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

BLUETOOTH LOW ENERGY CERTIFICATION TEST REPORT

FOR

HANDHELD COMPUTING DEVICE

MODEL NUMBER: 1572

FCC ID: C3K1572
IC: 3048A-1572

REPORT NUMBER: 13U16702-4A

ISSUE DATE: FEBRUARY 12, 2014

Prepared for
MICROSOFT CORPORATION
ONE MICROSOFT WAY
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	1/30/14	Initial Issue	T. LEE
--	2/12/14	Equipment list updated	J. VANG

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ATTESTATION OF TEST RESULTS

COMPANY NAME: MICROSOFT CORPORATION
ONE MICROSOFT WAY
REDMOND, WA 98052, U.S.A.

EUT DESCRIPTION: HANDHELD COMPUTING DEVICE WITH 802.11 A/B/G/N WLAN AND BLUETOOTH RADIOS

MODEL: 1572

SERIAL NUMBER: 008079434852

DATE TESTED: JANUARY 8, 2014 to JANUARY 30, 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:

TIM LEE
WiSE Program Manager
UL Verification Services Inc.

Tested By:

JOE VANG
EMC ENGINEER
UL Verification Services Inc.

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1. 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.

2. 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.

3. CALIBRATION AND UNCERTAINTY

3.1. 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.

3.2. 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

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3.3. 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%.

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4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

The EUT is a handheld computing device with 802.11 a/b/g/n WLAN and Bluetooth radios.

4.2. MAXIMUM OUTPUT POWER

The measured average power values were within ± 0.5 dB of the original values. Refer to original report number “13U15414-2A” for exact output power values and for all antenna port results.

4.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The change filed under this application has the following changes.

- The reference oscillator type change from TXCO to simple Crystal, with the reference frequency stays the same and the new part pin for pin compatible with original.
- New PCB Layout with Different PCB stack up

4.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a monopole antenna, with a maximum gain of 3.1 dBi.

4.5. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Window RT 8.1 Preview Build 943

The test utility software used during testing was Laptool 189.1.0.9.0\ WIFI Tool.exe

4.6. 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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

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4.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
USB Ethernet Adaptor	CISCO	USB 300M	CU90MC02233	DoC
Laptop	Lenovo	L420	7854CT0	DoC
AC Adaptor (laptop)	Lenovo	92P1156	111S92P1156ZDXN27	N/A

I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Unshielded	1.8	AC adapter
2	USB	1	USB	Unshielded	0.1	USB to Ethernet adapter
3	DC	1	DC	Unshielded	1.8	
4	Ethernet	1	RJ 45	Unshielded	7.62	Connects to USB adapter

TEST SETUP

The EUT is a standalone wireless handheld computing device. Test software exercised the wireless module installed within the device under test.

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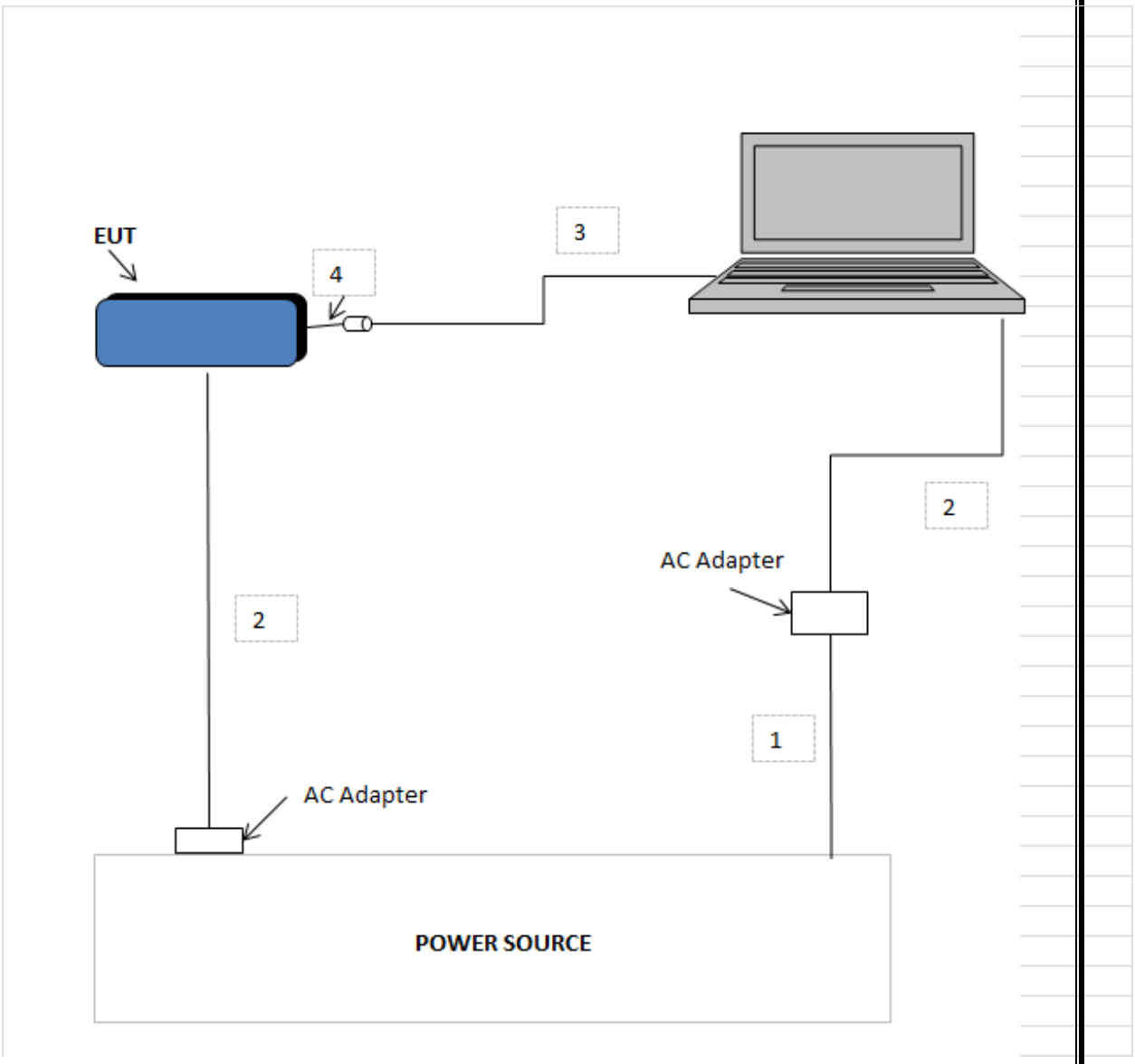
SETUP DIAGRAM FOR TESTS



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5. 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 Date**
Single Channel PK Power Meter	Agilent	N1911A	F00022	4/3/2013
Wideband Power Sensor, 30MHz video bandwidth	Agilent	N1921A	F00358	10/1/2013
Spectrum Analyzer, 44 GHz	Agilent	E4446A	C00986	4/1/2013
Antenna, Horn, 18 GHz	ETS Lindgren	3117	C01022	2/21/2013
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01016	8/22/2013
High Pass Filter	Micro-Tronics	HPM17543	F00224	6/26/2013
Low Pass Filter	Micro-Tronics	LPS17541	F00219	6/26/2013
High Pass Filter	Micro-Tronics	HPS17542	F00222	6/26/2013
RF PreAmplifier, 1-18GHz	Miteq	TBD	F00350	6/26/2013
Preamplifier, 1300 MHz	Agilent	8447D	C00885	6/26/2013
Spectrum Analyzer, 40 GHz	Agilent	8564E	C00951	7/29/2013
PreAmplifier, 1-26.5GHz	Agilent	8449B	F00167	3/23/2013
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	6/28/2013
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/26/2013
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	8/20/2013

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6. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

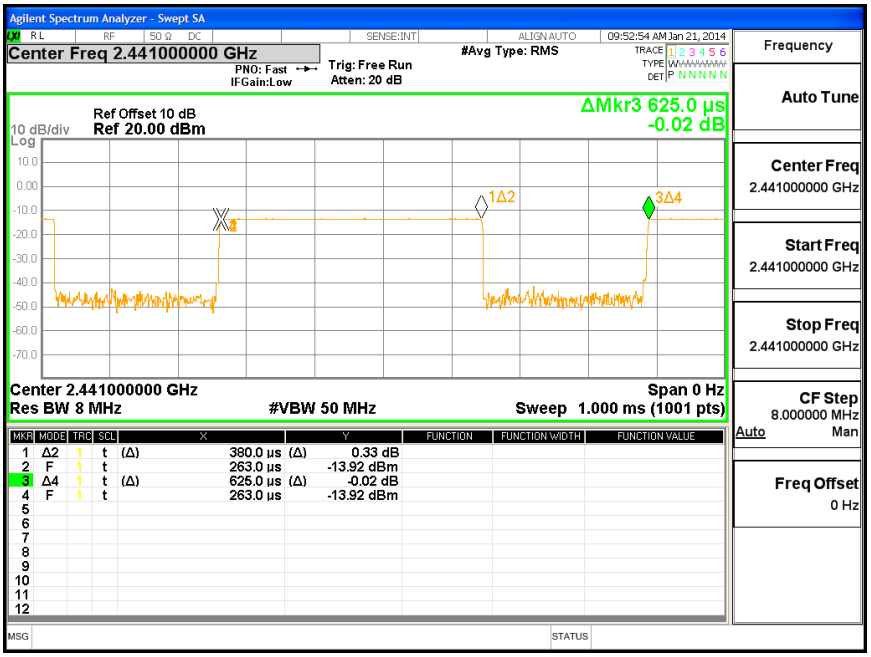
KDB 558074 Zero-Span Spectrum Analyzer Method.

6.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
BLE	0.380	0.625	0.608	60.80%	2.16	2.632

6.2. DUTY CYCLE PLOTS

DUTY CYCLE BLE MODE



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7. RADIATED TEST RESULTS

7.1. 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. 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 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.

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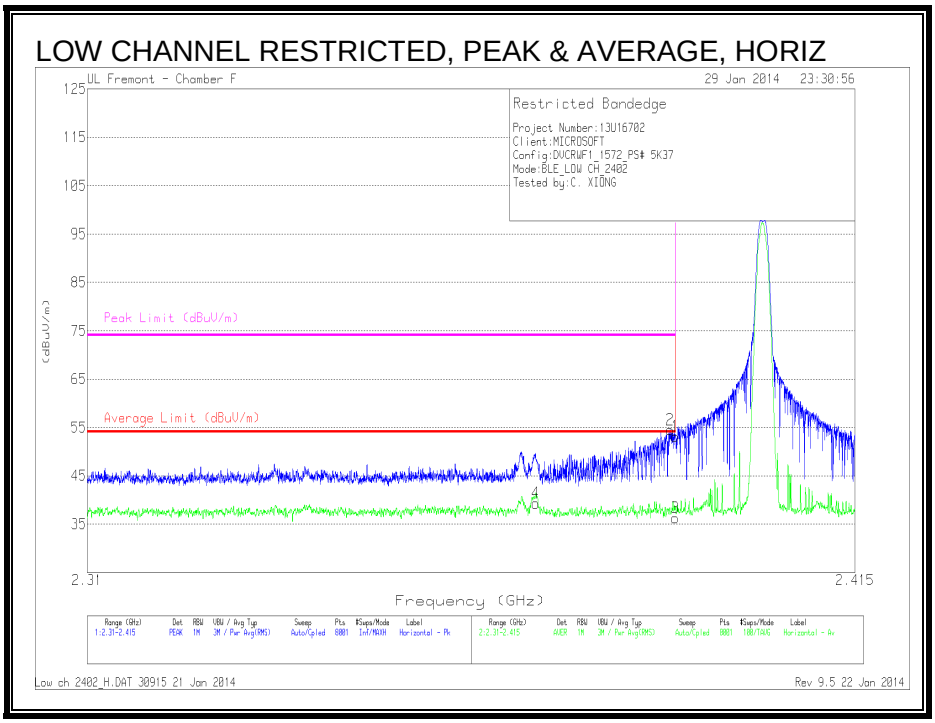
7.2. TRANSMITTER ABOVE 1 GHz

7.2.1. TX ABOVE 1 GHz FOR BLUETOOTH LOW ENERGY MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	44.84	PK	32.1	-23.8	0	53.14	-	-	74	-20.86	269	101	H
2	2.389	46.24	PK	32.1	-23.8	0	54.54	-	-	74	-19.46	269	101	H
3	2.39	28	RMS	32.1	-23.8	2.2	38.5	54	-15.5	-	-	269	101	H
4	2.371	31.22	RMS	32.1	-24	2.2	41.52	54	-12.48	-	-	269	101	H

PK - Peak detector

RMS - RMS detection

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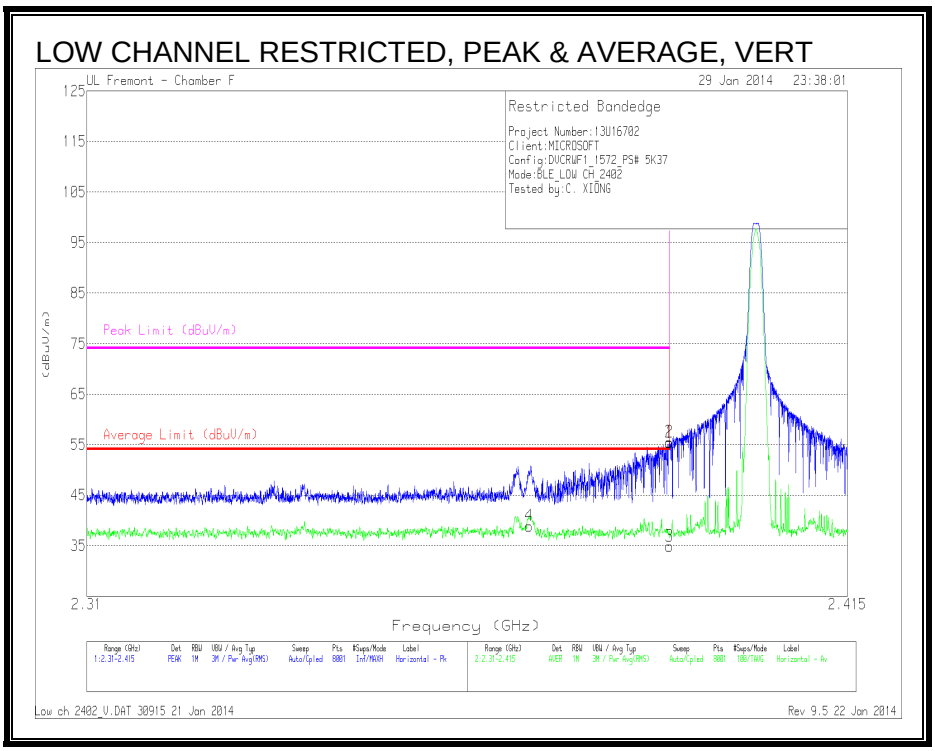
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	47.08	PK	32.1	-23.8	0	55.38	-	-	74	-18.62	306	209	V
2	2.39	47.19	PK	32.1	-23.8	0	55.49	-	-	74	-18.51	306	209	V
3	2.39	26.59	RMS	32.1	-23.8	2.2	37.09	54	-16.91	-	-	306	209	V
4	2.37	30.8	RMS	32.1	-24	2.2	41.1	54	-12.9	-	-	306	209	V

PK - Peak detector

RMS - RMS detection

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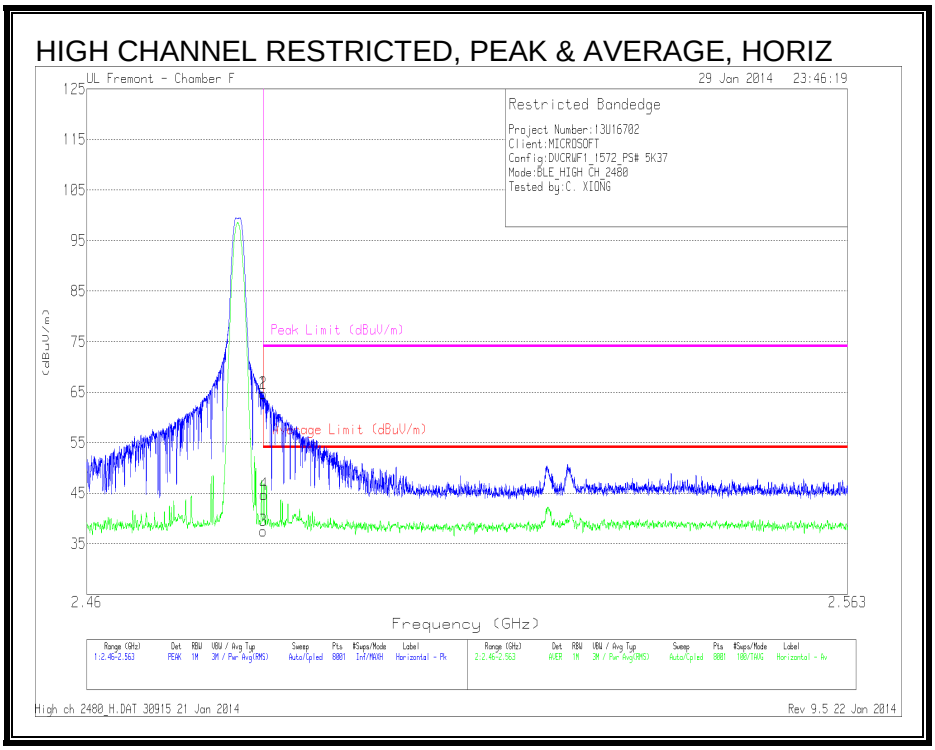
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	55.3	PK	32.4	-23	0	64.7	-	-	74	-9.3	280	162	H
2	2.484	55.3	PK	32.4	-23	0	64.7	-	-	74	-9.3	280	162	H
3	2.484	28.14	RMS	32.4	-23	2.2	39.74	54	-14.26	-	-	280	162	H
4	2.484	35.32	RMS	32.4	-23	2.2	46.92	54	-7.08	-	-	280	162	H

PK - Peak detector

RMS - RMS detection

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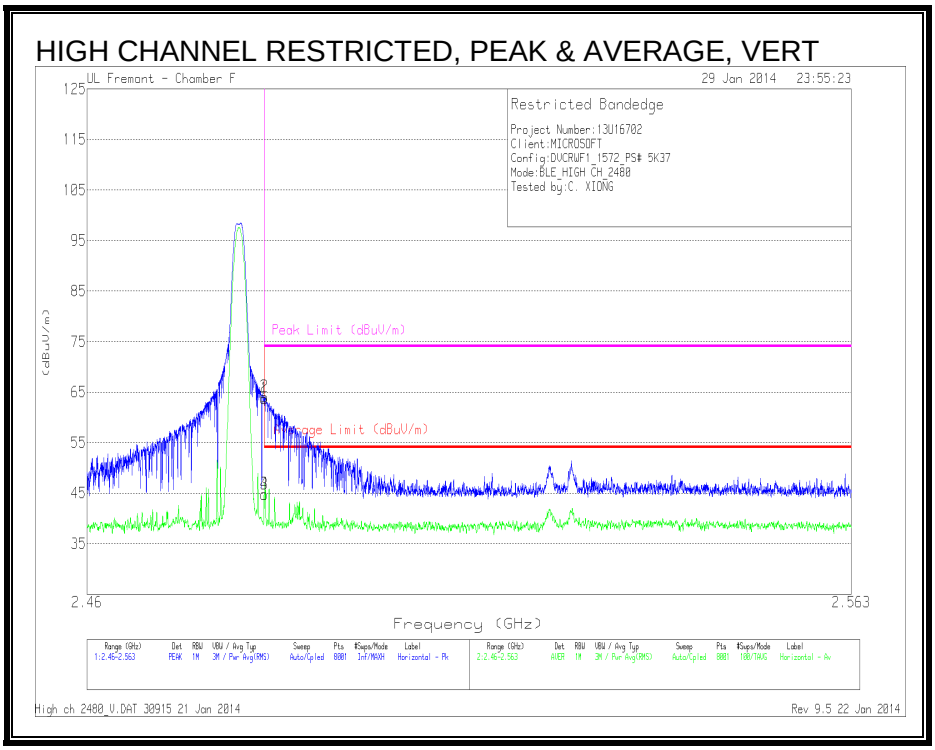
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	54.31	PK	32.4	-23	0	63.71	-	-	74	-10.29	306	116	V
2	2.484	54.66	PK	32.4	-23	0	64.06	-	-	74	-9.94	306	116	V
3	2.484	35.38	RMS	32.4	-23	2.2	46.98	54	-7.02	-	-	306	116	V
4	2.484	35.38	RMS	32.4	-23	2.2	46.98	54	-7.02	-	-	306	116	V

PK - Peak detector

RMS - RMS detection

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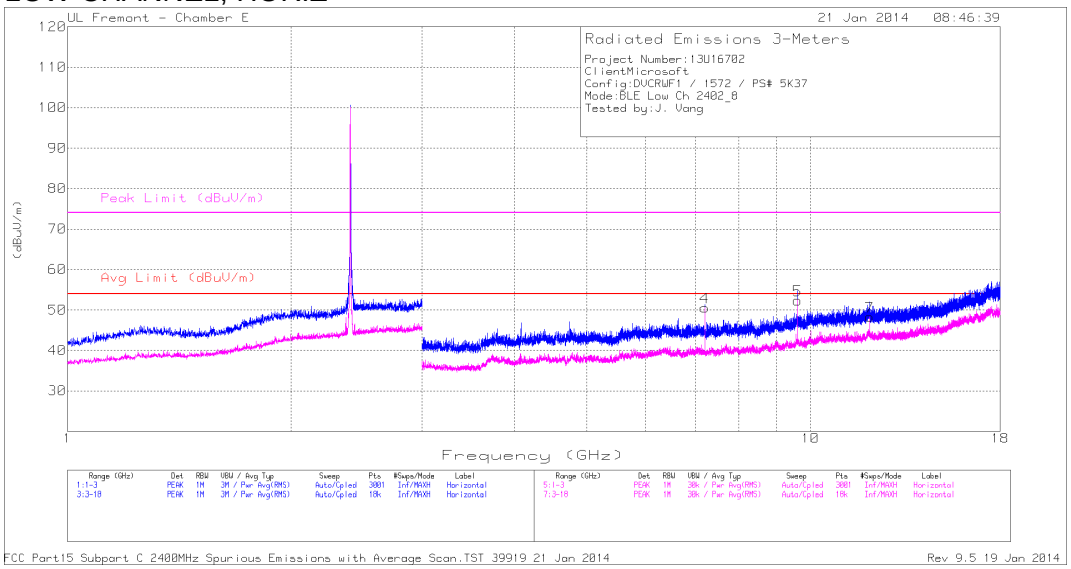
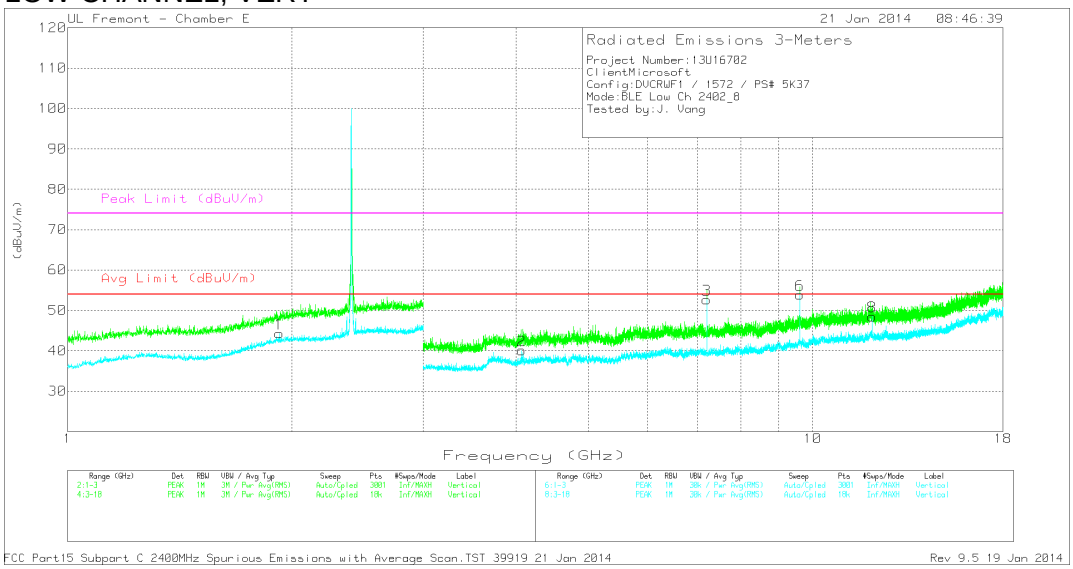
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL

LOW CHANNEL, HORIZ



LOW CHANNEL, VERT



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LOW CHANNEL 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
7	* 12.009	33.23	Avg	39.1	-24	0	48.33	53.97	-5.64	-	-	0-360	199	H
2	* 4.067	36.81	Avg	33.9	-30.6	0	40.11	53.97	-13.86	-	-	0-360	200	V
8	* 12.012	33.5	Avg	39.1	-24.1	0	48.5	53.97	-5.47	-	-	0-360	101	V
1	1.923	38.17	Avg	31.6	-25.5	0	44.27	53.97	-9.7	-	-	0-360	200	V
3	7.205	45.38	Avg	36	-28.7	0	52.68	53.97	-1.29	-	-	0-360	101	V
4	7.206	43.27	Avg	36	-28.7	0	50.57	53.97	-3.4	-	-	0-360	199	H
5	9.606	39.15	Avg	37.5	-24.3	0	52.35	53.97	-1.62	-	-	0-360	101	H
6	9.609	40.76	Avg	37.5	-24.4	0	53.86	53.97	-.11	-	-	0-360	200	V

Radiated Emissions

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
* 12.009	37.6	PK3	39.1	-24	0	52.7	-	-	74	-21.3	17	277	H
* 12.009	25.9	VB1T	39.1	-24	2.2	43.2	53.97	-10.77	-	-	17	277	H
* 12.009	39.19	PK3	39.1	-24	0	54.29	-	-	74	-19.71	285	107	V
* 12.009	27.35	VB1T	39.1	-24	2.2	44.65	53.97	-9.32	-	-	285	107	V

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

PK3 - FHSS Method: Maximum Peak

VB 1/T - FHSS Method: Reduced Video Bandwidth

Avg - Video bandwidth < Resolution bandwidth

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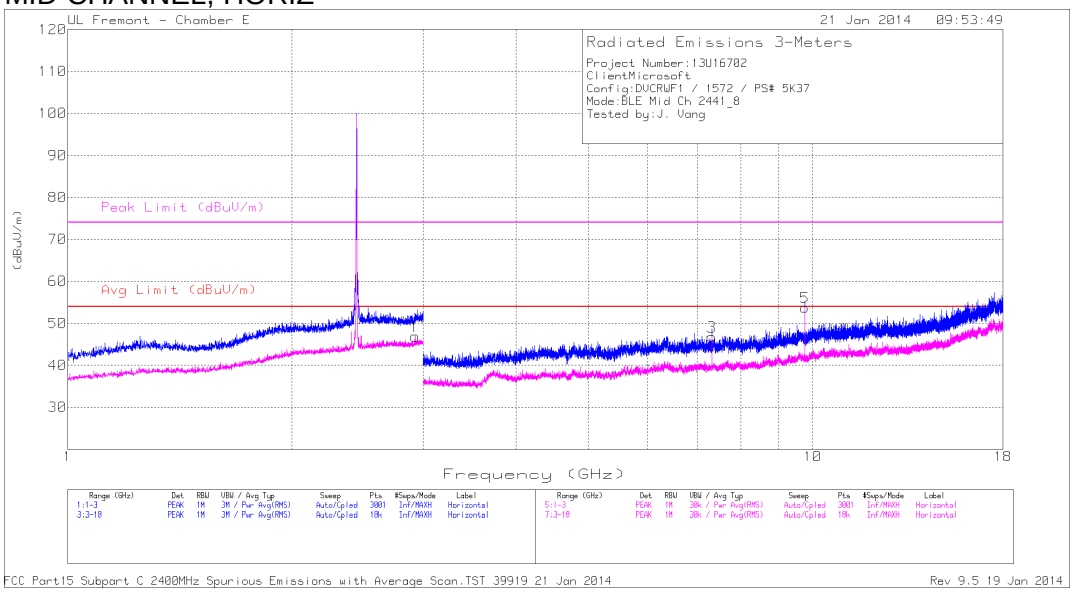
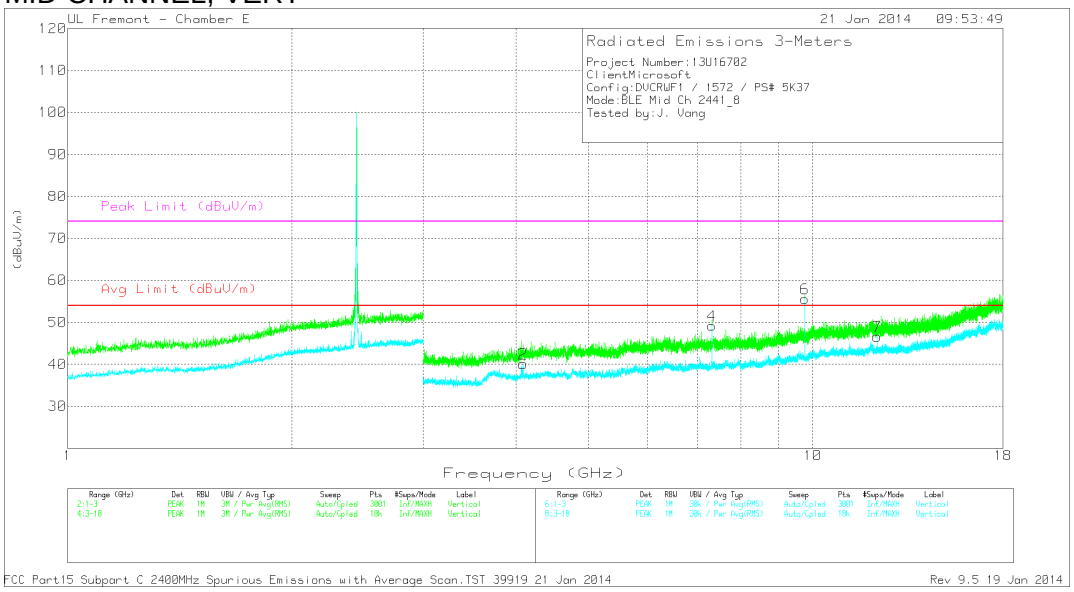
MID CHANNEL

MID CHANNEL, HORIZ



MID CHANNEL, VERT



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MID CHANNEL 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
3	* 7.319	38.5	Avg	36	-27.7	0	46.8	53.97	-7.17	-	-	0-360	199	H
2	* 4.085	36.84	Avg	33.9	-30.6	0	40.14	53.97	-13.83	-	-	0-360	200	V
4	* 7.321	40.83	Avg	36	-27.6	0	49.23	53.97	-4.74	-	-	0-360	200	V
7	* 12.199	32.05	Avg	39.2	-24.6	0	46.65	53.97	-7.32	-	-	0-360	101	V
1	** 2.926	37.8	Avg	33.2	-24.1	0	46.9	53.97	-7.07	-	-	0-360	101	H
5	** 9.759	41.57	Avg	37.6	-25.4	0	53.77	53.97	-.2	-	-	0-360	101	H
6	** 9.76	43.44	Avg	37.6	-25.4	0	55.64	-	-	-	-	0-360	200	V

Radiated Emissions

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
* 7.319	44.77	PK3	36	-27.7	0	53.07	-	-	74	-20.93	47	134	V
* 7.319	34.46	VB1T	36	-27.7	2.2	44.96	53.97	-9.01	-	-	47	134	V

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

** - indicates frequency in a non-restricted band. Compliance is shown in conducted Out Of Band Emissions testing (-20dBc) for Peak and (-30dBc) for Average.

PK3 - FHSS Method: Maximum Peak

VB 1/T - FHSS Method: Reduced Video Bandwidth

Avg - Video bandwidth < Resolution bandwidth

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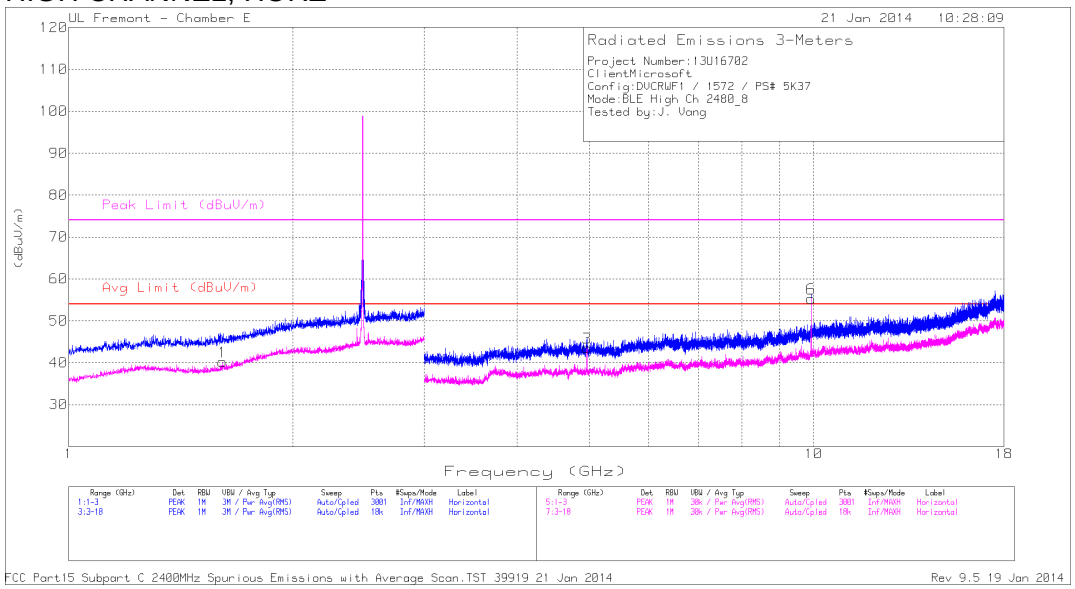
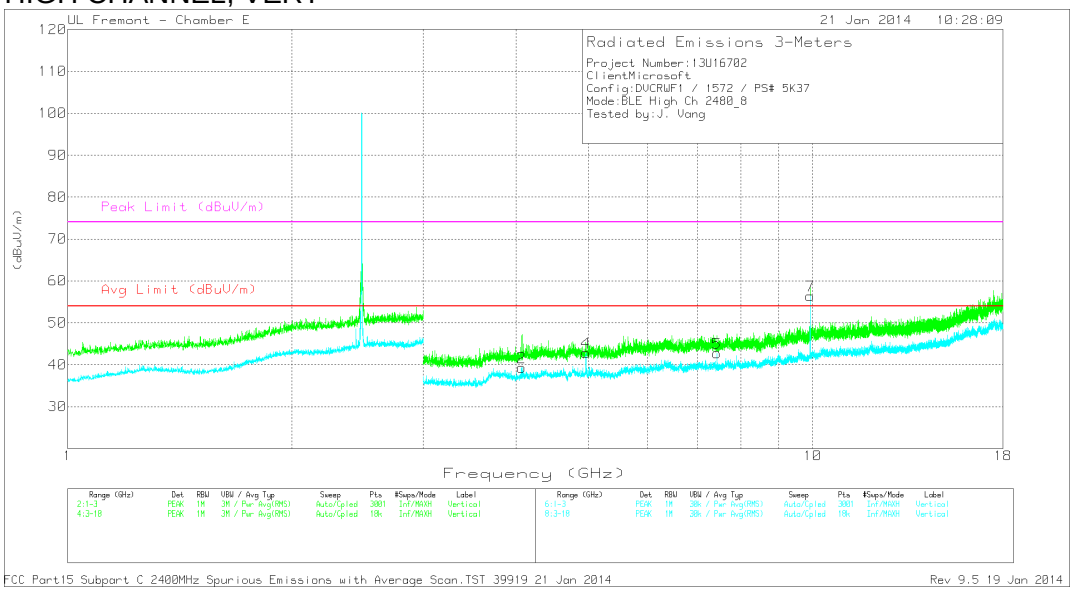
HIGH CHANNEL

HIGH CHANNEL, HORZ



HIGH CHANNEL, VERT



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HIGH CHANNEL 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	* 1.609	37.34	Avg	29.5	-26.6	0	40.24	53.97	-13.73	-	-	0-360	200	H
3	* 4.961	39.75	Avg	34.4	-30.6	0	43.55	53.97	-10.42	-	-	0-360	101	H
2	* 4.067	36.13	Avg	33.9	-30.7	0	39.33	53.97	-14.64	-	-	0-360	200	V
4	* 4.961	39.06	Avg	34.4	-30.6	0	42.86	53.97	-11.11	-	-	0-360	101	V
5	* 7.439	35.16	Avg	36.1	-28.5	0	42.76	53.97	-11.21	-	-	0-360	200	V
6	** 9.92	42.19	Avg	37.9	-24.8	0	55.29	-	-	-	-	0-360	199	H
7	** 9.92	43.33	Avg	37.9	-24.8	0	56.43	-	-	-	-	0-360	200	V

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

** - indicates frequency in a non-restricted band. Compliance is shown in conducted Out Of Band Emissions testing (-20dBc) for Peak and (-30dBc) for Average.

Avg - Video bandwidth < Resolution bandwidth

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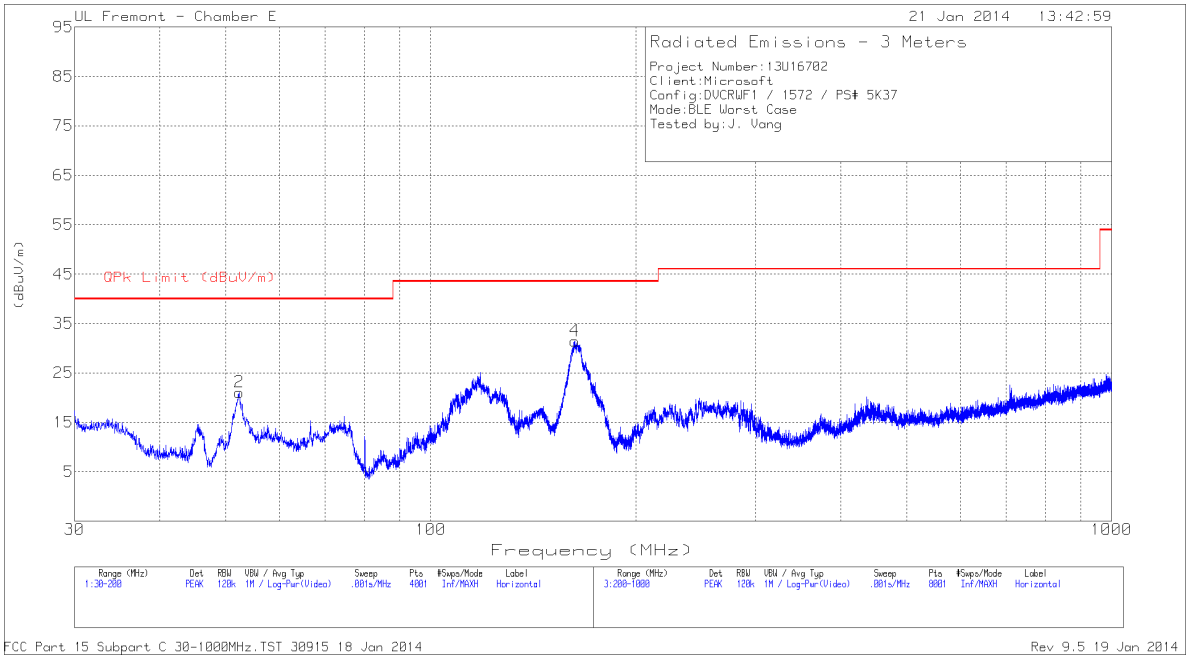
7.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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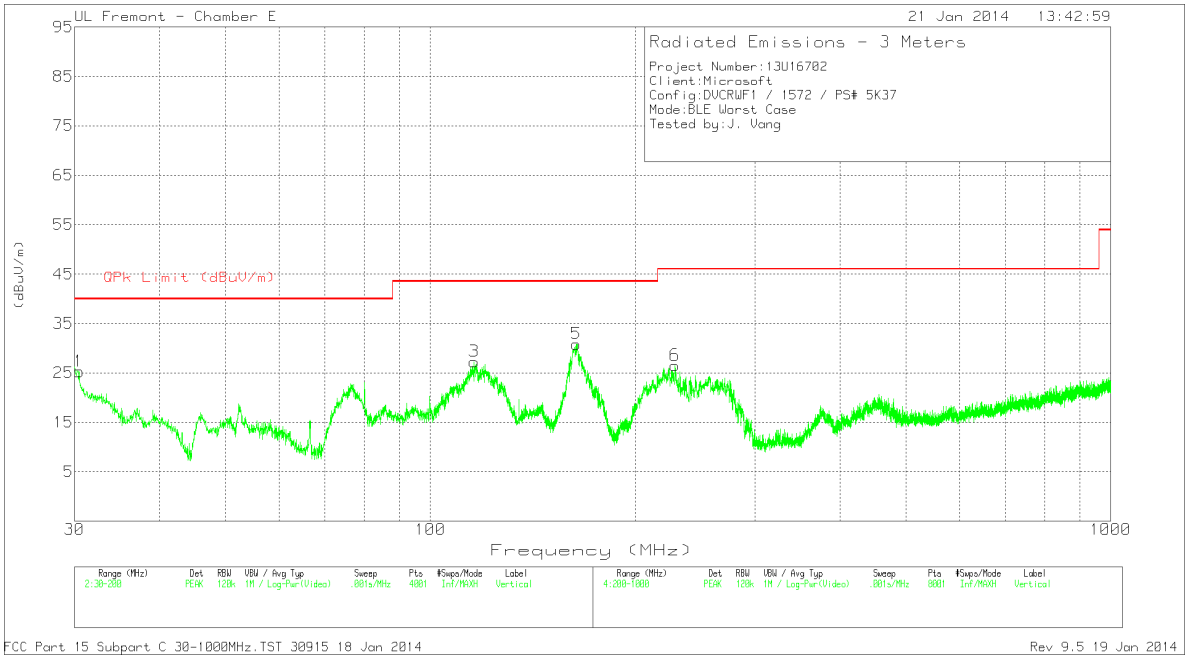
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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BELOW 1G DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T408 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.4675	36.38	PK	20.8	-31.9	25.28	40	-14.72	0-360	100	V
2	52.355	44.87	PK	7.4	-31.2	21.07	40	-18.93	0-360	400	H
3	115.9775	45.29	PK	13.4	-31.4	27.29	43.52	-16.23	0-360	100	V
4	162.77	50.15	PK	12	-30.7	31.45	43.52	-12.07	0-360	201	H
5	163.9175	49.86	PK	12	-31	30.86	43.52	-12.66	0-360	100	V
6	228.9	46.1	PK	11	-30.6	26.5	46.02	-19.52	0-360	100	V

PK - Peak detector

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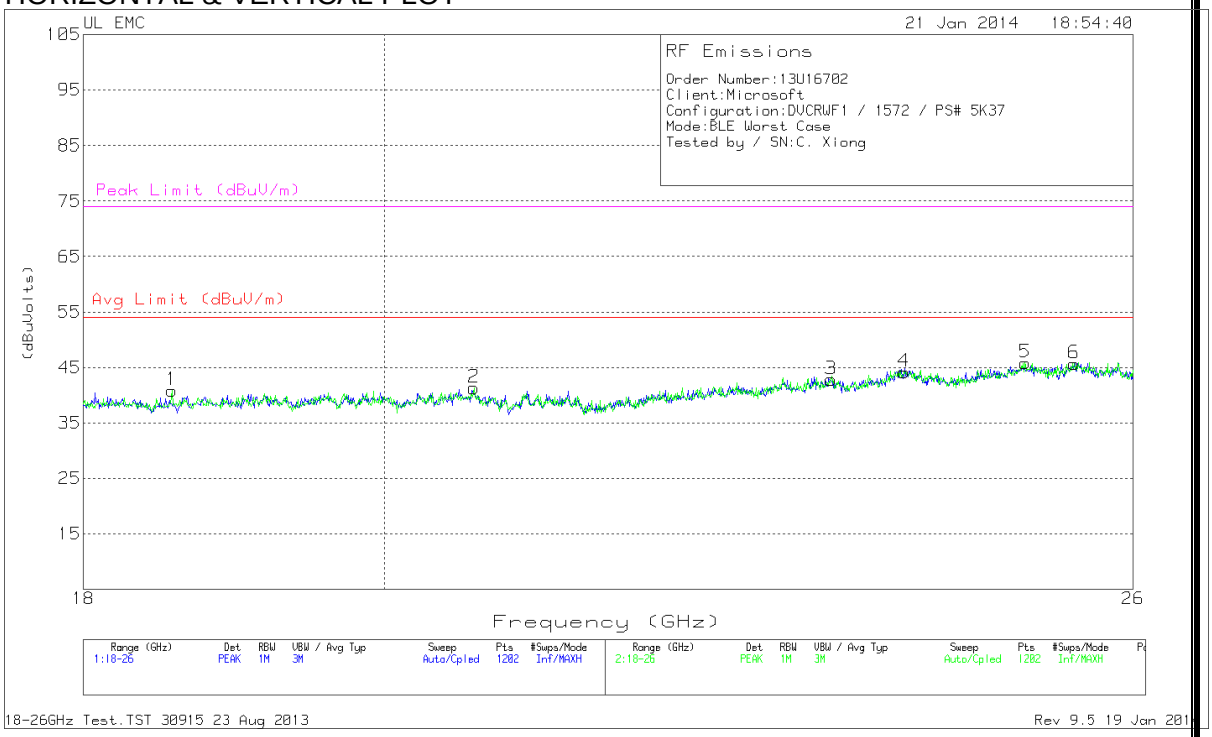
7.4. WORST-CASE 18 to 26GHz

SPURIOUS EMISSIONS 18000 26000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)

HORIZONTAL & VERTICAL PLOT



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18 TO 26G DATA

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	18.566	42.03	PK	32.5	-24.2	-9.5	40.83	54	-13.16	74	-33.16
2	20.638	41.23	PK	32.9	-23.3	-9.5	41.33	54	-12.66	74	-32.66
3	23.389	41.53	PK	33.4	-22.6	-9.5	42.83	54	-11.16	74	-31.16
4	23.995	42.77	PK	33.6	-22.7	-9.5	44.16	54	-9.83	74	-29.83
5	25.034	44.13	PK	34	-22.8	-9.5	45.83	54	-8.16	74	-28.16
6	25.467	43.67	PK	34.1	-22.6	-9.5	45.66	54	-8.33	74	-28.33

PK - Peak detector

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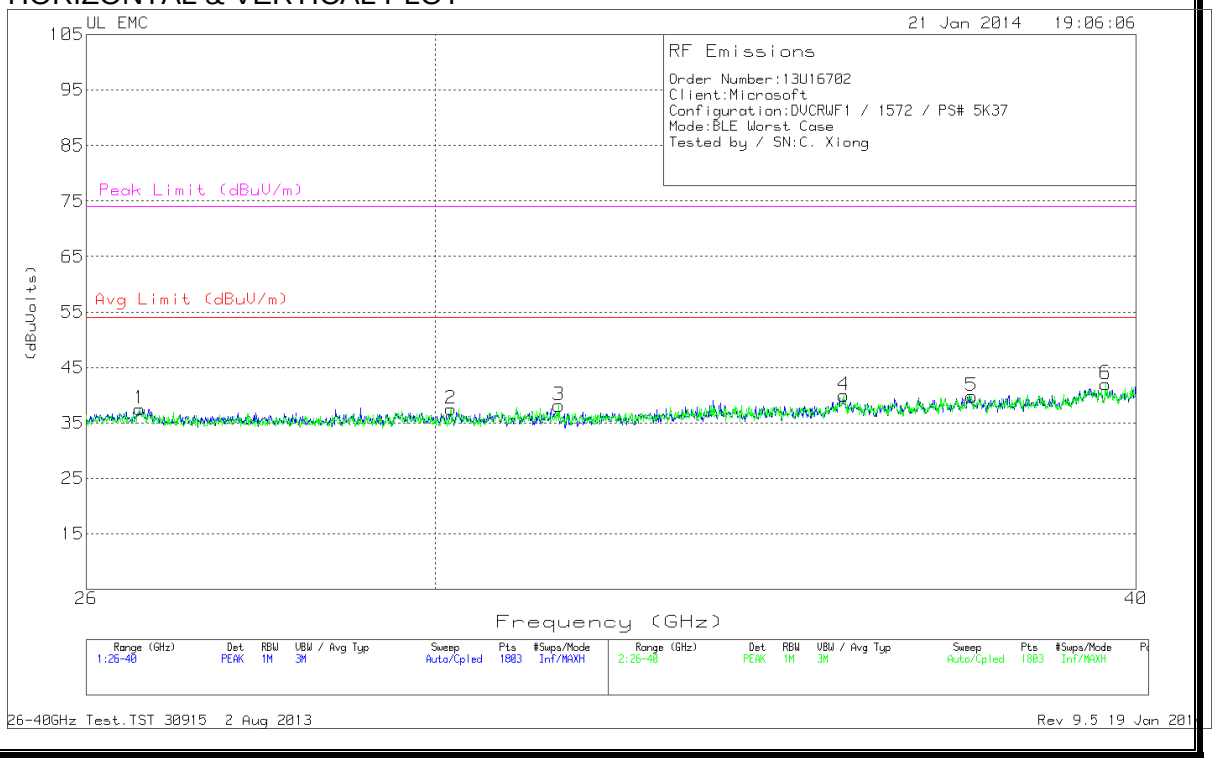
7.5. WORST-CASE 26 to 40GHz

SPURIOUS EMISSIONS 2600 40000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)

HORIZONTAL & VERTICAL PLOT



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26 TO 40G DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (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	26.575	44.9	PK	35.4	-33.3	-9.5	37.5	54	-16.5	74	-36.5
2	30.195	46.7	PK	35.9	-35.6	-9.5	37.5	54	-16.5	74	-36.5
3	31.563	47.67	PK	36.3	-36.3	-9.5	38.16	54	-15.83	74	-35.83
4	35.478	48.9	PK	37.9	-37.3	-9.5	40	54	-14	74	-34
5	37.39	50.13	PK	37.3	-38.1	-9.5	39.83	54	-14.16	74	-34.16
6	39.503	50	PK	37.3	-35.8	-9.5	42	54	-12	74	-32

PK - Peak detector

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8. 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.

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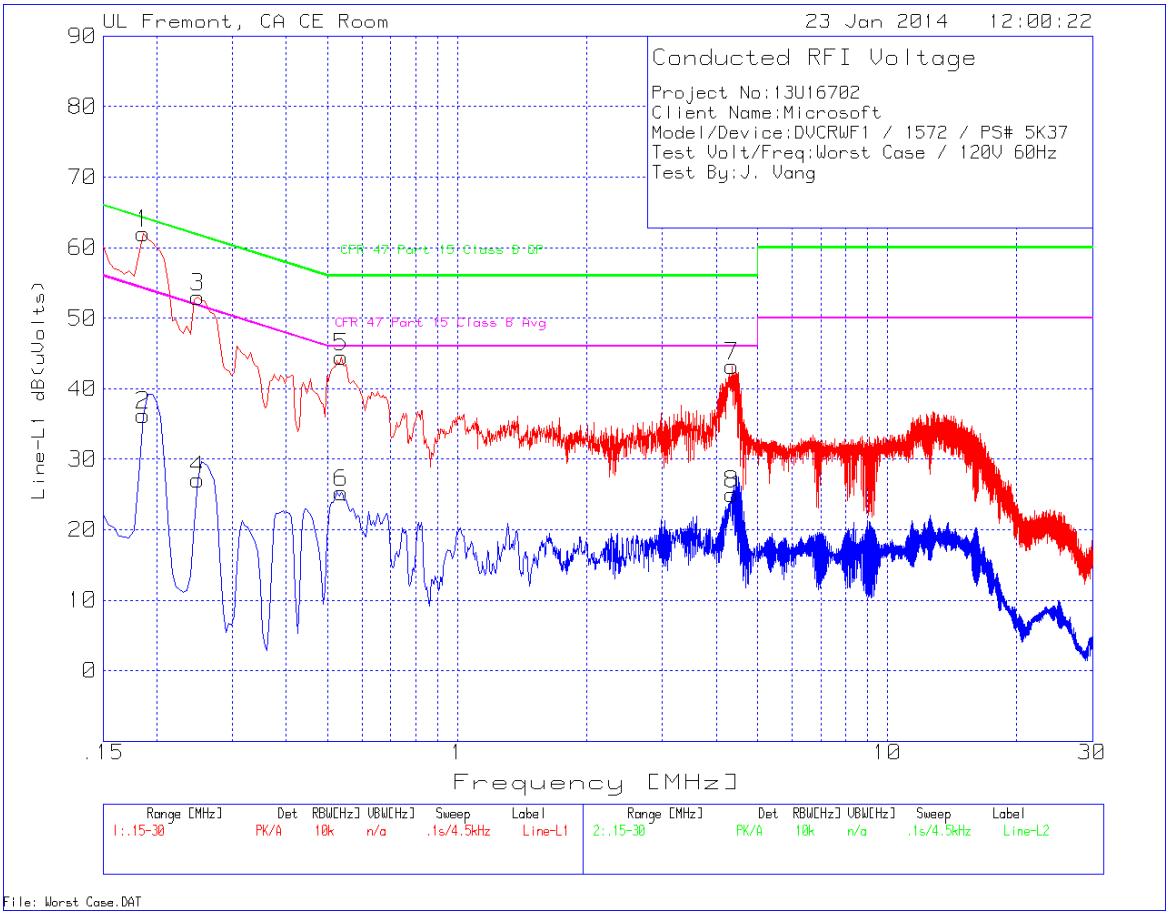
LINE 1 RESULTS



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LINE 1 DATA RESULTS

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)	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
1	.186	61.04	PK	1	0	62.04	64.2	-2.16	-	-
2	.186	35.2	Av	1	0	36.2	-	-	54.2	-18
3	.249	52.31	PK	.7	0	53.01	61.8	-8.79	-	-
4	.249	26.38	Av	.7	0	27.08	-	-	51.8	-24.72
5	.537	44.13	PK	.3	0	44.43	56	-11.57	-	-
6	.537	24.92	Av	.3	0	25.22	-	-	46	-20.78
7	4.362	42.86	PK	.2	.1	43.16	56	-12.84	-	-
8	4.362	24.75	Av	.2	.1	25.05	-	-	46	-20.95

PK - Peak detector

Av - average detection

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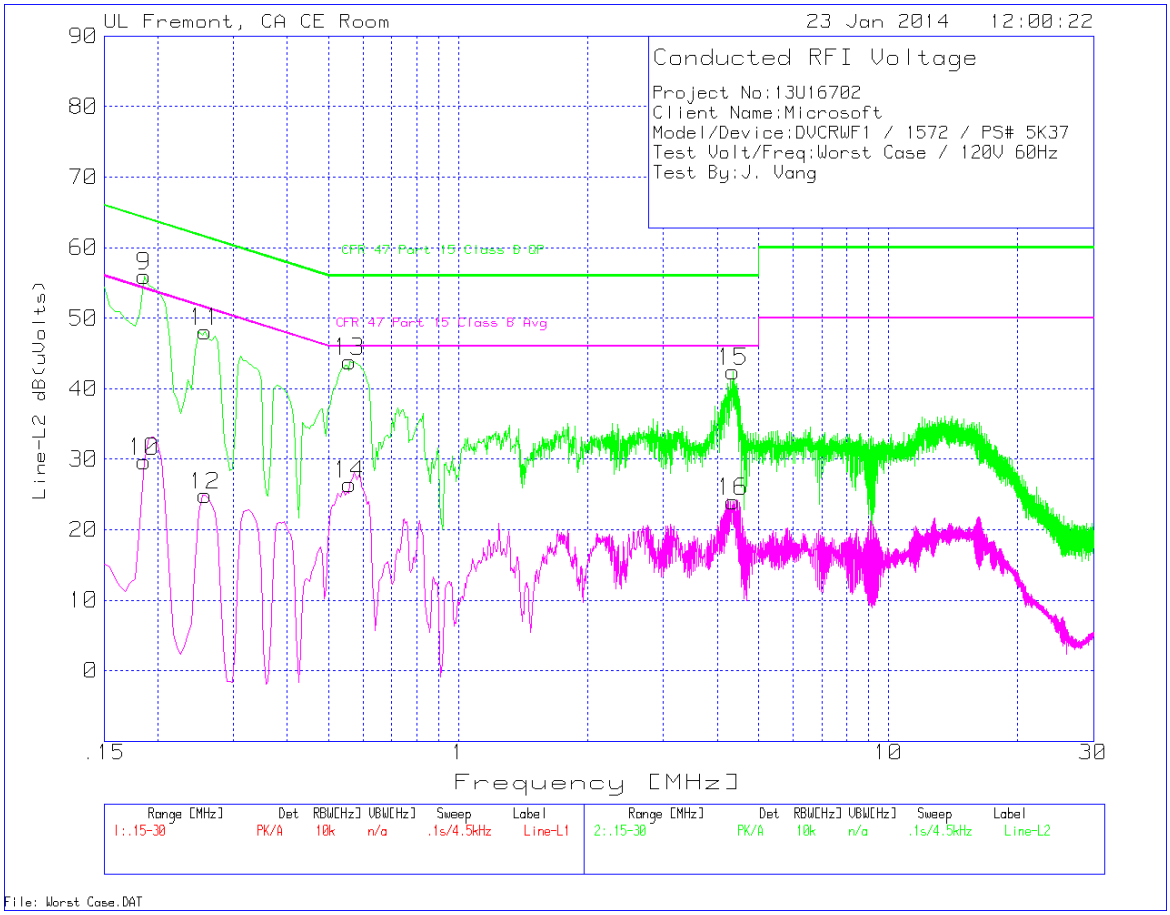
LINE 2 RESULTS



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LINE 2 DATA RESULTS

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)	CFR 47 Part 15 Class B QP	Margin to Limit (dB)	CFR 47 Part 15 Class B Avg	Margin to Limit (dB)
9	.186	54.87	PK	1.1	0	55.97	64.2	-8.23	-	-
10	.186	28.57	Av	1.1	0	29.67	-	-	54.2	-24.53
11	.258	47.41	PK	.7	0	48.11	61.5	-13.39	-	-
12	.258	24.13	Av	.7	0	24.83	-	-	51.5	-26.67
13	.5595	43.59	PK	.3	0	43.89	56	-12.11	-	-
14	.5595	26.18	Av	.3	0	26.48	-	-	46	-19.52
15	4.362	42.07	PK	.2	.1	42.37	56	-13.63	-	-
16	4.362	23.72	Av	.2	.1	24.02	-	-	46	-21.98

PK - Peak detector

Av - average detection

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