

NORTHWEST EMC

Prosoft Technology, Inc.

RLX2-IHNF

RLX2-IHNF-W

RLX2-IHNF-WC

FCC 15.207:2015

FCC 15.407:2015

Report # PROS0226.2



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 15.407:2015	ANSI C63.10:2009

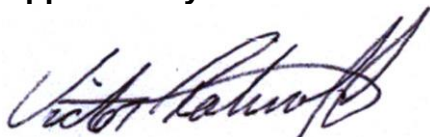
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	AC Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.8	Frequency Stability	No	N/A	Not Required - only testing enclosure change.
6.9.1	Emission Bandwidth	No	N/A	Not Required - only testing enclosure change.
6.9.1	Occupied Bandwidth	No	N/A	Not Required - only testing enclosure change.
6.10.3	Peak Transmit Power	No	N/A	Not Required - only testing enclosure change.
6.11.1	Peak 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.
KDB 789033 D02 - Section H	Measurement of Emission at Elevation Angle Higher Than 30 Degrees From Horizon	No	N/A	Not Required - only testing enclosure change.

Deviations From Test Standards

None

Approved By:



Victor Ratinoff, 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

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 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

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

MSIP / 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.

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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.

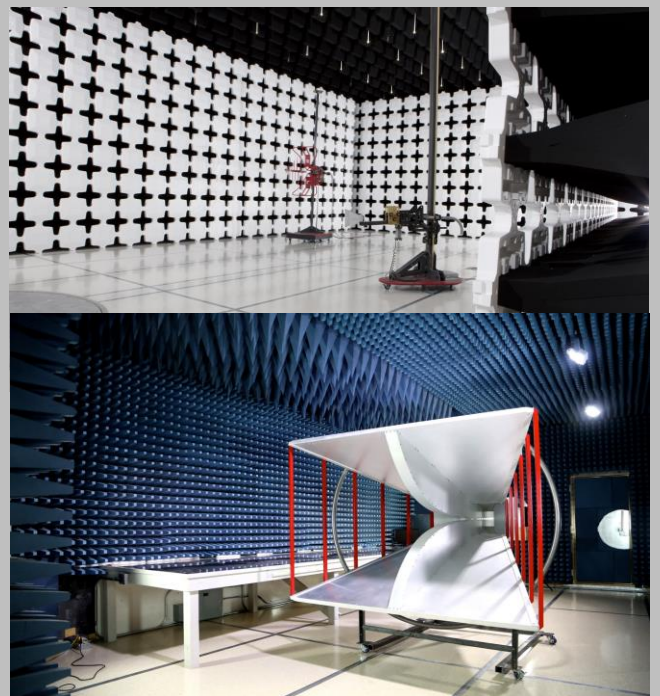
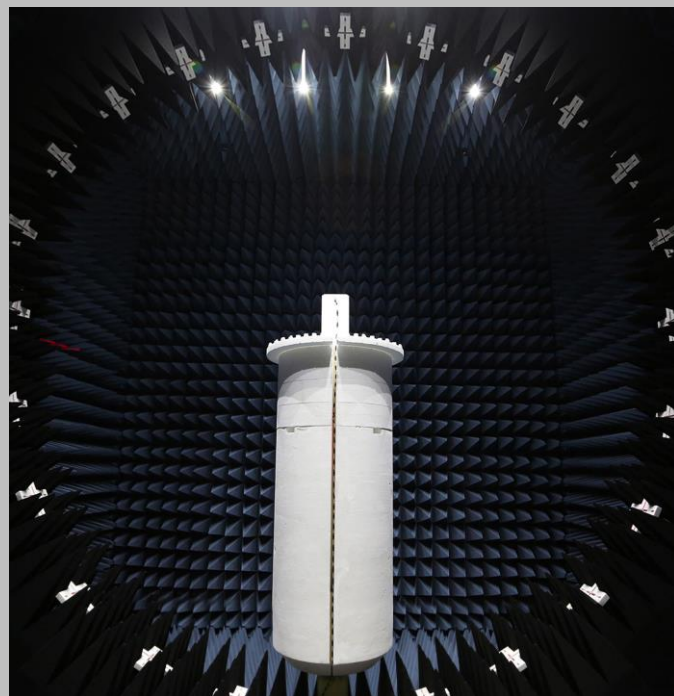
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
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



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



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Prosoft Technology, Inc.
Address:	5201 Truxtun Ave.
City, State, Zip:	Bakersfield, CA 93309
Test Requested By:	Frank Hardy
Model:	RLX2-IHNF-W
First Date of Test:	June 12, 2015
Last Date of Test:	June 15, 2015
Receipt Date of Samples:	June 11, 2015
Equipment Design Stage:	Production
Equipment Condition:	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 15.407.

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	6/12/2015	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. 48(5240), 6Mbps

Continuously Transmitting 802.11an: High Ch. 140(5700), 6Mbps

Continuously Transmitting 802.11an: High Ch. 165(5825), 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

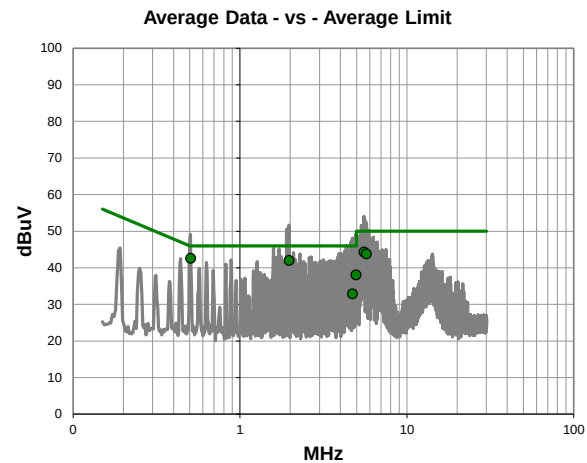
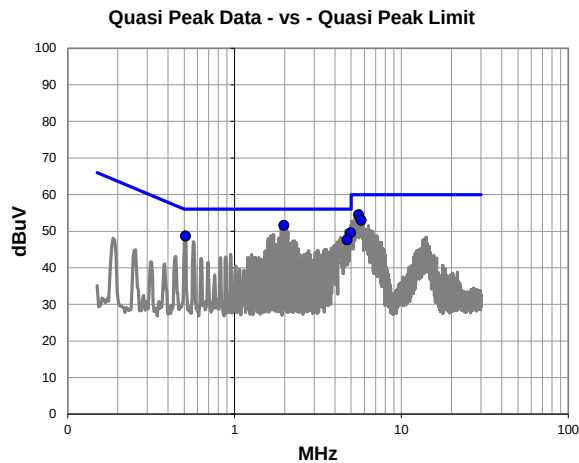
MEASUREMENT BANDWIDTHS

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.

Work Order:	PROS0226	Date:	06/15/15				
Project:	None	Temperature:	21.4 °C				
Job Site:	OC06	Humidity:	48.6% RH				
Serial Number:	000D8DF0968F	Barometric Pres.:	1010.1 mbar				
EUT:	RLX2-IHNF-W						
Configuration:	1						
Customer:	Prosoft Technology, Inc.						
Attendees:	None						
EUT Power:	110VAC/60Hz						
Operating Mode:	Continuously Transmitting 802.11an: High Ch. 48(5240), 6Mbps						
Deviations:	None						
Comments:	None						
Test Specifications		Test Method					
FCC 15.207:2015		ANSI C63.10:2009					
Run #	5	Line:	High Line	Ext. Attenuation:	0	Results	Pass



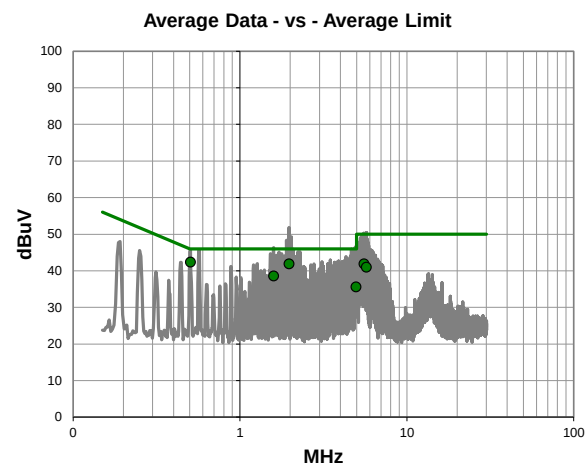
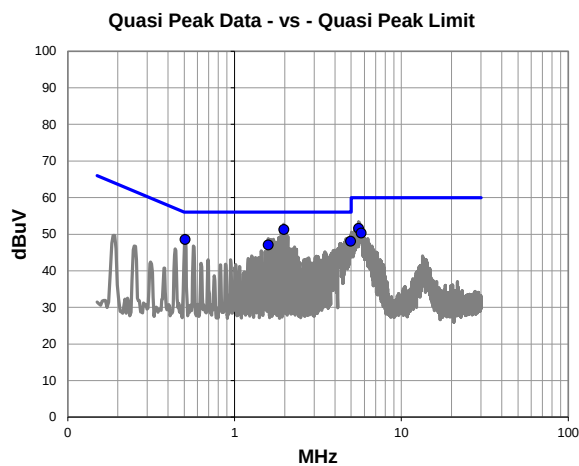
Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.971	31.4	20.2	51.6	56.0	-4.4
5.537	34.2	20.3	54.5	60.0	-5.5
4.963	29.3	20.3	49.6	56.0	-6.4
5.726	32.7	20.3	53.0	60.0	-7.0
0.507	28.7	20.0	48.7	56.0	-7.3
4.722	27.4	20.3	47.7	56.0	-8.3

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.507	22.6	20.0	42.6	46.0	-3.4
1.971	21.8	20.2	42.0	46.0	-4.0
5.537	24.0	20.3	44.3	50.0	-5.7
5.726	23.5	20.3	43.8	50.0	-6.2
4.963	17.8	20.3	38.1	46.0	-7.9
4.722	12.6	20.3	32.9	46.0	-13.1

Work Order:	PROS0226	Date:	06/15/15				
Project:	None	Temperature:	21.4 °C				
Job Site:	OC06	Humidity:	48.6% RH				
Serial Number:	000D8DF0968F	Barometric Pres.:	1010.1 mbar				
EUT:	RLX2-IHNF-W						
Configuration:	1						
Customer:	Prosoft Technology, Inc.						
Attendees:	None						
EUT Power:	110VAC/60Hz						
Operating Mode:	Continuously Transmitting 802.11an: High Ch. 48(5240), 6Mbps						
Deviations:	None						
Comments:	None						
Test Specifications		Test Method					
FCC 15.207:2015		ANSI C63.10:2009					
Run #	6	Line:	Neutral	Ext. Attenuation:	0	Results	Pass



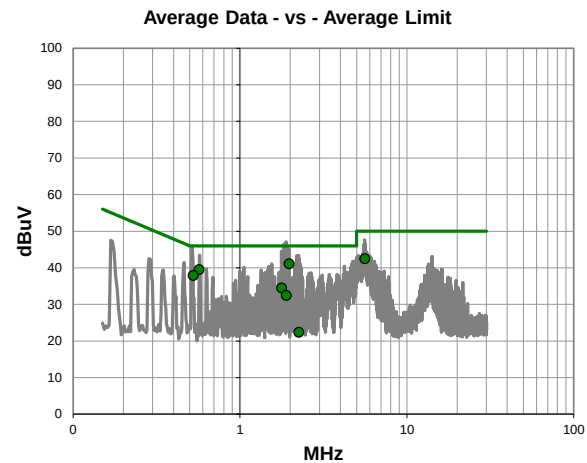
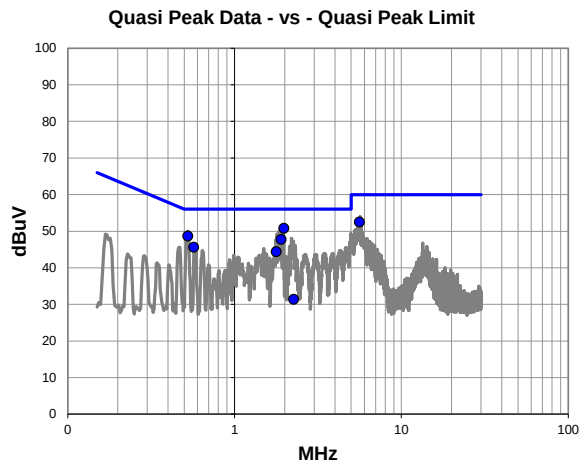
Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.971	31.1	20.2	51.3	56.0	-4.7
0.505	28.6	20.0	48.6	56.0	-7.4
4.964	27.8	20.3	48.1	56.0	-7.9
5.536	31.3	20.3	51.6	60.0	-8.4
1.590	26.9	20.2	47.1	56.0	-8.9
5.727	30.0	20.3	50.3	60.0	-9.7

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.505	22.4	20.0	42.4	46.0	-3.6
1.971	21.7	20.2	41.9	46.0	-4.1
1.590	18.4	20.2	38.6	46.0	-7.4
5.536	21.6	20.3	41.9	50.0	-8.1
5.727	20.7	20.3	41.0	50.0	-9.0
4.964	15.3	20.3	35.6	46.0	-10.4

Work Order:	PROS0226	Date:	06/15/15				
Project:	None	Temperature:	21.4 °C				
Job Site:	OC06	Humidity:	48.6% RH				
Serial Number:	000D8DF0968F	Barometric Pres.:	1010.1 mbar				
EUT:	RLX2-IHNF-W						
Configuration:	1						
Customer:	Prosoft Technology, Inc.						
Attendees:	None						
EUT Power:	110VAC/60Hz						
Operating Mode:	Continuously Transmitting 802.11an: High Ch. 140(5700), 6Mbps						
Deviations:	None						
Comments:	None						
Test Specifications		Test Method					
FCC 15.207:2015		ANSI C63.10:2009					
Run #	9	Line:	High Line	Ext. Attenuation:	0	Results	Pass



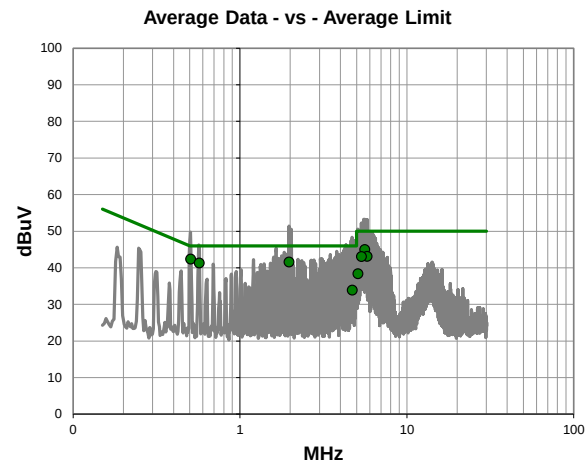
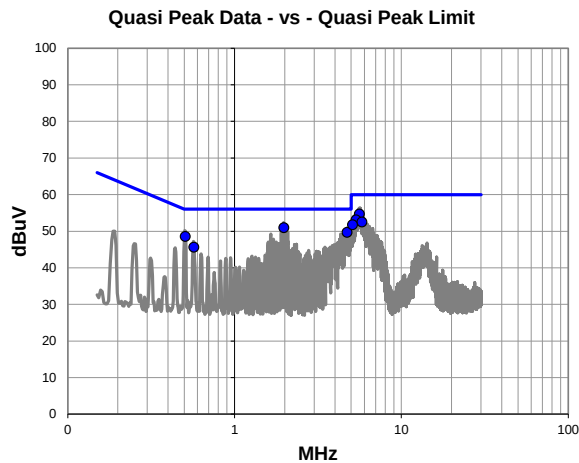
Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.971	30.6	20.2	50.8	56.0	-5.2
0.525	28.7	20.0	48.7	56.0	-7.3
5.597	32.2	20.3	52.5	60.0	-7.5
1.898	27.6	20.2	47.8	56.0	-8.2
0.569	25.6	20.0	45.6	56.0	-10.4
1.778	24.2	20.2	44.4	56.0	-11.6
2.257	11.2	20.2	31.4	56.0	-24.6

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.971	20.9	20.2	41.1	46.0	-4.9
0.569	19.5	20.0	39.5	46.0	-6.5
5.597	22.2	20.3	42.5	50.0	-7.5
0.525	17.9	20.0	37.9	46.0	-8.1
1.778	14.3	20.2	34.5	46.0	-11.5
1.898	12.3	20.2	32.5	46.0	-13.5
2.257	2.2	20.2	22.4	46.0	-23.6

Work Order:	PROS0226	Date:	06/15/15				
Project:	None	Temperature:	21.4 °C				
Job Site:	OC06	Humidity:	48.6% RH				
Serial Number:	000D8DF0968F	Barometric Pres.:	1010.1 mbar				
EUT:	RLX2-IHNF-W						
Configuration:	1						
Customer:	Prosoft Technology, Inc.						
Attendees:	None						
EUT Power:	110VAC/60Hz						
Operating Mode:	Continuously Transmitting 802.11an: High Ch. 140(5700), 6Mbps						
Deviations:	None						
Comments:	None						
Test Specifications		Test Method					
FCC 15.207:2015		ANSI C63.10:2009					
Run #	10	Line:	Neutral	Ext. Attenuation:	0	Results	Pass



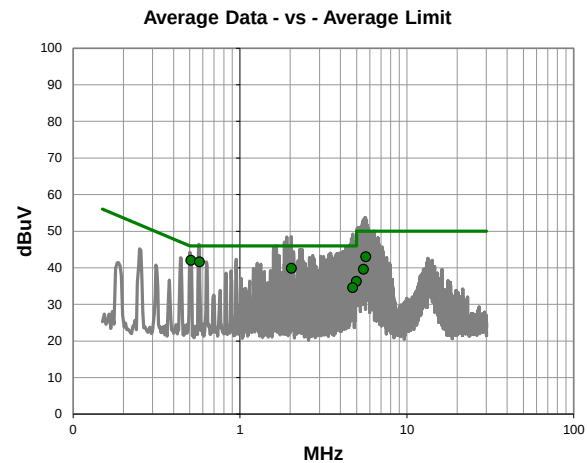
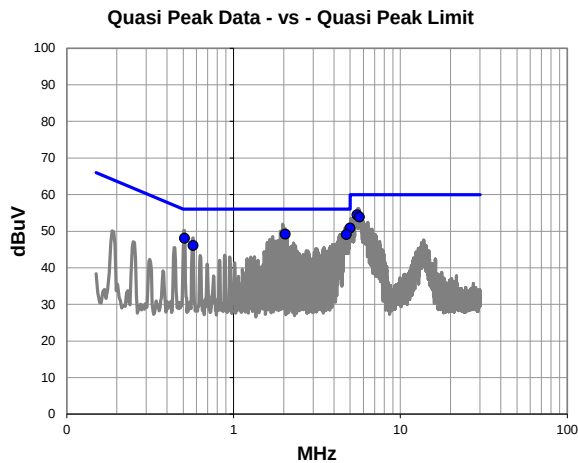
Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.971	30.8	20.2	51.0	56.0	-5.0
5.600	34.4	20.3	54.7	60.0	-5.3
4.718	29.4	20.3	49.7	56.0	-6.3
5.345	32.8	20.3	53.1	60.0	-6.9
0.506	28.6	20.0	48.6	56.0	-7.4
5.790	32.2	20.3	52.5	60.0	-7.5
5.096	31.5	20.3	51.8	60.0	-8.2
0.571	25.6	20.0	45.6	56.0	-10.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.506	22.4	20.0	42.4	46.0	-3.6
1.971	21.4	20.2	41.6	46.0	-4.4
0.571	21.3	20.0	41.3	46.0	-4.7
5.600	24.7	20.3	45.0	50.0	-5.0
5.790	22.8	20.3	43.1	50.0	-6.9
5.345	22.8	20.3	43.1	50.0	-6.9
5.096	18.1	20.3	38.4	50.0	-11.6
4.718	13.6	20.3	33.9	46.0	-12.1

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



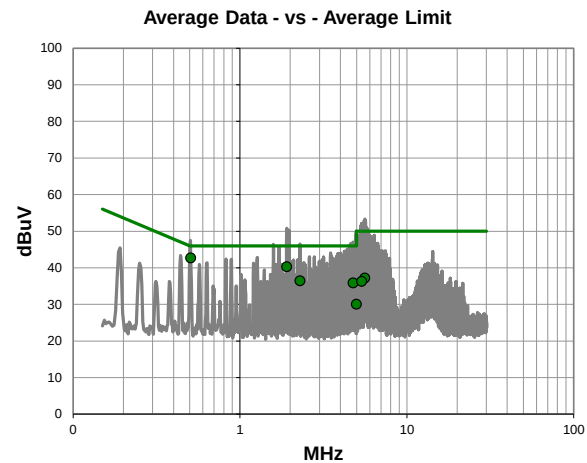
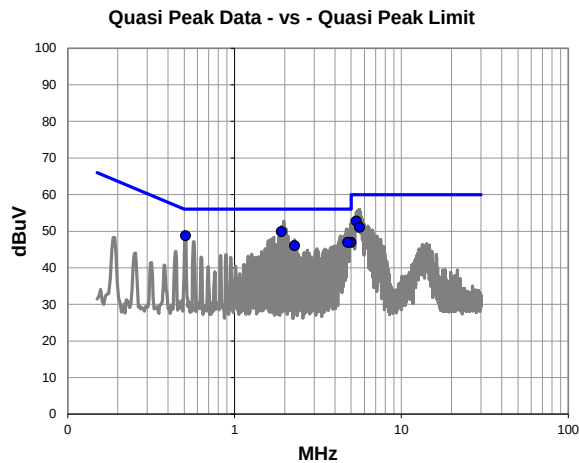
Quasi Peak Data - vs - Quasi Peak Limit

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

Work Order:	PROS0226	Date:	06/15/15				
Project:	None	Temperature:	21.4 °C				
Job Site:	OC06	Humidity:	48.6% RH				
Serial Number:	000D8DF0968F	Barometric Pres.:	1010.1 mbar				
EUT:	RLX2-IHNF-W						
Configuration:	1						
Customer:	Prosoft Technology, Inc.						
Attendees:	Frank Hardy						
EUT Power:	110VAC/60Hz						
Operating Mode:	Continuously Transmitting 802.11an: High Ch. 165(5825), 6Mbps						
Deviations:	None						
Comments:	None						
Test Specifications		Test Method					
FCC 15.207:2015		ANSI C63.10:2009					
Run #	4	Line:	High Line	Ext. Attenuation:	0	Results	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 48 - 5240MHz, 44/48 - 5230MHz, & High Channel 140 - 5700MHz, & 132/136 - 5670MHz
Continuously Transmitting at High Channel 48 - 5240MHz, High Channel 64 - 5320MHz, & High Channel 140 - 5700MHz
Continuously Transmitting at High Channel 64 - 5320MHz & High Channel 60/64 - 5310MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

PROS0226 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	1 GHz	Stop Frequency	40 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
Antenna, Horn	ETS Lindgren	3117	AHQ	9/12/2012	36 mo
Signal Generator	Agilent	E8257D	TGU	2/5/2015	36 mo
Attenuator	Coaxicom	66702 3910AF-20	TKI	3/4/2015	12 mo
Notch Filter, 5.47-5.725 GHz	Micro-Tronics	BRC50704	HGB	3/4/2015	12 mo
Notch Filter, 5.15-5.35 GHz	Micro-Tronics	BRC50703	HGH	6/11/2015	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVQ	12/30/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-10	AIX	NCR	0 mo
Cable	ESM Cable Corp.	KMKM-72	OCI	2/27/2015	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

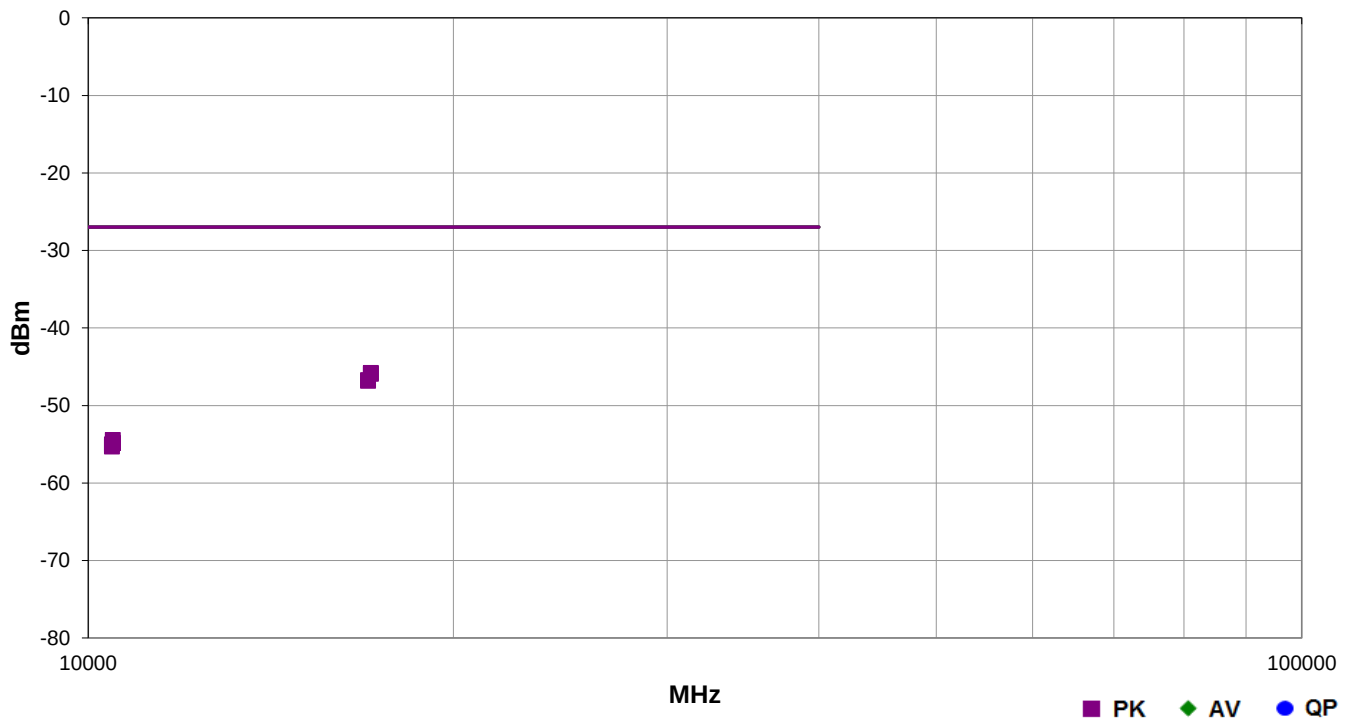
The highest gain antenna of each type to be used with the EUT were tested. The EUT was configured at the worst case transmit frequencies and data rates in each operational band, found from previous testing on the same radio. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to verify similar unit also satisfies the three requirements of 47 CFR 15.407: Field strength under 1GHz, Restricted Bands of 47 CFR 15.205, and EIRP of 47 CFR 15.407.

While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Work Order:	PROS0226	Date:	06/12/15	
Project:	None	Temperature:	21.5 °C	
Job Site:	OC10	Humidity:	50.2% RH	
Serial Number:	000D8DF0968F	Barometric Pres.:	1011 mbar	
EUT:	RLX2-IHNF-W-A			Tested by: Mark Baytan
Configuration:	1			
Customer:	Prosoft Technology, Inc.			
Attendees:	Frank Hardy			
EUT Power:	110VAC/60Hz			
Operating Mode:	Continuously Transmitting at High Channel 48 - 5240MHz, 44/48 - 5230MHz, & High Channel 140 - 5700MHz, & 132/136 - 5670MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.407:2015	ANSI C63.10:2009

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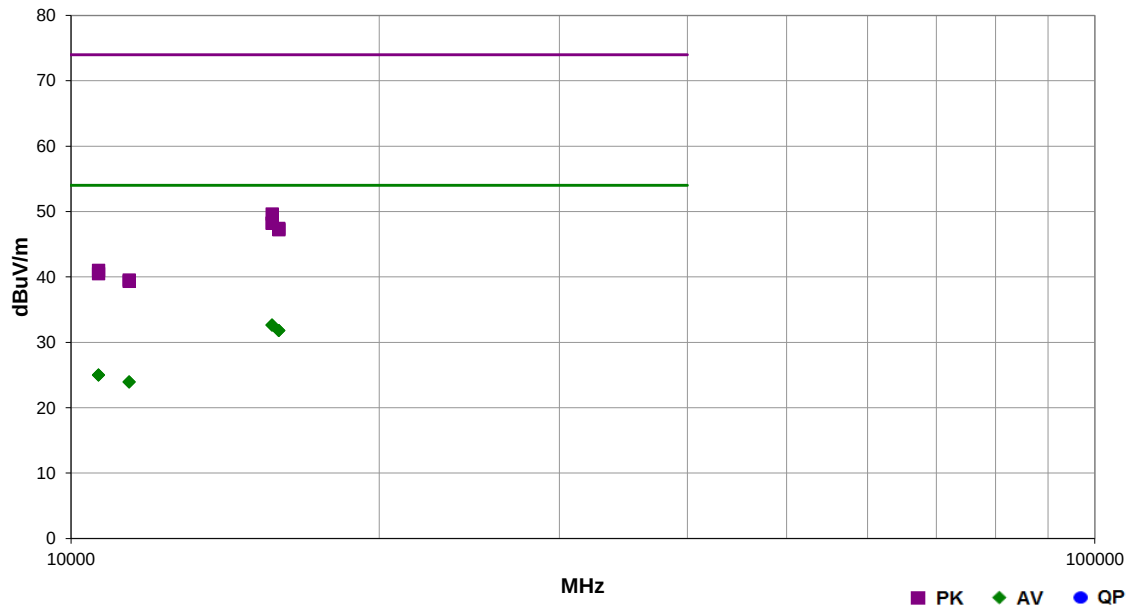


	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17100.220	1.9	267.0	Horz	PK	2.62E-08	-45.8	-27.0	-18.8	High Ch. 140, EUT on Side, 6Mbps
	17099.850	1.0	96.0	Vert	PK	2.56E-08	-45.9	-27.0	-18.9	High Ch. 140, EUT on Side, 6Mbps
	17010.200	1.0	56.0	Vert	PK	2.13E-08	-46.7	-27.0	-19.7	High Ch. 132/136, EUT on Side, 6Mbps
	17009.650	1.6	130.0	Horz	PK	2.08E-08	-46.8	-27.0	-19.8	High Ch. 132/136, EUT on Side, 6Mbps
	10480.120	2.3	253.0	Vert	PK	3.59E-09	-54.5	-27.0	-27.5	High Ch. 48, EUT on Side, 6Mbps
	10481.180	1.0	254.0	Horz	PK	3.27E-09	-54.8	-27.0	-27.8	High Ch. 48, EUT on Side, 6Mbps
	10460.750	1.0	81.0	Horz	PK	3.16E-09	-55.0	-27.0	-28.0	High Ch. 44/48, EUT on Side, 6Mbps
	10461.460	1.0	241.0	Vert	PK	2.95E-09	-55.3	-27.0	-28.3	High Ch. 44/48, EUT on Side, 6Mbps

Work Order:	PROS0226	Date:	06/12/15	
Project:	None	Temperature:	21.5 °C	
Job Site:	OC10	Humidity:	50.2% RH	
Serial Number:	000D8DF0968F	Barometric Pres.:	1011 mbar	
EUT:	RLX2-IHNF-W-A			
Configuration:	1			
Customer:	Prosoft Technology, Inc.			
Attendees:	Frank Hardy			
EUT Power:	110VAC/60Hz			
Operating Mode:	Continuously Transmitting at High Channel 48 - 5240MHz, High Channel 64 - 5320MHz, & High Channel 140 - 5700MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.209:2015	ANSI C63.10:2009

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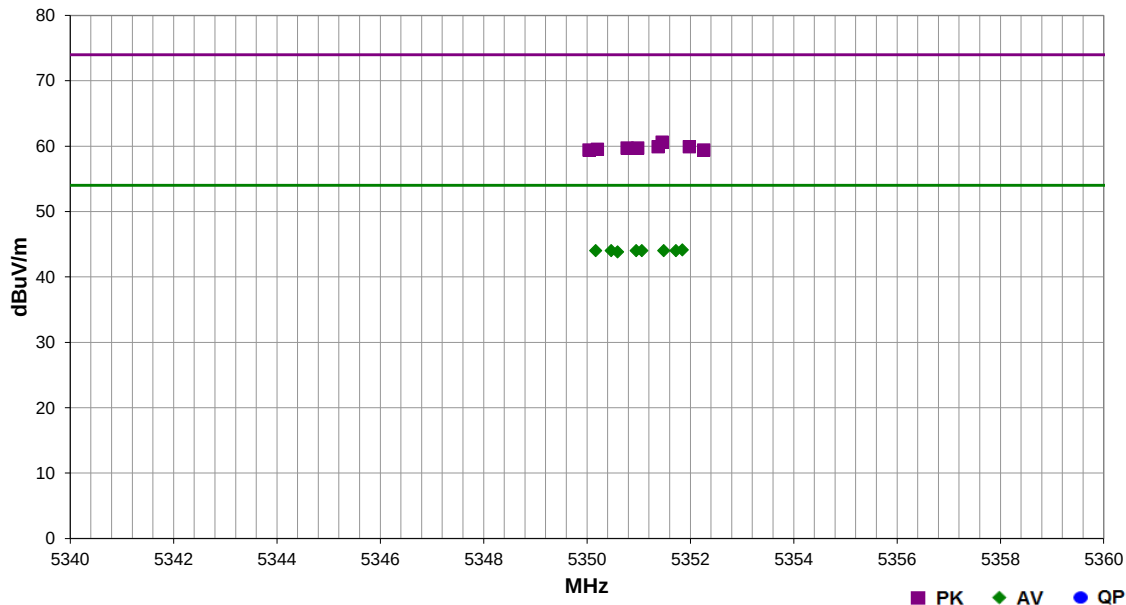


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15720.170	26.4	6.2	1.6	86.0	3.0	0.0	Horz	AV	0.0	32.6	54.0	-21.4	High Ch. 48, EUT on Side, 6Mbps
15719.750	26.4	6.2	1.0	247.0	3.0	0.0	Vert	AV	0.0	32.6	54.0	-21.4	High Ch. 48, EUT on Side, 6Mbps
15960.410	24.9	6.9	2.1	45.0	3.0	0.0	Vert	AV	0.0	31.8	54.0	-22.2	High Ch. 64, EUT on Side, 6Mbps
15960.010	24.9	6.9	3.4	155.0	3.0	0.0	Horz	AV	0.0	31.8	54.0	-22.2	High Ch. 64, EUT on Side, 6Mbps
15719.910	43.4	6.2	1.6	86.0	3.0	0.0	Horz	PK	0.0	49.6	74.0	-24.4	High Ch. 48, EUT on Side, 6Mbps
15719.850	42.0	6.2	1.0	247.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	High Ch. 48, EUT on Side, 6Mbps
15959.970	40.5	6.9	2.1	45.0	3.0	0.0	Vert	PK	0.0	47.4	74.0	-26.6	High Ch. 64, EUT on Side, 6Mbps
15960.480	40.3	6.9	3.4	155.0	3.0	0.0	Horz	PK	0.0	47.2	74.0	-26.8	High Ch. 64, EUT on Side, 6Mbps
10640.090	34.3	-9.3	1.0	293.0	3.0	0.0	Vert	AV	0.0	25.0	54.0	-29.0	High Ch. 64, EUT on Side, 6Mbps
10640.080	34.3	-9.3	1.4	4.0	3.0	0.0	Horz	AV	0.0	25.0	54.0	-29.0	High Ch. 64, EUT on Side, 6Mbps
11400.260	33.2	-9.3	1.0	156.0	3.0	0.0	Vert	AV	0.0	23.9	54.0	-30.1	High Ch. 140, EUT on Side, 6Mbps
11399.820	33.2	-9.3	1.0	354.0	3.0	0.0	Horz	AV	0.0	23.9	54.0	-30.1	High Ch. 140, EUT on Side, 6Mbps
10639.700	50.3	-9.3	1.4	4.0	3.0	0.0	Horz	PK	0.0	41.0	74.0	-33.0	High Ch. 64, EUT on Side, 6Mbps
10639.500	49.8	-9.3	1.0	293.0	3.0	0.0	Vert	PK	0.0	40.5	74.0	-33.5	High Ch. 64, EUT on Side, 6Mbps
11399.910	48.8	-9.3	1.0	156.0	3.0	0.0	Vert	PK	0.0	39.5	74.0	-34.5	High Ch. 140, EUT on Side, 6Mbps
11399.760	48.6	-9.3	1.0	354.0	3.0	0.0	Horz	PK	0.0	39.3	74.0	-34.7	High Ch. 140, EUT on Side, 6Mbps

Work Order:	PROS0226	Date:	06/13/15	
Project:	None	Temperature:	21.2 °C	
Job Site:	OC10	Humidity:	49.2% RH	
Serial Number:	000D8DF0968F	Barometric Pres.:	1011 mbar	
EUT:	RLX2-IHNF-W-A			
Configuration:	1			
Customer:	Prosoft Technology, Inc.			
Attendees:	Frank Hardy			
EUT Power:	110VAC/60Hz			
Operating Mode:	Continuously Transmitting at High Channel 64 - 5320MHz & High Channel 60/64 - 5310MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.209:2015	ANSI C63.10:2009

Run #	5	Test Distance (m)	1	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
5351.847	17.5	36.2	1.0	175.0	1.0	0.0	Horz	AV	-9.5	44.1	54.0	-9.9	High Ch. 64, 6 Mbps, EUT on Side
5351.723	17.4	36.2	1.0	289.0	1.0	0.0	Vert	AV	-9.5	44.0	54.0	-10.0	High Ch. 60/64, MCS0, EUT on Side
5351.487	17.4	36.2	1.0	122.0	1.0	0.0	Horz	AV	-9.5	44.0	54.0	-10.0	High Ch. 64, 6 Mbps, EUT Vertical
5351.063	17.4	36.2	1.0	170.0	1.0	0.0	Horz	AV	-9.5	44.0	54.0	-10.0	High Ch. 60/64, MCS0, EUT on Side
5350.953	17.4	36.2	1.0	286.0	1.0	0.0	Vert	AV	-9.5	44.0	54.0	-10.0	High Ch. 64, 6 Mbps, EUT Horz
5350.470	17.4	36.2	1.0	137.0	1.0	0.0	Vert	AV	-9.5	44.0	54.0	-10.0	High Ch. 64, 6 Mbps, EUT on Side
5350.170	17.4	36.2	1.0	334.0	1.0	0.0	Horz	AV	-9.5	44.0	54.0	-10.0	High Ch. 64, 6 Mbps, EUT Horz
5350.592	17.2	36.2	1.0	201.0	1.0	0.0	Vert	AV	-9.5	43.8	54.0	-10.2	High Ch. 64, 6 Mbps, EUT Vertical
5351.453	34.0	36.2	1.0	175.0	1.0	0.0	Horz	PK	-9.5	60.6	74.0	-13.4	High Ch. 64, 6 Mbps, EUT on Side
5351.980	33.3	36.2	1.0	122.0	1.0	0.0	Horz	PK	-9.5	59.9	74.0	-14.1	High Ch. 64, 6 Mbps, EUT Vertical
5351.377	33.3	36.2	1.0	286.0	1.0	0.0	Vert	PK	-9.5	59.9	74.0	-14.1	High Ch. 64, 6 Mbps, EUT Horz
5350.980	33.1	36.2	1.0	170.0	1.0	0.0	Horz	PK	-9.5	59.7	74.0	-14.3	High Ch. 60/64, MCS0, EUT on Side
5350.777	33.1	36.2	1.0	334.0	1.0	0.0	Horz	PK	-9.5	59.7	74.0	-14.3	High Ch. 64, 6 Mbps, EUT Horz
5350.203	32.9	36.2	1.0	137.0	1.0	0.0	Vert	PK	-9.5	59.5	74.0	-14.5	High Ch. 64, 6 Mbps, EUT on Side
5352.258	32.8	36.2	1.0	201.0	1.0	0.0	Vert	PK	-9.5	59.4	74.0	-14.6	High Ch. 64, 6 Mbps, EUT Vertical
5350.040	32.8	36.2	1.0	289.0	1.0	0.0	Vert	PK	-9.5	59.4	74.0	-14.6	High Ch. 60/64, MCS0, EUT on Side

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 165 - 5825MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

PROS0226 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	1 GHz	Stop Frequency	40 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

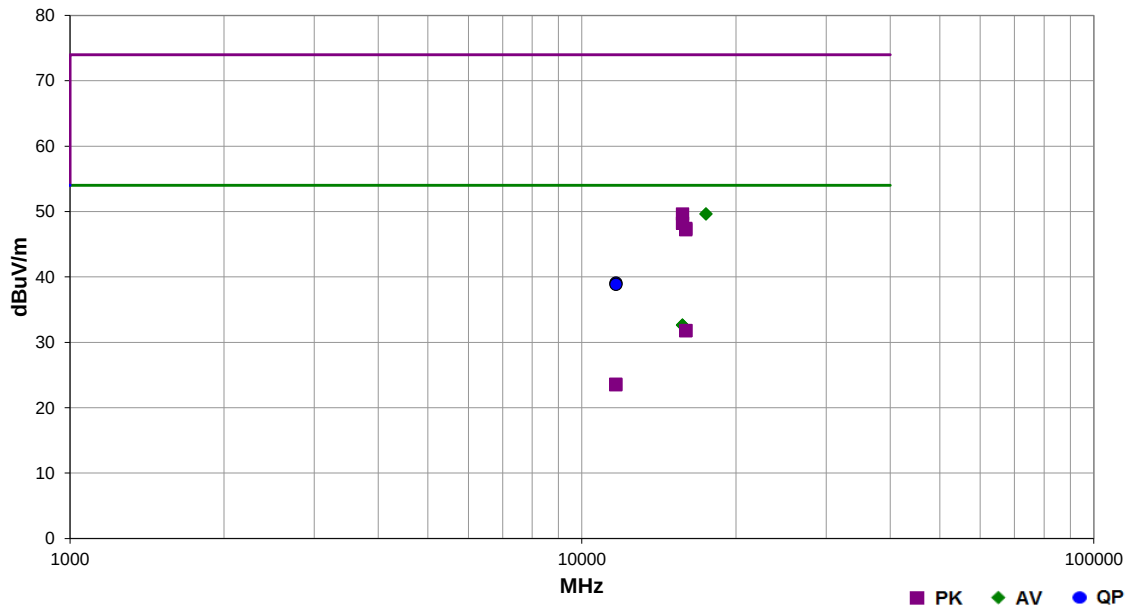
TEST DESCRIPTION

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.

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 15.407:2015	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
15720.170	26.4	6.2	1.6	86.0	3.0	0.0	Horz	AV	0.0	32.6	54.0	-21.4	High Ch. 165, EUT on Side, 6Mbps
15719.750	26.4	6.2	1.0	247.0	3.0	0.0	Vert	AV	0.0	32.6	54.0	-21.4	High Ch. 165, EUT on Side, 6Mbps
15960.410	24.9	6.9	2.1	45.0	3.0	0.0	Vert	AV	0.0	31.8	54.0	-22.2	High Ch. 165, EUT on Side, 6Mbps
15960.010	24.9	6.9	3.4	155.0	3.0	0.0	Horz	AV	0.0	31.8	54.0	-22.2	High Ch. 165, EUT on Side, 6Mbps
17475.500	40.2	9.4	2.9	174.0	3.0	0.0	Vert	PK	0.0	49.6	74.0	-24.4	High Ch. 165, EUT on Side, 6Mbps
17475.150	40.2	9.4	1.0	293.0	3.0	0.0	Horz	PK	0.0	49.6	74.0	-24.4	High Ch. 165, EUT on Side, 6Mbps
15719.910	43.4	6.2	1.6	86.0	3.0	0.0	Horz	PK	0.0	49.6	74.0	-24.4	High Ch. 165, EUT on Side, 6Mbps
15719.850	42.0	6.2	1.0	247.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	High Ch. 165, EUT on Side, 6Mbps
15959.970	40.5	6.9	2.1	45.0	3.0	0.0	Vert	PK	0.0	47.4	74.0	-26.6	High Ch. 165, EUT on Side, 6Mbps
15960.480	40.3	6.9	3.4	155.0	3.0	0.0	Horz	PK	0.0	47.2	74.0	-26.8	High Ch. 165, EUT on Side, 6Mbps
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