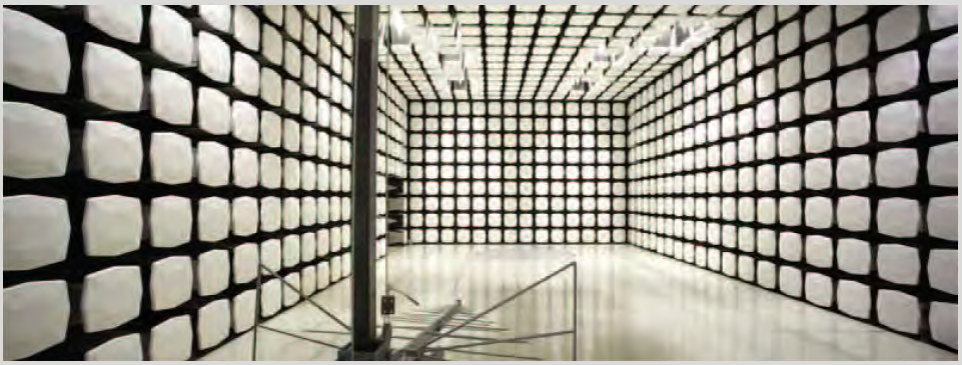
Technical Consumer Products, Inc.

LAS11LC

FCC 15.247:2013

Report #: GLBC0119



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

NORTHWEST EMC

WTD 12.5.23

CERTIFICATE OF TEST

Last Date of Test: September 25, 2013
Technical Consumer Products, Inc.
Model: LAS11LC

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2013	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2013	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2013	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2013	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2013	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2013	ANSI C63.10:2009	Pass
Powerline Conducted Emissions	FCC 15.207:2013	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:

Victor Ratinoff, Operations Manager

NVLAP®

NVLAP Lab Code: 200676-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

NORTHWEST EMC
REV 2012.08.02

REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

NORTHWEST EMC

REV 2012.05.24

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

KCC / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

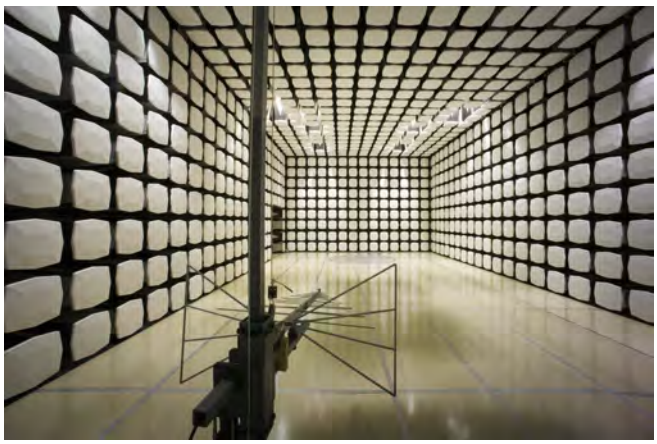
SCOPE

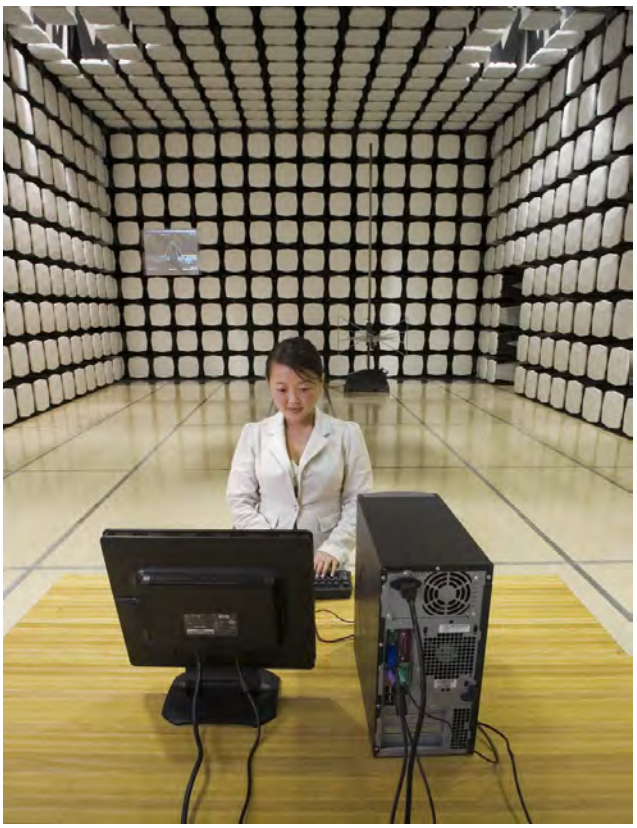
For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/

FACILITIES

REV 2013.06.28

Oregon	California	New York	Minnesota	Washington
Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs NC01-05,SU02,SU07 19201 120th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-*2*	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0





MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94	-2.94

PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Technical Consumer Products, Inc.
Address:	325 Campus Drive
City, State, Zip:	Aurora, Ohio 44202
Test Requested By:	Leon Kogan
Model:	LAS11LC
First Date of Test:	September 25, 2013
Last Date of Test:	September 25, 2013
Receipt Date of Samples:	September 25, 2013
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

LAS11LC is 2.4 GHz ISM radio module, 802.15.4 complaint with 1 antenna contained in an 11 watt Remote Wireless LED type A19 lamp. There is a second model that is similar to the LAS11LC, but was not tested. This model is the LBR14LC which has the same radio. To which the PCB is electrically and mechanically identical however, contained in an 10 watt Remote Wireless LED type BR30 Lamp.

Testing Objective:

To demonstrate compliance to FCC 15.247 requirements.

CONFIGURATIONS

Configuration GLBC0119- 1

Software/Firmware Running during test	
Description	**Version**
Bulb Evaluation Tool	1.2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Light Bulb	Technical Consumer Products, Inc.	LAS11LC	972-A1

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Toshiba	PSAA8U-02200U	46170208Q
Evaluation Kit	NXP	JN5148-EK010	None
Evaluation Kit PS	Ktec	KSAS006050100VUD	None
2.4GHz Antenna	Generic	2.4GHz	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.5m	No	AC Mains	EUT
Antenna Cable	No	4.5m	No	Antenna	Evaluation Kit
USB Cable	Yes	1.8m	No	Laptop	Evaluation Kit
DC Cable	No	1.5m	No	AC Mains	Evaluation Kit
AC Cable	No	1.8m	No	AC Mains	Laptop PS
DC Cable	No	1.5m	No	Laptop	Laptop PS
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	9/25/2013	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	9/25/2013	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	9/25/2013	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	9/25/2013	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	9/25/2013	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	9/25/2013	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	9/25/2013	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFA	6/15/2012	24
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12

TEST DESCRIPTION

For software controlled or pre-programmed devices, the manufacturer shall declare the duty cycle class or classes for the equipment under test. For manually operated or event dependent devices, with or without software controlled functions, the manufacturer shall declare whether the device once triggered, follows a pre-programmed cycle, or whether the transmission is constant until the trigger is released or manually reset. The manufacturer shall also give a desccription of the application for the device and include a typical usage pattern. The typcal usage pattern as declared by the manufacturer shall be used to determine the duty cycle and hence the duty class.

Where an acknowledgment is required, the additional transmitter on-time shall be included and declared by the manufacturer.

To derive average emissions measurements, a duty cycle correction factor per 15.35(c) was utilized:

Duty Cycle = On time/100 milliseconds (or the period, whichever is less)
Where "On time" = N1L1+N2L2

Where N1 is the number of type 1 pulses, L1 is the length of type 1 pulses, N2 is the number of type 2 pulses, L2 is the lenth of type 2 pulses, etc.

Therefore, Duty Cycle = (N1L1+N2L2+....)/100mS. Where T is the period of the pulse train.

The measureed value for the EUT's low channel is as follows:
Period = 8.148mSec
Pulsewidth of Type 1 Pulse = 0.165967 mSec
Number of Type 1 Pulses = 5
Duty Cycle = 20*log ((0.165967*5)/8.182ms) = 19.88 dB

The measured value for the EUT's mid & hig channels are as follows:
Duty Cycle = 20*log ((0.160433*5)/8.178ms) = 20.17 dB

DUTY CYCLE

EUT:	LAS11LC			**Work Order:**	GLBC0119
Serial Number:	972-A1			**Date:**	09/25/13
Customer:	Techincal Consumer Products, Inc.			**Temperature:**	24.2°C
Attendees:	Leon Kogan			**Humidity:**	39%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

Duty cycle correction factor to be applied to average measurements.

DEVIATIONS FROM TEST STANDARD

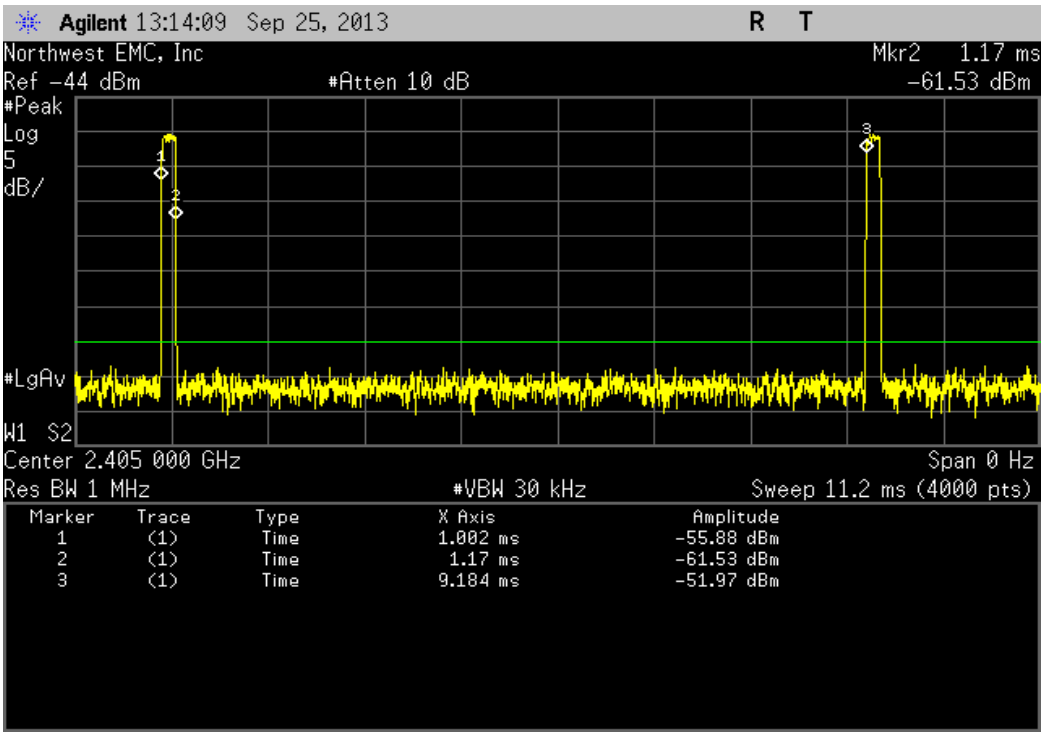
None

Configuration #	1	Signature

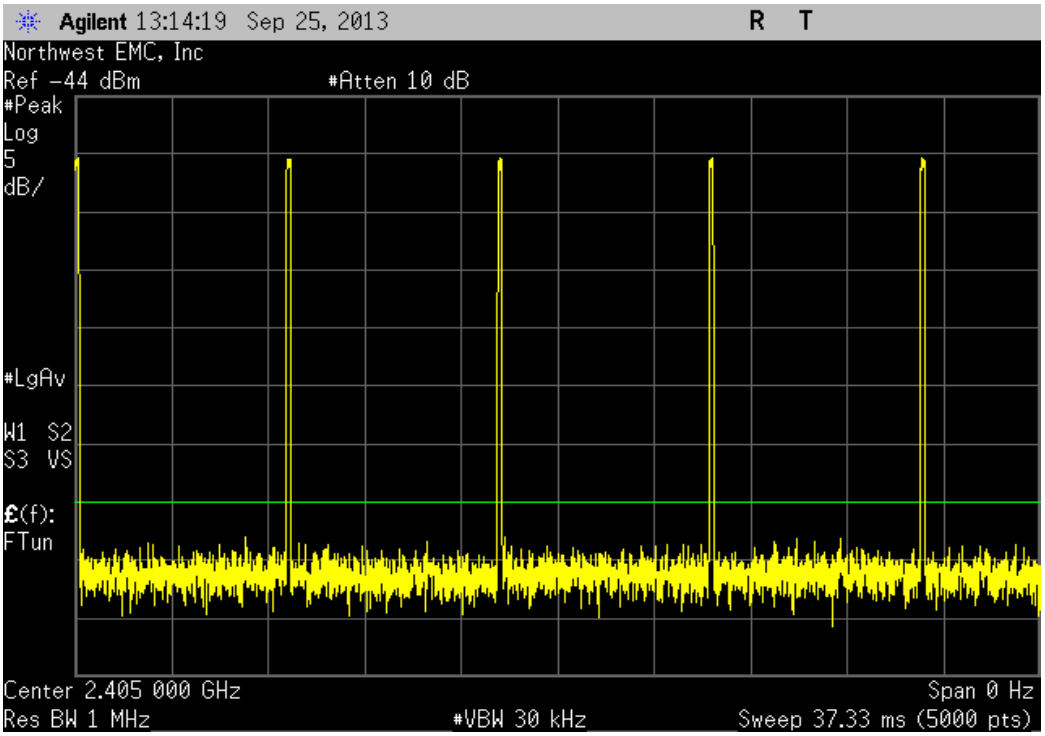
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
Low Channel, 2405 MHz	168 uS	8.182 mS	1	2.1	N/A	-20.17
Low Channel, 2405 MHz	N/A	N/A	5	N/A	N/A	
Mid Channel, 2440 MHz	168 uS	8.179 mS	1	2.1	N/A	-20.17
Mid Channel, 2440 MHz	N/A	N/A	5	N/A	N/A	
HighChannel, 2480 MHz	170.8 uS	8.176 mS	1	2.1	N/A	-20.17
HighChannel, 2480 MHz	N/A	N/A	5	N/A	N/A	

DUTY CYCLE

Low Channel, 2405 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	168 uS	8.182 mS	1	2.1	N/A	-20.17

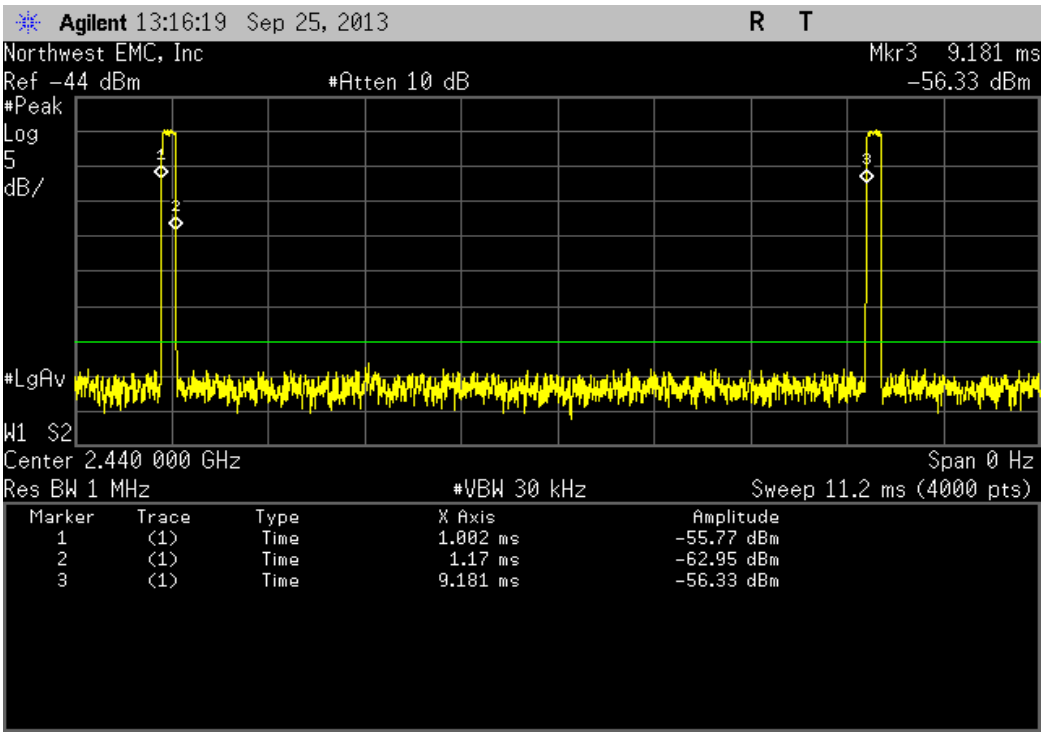


Low Channel, 2405 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	N/A	N/A	5	N/A	N/A	

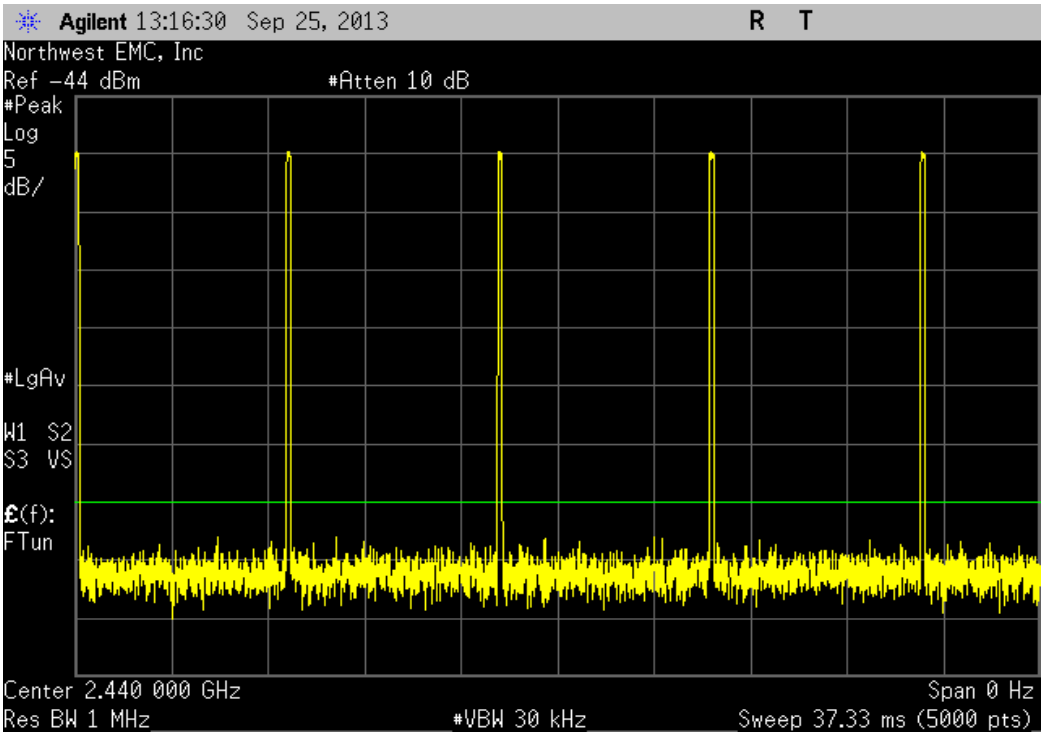


DUTY CYCLE

Mid Channel, 2440 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	168 uS	8.179 mS	1	2.1	N/A	-20.17

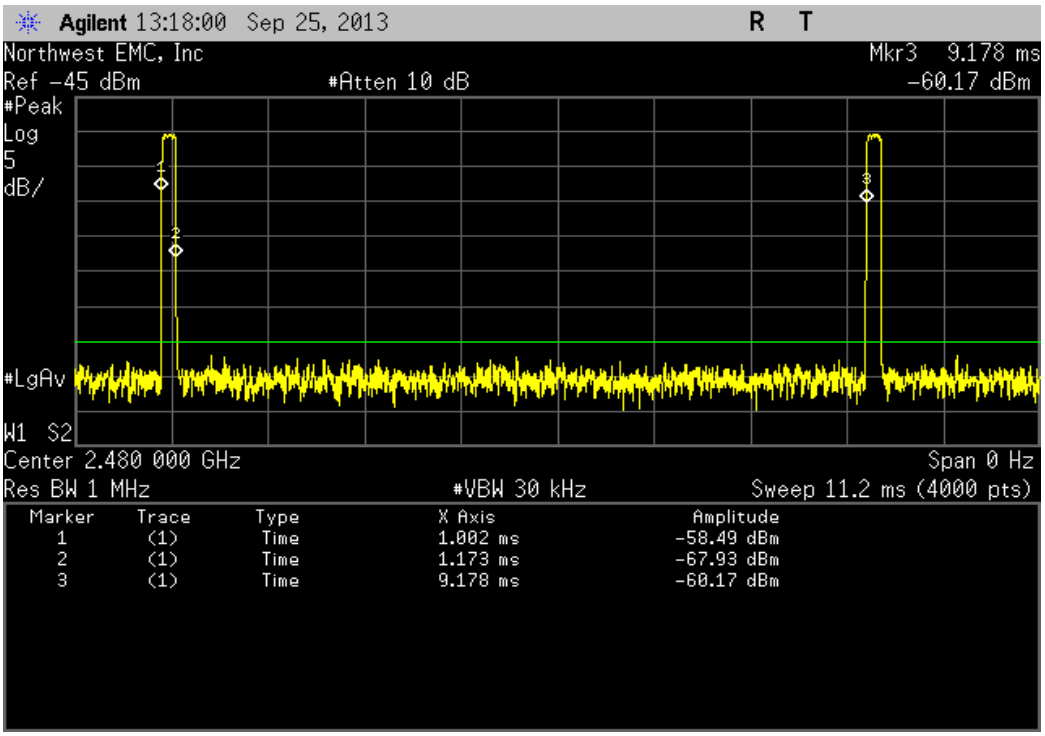


Mid Channel, 2440 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	N/A	N/A	5	N/A	N/A	

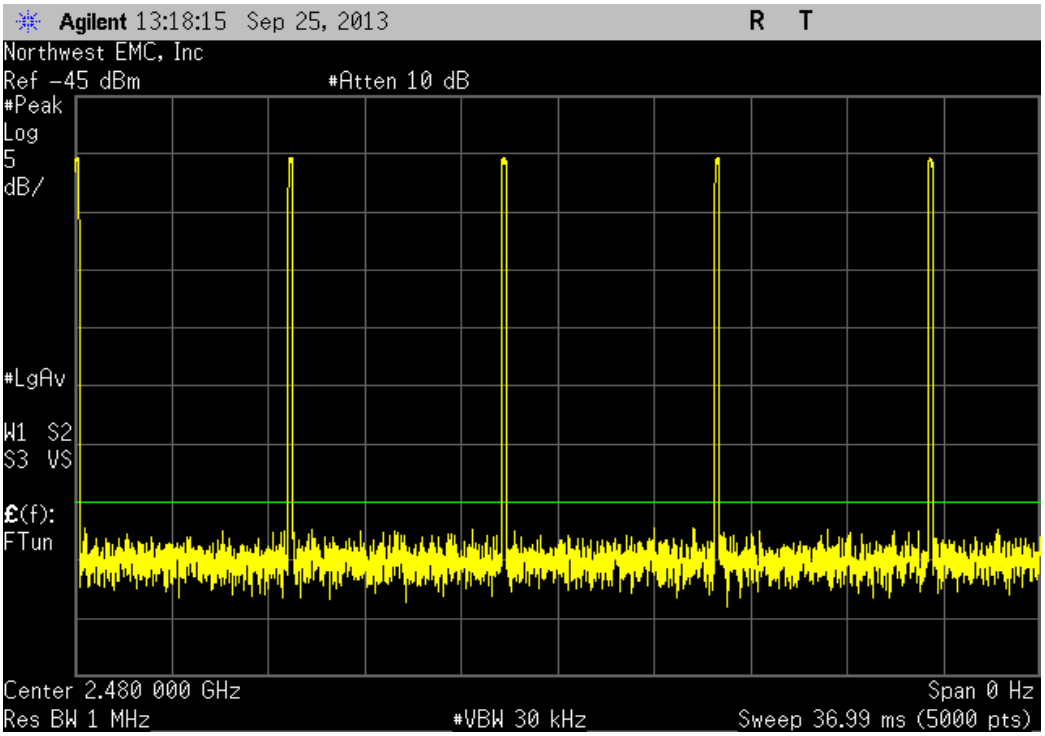


DUTY CYCLE

HighChannel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	170.8 uS	8.176 mS	1	2.1	N/A	-20.17



HighChannel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Duty Cycle Correction Factor
	N/A	N/A	5	N/A	N/A	



OUTPUT POWER

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Continously Transmitting

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

GLBC0119 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	2400 MHz	Stop Frequency	2483.5 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHQ	9/12/2012	36 mo
Power Sensor	Agilent	E4412A	SQE	4/11/2012	24 mo
Power Meter	Hewlett Packard	E4418A	SPA	4/11/2012	24 mo
Signal Generator	Agilent	E8257D	TGU	2/1/2012	36 mo
Spectrum Analyzer	Agilent	E4440A	AFG	5/16/2012	24 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12 mo
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

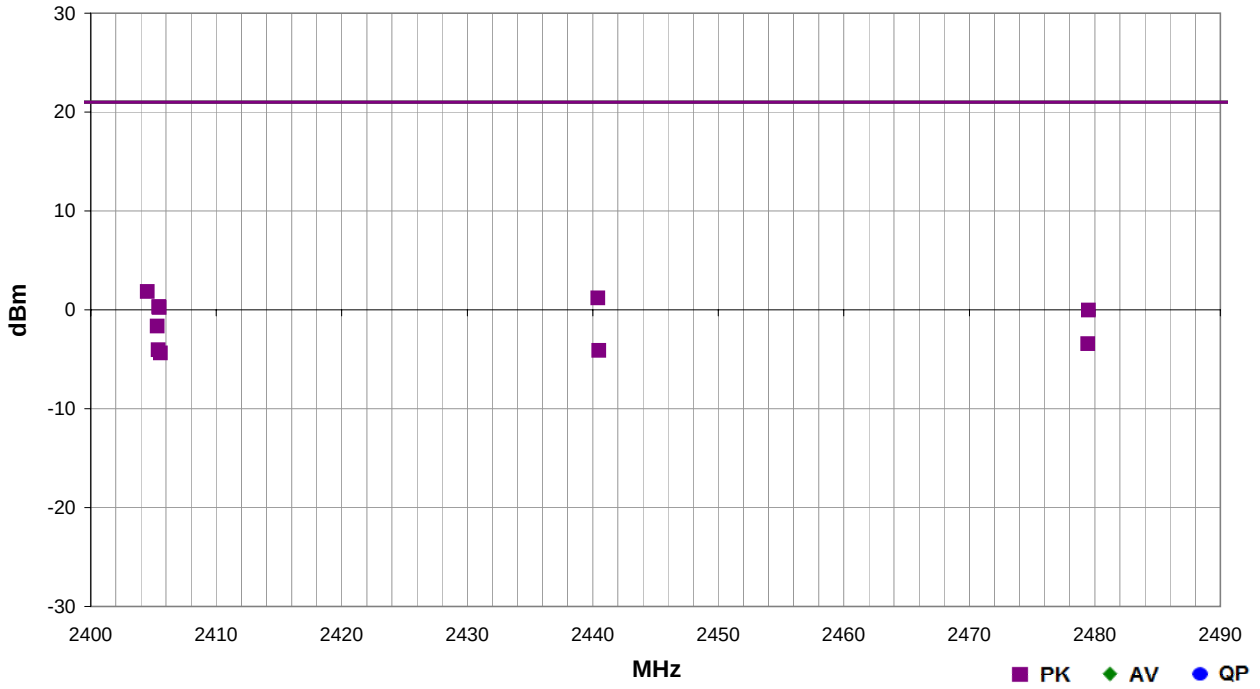
The antennas to be used with EUT were tested. The EUT wsa conitnuously transmitting while set to the channel specified. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna hieght and orientation in 3 orthogonal planes, the EUT and/or associated antenna is positioned in 3 orthogonal palens (per ANSI 63.10)

OUTPUT POWER

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.2 °C		
Job Site:	OC10	**Humidity:**	42.1% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1013 mbar	**Tested by:**	Jaemi Suh
EUT:	LAS11LC				
Configuration:	1				
Customer:	Techincal Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	110VAC/60Hz				
Operating Mode:	Continously Transmitting				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2013	ANSI C63.10:2009

Run #	6	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	2404.517	1.6	208.0	Horz	PK	1.53E-03	1.8	21.0	-19.2	X-Axis
	2440.420	1.6	235.0	Vert	PK	1.32E-03	1.2	21.0	-19.8	X-Axis
	2405.425	1.1	134.0	Horz	PK	1.08E-03	0.3	21.0	-20.7	Z-Axis
	2405.467	1.0	226.0	Vert	PK	1.06E-03	0.2	21.0	-20.8	X-Axis
	2479.500	1.0	233.0	Vert	PK	9.93E-04	0.0	21.0	-21.0	X-Axis
	2405.292	1.5	29.0	Vert	PK	6.82E-04	-1.7	21.0	-22.7	Y-Axis
	2479.450	2.2	162.0	Horz	PK	4.54E-04	-3.4	21.0	-24.4	X-Axis
	2405.367	1.8	177.0	Horz	PK	3.93E-04	-4.1	21.0	-25.1	Y-Axis
	2440.490	1.2	170.0	Horz	PK	3.89E-04	-4.1	21.0	-25.1	X-Axis
	2405.550	1.0	282.0	Vert	PK	3.66E-04	-4.4	21.0	-25.4	Z-Axis

POWER SPECTRAL DENSITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFA	6/15/2012	24
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12

TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to the required transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the lowest, middle, and maximum data rate for each modulation type available.

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:

- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

BWCF = 10*LOG (3 kHz / 100 kHz) = -15.2 dB

POWER SPECTRAL DENSITY

EUT:	LAS11LC			**Work Order:**	GLBC0119
Serial Number:	972-A1			**Date:**	09/25/13
Customer:	Techincal Consumer Products, Inc.			**Temperature:**	24.2°C
Attendees:	Leon Kogan			**Humidity:**	39%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

The transmitter has a very low output power. The measurement was made in a radiated configuration in a semi-anechoic chamber with pre-amp bypassed. Correction factor is Antenna Gain + Cable loss from Output Power data.

DEVIATIONS FROM TEST STANDARD

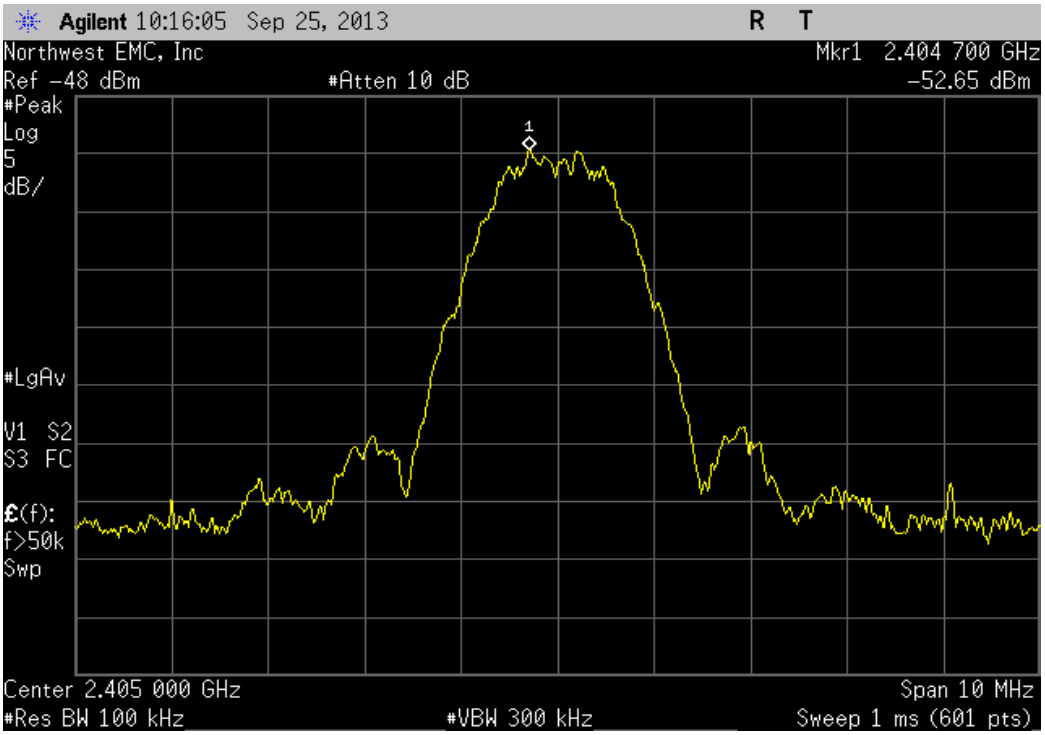
None

Configuration #	1	Signature

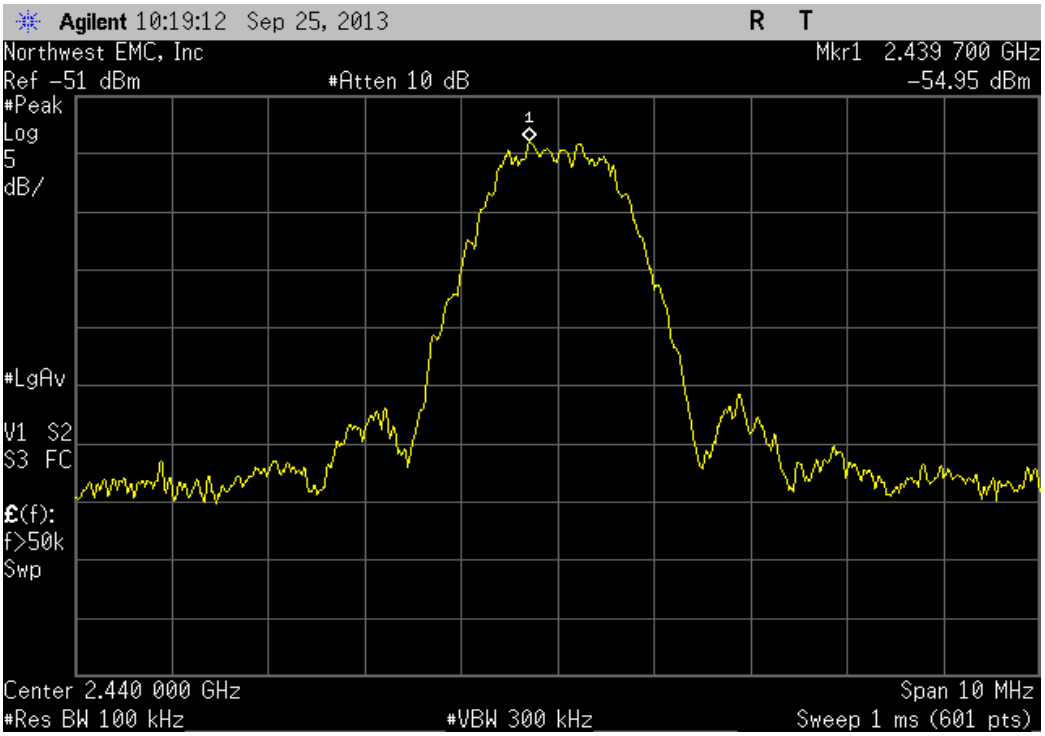
	Correction Factor (dBm)	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
Low Channel, 2405 MHz	33.93	-52.654	-15.2	-33.924	8	Pass
Mid Channel, 2440 MHz	33.93	-54.951	-15.2	-36.221	8	Pass
HighChannel, 2480 MHz	33.93	-56.591	-15.2	-37.861	8	Pass

POWER SPECTRAL DENSITY

Low Channel, 2405 MHz						
	Correction Factor (dBm)	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
	33.93	-52.654	-15.2	-33.924	8	Pass

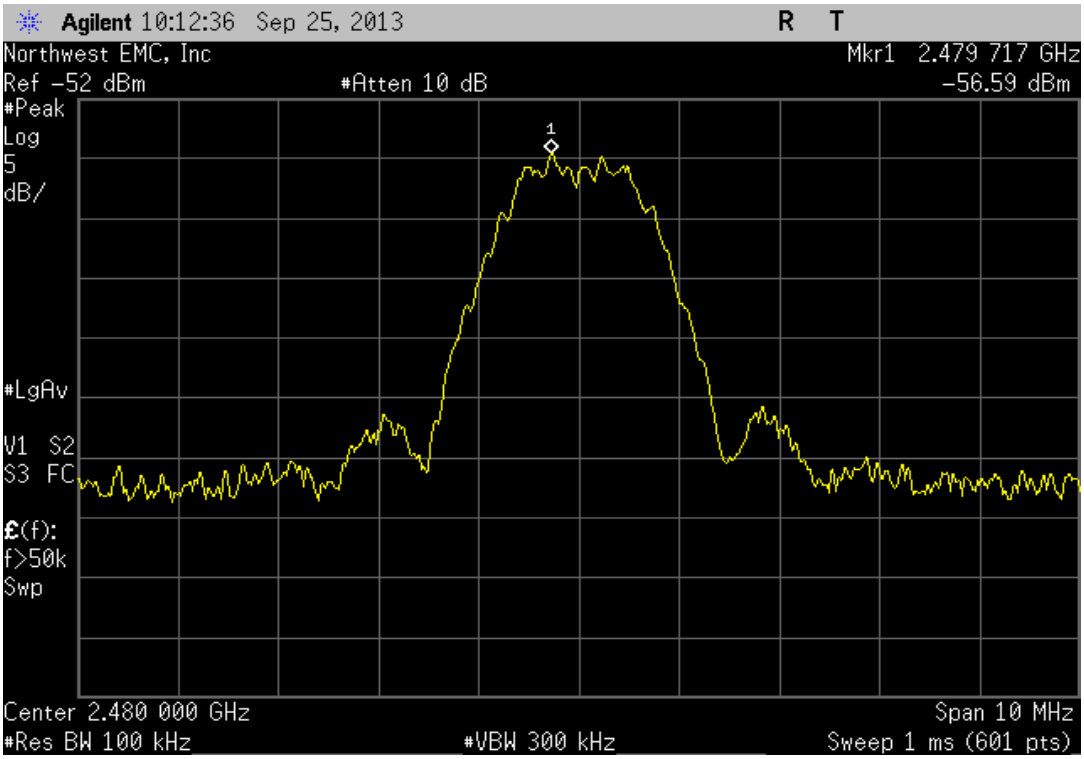


Mid Channel, 2440 MHz						
	Correction Factor (dBm)	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
	33.93	-54.951	-15.2	-36.221	8	Pass



POWER SPECTRAL DENSITY

HighChannel, 2480 MHz						
	Correction Factor (dBm)	Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
	33.93	-56.591	-15.2	-37.861	8	Pass



OCCUPIED BANDWIDTH

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	12/21/2012	36
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12

TEST DESCRIPTION

The 6dB occupied bandwidth was measured. The 26 dB (99.9%) emission bandwidth (EBW) was also measured at the same time.

The EUT was set to low, medium and high transmit frequencies. The measurement was made in a radiated configuration in a semi-anechoic chamber with the fundamental of the carrier full maximized for its highest radiated power. The EUT was transmitting at the data rate(s) listed in the datasheet.

OCCUPIED BANDWIDTH

EUT:	LAS11LC			**Work Order:**	GLBC0119
Serial Number:	972-A1			**Date:**	09/25/13
Customer:	Techincal Consumer Products, Inc.			**Temperature:**	24.2°C
Attendees:	Leon Kogan			**Humidity:**	39%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

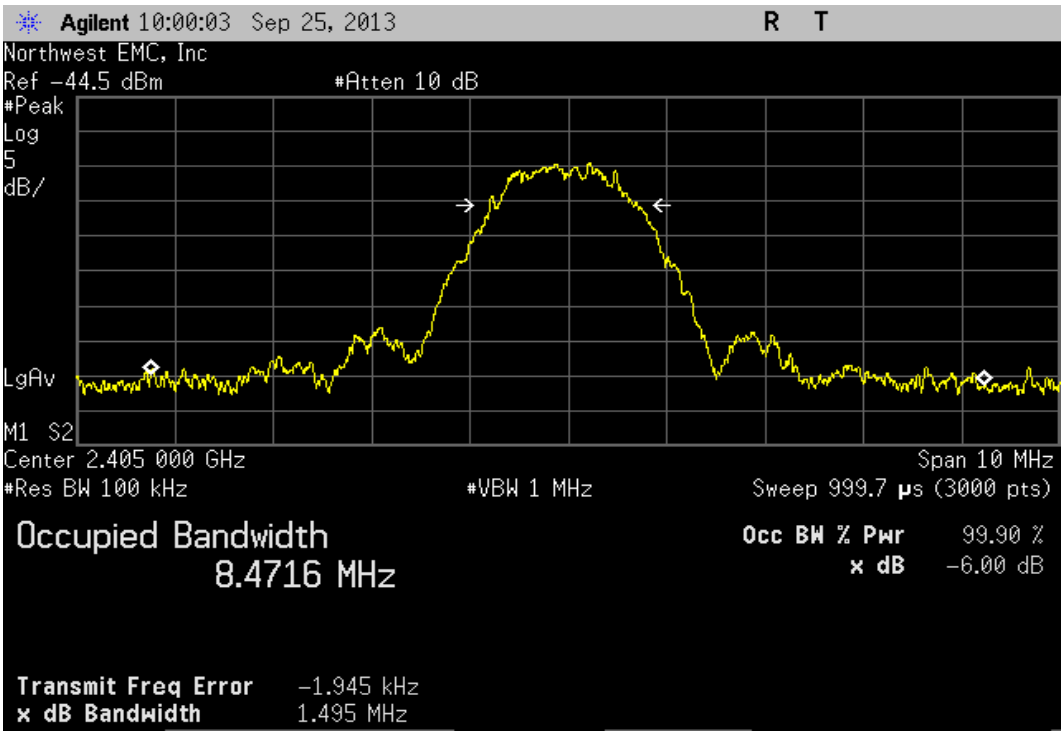
Configuration #	1	Signature

	Value	Limit	Result
Low Channel, 2405 MHz	1.495 MHz	≥ 500 KHz	Pass
Mid Channel, 2440 MHz	1.530 MHz	≥ 500 KHz	Pass
High Channel, 2480 MHz	1.553 MHz	≥ 500 KHz	Pass

OCCUPIED BANDWIDTH

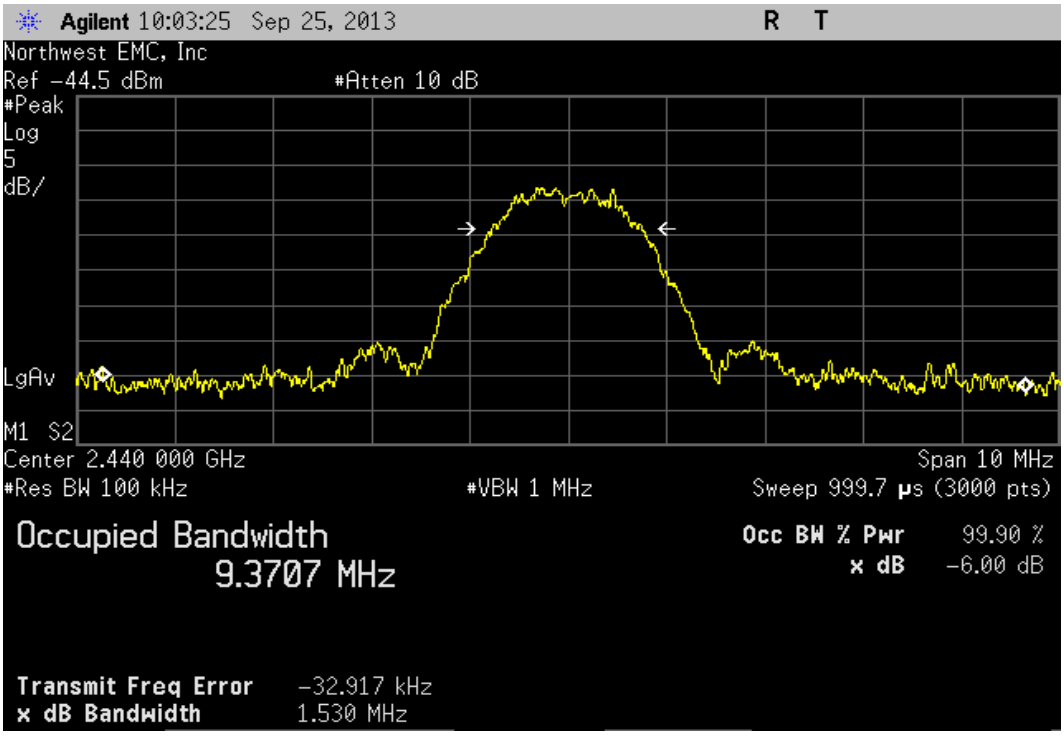
Low Channel, 2405 MHz

				Value	Limit	Result
				1.495 MHz	≥ 500 KHz	Pass



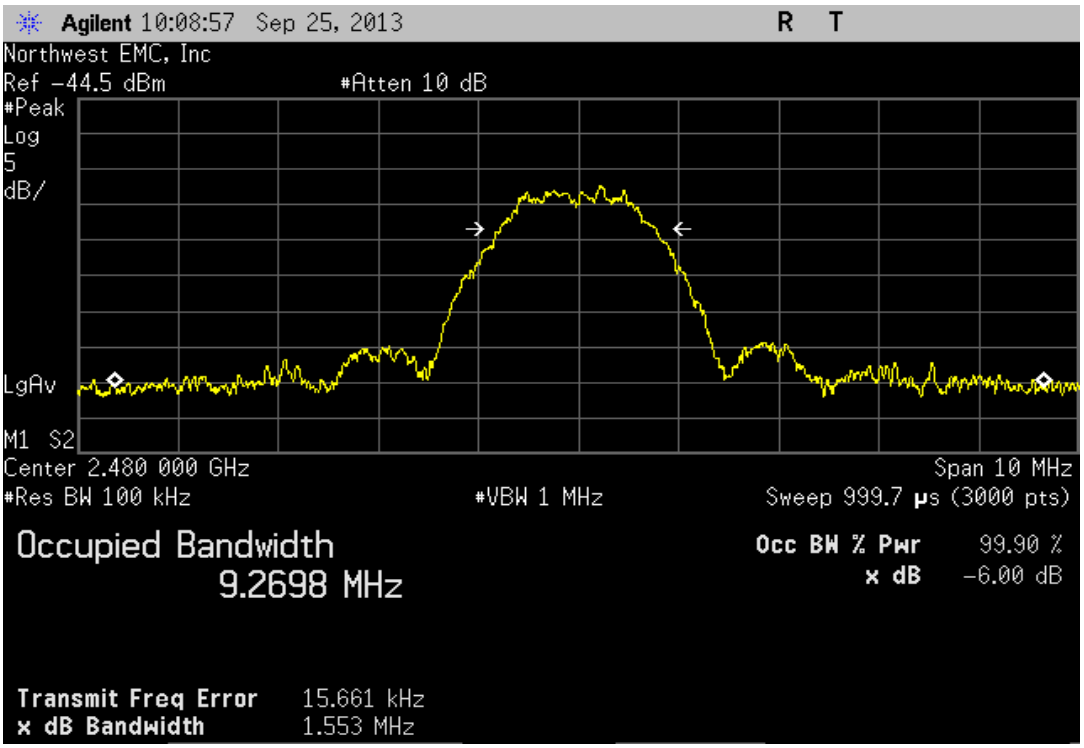
Mid Channel, 2440 MHz

				Value	Limit	Result
				1.530 MHz	≥ 500 KHz	Pass



OCCUPIED BANDWIDTH

High Channel, 2480 MHz						
				Value	Limit	Result
				1.553 MHz	≥ 500 KHz	Pass



BAND EDGE COMPLIANCE

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12
Spectrum Analyzer	Agilent	E4440A	AFA	6/15/2012	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

EUT:	LAS11LC			**Work Order:**	GLBC0119
Serial Number:	972-A1			**Date:**	09/25/13
Customer:	Techincal Consumer Products, Inc.			**Temperature:**	24.2°C
Attendees:	Leon Kogan			**Humidity:**	39%
Project:	None			**Barometric Pres.:**	1012
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2013	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

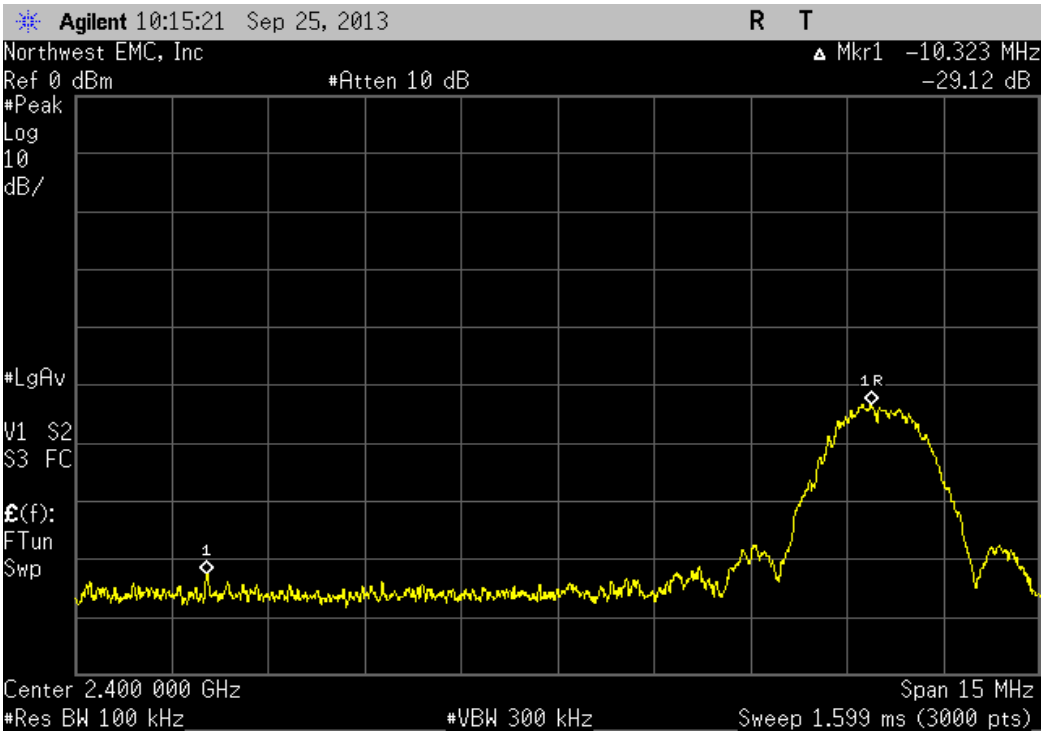
Configuration #	1	Signature

	Value	Limit	Result
Low Channel, 2405 MHz	-29.12 dBc	≤ -20 dBc	Pass
HighChannel, 2480 MHz	-24.98 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

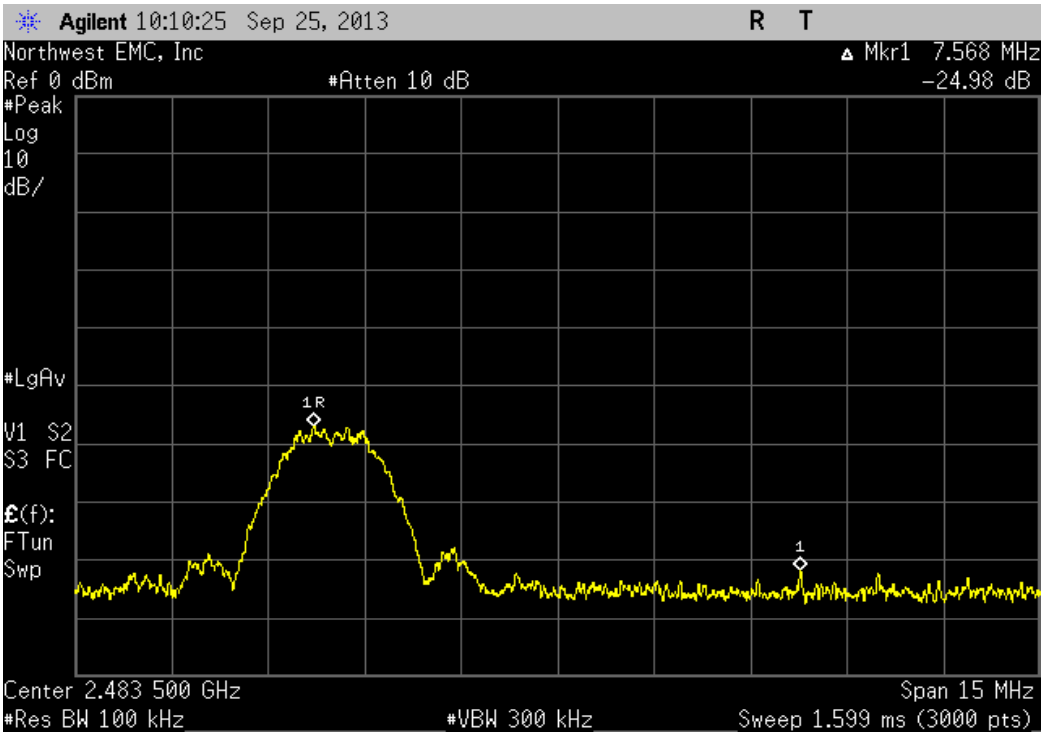
Low Channel, 2405 MHz

Value	Limit	Result
-29.12 dBc	≤ -20 dBc	Pass



HighChannel, 2480 MHz

Value	Limit	Result
-24.98 dBc	≤ -20 dBc	Pass



SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Continously Transmitting High Channel 26, 2480 MHz
Continously Transmitting Mid Channel 18, 2440 MHz
Continously Transmitting Low Channel 11, 2405 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

GLBC0119 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	LFC	11/27/2012	24 mo
Attenuator	Coaxicom	66702 3910AF-20	TKH	6/6/2013	12 mo
HP Filter	Micro-Tronics	HPM50111	HFM	4/2/2012	36 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	4/29/2013	12 mo
Antenna, Horn	EMCO	3160-09	AHN	NCR	0 mo
OC floating Cable	N/A	18-26GHz RE Cables	OCK	4/29/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	11/21/2012	12 mo
Antenna, Horn	ETS	3160-08	AHT	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	11/21/2012	12 mo
Antenna, Horn	ETS	3160-07	AHR	NCR	0 mo
OC 10 Cables	N/A	8-18GHz RE Cables	OCO	7/16/2013	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	6/6/2013	12 mo
Antenna, Horn	EMCO	3115	AHB	3/8/2011	36 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	7/16/2013	12 mo
Antenna, Biconilog	EMCO	3142	AXB	6/2/2013	36 mo
OC10 Cables	N/A	10kHz-1GHz RE Cables	OCH	6/6/2013	12 mo
Pre-Amplifier	Miteq	AM-1064-9079	AOO	6/6/2013	12 mo
Spectrum Analyzer	Agilent	E4440A	AFA	6/15/2012	24 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

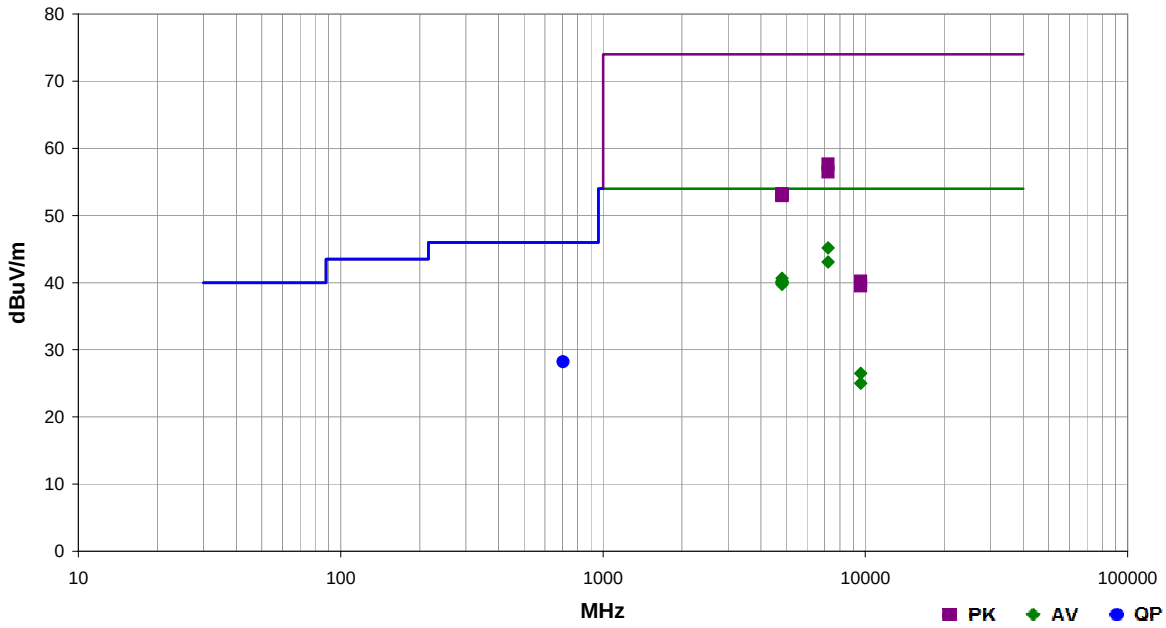
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.2 °C		
Job Site:	OC10	**Humidity:**	42.3% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	LAS11LC				
Configuration:	1				
Customer:	Technical Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	110VAC/60Hz				
Operating Mode:	Continously Transmitting Low Channel 11, 2405 MHz				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2013	ANSI C63.10:2009

Run #	8	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



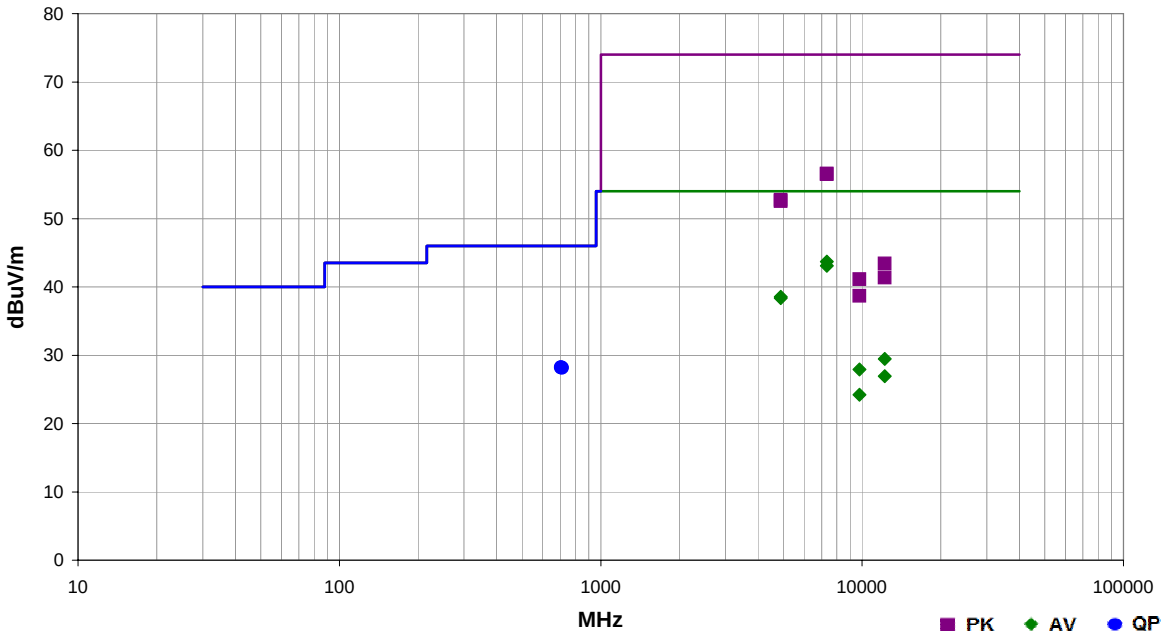
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7213.645	29.5	15.7	1.2	216.0	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	X-Axis
7213.660	27.4	15.7	1.5	123.0	3.0	0.0	Horz	AV	0.0	43.1	54.0	-10.9	X-Axis
4809.000	28.6	12.0	1.2	244.0	3.0	0.0	Horz	AV	0.0	40.6	54.0	-13.4	Y-Axis
4809.055	28.2	12.0	1.2	50.0	3.0	0.0	Horz	AV	0.0	40.2	54.0	-13.8	X-Axis
4809.085	28.1	12.0	1.2	343.0	3.0	0.0	Horz	AV	0.0	40.1	54.0	-13.9	Z-Axis
4810.920	28.0	12.0	1.2	344.0	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	Z-Axis
4810.895	27.9	12.0	1.2	239.0	3.0	0.0	Vert	AV	0.0	39.9	54.0	-14.1	Y-Axis
4810.870	27.7	12.0	1.2	259.0	3.0	0.0	Vert	AV	0.0	39.7	54.0	-14.3	X-Axis
7213.850	42.0	15.7	1.2	216.0	3.0	0.0	Vert	PK	0.0	57.7	74.0	-16.3	X-Axis
7213.315	40.8	15.7	1.5	123.0	3.0	0.0	Horz	PK	0.0	56.5	74.0	-17.5	X-Axis
704.818	20.4	7.8	2.8	149.0	3.0	0.0	Vert	QP	0.0	28.2	46.0	-17.8	X-Axis
4808.695	41.2	12.0	1.2	244.0	3.0	0.0	Horz	PK	0.0	53.2	74.0	-20.8	Y-Axis
4810.685	41.1	12.0	1.2	344.0	3.0	0.0	Vert	PK	0.0	53.1	74.0	-20.9	Z-Axis
4811.065	41.0	12.0	1.2	259.0	3.0	0.0	Vert	PK	0.0	53.0	74.0	-21.0	X-Axis
4810.600	41.0	12.0	1.2	239.0	3.0	0.0	Vert	PK	0.0	53.0	74.0	-21.0	Y-Axis
4808.835	41.0	12.0	1.2	343.0	3.0	0.0	Horz	PK	0.0	53.0	74.0	-21.0	Z-Axis
4808.880	40.9	12.0	1.2	50.0	3.0	0.0	Horz	PK	0.0	52.9	74.0	-21.1	X-Axis
9618.008	36.9	-10.4	1.0	0.0	3.0	0.0	Vert	AV	0.0	26.5	54.0	-27.5	X-Axis
9617.933	35.4	-10.4	1.0	84.0	3.0	0.0	Horz	AV	0.0	25.0	54.0	-29.0	X-Axis
9617.875	50.6	-10.4	1.0	0.0	3.0	0.0	Vert	PK	0.0	40.2	74.0	-33.8	X-Axis
9621.083	49.9	-10.4	1.0	84.0	3.0	0.0	Horz	PK	0.0	39.5	74.0	-34.5	X-Axis

SPURIOUS RADIATED EMISSIONS

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.2 °C		
Job Site:	OC10	**Humidity:**	42.3% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	LAS11LC				
Configuration:	1				
Customer:	Technical Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	110VAC/60Hz				
Operating Mode:	Continously Transmitting Mid Channel 18, 2440 MHz				
Deviations:	None				
Comments:	X-Axis				

Test Specifications	**Test Method**
FCC 15.247:2013	ANSI C63.10:2009

Run #	11	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



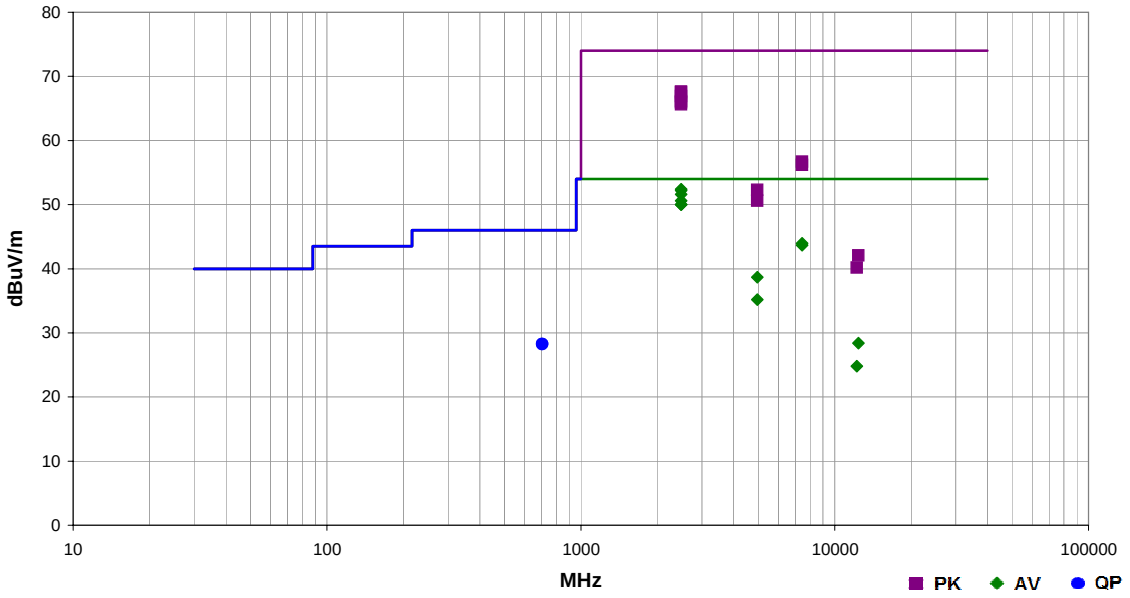
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
7318.650	27.6	16.1	2.0	47.0	3.0	0.0	Horz	AV	0.0	43.7	54.0	-10.3
7318.633	27.0	16.1	1.0	93.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9
4878.958	26.3	12.3	1.9	175.0	3.0	0.0	Horz	AV	0.0	38.6	54.0	-15.4
4879.058	26.1	12.3	1.0	292.0	3.0	0.0	Vert	AV	0.0	38.4	54.0	-15.6
7318.592	40.5	16.1	2.0	47.0	3.0	0.0	Horz	PK	0.0	56.6	74.0	-17.4
7318.733	40.4	16.1	1.0	93.0	3.0	0.0	Vert	PK	0.0	56.5	74.0	-17.5
705.736	20.4	7.8	3.8	360.0	3.0	0.0	Vert	QP	0.0	28.2	46.0	-17.8
704.841	20.4	7.8	3.8	224.0	3.0	0.0	Horz	QP	0.0	28.2	46.0	-17.8
712.777	20.4	7.7	3.8	247.0	3.0	0.0	Horz	QP	0.0	28.1	46.0	-17.9
4878.975	40.5	12.3	1.0	292.0	3.0	0.0	Vert	PK	0.0	52.8	74.0	-21.2
4880.750	40.3	12.3	1.9	175.0	3.0	0.0	Horz	PK	0.0	52.6	74.0	-21.4
12202.180	38.9	-9.5	1.2	253.0	3.0	0.0	Vert	AV	0.0	29.4	54.0	-24.6
9757.942	38.1	-10.2	1.0	11.0	3.0	0.0	Vert	AV	0.0	27.9	54.0	-26.1
12202.280	36.4	-9.5	1.2	144.0	3.0	0.0	Horz	AV	0.0	26.9	54.0	-27.1
9757.958	34.4	-10.2	1.0	136.0	3.0	0.0	Horz	AV	0.0	24.2	54.0	-29.8
12201.620	52.9	-9.5	1.2	253.0	3.0	0.0	Vert	PK	0.0	43.4	74.0	-30.6
12201.450	50.8	-9.5	1.2	144.0	3.0	0.0	Horz	PK	0.0	41.3	74.0	-32.7
9761.833	51.3	-10.2	1.0	11.0	3.0	0.0	Vert	PK	0.0	41.1	74.0	-32.9
9758.733	48.9	-10.2	1.0	136.0	3.0	0.0	Horz	PK	0.0	38.7	74.0	-35.3

SPURIOUS RADIATED EMISSIONS

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.2 °C		
Job Site:	OC10	**Humidity:**	42.3% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1012 mbar	**Tested by:**	Jaemi Suh
EUT:	LAS11LC				
Configuration:	1				
Customer:	Technical Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	110VAC/60Hz				
Operating Mode:	Continously Transmitting High Channel 26, 2480 MHz				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 15.247:2013	ANSI C63.10:2009

Run #	14	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	30.4	2.0	1.5	128.0	3.0	20.0	Horz	AV	0.0	52.4	54.0	-1.6	X-Axis
2483.500	30.2	2.0	1.8	314.0	3.0	20.0	Horz	AV	0.0	52.2	54.0	-1.8	Y-Axis
2483.500	29.6	2.0	1.0	243.0	3.0	20.0	Vert	AV	0.0	51.6	54.0	-2.4	Z-Axis
2483.500	28.6	2.0	1.5	291.0	3.0	20.0	Vert	AV	0.0	50.6	54.0	-3.4	X-Axis
2483.500	28.0	2.0	2.4	180.0	3.0	20.0	Horz	AV	0.0	50.0	54.0	-4.0	Z-Axis
2483.500	28.0	2.0	1.0	95.0	3.0	20.0	Vert	AV	0.0	50.0	54.0	-4.0	Y-Axis
2483.500	45.6	2.0	1.5	128.0	3.0	20.0	Horz	PK	0.0	67.6	74.0	-6.4	X-Axis
2483.500	45.5	2.0	1.8	314.0	3.0	20.0	Horz	PK	0.0	67.5	74.0	-6.5	Y-Axis
2483.500	44.9	2.0	1.0	243.0	3.0	20.0	Vert	PK	0.0	66.9	74.0	-7.1	Z-Axis
2483.500	44.1	2.0	2.4	180.0	3.0	20.0	Horz	PK	0.0	66.1	74.0	-7.9	Z-Axis
2483.500	43.9	2.0	1.5	291.0	3.0	20.0	Vert	PK	0.0	65.9	74.0	-8.1	X-Axis
2483.500	43.6	2.0	1.0	95.0	3.0	20.0	Vert	PK	0.0	65.6	74.0	-8.4	Y-Axis
7438.608	27.8	16.2	1.5	340.0	3.0	0.0	Horz	AV	0.0	44.0	54.0	-10.0	X-Axis
7438.567	27.5	16.2	1.0	343.0	3.0	0.0	Vert	AV	0.0	43.7	54.0	-10.3	X-Axis
4960.933	26.1	12.6	1.0	177.0	3.0	0.0	Vert	AV	0.0	38.7	54.0	-15.3	X-Axis
7438.550	40.5	16.2	1.5	340.0	3.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	X-Axis
705.514	20.4	7.8	2.8	71.0	3.0	0.0	Vert	QP	0.0	28.2	46.0	-17.8	X-Axis
705.388	20.4	7.8	1.0	100.0	3.0	0.0	Horz	QP	0.0	28.2	46.0	-17.8	X-Axis
7441.550	40.0	16.2	1.0	343.0	3.0	0.0	Vert	PK	0.0	56.2	74.0	-17.8	X-Axis
4960.933	22.6	12.6	1.0	162.0	3.0	0.0	Horz	AV	0.0	35.2	54.0	-18.8	X-Axis
4960.725	39.7	12.6	1.0	177.0	3.0	0.0	Vert	PK	0.0	52.3	74.0	-21.7	X-Axis
4959.867	38.0	12.6	1.0	162.0	3.0	0.0	Horz	PK	0.0	50.6	74.0	-23.4	X-Axis
12397.510	37.6	-9.2	1.0	328.0	3.0	0.0	Horz	AV	0.0	28.4	54.0	-25.6	X-Axis
12237.030	34.2	-9.4	1.2	326.0	3.0	0.0	Vert	AV	0.0	24.8	54.0	-29.2	X-Axis
12397.620	51.3	-9.2	1.0	328.0	3.0	0.0	Horz	PK	0.0	42.1	74.0	-31.9	X-Axis
12237.570	49.6	-9.4	1.2	326.0	3.0	0.0	Vert	PK	0.0	40.2	74.0	-33.8	X-Axis

POWERLINE CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Continuously Transmitting, Lamp "ON", Maximum Lumens

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

GLBC0119 - 1

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-24-BNC	LIA	6/3/2013	12 mo
Attenuator	Pasternack	6N10W-20	AWC	2/28/2013	12 mo
HP Filter	TTE	H97-100K-50-720B	HFP	3/1/2012	36 mo
OC06 Cables	N/A	Telecom Cables	OCP	4/5/2013	12 mo
Receiver	Rohde & Schwarz	ESCI	ARF	5/21/2013	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

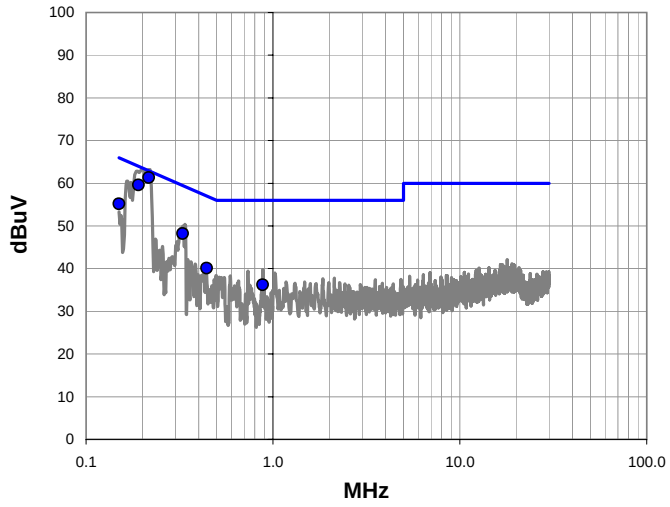
POWERLINE CONDUCTED EMISSIONS

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.9 °C		
Job Site:	OC06	**Humidity:**	43.5% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	LAS11LC				
Configuration:	1				
Customer:	Technical Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	120VAC/60Hz				
Operating Mode:	Continuously Transmitting, Lamp "ON", Maximum Lumens				
Deviations:	None				
Comments:	None				

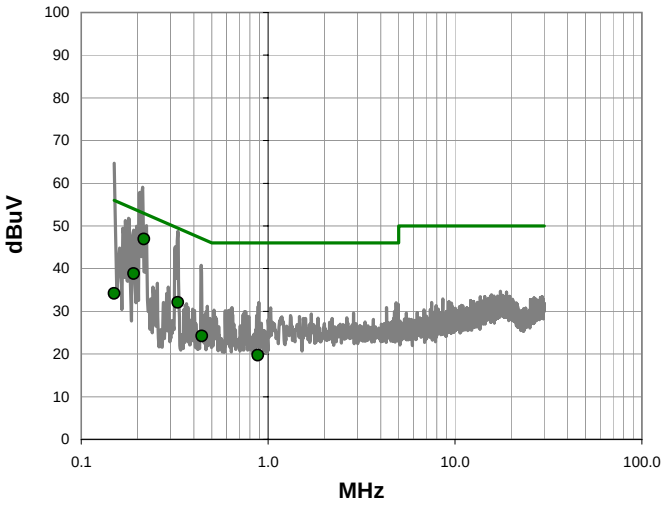
Test Specifications	**Test Method**
FCC 15.207:2013	ANSI C63.10:2009

Run #	3	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.217	41.2	20.1	61.3	62.9	-1.6
0.191	39.5	20.1	59.6	64.0	-4.4
0.150	35.1	20.1	55.2	66.0	-10.8
0.329	28.1	20.1	48.2	59.5	-11.3
0.443	20.0	20.1	40.1	57.0	-16.9
0.883	16.1	20.1	36.2	56.0	-19.8

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.217	26.8	20.1	46.9	52.9	-6.0
0.191	18.7	20.1	38.8	54.0	-15.2
0.329	12.0	20.1	32.1	49.5	-17.4
0.150	14.1	20.1	34.2	56.0	-21.8
0.443	4.1	20.1	24.2	47.0	-22.8
0.883	-0.4	20.1	19.7	46.0	-26.3

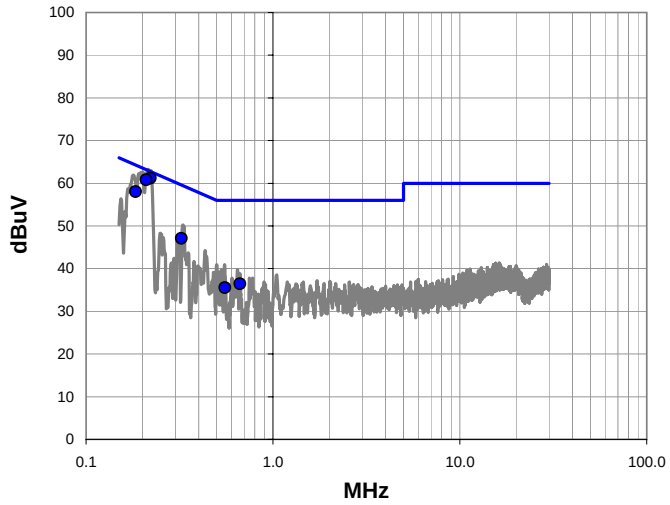
POWERLINE CONDUCTED EMISSIONS

Work Order:	GLBC0119	**Date:**	09/25/13		
Project:	None	**Temperature:**	24.9 °C		
Job Site:	OC06	**Humidity:**	43.5% RH		
Serial Number:	972-A1	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	LAS11LC				
Configuration:	1				
Customer:	Technical Consumer Products, Inc.				
Attendees:	Leon Kogan				
EUT Power:	120VAC/60Hz				
Operating Mode:	Continuously Transmitting, Lamp "ON", Maximum Lumens				
Deviations:	None				
Comments:	None				

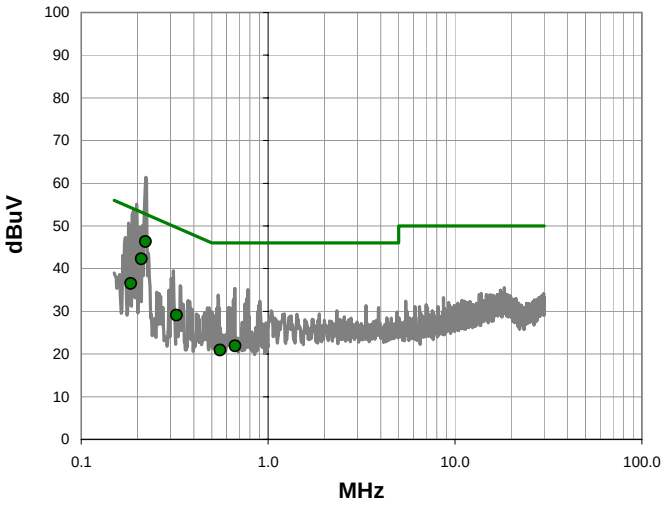
Test Specifications	**Test Method**
FCC 15.207:2013	ANSI C63.10:2009

Run #	4	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.221	41.1	20.1	61.2	62.8	-1.6
0.210	40.7	20.1	60.8	63.2	-2.4
0.184	37.9	20.1	58.0	64.3	-6.3
0.324	27.0	20.1	47.1	59.6	-12.5
0.667	16.3	20.1	36.4	56.0	-19.6
0.553	15.4	20.1	35.5	56.0	-20.5

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.221	26.2	20.1	46.3	52.8	-6.5
0.210	22.2	20.1	42.3	53.2	-10.9
0.184	16.4	20.1	36.5	54.3	-17.8
0.324	9.0	20.1	29.1	49.6	-20.5
0.667	1.8	20.1	21.9	46.0	-24.1
0.553	0.8	20.1	20.9	46.0	-25.1