Leviton Manufacturing Company

WSCxx-IRW

EMC Test Report

Report No. LEVT0032

Report Prepared By

NORTHWEST EMC

www.nwemc.com
1-888-EMI-CERT

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: April 07, 2010
Leviton Manufacturing Company
Model: WSCxx-IRW

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.231:2010	ANSI C63.10:2009	**Pass**
Spurious Radiated Emissions	FCC 15.205:2010	ANSI C63.10:2009	**Pass**
Duty Cycle	FCC 15.231:2010	ANSI C63.10:2009	**Pass**
Occupied Bandwidth	FCC 15.231:2010	ANSI C63.10:2009	**Pass**
Field Strength of Fundamental	FCC 15.231:2010	ANSI C63.10:2009	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2010	ANSI C63.10:2009	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

Approved By:

Don Facteau, IS Manager

NVLAP Lab Code: 200630-0

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.

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Accreditations and Authorizations

FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP

Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0
NVLAP LAB CODE 200881-0

Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)*

CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

NEMKO

Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

Accreditations and Authorizations

Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-1784, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.

GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

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

Northwest EMC Locations

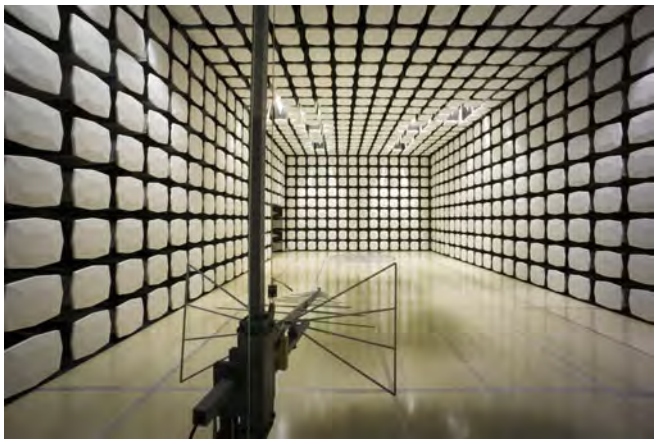
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796



Party Requesting the Test

Company Name:	Leviton Manufacturing Company
Address:	20497 SW Teton Avenue
City, State, Zip:	Tualatin, OR 97062
Test Requested By:	Dan Wright
Model:	WSCxx-IRW
First Date of Test:	March 22, 2010
Last Date of Test:	April 7, 2010
Receipt Date of Samples:	March 22, 2010
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
FCC 15.231 transmitter operating at 315 MHz

Testing Objective:
TCB Certification under FCC 15.231

CONFIGURATION 1 LEVT0032

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - Typical transmission	Leviton Manufacturing Co., Inc.	WSCxx-IRX	WSC15 Typical test unit

CONFIGURATION 2 LEVT0032

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - CW Unit	Leviton Manufacturing Co., Inc.	WSCxx-IRX	WSC15 FCC test unit

CONFIGURATION 3 LEVT0032

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - CW Unit	Leviton Manufacturing Co., Inc.	WSCxx-IRX	WSC15 FCC test unit
AC Power Adapter	James Electronics Inc.	14305	863-9430

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	PA	2.0m	PA	EUT - CW Unit	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	3/22/2010	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.
2	3/22/2010	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	4/7/2010	Field Strength of Fundamental	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	4/7/2010	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.
5	4/7/2010	AC 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	AFD	6/1/2009	24
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
26 GHz DC Block, SMA	Pasternack	PE8210	AME	10/19/2009	13
Near Field Probe	EMCO	7405	IPD	NCR	0

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

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 dependant 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 description of the application for the device and include a typical usage pattern. The typical usage pattern as declared by the manufacturer shall be used to determine the duty cycle and hence the duty class.

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

To derive average emission 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 length of type 1 pulses, N2 is the number of type 2 pulses, L2 is the length of type 2 pulses, etc.

Therefore, Duty Cycle = (N1L1 +N2L2 +…)/100mS or T, whichever is less, where T is the period of the pulse train.

The measured values for the EUT’s pulse train are as follows:

Period = 100 mSec

Pulsewidth of Pulse= 1.2 mSec

Number of Pulses = 3

Duty Cycle = 20 log [((3)(1.2))/100]= -28.9 dB

The duty cycle correction factor of –28.9 dB was added to the peak readings to mathematically derive the average levels. Peak measurements were made with a resolution bandwidth of 100kHz and a video bandwidth of 300kHz.

The field strength of the fundamental (transmit) frequency meets the limits as defined in 47 CFR 15.231(b). It also meets the provisions in 15.35 for averaging pulsed emissions and for limiting peak emissions.

NORTHWEST EMC

DUTY CYCLE

XMit 2010.01.14

EUT:	WSCxx-IRW			**Work Order:**	LEVT0032
Serial Number:	WSC15-IRW typical mode test unit			**Date:**	03/22/10
Customer:	Leviton Manufacturing Company			**Temperature:**	22°C°C
Attendees:	Dan Wright			**Humidity:**	34%
Project:	None			**Barometric Pres.:**	30.29 in
Tested by:	Rod Peloquin	**Power:**	Battery	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.231:2010	ANSI C63.10:2009

COMMENTS

Typical transmission: Duty Cycle is = (1.2 ms x 3)/100ms = (3.6/100) = 0.036

DEVIATIONS FROM TEST STANDARD

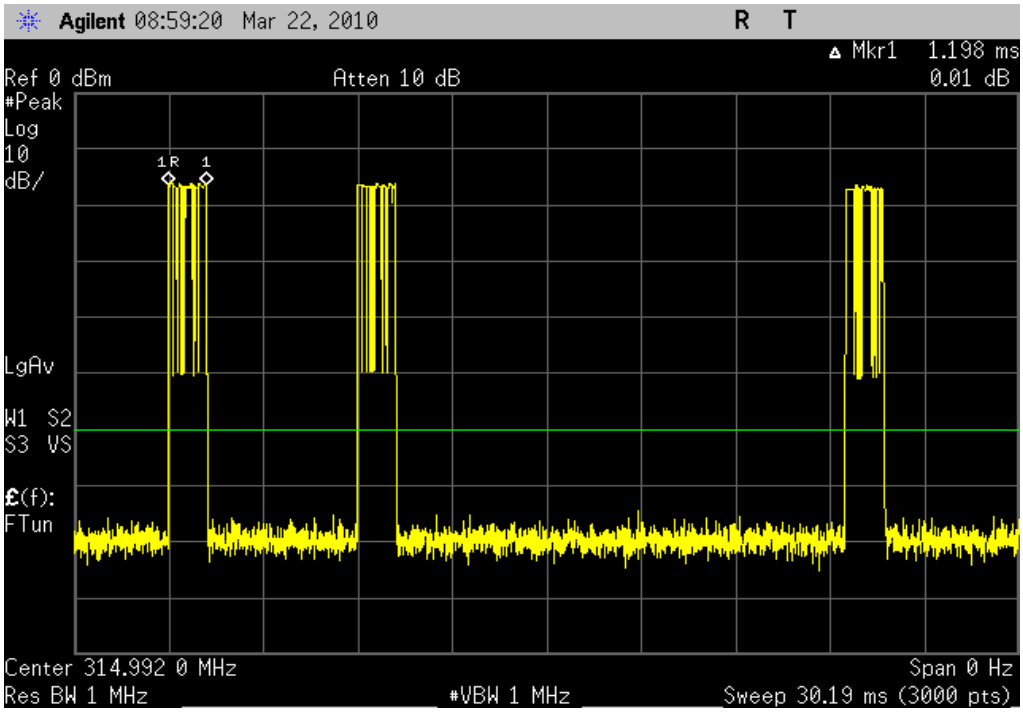
No Deviations

Configuration #	1	Signature

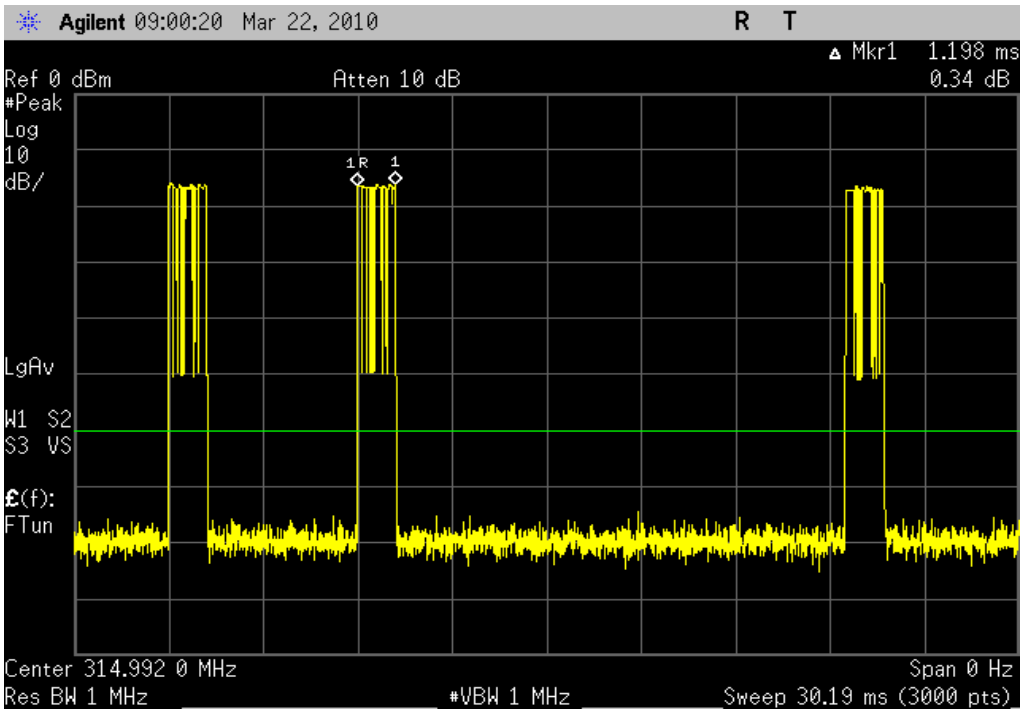
	Value	Limit	Results
Pulse Width 1	1.2 ms	N/A	N/A
Pulse Width 2	1.2 ms	N/A	N/A
Pulse Width 3	1.2 ms	N/A	N/A
100ms Period	N/A	N/A	N/A
200ms Period	N/A	N/A	N/A

DUTY CYCLE

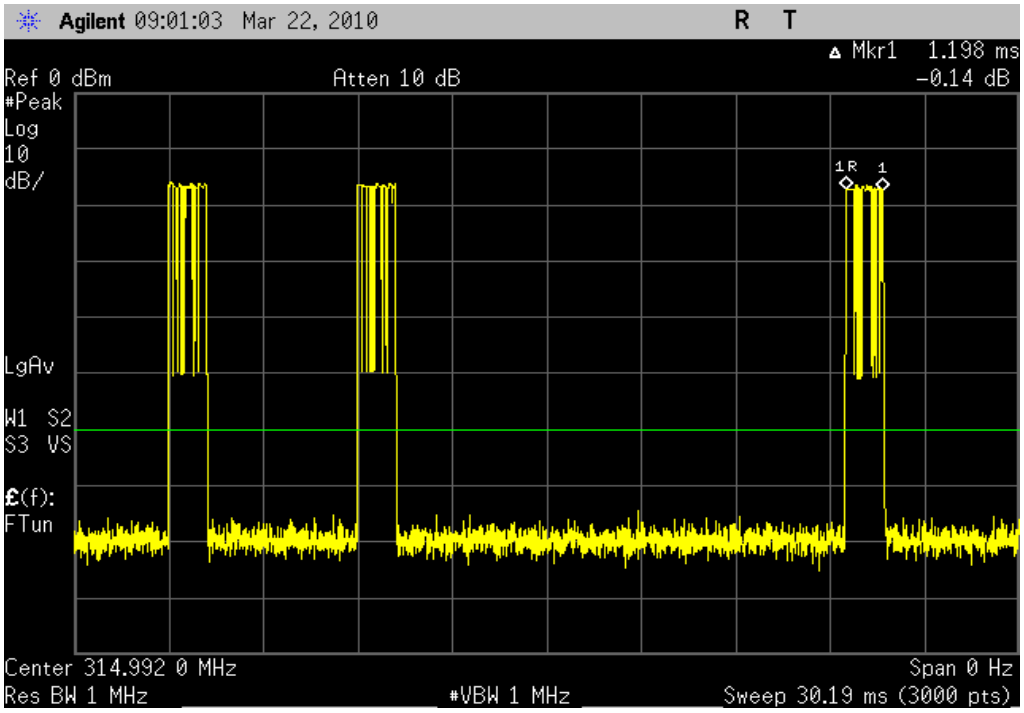
Pulse Width 1					
Result:	N/A	**Value:**	1.2 ms	**Limit:**	N/A



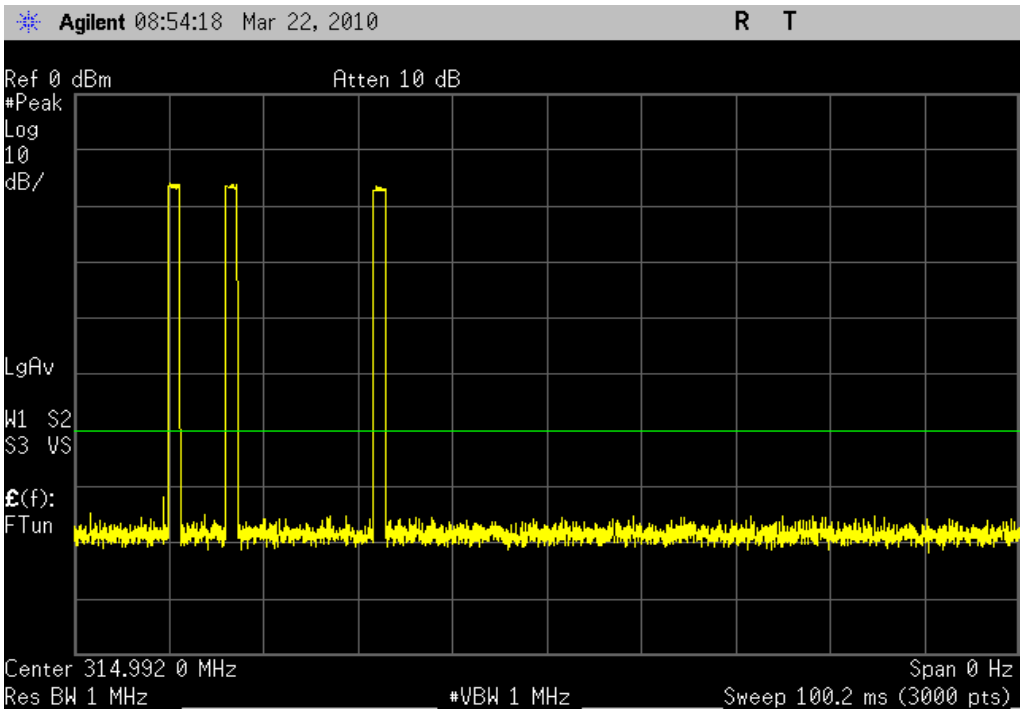
Pulse Width 2					
Result:	N/A	**Value:**	1.2 ms	**Limit:**	N/A



Pulse Width 3		
Result: N/A	**Value:** 1.2 ms	**Limit:** N/A

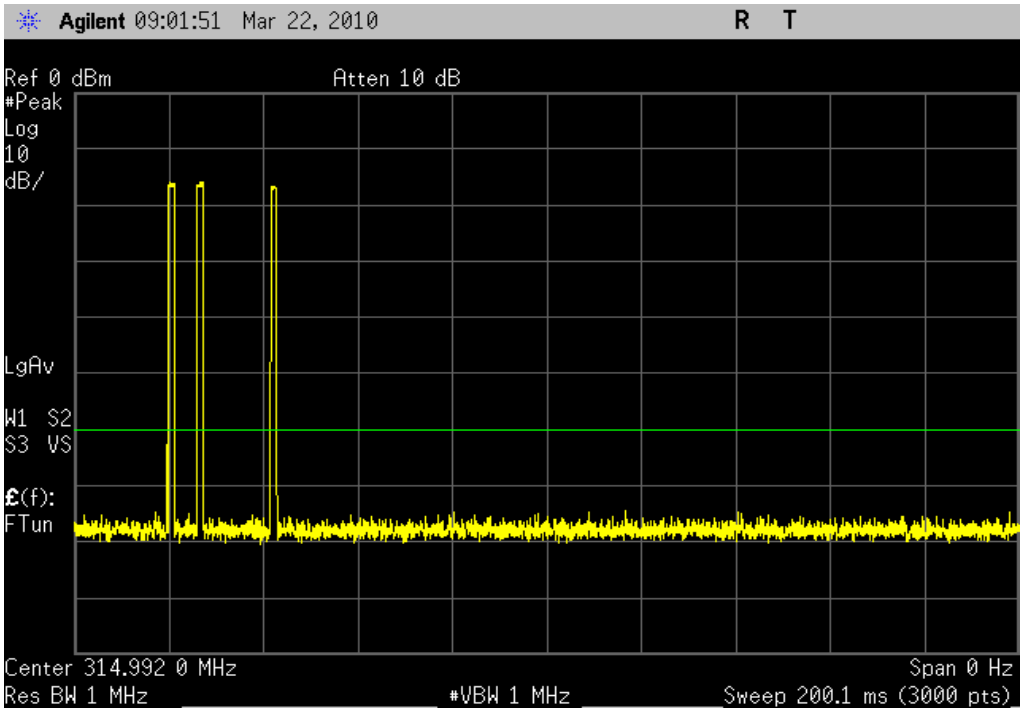


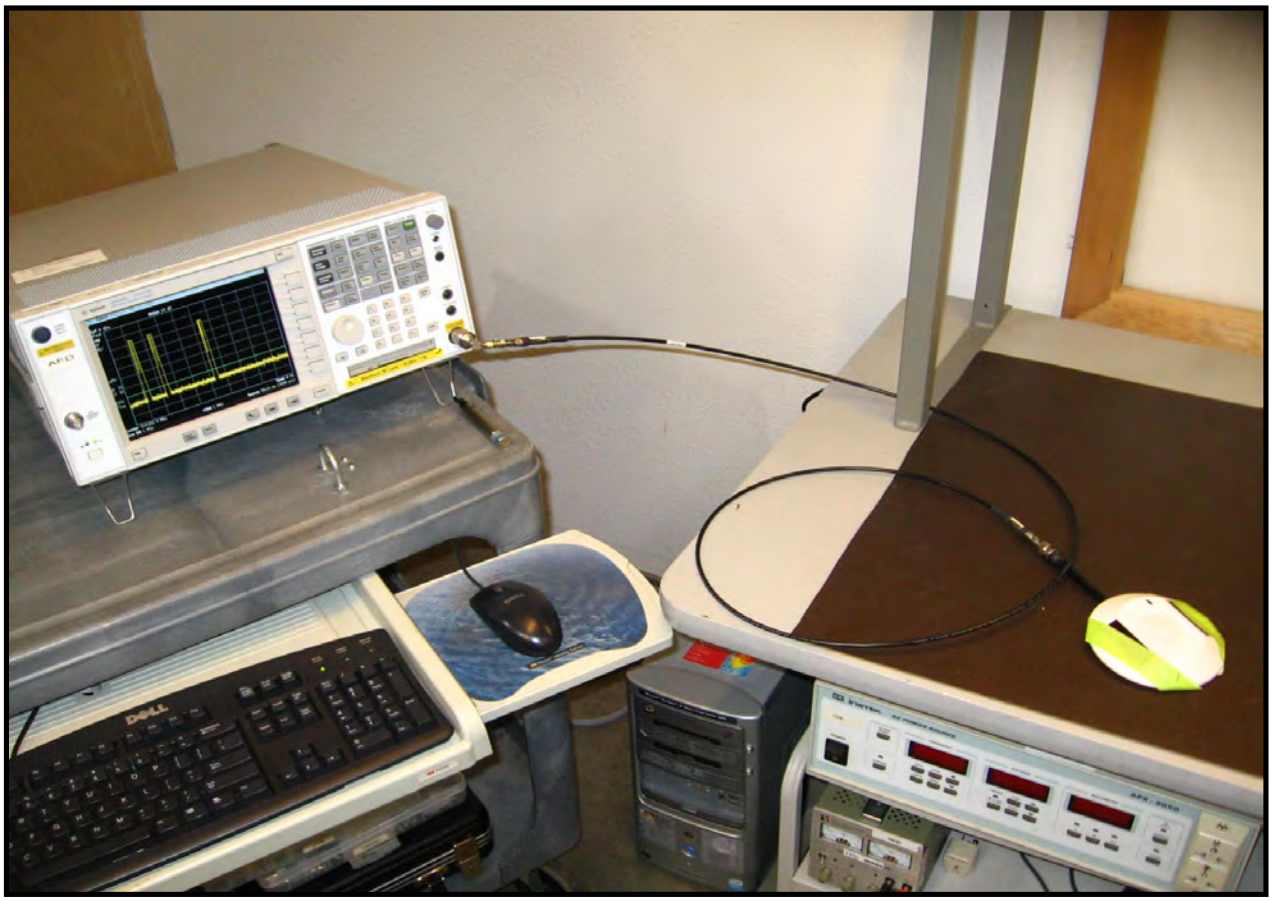
100ms Period		
Result: N/A	**Value:** N/A	**Limit:** N/A

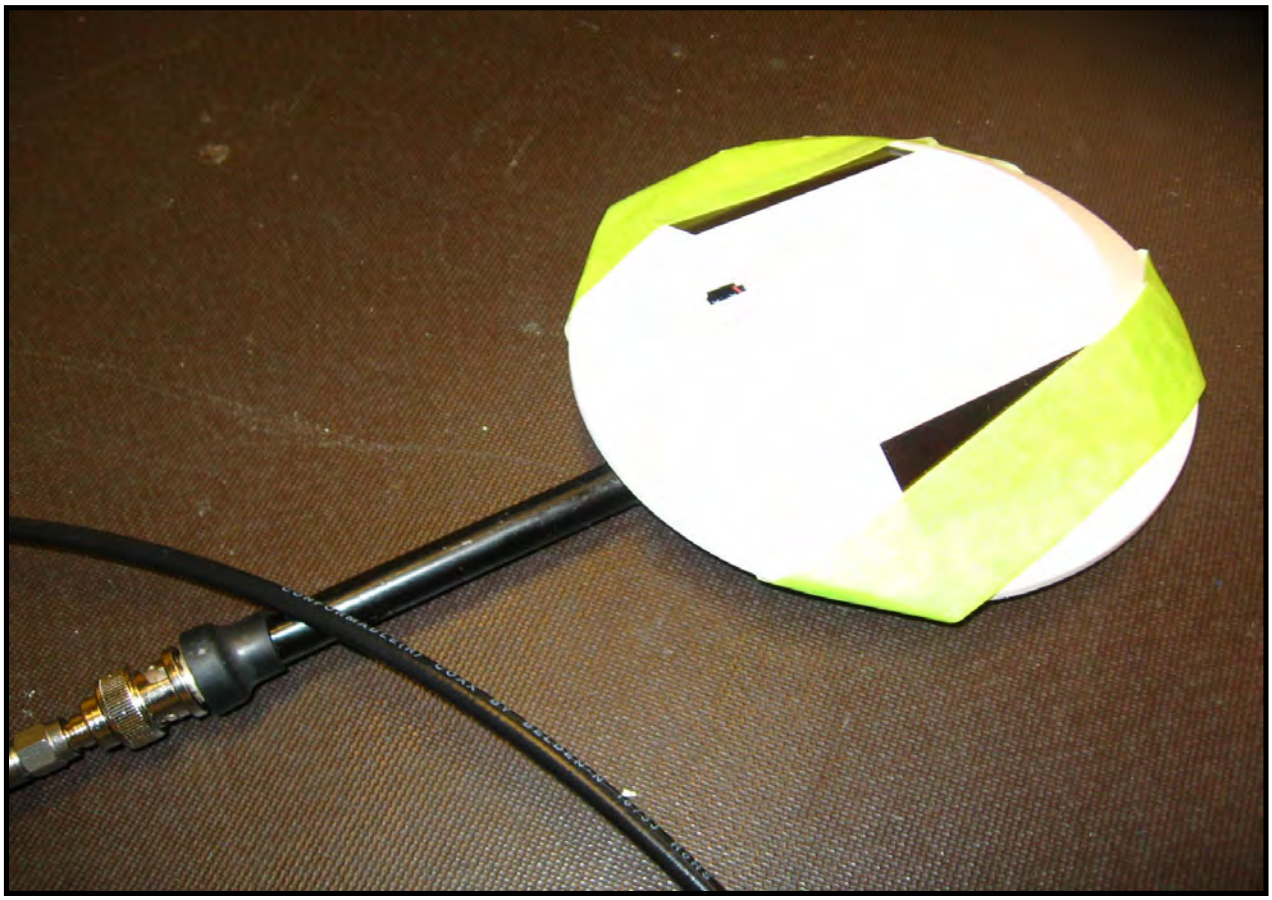


DUTY CYCLE

200ms Period		
Result: N/A	**Value:** N/A	**Limit:** N/A







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
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
26 GHz DC Block, SMA	Pasternack	PE8210	AME	10/19/2009	13
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Near Field Probe	EMCO	7405	IPD	NCR	0

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The occupied bandwidth is required to be no wider that 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz.

The measurement was made using near field probe near the integral antenna of the EUT to the input of the spectrum analyzer. The EUT was transmitting at its maximum data rate.

NORTHWEST EMC

OCCUPIED BANDWIDTH

XMit 2010.01.14

EUT:	WSCxx-IRW			Work Order:	LEVT0032
Serial Number:	WSC15-IRW typical mode test unit			Date:	03/22/10
Customer:	Leviton Manufacturing Company			Temperature:	22°C°C
Attendees:	Dan Wright			Humidity:	34%
Project:	None			Barometric Pres.:	30.29 in
Tested by:	Rod Peloquin	Power:	Battery	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.231:2010	ANSI C63.10:2009

COMMENTS

Typical transmission

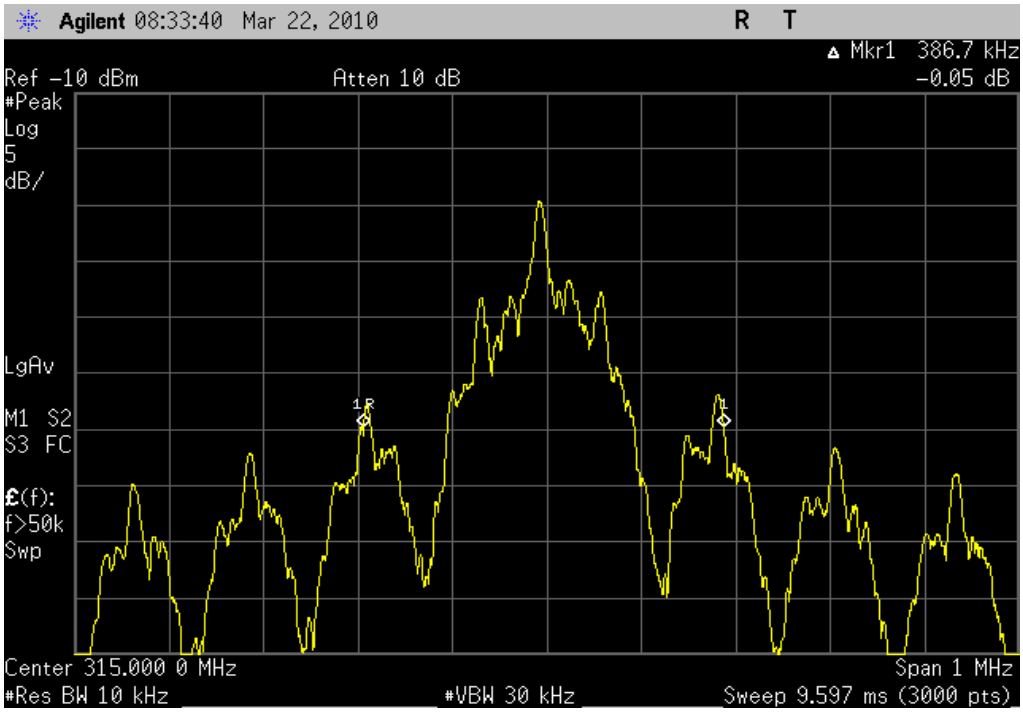
DEVIATIONS FROM TEST STANDARD

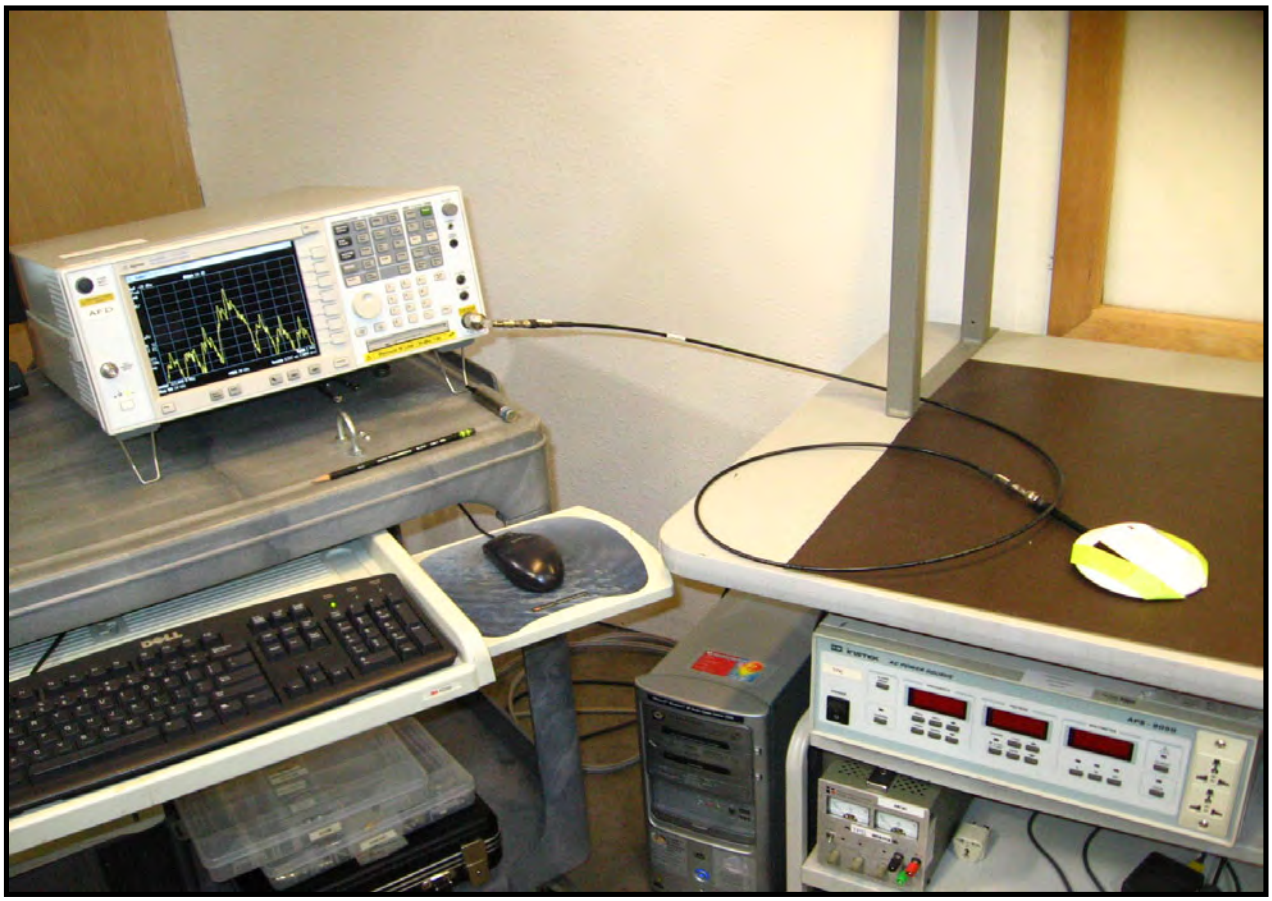
No Deviations

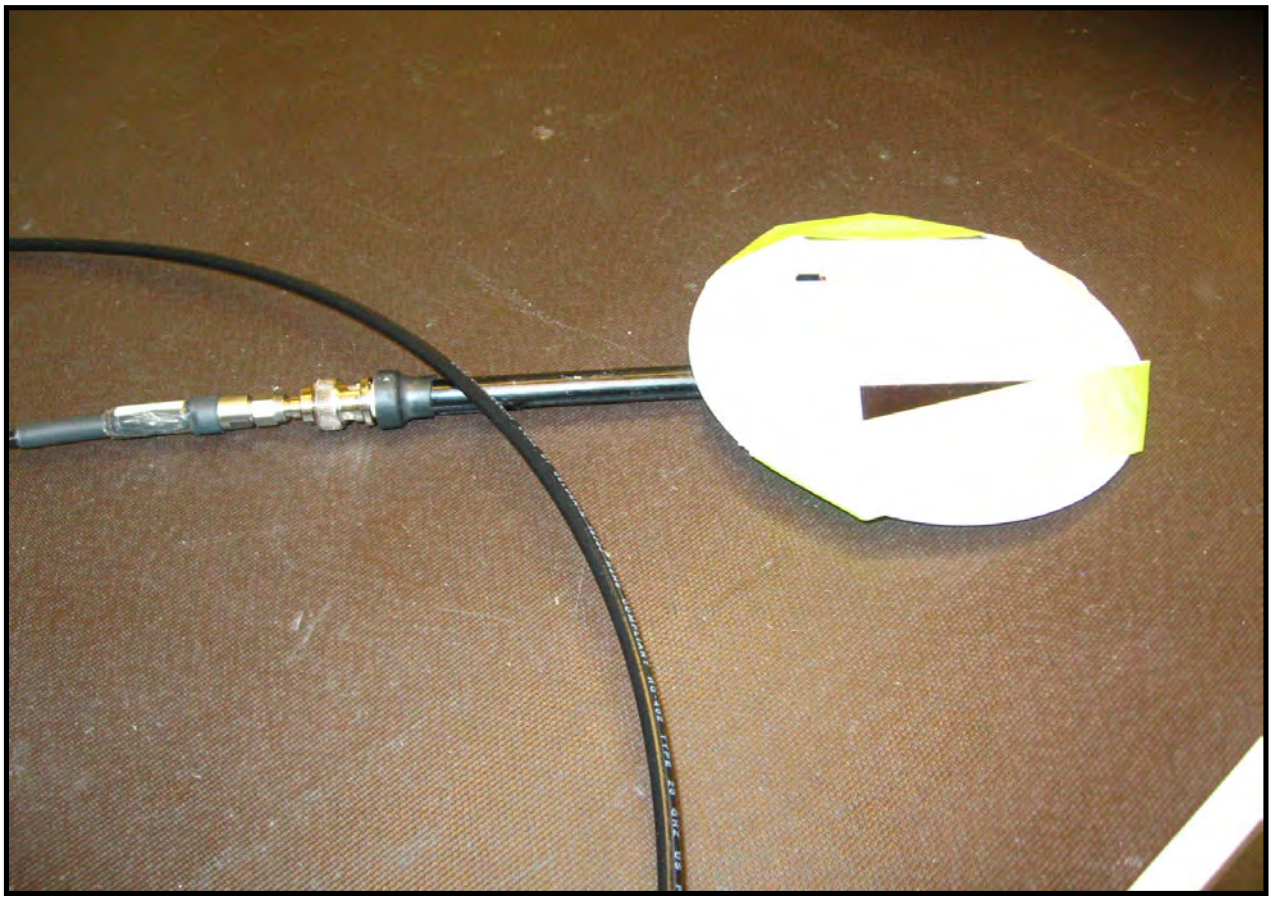
Configuration #	1	Signature

	Value	Limit	Results
20 dB Occupied Bandwidth	386.7 kHz	788 kHz	Pass

20 dB Occupied Bandwidth					
Result:	Pass	**Value:**	386.7 kHz	**Limit:**	788 kHz







FIELD STRENGTH OF FUNDAMENTAL

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
Transmitting CW

POWER SETTINGS INVESTIGATED
Battery

FREQUENCY RANGE INVESTIGATED			
Start Frequency	314 MHz	Stop Frequency	316 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
Spectrum Analyzer	Agilent	E4446A	AAQ	1/6/2010	13
Antenna, Biconilog	EMCO	3141	AXE	1/14/2010	13
EV01 Cables		Bilog Cables	EVA	7/10/2009	13

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.

MEASUREMENT UNCERTAINTY

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. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was configured for continuous modulated operation at its single transmit frequency. The field strength of the transmit frequency was maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT in 3 orthogonal planes (per ANSI C63.10:2009).

To derive average emission 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 length of type 1 pulses, N2 is the number of type 2 pulses, L2 is the length of type 2 pulses, etc.

Therefore, Duty Cycle = (N1L1 +N2L2 +…)/100mS or T, whichever is less, where T is the period of the pulse train.

The measured values for the EUT’s pulse train are as follows:

Period = 100 mSec

Pulsewidth of Pulse= 1.2 mSec

Number of Pulses = 3

Duty Cycle = 20 log [(3)(1.2)/100]= -28.9 dB

The duty cycle correction factor of –28.9 dB was added to the peak readings to mathematically derive the average levels. Peak measurements were made with a resolution bandwidth of 100kHz and a video bandwidth of 300kHz.

The field strength of the fundamental (transmit) frequency meets the limits as defined in 47 CFR 15.231(b). It also meets the provisions in 15.35 for averaging pulsed emissions and for limiting peak emissions.

NORTHWEST EMC

FIELD STRENGTH OF FUNDAMENTAL

PSA 2008.07.21
EMI 2008.1.9

EUT:	WSCxx-IRW	Work Order:	LEVT0032
Serial Number:	WSC15 FCC Test Unit	Date:	04/07/10
Customer:	Leviton Manufacturing Company	Temperature:	21°
Attendees:	Dan Wright	Humidity:	38%
Project:	None	Barometric Pres.:	30.35 in
Tested by:	Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.231(b):2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

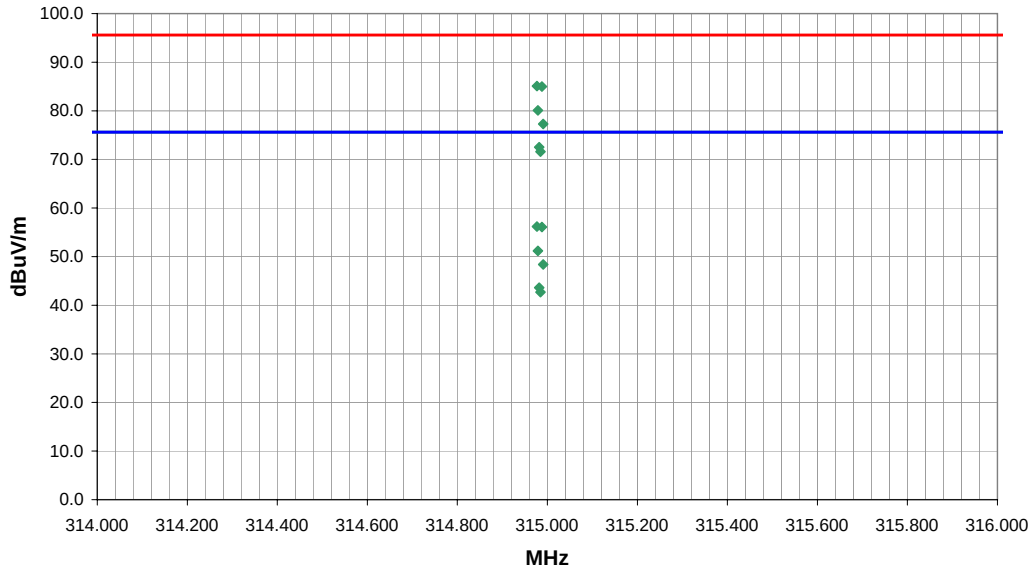
Transmitting CW

DEVIATIONS FROM TEST STANDARD

No deviations.

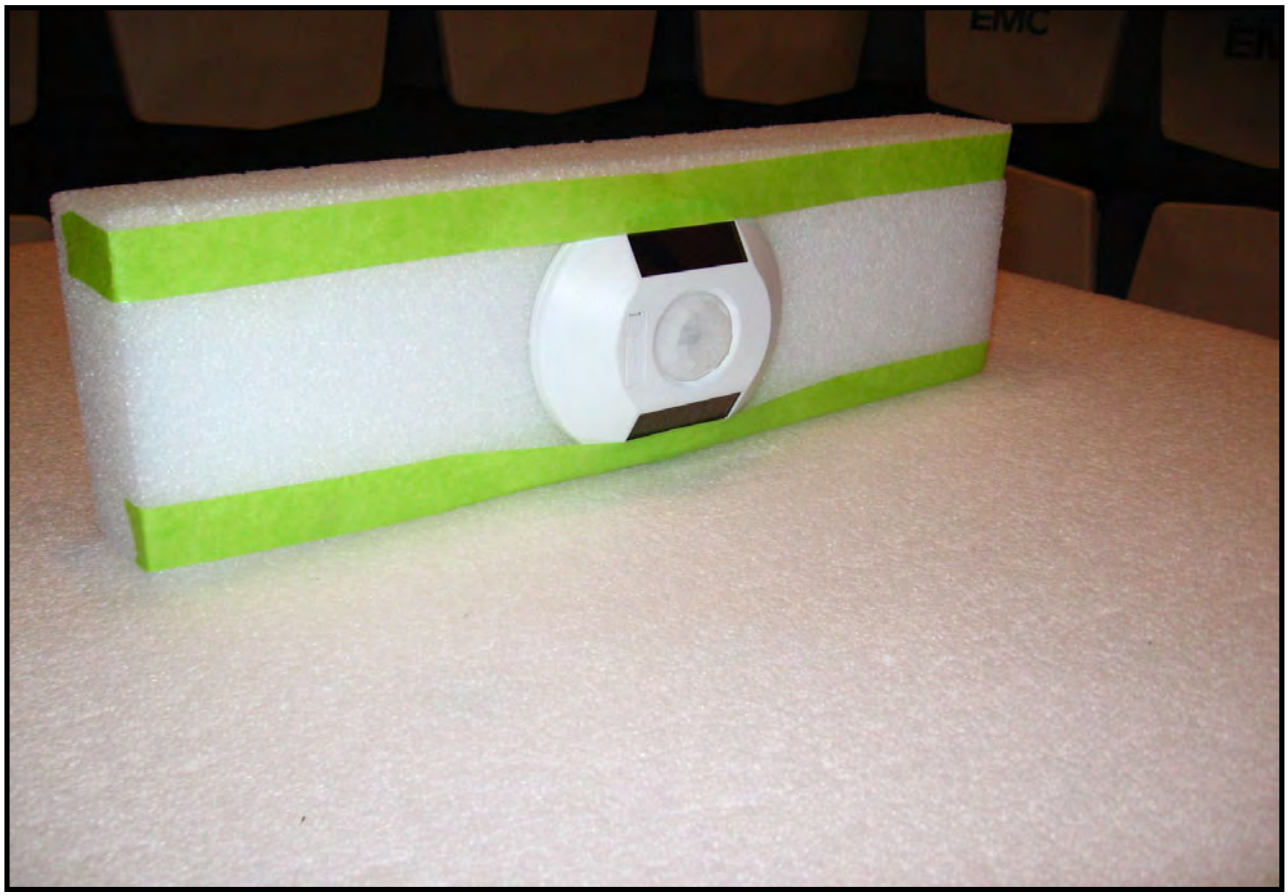
Run #	1
Configuration #	2
Results	Pass

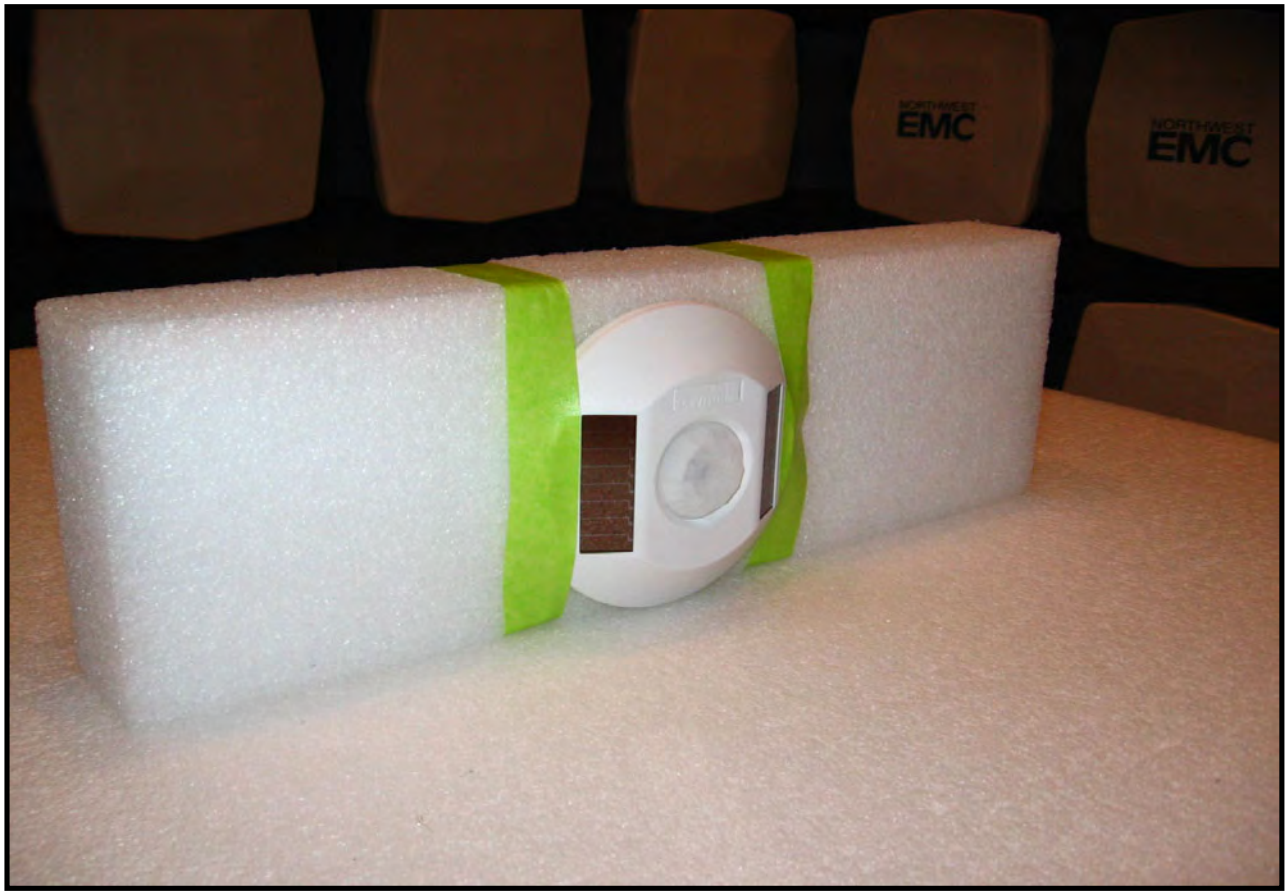
Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
314.977	62.3	22.8	249.0	1.1	0.0	0.0	H-Bilog	PK	0.0	85.1	95.6	-10.5	EUT antenna on side
314.988	62.2	22.8	259.0	1.2	0.0	0.0	H-Bilog	PK	0.0	85.0	95.6	-10.6	EUT horizontal
314.979	57.3	22.8	206.0	2.1	0.0	0.0	V-Bilog	PK	0.0	80.1	95.6	-15.5	EUT antenna on top
314.991	54.5	22.8	340.0	2.1	0.0	0.0	V-Bilog	PK	0.0	77.3	95.6	-18.3	EUT antenna on side
314.977	62.3	22.8	249.0	1.1	28.9	0.0	H-Bilog	AV	0.0	56.2	75.6	-19.4	EUT antenna on side
314.988	62.2	22.8	259.0	1.2	28.9	0.0	H-Bilog	AV	0.0	56.1	75.6	-19.5	EUT horizontal
314.982	49.7	22.8	89.0	3.3	0.0	0.0	H-Bilog	PK	0.0	72.5	95.6	-23.1	EUT antenna on top
314.985	48.8	22.8	343.0	3.2	0.0	0.0	V-Bilog	PK	0.0	71.6	95.6	-24.0	EUT horizontal
314.979	57.3	22.8	206.0	2.1	28.9	0.0	V-Bilog	AV	0.0	51.2	75.6	-24.4	EUT antenna on top
314.991	54.5	22.8	340.0	2.1	28.9	0.0	V-Bilog	AV	0.0	48.4	75.6	-27.2	EUT antenna on side
314.982	49.7	22.8	89.0	3.3	28.9	0.0	H-Bilog	AV	0.0	43.6	75.6	-32.0	EUT antenna on top
314.985	48.8	22.8	343.0	3.2	28.9	0.0	V-Bilog	AV	0.0	42.7	75.6	-32.9	EUT horizontal

FIELD STRENGTH OF FUNDAMENTAL





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.

MODES OF OPERATION

Transmitting CW

POWER SETTINGS INVESTIGATED

Battery

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	3200 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
Spectrum Analyzer	Agilent	E4446A	AAQ	1/6/2010	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	7/10/2009	13
Antenna, Biconilog	EMCO	3141	AXE	1/14/2010	13
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	7/10/2009	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	7/10/2009	13
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
EV01 Cables		Double Ridge Horn Cables	EVB	7/10/2009	13

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.

MEASUREMENT UNCERTAINTY

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. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The single, integral antenna to be used with the EUT was tested. The EUT was configured for un-modulated, CW operation at its single transmit frequency. The field strength of the transmit frequency was maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT in 3 orthogonal planes (per ANSI C63.10:2009).

A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

To derive average emission 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 length of type 1 pulses, N2 is the number of type 2 pulses, L2 is the length of type 2 pulses, etc.

Therefore, Duty Cycle = (N1L1 +N2L2 +…)/100mS or T, whichever is less, where T is the period of the pulse train.

The measured values for the EUT’s pulse train are as follows:

Period = 100 mSec

Pulsewidth of Pulse= 1.2 mSec

Number of Pulses = 3

Duty Cycle = 20 log [(3)(1.2)/100]= -28.9 dB

The duty cycle correction factor of –28.9 dB was added to the peak readings to mathematically derive the average levels. Peak measurements were made with a resolution bandwidth of 100kHz and a video bandwidth of 300kHz.

The field strength of the fundamental (transmit) frequency meets the limits as defined in 47 CFR 15.231(b). It also meets the provisions in 15.35 for averaging pulsed emissions and for limiting peak emissions.

The duty cycle correction factor of –28.9 dB was added to the peak readings to mathematically derive the average levels. Peak measurements were made with a resolution bandwidth of 100kHz and a video bandwidth of 300kHz for measurements at or below 1GHz. Above 1GHz, a resolution bandwidth of 1MHz and a video bandwidth of 3MHz was used.

The field strength of the spurious emissions meet the limits as defined in 47 CFR 15.231(b). The spurious emissions also meet the provisions in 15.35 for averaging pulsed emissions and for limiting peak emissions. Further, spurious emissions meet the provisions of 15.205 using the measurement instrumentation specified in that section.

NORTHWEST

EMC SPURIOUS RADIATED EMISSIONS

PSA 2008.07.21
EMI 2008.1.9

EUT:	WSCxx-IRW	Work Order:	LEVT0032
Serial Number:	WSC15 FCC Test Unit	Date:	04/07/10
Customer:	Leviton Manufacturing Company	Temperature:	21°
Attendees:	Dan Wright	Humidity:	38%
Project:	None	Barometric Pres.:	30.35 in
Tested by:	Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.231(b):2010	ANSI C63.10:2009
FCC 15.205:2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

EUT and Antenna on side

EUT OPERATING MODES

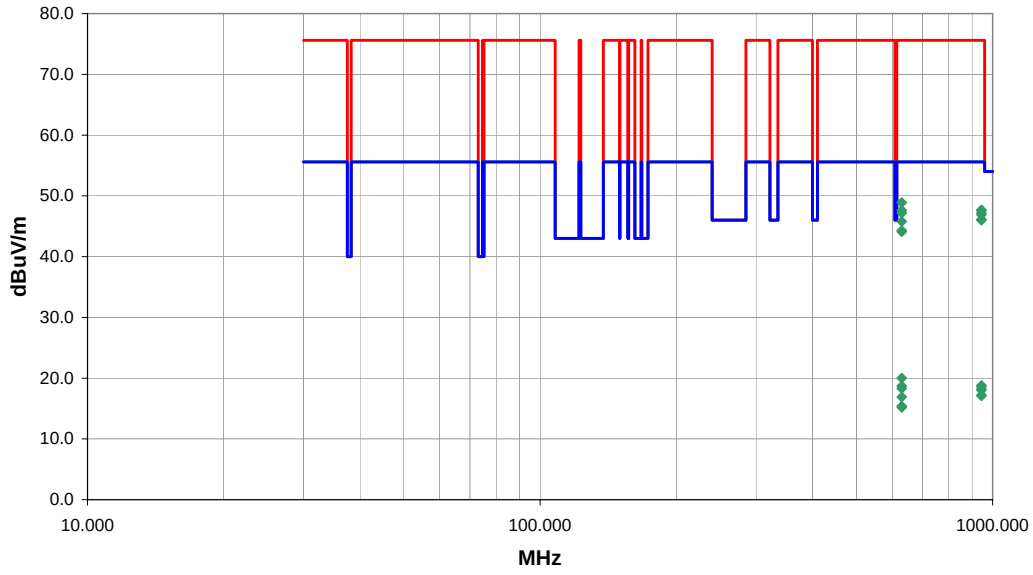
Transmitting CW

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	2
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
629.975	30.0	8.9	229.0	1.4	0.0	10.0	H-Bilog	PK	0.0	48.9	75.6	-26.7	EUT horizontal
944.940	25.2	12.5	191.0	1.1	0.0	10.0	V-Bilog	PK	0.0	47.7	75.6	-27.9	EUT antenna on top
629.970	28.7	8.9	73.0	1.4	0.0	10.0	H-Bilog	PK	0.0	47.6	75.6	-28.0	EUT antenna on side
944.934	25.1	12.5	44.0	1.0	0.0	10.0	H-Bilog	PK	0.0	47.6	75.6	-28.0	EUT horizontal
629.961	28.3	8.9	348.0	1.0	0.0	10.0	V-Bilog	PK	0.0	47.2	75.6	-28.4	EUT antenna on top
944.927	24.7	12.5	45.0	1.0	0.0	10.0	H-Bilog	PK	0.0	47.2	75.6	-28.4	EUT antenna on side
944.948	24.4	12.5	177.0	1.2	0.0	10.0	V-Bilog	PK	0.0	46.9	75.6	-28.7	EUT antenna on side
944.983	23.6	12.5	285.0	1.1	0.0	10.0	V-Bilog	PK	0.0	46.1	75.6	-29.5	EUT horizontal
944.960	23.5	12.5	109.0	1.0	0.0	10.0	H-Bilog	PK	0.0	46.0	75.6	-29.6	EUT antenna on top
629.985	26.9	8.9	170.0	1.8	0.0	10.0	V-Bilog	PK	0.0	45.8	75.6	-29.8	EUT antenna on side
630.001	25.4	8.9	163.0	1.5	0.0	10.0	V-Bilog	PK	0.0	44.3	75.6	-31.3	EUT horizontal
629.966	25.2	8.9	270.0	1.4	0.0	10.0	H-Bilog	PK	0.0	44.1	75.6	-31.5	EUT antenna on top
629.975	30.0	8.9	229.0	1.4	28.9	10.0	H-Bilog	AV	0.0	20.0	55.6	-35.6	EUT horizontal
944.940	25.2	12.5	191.0	1.1	28.9	10.0	V-Bilog	AV	0.0	18.8	55.6	-36.8	EUT antenna on top
629.970	28.7	8.9	73.0	1.4	28.9	10.0	H-Bilog	AV	0.0	18.7	55.6	-36.9	EUT antenna on side
944.934	25.1	12.5	44.0	1.0	28.9	10.0	H-Bilog	AV	0.0	18.7	55.6	-36.9	EUT horizontal
629.961	28.3	8.9	348.0	1.0	28.9	10.0	V-Bilog	AV	0.0	18.3	55.6	-37.3	EUT antenna on top
944.927	24.7	12.5	45.0	1.0	28.9	10.0	H-Bilog	AV	0.0	18.3	55.6	-37.3	EUT antenna on side
944.948	24.4	12.5	177.0	1.2	28.9	10.0	V-Bilog	AV	0.0	18.0	55.6	-37.6	EUT antenna on side
944.983	23.6	12.5	285.0	1.1	28.9	10.0	V-Bilog	AV	0.0	17.2	55.6	-38.4	EUT horizontal

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS

PSA 2008.07.21
EMI 2008.1.9

EUT:	WSCxx-IRW	Work Order:	LEVT0032
Serial Number:	WSC15 FCC Test Unit	Date:	04/07/10
Customer:	Leviton Manufacturing Company	Temperature:	21°
Attendees:	Dan Wright	Humidity:	38%
Project:	None	Barometric Pres.:	30.35 in
Tested by:	Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.231(b):2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

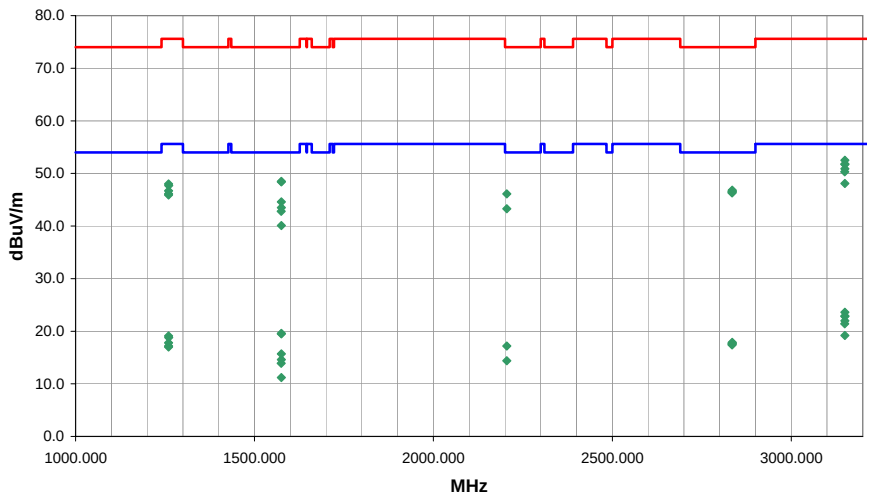
Transmitting CW

DEVIATIONS FROM TEST STANDARD

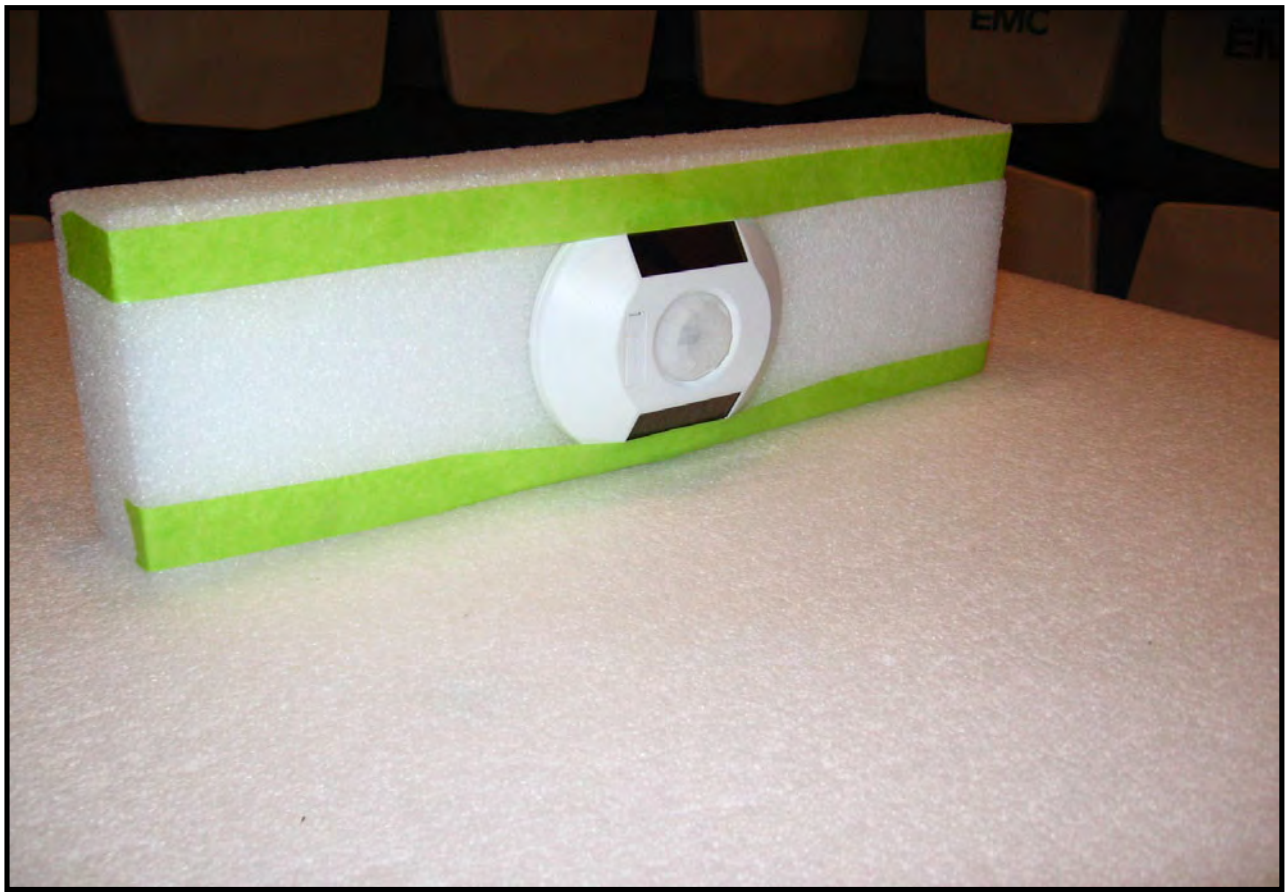
No deviations.

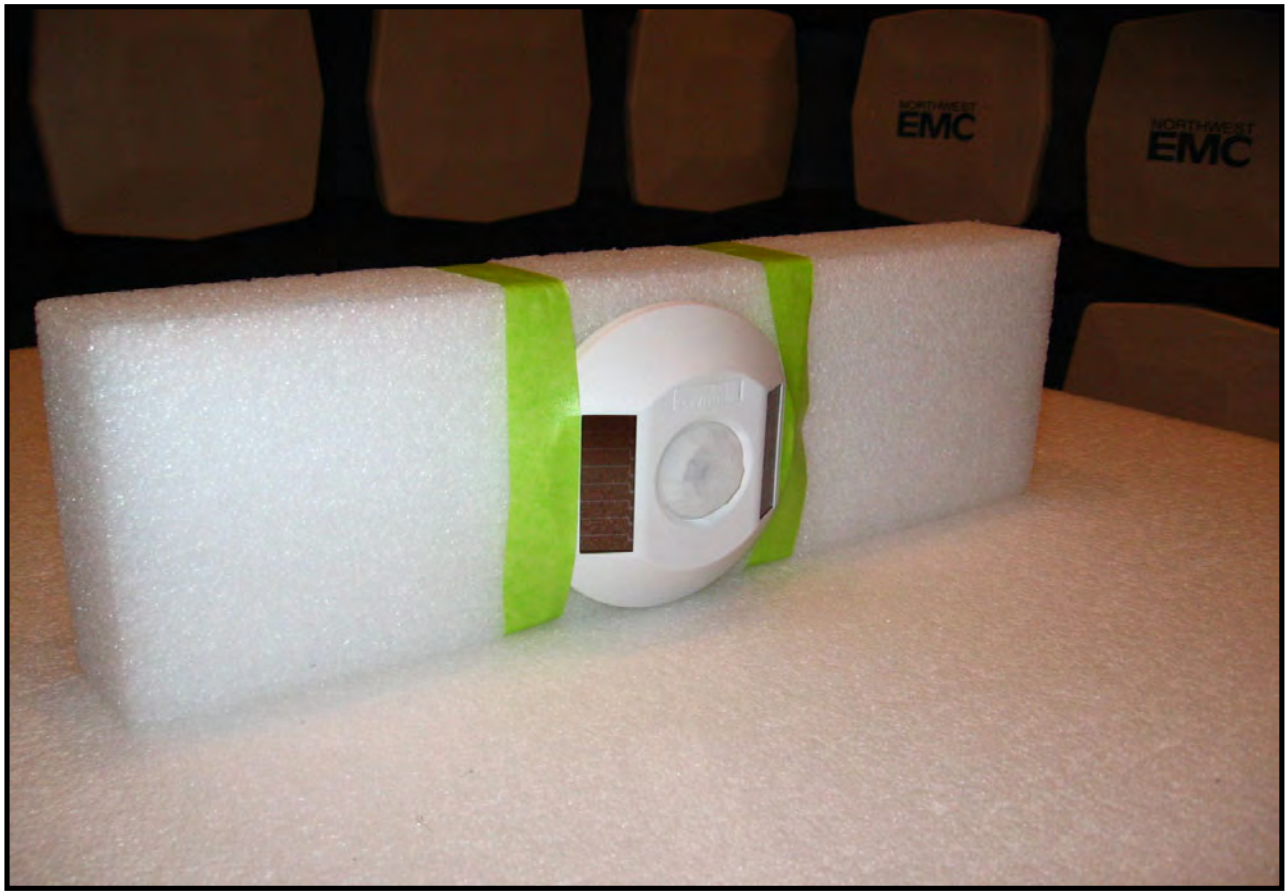
Run #	3
Configuration #	2
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
3149.833	47.0	5.5	28.0	1.1	0.0	0.0	H-Horn	PK	0.0	52.5	75.6	-23.1	EUT horizontal
3149.760	46.3	5.5	334.0	1.0	0.0	0.0	V-Horn	PK	0.0	51.8	75.6	-23.8	EUT antenna on top
3149.917	46.2	5.5	99.0	1.3	0.0	0.0	H-Horn	PK	0.0	51.7	75.6	-23.9	EUT antenna on side
3149.880	45.4	5.5	135.0	1.3	0.0	0.0	H-Horn	PK	0.0	50.9	75.6	-24.7	EUT antenna on top
3149.657	44.8	5.5	33.0	1.0	0.0	0.0	V-Horn	PK	0.0	50.3	75.6	-25.3	EUT antenna on side
1574.906	50.6	-2.1	170.0	1.0	0.0	0.0	H-Horn	PK	0.0	48.5	74.0	-25.5	EUT horizontal
1574.977	50.5	-2.1	196.0	1.0	0.0	0.0	V-Horn	PK	0.0	48.4	74.0	-25.6	EUT antenna on side
2834.924	43.1	3.7	40.0	1.1	0.0	0.0	H-Horn	PK	0.0	46.8	74.0	-27.2	EUT antenna on top
2834.484	42.9	3.7	209.0	1.2	0.0	0.0	V-Horn	PK	0.0	46.6	74.0	-27.4	EUT antenna on side
2834.900	42.9	3.7	125.0	1.4	0.0	0.0	H-Horn	PK	0.0	46.6	74.0	-27.4	EUT antenna on side
3149.900	42.6	5.5	280.0	1.0	0.0	0.0	V-Horn	PK	0.0	48.1	75.6	-27.5	EUT horizontal
1259.940	51.2	-3.2	117.0	1.1	0.0	0.0	H-Horn	PK	0.0	48.0	75.6	-27.6	EUT antenna on top
2834.730	42.7	3.7	131.0	1.0	0.0	0.0	H-Horn	PK	0.0	46.4	74.0	-27.6	EUT horizontal
2834.740	42.6	3.7	177.0	1.3	0.0	0.0	V-Horn	PK	0.0	46.3	74.0	-27.7	EUT antenna on top
1260.080	50.9	-3.2	72.0	1.2	0.0	0.0	H-Horn	PK	0.0	47.7	75.6	-27.9	EUT antenna on side
2204.874	44.9	1.2	92.0	1.0	0.0	0.0	H-Horn	PK	0.0	46.1	74.0	-27.9	EUT horizontal
1259.922	49.9	-3.2	128.0	1.3	0.0	0.0	V-Horn	PK	0.0	46.7	75.6	-28.9	EUT antenna on side
1574.866	46.7	-2.1	117.0	1.3	0.0	0.0	H-Horn	PK	0.0	44.6	74.0	-29.4	EUT antenna on side
1259.997	49.3	-3.2	74.0	1.2	0.0	0.0	H-Horn	PK	0.0	46.1	75.6	-29.5	EUT horizontal
1259.942	49.1	-3.2	101.0	1.4	0.0	0.0	V-Horn	PK	0.0	45.9	75.6	-29.7	EUT antenna on top
1574.880	45.6	-2.1	181.0	1.0	0.0	0.0	V-Horn	PK	0.0	43.5	74.0	-30.5	EUT antenna on top
2204.862	42.1	1.2	117.0	1.2	0.0	0.0	H-Horn	PK	0.0	43.3	74.0	-30.7	EUT antenna on side
1574.776	44.9	-2.1	336.0	1.3	0.0	0.0	H-Horn	PK	0.0	42.8	74.0	-31.2	EUT antenna on top
3149.833	47.0	5.5	28.0	1.1	28.9	0.0	H-Horn	AV	0.0	23.6	55.6	-32.0	EUT horizontal
3149.760	46.3	5.5	334.0	1.0	28.9	0.0	V-Horn	AV	0.0	22.9	55.6	-32.7	EUT antenna on top
3149.917	46.2	5.5	99.0	1.3	28.9	0.0	H-Horn	AV	0.0	22.8	55.6	-32.8	EUT antenna on side
3149.880	45.4	5.5	135.0	1.3	28.9	0.0	H-Horn	AV	0.0	22.0	55.6	-33.6	EUT antenna on top
1575.047	42.2	-2.1	109.0	1.1	0.0	0.0	V-Horn	PK	0.0	40.1	74.0	-33.9	EUT horizontal
3149.657	44.8	5.5	33.0	1.0	28.9	0.0	V-Horn	AV	0.0	21.4	55.6	-34.2	EUT antenna on side
1574.906	50.6	-2.1	170.0	1.0	28.9	0.0	H-Horn	AV	0.0	19.6	54.0	-34.4	EUT horizontal
1574.977	50.5	-2.1	196.0	1.0	28.9	0.0	V-Horn	AV	0.0	19.5	54.0	-34.5	EUT antenna on side
2834.924	43.1	3.7	40.0	1.1	28.9	0.0	H-Horn	AV	0.0	17.9	54.0	-36.1	EUT antenna on top
2834.484	42.9	3.7	209.0	1.2	28.9	0.0	V-Horn	AV	0.0	17.7	54.0	-36.3	EUT antenna on side
2834.900	42.9	3.7	125.0	1.4	28.9	0.0	H-Horn	AV	0.0	17.7	54.0	-36.3	EUT antenna on side
3149.900	42.6	5.5	280.0	1.0	28.9	0.0	V-Horn	AV	0.0	19.2	55.6	-36.4	EUT horizontal
1259.940	51.2	-3.2	117.0	1.1	28.9	0.0	H-Horn	AV	0.0	19.1	55.6	-36.5	EUT antenna on top
2834.730	42.7	3.7	131.0	1.0	28.9	0.0	H-Horn	AV	0.0	17.5	54.0	-36.5	EUT horizontal
2834.740	42.6	3.7	177.0	1.3	28.9	0.0	V-Horn	AV	0.0	17.4	54.0	-36.6	EUT antenna on top
1260.080	50.9	-3.2	72.0	1.2	28.9	0.0	H-Horn	AV	0.0	18.8	55.6	-36.8	EUT antenna on side
2204.874	44.9	1.2	92.0	1.0	28.9	0.0	H-Horn	AV	0.0	17.2	54.0	-36.8	EUT horizontal
1259.922	49.9	-3.2	128.0	1.3	28.9	0.0	V-Horn	AV	0.0	17.8	55.6	-37.8	EUT antenna on side
1574.866	46.7	-2.1	117.0	1.3	28.9	0.0	H-Horn	AV	0.0	15.7	54.0	-38.3	EUT antenna on side
1259.997	49.3	-3.2	74.0	1.2	28.9	0.0	H-Horn	AV	0.0	17.2	55.6	-38.4	EUT horizontal
1259.942	49.1	-3.2	101.0	1.4	28.9	0.0	V-Horn	AV	0.0	17.0	55.6	-38.6	EUT antenna on top
1574.880	45.6	-2.1	181.0	1.0	28.9	0.0	V-Horn	AV	0.0	14.6	54.0	-39.4	EUT antenna on top
2204.862	42.1	1.2	117.0	1.2	28.9	0.0	H-Horn	AV	0.0	14.4	54.0	-39.6	EUT antenna on side
1574.776	44.9	-2.1	336.0	1.3	28.9	0.0	H-Horn	AV	0.0	13.9	54.0	-40.1	EUT antenna on top
1575.047	42.2	-2.1	109.0	1.1	28.9	0.0	V-Horn	AV	0.0	11.2	54.0	-42.8	EUT horizontal




NORTHWEST
EMC

AC 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

Transmitting CW

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

LEVT0032 - 3

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	9/25/2009	13 mo
Attenuator	Coaxicom	66702 2910-20	ATO	7/21/2009	13 mo
High Pass Filter	TTE	H97-100K-50-720B	HFX	2/16/2010	13 mo
LISN	Solar	9252-50-R-24-BNC	LIP	3/2/2010	13 mo
EV07 Cables		Conducted Cables	EVG	6/1/2009	13 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.

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

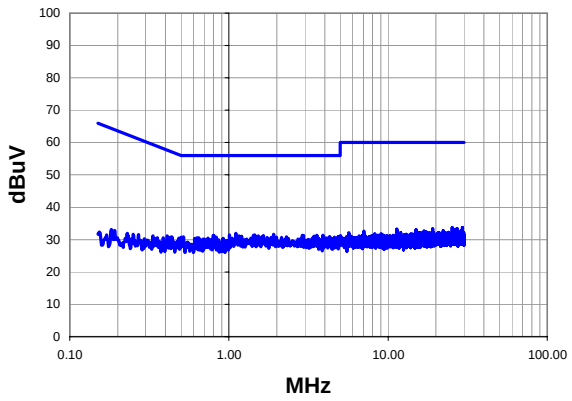
PSA-ESCI 2010.02.16
Version 2010.3.17

Work Order:	LEVT0032	**Date:**	04/07/10		
Project:	None	**Temperature:**	21°		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	WSC15 FCC Test Unit	**Barometric Pres.:**	30.35 in	**Tested by:**	Rod Peloquin
EUT:	WSCxx-IRW				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Leviton Manufacturing Company				
Attendees:	Dan Wright				
EUT Power:	120VAC/60Hz				
Operating Mode:	Transmitting CW				
Deviations:	No deviations.				
Comments:	None				

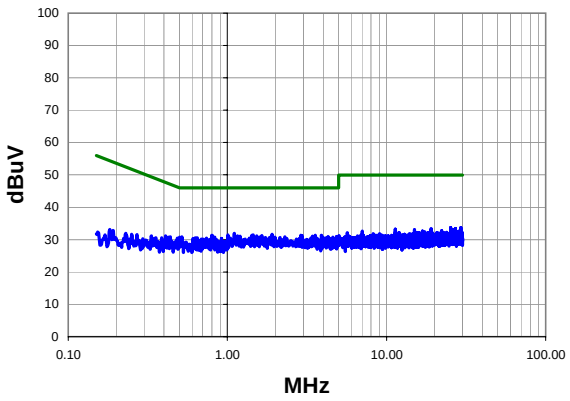
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	1	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.104	11.8	20.2	32.0	56.0	-24.0
1.912	11.4	20.3	31.7	56.0	-24.3
1.008	11.3	20.2	31.5	56.0	-24.5
1.456	11.2	20.2	31.4	56.0	-24.6
0.798	11.2	20.2	31.4	56.0	-24.6
3.896	11.0	20.3	31.3	56.0	-24.7
3.568	11.0	20.3	31.3	56.0	-24.7
2.896	11.0	20.3	31.3	56.0	-24.7
1.648	11.0	20.2	31.2	56.0	-24.8
2.944	10.9	20.3	31.2	56.0	-24.8
1.528	10.9	20.2	31.1	56.0	-24.9
1.200	10.9	20.2	31.1	56.0	-24.9
4.864	10.6	20.4	31.0	56.0	-25.0
4.288	10.6	20.3	30.9	56.0	-25.1
2.296	10.6	20.3	30.9	56.0	-25.1
0.517	10.7	20.2	30.9	56.0	-25.1
0.832	10.6	20.2	30.8	56.0	-25.2
1.992	10.5	20.3	30.8	56.0	-25.2
4.592	10.4	20.4	30.8	56.0	-25.3
0.629	10.4	20.2	30.6	56.0	-25.4

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.104	11.8	20.2	32.0	46.0	-14.0
1.912	11.4	20.3	31.7	46.0	-14.3
1.008	11.3	20.2	31.5	46.0	-14.5
1.456	11.2	20.2	31.4	46.0	-14.6
0.798	11.2	20.2	31.4	46.0	-14.6
3.896	11.0	20.3	31.3	46.0	-14.7
3.568	11.0	20.3	31.3	46.0	-14.7
2.896	11.0	20.3	31.3	46.0	-14.7
1.648	11.0	20.2	31.2	46.0	-14.8
2.944	10.9	20.3	31.2	46.0	-14.8
1.528	10.9	20.2	31.1	46.0	-14.9
1.200	10.9	20.2	31.1	46.0	-14.9
4.864	10.6	20.4	31.0	46.0	-15.0
4.288	10.6	20.3	30.9	46.0	-15.1
2.296	10.6	20.3	30.9	46.0	-15.1
0.517	10.7	20.2	30.9	46.0	-15.1
0.832	10.6	20.2	30.8	46.0	-15.2
1.992	10.5	20.3	30.8	46.0	-15.2
4.592	10.4	20.4	30.8	46.0	-15.3
0.629	10.4	20.2	30.6	46.0	-15.4

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

PSA-ESCI 2010.02.16
Version 2010.3.17

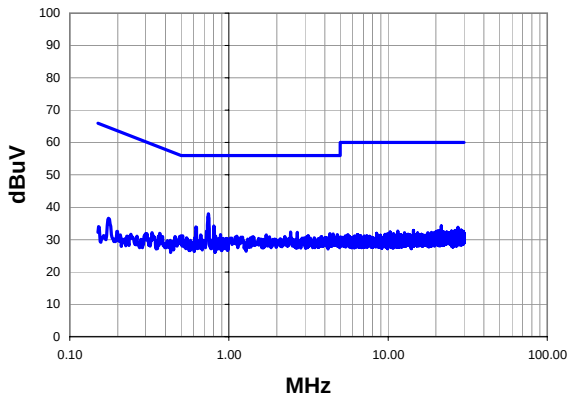
Work Order:	LEVT0032	**Date:**	04/07/10		
Project:	None	**Temperature:**	21°		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	WSC15 FCC Test Unit	**Barometric Pres.:**	30.35 in	**Tested by:**	Rod Peloquin

EUT:	WSCxx-IRW
Configuration:	3 - AC Power Conducted Emissions
Customer:	Leviton Manufacturing Company
Attendees:	Dan Wright
EUT Power:	120VAC/60Hz
Operating Mode:	Transmitting CW
Deviations:	No deviations.
Comments:	None

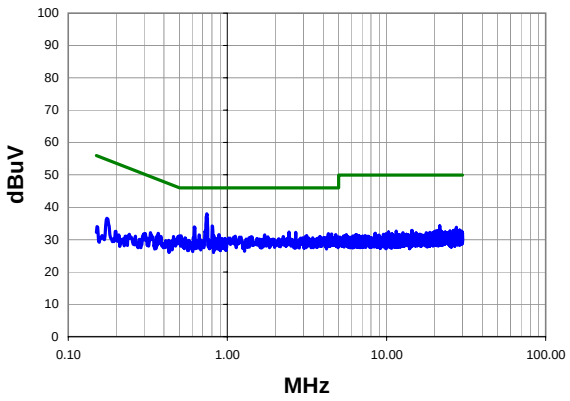
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	2	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.743	17.8	20.2	38.0	56.0	-18.0
0.804	14.0	20.2	34.2	56.0	-21.8
0.619	13.7	20.2	33.9	56.0	-22.1
2.440	12.0	20.3	32.3	56.0	-23.7
2.688	11.9	20.3	32.2	56.0	-23.8
4.304	11.5	20.3	31.8	56.0	-24.2
4.512	11.4	20.3	31.7	56.0	-24.3
0.886	11.4	20.2	31.6	56.0	-24.4
4.808	11.2	20.4	31.6	56.0	-24.4
0.665	11.3	20.2	31.5	56.0	-24.5
1.720	11.2	20.2	31.4	56.0	-24.6
3.152	10.9	20.3	31.2	56.0	-24.8
0.512	11.0	20.2	31.2	56.0	-24.8
0.500	11.0	20.2	31.2	56.0	-24.8
1.120	10.9	20.2	31.1	56.0	-24.9
0.825	10.9	20.2	31.1	56.0	-24.9
3.096	10.6	20.3	30.9	56.0	-25.1
3.824	10.5	20.3	30.8	56.0	-25.2
1.416	10.6	20.2	30.8	56.0	-25.2
1.216	10.6	20.2	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.743	17.8	20.2	38.0	46.0	-8.0
0.804	14.0	20.2	34.2	46.0	-11.8
0.619	13.7	20.2	33.9	46.0	-12.1
2.440	12.0	20.3	32.3	46.0	-13.7
2.688	11.9	20.3	32.2	46.0	-13.8
4.304	11.5	20.3	31.8	46.0	-14.2
4.512	11.4	20.3	31.7	46.0	-14.3
0.886	11.4	20.2	31.6	46.0	-14.4
4.808	11.2	20.4	31.6	46.0	-14.4
0.665	11.3	20.2	31.5	46.0	-14.5
1.720	11.2	20.2	31.4	46.0	-14.6
3.152	10.9	20.3	31.2	46.0	-14.8
0.512	11.0	20.2	31.2	46.0	-14.8
0.500	11.0	20.2	31.2	46.0	-14.8
1.120	10.9	20.2	31.1	46.0	-14.9
0.825	10.9	20.2	31.1	46.0	-14.9
3.096	10.6	20.3	30.9	46.0	-15.1
3.824	10.5	20.3	30.8	46.0	-15.2
1.416	10.6	20.2	30.8	46.0	-15.2
1.216	10.6	20.2	30.8	46.0	-15.2