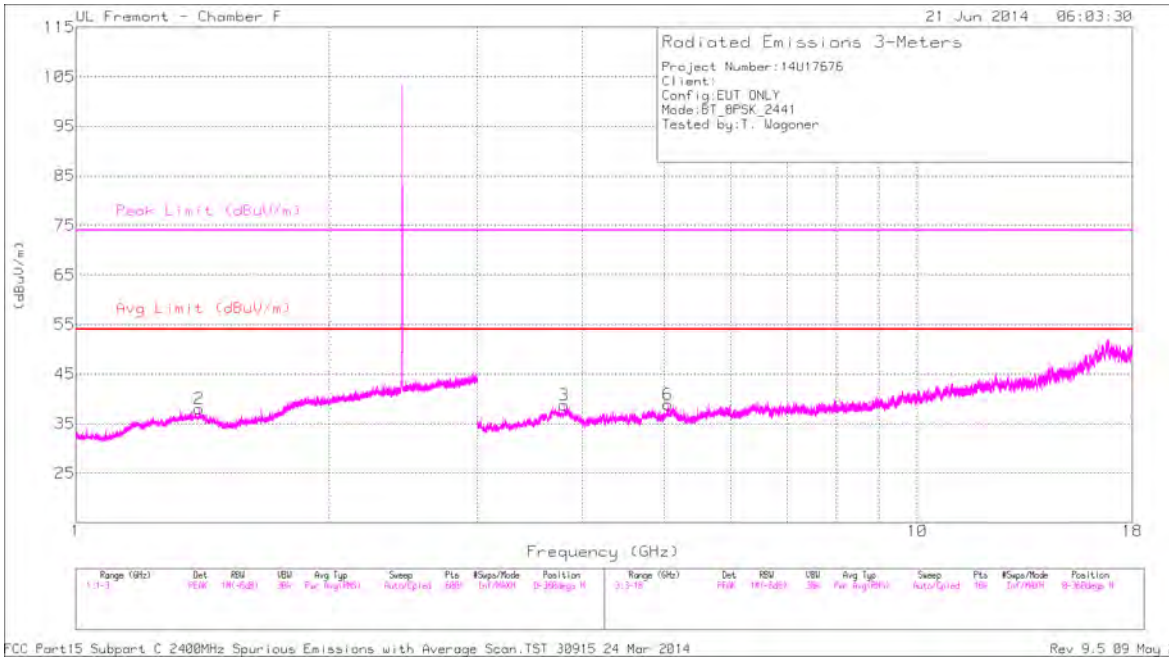
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

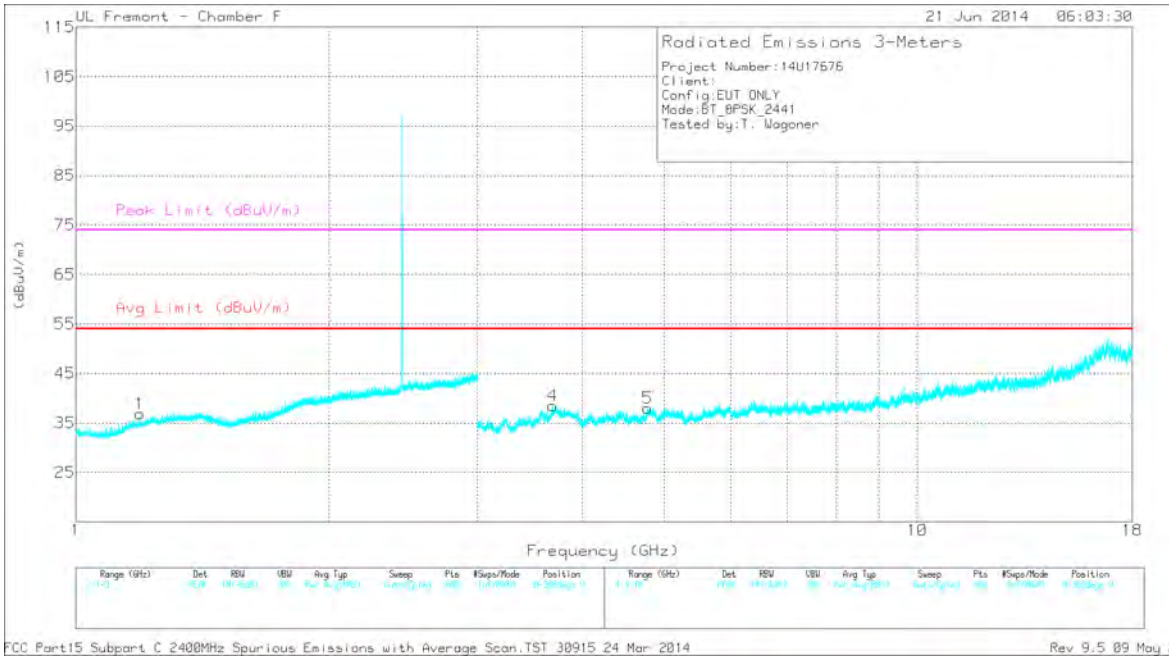
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.4	32.02	PK3	29.2	-25.6	0	35.62	-	-	74	-38.38	2	100	H
* 1.395	28.87	VB1T	29.3	-25.6	1.2	33.77	54	-20.23	-	-	2	100	H
* 1.19	34.92	PK3	28.8	-26.3	0	37.42	-	-	74	-36.58	2	201	V
* 1.187	28.51	VB1T	28.8	-26.3	1.2	32.21	54	-21.79	-	-	2	201	V
* 3.806	33.77	PK3	34.4	-28.6	0	39.57	-	-	74	-34.43	2	201	H
* 3.8	26.54	VB1T	34.4	-28.8	1.2	33.34	54	-20.66	-	-	2	201	H
* 5.049	34.36	PK3	34.3	-27.9	0	40.76	-	-	74	-33.24	10	201	H
* 5.042	25.93	VB1T	34.3	-28.1	1.2	33.33	54	-20.67	-	-	10	201	H
* 3.686	33.27	PK3	34.9	-29.2	0	38.97	-	-	74	-35.03	10	101	V
* 3.682	26.87	VB1T	34.9	-29.2	1.2	33.77	54	-20.23	-	-	10	101	V
* 4.778	34.8	PK3	34.1	-28.1	0	40.8	-	-	74	-33.2	10	199	V
* 4.778	26.46	VB1T	34.1	-28.1	1.2	33.66	54	-20.34	-	-	10	199	V

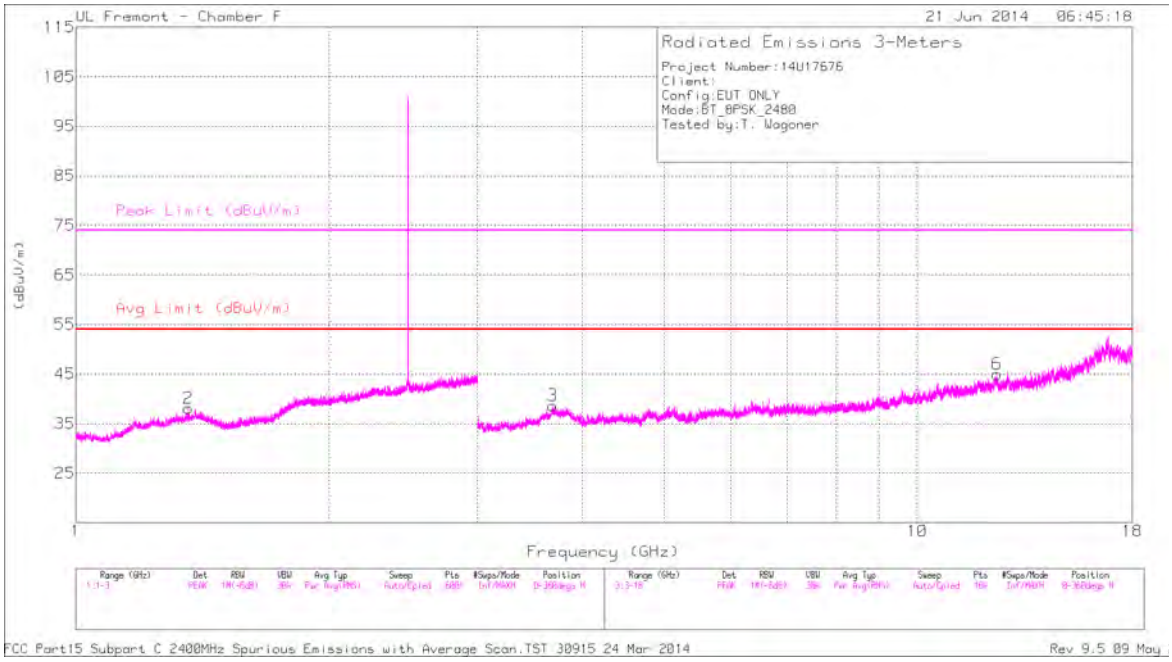
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

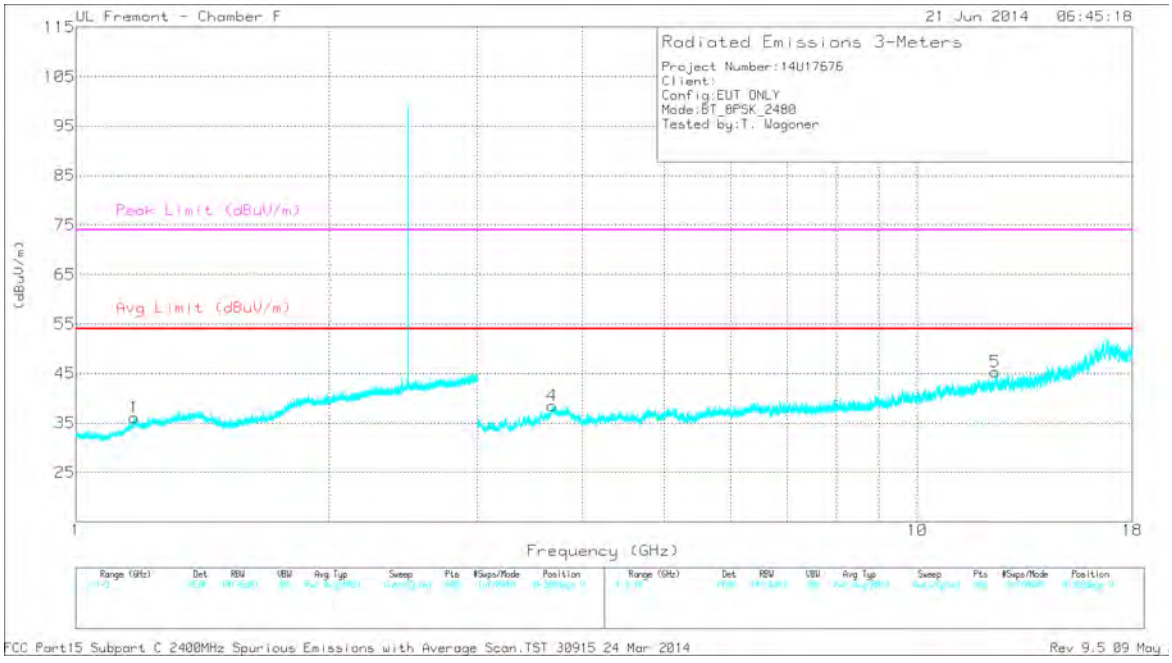
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/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
* 1.364	34.89	PK3	29.5	-26.1	0	38.29	-	-	74	-35.71	2	101	H
* 1.357	28.81	VB1T	29.6	-26.2	1.2	33.41	54	-20.59	-	-	2	101	H
* 1.171	37.21	PK3	28.5	-26.5	0	39.21	-	-	74	-34.79	2	201	V
* 1.172	28.98	VB1T	28.6	-26.4	1.2	32.38	54	-21.62	-	-	2	201	V
* 3.687	38.08	PK3	34.9	-29.2	0	43.78	-	-	74	-30.22	4	201	H
* 3.688	30.65	VB1T	34.9	-29.2	1.2	37.55	54	-16.45	-	-	4	201	H
* 12.431	34.91	PK3	38.9	-21.5	0	52.31	-	-	74	-21.69	4	102	H
* 12.438	27.55	VB1T	38.9	-21.8	1.2	45.85	54	-8.15	-	-	4	102	H
* 3.678	37.48	PK3	34.9	-29.2	0	43.18	-	-	74	-30.82	10	201	V
* 3.685	30.58	VB1T	34.9	-29.2	1.2	37.48	54	-16.52	-	-	10	201	V
* 12.367	34.96	PK3	38.9	-21.2	0	52.66	-	-	74	-21.34	0	102	V
* 12.366	27.73	VB1T	38.9	-21.2	1.2	46.63	54	-7.37	-	-	0	102	V

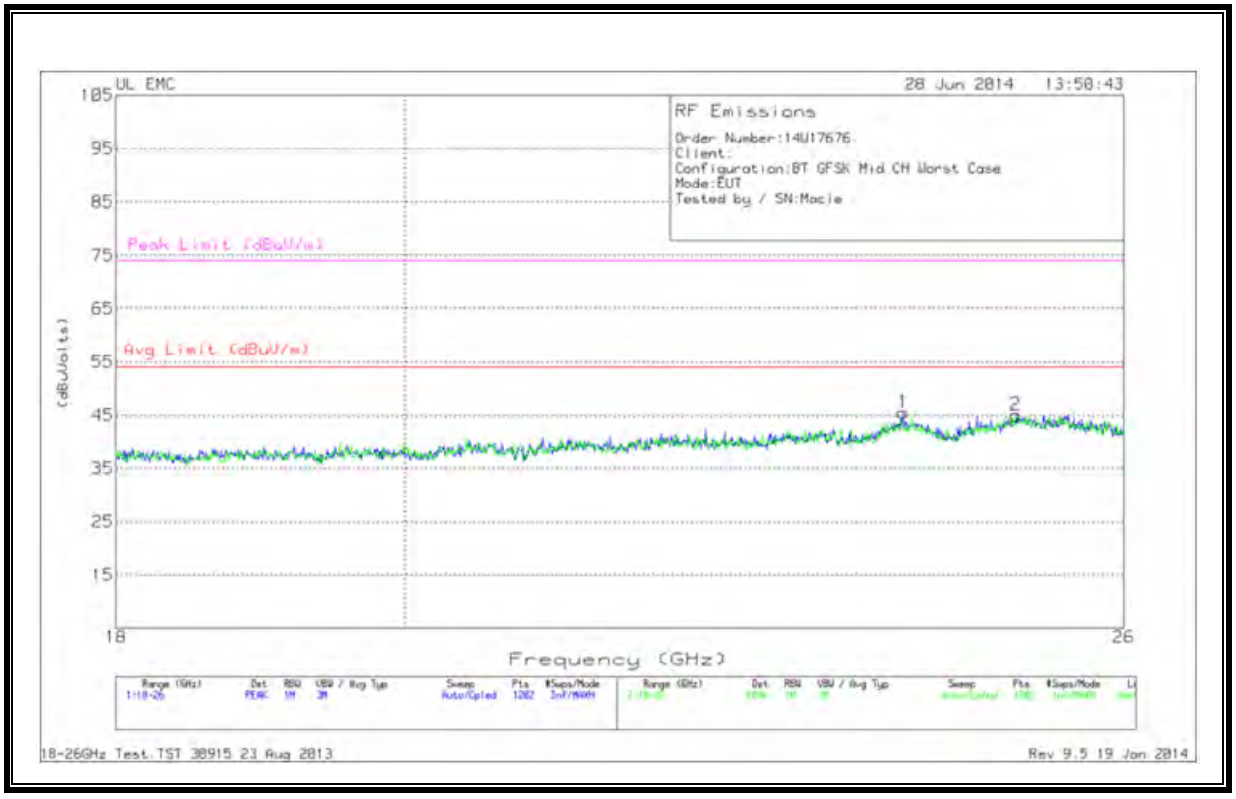
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

9.3. WORST-CASE ABOVE 18 GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)



DATA

Trace Markers

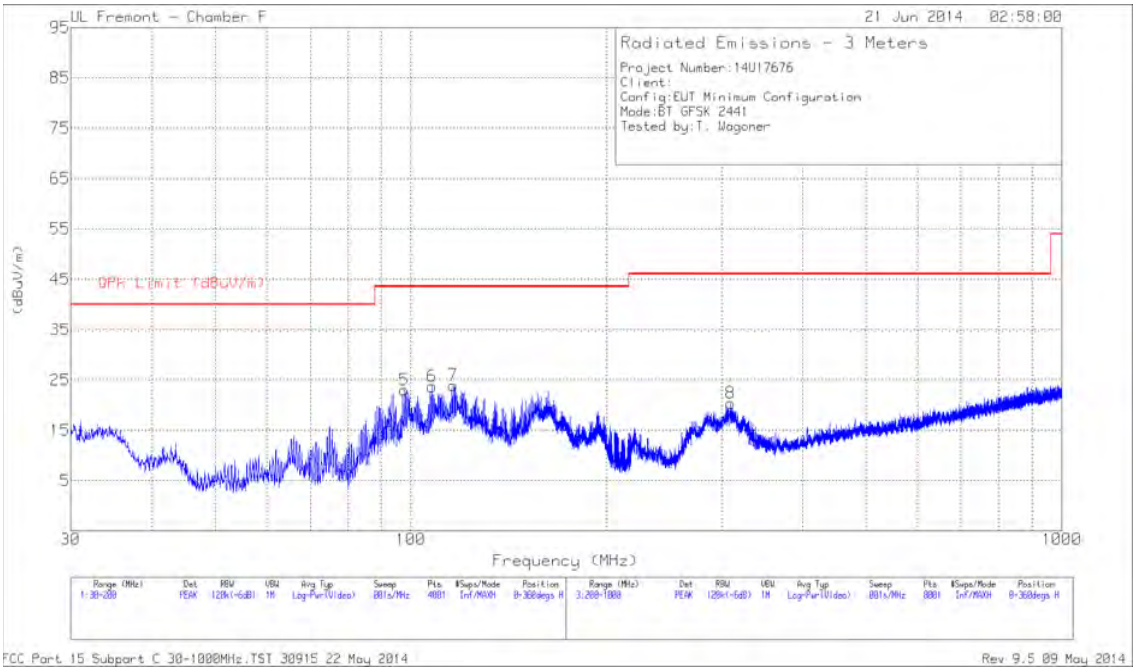
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	23.988	44.1	PK	33.6	-22.7	-9.5	45.5	54	-8.5	74	-28.5
2	24.994	43.4	PK	34	-22.9	-9.5	45	54	-9	74	-29

PK - Peak detector

9.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT

DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	97.66	45.03	PK	9.6	-31.6	0	23.03	43.52	-20.49	0-360	301	H
6	107.775	42.83	PK	12.3	-31.4	0	23.73	43.52	-19.79	0-360	301	H
7	* 116.0625	41.75	PK	13.6	-31.4	0	23.95	43.52	-19.57	0-360	200	H
1	33.2725	36.06	PK	19	-31.9	0	23.16	40	-16.84	0-360	100	V
2	42.835	38.19	PK	11.8	-31.9	0	18.09	40	-21.91	0-360	100	V
3	75.645	42.01	PK	8	-31.7	0	18.31	40	-21.69	0-360	100	V
4	* 116.105	39.9	PK	13.6	-31.4	0	22.1	43.52	-21.42	0-360	100	V
8	309.8	37.32	PK	13.7	-30.6	0	20.42	46.02	-25.6	0-360	100	H

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

PK - Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 30915 22 May 2014

Rev 9.5 09 May 2014

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

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	.168	45.13	PK	1.2	0	46.33	65.1	-18.77	-	-
2	.168	27.32	Av	1.2	0	28.52	-	-	55.1	-26.58
3	.7665	46.71	PK	.3	0	47.01	56	-8.99	-	-
4	.7665	32.82	Av	.3	0	33.12	-	-	46	-12.88
5	18.537	33.02	PK	.3	.2	33.52	60	-26.48	-	-
6	18.537	19.92	Av	.3	.2	20.42	-	-	50	-29.58

Line-L2 .15 - 30MHz

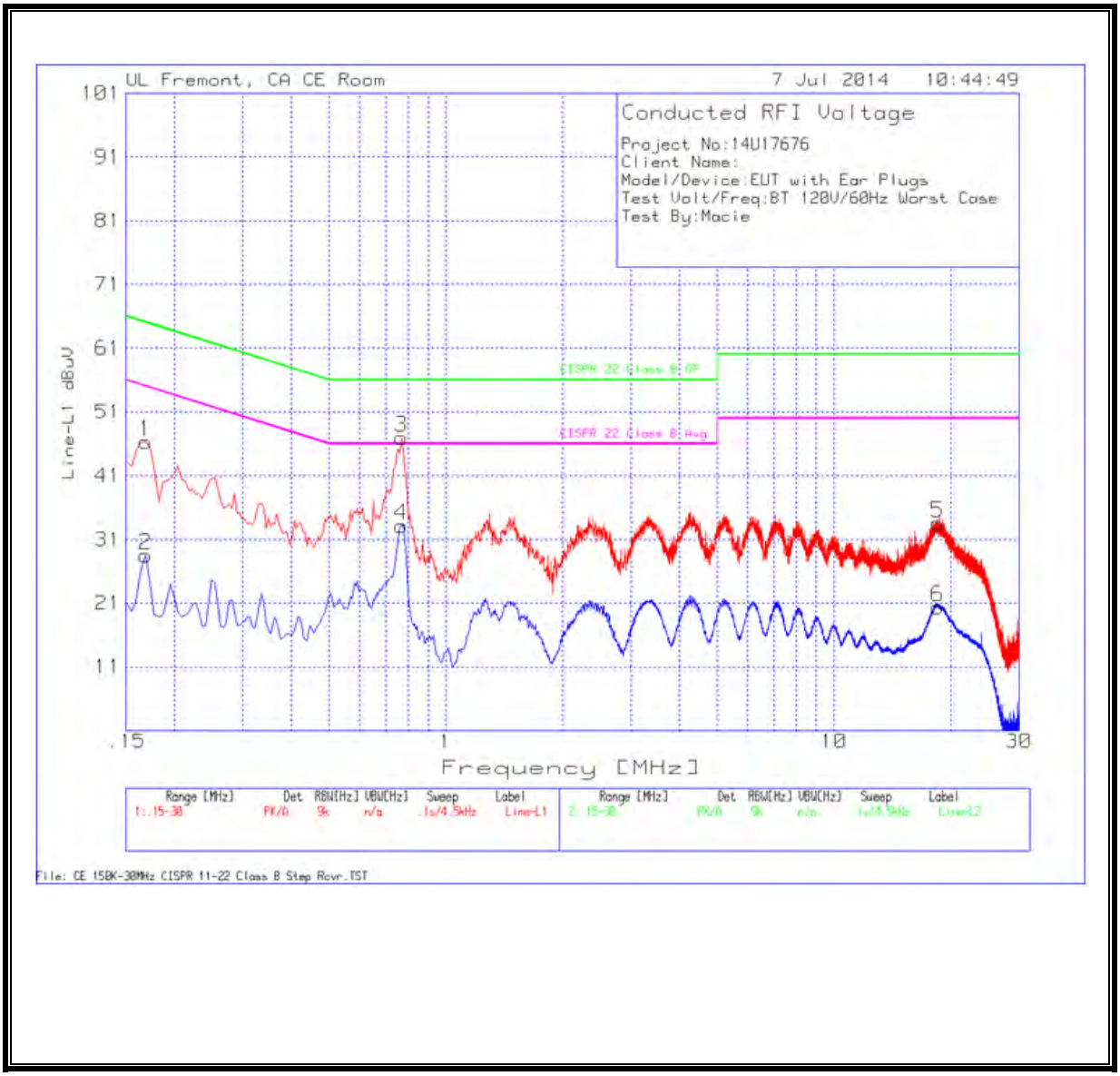
Trace Markers

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)
7	.168	44.24	PK	1.3	0	45.54	65.1	-19.56	-	-
8	.168	23.85	Av	1.3	0	25.15	-	-	55.1	-29.95
9	.7665	43.42	PK	.3	0	43.72	56	-12.28	-	-
10	.7665	27.73	Av	.3	0	28.03	-	-	46	-17.97
11	24.5355	32.32	PK	.3	.3	32.92	60	-27.08	-	-
12	24.5355	17.39	Av	.3	.3	17.99	-	-	50	-32.01

PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS