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: A1549

FCC ID: BCG-E2816A
IC: 579C-E2816A

REPORT NUMBER: 14U17673-E2, REVISION C

ISSUE DATE: AUGUST 02, 2014

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	7/17/14	Initial Issue	F. deAnda
A	7/23/14	Update Product Description	M. Hua
B	7/29/14	Update: to referenced reports	F. de Anda
C	08/02/14	Address TCB Questions	T. Lee

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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: A1549

SERIAL NUMBER: C39MQ0BVG332

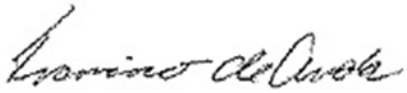
DATE TESTED: APRIL 23, 2014 - JUNE 15, 2014

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:

Oliver Su
Senior 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 A1549 to ensure that there is no deviation in EM fields between Model A1549 and Model A1586.

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 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 A1549 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 A1586 BLUETOOTH report.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PiFA antenna, with a maximum gain of -.38dBi.

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-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.

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.

Based on the manufacturer's attestation that the nominal output power is reduced as the data rate increases, the data rates tested represent the highest power and worst-case with respect to EMC performance.

Worst-case data rates were:

GFSK mode: DH1
8PSK mode: 3-DH5

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						

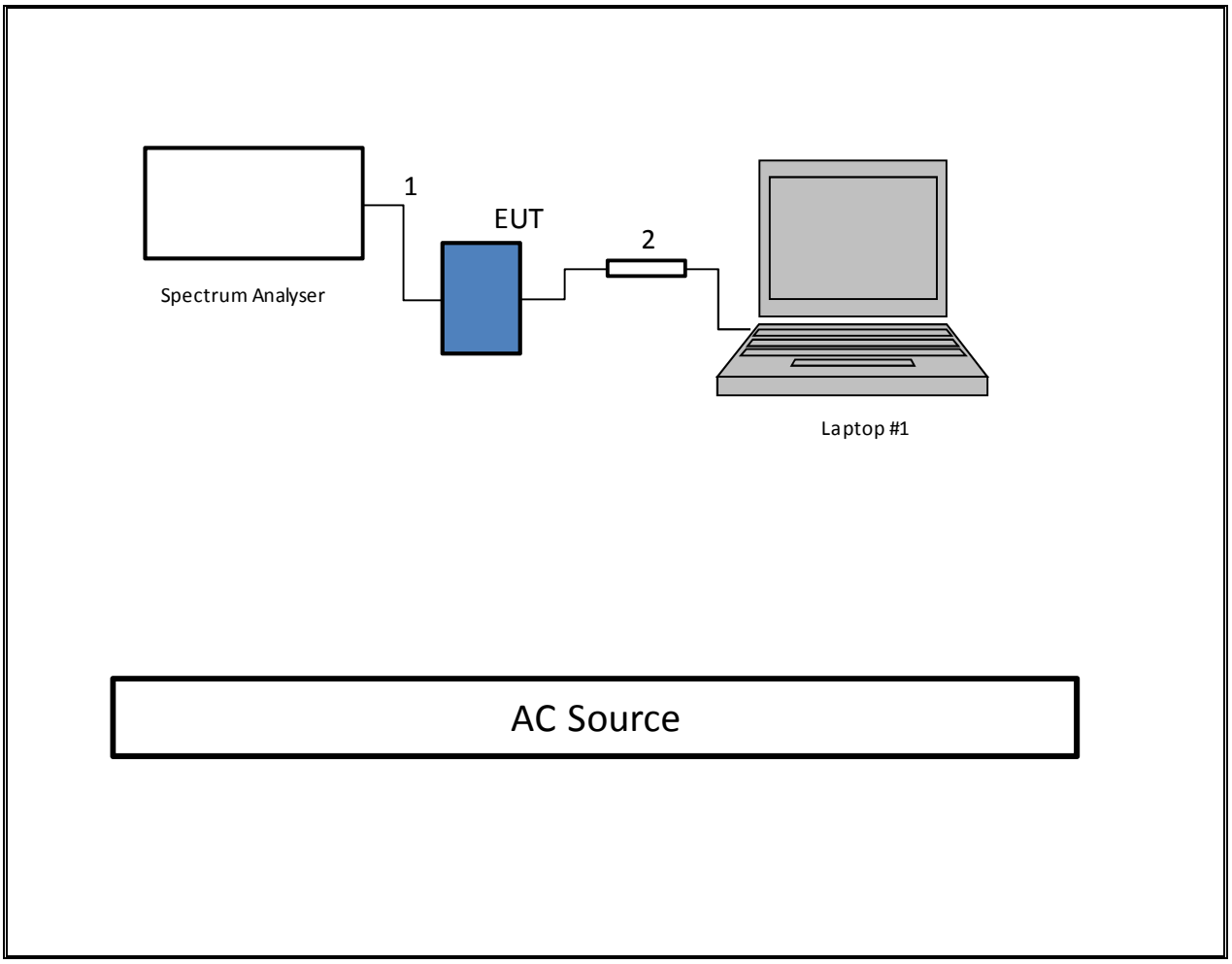
I/O CABLES (BELOW 1GHZ & AC LINE CONDUCTED TESTS)

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- CONDUCTED PORT

The EUT was tested connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. Test software exercised the EUT.

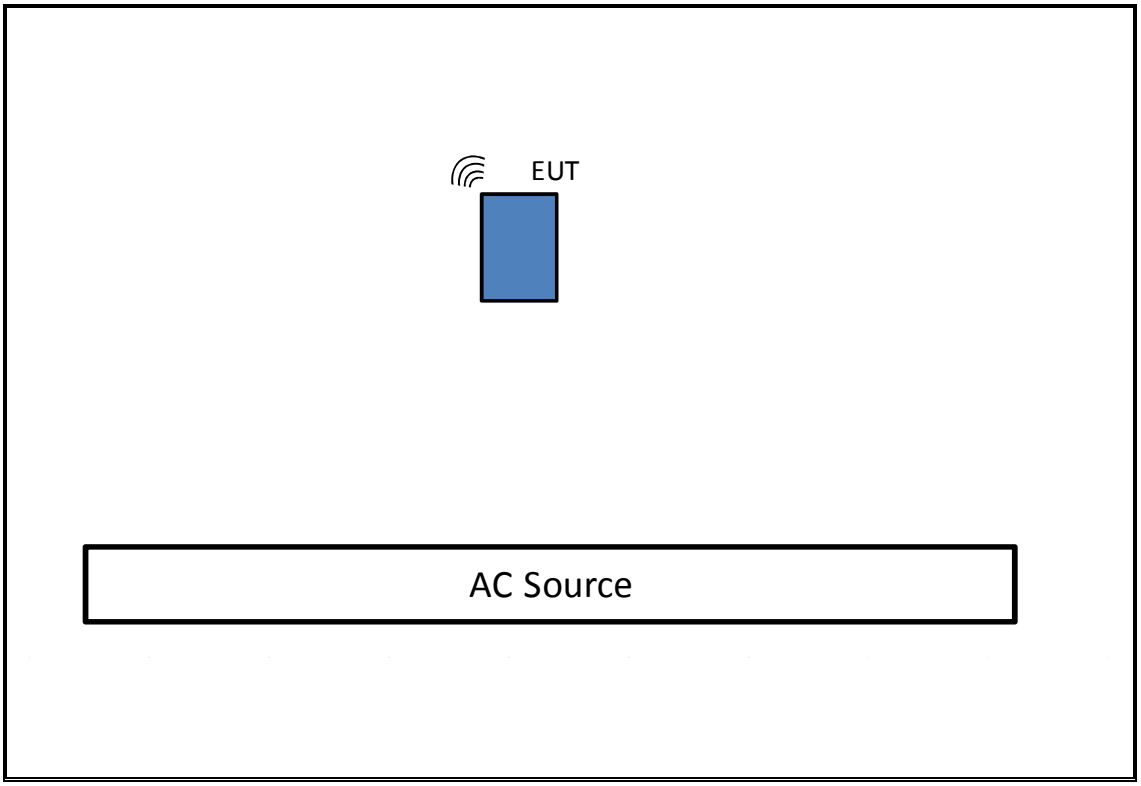
SETUP DIAGRAM



TEST SETUP- RADIATED-ABOVE 1 GHZ

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

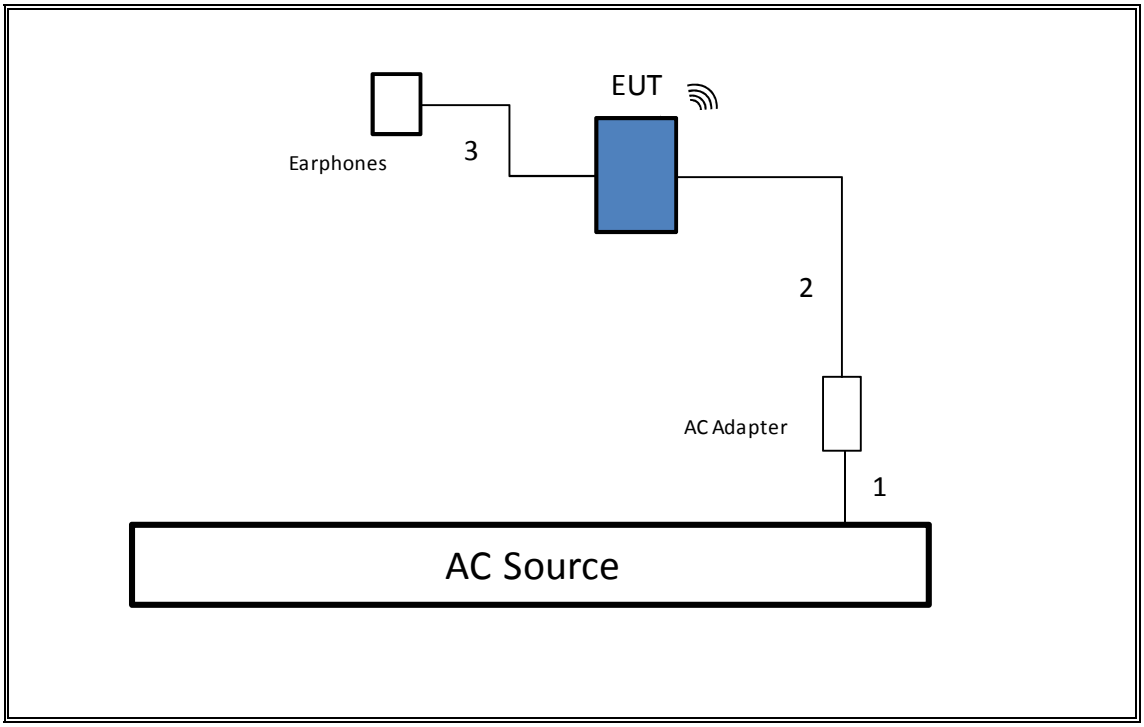
SETUP DIAGRAM



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	C00589	11/26/14
Antenna, Horn, 40 GHz	ARA	MWH-2640	C00981	07/15/15
Peak / Average Power Sensor	Agilent / HP	N1911A	F00153	03/06/15
Peak Power Meter	Agilent / HP	E9323A	F00025	04/30/15
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	F00129	02/22/15
Spectrum Analyzer, 40 GHz	Agilent	8564E	C00951	07/29/14
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
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/20/14
EMI Test Receiver, 9 kHz-7	R & S	ESCI 7	F00092	09/05/14
LISN, 30 MHz	FCC	LISN-50/250-25-2	C00626	01/14/15

7. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01.

Output Power: KDB 558074 D01.

Power Spectral Density: KDB 558074 D01.

Out-of-band emissions in non-restricted bands: KDB 558074 D01.

Out-of-band emissions in restricted bands: KDB 558074 D01.

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

8.1. ON TIME AND DUTY CYCLE RESULTS

For on time and duty cycle data, refer to Model A1586 BLUETOOTH report.

9. ANTENNA PORT TEST RESULTS

For antenna port data, refer to Model A1586 BLUETOOTH report.

10. RADIATED TEST RESULTS

LIMITS AND PROCEDURE

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

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

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

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

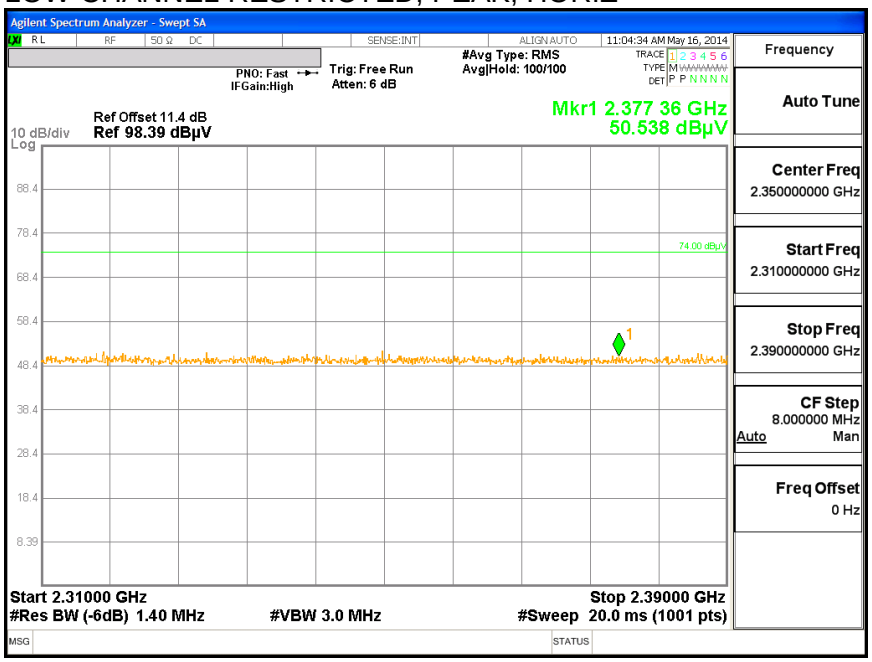
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

Per FCC guidance, radiated tests are performed to ensure there is no deviation in EM fields between Model A1549 and Model A1586.

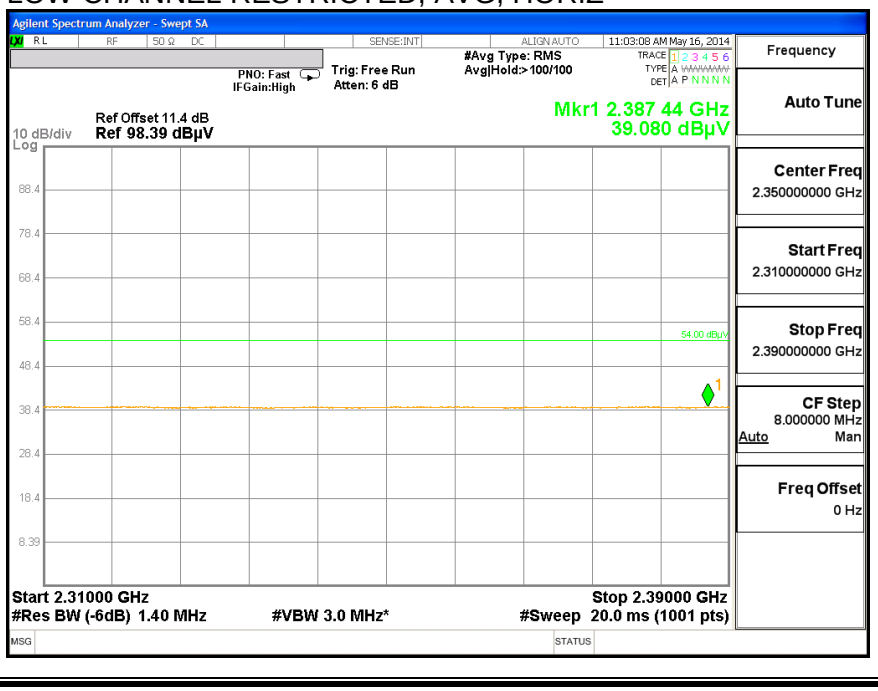
10.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

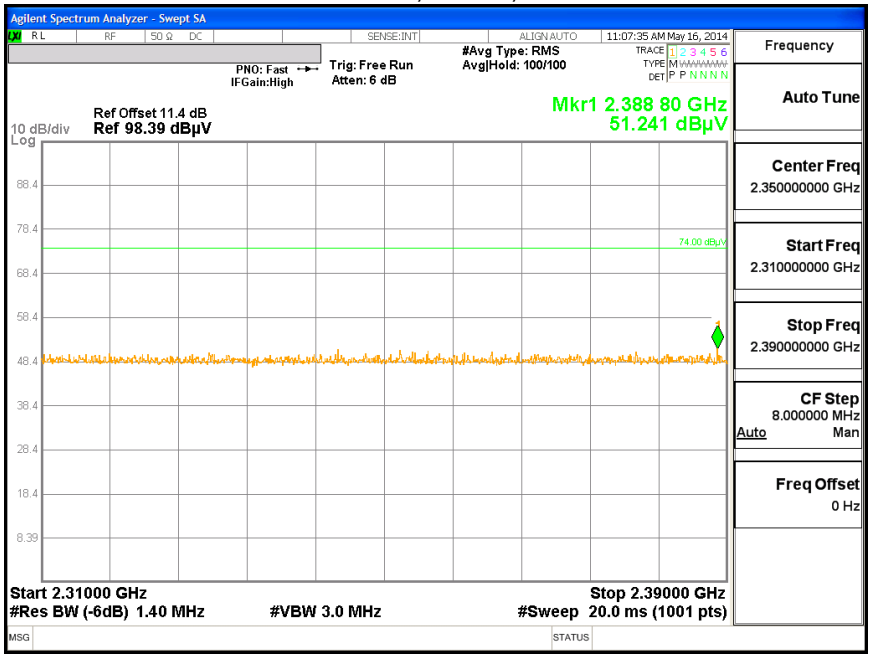


LOW CHANNEL RESTRICTED, AVG, HORIZ

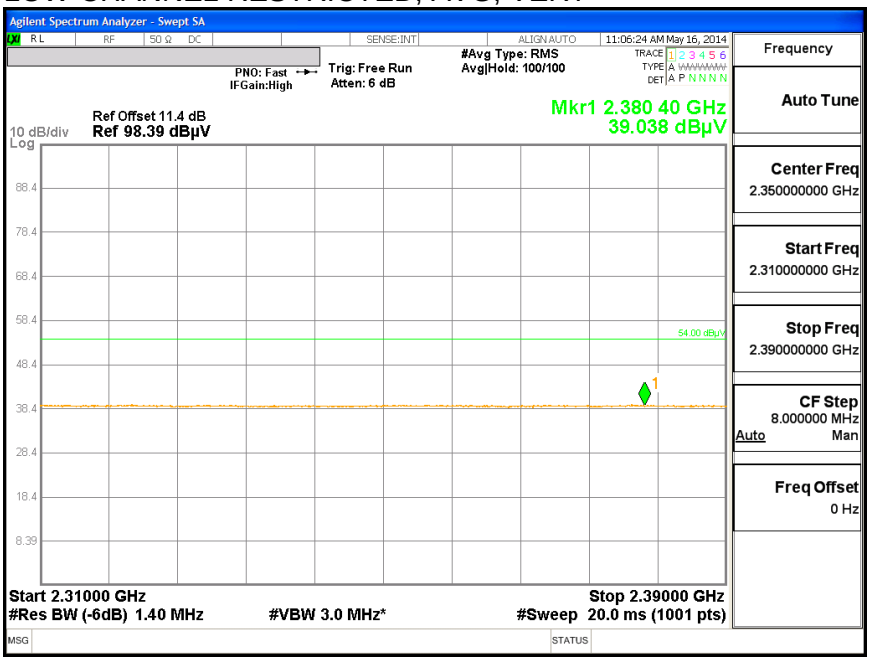


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

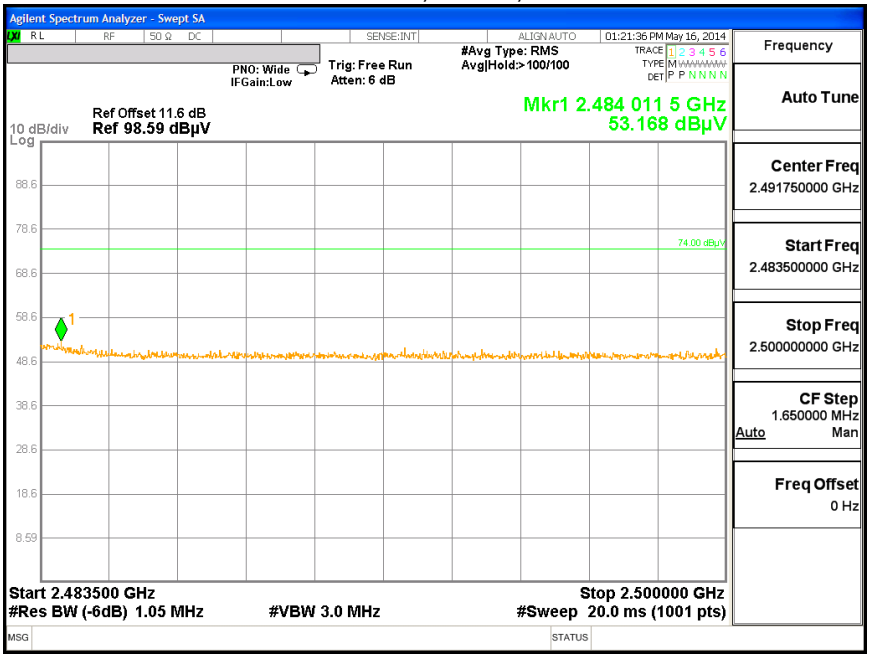


LOW CHANNEL RESTRICTED, AVG, VERT

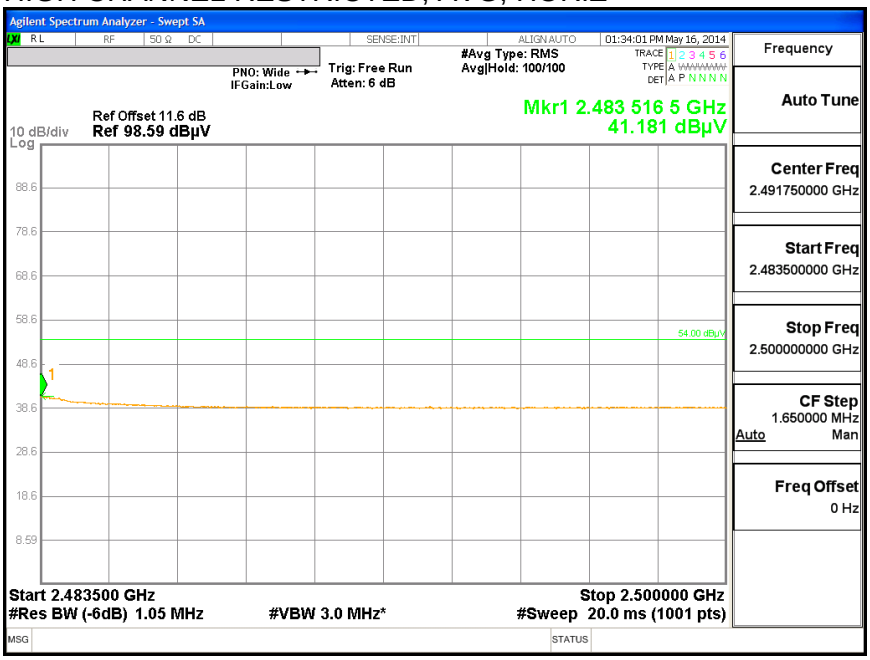


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

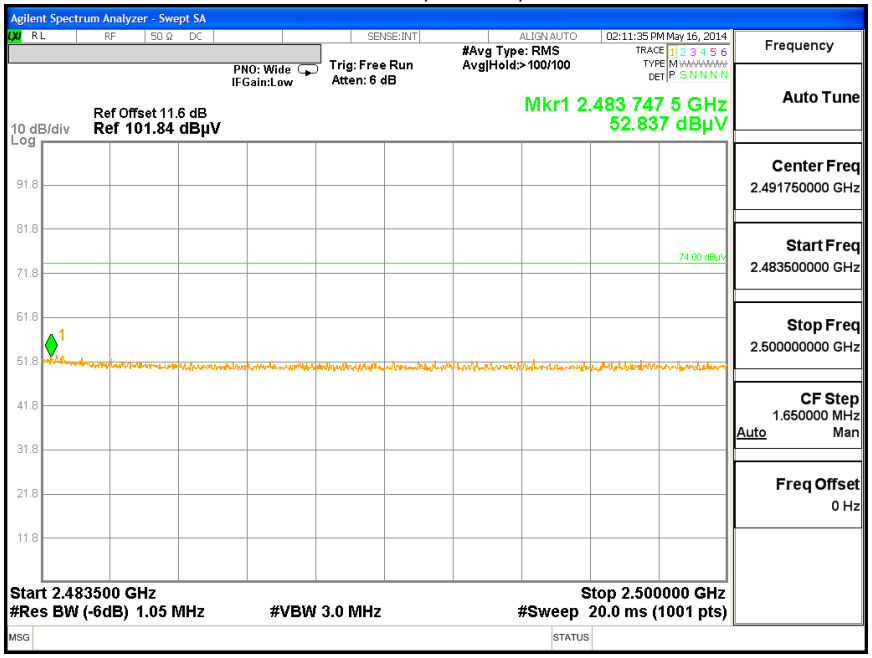


HIGH CHANNEL RESTRICTED, AVG, HORIZ

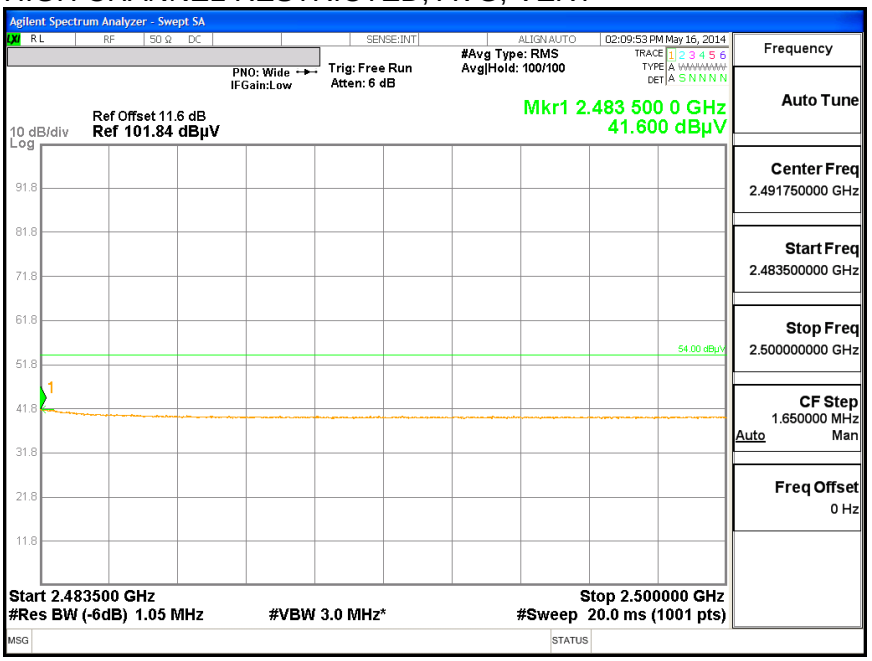


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT

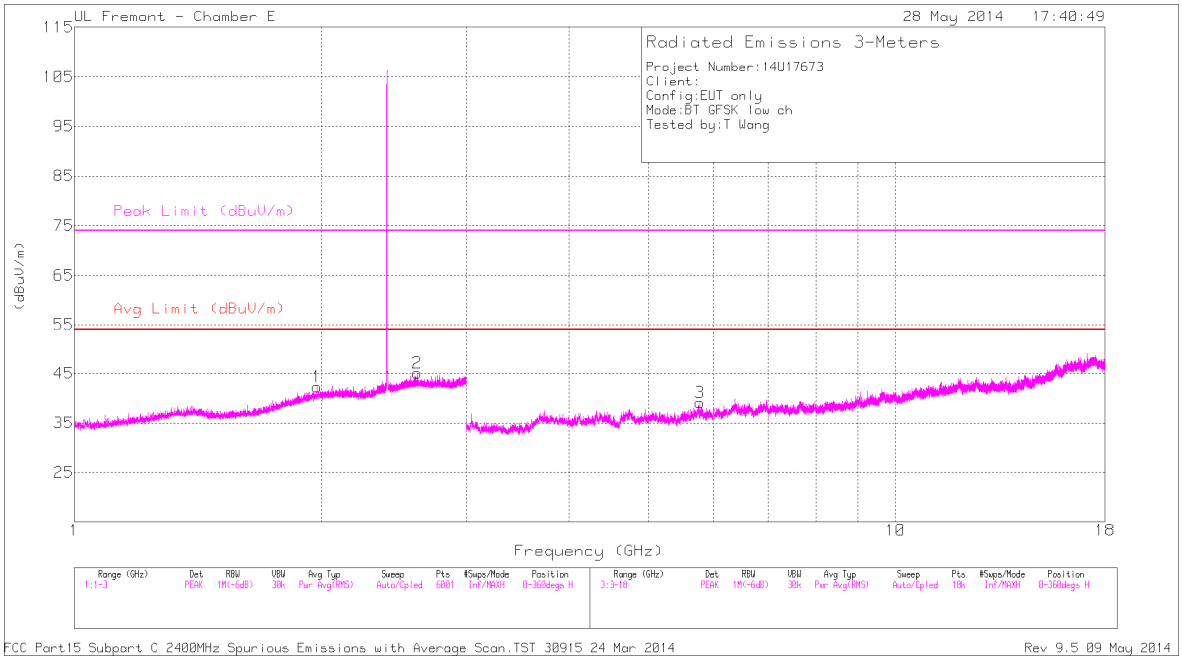


HIGH CHANNEL RESTRICTED, AVG, VERT

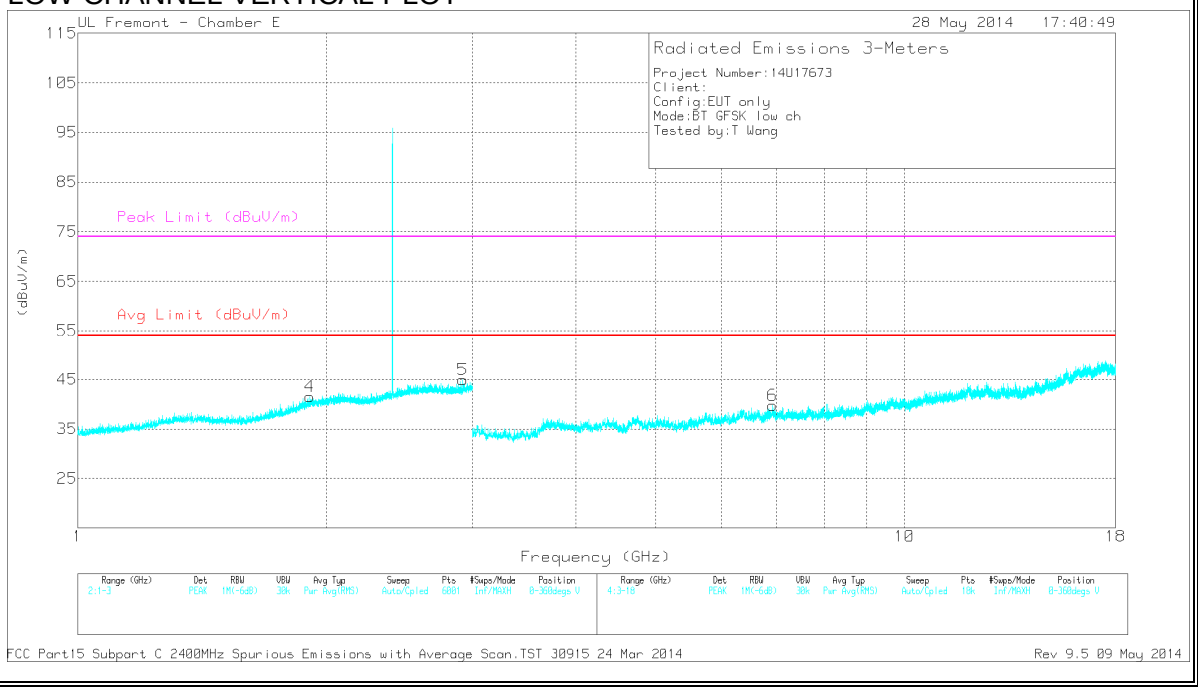


LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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
4	1.906	43.78	PK3	31.1	-25.3	0	49.58	-	-	-	-	360	101	V
	1.906	30.84	VB1T	31.1	-25.3	1.1	37.74	-	-	-	-	360	101	V
1	1.974	43.35	PK3	31.3	-25.2	0	49.45	-	-	-	-	360	101	H
	1.974	30.71	VB1T	31.3	-25.2	1.1	37.91	-	-	-	-	360	101	H
2	2.612	43.42	PK3	32.6	-24.2	0	51.82	-	-	-	-	360	101	H
	2.612	30.68	VB1T	32.6	-24.2	1.1	40.18	-	-	-	-	360	101	H
5	2.922	43.7	PK3	32.6	-24	0	52.3	-	-	-	-	360	101	V
	2.923	30.69	VB1T	32.6	-23.9	1.1	40.49	-	-	-	-	360	101	V
3	5.775	40.85	PK3	34.9	-29.3	0	46.45	-	-	-	-	360	101	H
	5.777	27.96	VB1T	34.9	-29.3	1.1	34.66	-	-	-	-	360	101	H
6	6.919	40.17	PK3	35.9	-28	0	48.07	-	-	-	-	360	101	V
	6.92	27.11	VB1T	35.9	-28	1.1	36.11	-	-	-	-	360	101	V

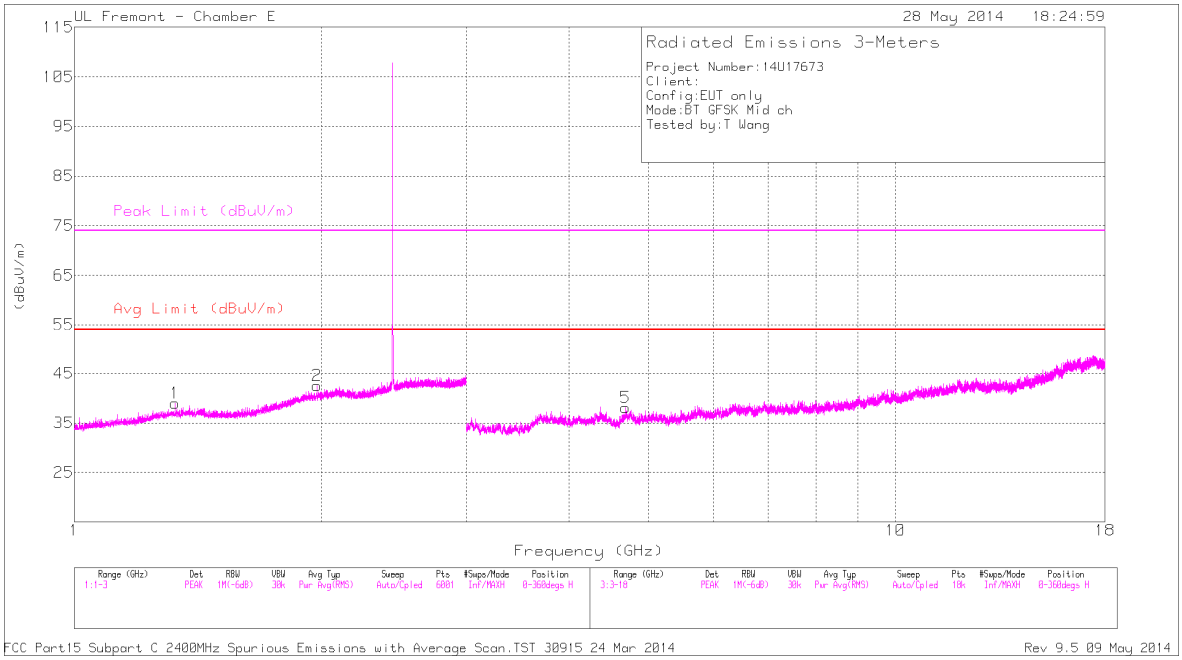
Note: All the frequencies in the above table are located in the non-restricted bands.

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

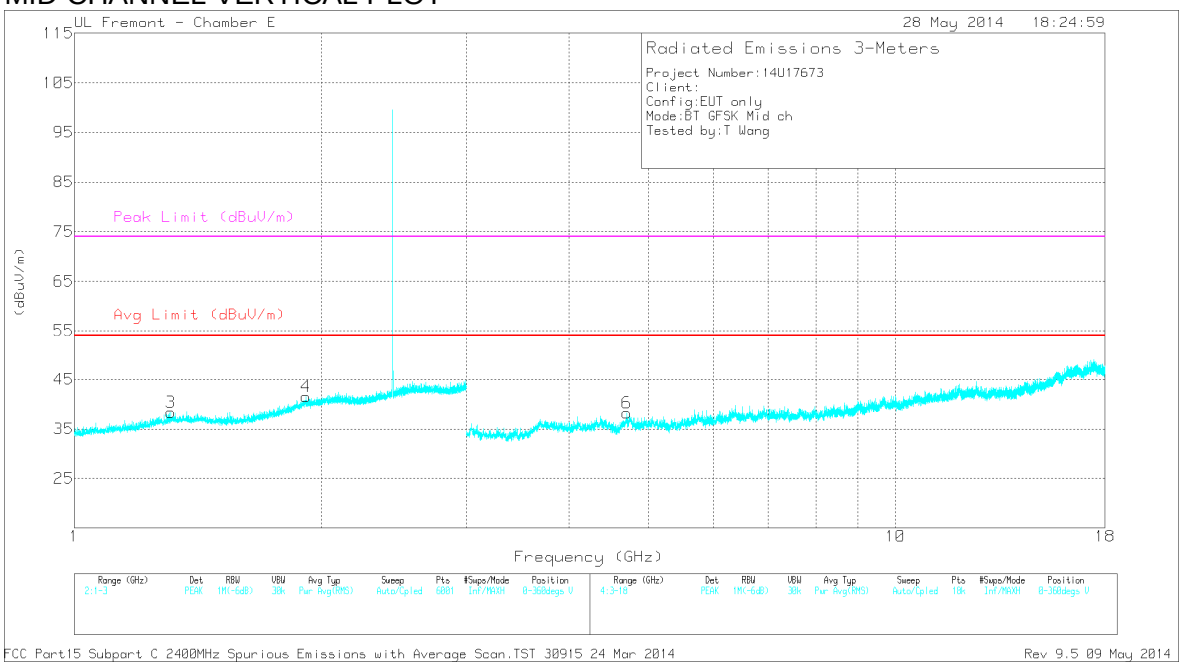
PK - Peak detector

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

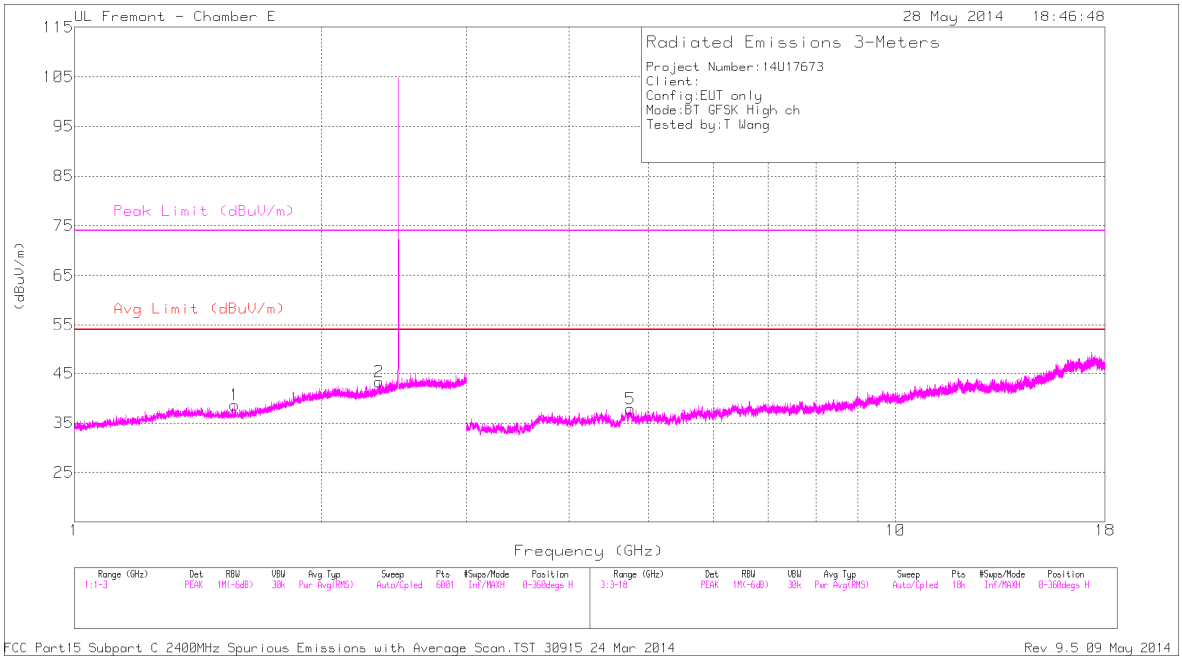
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.325	44.14	PK3	29	-26.8	0	46.34	-	-	74	-27.66	360	101	H
	* 1.325	31.26	VB1T	29	-26.8	1.1	34.56	54	-19.44	-	-	360	101	H
3	* 1.31	44.25	PK3	29	-26.9	0	46.35	-	-	74	-27.65	360	101	V
	* 1.31	31.33	VB1T	29	-26.9	1.1	34.53	54	-19.47	-	-	360	101	V
5	* 4.69	41.47	PK3	34.2	-30.1	0	45.57	-	-	74	-28.43	360	101	H
	* 4.69	28.55	VB1T	34.2	-30.1	1.1	33.75	54	-20.25	-	-	360	101	H
6	* 4.703	41.27	PK3	34.2	-30.4	0	45.07	-	-	74	-28.93	360	101	V
	* 4.704	28.64	VB1T	34.2	-30.4	1.1	33.54	54	-20.46	-	-	360	101	V
4	1.975	44.32	PK3	31.3	-25.2	0	50.42	-	-	-	-	360	101	H
	1.976	30.67	VB1T	31.3	-25.1	1.1	37.97	-	-	-	-	360	101	H
2	* 1.325	44.14	PK3	29	-26.8	0	46.34	-	-	74	-27.66	360	101	H
	* 1.325	31.26	VB1T	29	-26.8	1.1	34.56	54	-19.44	-	-	360	101	H

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

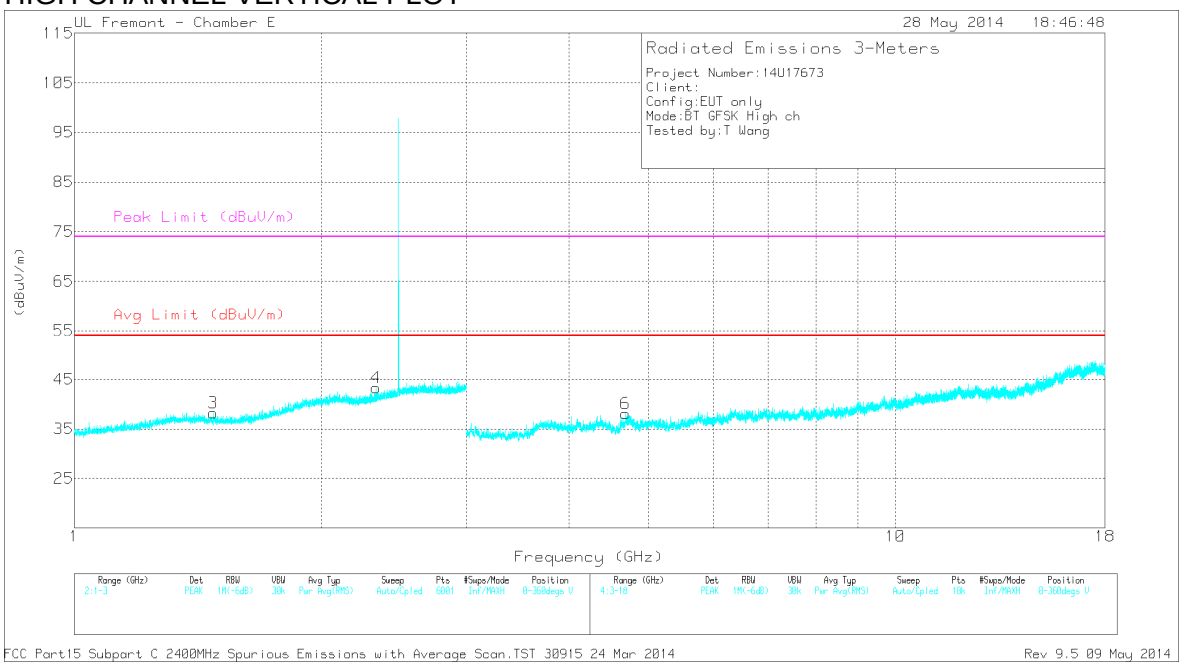
PK - Peak detector

HIGH CHANNEL HARMONICS AND SPURIOUS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	* 1.568	44.16	PK3	28.4	-26.4	0	46.16	-	-	74	-27.84	360	101	H
	* 1.569	31.12	VB1T	28.4	-26.4	1.1	34.22	54	-19.78	-	-	360	101	H
2	* 2.348	43.54	PK3	31.7	-24.7	0	50.54	-	-	74	-23.46	360	101	H
	* 2.348	30.75	VB1T	31.7	-24.7	1.1	38.85	54	-15.15	-	-	360	101	H
3	* 1.477	44.04	PK3	28.5	-26.4	0	46.14	-	-	74	-27.86	360	101	V
	* 1.476	31.18	VB1T	28.5	-26.4	1.1	34.38	54	-19.62	-	-	360	101	V
4	* 2.332	43.52	PK3	31.6	-24.9	0	50.22	-	-	74	-23.78	360	101	V
	* 2.33	30.86	VB1T	31.6	-24.9	1.1	38.66	54	-15.34	-	-	360	101	V
5	* 4.754	42.41	PK3	34.1	-30.9	0	45.61	-	-	74	-28.39	360	101	H
	* 4.755	29.39	VB1T	34.1	-30.9	1.1	33.69	54	-20.31	-	-	360	101	H
6	* 4.693	41.3	PK3	34.2	-30.2	0	45.3	-	-	74	-28.7	360	101	V
	* 4.694	28.57	VB1T	34.2	-30.2	1.1	33.67	54	-20.33	-	-	360	101	V

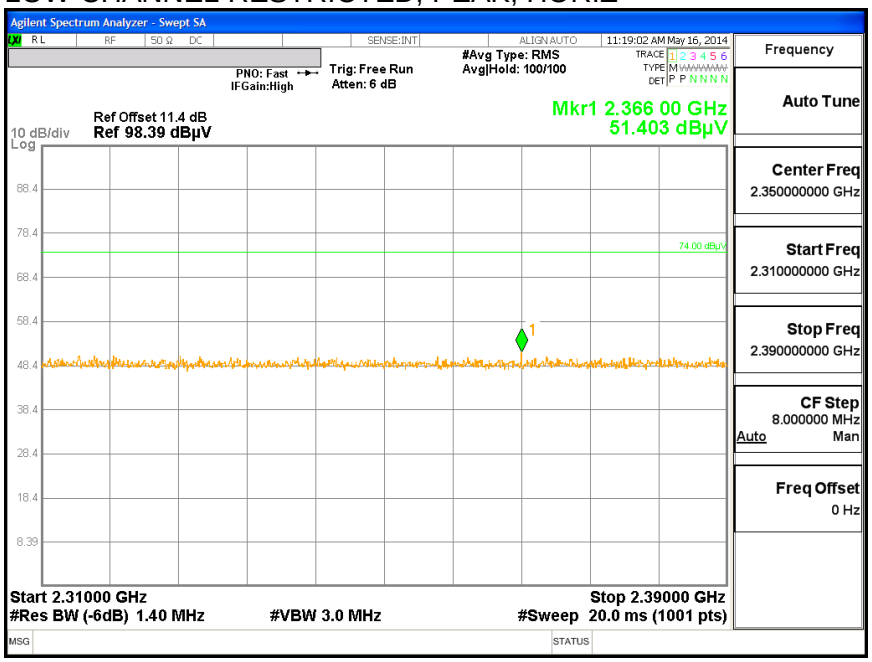
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

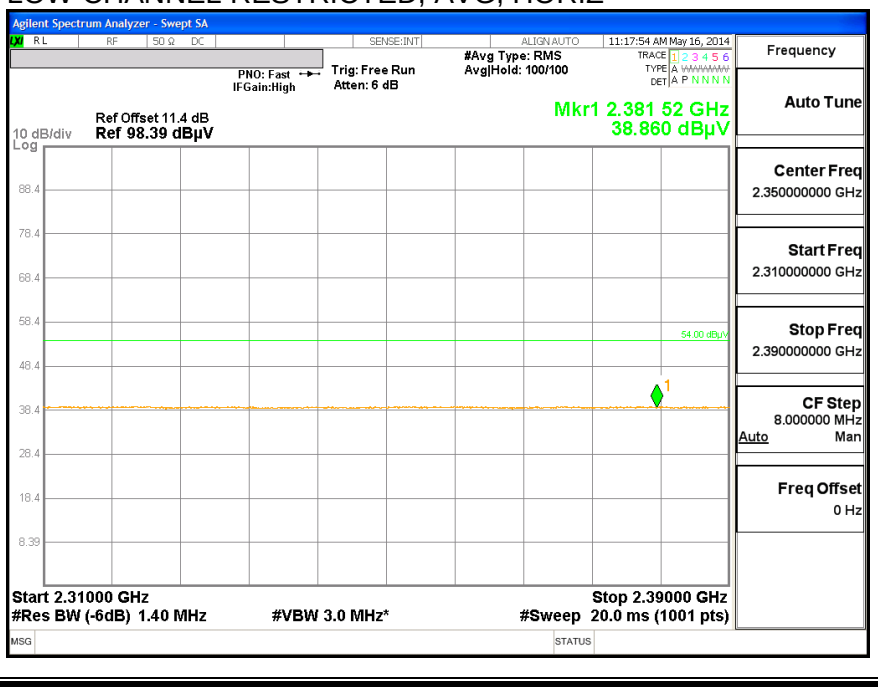
10.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

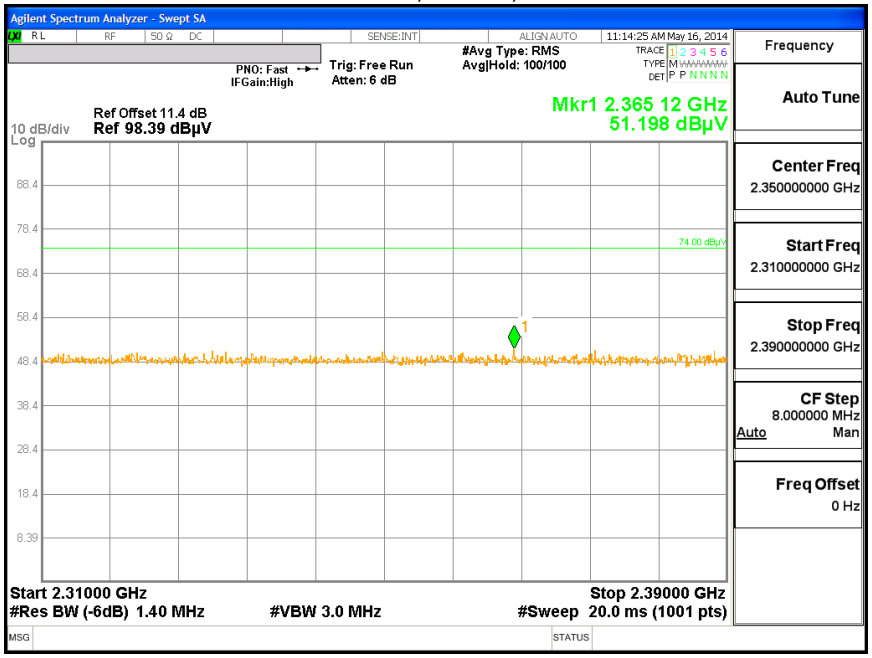


LOW CHANNEL RESTRICTED, AVG, HORIZ

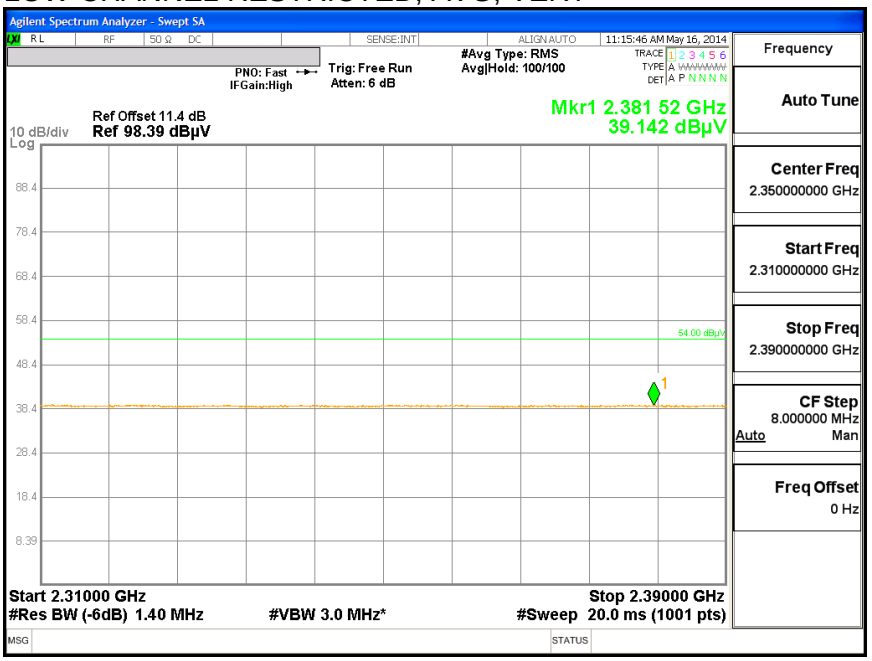


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

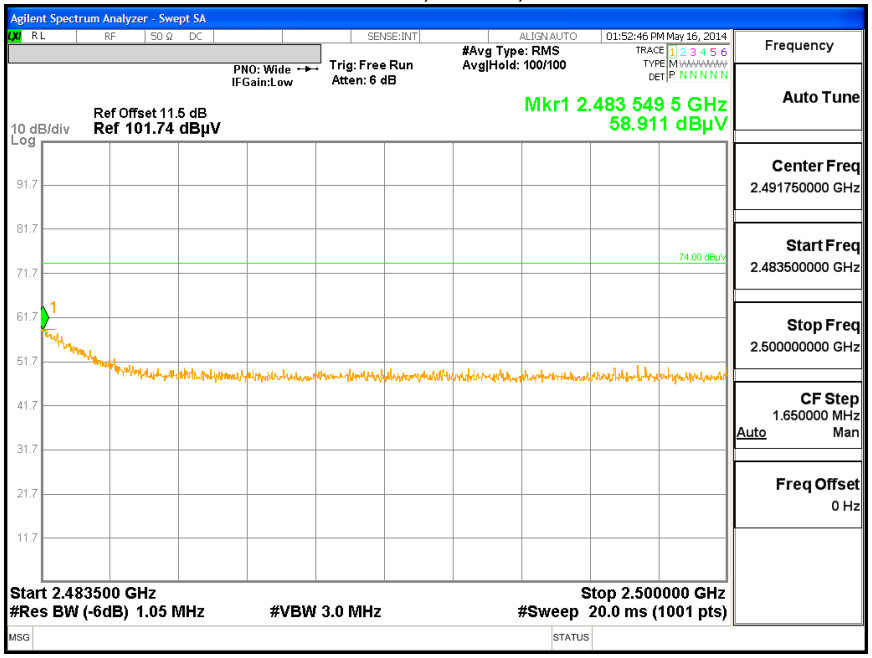


LOW CHANNEL RESTRICTED, AVG, VERT

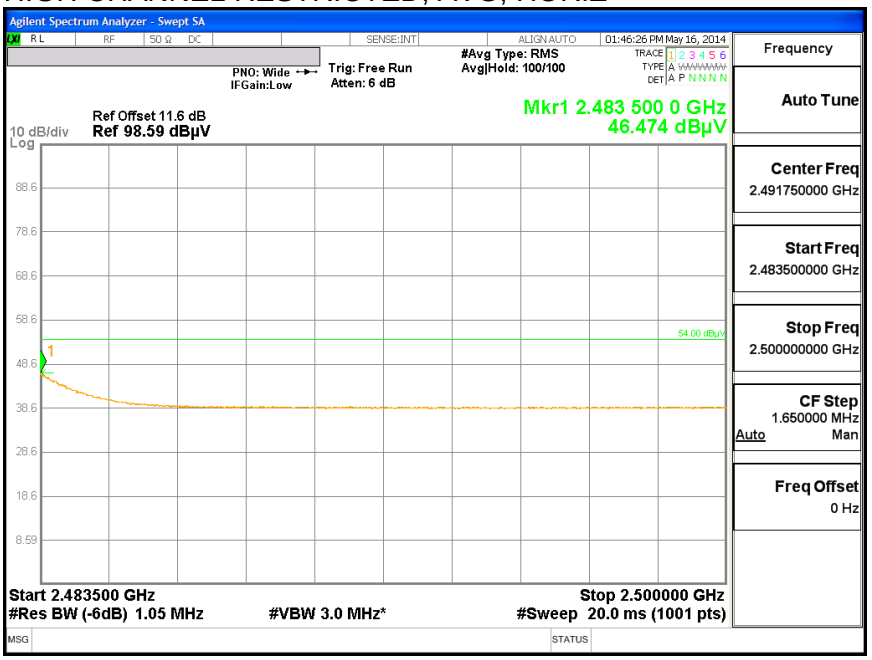


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

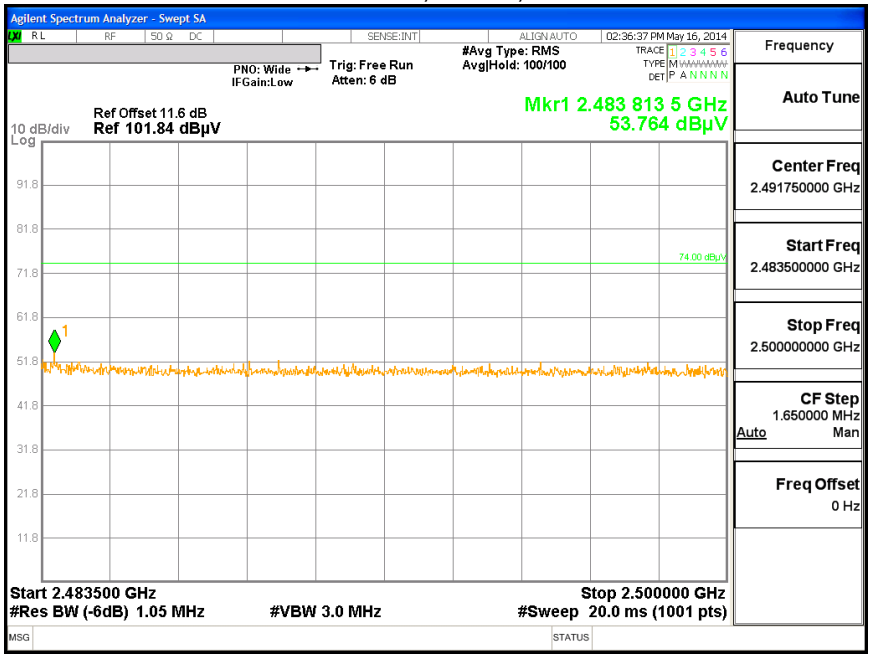


HIGH CHANNEL RESTRICTED, AVG, HORIZ

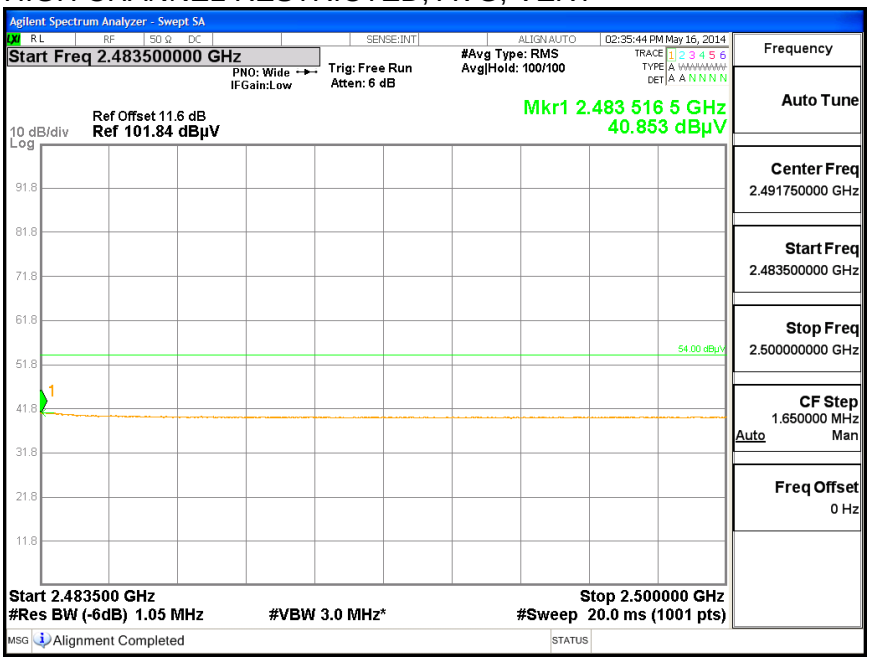


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT

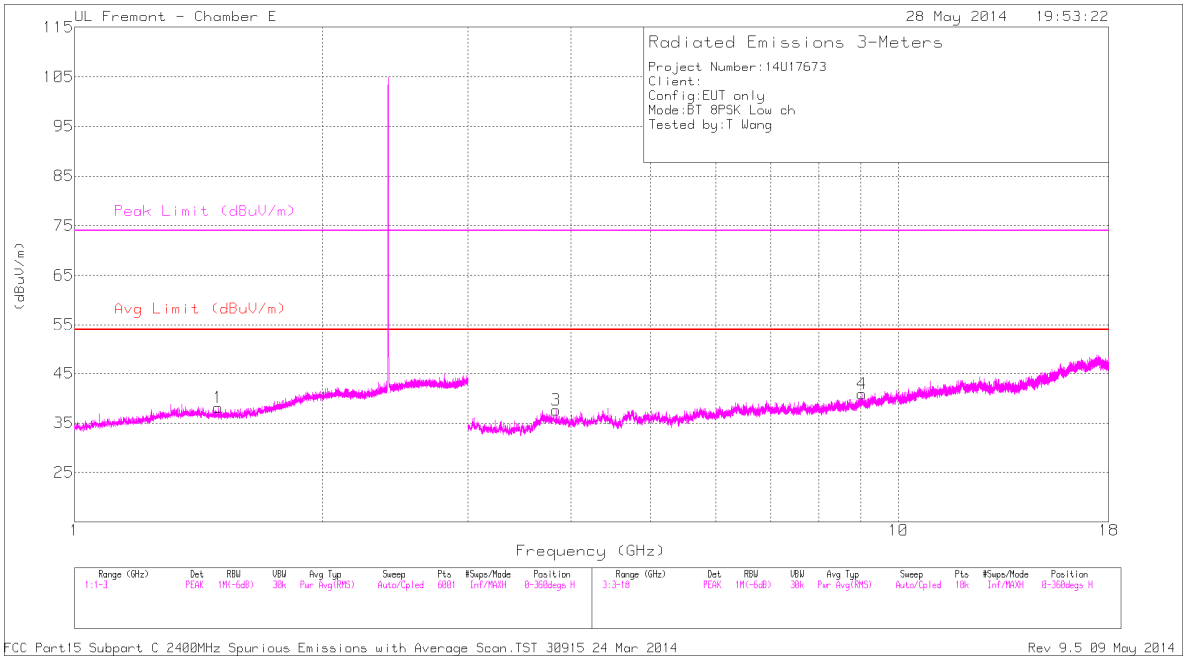


HIGH CHANNEL RESTRICTED, AVG, VERT

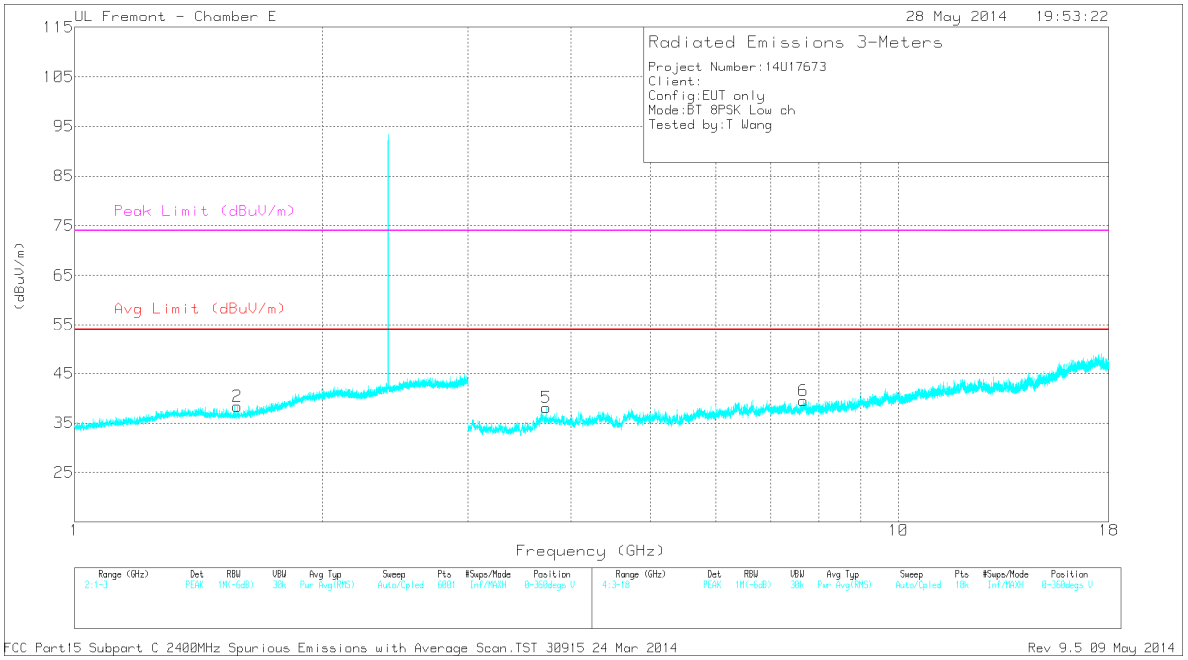


LOW CHANNEL HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

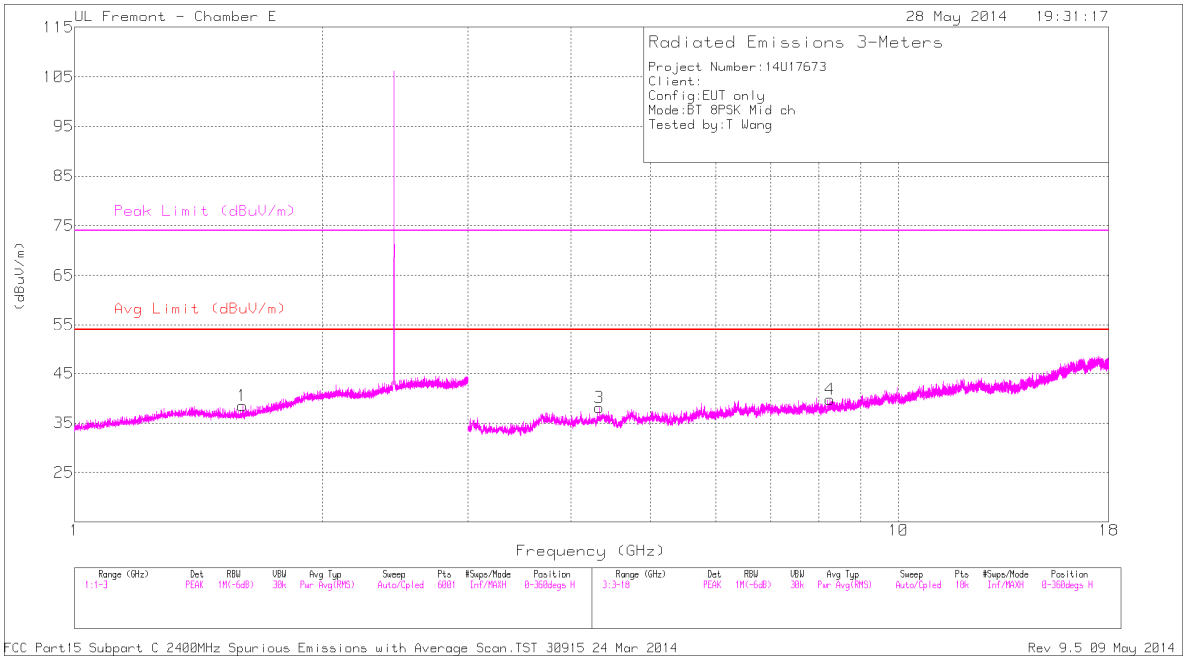
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.493	44.08	PK3	28.4	-26.2	0	46.28	-	-	74	-27.72	360	120	H
	* 1.493	31.09	VB1T	28.4	-26.2	1.1	34.39	54	-19.61	-	-	360	120	H
2	* 1.573	44.04	PK3	28.4	-26.4	0	46.04	-	-	74	-27.96	360	120	V
	* 1.573	31.09	VB1T	28.4	-26.4	1.1	34.19	54	-19.81	-	-	360	120	V
3	* 3.84	42.57	PK3	33.5	-31.4	0	44.67	-	-	74	-29.33	360	145	H
	* 3.841	29.7	VB1T	33.5	-31.4	1.1	32.9	54	-21.1	-	-	360	145	H
4	* 9.033	38.14	PK3	36.3	-24.7	0	49.74	-	-	74	-24.26	360	145	H
	* 9.031	24.64	VB1T	36.3	-24.7	1.1	37.34	54	-16.66	-	-	360	145	H
5	* 3.736	41.88	PK3	33.4	-30.8	0	44.48	-	-	74	-29.52	360	180	V
	* 3.737	28.9	VB1T	33.4	-30.8	1.1	32.6	54	-21.4	-	-	360	180	V
6	* 7.663	39.6	PK3	35.8	-26.6	0	48.8	-	-	74	-25.2	360	180	V
	* 7.663	25.98	VB1T	35.8	-26.6	1.1	36.28	54	-17.72	-	-	360	180	V

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

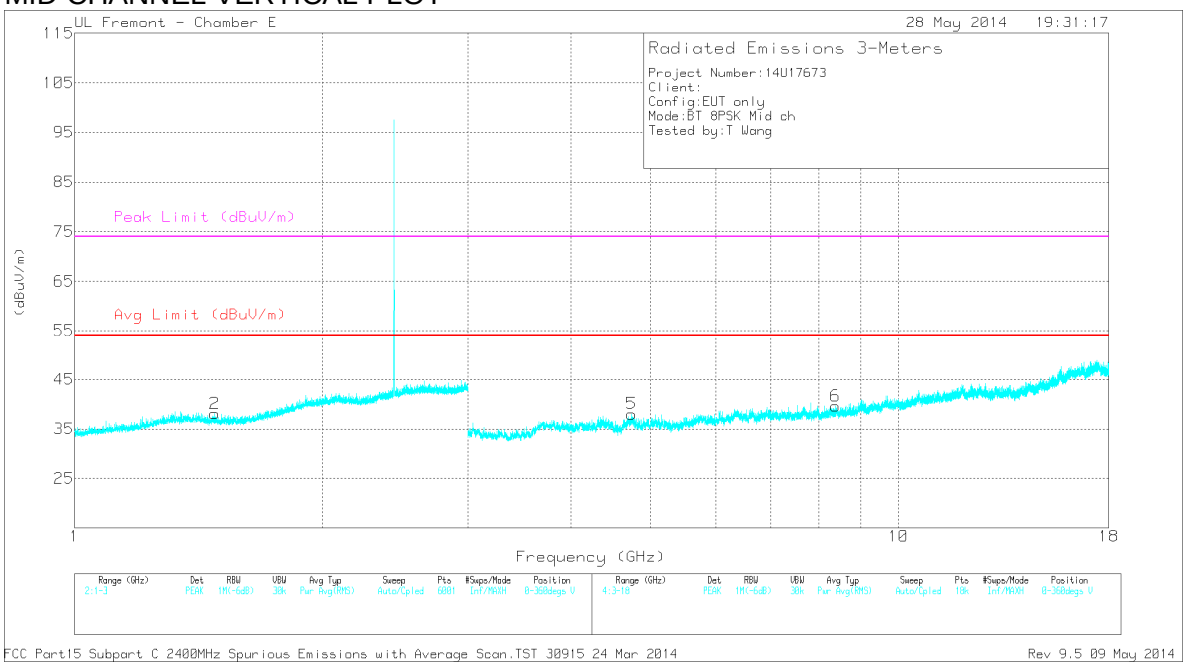
PK – Peak detector

MID CHANNEL HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

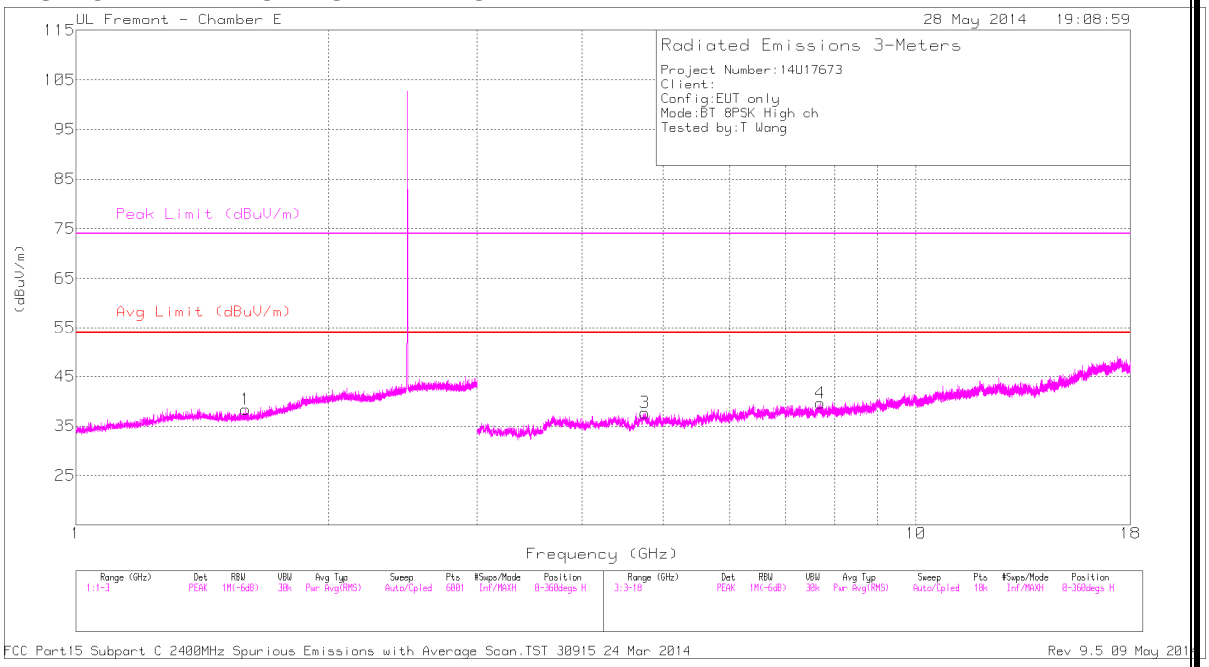
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.598	44.4	PK3	28.4	-26.4	0	46.4	-	-	74	-27.6	360	101	H
	* 1.597	31.06	VB1T	28.4	-26.4	1.1	34.16	54	-19.84	-	-	360	101	H
2	* 1.478	44.58	PK3	28.4	-26.3	0	46.68	-	-	74	-27.32	360	101	V
	* 1.479	31.15	VB1T	28.4	-26.3	1.1	34.35	54	-19.65	-	-	360	101	V
3	* 4.332	42.19	PK3	33.6	-30.5	0	45.29	-	-	74	-28.71	360	101	H
	* 4.332	28.83	VB1T	33.6	-30.5	1.1	33.03	54	-20.97	-	-	360	101	H
4	* 8.249	39.53	PK3	35.9	-26.7	0	48.73	-	-	74	-25.27	360	101	H
	* 8.247	26.02	VB1T	35.9	-26.7	1.1	36.32	54	-17.68	-	-	360	101	H
5	* 4.743	41.88	PK3	34.1	-30.8	0	45.18	-	-	74	-28.82	360	101	V
	* 4.743	29.27	VB1T	34.1	-30.8	1.1	33.67	54	-20.33	-	-	360	101	V
6	* 8.387	38.99	PK3	35.9	-26.3	0	48.59	-	-	74	-25.41	360	101	V
	* 8.388	25.49	VB1T	35.9	-26.3	1.1	36.19	54	-17.81	-	-	360	101	V

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

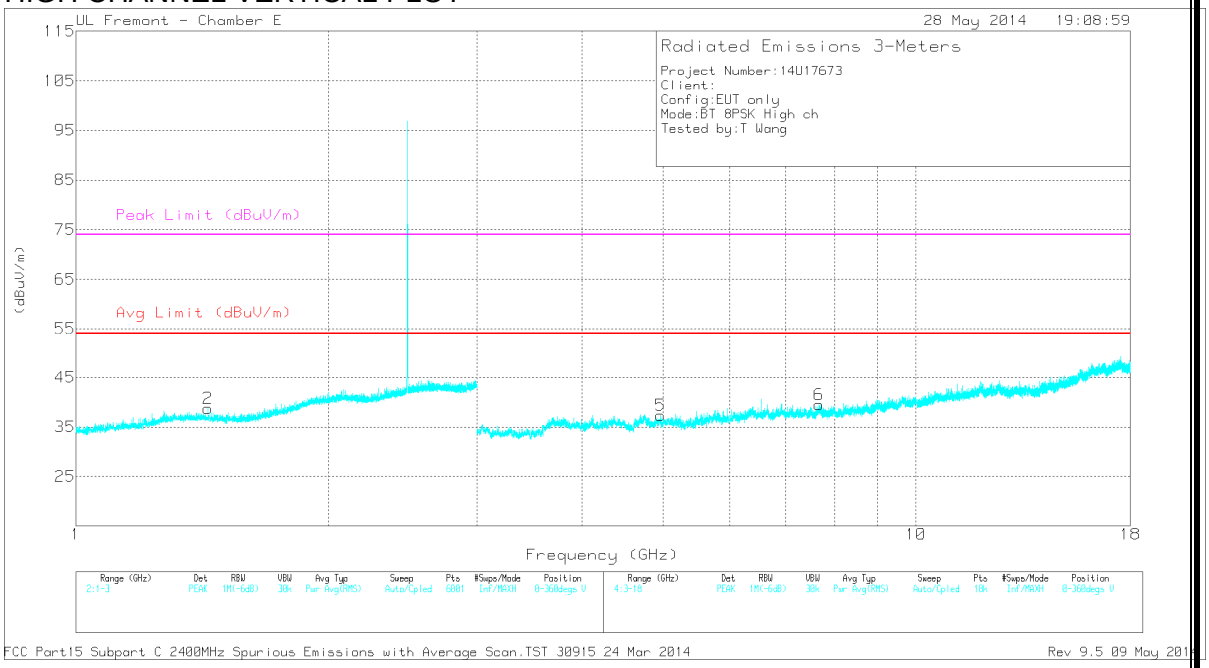
PK – Peak detector

HIGH CHANNEL HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	* 1.594	44.13	PK3	28.4	-26.4	0	46.13	-	-	74	-27.87	360	101	H
	* 1.593	31.08	VB1T	28.4	-26.4	1.1	34.18	54	-19.82	-	-	360	101	H
2	* 1.435	43.77	PK3	28.7	-26.3	0	46.17	-	-	74	-27.83	360	101	V
	* 1.436	31.1	VB1T	28.7	-26.3	1.1	34.6	54	-19.4	-	-	360	101	V
3	* 4.754	42.63	PK3	34.1	-30.9	0	45.83	-	-	74	-28.17	360	101	H
	* 4.753	29.52	VB1T	34.1	-30.9	1.1	33.82	54	-20.18	-	-	360	101	H
4	* 7.694	38.55	PK3	35.9	-26.5	0	47.95	-	-	74	-26.05	360	101	H
	* 7.694	25.61	VB1T	35.9	-26.5	1.1	36.11	54	-17.89	-	-	360	101	H
5	* 4.962	41.54	PK3	34.1	-30.2	0	45.44	-	-	74	-28.56	360	101	V
	* 4.964	28.46	VB1T	34.1	-30.2	1.1	33.46	54	-20.54	-	-	360	101	V
6	* 7.661	38.82	PK3	35.8	-26.6	0	48.02	-	-	74	-25.98	360	101	V
	* 7.663	25.98	VB1T	35.8	-26.6	1.1	36.28	54	-17.72	-	-	360	101	V

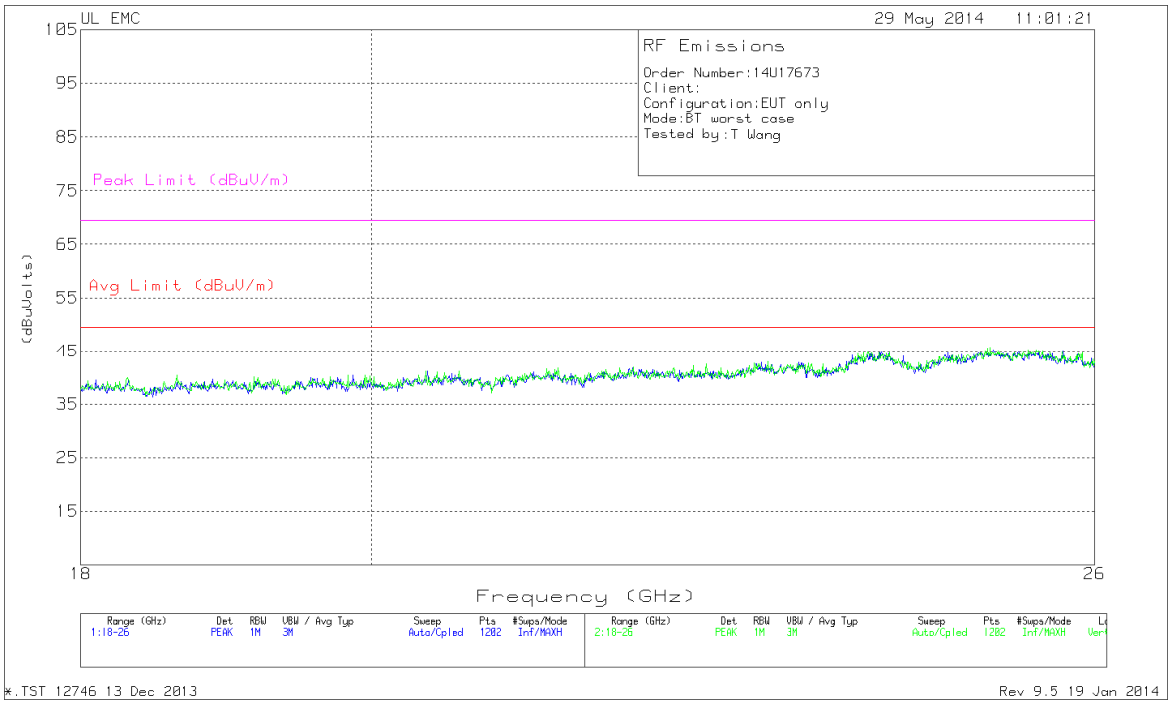
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

10.3. WORST-CASE ABOVE 18 GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION

2.4GHz PLOT

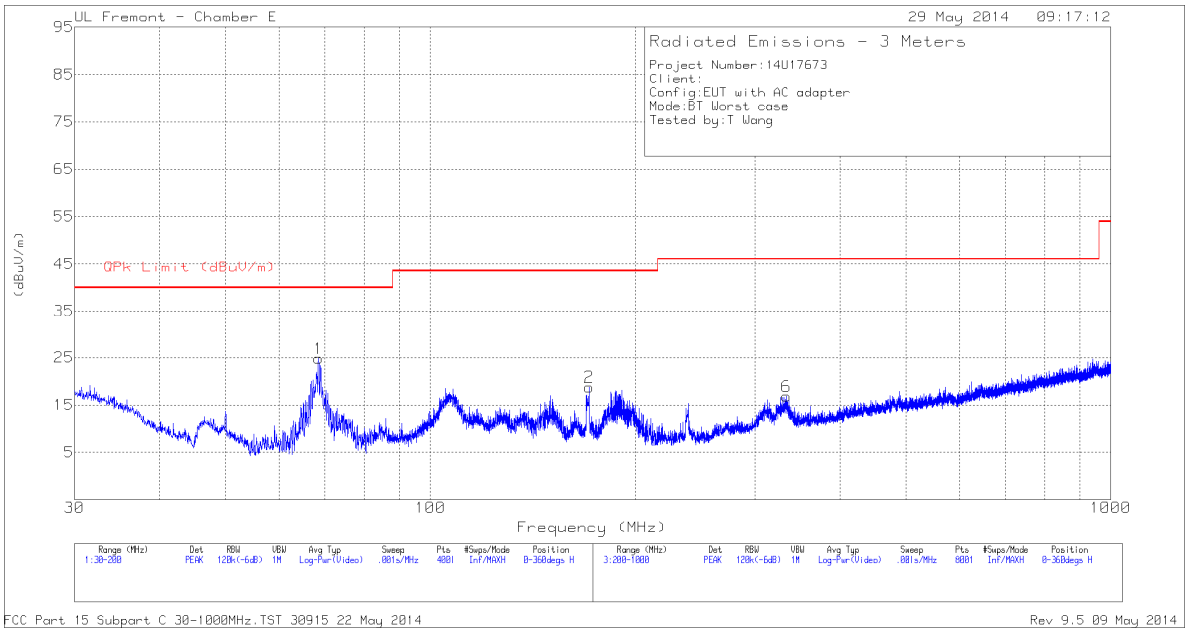


Note: GFSK, highest power mode used for test.

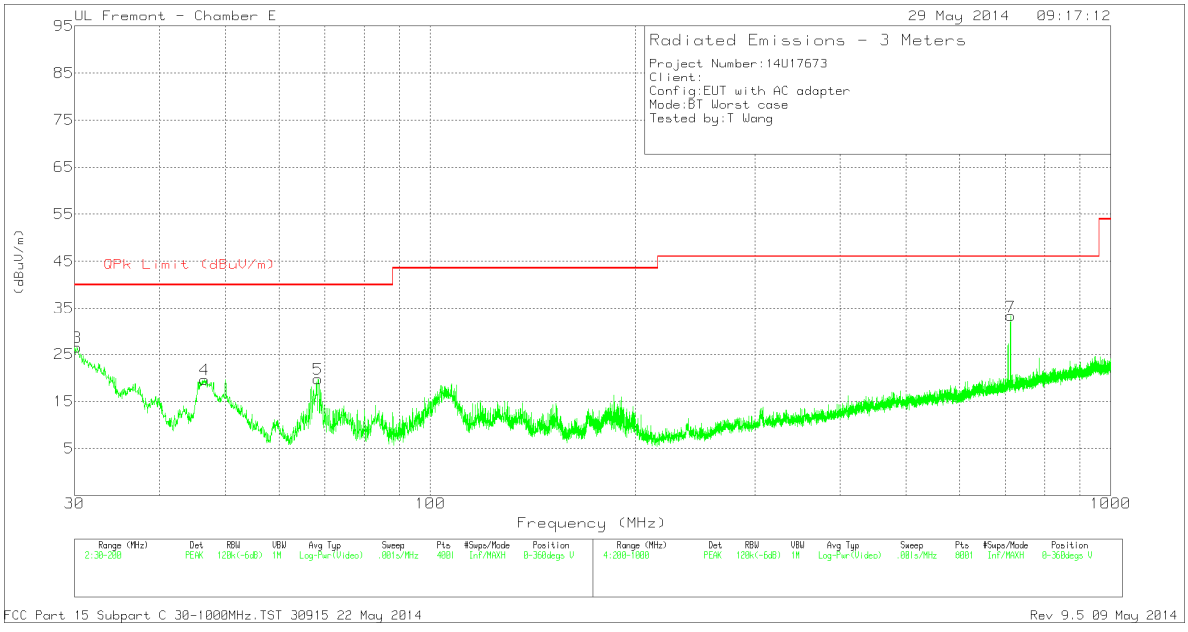
10.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Hybrid	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 171.0575	38.01	PK	11.7	-30.9	18.81	43.52	-24.71	0-360	98	H
6	* 333.5	32.91	PK	14	-30.1	16.81	46.02	-29.21	0-360	100	H
3	30.255	37.01	PK	21.3	-31.8	26.51	40	-13.49	0-360	100	V
4	46.6175	41.88	PK	9.5	-31.7	19.68	40	-20.32	0-360	100	V
5	68.42	43.12	PK	8.1	-31.5	19.72	40	-20.28	0-360	100	V
1	68.505	48.21	PK	8.1	-31.5	24.81	40	-15.19	0-360	201	H
7	712.4	42.14	PK	20.3	-29.2	33.24	46.02	-12.78	0-360	100	V

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

Note: GFSK, highest power mode used for test.

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

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	.1635	38.94	PK	1.2	0	40.14	65.3	-25.16	-	-
2	.1635	16.97	Av	1.2	0	18.17	-	-	55.3	-37.13
3	.582	32.75	PK	.3	0	33.05	56	-22.95	-	-
4	.582	18.88	Av	.3	0	19.18	-	-	46	-26.82
5	.762	41.79	PK	.3	0	42.09	56	-13.91	-	-
6	.762	25.99	Av	.3	0	26.29	-	-	46	-19.71
7	4.3395	30.63	PK	.2	.1	30.93	56	-25.07	-	-
8	4.3395	20.96	Av	.2	.1	21.26	-	-	46	-24.74

Line-L2 .15 - 30MHz

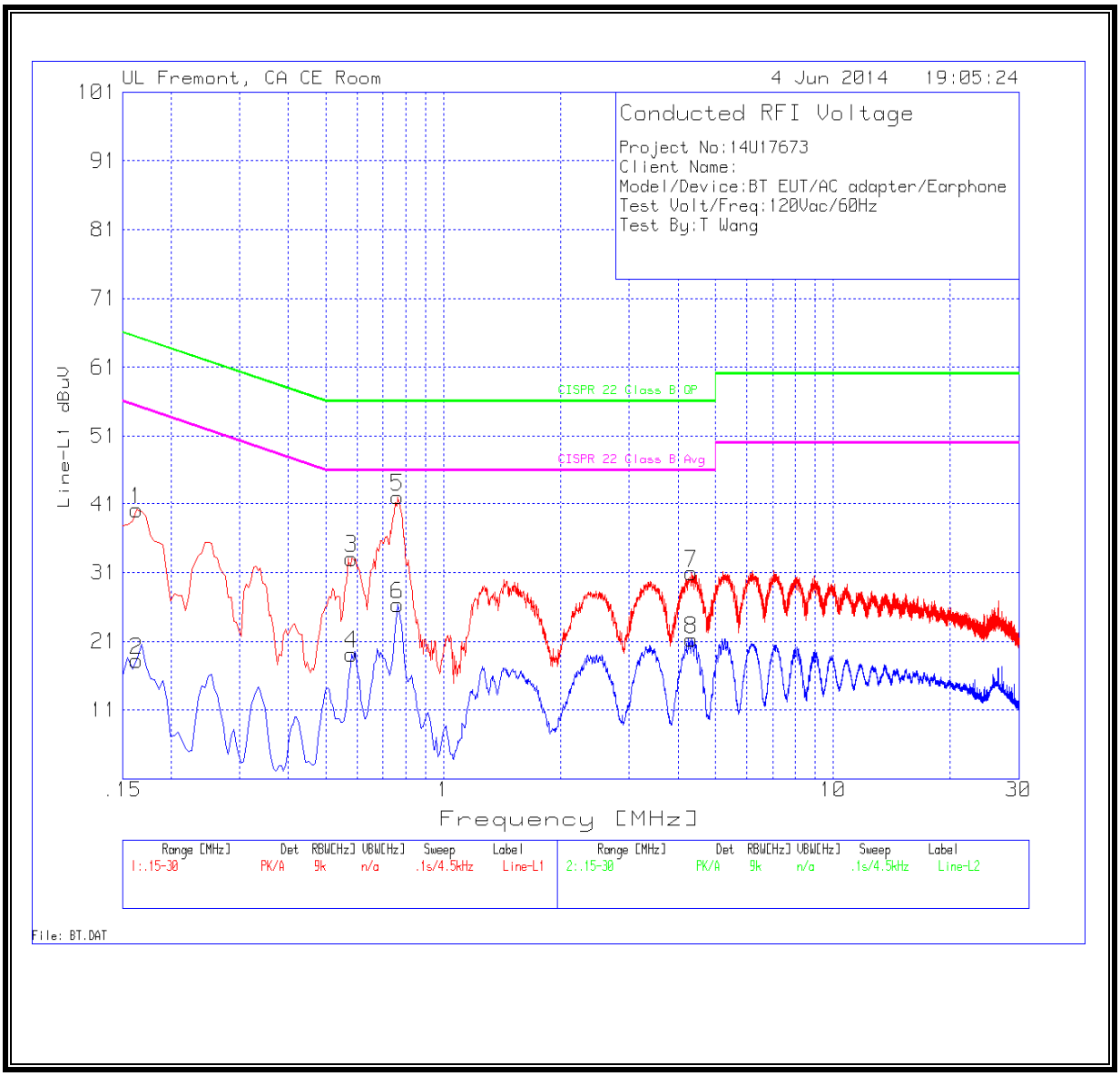
Trace Markers

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)
9	.1635	38.93	PK	1.3	0	40.23	65.3	-25.07	-	-
10	.1635	17.97	Av	1.3	0	19.27	-	-	55.3	-36.03
11	.77325	40.52	PK	.3	0	40.82	56	-15.18	-	-
12	.77325	25.7	Av	.3	0	26	-	-	46	-20
13	4.299	29.72	PK	.2	.1	30.02	56	-25.98	-	-
14	4.299	20	Av	.2	.1	20.3	-	-	46	-25.7

PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS