

# NORTHWEST EMC

**Prosoft Technology, Inc.**

**RLX2-IHNF**

**RLX2-IHNF-W**

**RLX2-IHNF-WC**

**FCC 15.207:2015**

**FCC 15.247:2015**

**Report # PROS0226**



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. This Report may only be duplicated in its entirety*

# CERTIFICATE OF TEST

Last Date of Test: June 15, 2015  
Prosoft Technology, Inc.  
Model: RLX2-IHNF-W

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.207:2015	ANSI C63.10:2009
FCC 15.247:2015	ANSI C63.10:2009

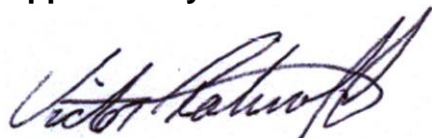
### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	AC Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.7	Spurious Conducted Emissions	No	N/A	Not Required - only testing enclosure change.
6.7	Band Edge Compliance	No	N/A	Not Required - only testing enclosure change.
6.9.1	Occupied Bandwidth	No	N/A	Not Required - only testing enclosure change.
6.10.2	Output Power	No	N/A	Not Required - only testing enclosure change.
6.11.2	Power Spectral Density	No	N/A	Not Required - only testing enclosure change.
7.5	Duty Cycle	No	N/A	Not Required - only testing enclosure change.

### Deviations From Test Standards

None

### Approved By:



Victor Ratnoff, Operations Manager

*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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.*

# REVISION HISTORY

Revision Number		Description	Date	Page Number
00		None		

# ACCREDITATIONS AND AUTHORIZATIONS

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## United States

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**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 17065 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

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## Canada

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

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## European Union

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**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.

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## Taiwan

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**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.

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## Singapore

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

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## Israel

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

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## Hong Kong

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

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## Vietnam

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

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## SCOPE

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For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>  
<http://gsi.nist.gov/global/docs/cabs/designations.html>

# MEASUREMENT UNCERTAINTY

## Measurement Uncertainty

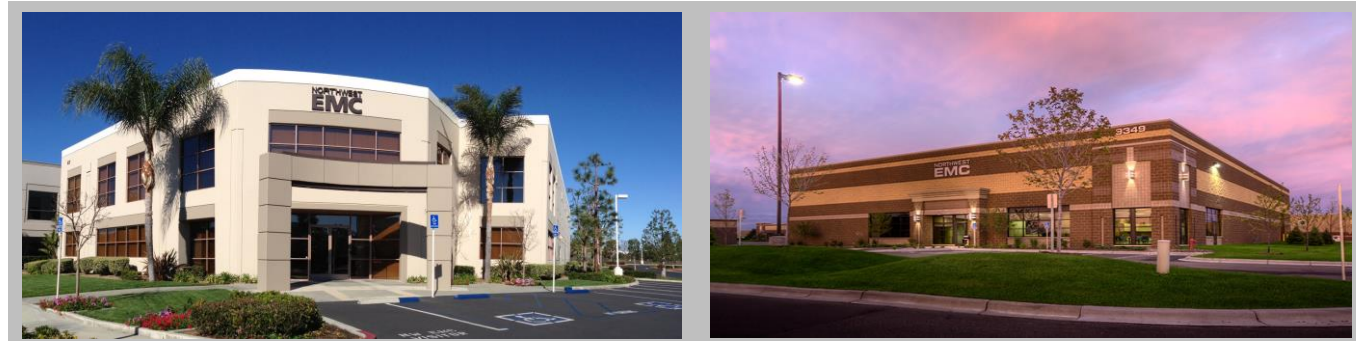
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement 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 on each data sheet. 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 16-4-2 as applicable), and are available upon request.

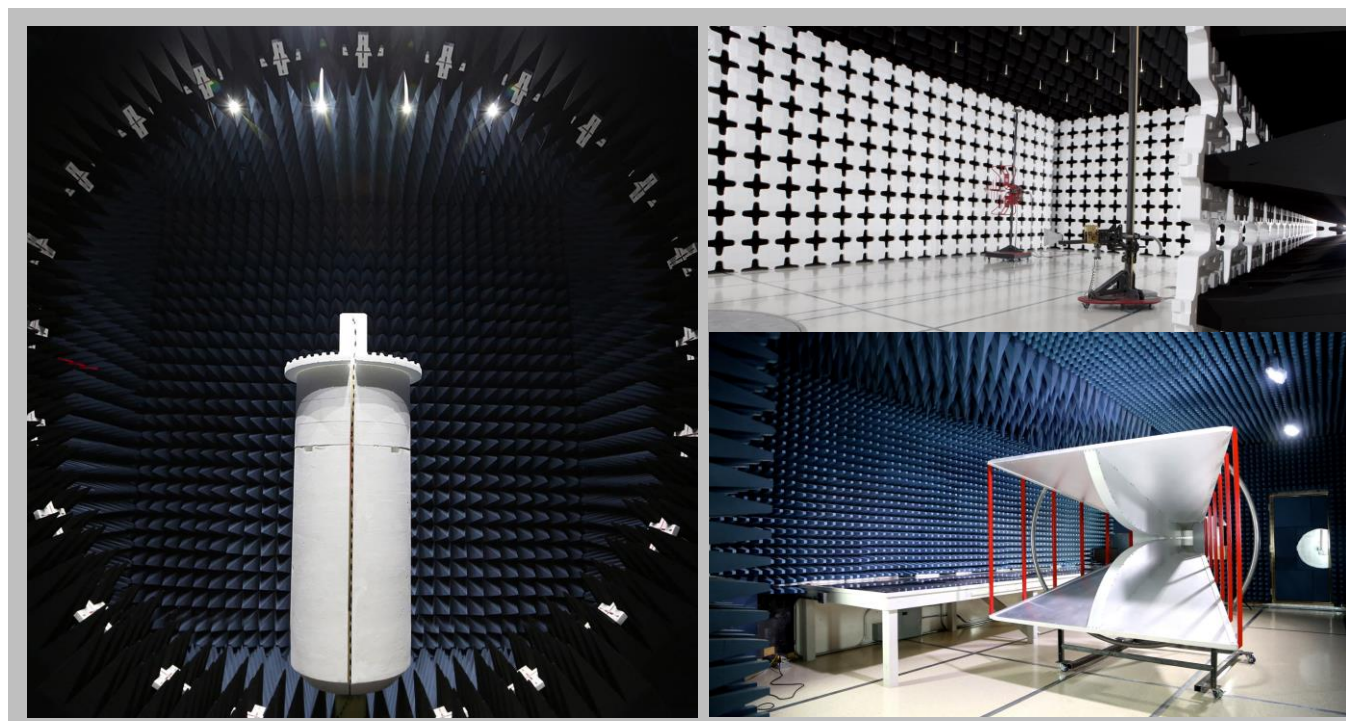
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	4.7 dB	-4.7 dB
AC Powerline Conducted Emissions (dB)	2.9 dB	-2.9 dB

# FACILITIES



<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	<b>Oregon</b> Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 9801 (425)984-6600
<b>NVLAP</b>					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
<b>Industry Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	ProSoft Technology, Inc.
<b>Address:</b>	5201 Truxtun Ave.
<b>City, State, Zip:</b>	Bakersfield, CA 93309
<b>Test Requested By:</b>	Frank Hardy
<b>Model:</b>	RLX2-IHNF-W
<b>First Date of Test:</b>	June 11, 2015
<b>Last Date of Test:</b>	June 15, 2015
<b>Receipt Date of Samples:</b>	June 11, 2015
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

802.11 abgn, 2x2 MIMO radio module with one antenna type.

RLX2-IHNF, RLX2-IHNF-W and RLX2-IHNF-WC use the same radio. The outer enclosure on RLX2-IHNF is different from RLX2-IHNF-W and RLX2-IHNF-WC. The power termination on RLX2-IHNF-W and RLX2-IHNF-WC are different from one another. The RLX2-IHNF-W has a M12 termination; while RLX2-IHNF-WC has a conduit termination.

### Testing Objective:

To demonstrate compliance of the 802.11 radio under FCC 15.247.



# CONFIGURATIONS

## Configuration PROS0226- 1

Software/Firmware Running during test	
Description	Version
RadioLinx Industrial Hotspot Browser	3.1.23

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
802.11abgn Fast Industrial Hopspot	ProSoft Technology, Inc.	RLX2-IHNF-W	000D8DF0968F
PoE Power Supply	ProSoft Technology, Inc.	POE-48i	148043926DRC02
2.4/5.8GHz, 6/8 dBi, Mast Mount Omni-Directional Antenna (3 ea)	PCTEL	MMO24580608NF	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Host Laptop	Toshiba	Satellite C55D-B5102	ZE309496P
Host Laptop Power Supply	Toshiba	PA3822U-1ACA	G71C000DF410

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	No	1.2m	No	PoE Power Supply	AC Mains
Power/Ethernet Cable	Yes	2.0m	No	PoE Power Supply	802.11abgn Fast Industrial Hopspot
Ethernet Cable	No	1.0m	No	PoE Power Supply	Host Laptop
AC Cable	No	1.8m	No	Host Laptop Power Supply	AC Mains
DC Cable	No	1.8m	No	Host Laptop Power Supply	Host Laptop



# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	6/11/2015	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	6/15/2015	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.

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 802.11an: High Ch. 165(5825), 6Mbps  
Continuously Transmitting 802.11an: High Ch. 11(2462), 6Mbps

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

PROS0226 - 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 Electronics	9252-50-24-BNC	LIB	1/29/2015	12 mo
LISN	Solar Electronics	9252-50-24-BNC	LIA	3/4/2015	12 mo
Attenuator	Pasternack	6N10W-20	AWC	12/4/2014	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HFP	1/27/2015	12 mo
OC06 Cables	Northwest EMC	Telecom Cables	OCP	8/15/2014	12 mo
Receiver	Rohde & Schwarz	ESCI	ARG	6/1/2015	12 mo

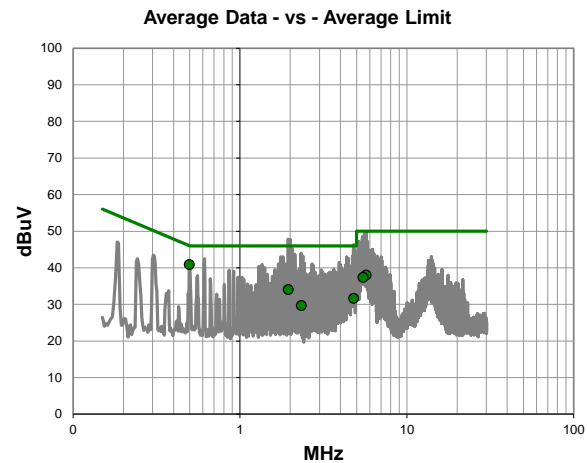
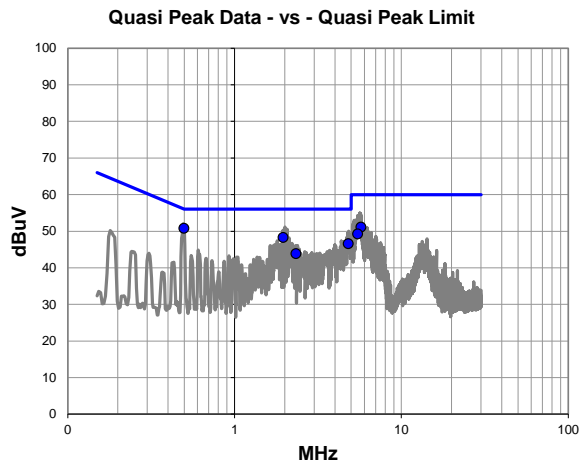
## MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	BW (kHz)
0.15 - 30.0	1.0
30.0 - 400.0	10.0
400.0 - 1000.0	100.0
1000.0 - 6000.0	1000.0

## 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 at the lowest, the highest, and a middle channel 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.

<b>Work Order:</b>	PROS0226	<b>Date:</b>	06/15/15				
<b>Project:</b>	None	<b>Temperature:</b>	21.4 °C				
<b>Job Site:</b>	OC06	<b>Humidity:</b>	48.6% RH				
<b>Serial Number:</b>	000D8DF0968F	<b>Barometric Pres.:</b>	1010.1 mbar				
<b>EUT:</b>	RLX2-IHNF-W						
<b>Configuration:</b>	1						
<b>Customer:</b>	Prosoft Technology, Inc.						
<b>Attendees:</b>	None						
<b>EUT Power:</b>	110VAC/60Hz						
<b>Operating Mode:</b>	Continuously Transmitting 802.11an: High Ch. 11(2462), 6Mbps						
<b>Deviations:</b>	None						
<b>Comments:</b>	None						
<b>Test Specifications</b>		<b>Test Method</b>					
FCC 15.207:2015		ANSI C63.10:2009					
<b>Run #</b>	1	<b>Line:</b>	High Line	<b>Ext. Attenuation:</b>	0	<b>Results</b>	Pass




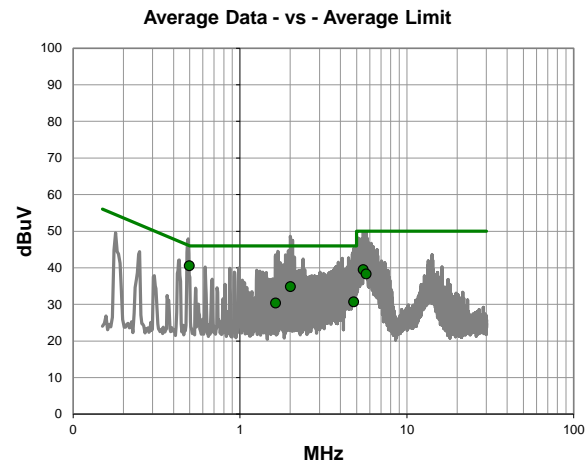
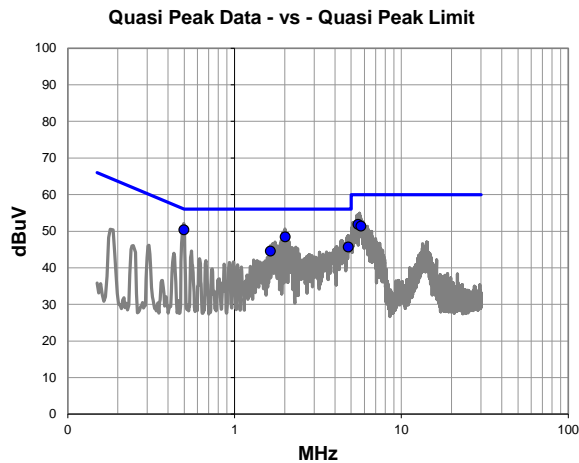
**Quasi Peak Data - vs - Quasi Peak Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.497	30.8	20.0	50.8	56.0	-5.2
1.950	28.1	20.2	48.3	56.0	-7.7
5.713	30.8	20.3	51.1	60.0	-8.9
4.799	26.3	20.3	46.6	56.0	-9.4
5.467	29.0	20.3	49.3	60.0	-10.7
2.332	23.7	20.2	43.9	56.0	-12.1

**Average Data - vs - Average Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.497	20.9	20.0	40.9	46.0	-5.1
1.950	13.9	20.2	34.1	46.0	-11.9
5.713	17.7	20.3	38.0	50.0	-12.0
5.467	17.1	20.3	37.4	50.0	-12.6
4.799	11.4	20.3	31.7	46.0	-14.3
2.332	9.5	20.2	29.7	46.0	-16.3

<b>Work Order:</b>	PROS0226	<b>Date:</b>	06/15/15				
<b>Project:</b>	None	<b>Temperature:</b>	21.4 °C				
<b>Job Site:</b>	OC06	<b>Humidity:</b>	48.6% RH				
<b>Serial Number:</b>	000D8DF0968F	<b>Barometric Pres.:</b>	1010.1 mbar				
<b>EUT:</b>	RLX2-IHNF-W						
<b>Configuration:</b>	1						
<b>Customer:</b>	Prosoft Technology, Inc.						
<b>Attendees:</b>	None						
<b>EUT Power:</b>	110VAC/60Hz						
<b>Operating Mode:</b>	Continuously Transmitting 802.11an: High Ch. 11(2462), 6Mbps						
<b>Deviations:</b>	None						
<b>Comments:</b>	None						
<b>Test Specifications</b>		<b>Test Method</b>					
FCC 15.207:2015		ANSI C63.10:2009					
<b>Run #</b>	2	<b>Line:</b>	Neutral	<b>Ext. Attenuation:</b>	0	<b>Results</b>	Pass




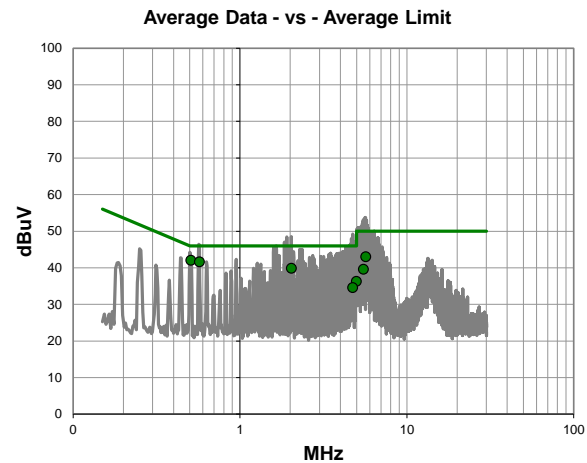
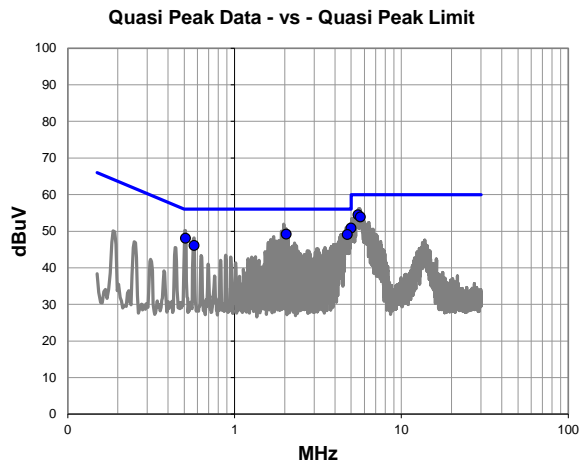
**Quasi Peak Data - vs - Quasi Peak Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.497	30.4	20.0	50.4	56.0	-5.6
2.009	28.3	20.2	48.5	56.0	-7.5
5.486	31.6	20.3	51.9	60.0	-8.1
5.714	31.1	20.3	51.4	60.0	-8.6
4.801	25.4	20.3	45.7	56.0	-10.3
1.637	24.4	20.2	44.6	56.0	-11.4

**Average Data - vs - Average Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.497	20.6	20.0	40.6	46.0	-5.4
5.486	19.2	20.3	39.5	50.0	-10.5
2.009	14.7	20.2	34.9	46.0	-11.1
5.714	18.0	20.3	38.3	50.0	-11.7
4.801	10.4	20.3	30.7	46.0	-15.3
1.637	10.2	20.2	30.4	46.0	-15.6

<b>Work Order:</b>	PROS0226	<b>Date:</b>	06/15/15				
<b>Project:</b>	None	<b>Temperature:</b>	21.4 °C				
<b>Job Site:</b>	OC06	<b>Humidity:</b>	48.6% RH				
<b>Serial Number:</b>	000D8DF0968F	<b>Barometric Pres.:</b>	1010.1 mbar				
<b>EUT:</b>	RLX2-IHNF-W						
<b>Configuration:</b>	1						
<b>Customer:</b>	Prosoft Technology, Inc.						
<b>Attendees:</b>	None						
<b>EUT Power:</b>	110VAC/60Hz						
<b>Operating Mode:</b>	Continuously Transmitting 802.11an: High Ch. 165(5825), 6Mbps						
<b>Deviations:</b>	None						
<b>Comments:</b>	None						
<b>Test Specifications</b>		<b>Test Method</b>					
FCC 15.207:2015		ANSI C63.10:2009					
<b>Run #</b>	3	<b>Line:</b>	Neutral	<b>Ext. Attenuation:</b>	0	<b>Results</b>	Pass




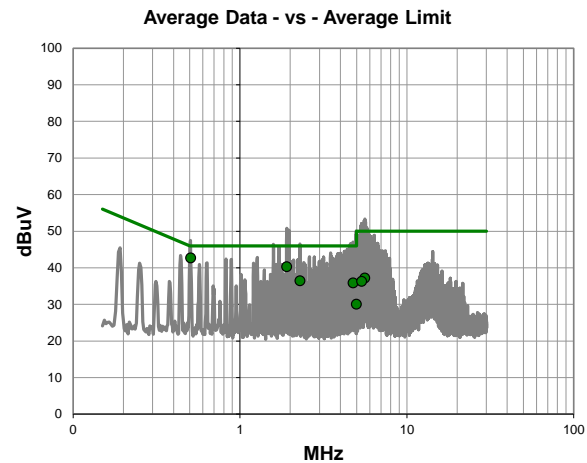
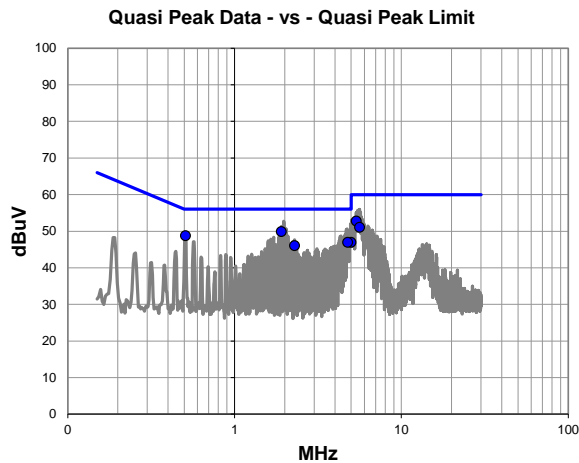
**Quasi Peak Data - vs - Quasi Peak Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
4.989	30.6	20.3	50.9	56.0	-5.1
5.495	34.2	20.3	54.5	60.0	-5.5
5.670	33.6	20.3	53.9	60.0	-6.1
2.036	29.0	20.2	49.2	56.0	-6.8
4.735	28.8	20.3	49.1	56.0	-6.9
0.508	28.1	20.0	48.1	56.0	-7.9
0.572	26.1	20.0	46.1	56.0	-9.9

**Average Data - vs - Average Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.508	22.1	20.0	42.1	46.0	-3.9
0.572	21.6	20.0	41.6	46.0	-4.4
2.036	19.7	20.2	39.9	46.0	-6.1
5.670	22.7	20.3	43.0	50.0	-7.0
4.989	16.0	20.3	36.3	46.0	-9.7
5.495	19.3	20.3	39.6	50.0	-10.4
4.735	14.3	20.3	34.6	46.0	-11.4

<b>Work Order:</b>	PROS0226	<b>Date:</b>	06/15/15				
<b>Project:</b>	None	<b>Temperature:</b>	21.4 °C				
<b>Job Site:</b>	OC06	<b>Humidity:</b>	48.6% RH				
<b>Serial Number:</b>	000D8DF0968F	<b>Barometric Pres.:</b>	1010.1 mbar				
<b>EUT:</b>	RLX2-IHNF-W						
<b>Configuration:</b>	1						
<b>Customer:</b>	Prosoft Technology, Inc.						
<b>Attendees:</b>	None						
<b>EUT Power:</b>	110VAC/60Hz						
<b>Operating Mode:</b>	Continuously Transmitting 802.11an: High Ch. 165(5825), 6Mbps						
<b>Deviations:</b>	None						
<b>Comments:</b>	None						
<b>Test Specifications</b>		<b>Test Method</b>					
FCC 15.207:2015		ANSI C63.10:2009					
<b>Run #</b>	4	<b>Line:</b>	High Line	<b>Ext. Attenuation:</b>	0	<b>Results</b>	Pass



**Quasi Peak Data - vs - Quasi Peak Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.908	29.7	20.2	49.9	56.0	-6.1
0.507	28.8	20.0	48.8	56.0	-7.2
5.364	32.5	20.3	52.8	60.0	-7.2
5.607	30.8	20.3	51.1	60.0	-8.9
4.985	26.7	20.3	47.0	56.0	-9.0
4.766	26.7	20.3	47.0	56.0	-9.0
2.289	25.9	20.2	46.1	56.0	-9.9

**Average Data - vs - Average Limit**

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.507	22.7	20.0	42.7	46.0	-3.3
1.908	20.1	20.2	40.3	46.0	-5.7
2.289	16.3	20.2	36.5	46.0	-9.5
4.766	15.6	20.3	35.9	46.0	-10.1
5.607	16.9	20.3	37.2	50.0	-12.8
5.364	16.0	20.3	36.3	50.0	-13.7
4.985	9.8	20.3	30.1	46.0	-15.9

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

Continuously Transmitting at High Channel 11 - 2462MHz

Continuously Transmitting at Mid Channel 6 - 2437MHz

Continuously Transmitting at Low Channel 1 - 2412MHz

Continuously Transmitting at High Channel 165 - 5825MHz

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

PROS0226 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency	1 GHz	Stop Frequency	26 GHz
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## 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
Attenuator	Coaxicom	66702 3910AF-20	TKI	3/4/2015	12 mo
Notch Filter, 5.725-5.875 GHz	Micro-Tronics	BRC50705	HFQ	3/4/2015	12 mo
High Pass Filter, 2.8 - 18 GHz	Micro-Tronics	HPM50111	HFM	2/9/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	12/31/2014	12 mo
Antenna, Horn	EMCO	3160-09	AHN	NCR	0 mo
OC Floating Cable	Northwest EMC	18-26GHz RE Cables	OCK	2/27/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	9/11/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AHT	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	9/11/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-07	AHR	NCR	0 mo
OC 10 Cables	Northwest EMC	8-18GHz RE Cables	OCO	9/11/2014	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	3/2/2015	12 mo
Antenna, Horn	EMCO	3115	AHB	3/10/2014	24 mo
OC10 Cables	Northwest EMC	1-8GHz RE Cables	OCJ	3/2/2015	12 mo
Spectrum Analyzer	Agilent	N9010A	AFJ	10/1/2014	12 mo

## TEST DESCRIPTION

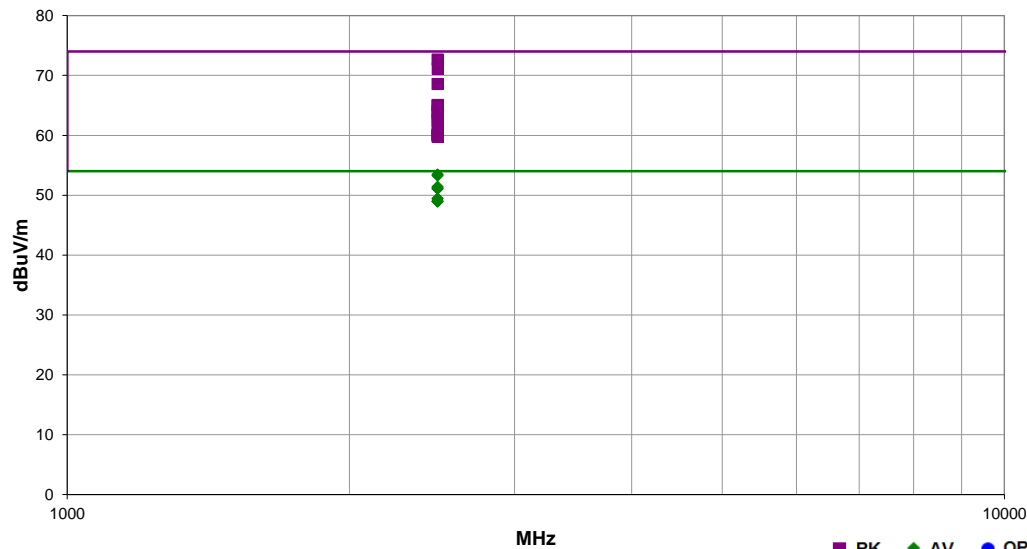
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured at the worst case transmit frequencies and data rates in each operational band, found from previous testing on the same radio. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify similar unit also 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.




<b>Work Order:</b>	PROS0226	<b>Date:</b>	06/11/15	
<b>Project:</b>	None	<b>Temperature:</b>	20.9 °C	
<b>Job Site:</b>	OC07	<b>Humidity:</b>	51.1% RH	
<b>Serial Number:</b>	000D8DF0968F	<b>Barometric Pres.:</b>	1012 mbar	
<b>EUT:</b>	RLX2-IHNF-W			
<b>Configuration:</b>	1			
<b>Customer:</b>	Prosoft Technology, Inc.			
<b>Attendees:</b>	Frank Hardy			
<b>EUT Power:</b>	110VAC/60Hz			
<b>Operating Mode:</b>	Continuously Transmitting at High Channel 11 - 2462MHz			
<b>Deviations:</b>	None			
<b>Comments:</b>	None			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

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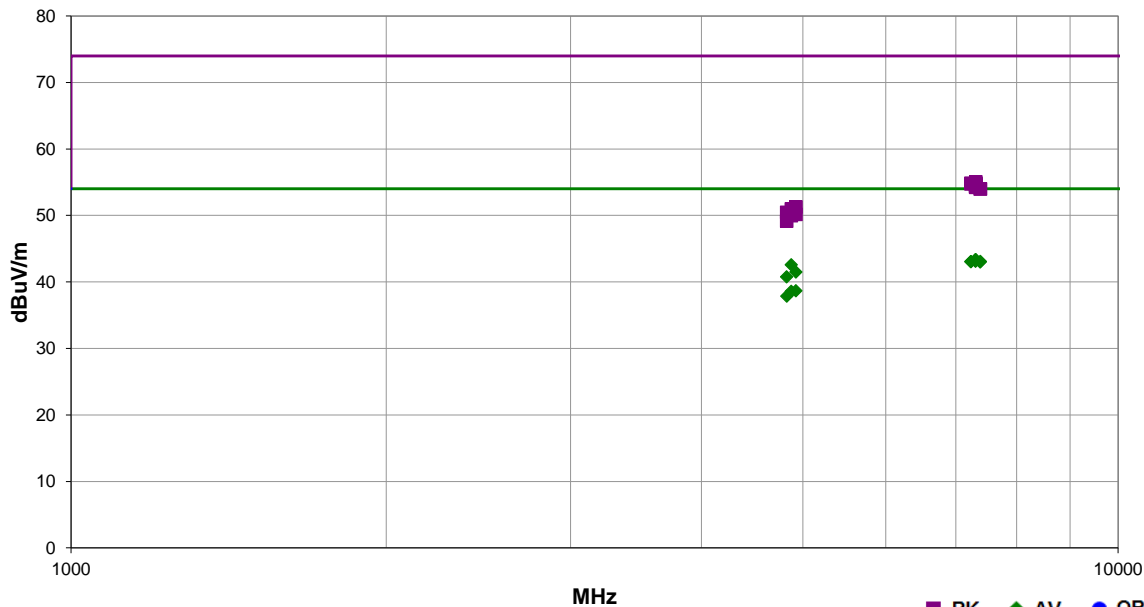


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.735	32.4	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	53.5	54.0	-0.5	High Ch 11, 6Mbps, EUT on Side
2483.502	32.3	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	53.4	54.0	-0.6	High Ch 11, 36Mbps, EUT on Side
2483.798	32.2	1.1	2.7	178.0	3.0	20.0	Horz	AV	0.0	53.3	54.0	-0.7	High Ch 11, 6Mbps, EUT Vert
2484.252	51.6	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	72.7	74.0	-1.3	High Ch 11, 6Mbps, EUT on Side
2483.783	30.3	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	51.4	54.0	-2.6	High Ch 7/11, MCS0, EUT on Side
2483.502	30.3	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	51.4	54.0	-2.6	High Ch 7/11, MCS7, EUT on Side
2484.470	50.1	1.1	2.7	178.0	3.0	20.0	Horz	PK	0.0	71.2	74.0	-2.8	High Ch 11, 6Mbps, EUT Vert
2483.505	30.1	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	51.2	54.0	-2.8	High Ch 11, 54Mbps, EUT on Side
2483.855	30.0	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	51.1	54.0	-2.9	High Ch 11, MCS0, EUT on Side
2483.678	30.0	1.1	1.2	133.0	3.0	20.0	Vert	AV	0.0	51.1	54.0	-2.9	High Ch 11, MCS7, EUT on Side
2483.607	28.4	1.1	1.2	181.0	3.0	20.0	Horz	AV	0.0	49.5	54.0	-4.5	High Ch 11, 6Mbps, EUT on Side
2483.842	28.3	1.1	1.2	339.0	3.0	20.0	Horz	AV	0.0	49.4	54.0	-4.6	High Ch 11, 6Mbps, EUT Horiz
2484.350	27.9	1.1	1.0	192.0	3.0	20.0	Vert	AV	0.0	49.0	54.0	-5.0	High Ch 11, 11Mbps, EUT on Side
2483.730	27.9	1.1	1.0	196.0	3.0	20.0	Vert	AV	0.0	49.0	54.0	-5.0	High Ch 11, 1Mbps, EUT on Side
2483.657	27.9	1.1	3.6	200.0	3.0	20.0	Vert	AV	0.0	49.0	54.0	-5.0	High Ch 11, 6Mbps, EUT Vert
2483.645	27.9	1.1	3.5	205.0	3.0	20.0	Vert	AV	0.0	49.0	54.0	-5.0	High Ch 11, 6Mbps, EUT Horiz
2483.530	47.5	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	68.6	74.0	-5.4	High Ch 11, 36Mbps, EUT on Side
2484.095	44.0	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	65.1	74.0	-8.9	High Ch 7/11, MCS0, EUT on Side
2483.598	43.9	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	65.0	74.0	-9.0	High Ch 7/11, MCS7, EUT on Side
2483.917	43.1	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	64.2	74.0	-9.8	High Ch 11, 54Mbps, EUT on Side
2483.707	42.6	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	63.7	74.0	-10.3	High Ch 11, MCS7, EUT on Side
2483.872	41.7	1.1	1.2	133.0	3.0	20.0	Vert	PK	0.0	62.8	74.0	-11.2	High Ch 11, MCS0, EUT on Side
2483.562	41.4	1.1	1.2	181.0	3.0	20.0	Horz	PK	0.0	62.5	74.0	-11.5	High Ch 11, 6Mbps, EUT on Side
2484.368	39.7	1.1	1.2	339.0	3.0	20.0	Horz	PK	0.0	60.8	74.0	-13.2	High Ch 11, 6Mbps, EUT Horiz
2483.823	39.1	1.1	1.0	196.0	3.0	20.0	Vert	PK	0.0	60.2	74.0	-13.8	High Ch 11, 1Mbps, EUT on Side
2484.098	39.0	1.1	3.5	205.0	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	High Ch 11, 6Mbps, EUT Horiz
2484.352	38.9	1.1	1.0	192.0	3.0	20.0	Vert	PK	0.0	60.0	74.0	-14.0	High Ch 11, 11Mbps, EUT on Side
2484.107	38.7	1.1	3.6	200.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	High Ch 11, 6Mbps, EUT Vert

Work Order:	PROS0226	Date:	06/11/15	
Project:	None	Temperature:	20.9 °C	
Job Site:	OC07	Humidity:	51.1% RH	
Serial Number:	000D8DF0968F	Barometric Pres.:	1012 mbar	
EUT:	RLX2-IHNF-W			
Configuration:	1			
Customer:	Prosoft Technology, Inc.			
Attendees:	Frank Hardy			
EUT Power:	110VAC/60Hz			
Operating Mode:	Continuously Transmitting at Low Channel 1 - 2412MHz, Mid Channel - 2437MHz, & High Channel 11 - 2462MHz			
Deviations:	None			
Comments:	None			


Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	9	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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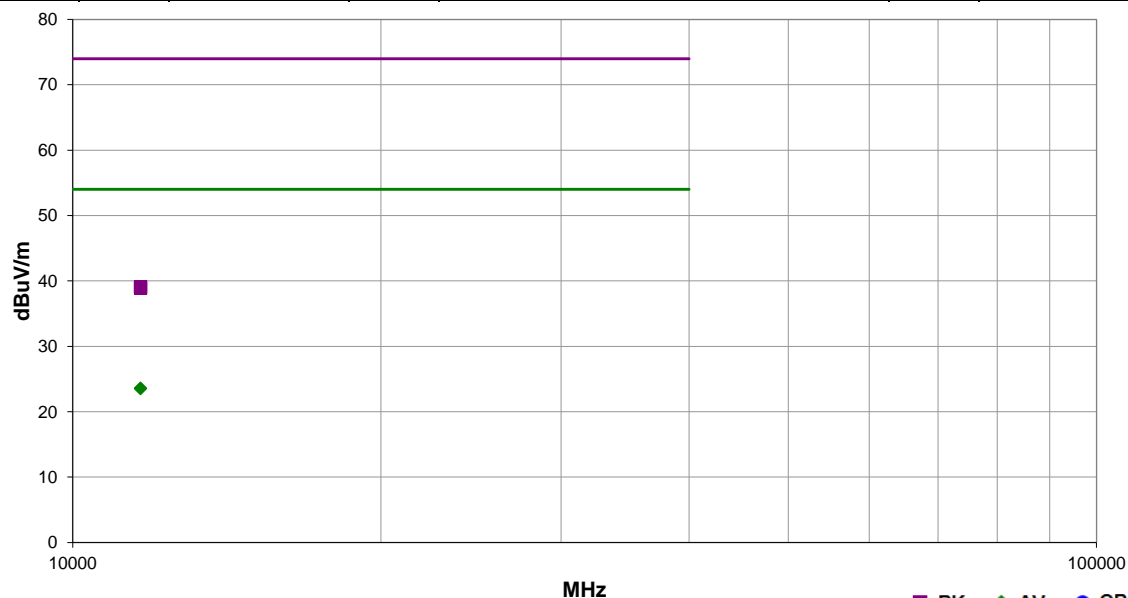
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7313.367	27.7	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.3	54.0	-10.7	Mid Ch 6, 6Mbps, EUT on Side
7309.625	27.7	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.3	54.0	-10.7	Mid Ch 6, 1Mbps, EUT on Side
7308.858	27.7	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.3	54.0	-10.7	Mid Ch 6, 36Mbps, EUT on Side
7309.665	27.6	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	Mid Ch 6, 11Mbps, EUT on Side
7309.558	27.6	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	Mid Ch 6, MCS7, EUT on Side
7308.633	27.6	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	Mid Ch 4/8, MCS7, EUT on Side
7308.617	27.6	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	Mid Ch 4/8, MCS0, EUT on Side
7308.508	27.6	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	Mid Ch 6, 54Mbps, EUT on Side
7309.575	27.5	15.6	1.2	80.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	Mid Ch 6, MCS0, EUT on Side
7309.605	27.5	15.6	1.2	26.0	3.0	0.0	Horz	AV	0.0	43.1	54.0	-10.9	Mid Ch 6, 1Mbps, EUT on Side
7387.395	27.4	15.7	1.2	182.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	High Ch 11, 1Mbps, EUT on Side
7234.417	27.7	15.3	1.2	330.0	3.0	0.0	Vert	AV	0.0	43.0	54.0	-11.0	Low Ch 1, 1Mbps, EUT on Side
7234.250	27.7	15.3	1.2	207.0	3.0	0.0	Horz	AV	0.0	43.0	54.0	-11.0	Low Ch 1, 1Mbps, EUT on Side
7384.870	27.3	15.7	1.2	84.0	3.0	0.0	Horz	AV	0.0	43.0	54.0	-11.0	High Ch 11, 1Mbps, EUT on Side
4873.950	33.2	9.4	1.2	1.0	3.0	0.0	Vert	AV	0.0	42.6	54.0	-11.4	Mid Ch 6, 1Mbps, EUT on Side
4923.935	32.0	9.5	1.2	138.0	3.0	0.0	Vert	AV	0.0	41.5	54.0	-12.5	High Ch 11, 1Mbps, EUT on Side
4823.945	31.5	9.3	1.2	348.0	3.0	0.0	Vert	AV	0.0	40.8	54.0	-13.2	Low Ch 1, 1Mbps, EUT on Side
4922.805	29.2	9.5	1.2	351.0	3.0	0.0	Horz	AV	0.0	38.7	54.0	-15.3	High Ch 11, 1Mbps, EUT on Side
4873.830	29.2	9.4	1.2	33.0	3.0	0.0	Horz	AV	0.0	38.6	54.0	-15.4	Mid Ch 6, 1Mbps, EUT on Side
4825.335	28.6	9.3	1.2	294.0	3.0	0.0	Horz	AV	0.0	37.9	54.0	-16.1	Low Ch 1, 1Mbps, EUT on Side
7313.358	39.4	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	55.0	74.0	-19.0	Mid Ch 4/8, MCS7, EUT on Side
7234.708	39.5	15.3	1.2	330.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	Low Ch 1, 1Mbps, EUT on Side
7312.300	39.2	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	Mid Ch 6, 36Mbps, EUT on Side
7310.567	39.2	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	Mid Ch 6, 54Mbps, EUT on Side
7233.942	39.4	15.3	1.2	207.0	3.0	0.0	Horz	PK	0.0	54.7	74.0	-19.3	Low Ch 1, 1Mbps, EUT on Side

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
7310.692	39.1	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	Mid Ch 4/8, MCS0, EUT on Side
7309.750	39.1	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	Mid Ch 6, 1Mbps, EUT on Side
7309.458	39.1	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	Mid Ch 6, 6Mbps, EUT on Side
7309.680	38.9	15.6	1.2	26.0	3.0	0.0	Horz	PK	0.0	54.5	74.0	-19.5	Mid Ch 6, 1Mbps, EUT on Side
7309.458	38.7	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.3	74.0	-19.7	Mid Ch 6, MCS0, EUT on Side
7311.495	38.6	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.2	74.0	-19.8	Mid Ch 6, 11Mbps, EUT on Side
7309.908	38.6	15.6	1.2	80.0	3.0	0.0	Vert	PK	0.0	54.2	74.0	-19.8	Mid Ch 6, MCS7, EUT on Side
7387.350	38.3	15.7	1.2	182.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	High Ch 11, 1Mbps, EUT on Side
7385.070	38.3	15.7	1.2	84.0	3.0	0.0	Horz	PK	0.0	54.0	74.0	-20.0	High Ch 11, 1Mbps, EUT on Side
4924.090	41.8	9.5	1.2	138.0	3.0	0.0	Vert	PK	0.0	51.3	74.0	-22.7	High Ch 11, 1Mbps, EUT on Side
4873.950	41.6	9.4	1.2	1.0	3.0	0.0	Vert	PK	0.0	51.0	74.0	-23.0	Mid Ch 6, 1Mbps, EUT on Side
4823.960	41.2	9.3	1.2	348.0	3.0	0.0	Vert	PK	0.0	50.5	74.0	-23.5	Low Ch 1, 1Mbps, EUT on Side
4922.655	40.7	9.5	1.2	351.0	3.0	0.0	Horz	PK	0.0	50.2	74.0	-23.8	High Ch 11, 1Mbps, EUT on Side
4874.520	40.6	9.4	1.2	33.0	3.0	0.0	Horz	PK	0.0	50.0	74.0	-24.0	Mid Ch 6, 1Mbps, EUT on Side
4824.255	39.9	9.3	1.2	294.0	3.0	0.0	Horz	PK	0.0	49.2	74.0	-24.8	Low Ch 1, 1Mbps, EUT on Side

Work Order:	PROS0226	Date:	06/12/15	
Project:	None	Temperature:	21.5 °C	
Job Site:	OC07	Humidity:	50.2% RH	
Serial Number:	000D8DF0968F	Barometric Pres.:	1011 mbar	
EUT:		RLX2-IHNF-W		
Configuration:	1			
Customer:	Prosoft Technology, Inc.			
Attendees:	Frank Hardy			
EUT Power:	110VAC/60Hz			
Operating Mode:	Continuously Transmitting at High Channel 165 - 5825MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2009

Run #	3	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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(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
11649.650	32.2	-8.6	1.5	224.0	3.0	0.0	Horz	AV	0.0	23.6	54.0	-30.4	High Ch. 165, EUT on Side, 6Mbps
11649.570	32.1	-8.6	1.0	91.0	3.0	0.0	Vert	AV	0.0	23.5	54.0	-30.5	High Ch. 165, EUT on Side, 6Mbps
11649.550	47.7	-8.6	1.5	224.0	3.0	0.0	Horz	PK	0.0	39.1	74.0	-34.9	High Ch. 165, EUT on Side, 6Mbps
11649.830	47.5	-8.6	1.0	91.0	3.0	0.0	Vert	PK	0.0	38.9	74.0	-35.1	High Ch. 165, EUT on Side, 6Mbps