Eventbrite, Inc.

TEST REPORT FOR

RFID Scanner
Model: Centauri

Tested To The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207
&
15.225
(13.110-14.010 MHz)

Report No.: 97859-6

Date of issue: March 21, 2016

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

This report contains a total of 47 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc.

Testing the Future
CKC LABORATORIES, INC.

TABLE OF CONTENTS

Administrative Information 3

Test Report Information 3

Report Authorization 3

Test Facility Information 4

Software Versions 4

Site Registration & Accreditation Information 4

Summary of Results 5

Modifications During Testing 5

Conditions During Testing 5

Equipment Under Test 6

General Product Information 6

FCC Part 15 Subpart C 7

15.215(c) Occupied Bandwidth (20dB BW) 7

15.225(a)-(c) Field Strength of Fundamental 10

15.225(e) Frequency Stability 14

15.225(d) Radiated Emissions & Band Edge 16

15.207 AC Conducted Emissions 26

Appendix A: Modifications Made During Testing 45

Supplemental Information 46

Measurement Uncertainty 46

Emissions Test Details 46

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Eventbrite, Inc.
155 5th St. Floor 7
San Francisco, CA 94103

Representative: Mourad Dendane
Customer Reference Number: 1257

REPORT PREPARED BY:

Terri Rayle
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 97859

DATE OF EQUIPMENT RECEIPT: January 11, 2016
DATE(S) OF TESTING: January 11-13 and February 10-11, 2016

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.00

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Mariposa A	US0103	SL2-IN-E-1147R	3082A-2	90477	A-0136
Mariposa D	US0103	SL2-IN-E-1147R	3082A-1	784962	A-0136

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C - 15.225

Test Procedure	Description	Modifications	Results
15.215(c)	Occupied Bandwidth	Mod. #1	Pass
15.225(a)-(c)	Field Strength of Fundamental	Mod. #1	Pass
15.225(e)	Frequency Stability	Mod. #1	Pass
15.225(d)	Field Strength of Spurious Emissions	Mod. #1	Pass
15.207	AC Conducted Emissions	Mod. #1	Pass

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
Modification #1: Installed a jumper on the transmitter PCB to establish a reference to chassis ground.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

During testing numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Tested:

Device	Manufacturer	Model #	S/N
RFID Scanner	Eventbrite, Inc.	Centauri	EVB-01040115290019

Support Equipment:

Device	Manufacturer	Model #	S/N
POE	Ubiquiti Networks, Inc.	TOUGHSwitch PoE PRO	1451G0418D6078DF

General Product Information:

Product Information	Manufacturer-Provided Details
Equipment Type:	Stand-Alone Equipment
Modulation Type(s):	A1D
Maximum Duty Cycle:	20%
Antenna Type(s) and Gain:	Loop, 2dBi
Antenna Connection Type:	Integral
Nominal Input Voltage:	120 /60Hz POE
Firmware / Software used for Test:	Proxima-client 2.0.0

FCC Part 15 Subpart C

15.215(c) Occupied Bandwidth (20dB BW)

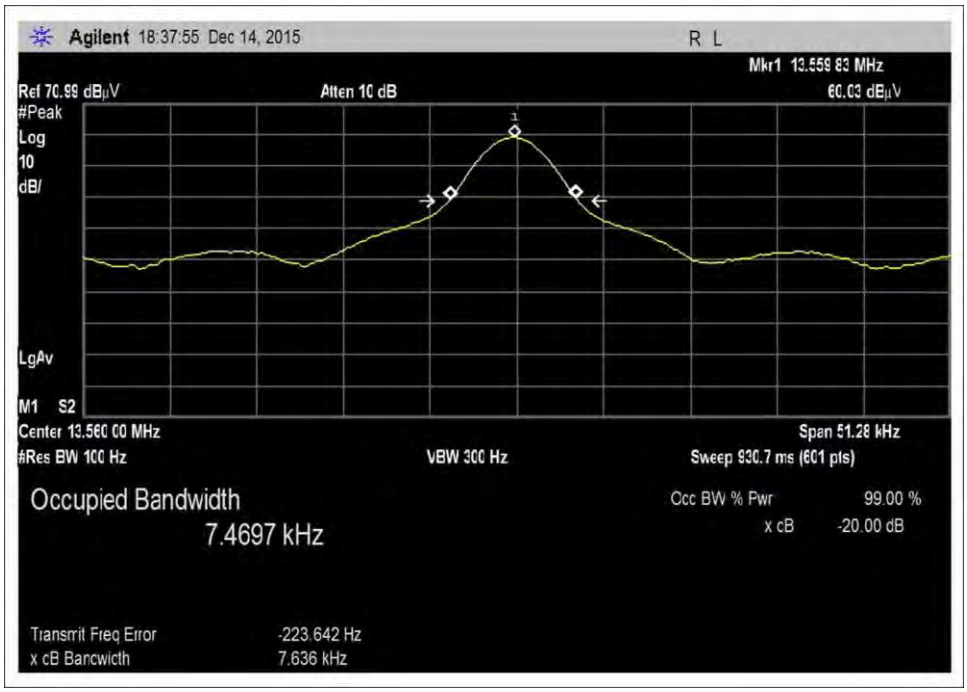
Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Chuck Kendall
Test Method:	ANSI C63.10 (2013)	Test Date(s):	1/13/2016
Configuration:	1		
Test Setup:	The EUT was placed on a Styrofoam pad atop a wooden test bench some 80cm atop a ground plane with normal modulation. The test antenna was then located 3 meters away. The POE was either on the test bench or remotely located within the control room during testing. It was placed in both horizontal and vertical positions to determine the worst case emissions and field strength readings. Vertical was the worst case.		
Modification:	Modification #1 was in place during testing		

Environmental Conditions			
Temperature (ºC)	20	Relative Humidity (%):	44

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
02111	Spectrum Analyzer	HP	8593EM	6/4/2015	6/4/2016
00226	Loop Antenna	EMCO	6502	3/28/2014	3/28/2016
P06232	Cable	Andrew	CXTA04A-35	9/5/2014	9/5/2016

Test Data Summary					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
13.56	Field Strength	A1D	7.636	Within Emissions Mask	Pass

Plot



Note: The timestamp on the above plot is incorrect – data taken day of testing 1/13/2016.

Test Setup Photo

15.225(a)-(c) Field Strength of Fundamental

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Chuck Kendall
Test Method:	ANSI C63.4 (2013)	Test Date(s):	1/11/2016
Configuration:	1		
Test Setup:	The EUT is set up at 3m and is 0.8 meter above a ground plane. It is transmitting in normal mode of operation. The POE is in the control room during testing.		
Modification:	Modification #1 was in place during testing		

Environmental Conditions			
Temperature (ºC)	20	Relative Humidity (%):	44

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
02111	Spectrum Analyzer	HP	8593EM	6/4/2015	6/4/2016
00226	Loop Antenna	EMCO	6502	3/28/2014	3/28/2016
P06232	Cable	Andrew	CXTA04A-35	9/5/2014	9/5/2016

Test Data Summary - Voltage Variations					
Frequency (MHz)	Modulation / Ant Port	$V_{Minimum}$ (dBuV/m@30m)	$V_{Nominal}$ (dBuV/m@30m)	$V_{Maximum}$ (dBuV/m@30m)	Max Deviation from $V_{Nominal}$ (dB)
13.56	A1D/Field Strength	36.9	36.9	36.9	0

Test performed using operational mode with the highest output power, representing worst case.

Parameter Definitions:

Measurements performed at input voltage Vnominal ± 15%.

Parameter	Value
$V_{Nominal}$:	48.0 VDC
$V_{Minimum}$:	40.8 VDC
$V_{Maximum}$:	55.2 VDC

Test Data Summary – Radiated Field Strength Measurement					
Frequency (MHz)	Modulation	Ant. Type	Measured (dBuV/m @ 30m)	Limit (dBuV/m @ 30m)	Results
13.56	A1D	Integral	36.9	≤84	Pass

Test Data

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.225 Fundamental Field Strength**		
Work Order #:	**97859**	Date:	2/10/2016
Test Type:	**Maximized Emissions**	Time:	14:14:31
Tested By:	Chuck Kendall	Sequence#:	2
Software:	EMITest 5.03.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

ANSI C63.10 2013

The EUT is set up at 3m and is 0.8 meter above a ground plane. It is transmitting in normal mode of operation. EUT was placed in the vertical and horizontal positions to determine the worst case emissions.
The POE is beneath the ground plane during this testing.

Frequencies of Interest: 13.110-14.010 MHz
RBW=9 kHz; VBW = 30kHz
Highest clock =1 GHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44%
Atmospheric Pressure = 97.6 kPa

Modification #1 was in place during testing.

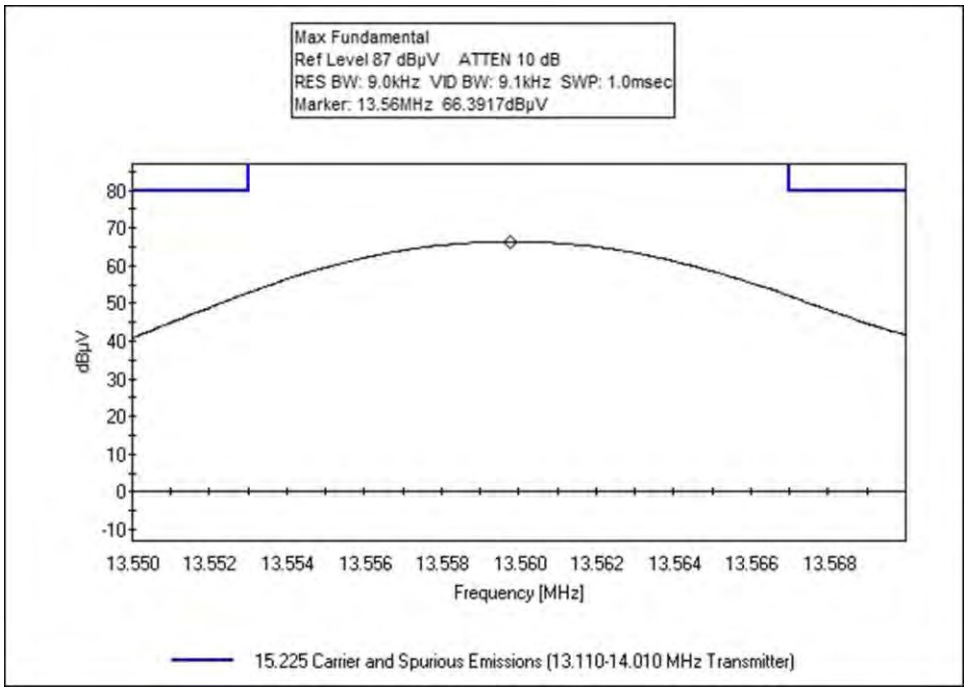
Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T2	AN00226	Loop Antenna	6502	3/28/2014	3/28/2016
T3	ANP06232	Cable	CXTA04A-35	9/5/2014	9/5/2016
T4	ANSITED 3M	Cable		11/15/2014	11/15/2016
T5	ANP06885	Cable	P06885	10/27/2015	10/27/2017

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	66.4	+0.0 +0.1	+9.7	+0.0	+0.7	-40.0	36.9	84.0	-47.1	Vert
									loop antenna almost parallel to the back side of the EUT		
2	13.560M	59.7	+0.0 +0.0	+9.7	+0.3	+0.0	-40.0	29.7	84.0	-54.3	Vert
									loop antenna is perpendicular to EUT		
3	13.560M	53.0	+0.0 +0.0	+9.7	+0.3	+0.0	-40.0	23.0	84.0	-61.0	Vert
									Loop antenna & EUT are parallel to the groundplane		
4	13.560M	52.0	+0.0 +0.0	+9.7	+0.3	+0.0	-40.0	22.0	84.0	-62.0	Vert
									Loop antenna parallel to the ground plane.		

Plot



Test Setup Photo

15.225(e) Frequency Stability

Test Setup/Conditions			
Test Location:	Mariposa Lab A	Test Engineer:	Chuck Kendall
Test Method:	ANSI C63.4 (2013)	Test Date(s):	1/13/2016
Configuration:	1		
Test Setup:	The EUT is set up at 3m and is 0.8 meter above the ground plane. It is transmitting in normal mode of operation. The POE is in the control room during testing.		
Modification:	Modification #1 was in place during testing		

Environmental Conditions			
Temperature (ºC)	20	Relative Humidity (%):	44

Test Equipment					
Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
02668	Spectrum Analyzer	Agilent	E4446A	8/14/2015	8/14/2016
01879	Temperature Chamber	Thermotron	S-1.2 Min.	12/5/2014	12/5/2016
03197	Multimeter	Extech	MM570A	9/14/2014	9/14/2016

Test Data Summary					
Temperature (ºC)	Voltage	Frequency (MHz)	Deviation (%)	Limit (%)	Results
-20	$V_{Nominal}$	13.559738	0.00193	±0.01	Pass
-10	$V_{Nominal}$	13.559738	0.00193	±0.01	
0	$V_{Nominal}$	13.559738	0.00193	±0.01	
10	$V_{Nominal}$	13.559738	0.00193	±0.01	
20	$V_{Minimum}$	13.559738	0.00193	±0.01	
20	$V_{Nominal}$	13.559749	0.00185	±0.01	
20	$V_{Maximum}$	13.559749	0.00185	±0.01	
30	$V_{Nominal}$	13.559738	0.00193	±0.01	
40	$V_{Nominal}$	13.559738	0.00193	±0.01	
50	$V_{Nominal}$	13.559738	0.00193	±0.01	
Nominal Frequency:		13.560000			

Parameter Definitions:

Measurements performed at input voltage Vnominal ± 15%.

Parameter	Value
$V_{Nominal}$:	48.0 VDC
$V_{Minimum}$:	40.8 VDC
$V_{Maximum}$:	55.2 VDC

Test Setup Photo

15.225(d) Radiated Emissions & Band Edge

Test Setup/Conditions

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa CA • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97859**	Date:	1/11/2016
Test Type:	**Maximized Emissions**	Time:	14:09:37
Tested By:	Chuck Kendall	Sequence#:	3
Software:	EMITest 5.03.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

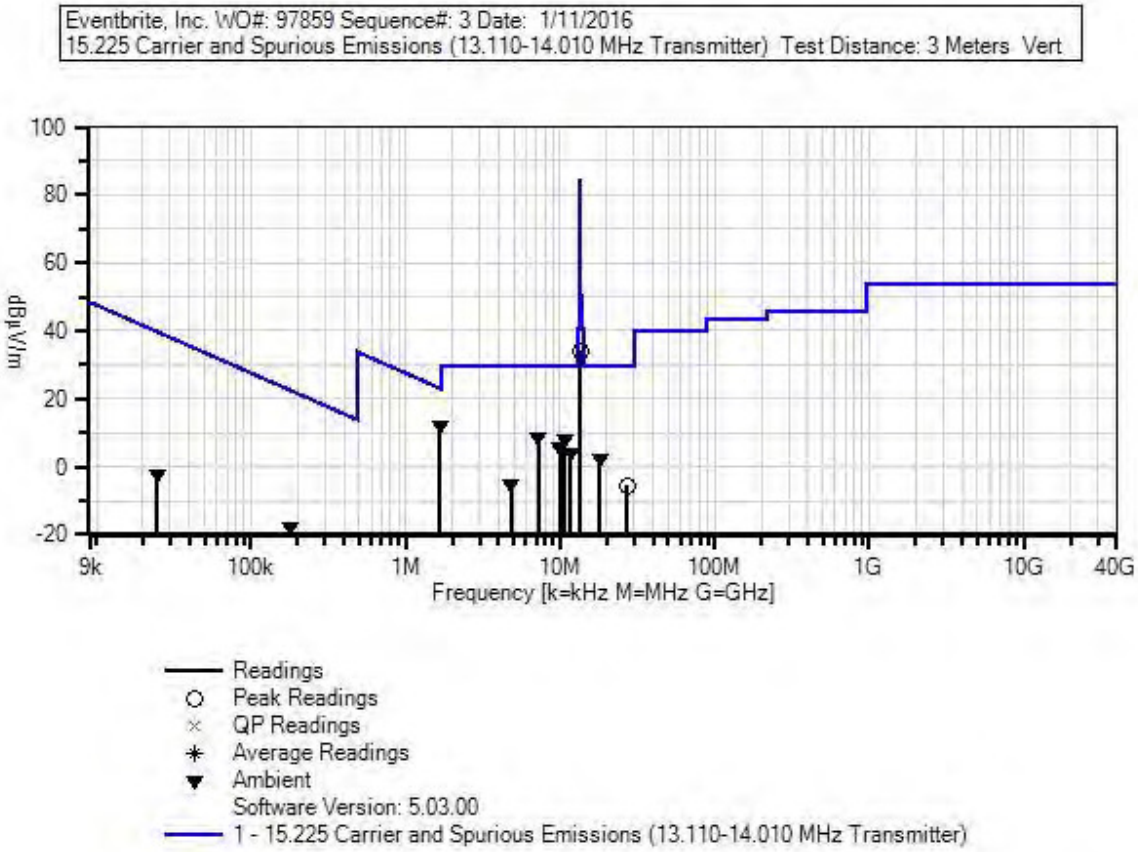
ANSI C63.10 2013
The EUT is set up at 3m and is 0.8 meter above a ground plane. It is transmitting in normal mode of operation.
The POE is beneath the ground plane during this testing.

Frequencies of Interest: 9kHz to 30MHz
From 9kHz to 150: RBW = 200 Hz; VBW = 600 Hz
From 150kHz to 30MHz: RBW = 9kHz; VBW = 30kHz

Highest clock =1 GHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44%
Atmospheric Pressure = 97.6 kPa

Modification #1 was in place during testing.


Eventbrite, Inc. WO#: 97859 Sequence#: 3 Date: 1/11/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.00
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
T1	AN02668	Spectrum Analyzer	E4446A	8/14/2015	8/14/2016
T2	AN00226	Loop Antenna	6502	3/28/2014	3/28/2016
T3	ANP06232	Cable	CXTA04A-35	9/5/2014	9/5/2016

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.659M Ambient	41.6	+0.0	+10.3	+0.1		-40.0	12.0	23.1	-11.1	Vert
2	7.210M Ambient	38.4	+0.0	+10.1	+0.2		-40.0	8.7	29.5	-20.8	Vert
3	10.714M Ambient	38.1	+0.0	+10.0	+0.2		-40.0	8.3	29.5	-21.2	Vert
4	10.000M Ambient	35.5	+0.0	+10.1	+0.2		-40.0	5.8	29.5	-23.7	Vert
5	11.667M Ambient	34.2	+0.0	+9.9	+0.2		-40.0	4.3	29.5	-25.2	Vert
6	18.115M Ambient	33.2	+0.0	+8.7	+0.3		-40.0	2.2	29.5	-27.3	Vert
7	4.798M Ambient	24.5	+0.0	+10.0	+0.2		-40.0	-5.3	29.5	-34.8	Vert
8	27.120M	26.9	+0.0	+7.2	+0.4		-40.0	-5.6	29.5	-35.1	Vert
9	178.900k Ambient	52.2	+0.0	+10.3	+0.0		-80.0	-17.5	22.5	-40.0	Vert
10	24.700k Ambient	64.9	+0.0	+13.0	+0.0		-80.0	-2.1	39.7	-41.8	Vert
11	13.560M	64.1	+0.0	+9.7	+0.3		-40.0	34.1	84.0	-49.9	Vert

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa CA • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**		
Work Order #:	**97859**	Date:	1/12/2016
Test Type:	**Maximized Emissions**	Time:	12:05:54
Tested By:	Chuck Kendall	Sequence#:	5
Software:	EMITest 5.03.00		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

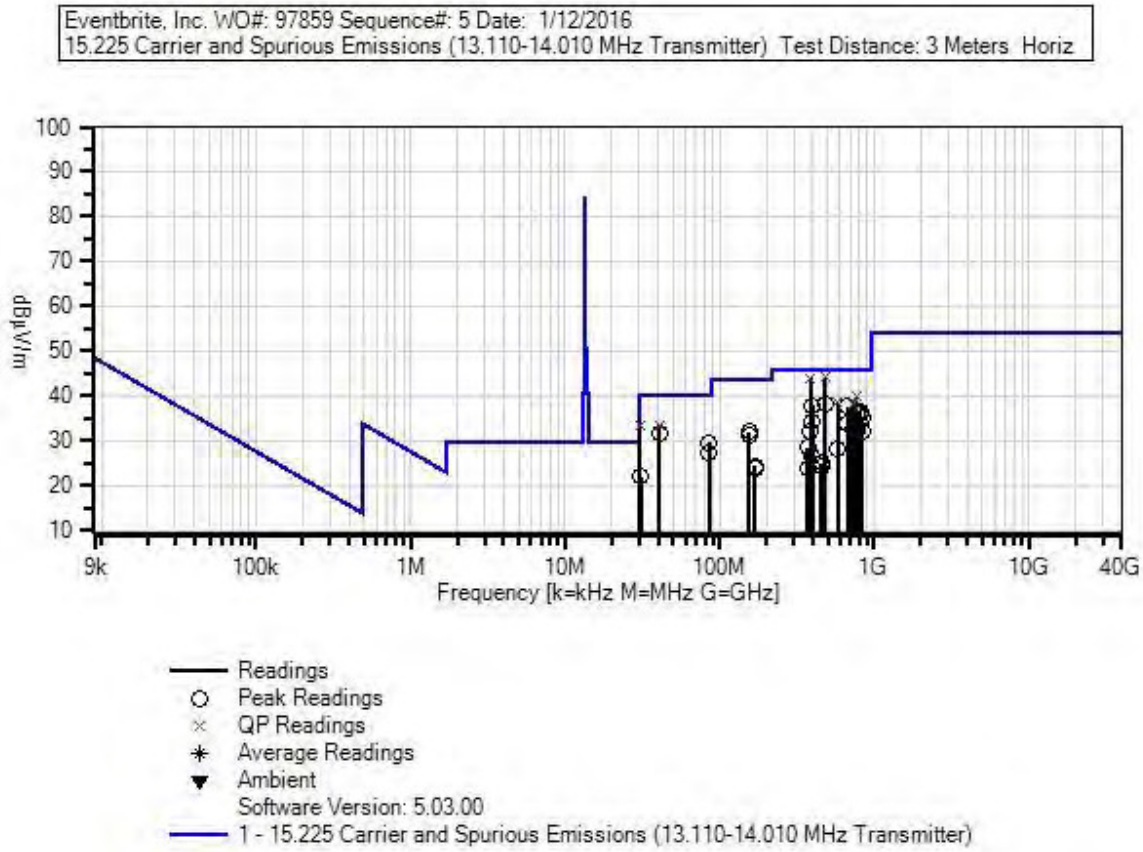
ANSI C63.10 2013
The EUT is set up at 3m and is 0.8 meter above a 3' diameter flush mounted turntable. It is transmitting in normal mode of operation. The POE is on the test bench.

Frequencies of Interest: 30MHz to 1000MHz
RBW = 120kHz; VBW = 300kHz

Highest clock =1 GHz

Environmental Conditions:
Temperature = 68°F
Relative Humidity = 44%
Atmospheric Pressure = 97.6 kPa

Modification #1 was in place during testing.


Eventbrite, Inc. WO#: 97859 Sequence#: 5 Date: 1/12/2016
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Horiz
dBµV/m
100
90
80
70
60
50
40
30
20
10
9k
100k
1M
10M
100M
1G
10G
40G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
QP Readings
Average Readings
Ambient
Software Version: 5.03.00
1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

Test Equipment:

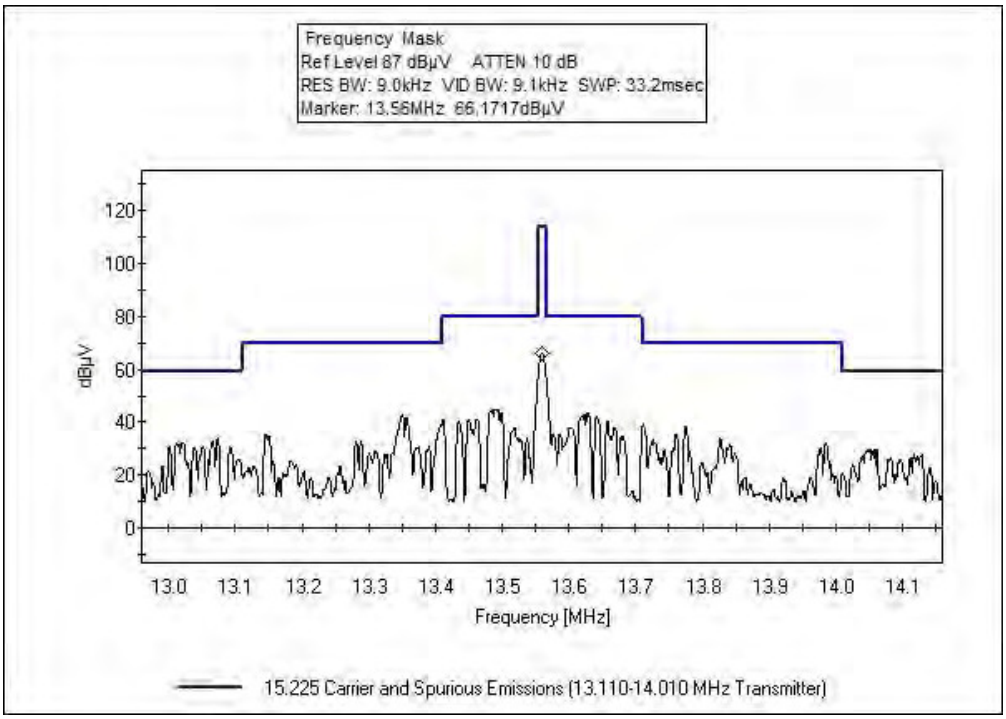
ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	AN00282	Preamp	8447D	4/7/2014	4/7/2016
T2	AN01994	Biconilog Antenna	CBL6111C	3/7/2014	3/7/2016
T3	ANP06884	Cable	LMR195-FR-4	10/27/2015	10/27/2017
T4	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T5	ANSITED 3M	Cable		11/15/2014	11/15/2016

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

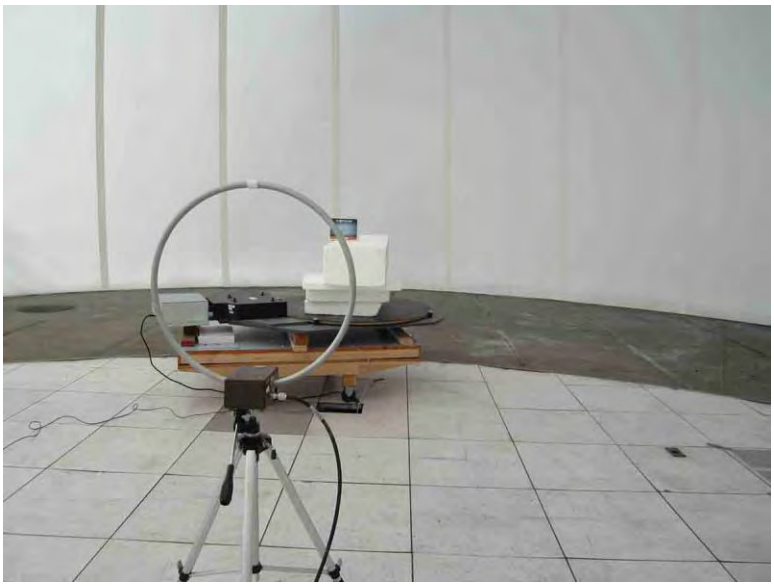
#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	480.034M QP	49.3	-28.2 +4.5	+17.7	+0.4	+0.5	+0.0	44.2	46.0	-1.8	Horiz
2	384.028M QP	51.1	-27.7 +4.0	+15.8	+0.4	+0.4	+0.0	44.0	46.0	-2.0	Horiz
^	384.028M	50.4	-27.7 +4.0	+15.8	+0.4	+0.4	+0.0	43.3	46.0	-2.7	Horiz
^	384.033M	50.3	-27.7 +4.0	+15.8	+0.4	+0.4	+0.0	43.2	46.0	-2.8	Horiz
^	384.027M	48.4	-27.7 +4.0	+15.8	+0.4	+0.4	+0.0	41.3	46.0	-4.7	Horiz
6	768.053M QP	39.2	-28.3 +5.9	+21.9	+0.5	+0.6	+0.0	39.8	46.0	-6.2	Horiz
^	768.056M	39.9	-28.3 +5.9	+21.9	+0.5	+0.6	+0.0	40.5	46.0	-5.5	Horiz
8	40.679M QP	47.1	-28.1 +1.2	+12.9	+0.1	+0.2	+0.0	33.4	40.0	-6.6	Vert
^	40.684M	49.7	-28.1 +1.2	+12.9	+0.1	+0.2	+0.0	36.0	40.0	-4.0	Vert
10	30.614M QP	42.1	-28.1 +1.0	+17.9	+0.1	+0.2	+0.0	33.2	40.0	-6.8	Vert
^	30.633M	45.7	-28.1 +1.0	+17.9	+0.1	+0.2	+0.0	36.8	40.0	-3.2	Vert
12	576.038M QP	41.2	-28.4 +5.0	+19.7	+0.4	+0.5	+0.0	38.4	46.0	-7.6	Horiz
^	576.038M	42.9	-28.4 +5.0	+19.7	+0.4	+0.5	+0.0	40.1	46.0	-5.9	Horiz
14	480.102M	43.1	-28.2 +4.5	+17.7	+0.4	+0.5	+0.0	38.0	46.0	-8.0	Vert
15	717.850M QP	38.8	-28.4 +5.6	+20.9	+0.5	+0.6	+0.0	38.0	46.0	-8.0	Horiz
^	717.845M	42.0	-28.4 +5.6	+20.9	+0.5	+0.6	+0.0	41.2	46.0	-4.8	Horiz
17	396.036M	44.8	-27.8 +4.0	+16.1	+0.4	+0.4	+0.0	37.9	46.0	-8.1	Horiz
18	672.025M	39.1	-28.4 +5.4	+20.5	+0.5	+0.6	+0.0	37.7	46.0	-8.3	Horiz
19	40.680M	45.4	-28.1 +1.2	+12.9	+0.1	+0.2	+0.0	31.7	40.0	-8.3	Horiz

20	816.049M	35.0	-28.2 +6.1	+22.6	+0.5	+0.6	+0.0	36.6	46.0	-9.4	Vert
21	780.055M	35.3	-28.3 +5.9	+22.1	+0.5	+0.6	+0.0	36.1	46.0	-9.9	Horiz
22	816.026M	34.3	-28.2 +6.1	+22.6	+0.5	+0.6	+0.0	35.9	46.0	-10.1	Horiz
23	85.461M	47.3	-27.9 +1.8	+8.1	+0.2	+0.2	+0.0	29.6	40.0	-10.4	Horiz
24	829.515M	33.2	-28.1 +6.2	+22.7	+0.5	+0.6	+0.0	35.1	46.0	-10.9	Horiz
25	155.675M	45.9	-27.6 +2.4	+10.8	+0.2	+0.3	+0.0	32.0	43.5	-11.5	Horiz
26	396.027M	41.0	-27.8 +4.0	+16.1	+0.4	+0.4	+0.0	34.1	46.0	-11.9	Horiz
27	672.015M	35.4	-28.4 +5.4	+20.5	+0.5	+0.6	+0.0	34.0	46.0	-12.0	Vert
28	155.637M	45.1	-27.6 +2.4	+10.8	+0.2	+0.3	+0.0	31.2	43.5	-12.3	Vert
29	780.089M	32.4	-28.3 +5.9	+22.1	+0.5	+0.6	+0.0	33.2	46.0	-12.8	Vert
30	85.423M	44.7	-27.9 +1.8	+8.1	+0.2	+0.2	+0.0	27.1	40.0	-12.9	Vert
31	717.842M	33.3	-28.4 +5.6	+20.9	+0.5	+0.6	+0.0	32.5	46.0	-13.5	Vert
32	829.334M	30.2	-28.1 +6.2	+22.7	+0.5	+0.6	+0.0	32.1	46.0	-13.9	Vert
33	768.167M	31.5	-28.3 +5.9	+21.9	+0.5	+0.6	+0.0	32.1	46.0	-13.9	Vert
34	384.101M	39.1	-27.7 +4.0	+15.8	+0.4	+0.4	+0.0	32.0	46.0	-14.0	Vert
35	372.007M	35.8	-27.6 +3.9	+15.5	+0.4	+0.4	+0.0	28.4	46.0	-17.6	Horiz
36	576.181M	30.8	-28.4 +5.0	+19.7	+0.4	+0.5	+0.0	28.0	46.0	-18.0	Vert
37	30.653M	30.9	-28.1 +1.0	+17.9	+0.1	+0.2	+0.0	22.0	40.0	-18.0	Horiz
38	169.046M	39.2	-27.6 +2.5	+9.8	+0.2	+0.3	+0.0	24.4	43.5	-19.1	Vert
39	396.102M	33.5	-27.8 +4.0	+16.1	+0.4	+0.4	+0.0	26.6	46.0	-19.4	Vert
40	168.971M	38.4	-27.6 +2.5	+9.8	+0.2	+0.3	+0.0	23.6	43.5	-19.9	Horiz
41	453.756M	30.8	-28.1 +4.3	+17.2	+0.4	+0.5	+0.0	25.1	46.0	-20.9	Vert
42	453.743M	30.6	-28.1 +4.3	+17.2	+0.4	+0.5	+0.0	24.9	46.0	-21.1	Horiz
43	453.726M	30.1	-28.1 +4.3	+17.2	+0.4	+0.5	+0.0	24.4	46.0	-21.6	Horiz
44	371.908M	31.2	-27.6 +3.9	+15.5	+0.4	+0.4	+0.0	23.8	46.0	-22.2	Vert

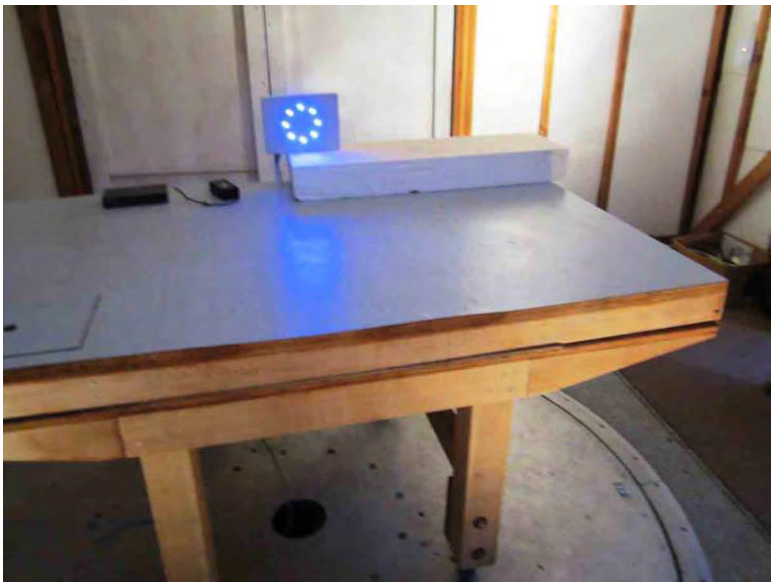
Band Edges Plot



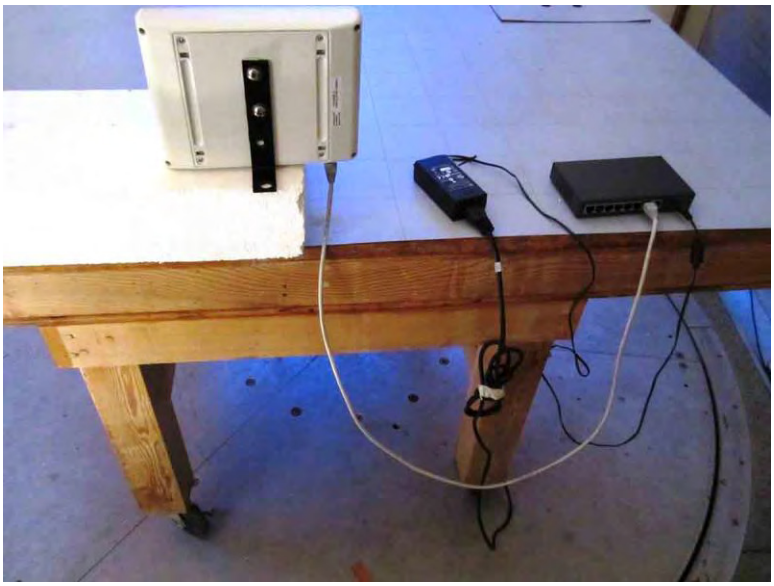
Test Setup Photos



9kHz – 30MHz



30MHz – 1GHz



30MHz – 1GHz

15.207 AC Conducted Emissions

Test Setup/Conditions

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97859**	Date:	2/10/2016
Test Type:	**Conducted Emissions**	Time:	15:06:50
Tested By:	Chuck Kendall	Sequence#:	3
Software:	EMITest 5.03.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

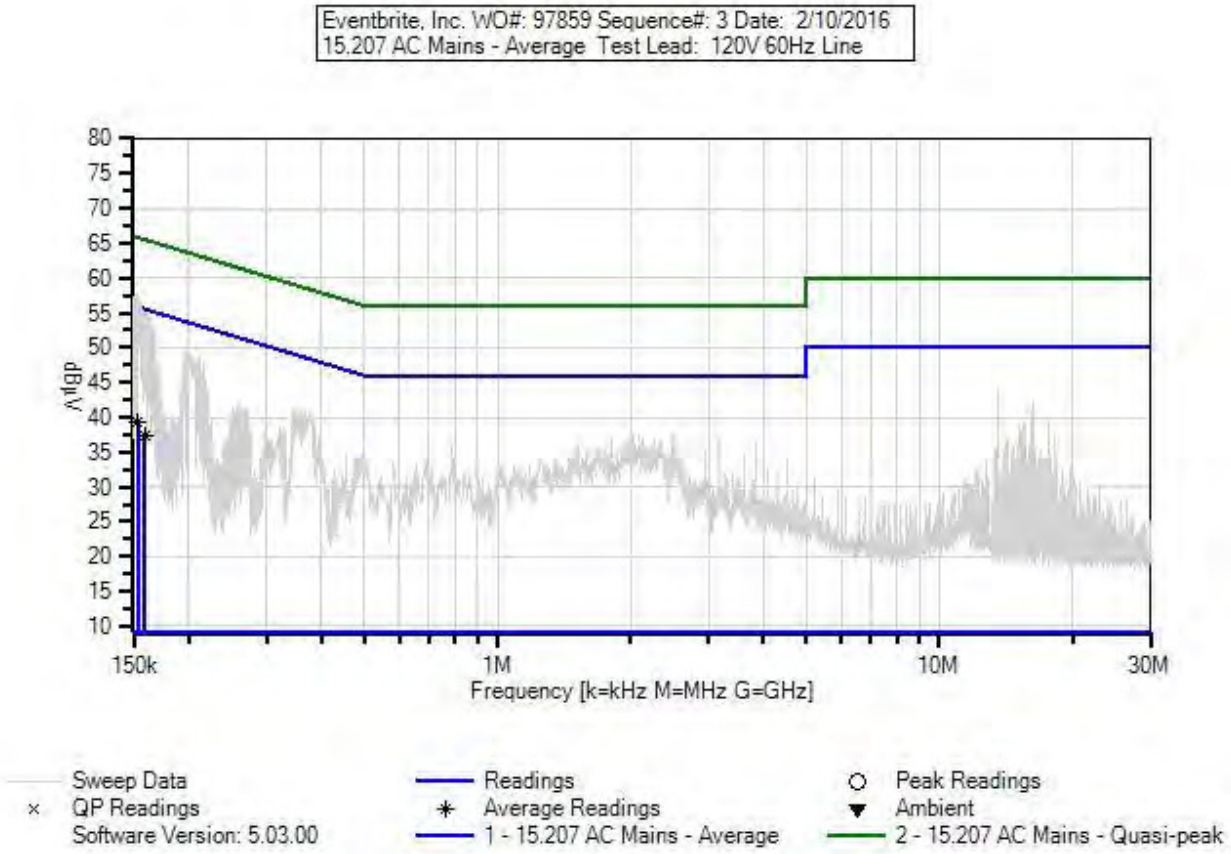
ANSI C63.10 2013
The EUT is set up at 40cm from the vertical ground plane and is .8 meters above a ground plane. It is transmitting in normal mode of operation. The POE is on the test bench during this testing.

Highest clock = 1000 MHz
Antenna leads cut and dummy load is installed across the antenna connection.

Frequencies of Interest: 150kHz to 30MHz
RBW = 9kHz; VBW = 30kHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44
Atmospheric Pressure = 97.7 kPa

Modification #1 was in place during testing


Eventbrite, Inc. WO#: 97859 Sequence#: 3 Date: 2/10/2016
15.207 AC Mains - Average Test Lead: 120V 60Hz Line
dBµV
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	ANP05624	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	ANMACOND	Cable		8/26/2014	8/26/2016
T3	ANP06883	Cable	LMR195-FR-3	10/27/2015	10/27/2017
T4	AN02609	High Pass Filter	HE9615-150K-50-720B	3/25/2014	3/25/2016
	AN00374	50uH LISN-Return (dB)	8028-TS-50-BNC	1/4/2016	1/4/2017
T5	AN00374	50uH LISN-Line (dB)	8028-TS-50-BNC	1/4/2016	1/4/2017

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	153.250k	27.2	+9.9	+0.0	+0.0	+2.1	+0.0	39.3	55.8	-16.5	Line
	Ave		+0.1								
^	153.250k	45.4	+9.9	+0.0	+0.0	+2.1	+0.0	57.5	55.8	+1.7	Line
			+0.1								
^	152.950k	45.3	+9.9	+0.0	+0.0	+2.1	+0.0	57.4	55.8	+1.6	Line
			+0.1								
^	151.350k	45.0	+9.9	+0.0	+0.0	+2.5	+0.0	57.5	55.9	+1.6	Line
			+0.1								
^	152.250k	45.2	+9.9	+0.0	+0.0	+2.3	+0.0	57.5	55.9	+1.6	Line
			+0.1								
^	154.100k	45.4	+9.9	+0.0	+0.0	+1.9	+0.0	57.3	55.8	+1.5	Line
			+0.1								
^	150.000k	44.6	+9.9	+0.0	+0.0	+2.8	+0.0	57.4	56.0	+1.4	Line
			+0.1								
^	150.500k	44.6	+9.9	+0.0	+0.0	+2.7	+0.0	57.3	56.0	+1.3	Line
			+0.1								
^	151.700k	44.8	+9.9	+0.0	+0.0	+2.4	+0.0	57.2	55.9	+1.3	Line
			+0.1								
^	152.850k	44.9	+9.9	+0.0	+0.0	+2.1	+0.0	57.0	55.8	+1.2	Line
			+0.1								
^	153.450k	44.9	+9.9	+0.0	+0.0	+2.0	+0.0	56.9	55.8	+1.1	Line
			+0.1								
^	150.200k	44.1	+9.9	+0.0	+0.0	+2.7	+0.0	56.8	56.0	+0.8	Line
			+0.1								
^	151.600k	44.1	+9.9	+0.0	+0.0	+2.4	+0.0	56.5	55.9	+0.6	Line
			+0.1								
14	159.130k	26.6	+9.9	+0.0	+0.0	+0.8	+0.0	37.4	55.5	-18.1	Line
	Ave		+0.1								
^	154.450k	45.1	+9.9	+0.0	+0.0	+1.8	+0.0	56.9	55.8	+1.1	Line
			+0.1								
^	154.950k	45.0	+9.9	+0.0	+0.0	+1.7	+0.0	56.7	55.7	+1.0	Line
			+0.1								
^	154.200k	44.8	+9.9	+0.0	+0.0	+1.8	+0.0	56.6	55.8	+0.8	Line
			+0.1								

^	156.100k	44.8	+9.9 +0.1	+0.0	+0.0	+1.4	+0.0	56.2	55.7	+0.5	Line
^	155.950k	44.6	+9.9 +0.1	+0.0	+0.0	+1.5	+0.0	56.1	55.7	+0.4	Line
^	156.500k	44.5	+9.9 +0.1	+0.0	+0.0	+1.3	+0.0	55.8	55.6	+0.2	Line
^	156.750k	44.5	+9.9 +0.1	+0.0	+0.0	+1.3	+0.0	55.8	55.6	+0.2	Line
^	157.500k	44.3	+9.9 +0.1	+0.0	+0.0	+1.1	+0.0	55.4	55.6	-0.2	Line
^	161.250k	44.6	+9.9 +0.1	+0.0	+0.0	+0.6	+0.0	55.2	55.4	-0.2	Line
^	158.100k	44.3	+9.9 +0.1	+0.0	+0.0	+1.0	+0.0	55.3	55.6	-0.3	Line
^	158.000k	44.2	+9.9 +0.1	+0.0	+0.0	+1.0	+0.0	55.2	55.6	-0.4	Line
^	157.750k	44.1	+9.9 +0.1	+0.0	+0.0	+1.1	+0.0	55.2	55.6	-0.4	Line
^	158.950k	44.3	+9.9 +0.1	+0.0	+0.0	+0.8	+0.0	55.1	55.5	-0.4	Line
^	157.350k	43.9	+9.9 +0.1	+0.0	+0.0	+1.2	+0.0	55.1	55.6	-0.5	Line
^	158.350k	44.2	+9.9 +0.1	+0.0	+0.0	+0.9	+0.0	55.1	55.6	-0.5	Line
^	160.700k	44.3	+9.9 +0.1	+0.0	+0.0	+0.6	+0.0	54.9	55.4	-0.5	Line
^	158.700k	44.0	+9.9 +0.1	+0.0	+0.0	+0.9	+0.0	54.9	55.5	-0.6	Line
^	159.850k	44.3	+9.9 +0.1	+0.0	+0.0	+0.6	+0.0	54.9	55.5	-0.6	Line

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97859**	Date:	2/10/2016
Test Type:	**Conducted Emissions**	Time:	14:59:36
Tested By:	Chuck Kendall	Sequence#:	4
Software:	EMITest 5.03.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

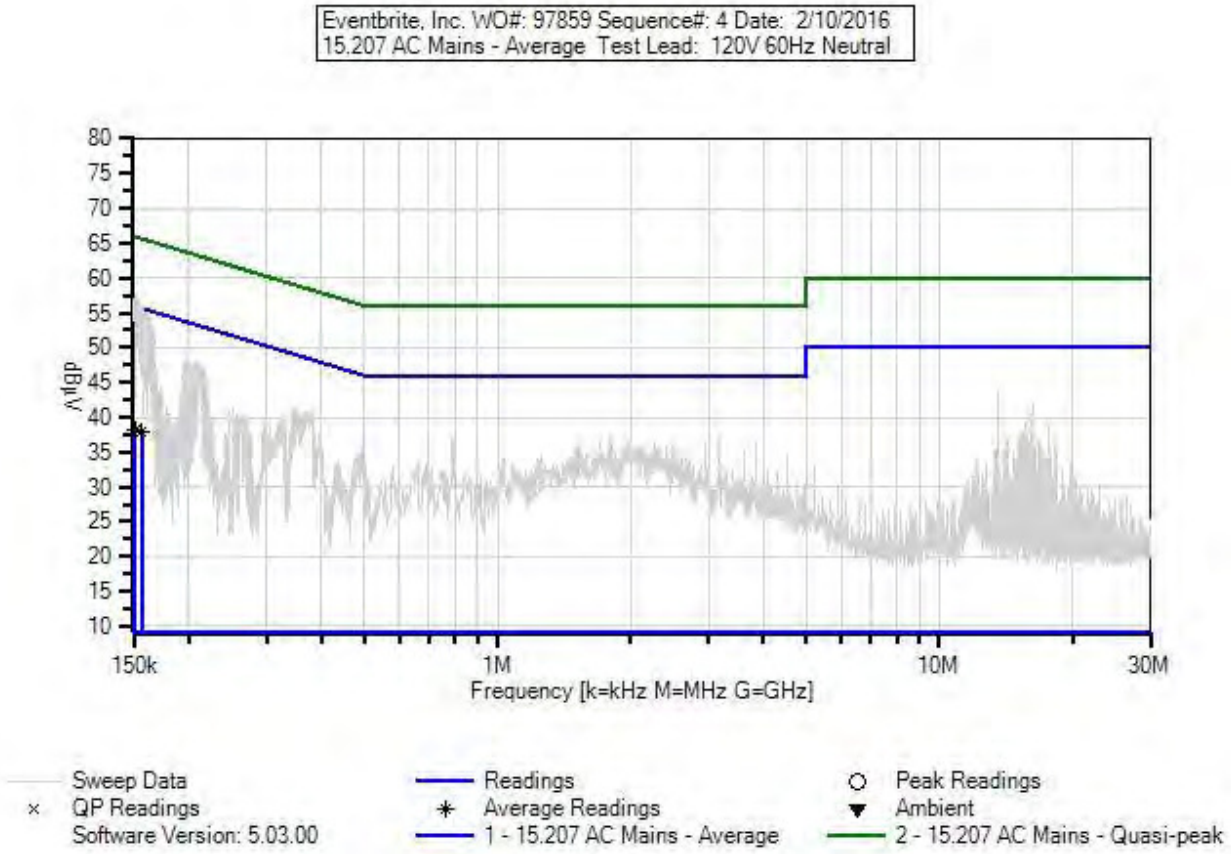
ANSI C63.10 2013
The EUT is set up at 40cm from the vertical ground plane and is .8 meters above a ground plane.
It is transmitting in normal mode of operation. The POE is on the test bench during this testing.

Highest clock = 1000 MHz
Antenna leads cut and dummy load is installed across the antenna connection.

Frequencies of Interest: 150kHz to 30MHz
RBW = 9kHz; VBW = 30kHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44%
Atmospheric Pressure = 97.7 kPa

Modification #1 was in place during testing.


Eventbrite, Inc. WO#: 97859 Sequence#: 4 Date: 2/10/2016
15.207 AC Mains - Average Test Lead: 120V 60Hz Neutral
dBµV
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	ANP05624	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	ANMACOND	Cable		8/26/2014	8/26/2016
T3	ANP06883	Cable	LMR195-FR-3	10/27/2015	10/27/2017
T4	AN02609	High Pass Filter	HE9615-150K-50-720B	3/25/2014	3/25/2016
T5	AN00374	50uH LISN-Return (dB)	8028-TS-50-BNC	1/4/2016	1/4/2017
	AN00374	50uH LISN-Line (dB)	8028-TS-50-BNC	1/4/2016	1/4/2017

Measurement Data: Reading listed by margin. Test Lead: Neutral

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	156.800k Ave	26.5	+9.9 +0.2	+0.0	+0.0	+1.3	+0.0	37.9	55.6	-17.7	Neutr
^	156.800k	44.6	+9.9 +0.2	+0.0	+0.0	+1.3	+0.0	56.0	55.6	+0.4	Neutr
^	156.550k	44.5	+9.9 +0.2	+0.0	+0.0	+1.3	+0.0	55.9	55.6	+0.3	Neutr
^	157.100k	44.6	+9.9 +0.2	+0.0	+0.0	+1.2	+0.0	55.9	55.6	+0.3	Neutr
^	157.200k	44.5	+9.9 +0.2	+0.0	+0.0	+1.2	+0.0	55.8	55.6	+0.2	Neutr
^	157.300k	44.5	+9.9 +0.2	+0.0	+0.0	+1.2	+0.0	55.8	55.6	+0.2	Neutr
^	156.350k	44.3	+9.9 +0.2	+0.0	+0.0	+1.4	+0.0	55.8	55.7	+0.1	Neutr
^	157.550k	44.4	+9.9 +0.2	+0.0	+0.0	+1.1	+0.0	55.6	55.6	+0.0	Neutr
^	157.700k	44.3	+9.9 +0.2	+0.0	+0.0	+1.1	+0.0	55.5	55.6	-0.1	Neutr
^	158.550k	44.4	+9.9 +0.2	+0.0	+0.0	+0.9	+0.0	55.4	55.5	-0.1	Neutr
^	160.550k	44.5	+9.9 +0.2	+0.0	+0.0	+0.6	+0.0	55.2	55.4	-0.2	Neutr
^	159.050k	44.3	+9.9 +0.2	+0.0	+0.0	+0.8	+0.0	55.2	55.5	-0.3	Neutr
^	158.300k	44.1	+9.9 +0.2	+0.0	+0.0	+0.9	+0.0	55.1	55.6	-0.5	Neutr
^	159.350k	44.2	+9.9 +0.2	+0.0	+0.0	+0.7	+0.0	55.0	55.5	-0.5	Neutr

15 Ave	151.070k	25.5	+9.9 +0.2	+0.0	+0.0	+2.5	+0.0	38.1	55.9	-17.8	Neutr
^	151.050k	44.8	+9.9 +0.2	+0.0	+0.0	+2.6	+0.0	57.5	55.9	+1.6	Neutr
^	151.850k	44.9	+9.9 +0.2	+0.0	+0.0	+2.4	+0.0	57.4	55.9	+1.5	Neutr
^	152.100k	45.0	+9.9 +0.2	+0.0	+0.0	+2.3	+0.0	57.4	55.9	+1.5	Neutr
^	152.550k	45.1	+9.9 +0.2	+0.0	+0.0	+2.2	+0.0	57.4	55.9	+1.5	Neutr
^	152.800k	44.9	+9.9 +0.2	+0.0	+0.0	+2.2	+0.0	57.2	55.8	+1.4	Neutr
^	150.850k	44.7	+9.9 +0.2	+0.0	+0.0	+2.6	+0.0	57.4	56.0	+1.4	Neutr
^	153.800k	45.2	+9.9 +0.2	+0.0	+0.0	+1.9	+0.0	57.2	55.8	+1.4	Neutr
^	153.050k	45.0	+9.9 +0.2	+0.0	+0.0	+2.1	+0.0	57.2	55.8	+1.4	Neutr
^	151.550k	44.8	+9.9 +0.2	+0.0	+0.0	+2.4	+0.0	57.3	55.9	+1.4	Neutr
^	153.200k	44.8	+9.9 +0.2	+0.0	+0.0	+2.1	+0.0	57.0	55.8	+1.2	Neutr
^	154.850k	45.1	+9.9 +0.2	+0.0	+0.0	+1.7	+0.0	56.9	55.7	+1.2	Neutr
^	153.450k	44.8	+9.9 +0.2	+0.0	+0.0	+2.0	+0.0	56.9	55.8	+1.1	Neutr
^	155.050k	44.8	+9.9 +0.2	+0.0	+0.0	+1.7	+0.0	56.6	55.7	+0.9	Neutr
^	154.600k	44.6	+9.9 +0.2	+0.0	+0.0	+1.8	+0.0	56.5	55.7	+0.8	Neutr
^	155.550k	44.5	+9.9 +0.2	+0.0	+0.0	+1.5	+0.0	56.1	55.7	+0.4	Neutr
^	154.300k	44.3	+9.9 +0.2	+0.0	+0.0	+1.8	+0.0	56.2	55.8	+0.4	Neutr
^	155.950k	44.4	+9.9 +0.2	+0.0	+0.0	+1.5	+0.0	56.0	55.7	+0.3	Neutr

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa CA • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97859**	Date:	2/11/2016
Test Type:	**Conducted Emissions**	Time:	09:38:29
Tested By:	Chuck Kendall	Sequence#:	7
Software:	EMITest 5.03.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

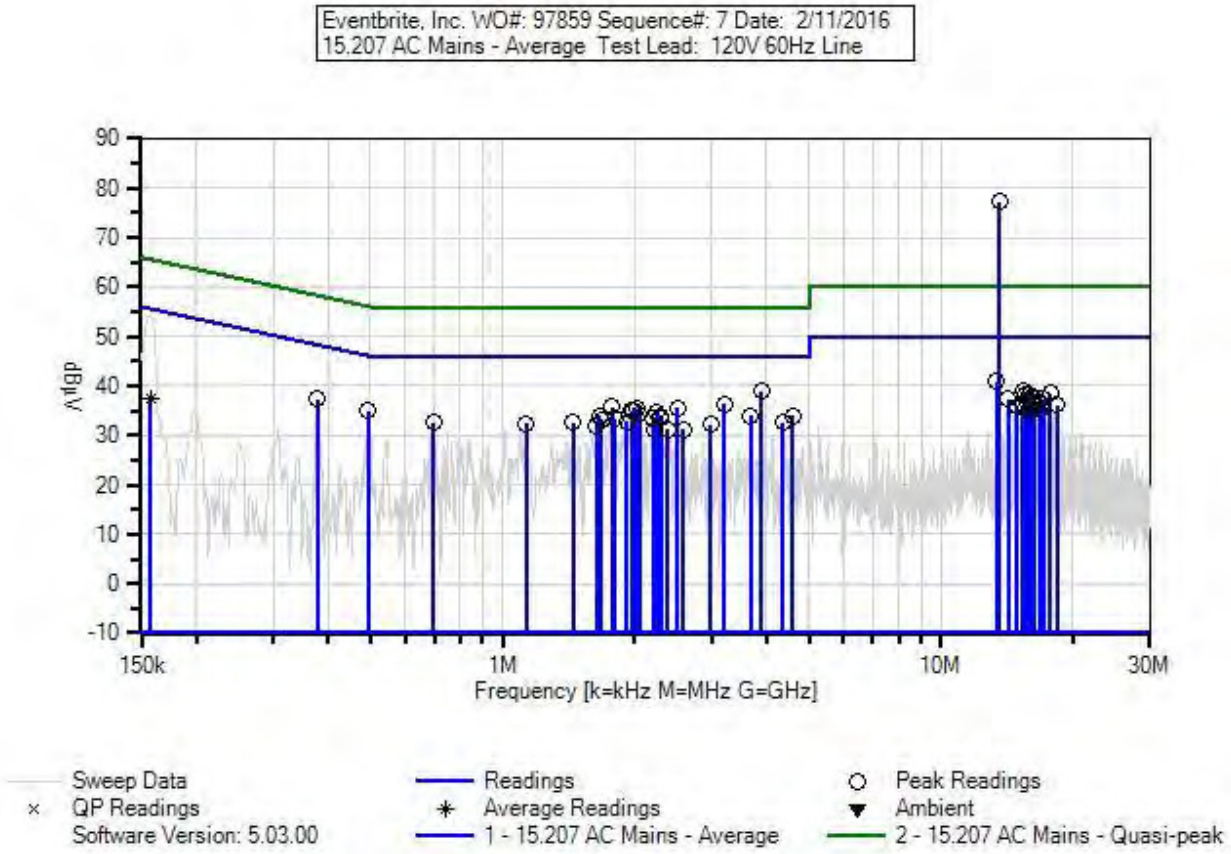
Test Conditions / Notes:

ANSI C63.10 2013
The EUT is set up at 3m and is 0.8 meter above a ground plane and 40cm away from the vertical ground plane..
It is transmitting in normal mode of operation. The POE is on the test bench during this testing.

Highest clock =1 GHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44%
Atmospheric Pressure = 97.7 kPa

Modification #1 was in place during testing.


Eventbrite, Inc. WO#: 97859 Sequence#: 7 Date: 2/11/2016
15.207 AC Mains - Average Test Lead: 120V 60Hz Line
90
80
70
60
50
40
30
20
10
0
-10
dBµV
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	ANMACOND	Cable		8/26/2014	8/26/2016
T3	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T4	AN02608	High Pass Filter	HE9615-150K-50-720B	3/25/2014	3/25/2016
T5	ANP05684	Cable	RG223/U	1/15/2015	1/15/2017
	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
T6	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.562M	66.2	+10.1 +0.0	+0.5 +0.3	+0.1	+0.1	+0.0	77.3	50.0	+27.3	Line
2	3.897M	28.3	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	39.0	46.0	-7.0	Line
3	13.364M	29.7	+10.1 +0.0	+0.5 +0.3	+0.1	+0.1	+0.0	40.8	50.0	-9.2	Line
4	3.212M	25.8	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	36.3	46.0	-9.7	Line
5	1.775M	24.6	+10.1 +0.0	+0.2 +0.6	+0.0	+0.2	+0.0	35.7	46.0	-10.3	Line
6	2.502M	25.1	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	35.6	46.0	-10.4	Line
7	2.017M	24.9	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	35.4	46.0	-10.6	Line
8	1.987M	24.6	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	35.1	46.0	-10.9	Line
9	377.615k	26.8	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	37.3	48.3	-11.0	Line
10	1.970M	24.5	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	35.0	46.0	-11.0	Line
11	15.436M	27.6	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	38.9	50.0	-11.1	Line
12	493.968k	24.4	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	34.9	46.1	-11.2	Line
13	2.247M	24.3	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	34.8	46.0	-11.2	Line
14	17.697M	27.2	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	38.5	50.0	-11.5	Line
15	2.055M	23.9	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	34.4	46.0	-11.6	Line
16	15.598M	27.0	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	38.3	50.0	-11.7	Line

17	15.923M	26.8	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	38.1	50.0	-11.9	Line
18	1.660M	23.0	+10.1 +0.0	+0.2 +0.5	+0.0	+0.2	+0.0	34.0	46.0	-12.0	Line
19	16.283M	26.7	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	38.0	50.0	-12.0	Line
20	4.586M	23.2	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	33.9	46.0	-12.1	Line
21	3.671M	23.2	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	33.9	46.0	-12.1	Line
22	2.293M	23.3	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	33.8	46.0	-12.2	Line
23	2.281M	23.1	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	33.6	46.0	-12.4	Line
24	2.200M	23.1	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	33.6	46.0	-12.4	Line
25	16.166M	26.3	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	37.6	50.0	-12.4	Line
26	1.804M	22.1	+10.1 +0.0	+0.2 +0.7	+0.0	+0.2	+0.0	33.3	46.0	-12.7	Line
27	14.211M	26.2	+10.1 +0.0	+0.5 +0.3	+0.1	+0.1	+0.0	37.3	50.0	-12.7	Line
28	17.085M	26.0	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	37.3	50.0	-12.7	Line
29	1.681M	22.0	+10.1 +0.0	+0.2 +0.5	+0.0	+0.2	+0.0	33.0	46.0	-13.0	Line
30	1.919M	22.1	+10.1 +0.0	+0.2 +0.3	+0.0	+0.1	+0.0	32.8	46.0	-13.2	Line
31	696.858k	22.0	+10.1 +0.0	+0.1 +0.2	+0.0	+0.2	+0.0	32.6	46.0	-13.4	Line
32	4.360M	21.9	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	32.6	46.0	-13.4	Line
33	1.447M	21.6	+10.1 +0.0	+0.2 +0.4	+0.0	+0.2	+0.0	32.5	46.0	-13.5	Line
34	16.229M	25.2	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	36.5	50.0	-13.5	Line
35	1.132M	21.6	+10.1 +0.0	+0.1 +0.3	+0.0	+0.2	+0.0	32.3	46.0	-13.7	Line
36	15.364M	24.9	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	36.2	50.0	-13.8	Line
37	16.905M	24.9	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	36.2	50.0	-13.8	Line
38	16.959M	24.8	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	36.1	50.0	-13.9	Line
39	2.982M	21.6	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	32.1	46.0	-13.9	Line
40	18.364M	24.7	+10.1 +0.0	+0.6 +0.4	+0.1	+0.2	+0.0	36.1	50.0	-13.9	Line
41	1.634M	20.9	+10.1 +0.0	+0.2 +0.5	+0.0	+0.2	+0.0	31.9	46.0	-14.1	Line
42	14.905M	24.6	+10.1 +0.0	+0.6 +0.3	+0.1	+0.1	+0.0	35.8	50.0	-14.2	Line

43	15.553M	24.3	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	35.6	50.0	-14.4	Line
44	16.842M	24.2	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	35.5	50.0	-14.5	Line
45	2.217M	20.7	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	31.2	46.0	-14.8	Line
46	15.860M	23.9	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	35.2	50.0	-14.8	Line
47	2.578M	20.7	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	31.2	46.0	-14.8	Line
48	2.378M	20.7	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	31.2	46.0	-14.8	Line
49	15.986M	23.7	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	35.0	50.0	-15.0	Line
50	157.272k Ave	26.1	+10.1 +0.0	+0.0 +0.1	+0.0	+1.2	+0.0	37.5	55.6	-18.1	Line
^	157.272k	42.9	+10.1 +0.0	+0.0 +0.1	+0.0	+1.2	+0.0	54.3	55.6	-1.3	Line

Test Location:	CKC Laboratories, Inc. • 5046 Sierra Pines Drive • Mariposa, CA 95338 • (209) 966-5240		
Customer:	**Eventbrite, Inc.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**97859**	Date:	2/10/2016
Test Type:	**Conducted Emissions**	Time:	10:43:37
Tested By:	Chuck Kendall	Sequence#:	9
Software:	EMITest 5.03.00		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

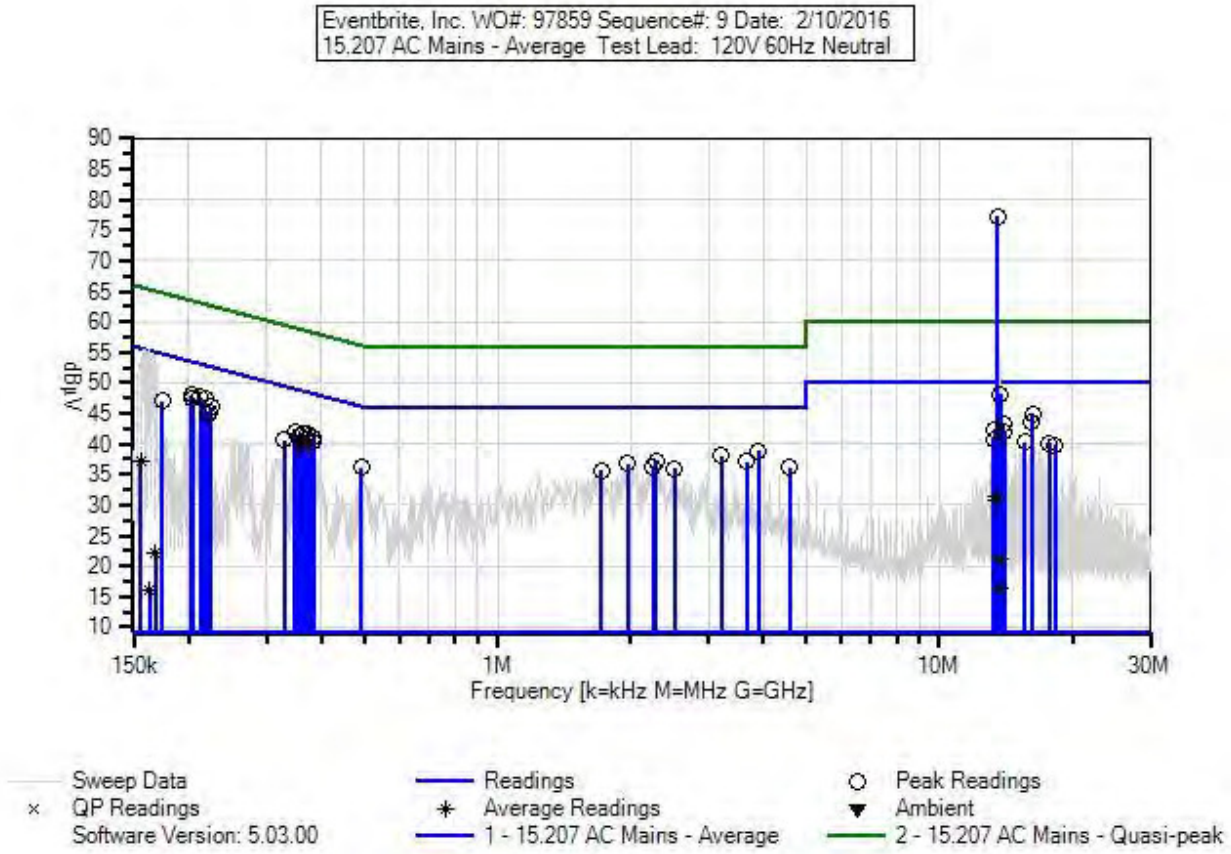
Test Conditions / Notes:

ANSI C63.10 2013
The EUT is set up at 3m and is 0.8 meter above a ground plane and 40cm away from the vertical ground plane..
It is transmitting in normal mode of operation. The POE is on the test bench during this testing.

Highest clock =1 GHz

Environmental Conditions:
Temperature = 20°C
Relative Humidity = 44%
Atmospheric Pressure = 97.7 kPa

Modification #1 was in place during testing.


Eventbrite, Inc. WO#: 97859 Sequence#: 9 Date: 2/10/2016
15.207 AC Mains - Average Test Lead: 120V 60Hz Neutral
dBµV
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
150k
1M
10M
30M
Frequency [k=kHz M=MHz G=GHz]
Sweep Data
QP Readings
Software Version: 5.03.00
Readings
Average Readings
1 - 15.207 AC Mains - Average
Peak Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Equipment:

ID	Asset #/Serial #	Description	Model	Calibration Date	Cal Due Date
	AN02111	Spectrum Analyzer	8593EM	6/4/2015	6/4/2016
T1	ANP06770	Attenuator	PE7010-10	1/15/2015	1/15/2017
T2	ANMACOND	Cable		8/26/2014	8/26/2016
T3	ANP06885	Cable	P06885	10/27/2015	10/27/2017
T4	AN02608	High Pass Filter	HE9615-150K-50-720B	3/25/2014	3/25/2016
T5	ANP05684	Cable	RG223/U	1/15/2015	1/15/2017
T6	AN01248	50uH LISN-Line 1 (Return) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017
	AN01248	50uH LISN-Line 2 (Line) (dB)	8028-50-TS-24-BNC	1/4/2016	1/4/2017

Measurement Data: Reading listed by margin. Test Lead: Neutral

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	13.562M	66.0	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	77.2	50.0	+27.2	Neutr
2	13.779M	37.0	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	48.2	50.0	-1.8	Neutr
3	16.229M	33.5	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	44.8	50.0	-5.2	Neutr
4	212.539k	37.2	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	47.7	53.1	-5.4	Neutr
5	203.086k	37.5	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	48.0	53.5	-5.5	Neutr
6	217.630k	36.9	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	47.4	52.9	-5.5	Neutr
7	204.540k	37.0	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	47.5	53.4	-5.9	Neutr
8	16.166M	32.4	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	43.7	50.0	-6.3	Neutr
9	224.902k	35.5	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	46.0	52.6	-6.6	Neutr
10	372.525k	31.3	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	41.7	48.4	-6.7	Neutr
11	13.986M	31.9	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	43.1	50.0	-6.9	Neutr
12	348.527k	31.5	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	41.9	49.0	-7.1	Neutr
13	363.071k	31.1	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	41.5	48.7	-7.2	Neutr
14	384.160k	30.5	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	41.0	48.2	-7.2	Neutr
15	3.892M	28.1	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	38.8	46.0	-7.2	Neutr
16	222.720k	34.7	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	45.2	52.7	-7.5	Neutr

17	355.799k	30.8	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	41.2	48.8	-7.6	Neutr
18	13.364M	31.1	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	42.3	50.0	-7.7	Neutr
19	381.251k	30.0	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	40.5	48.3	-7.8	Neutr
20	173.997k	36.5	+10.1 +0.0	+0.0 +0.1	+0.0	+0.3	+0.0	47.0	54.8	-7.8	Neutr
21	369.616k	30.3	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	40.7	48.5	-7.8	Neutr
22	14.058M	30.9	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	42.1	50.0	-7.9	Neutr
23	3.203M	27.5	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	38.0	46.0	-8.0	Neutr
24	221.266k	34.2	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	44.7	52.8	-8.1	Neutr
25	358.708k	30.0	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	40.4	48.8	-8.4	Neutr
26	2.289M	26.7	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	37.2	46.0	-8.8	Neutr
27	328.892k	30.2	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	40.6	49.5	-8.9	Neutr
28	364.525k	29.3	+10.1 +0.0	+0.1 +0.1	+0.0	+0.1	+0.0	39.7	48.6	-8.9	Neutr
29	3.667M	26.4	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	37.1	46.0	-8.9	Neutr
30	1.974M	26.3	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	36.8	46.0	-9.2	Neutr
31	13.292M	29.5	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	40.7	50.0	-9.3	Neutr
32	15.616M	29.0	+10.1 +0.0	+0.6 +0.4	+0.1	+0.1	+0.0	40.3	50.0	-9.7	Neutr
33	2.247M	25.8	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	36.3	46.0	-9.7	Neutr
34	4.581M	25.5	+10.1 +0.0	+0.3 +0.1	+0.1	+0.1	+0.0	36.2	46.0	-9.8	Neutr
35	17.697M	28.8	+10.1 +0.0	+0.6 +0.5	+0.1	+0.1	+0.0	40.2	50.0	-9.8	Neutr
36	491.786k	25.7	+10.1 +0.0	+0.1 +0.1	+0.0	+0.2	+0.0	36.2	46.1	-9.9	Neutr
37	2.519M	25.5	+10.1 +0.0	+0.2 +0.1	+0.0	+0.1	+0.0	36.0	46.0	-10.0	Neutr
38	18.247M	28.3	+10.1 +0.0	+0.6 +0.5	+0.1	+0.2	+0.0	39.8	50.0	-10.2	Neutr
39	1.715M	25.1	+10.1 +0.0	+0.2 +0.1	+0.0	+0.2	+0.0	35.7	46.0	-10.3	Neutr
40 Ave	155.818k	25.6	+10.1 +0.0	+0.0 +0.1	+0.0	+1.5	+0.0	37.3	55.7	-18.4	Neutr
^	155.818k	42.7	+10.1 +0.0	+0.0 +0.1	+0.0	+1.5	+0.0	54.4	55.7	-1.3	Neutr
42 Ave	13.420M	20.2	+10.1 +0.0	+0.5 +0.4	+0.1	+0.1	+0.0	31.4	50.0	-18.6	Neutr

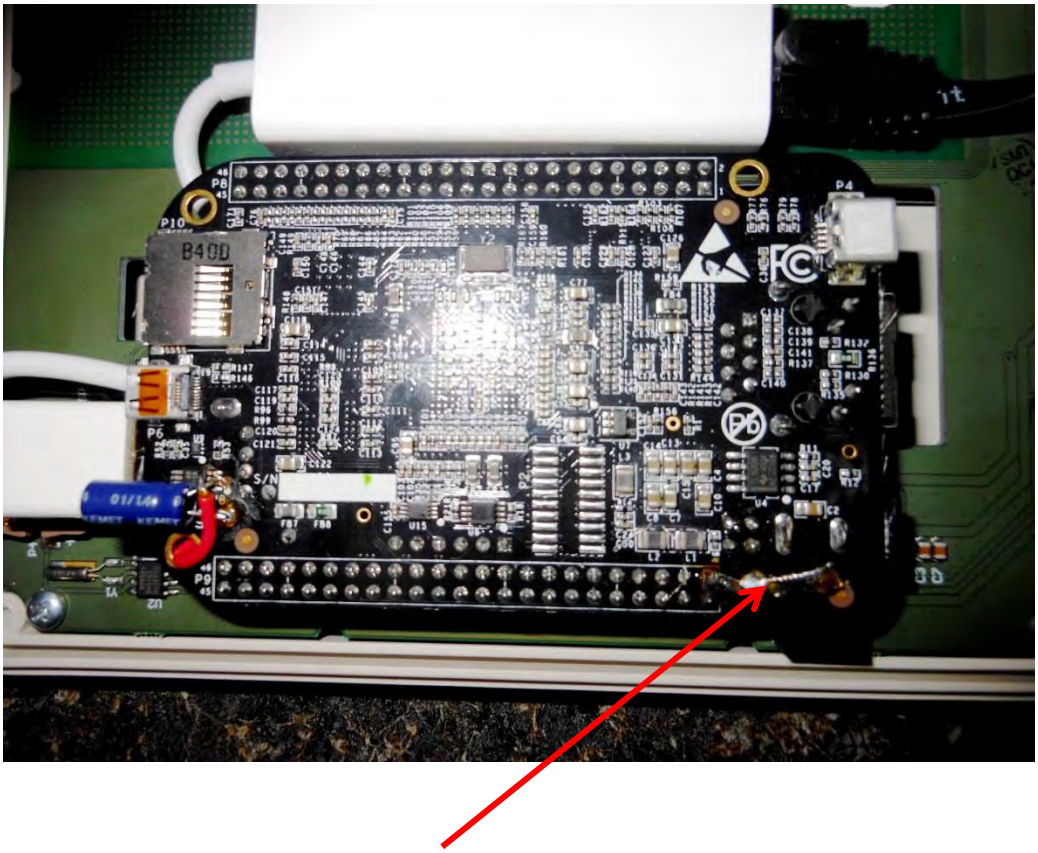
43	13.499M	19.6	+10.1	+0.5	+0.1	+0.1	+0.0	30.8	50.0	-19.2	Neutr
Ave			+0.0	+0.4							
^	13.499M	42.1	+10.1	+0.5	+0.1	+0.1	+0.0	53.3	50.0	+3.3	Neutr
			+0.0	+0.4							
45	13.427M	19.5	+10.1	+0.5	+0.1	+0.1	+0.0	30.7	50.0	-19.3	Neutr
Ave			+0.0	+0.4							
^	13.427M	40.9	+10.1	+0.5	+0.1	+0.1	+0.0	52.1	50.0	+2.1	Neutr
			+0.0	+0.4							
47	13.643M	9.9	+10.1	+0.5	+0.1	+0.1	+0.0	21.1	50.0	-28.9	Neutr
Ave			+0.0	+0.4							
^	13.643M	42.8	+10.1	+0.5	+0.1	+0.1	+0.0	54.0	50.0	+4.0	Neutr
			+0.0	+0.4							
49	168.180k	11.6	+10.1	+0.0	+0.0	+0.4	+0.0	22.2	55.0	-32.8	Neutr
Ave			+0.0	+0.1							
^	168.180k	43.8	+10.1	+0.0	+0.0	+0.4	+0.0	54.4	55.0	-0.6	Neutr
			+0.0	+0.1							
51	13.706M	5.1	+10.1	+0.5	+0.1	+0.1	+0.0	16.3	50.0	-33.7	Neutr
Ave			+0.0	+0.4							
^	13.706M	40.2	+10.1	+0.5	+0.1	+0.1	+0.0	51.4	50.0	+1.4	Neutr
			+0.0	+0.4							
53	163.090k	5.2	+10.1	+0.0	+0.0	+0.5	+0.0	15.9	55.3	-39.4	Neutr
Ave			+0.0	+0.1							
^	163.090k	44.8	+10.1	+0.0	+0.0	+0.5	+0.0	55.5	55.3	+0.2	Neutr
			+0.0	+0.1							
^	158.726k	44.5	+10.1	+0.0	+0.0	+0.9	+0.0	55.6	55.5	+0.1	Neutr
			+0.0	+0.1							
^	160.908k	44.2	+10.1	+0.0	+0.0	+0.6	+0.0	55.0	55.4	-0.4	Neutr
			+0.0	+0.1							
^	165.271k	43.9	+10.1	+0.0	+0.0	+0.4	+0.0	54.5	55.2	-0.7	Neutr
			+0.0	+0.1							
^	166.725k	41.0	+10.1	+0.0	+0.0	+0.4	+0.0	51.6	55.1	-3.5	Neutr
			+0.0	+0.1							

Test Setup Photos

Appendix A

Modifications Made During Testing

Installed a jumper on the transmitter PCB to establish a reference to chassis ground.



Location of jumper installed.

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on the limit value subtracting the corrected measured value; a negative margin represents a measurement less than the limit while a positive margin represents a measurement exceeding the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.