

ProSoft Technology, Inc.

RLXIB-IHN

RLXIB-ICN

RLXIB-IHN-W

RLXIB-IH2N

RLXIB-IH2N-W

RLXIB-IHN-WC

Report No. PROS0092 Rev. 1

Report Prepared By



www.nwemc.com

1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test
Last Date of Test: February 28, 2011
ProSoft Technology, Inc.
Model: RLXIB-IHN

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Move Time	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Beginning Channel Availability Check	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Non Occupancy Period	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Initial Channel Availability Check	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Closing Time	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
U-NII Detection Bandwidth	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Ending Channel Availability Check	FCC 15.407:2011	KDB 905462, FCC 06-96	Pass
Statistical Performance Check	FCC 15.407:2011	KDB 905462, FCC 06-96	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:

Dean Ghizzone, President



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
01	Added model RLXIB-IHN-WC	6-1-11	1, 7

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 National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. 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.

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.

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).



Accreditations and Authorizations

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).

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, Brooklyn Park: US0175)*

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



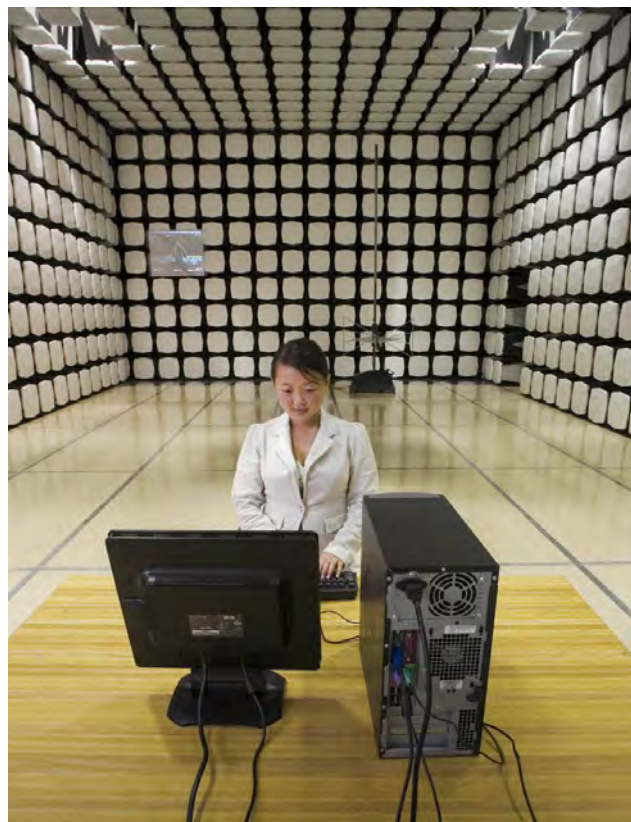
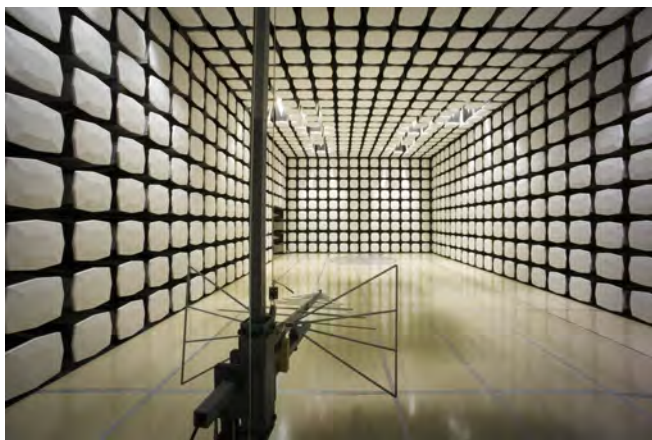
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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41 Tesla
Irvine, CA 92618
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Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
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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:	ProSoft Technology, Inc.
Address:	5201 Truxtun Ave., 3rd Floor
City, State, Zip:	Bakersfield, CA 93309
Test Requested By:	Frank Hardy
Model:	RLXIB-IHN
First Date of Test:	February 15, 2011
Last Date of Test:	February 28, 2011
Receipt Date of Samples:	February 15, 2011
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

U-NII Device Description**Functional Description**

One combination 802.11a/b/g/n radio. It is master device and has ad-hoc capability. For the DFS it was linked to a wireless client.

Client Provided Justification:

The RLXIB System is comprised of the following models, which are electronically and mechanically identical:

1. RLXIB - ICN
2. RLXIB – IHN
3. RLXIB-IHN-W
4. RLXIB-IH2N
5. RLXIB-IH2N-W
6. RLXIB-IHN-WC

The actual models tested were to represent a “worse-case” test subject is RLXIB-IHN.

Hardware, Firmware, and OS Versions:

Firmware version: ath_dfs: 2.0

The operating frequency range(s) of the equipment.

2412 – 2462 MHz

5150 – 5250 MHz

5250 - 5350 MHz (DFS Band)

5470 – 5725 MHz (DFS Band)

The operating modes (Master and/or Client) of the U-NII device.

Master Device

For Client devices, indicate whether or not it has DFS capabilities and indicate the FCC (and IC) identifier for the Master U-NII Device that is used with it for DFS testing.

Not Applicable

List the highest and the lowest possible power level (equivalent isotropic radiated power (EIRP)) of the equipment.

The maximum EIRP of the 5 GHz equipment is 19.8 dBm, and the minimum possible EIRP is

13.1 dBm.

Test sequences or messages that should be used for communication between Master and Client Devices, which are used for loading the Channel.

1. Stream the test file from the Master Device to the Client Device for IP based systems or frame based systems which dynamically allocate the talk/listen ratio.
2. For frame based systems with fixed talk/listen ratio, set the ratio to 45%/55% and stream the test file from the Master to the Client.
3. For other system architectures, supply appropriate Channel loading methodology.

System testing was performed with the MPEG test file that streams full motion video at 30 frames per second from the Master to the Client IP based system. The following details explain how the channel loading requirements were met:

The master device had a NAS(Network Attached Storage) device connected to its Ethernet port. The radio was linked to an 802.11n client module using the conducted method via a series of splitters/combiners and attenuators. The PC used the 802.11n client module and streamed the NTIA specified MPEG test file from the NAS box, via the Master device.

Transmit Power Control description.

This device does implement transmit power control. It was used during the power measurements to calculate the EIRP.

System architectures, data rates, U-NII Channel bandwidths.

1. Indicate the type(s) of system architecture (e.g. IP based or Frame based) that the U-NII device employs. Each type of unique architecture must be tested.

The Master device (EUT) employs IP based system architecture.

The time required for the Master Device and/or Client Device to complete its power-on cycle.

The Master device used in the test system requires 58 seconds to complete its power-on cycle

Manufacturer statement confirming that information regarding the parameters of the detected Radar Waveforms is not available to the end user.

The Master device (EUT) does use radar detection. The parameters of the Radar Waveforms are not available to the end user. Changes to the radar detection are only known and available to Prosoft and can be blocked from the end user via firmware.

Uniform Channel Spreading requirement for Master Devices. For Master Devices, indicate how the master provides, on aggregate, uniform Channel loading of the spectrum across all Channels.

The Master Device does implement uniform spreading. A declaration provided by the client is included within this report

List all antenna assemblies and their corresponding gains.

1. If radiated tests are to be performed, the U-NII Device should be tested with the lowest gain antenna assembly (regardless of antenna type). The report should indicate which antenna assembly was used for the tests. For devices with adjustable output power, list the output power range and the maximum EIRP for each antenna assembly.
2. If conducted tests are to be performed, indicate which antenna port/connection was used for the tests and the antenna assembly gain that was used to set the DFS Detection Threshold level during calibration of the test setup.
 - a. Indicate the calibrated conducted DFS Detection Threshold level.
 - b. For devices with adjustable output power, list the output power range and the maximum EIRP for each antenna assembly.
 - c. Indicate the antenna connector impedance. Ensure that the measurement instruments match (usually 50 Ohms) or use a minimum loss pad and take into account the conversion loss.
3. Antenna gain measurement verification for tested antenna.
 - a. Describe procedure
 - b. Describe the antenna configuration and how it is mounted
 - c. If an antenna cable is supplied with the device, cable loss needs to be taken into account. Indicate the maximum cable length and either measure the gain with this cable or adjust the measured gain accordingly. State the cable loss.

The Master device (EUT) has three electrically and structurally identical antenna ports. A conducted DFS test was performed using "Port A". It has a 50 ohm impedance.

The antenna gain of the Master device was provided by Prosoft. The maximum gain was stated as 5dBi.

The calibrated conducted DFS detection threshold was set to -63 dBm at the antenna port of the Master. This is equal to the DFS Detection Threshold of the Master + 1 dB.

Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

DFS Response Requirement Values

Parameter	Value
Non-occupancy	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2).
U-NII Detection Bandwidth	Minimum 80% of the UNII 99% transmission power bandwidth. (See Note 3).

Note 1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows:

- For the Short Pulse Radar Test Signals this instant is the end of the Burst.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar Burst generated.
- For the Long Pulse Radar Test Signal this instant is the end of the 12 second period defining the Radar Waveform.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

DFS Detection Thresholds for Master or Client Devices Incorporating DFS

Maximum Transmit Power	Value (See Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
1	1	1428	18	60%	30
2	1 - 5	150 - 230	23 - 29	60%	30
3	6 - 10	200 - 500	16 - 18	60%	30
4	11 - 20	200 - 500	12 - 16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Long Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50 - 100	5 - 20	1000 - 2000	1 - 3	8 - 20	80%	30

Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

CONFIGURATION 1 PROS0092**Software/Firmware Running during test**

Description	Version
Windows XP	2002 SP3

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT - Industrial 802.11(b)/(g)/(a)/(n)	Prosoft Technology	RLXIB-IHN	00-0D-F0-3C-8B

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Switching Power Adapter	Phihong	PSC20R-120	P80800120B1
Remote Client PC	Lenovo	7259 B2U	MJAGWB5
Media Storage	IoMega	StoreCenter iX2	12B0171672

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Wireless Client	Engenius	EUB-862 Ext2	08C234415

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power	No	1.8m	Yes	EUT	Switching Power Adapter
USB Cable	Yes	2.0m	No	Remote Client PC	Wireless Client
Lan Cable	No	2.0m	No	EUT	Media Storage
Lan Cable	No	1.8m	No	EUT	Unterminated
Serial Cable (Debug)	No	1.8m	No	EUT	Remote Client PC

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	2/15/2011	Move Time	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	2/15/2011	Beginning Channel Availability Check	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	2/16/2011	Non Occupancy Period	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	2/17/2011	Initial Channel Availability Check	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	2/17/2011	Closing Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	2/17/2011	U-NII Detection Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	2/17/2011	Ending Channel Availability Check	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.
8	2/28/2011	Statistical Performance Check	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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

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.

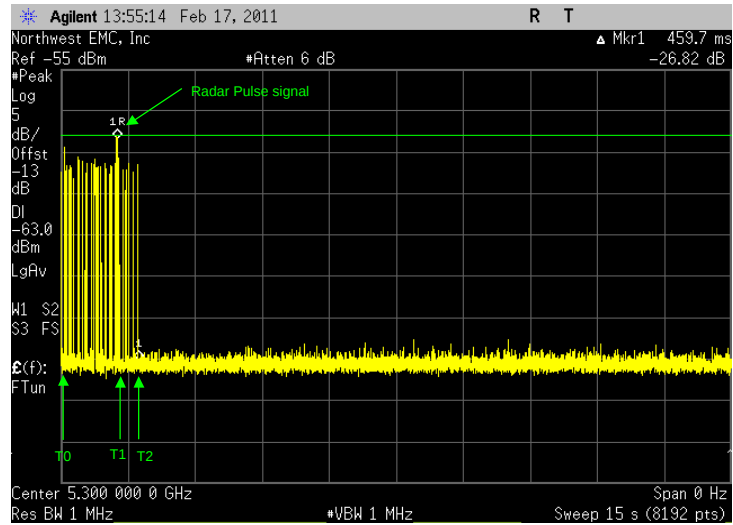
TEST DESCRIPTION

The test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. After the MPEG file begins streaming across the Master and Client device, a radar burst is introduced and an analyzer is used to record the time it takes for the UUT to completely vacate the channel (data and/or control signals are completed). At time T0 on the screen capture, a radar signal is introduced, and at time T1, the channel move time is recorded until the move is complete at T2. The time from T1 to T2 is considered the total channel move time for the UUT. This test is performed for both a long pulse and short pulse radar signal

NORTHWEST		EMC		Move Time		XMI1 2011.02.03			
EUT: RLXIB-IHN				Work Order: PROS0092					
Serial Number: 00-0D-F0-3C-8B				Date: 02/15/11					
Customer: ProSoft Technology, Inc.				Temperature: 20°C					
Attendees: None				Humidity: 46%					
Project: None				Barometric Pres.: 1004mb					
Tested by: Jeremiah Darden				Power: 110VAC/60Hz		Job Site: EV06			
TEST SPECIFICATIONS				Test Method					
FCC 15.407:2011				KDB 905462, FCC 06-96					
COMMENTS									
Channel move time after UUT senses radar signal									
DEVIATIONS FROM TEST STANDARD									
None									
Configuration #		1		Signature 					
				Value		Limit		Result	
Short Pulse				459.7mS		10sec		Pass	
Long Pulse				479.8mS		10sec		Pass	

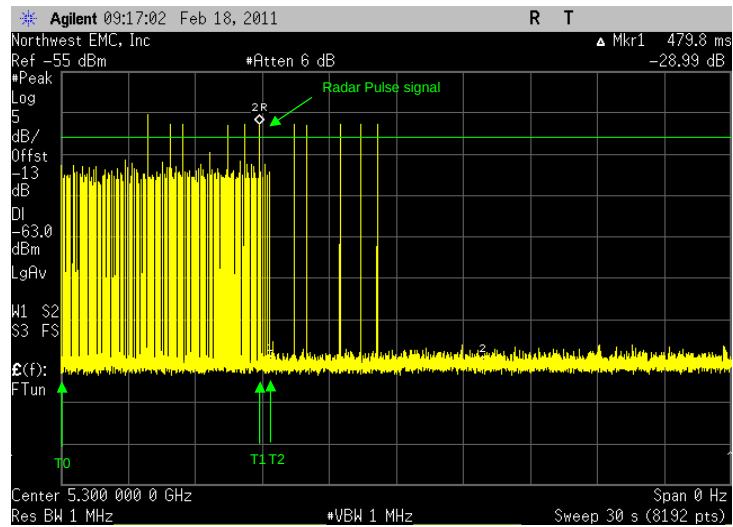
Short Pulse

	Value	Limit	Result
	459.7mS	10sec	Pass

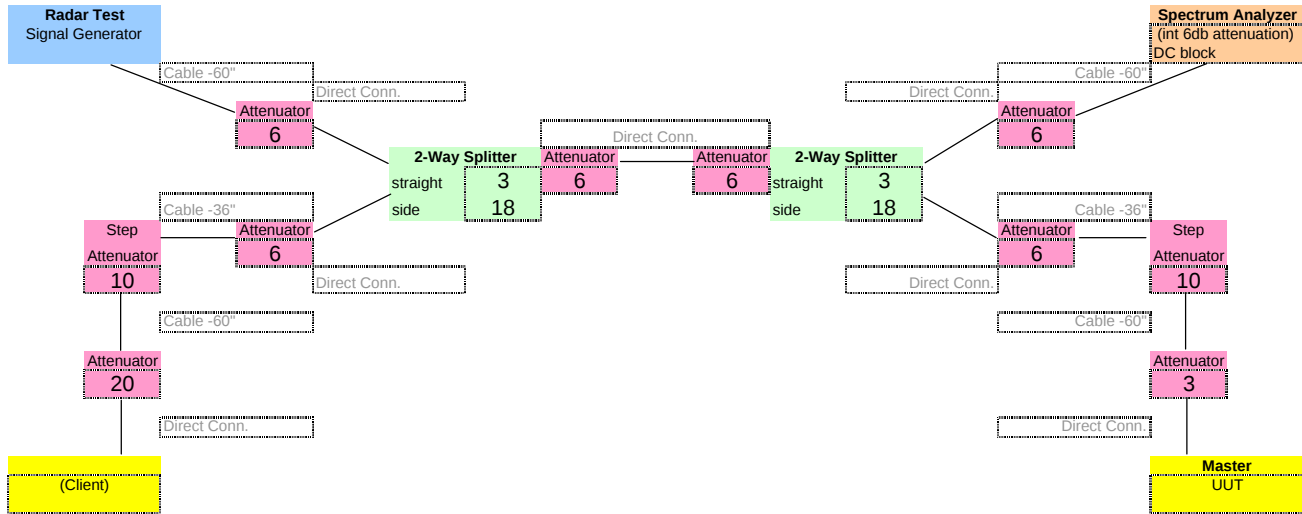


Long Pulse

	Value	Limit	Result
	479.8mS	10sec	Pass



Move Time



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6	6	6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

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RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

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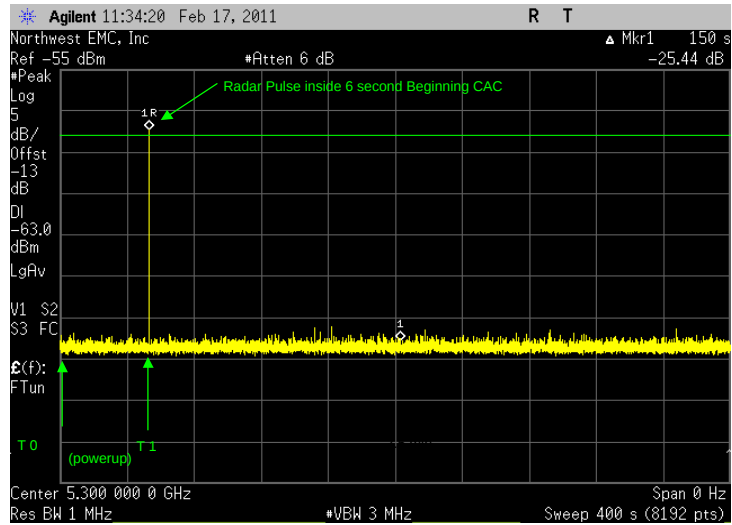
TEST DESCRIPTION

The test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The UUT was powered on. When the startup cycle was completed, marked as T1 on the graph, a single Radar Burst was introduced within six seconds of T1. An analyzer was used to monitor the UUT's performance after the injecting the Radar Burst and recorded all UUT emissions for more than 2.5 minutes.

NORTHWEST		EMC		Beginning Channel Availability Check		XMM 2011.02.03	
EUT: RLXIB-IHN				Work Order: PROS0092			
Serial Number: 00-0D-F0-3C-8B				Date: 02/15/11			
Customer: ProSoft Technology, Inc.				Temperature: 20°C			
Attendees: None				Humidity: 45%			
Project: None				Barometric Pres.: 1007mb			
Tested by: Jeremiah Darden				Power: 110VAC/60Hz		Job Site: EV06	
TEST SPECIFICATIONS				Test Method			
FCC 15.407:2011				KDB 905462, FCC 06-96			
COMMENTS							
Radar pulsed within 6 seconds at the beginning of the Tchannel availability check.							
DEVIATIONS FROM TEST STANDARD							
None							
Configuration #		1		Signature 			
				Value		Limit	
5300MHz				>2.5min		2.5min	
				Result		Pass	

5300MHz

Value	Limit	Result
>2.5min	2.5min	Pass



Non Occupancy Period

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

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MEASUREMENT UNCERTAINTY

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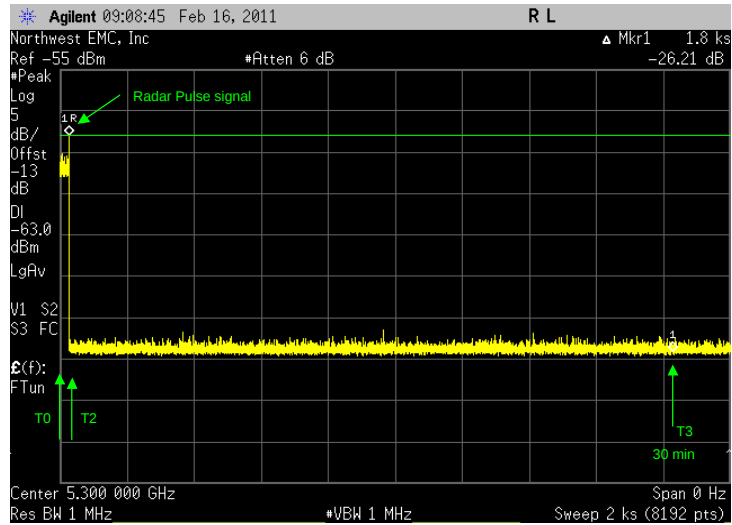
TEST DESCRIPTION

The test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The Non Occupancy Period is performed by monitoring the UUT using an analyzer during the period immediately following the "move time". The UUT should not resume any transmissions on the original channel for a period of at least 30 minutes. This time period is shown as T2 to T3 on the screen capture

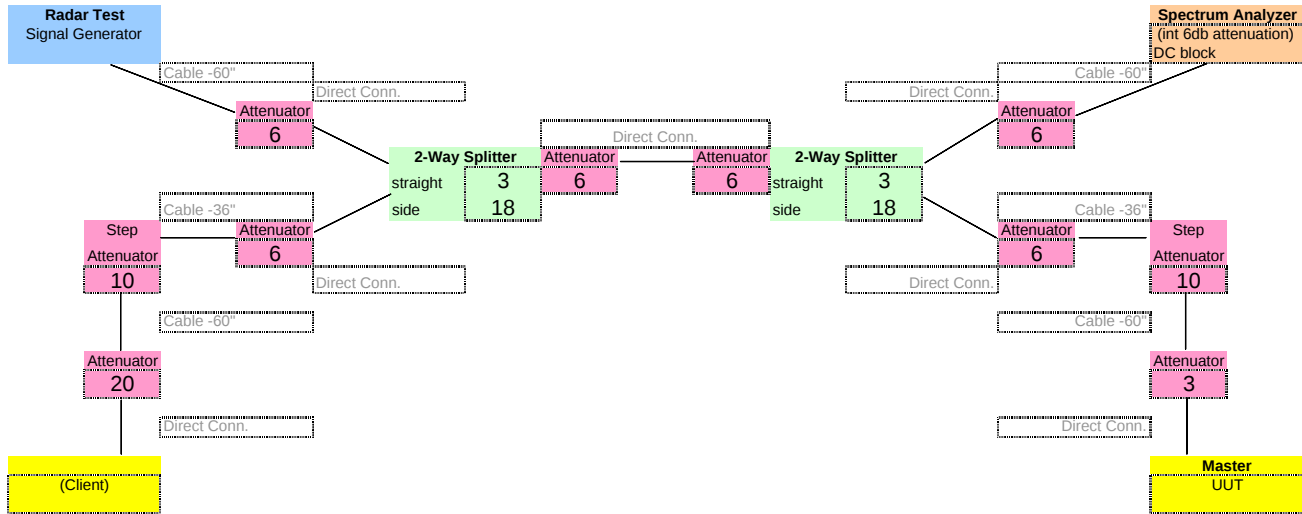
NORTHWEST		Non Occupancy Period		XMM 2011.02.03	
EMC					
EUT: RLXIB-IHN			Work Order: PROS0092		
Serial Number: 00-0D-F0-3C-8B			Date: 02/16/11		
Customer: ProSoft Technology, Inc.			Temperature: 21°C		
Attendees: None			Humidity: 45%		
Project: None			Barometric Pres.: 1006mb		
Tested by: Jeremiah Darden		Power: 110VAC/60Hz		Job Site: EV06	
TEST SPECIFICATIONS			Test Method		
FCC 15.407:2011			KDB 905462, FCC 06-96		
COMMENTS					
After radar is pulsed, the UUT does not resume any transmissions on the channel					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #					
1		Signature 			
			Value		
5300MHz			>30min		
			Limit		
			30min		
			Result		
			Pass		

5300MHz

Value	Limit	Result
>30min	30min	Pass



Non Occupancy Period



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6	6	6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

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
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

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.

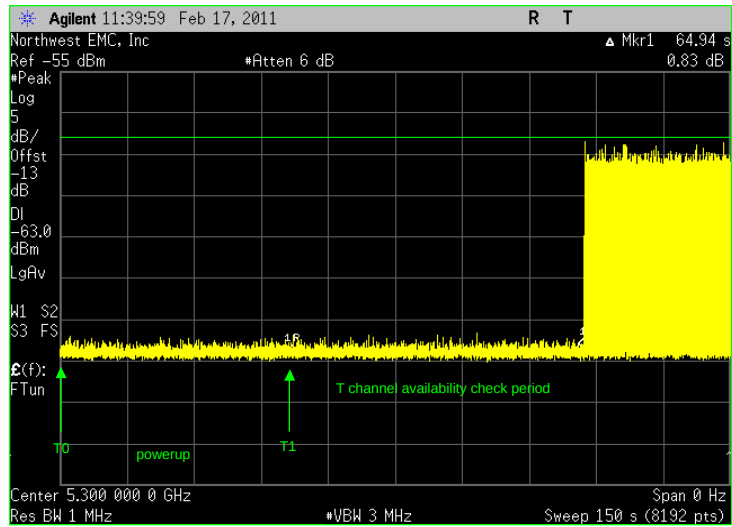
TEST DESCRIPTION

The test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. Using an analyzer, the UUT was monitored during the powerup sequence, and the 60 second window during the channel availability check to make sure the UUT does not emit any beacons, control, or data signals within this time period.

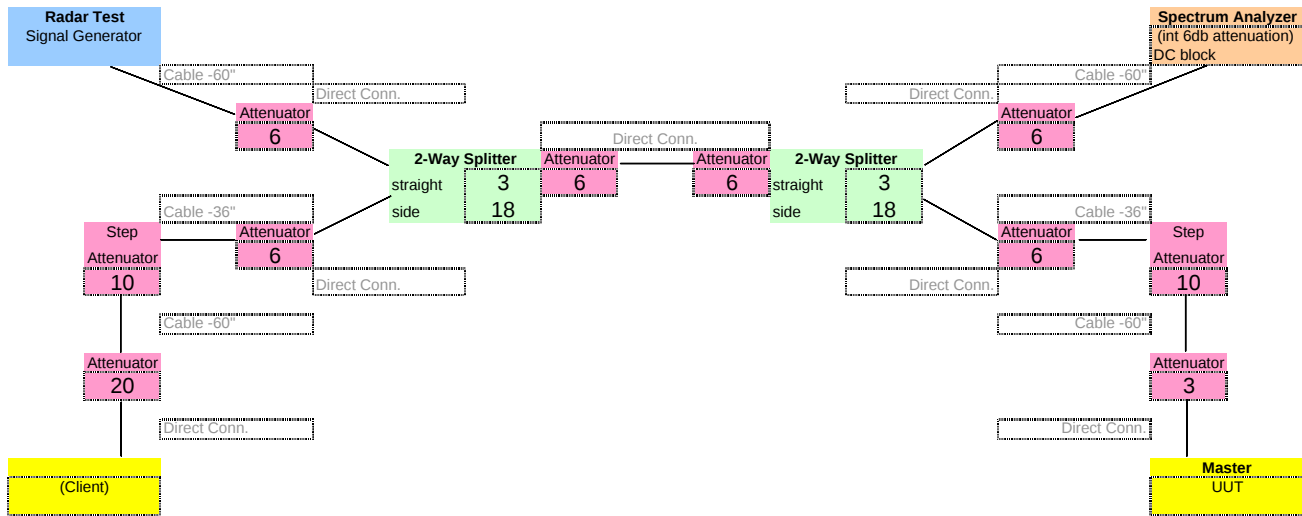
NORTHWEST		Initial Channel Availability Check		XMIT 2011.02.03	
EMC					
EUT: RLXIB-IHN			Work Order: PROS0092		
Serial Number: 00-0D-F0-3C-8B			Date: 02/17/11		
Customer: ProSoft Technology, Inc.			Temperature: 20°C		
Attendees: None			Humidity: 45%		
Project: None			Barometric Pres.: 1007mb		
Tested by: Jeremiah Darden		Power: 110VAC/60Hz		Job Site: EV06	
TEST SPECIFICATIONS			Test Method		
FCC 15.407:2011			KDB 905462, FCC 06-96		
COMMENTS					
Checks for radar pulses within the channel for a sixty second period before any transissions are made					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration # 1 Signature 					
			Value Limit Result		
5300MHz			64.9Sec >=60sec Pass		

5300MHz

Value	Limit	Result
64.9Sec	>=60sec	Pass



Initial Channel Availability Check



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6		6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

Closing Time

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
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

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 test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The closing time is performed by first streaming the designated MPEG test file from the master device to the client device. While in this operating, a radar burst is introduced (shown as T0 on the screen capture). After T1, when the radar burst ends, an analyzer was used to monitor the 200ms directly after the Master starts closing the channel(channel closing means the data transmission may be ended, but control or channel switching info may still be present). The number of control signals are then measured, and their sum is presented as the aggregate. The total closing time is then determined.

NORTHWEST

EMC

Closing Time

XMM 2011.02.03

EUT: RLXIB-IHN		Work Order: PROS0092	
Serial Number: 00-0D-F0-3C-8B		Date: 02/17/11	
Customer: ProSoft Technology, Inc.		Temperature: 20°C	
Attendees: None		Humidity: 45%	
Project: None		Barometric Pres.: 1007mb	
Tested by: Jeremiah Darden		Power: 110VAC/60Hz	
		Job Site: EV06	

TEST SPECIFICATIONS		Test Method	
FCC 15.407:2011		KDB 905462, FCC 06-96	

COMMENTS

total Time the UUT transmits in the occupied channel after the Radar pulse is sensed

DEVIATIONS FROM TEST STANDARD

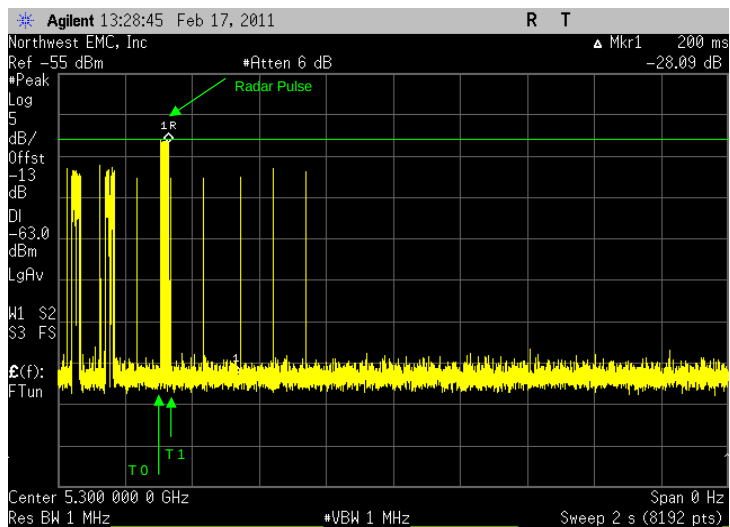
None

Configuration #	1	Signature	
-----------------	---	-----------	---

				Value	Limit	Result
200mS				200	200mS	N/A
Aggregate	3	0.449		1.347	60mS	Pass
Total Closing time				201.347	260mS	Pass

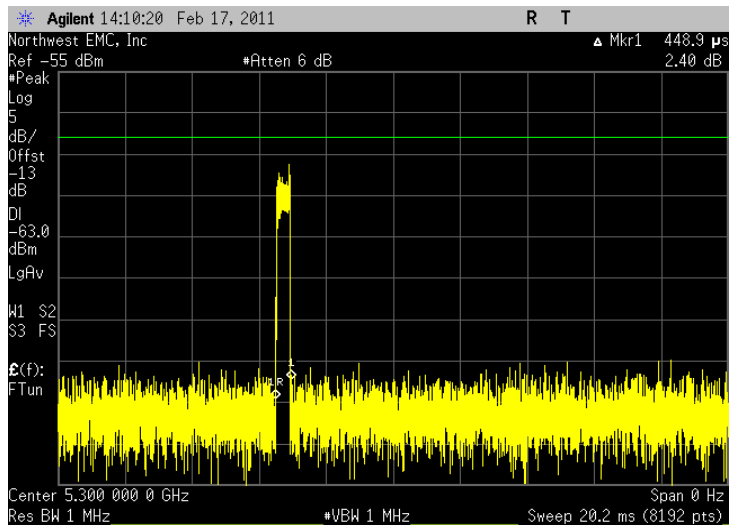
200mS

				Value	Limit	Result
				200	200mS	N/A

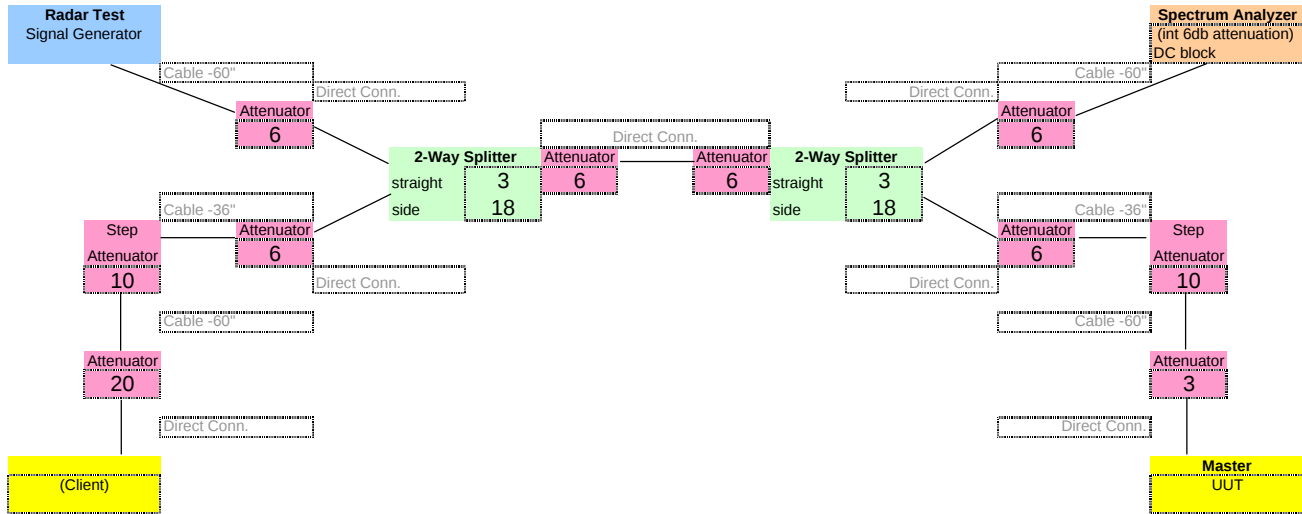


Aggregate

Control signals after 200mS	Pulse width	Value	Limit	Result
3	0.449	1.347	60mS	Pass



Closing Time



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6	6	6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

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
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

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 test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The Master device was set up without being linked to a client device(no MPEG traffic). A single radar burst is introduced and the response is noted by using an analyzer to monitor the response. The test was repeated 10 times at frequencies above and below the UUT's center frequency. The frequencies are increase or decreased until the UUT does not detect at least 90% of the radar burst. The lowest and highest frequencies are then subtracted and that becomes the U-NII Detection Bandwidth for the device

[illegible]

100.00%

[illegible]

100.00%

100.00%

100.00%

5305

Trial
(1=Detected, 0=Not detected)

100.00%

100.00%

5306

Trial
(1=Detected, 0=Not detected)

100.00%

5307

					Value	Limit	Result	Trial
					100.00%	>90%	Pass	(1=Detected, 0=Not detected)

1
1
1
1
1
1
1
1
1
1
1

100.00%

5308

					Value	Limit	Result	Trial
					100.00%	>90%	Pass	(1=Detected, 0=Not detected)

1
1
1
1
1
1
1
1
1
1
1

100.00%

100.00%

100.00%

5311							
				Value	Limit	Result	Trial
				40.00%	>90%	Fail	(1=Detected, 0=Not detected)

100.00%

100.00%

100.00%

100.00%

100.00%

100.00%

Trial
(1=Detected, 0=Not detected)

100.00%

Trial
(1=Detected, 0=Not detected)

100.00%

100.00%

30.00%

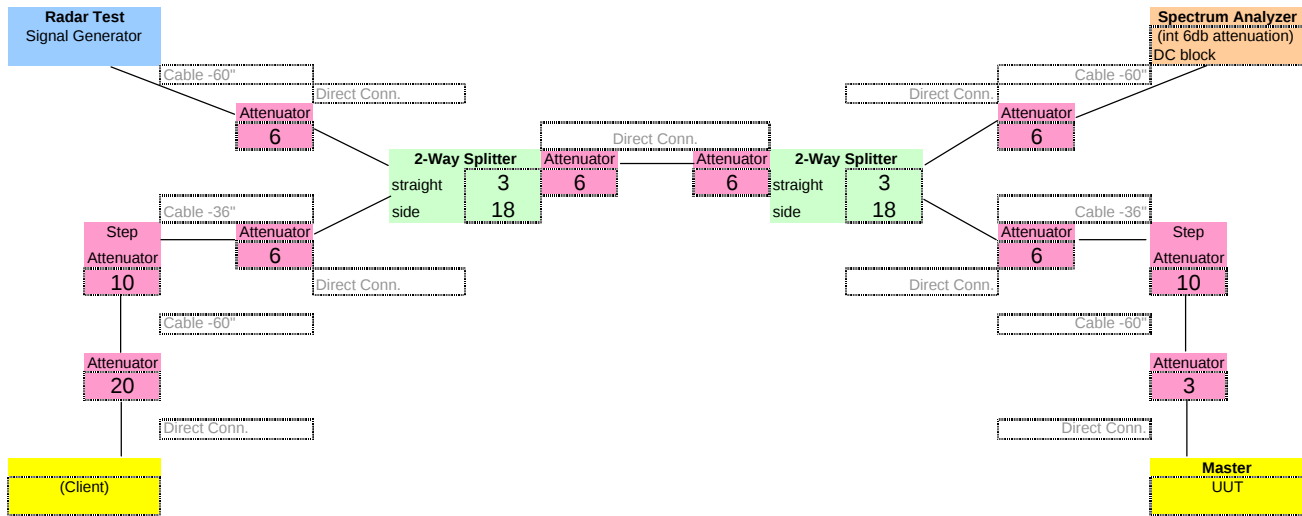
[illegible]

100%

[illegible]

0.00%

U-NII Detection Bandwidth



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6		6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

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
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12

MEASUREMENT UNCERTAINTY

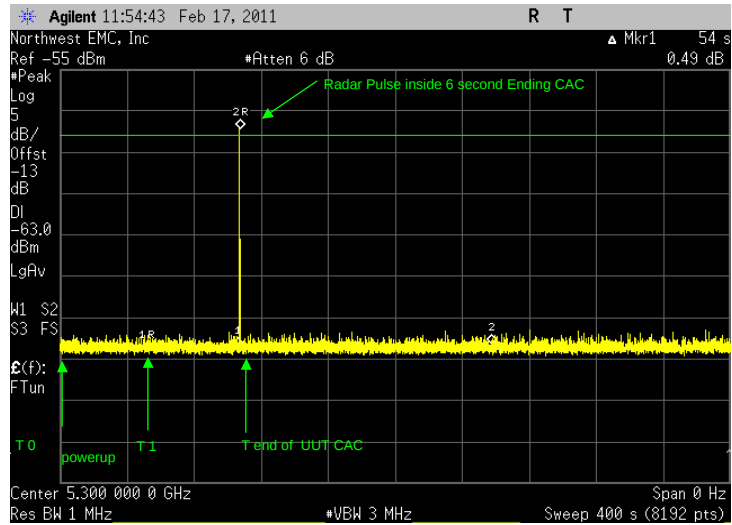
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 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.

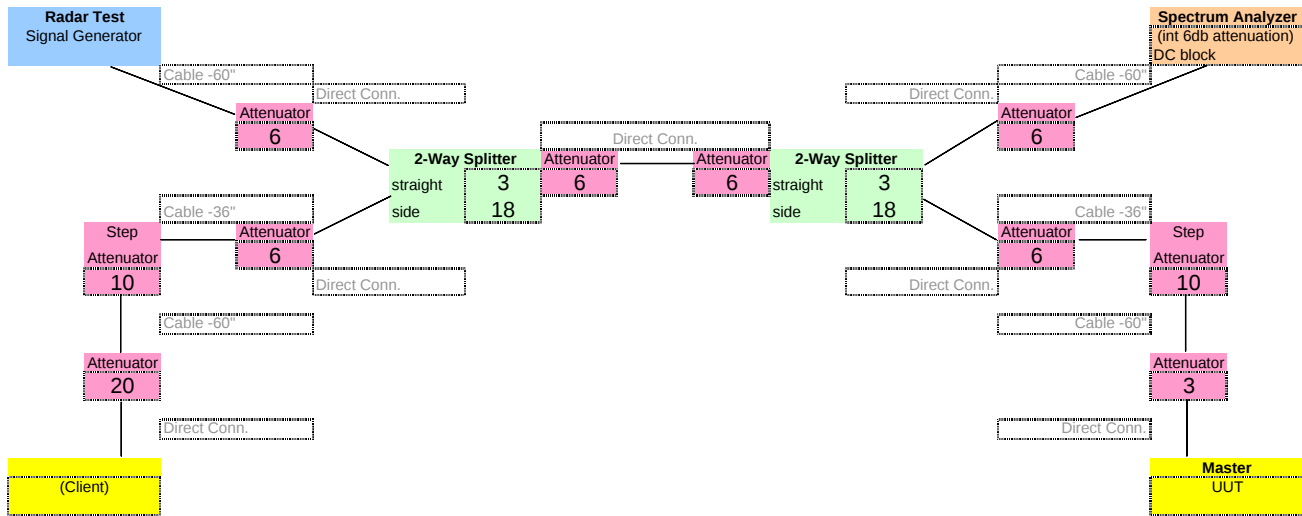
TEST DESCRIPTION

The test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The UUT was powered on. When the startup cycle was completed, marked as T1 on the graph, a single Radar Burst was introduced within 54 seconds of the 60second channel availability check window. An analyzer was used to monitor the UUT's performance after the injecting the Radar Burst and recorded all UUT emissions for more than 2.5 minutes.

5300MHz

Value	Limit	Result
>2.5min	2.5min	Pass





Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6		6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30

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
RF Vector Signal Generator	Agilent	V2920A	TIC	10/27/2010	12
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
Spectrum Analyzer	Agilent	E4440A	AFA	2/9/2010	15

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 test procedure described in Section 7.8 of KDB 905462 was followed to perform the following test. The UUT is a master device using IP based communication. The test was performed using the conducted method described in section 7.2 of the KDB document. The statistical performance check is performed by individually introducing all six radar types to the UUT device and collecting the number of detections and non detections of the signal. The totals are calculated and a percentage is determined based on the radar type

NORTHWEST

EMC

Statistical Performance Check

XMI 2011.02.03

EUT: RLXIB-IHN		Work Order: PROS0092	
Serial Number: 00-0D-F0-3C-8B		Date: 02/28/11	
Customer: ProSoft Technology, Inc.		Temperature: 21°C	
Attendees: Frank Hardy		Humidity: 45%	
Project: None		Barometric Pres.: 1010mb	
Tested by: Jeremiah Darden		Power: 110VAC/60Hz	
		Job Site: OC13	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2011		KDB 905462, FCC 06-96	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Percent Detected	Limit
Type1		97%	60%
Type2		60%	60%
Type3		83%	60%
Type4		83%	60%
Type5		97%	80%
Type6		97%	70%
Aggregate minimum % of all short Pulse Radar types 1-4		81%	80%
			Pass

Type1

				Percent Detected	Limit	Result
				97%	60%	Pass

Radar Test Signal # Table	Trial #	Detection	
		Yes	No
Test Signal #	1	Yes	
	2	Yes	
	3	Yes	
	4	Yes	
	5	Yes	
	6	Yes	
	7	Yes	
	8	Yes	
	9	Yes	
	10		No
	11	Yes	
	12	Yes	
	13	Yes	
	14	Yes	
	15	Yes	
	16	Yes	
	17	Yes	
	18	Yes	
	19	Yes	
	20	Yes	
	21	Yes	
	22	Yes	
	23	Yes	
	24	Yes	
	25	Yes	
	26	Yes	
	27	Yes	
	28	Yes	
	29	Yes	
	30	Yes	
97%	29	1	

Type2

				Percent Detected	Limit	Result
				60%	60%	Pass

Radar Test Signal # Table	Trial #	Detection		Number of Pulses Per burst	Pulse width (us)	PRI (us)
		Yes	No			
Test Signal #1	1	Yes		24	2.9	154.1
	2	Yes		28	4.4	214.6
	3		No	28	3	159
	4		No	24	3.6	183.4
	5	Yes		23	1.2	208.8
	6	Yes		25	1.2	221.8
	7		No	27	2.1	189.9
	8		No	28	2.4	178.6
	9	Yes		28	3.3	171.7
	10	Yes		26	4.9	170.1
	11		No	27	3.5	213.5
	12		No	27	3.5	213.5
	13		No	29	4.6	172.4
	14	Yes		28	4.2	203.8
	15	Yes		25	4.5	186.5
	16	Yes		28	4.2	166.8
	17	Yes		27	1.1	184.9
	18		No	26	3.3	175.7
	19		No	23	2	164
	20	Yes		29	3.6	165.4
	21	Yes		24	4.7	182.3
	22		No	27	2.5	175.5
	23	Yes		27	4.9	219.1
	24	Yes		27	3.9	196.1
	25		No	27	3.2	185.8
	26	Yes		25	4.8	196.2
	27	Yes		26	2	158
	28		No	24	3	168
	29	Yes		26	4.6	158.4
	30	Yes		26	3.4	209.6
60%	18	12				

Type3

				Percent Detected	Limit	Result
				83%	60%	Pass

Radar Test Signal # Table	Trial #	Detection		Number of Pulses Per burst	Pulse width (us)	PRI (us)
		Yes	No			
Test Signal #1	1	Yes		18	7.6	419.4
	2	Yes		16	7.1	446.9
	3	Yes		16	6.8	473.2
	4	Yes		16	9.5	314.5
	5	Yes		18	8.6	243.4
	6	Yes		18	8.6	243.4
	7	Yes		17	9.5	392.5
	8	Yes		17	7.2	354.8
	9	Yes		16	9.4	245.6
	10	Yes		16	8	352
	11	Yes		18	7.2	457.8
	12	Yes		18	6.7	344.3
	13	Yes		18	7.3	401.7
	14	Yes		16	9.4	358.6
	15	Yes		17	8.6	324.4
	16		No	17	8	276
	17	Yes		17	6.2	396.8
	18	Yes		16	7	301
	19		No	16	8.8	439.2
	20	Yes		17	6.4	474.6
	21		No	16	7.3	219.7
	22	Yes		16	6.8	477.2
	23		No	18	6.5	247.5
	24	Yes		17	8.9	392.1
	25	Yes		17	6.7	454.3
	26	Yes		16	7.3	322.7
	27	Yes		17	9.1	230.9
	28	Yes		18	7.1	281.9
	29		No	17	6.2	393.8
	30	Yes		16	8.1	388.9
83%	25	5				

Type4

				Percent Detected	Limit	Result
				83%	60%	Pass

Radar Test Signal # Table	Trial #	Detection		Number of Pulses Per burst	Pulse width (us)	PRI (us)
		Yes	No			
Test Signal #1	1	Yes		12	11.3	334.7
	2	Yes		15	12.5	426.5
	3	Yes		16	12.6	451.4
	4		No	14	15.5	313.5
	5	Yes		15	14	381
	6	Yes		13	15.3	306.7
	7	Yes		14	13.5	366.5
	8	Yes		16	11.3	287.7
	9	Yes		14	17.8	432.2
	10	Yes		14	17.4	409.6
	11	Yes		15	17.1	295.9
	12	Yes		15	17.3	210.7
	13	Yes		13	18	445
	14	Yes		16	18.8	271.2
	15		No	13	19.1	238.9
	16		No	14	13.5	469.5
	17	Yes		16	13.9	216.1
	18	Yes		13	17.8	390.2
	19	Yes		16	15.1	473.9
	20	Yes		14	14.4	414.6
	21		No	14	16	194
	22	Yes		12	14.2	449.8
	23	Yes		16	14.1	426.9
	24	Yes		12	14.3	273.7
	25	Yes		14	17.4	251.6
	26	Yes		13	16.5	353.5
	27		No	15	18.6	315.4
	28	Yes		14	13.8	281.2
	29	Yes		12	19.1	251.9
	30	Yes		16	12.7	322.3
83%	25	5				

Type5

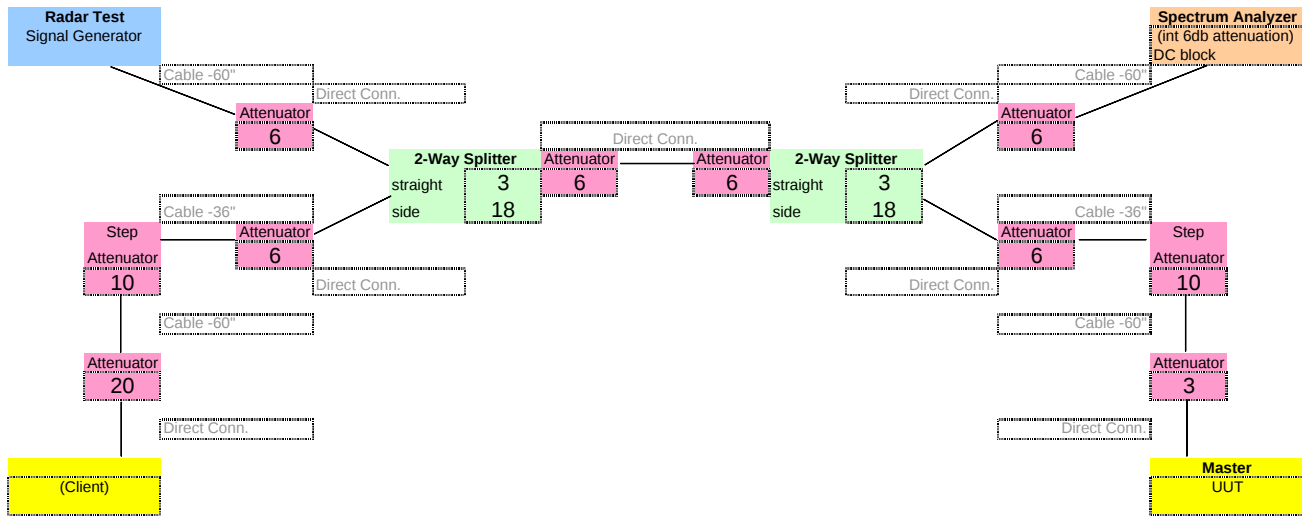
				Percent Detected	Limit	Result
				97%	80%	Pass

Radar Test Signal # Table	Trial #	Detection	
		Yes	No
Test Signal #	1	Yes	
	2	Yes	
	3	Yes	
	4	Yes	
	5	Yes	
	6	Yes	
	7	Yes	
	8	Yes	
	9	Yes	
	10	Yes	
	11	Yes	
	12	YEs	
	13	Yes	
	14	YEs	
	15	Yes	
	16	Yes	
	17	Yes	
	18	Yes	
	19		No
	20	Yes	
	21	Yes	
	22	Yes	
	23	Yes	
	24	Yes	
	25	Yes	
	26	YEs	
	27	Yes	
	28	Yes	
	29	Yes	
	30	Yes	
97%	29	1	

Type6

				Percent Detected	Limit	Result
				97%	70%	Pass

Radar Test Signal # Table	Trial #	Detection	
		Yes	No
Test Signal #	1	Yes	
	2	Yes	
	3	Yes	
	4	YEs	
	5	YEs	
	6	YEs	
	7	YEs	
	8	YEs	
	9	YEs	
	10	Yes	
	11	Yes	
	12	Yes	
	13	Yes	
	14	Yes	
	15	YEs	
	16	Yes	
	17	Yes	
	18	Yes	
	19		No
	20	Yes	
	21	Yes	
	22	Yes	
	23	Yes	
	24	Yes	
	25	Yes	
	26	Yes	
	27	Yes	
	28	Yes	
	29	Yes	
	30	Yes	
97%	29	1	



Attenuation

Master Radar Sim	Master Spec. Anal.	Client Spec. Anal.	Client Radar Sim	Master Client	Radar Sim Spec. Anal.
3	3	20	20	3	6
10	10	10	10	10	3
6	6	6	6	6	6
3	18	3	18	3	6
6	6	6	6	6	3
6		6		6	6
3		3		3	
6		6		6	
				10	
				20	
=====	=====	=====	=====	=====	=====
43	43	60	60	73	30