

Quatech

Airborne™ Embedded Radio Module 802.11(b)/(g)), WLRG-RA-DP100 Series

Report No. QUAT0001 Rev 02

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: October 23, 2008

Quatech

Model: Airborne™ Embedded Radio Module (802.11(b)/(g)),
WLRG-RA-DP100 Series

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247 (DTS):2008	ANSI C63.4:2003, KDB No. 558074	Pass
Output Power	FCC 15.247 (DTS):2008	ANSI C63.4:2003, KDB No. 558074	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-2).

Approved By:

Ethan Schoonover, Sultan Lab Manager



NVLAP Lab Code: 200630-0

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

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

Revision Number	Description	Date	Page Number
01	Changed the manufacturer of the Nano Blue IP04 antenna to "Laird".	11/19/08	10
02	Corrected model number of external Omni antenna	1/21/09	9,12,25-28

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



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



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

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*)



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.



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0604C.



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



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



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



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294).



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



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



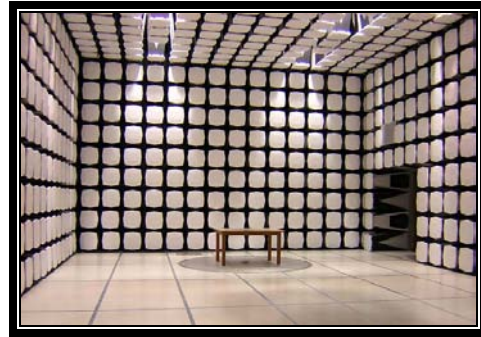
MIC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)



SCOPE

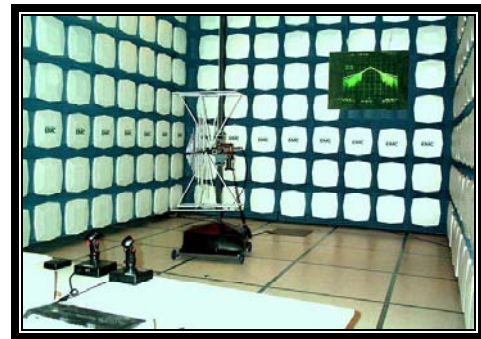
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>



**California – Orange County Facility
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility
Labs EV01 – EV11**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility
Labs SU01 – SU07**

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Northwest EMC	Product Description	Rev 11/17/06
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Party Requesting the Test

Company Name:	Quatech
Address:	5675 Hudson Industrial Parkway
City, State, Zip:	Hudson, OH 44236
Test Requested By:	Andy Ross
Model:	Airborne(TM), Embedded Radio Module WLRG-RA-DP101
First Date of Test:	July 18, 2008
Last Date of Test:	October 23, 2008
Receipt Date of Samples:	July 18, 2008
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
802.11(b/g) radio module

Testing Objective:
Demonstrate compliance of the radio to FCC 15.247 specifications with two new antennas.

CONFIGURATION 1 QUAT0001**Software/Firmware Running during test**

Description	Version
Marvell Labtools	None

EUT

Description	Manufacturer	Model/Part Number	Serial Number
802.11(b)/(g) radio module	Quatech	Airborne(TM), Quatech P/N: WLRG-RA-DP101	000B6B773F7C

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	PP04X	CN-0XM006-48643-840-0763
AC Adapter	Dell	HA65NS1-00	CN-0HN662-47890-84C-C78G
CardBus Extender	Sycard Technology	PCCextend 70A	C070-29644
Extender Card	Quatech	Unknown	830-8040-00B-G

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC	No	1.8m	No	AC Adapter	AC Mains
DC	No	1.3m	Yes	Laptop	AC Adapter

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 2 QUAT0001**Software/Firmware Running during test**

Description	Version
Marvell Labtools	None

EUT

Description	Manufacturer	Model/Part Number	Serial Number
802.11(b)/(g) radio module	Quatech	Airborne(TM), Quatech P/N: WLRG-RA-DP101	000B6B773F7C

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	PP04X	CN-0XM006-48643-840-0763
AC Adapter	Dell	HA65NS1-00	CN-0HN662-47890-84C-C78G
CardBus Extender	Sycard Technology	PCCextend 70A	C070-29644
Extender Card	Quatech	Unknown	830-8040-00B-G
External Omni Antenna	Antenex	TRA24003P	38666

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Antenna cable, LMR-400	Yes	3.1m	No	Adapter cable, u.fl / SMA	External Omni Antenna
Adapter cable, u.fl / SMA	Yes	0.3m	No	802.11(b)/(g) radio module	Antenna cable, LMR-400
AC	No	1.8m	No	AC Adapter	AC Mains
DC	No	1.3m	Yes	Laptop	AC Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 QUAT0001**Software/Firmware Running during test**

Description	Version
Marvell Labtools	None

EUT

Description	Manufacturer	Model/Part Number	Serial Number
802.11(b)/(g) radio module	Quatech	Airborne(TM), Quatech P/N: WLRG-RA-DP101	000B6B773F7C

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Nano Blue IP04	Laird	MAF 94045	Unknown
Laptop	Dell	PP04X	CN-0XM006-48643-840-0763
AC Adapter	Dell	HA65NS1-00	CN-0HN662-47890-84C-C78G
CardBus Extender	Sycard Technology	PCCextend 70A	C070-29644
Extender Card	Quatech	Unknown	830-8040-00B-G

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC	No	1.8m	No	AC Adapter	AC Mains
DC	No	1.3m	Yes	Laptop	AC Adapter
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	7/18/2008	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	10/23/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was complete.

RADIATED SPURIOUS EMISSIONS

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

MODES OF OPERATION

Transmitting 802.11(b), 1 Mbps
 Transmitting 802.11(b), 11 Mbps
 Transmitting 802.11(g), 6 Mbps
 Transmitting 802.11(g), 36 Mbps
 Transmitting 802.11(g), 54 Mbps

CHANNELS TESTED

Low Channel, Channel 1, 2412 MHz
 Mid Channel, Channel 6, 2437 MHz
 Mid Channel, Channel 7, 2442 MHz
 High Channel, Channel 11, 2462 MHz

ANTENNAS TESTED

PCB Trace Antenna
 TRA24003P omni antenna

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 25 GHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
Pre-Amplifier	Hewlett Packard	8447F OPT H64	AVA	10/22/2007	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	5/21/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/30/2008	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/30/2008	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	7/25/2007	16
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	7/25/2007	16

MEASUREMENT BANDWIDTHS

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

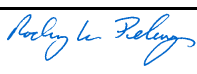
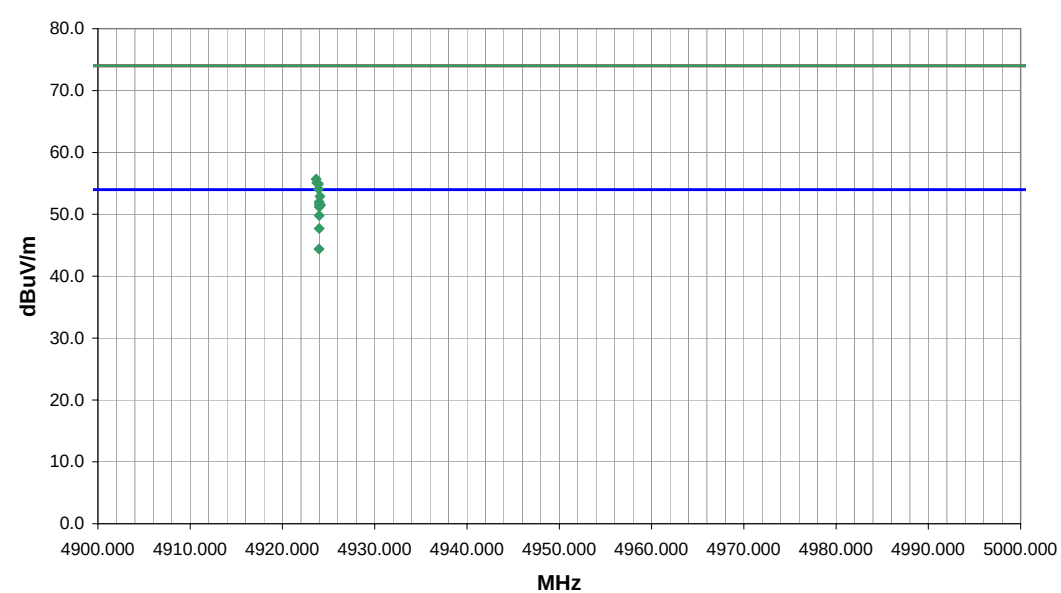
Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

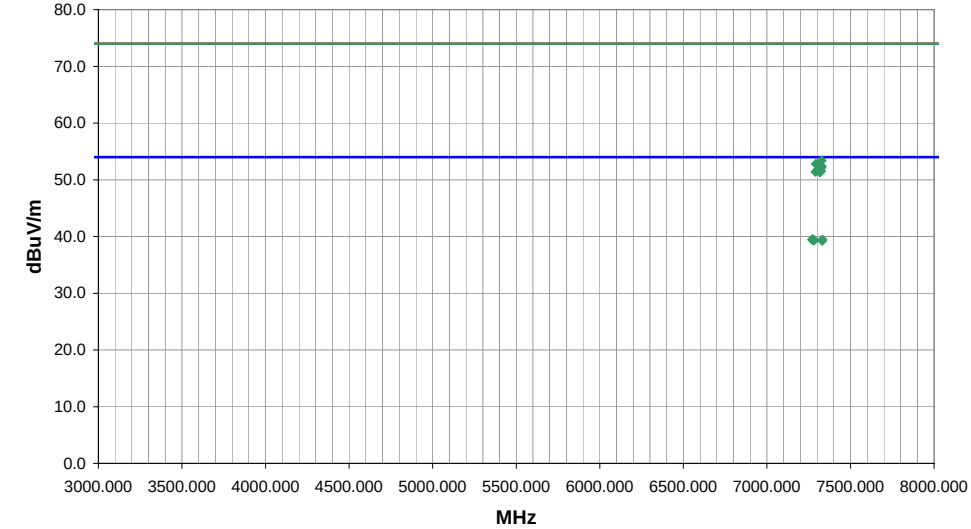
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

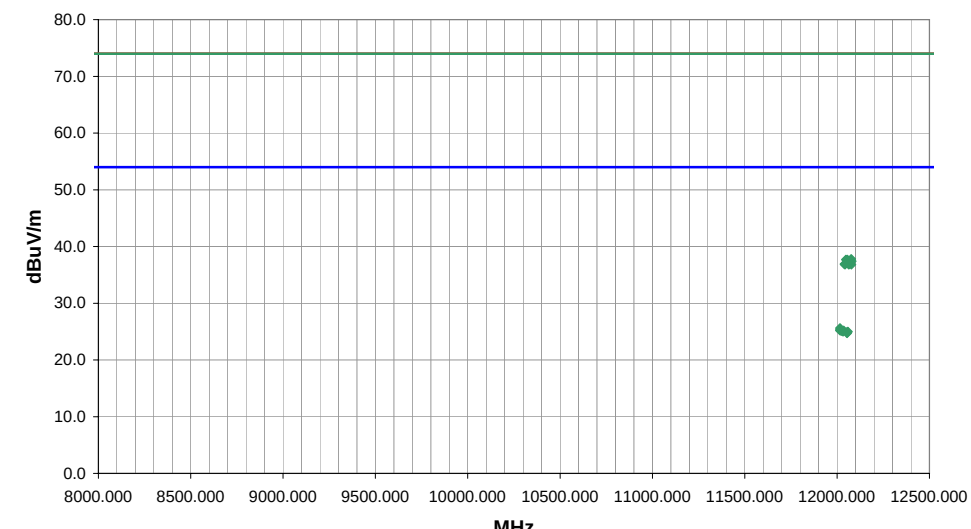
NORTHWEST		RADIATED SPURIOUS EMISSIONS		PSA 2007.07.21	
EMC				EMI 2008.7.3	
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001			
Serial Number: 000B6B773F7C		Date: 10/09/08			
Customer: Quatech		Temperature: 23.46			
Attendees: None		Humidity: 40%			
Project: None		Barometric Pres.: 1021.3mb			
Tested by: Rod Peloquin		Power: 120VAC/60Hz		Job Site: EV01	
TEST SPECIFICATIONS		Test Method			
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074			
TEST PARAMETERS					
Antenna Height(s) (m)		4-Jan		Test Distance (m)	
				3	
COMMENTS					
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna					
EUT OPERATING MODES					
Transmitting 802.11(b), High Channel, 1 Mbps					
DEVIATIONS FROM TEST STANDARD					
No deviations.					
Run #		8			
Configuration #		3			
Results		Pass			
Signature					
					
MHz					
Freq (MHz)					
Amplitude (dBuV)					
Factor (dB)					
Azimuth (degrees)					
Height (meters)					
Distance (meters)					
External Attenuation (dB)					
Polarity					
Detector					
Distance Adjustment (dB)					
Adjusted dBuV/m					
Spec. Limit dBuV/m					
Compared to Spec. (dB)					
Comments					
4923.981 42.1 9.9 329.0 1.1 3.0 0.0 H-Horn AV 0.0 52.0 54.0 -2.0 Module on side					
4923.984 41.7 9.9 28.0 1.6 3.0 0.0 V-Horn AV 0.0 51.6 54.0 -2.4 Module vertical					
4923.981 41.3 9.9 169.0 1.1 3.0 0.0 H-Horn AV 0.0 51.2 54.0 -2.8 Module vertical					
4923.974 39.9 9.9 159.0 1.1 3.0 0.0 V-Horn AV 0.0 49.8 54.0 -4.2 Module on side					
4923.988 37.8 9.9 346.0 1.8 3.0 0.0 V-Horn AV 0.0 47.7 54.0 -6.3 Module horizontal					
4923.964 34.5 9.9 174.0 1.2 3.0 0.0 H-Horn AV 0.0 44.4 54.0 -9.6 Module horizontal					
4923.651 45.8 9.9 329.0 1.1 3.0 0.0 H-Horn PK 0.0 55.7 74.0 -18.3 Module on side					
4923.718 45.2 9.9 28.0 1.6 3.0 0.0 V-Horn PK 0.0 55.1 74.0 -18.9 Module vertical					
4923.911 45.0 9.9 169.0 1.1 3.0 0.0 H-Horn PK 0.0 54.9 74.0 -19.1 Module vertical					
4923.904 44.2 9.9 159.0 1.1 3.0 0.0 V-Horn PK 0.0 54.1 74.0 -19.9 Module on side					
4924.074 43.0 9.9 346.0 1.8 3.0 0.0 V-Horn PK 0.0 52.9 74.0 -21.1 Module horizontal					
4924.131 41.6 9.9 174.0 1.2 3.0 0.0 H-Horn PK 0.0 51.5 74.0 -22.5 Module horizontal					

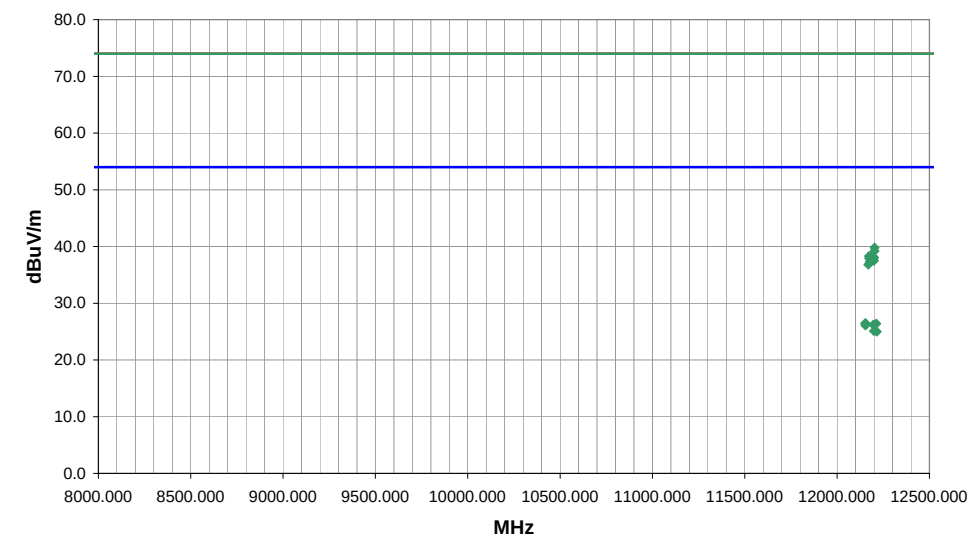
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4823.976	41.6	9.5	32.0	2.1	3.0	0.0	V-Horn	AV	0.0	51.1	54.0	-2.9	Module vertical																																																																														
4823.890	46.4	9.5	-1.0	1.0	3.0	0.0	H-Horn	PK	0.0	55.9	74.0	-18.1	Module on side																																																																														
4823.946	45.4	9.5	32.0	2.1	3.0	0.0	V-Horn	PK	0.0	54.9	74.0	-19.1	Module vertical																																																																														

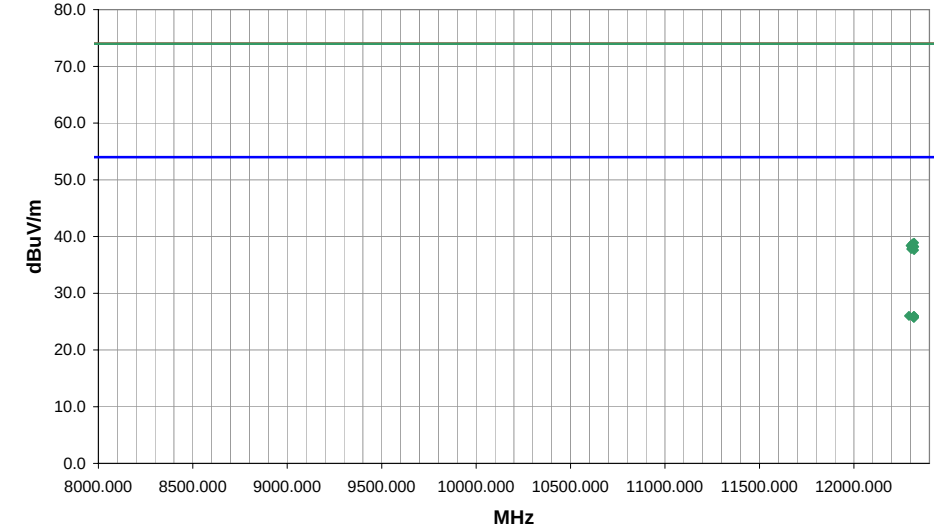
NORTHWEST EMC										RADIATED SPURIOUS EMISSIONS										PSA 2007.07.21 EMI 2008.7.3			
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series										Work Order: QUAT0001													
Serial Number: 000B6B773F7C										Date: 10/09/08													
Customer: Quatech										Temperature: 23.46													
Attendees: None										Humidity: 40%													
Project: None										Barometric Pres.: 1021.3mb													
Tested by: Rod Peloquin										Power: 120VAC/60Hz										Job Site: EV01			
TEST SPECIFICATIONS										Test Method													
FCC 15.247 (DTS):2008										ANSI C63.4:2003, KDB No. 558074													
TEST PARAMETERS																							
Antenna Height(s) (m)										1/4/2008										Test Distance (m)		3	
COMMENTS																							
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna																							
EUT OPERATING MODES																							
Transmitting 802.11(b), Mid Channel, 1 Mbps																							
DEVIATIONS FROM TEST STANDARD																							
No deviations.																							
Run #										10													
Configuration #										3													
Results										Pass										Signature			
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments										
4883.989	43.1	9.8	31.0	1.9	3.0	0.0	V-Horn	AV	0.0	52.9	54.0	-1.1	Module vertical										
4883.972	42.9	9.8	2.0	1.2	3.0	0.0	H-Horn	AV	0.0	52.7	54.0	-1.3	Module on side										
4883.956	46.4	9.8	31.0	1.9	3.0	0.0	V-Horn	PK	0.0	56.2	74.0	-17.8	Module vertical										
4883.956	46.2	9.8	2.0	1.2	3.0	0.0	H-Horn	PK	0.0	56.0	74.0	-18.0	Module on side										

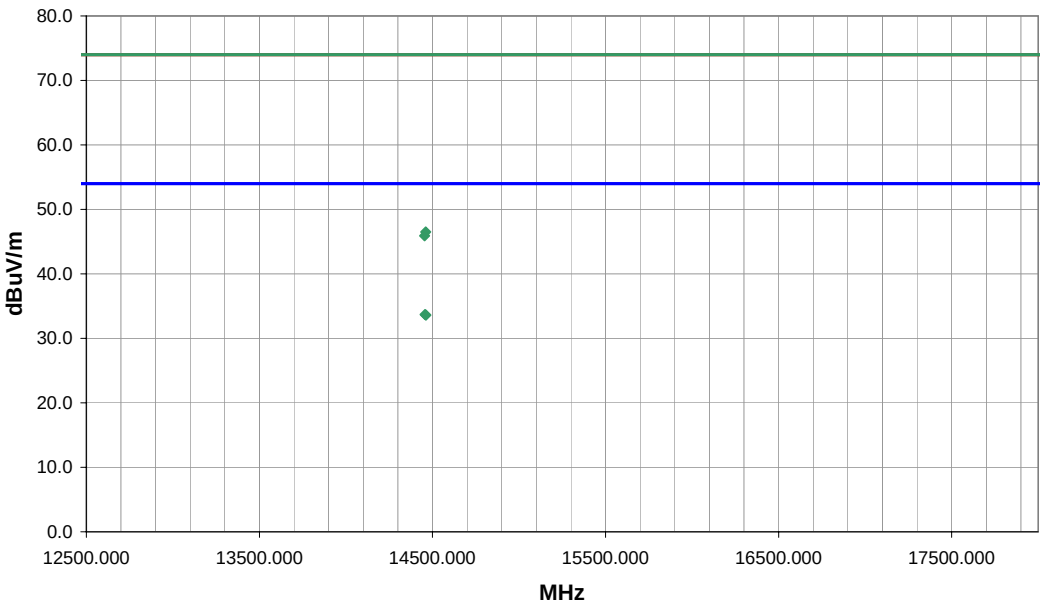
NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC													
RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/21/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: Jennifer Herrett		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), High Channel, See comments for data rate													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	11	Signature <i>Jennifer Herrett</i>											
Configuration #	3												
Results	Pass												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4922.000	31.9	9.9	-1.0	1.5	3.0	0.0	H-Horn	AV	0.0	41.8	54.0	-12.2	EUT on side, 802.11(b) 11Mbps
7382.800	23.3	15.7	44.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.0	54.0	-15.0	EUT on side, 802.11(b) 1Mbps
7395.050	23.2	15.7	311.0	1.0	3.0	0.0	V-Horn	AV	0.0	38.9	54.0	-15.1	EUT vertical, 802.11(b) 1Mbps
4921.980	26.3	9.9	360.0	1.8	3.0	0.0	V-Horn	AV	0.0	36.2	54.0	-17.8	EUT vertical, 802.11(b) 11Mbps
4923.920	26.1	9.9	186.0	1.0	3.0	0.0	H-Horn	AV	0.0	36.0	54.0	-18.0	EUT on side, 802.11(g) 6Mbps
4923.880	25.4	9.9	24.0	1.7	3.0	0.0	V-Horn	AV	0.0	35.3	54.0	-18.7	EUT vertical, 802.11(g) 6Mbps
4921.920	24.7	9.9	118.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.6	54.0	-19.4	EUT on side, 802.11(g) 36Mbps
4926.000	24.7	9.9	288.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.6	54.0	-19.4	EUT on side, 802.11(g) 54Mbps
4923.500	24.6	9.9	8.0	1.8	3.0	0.0	V-Horn	AV	0.0	34.5	54.0	-19.5	EUT vertical, 802.11(g) 54Mbps
4921.620	24.1	9.9	360.0	1.8	3.0	0.0	V-Horn	AV	0.0	34.0	54.0	-20.0	EUT vertical, 802.11(g) 36Mbps
4926.330	43.5	9.9	-1.0	1.5	3.0	0.0	H-Horn	PK	0.0	53.4	74.0	-20.6	EUT on side, 802.11(b) 11Mbps
7388.420	36.0	15.7	311.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.7	74.0	-22.3	EUT vertical, 802.11(b) 1Mbps
7388.020	35.7	15.7	44.0	1.0	3.0	0.0	H-Horn	PK	0.0	51.4	74.0	-22.6	EUT on side, 802.11(b) 1Mbps
4919.070	39.3	9.9	360.0	1.8	3.0	0.0	V-Horn	PK	0.0	49.2	74.0	-24.8	EUT vertical, 802.11(b) 11Mbps
4921.920	38.8	9.9	186.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.7	74.0	-25.3	EUT on side, 802.11(g) 6Mbps
4917.000	37.7	9.9	288.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.6	74.0	-26.4	EUT on side, 802.11(g) 54Mbps
4923.870	37.3	9.9	24.0	1.7	3.0	0.0	V-Horn	PK	0.0	47.2	74.0	-26.8	EUT vertical, 802.11(g) 6Mbps
4920.420	36.7	9.9	360.0	1.8	3.0	0.0	V-Horn	PK	0.0	46.6	74.0	-27.4	EUT vertical, 802.11(g) 36Mbps
4920.670	36.7	9.9	8.0	1.8	3.0	0.0	V-Horn	PK	0.0	46.6	74.0	-27.4	EUT vertical, 802.11(g) 54Mbps
4917.420	36.4	9.9	118.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.3	74.0	-27.7	EUT on side, 802.11(g) 36Mbps

NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/21/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: David Divergigelis		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), Mid Channel, See comments for data rate													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	12	Signature 											
Configuration #	3												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
7271.830	23.9	15.6	243.0	2.0	3.0	0.0	V-Horn	AV	0.0	39.5	54.0	-14.5	EUT vertical, 802.11(g) 6Mbps
7272.670	23.9	15.6	219.0	1.3	3.0	0.0	V-Horn	AV	0.0	39.5	54.0	-14.5	EUT vertical, 802.11(g) 36Mbps
7271.420	23.9	15.5	182.0	2.6	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	EUT horizontal, 802.11(g) 6Mbps
7275.420	23.8	15.6	157.0	2.9	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	EUT horizontal, 802.11(g) 54Mbps
7280.830	23.8	15.6	171.0	3.7	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	EUT on side, 802.11(b) 1Mbps
7331.420	23.8	15.6	194.0	2.6	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	EUT horizontal, 802.11(b) 11Mbps
7332.420	23.8	15.6	171.0	1.3	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6	EUT vertical, 802.11(g) 54Mbps
7281.000	23.8	15.5	280.0	1.4	3.0	0.0	H-Horn	AV	0.0	39.3	54.0	-14.7	EUT horizontal, 802.11(g) 36Mbps
7330.250	23.8	15.5	160.0	2.3	3.0	0.0	V-Horn	AV	0.0	39.3	54.0	-14.7	EUT vertical, 802.11(b) 11Mbps
7330.420	23.8	15.5	224.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.3	54.0	-14.7	EUT vertical, 802.11(b) 1Mbps
7327.420	37.9	15.5	171.0	1.3	3.0	0.0	V-Horn	PK	0.0	53.4	74.0	-20.6	EUT vertical, 802.11(g) 54Mbps
7292.250	37.3	15.5	280.0	1.4	3.0	0.0	H-Horn	PK	0.0	52.8	74.0	-21.2	EUT horizontal, 802.11(g) 36Mbps
7317.500	36.9	15.5	171.0	3.7	3.0	0.0	H-Horn	PK	0.0	52.4	74.0	-21.6	EUT on side, 802.11(b) 1Mbps
7326.670	36.9	15.5	219.0	1.3	3.0	0.0	V-Horn	PK	0.0	52.4	74.0	-21.6	EUT vertical, 802.11(g) 36Mbps
7326.500	36.7	15.5	157.0	2.9	3.0	0.0	H-Horn	PK	0.0	52.2	74.0	-21.8	EUT horizontal, 802.11(g) 54Mbps
7311.420	36.5	15.5	160.0	2.3	3.0	0.0	V-Horn	PK	0.0	52.0	74.0	-22.0	EUT vertical, 802.11(b) 11Mbps
7301.670	36.2	15.5	182.0	2.6	3.0	0.0	H-Horn	PK	0.0	51.7	74.0	-22.3	EUT horizontal, 802.11(g) 6Mbps
7323.830	36.1	15.5	243.0	2.0	3.0	0.0	V-Horn	PK	0.0	51.6	74.0	-22.4	EUT vertical, 802.11(g) 6Mbps
7290.170	35.9	15.5	224.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.4	74.0	-22.6	EUT vertical, 802.11(b) 1Mbps
7317.250	35.8	15.5	194.0	2.6	3.0	0.0	H-Horn	PK	0.0	51.3	74.0	-22.7	EUT horizontal, 802.11(b) 11Mbps

NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/21/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: David Divergigellis		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), Low Channel, See comments for data rate													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	13	Signature 											
Configuration #	3												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12015.330	30.3	-4.7	11.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.6	54.0	-28.4	EUT vertical, 802.11(b) 11Mbps
12015.420	30.0	-4.7	210.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.3	54.0	-28.7	EUT horizontal, 802.11(g) 36Mbps
12035.250	30.0	-4.8	268.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.2	54.0	-28.8	EUT vertical, 802.11(b) 1Mbps
12016.000	30.1	-4.9	323.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.2	54.0	-28.8	EUT vertical, 802.11(g) 6Mbps
12022.750	29.9	-4.8	183.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.1	54.0	-28.9	EUT horizontal, 802.11(g) 6Mbps
12031.750	29.9	-4.9	26.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.0	54.0	-29.0	EUT vertical, 802.11(g) 36Mbps
12058.170	29.9	-4.9	123.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.0	54.0	-29.0	EUT horizontal, 802.11(b) 11Mbps
12054.420	29.6	-4.7	350.0	1.0	3.0	0.0	V-Horn	AV	0.0	24.9	54.0	-29.1	EUT vertical, 802.11(g) 54Mbps
12055.500	29.8	-4.9	230.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.9	54.0	-29.1	EUT horizontal, 802.11(b) 11Mbps
12053.580	29.6	-4.9	301.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.7	54.0	-29.3	EUT horizontal, 802.11(g) 54Mbps
12076.420	42.7	-4.9	210.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.8	74.0	-36.2	EUT horizontal, 802.11(g) 36Mbps
12047.420	42.6	-4.9	26.0	1.0	3.0	0.0	V-Horn	PK	0.0	37.7	74.0	-36.3	EUT vertical, 802.11(g) 36Mbps
12055.580	42.6	-4.9	301.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.7	74.0	-36.3	EUT horizontal, 802.11(g) 54Mbps
12054.250	42.5	-4.9	123.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.6	74.0	-36.4	EUT horizontal, 802.11(b) 11Mbps
12078.580	42.3	-4.9	11.0	1.0	3.0	0.0	V-Horn	PK	0.0	37.4	74.0	-36.6	EUT vertical, 802.11(b) 11Mbps
12062.830	41.9	-4.9	183.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.0	74.0	-37.0	EUT horizontal, 802.11(g) 6Mbps
12039.580	41.8	-4.9	230.0	1.0	3.0	0.0	H-Horn	PK	0.0	36.9	74.0	-37.1	EUT horizontal, 802.11(b) 11Mbps
12042.830	41.7	-4.9	323.0	1.0	3.0	0.0	V-Horn	PK	0.0	36.8	74.0	-37.2	EUT vertical, 802.11(g) 6Mbps
12063.580	41.7	-4.9	268.0	1.0	3.0	0.0	V-Horn	PK	0.0	36.8	74.0	-37.2	EUT vertical, 802.11(b) 1Mbps
12077.580	41.7	-4.9	350.0	1.0	3.0	0.0	V-Horn	PK	0.0	36.8	74.0	-37.2	EUT vertical, 802.11(g) 54Mbps

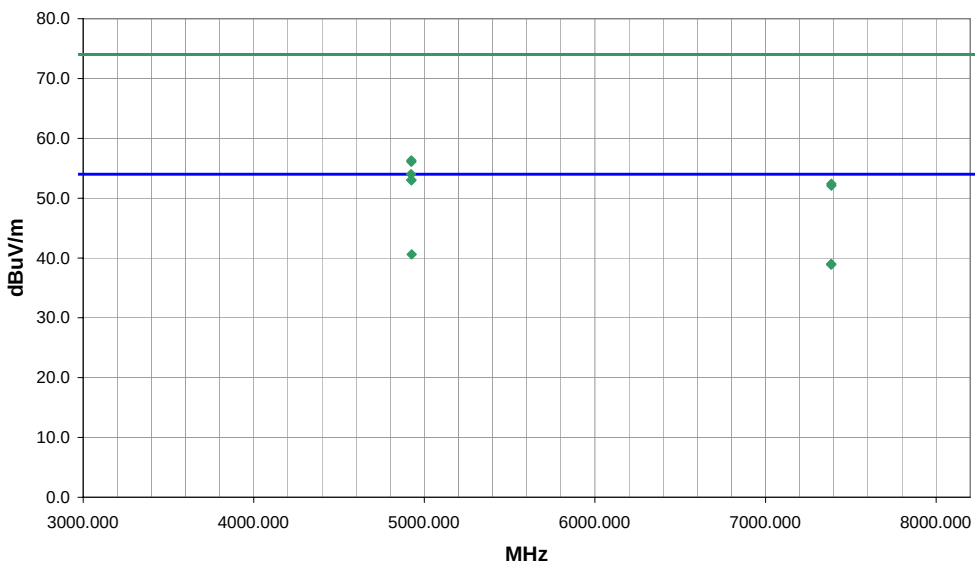
NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/21/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: David Divergigellis		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), Mid Channel, See comments for data rate.													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	14	Signature 											
Configuration #	3												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12153.060	30.5	-4.0	265.0	3.4	3.0	0.0	H-Horn	AV	0.0	26.5	54.0	-27.5	EUT horizontal, 802.11(b) 1Mbps
12152.430	30.4	-4.0	192.0	3.4	3.0	0.0	H-Horn	AV	0.0	26.4	54.0	-27.6	EUT horizontal, 802.11(b) 11Mbps
12153.080	30.4	-4.0	155.0	3.6	3.0	0.0	V-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, 802.11(g) 54Mbps
12212.500	30.4	-4.0	240.0	3.4	3.0	0.0	H-Horn	AV	0.0	26.4	54.0	-27.6	EUT horizontal, 802.11(g) 6Mbps
12198.450	30.2	-4.0	342.0	3.4	3.0	0.0	H-Horn	AV	0.0	26.2	54.0	-27.8	EUT horizontal, 802.11(g) 36Mbps
12153.980	30.4	-4.2	66.0	3.6	3.0	0.0	V-Horn	AV	0.0	26.2	54.0	-27.8	EUT vertical, 802.11(g) 36Mbps
12197.160	30.4	-4.2	147.0	3.7	3.0	0.0	V-Horn	AV	0.0	26.2	54.0	-27.8	EUT vertical, 802.11(g) 6Mbps
12153.300	30.1	-4.0	291.0	3.3	3.0	0.0	H-Horn	AV	0.0	26.1	54.0	-27.9	EUT horizontal, 802.11(g) 54Mbps
12199.140	29.2	-4.1	135.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.1	54.0	-28.9	EUT vertical, 802.11(b) 1Mbps
12214.870	29.2	-4.2	273.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.0	54.0	-29.0	EUT vertical, 802.11(b) 11Mbps
12202.580	43.9	-4.1	265.0	3.4	3.0	0.0	H-Horn	PK	0.0	39.8	74.0	-34.2	EUT horizontal, 802.11(b) 1Mbps
12202.750	43.3	-4.1	240.0	3.4	3.0	0.0	H-Horn	PK	0.0	39.2	74.0	-34.8	EUT horizontal, 802.11(g) 6Mbps
12172.830	42.4	-4.1	66.0	3.6	3.0	0.0	V-Horn	PK	0.0	38.3	74.0	-35.7	EUT vertical, 802.11(g) 36Mbps
12188.670	42.4	-4.1	342.0	3.4	3.0	0.0	H-Horn	PK	0.0	38.3	74.0	-35.7	EUT horizontal, 802.11(g) 36Mbps
12196.580	42.3	-4.1	192.0	3.4	3.0	0.0	H-Horn	PK	0.0	38.2	74.0	-35.8	EUT horizontal, 802.11(b) 11Mbps
12200.170	42.1	-4.1	291.0	3.3	3.0	0.0	H-Horn	PK	0.0	38.0	74.0	-36.0	EUT horizontal, 802.11(g) 54Mbps
12173.330	42.0	-4.1	147.0	3.7	3.0	0.0	V-Horn	PK	0.0	37.9	74.0	-36.1	EUT vertical, 802.11(g) 6Mbps
12199.670	41.6	-4.1	155.0	3.6	3.0	0.0	V-Horn	PK	0.0	37.5	74.0	-36.5	EUT vertical, 802.11(g) 54Mbps
12177.250	41.4	-4.1	135.0	1.0	3.0	0.0	V-Horn	PK	0.0	37.3	74.0	-36.7	EUT vertical, 802.11(b) 1Mbps
12168.750	40.9	-4.1	273.0	1.0	3.0	0.0	V-Horn	PK	0.0	36.8	74.0	-37.2	EUT vertical, 802.11(b) 11Mbps

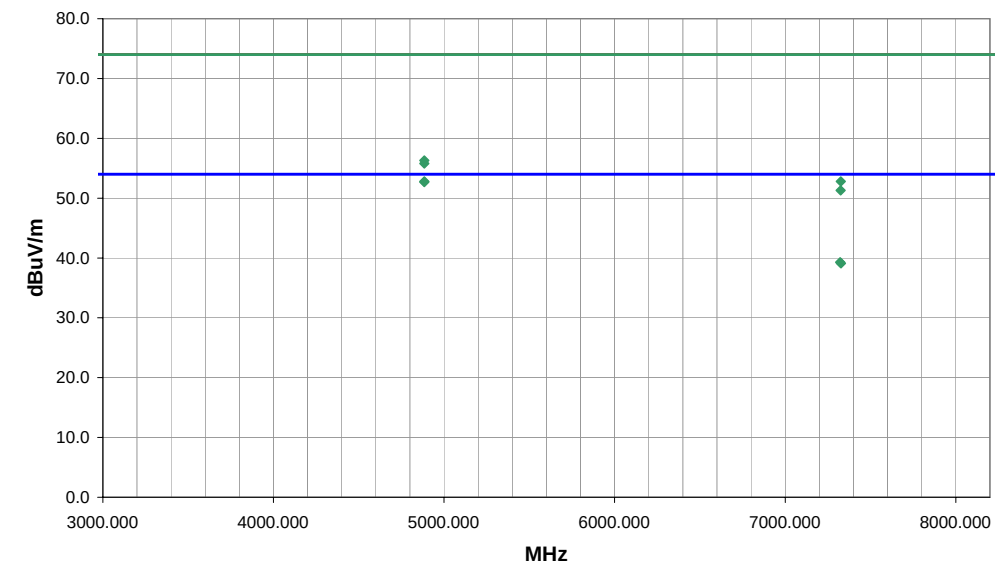
NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/21/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: David Divergigelis		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), High Channel, See comments for data rate.													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	15	Signature 											
Configuration #	3												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12317.540	29.3	-3.3	234.0	1.0	3.0	0.0	H-Horn	AV	0.0	26.0	54.0	-28.0	EUT horizontal, 802.11(b) 11Mbps
12291.430	29.4	-3.4	81.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0	EUT vertical, 802.11(g) 36Mbps
12317.540	29.2	-3.3	320.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.9	54.0	-28.1	EUT vertical, 802.11(b) 11Mbps
12318.580	29.2	-3.3	63.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.9	54.0	-28.1	EUT horizontal, 802.11(g) 36Mbps
12317.890	29.3	-3.4	256.0	1.1	3.0	0.0	V-Horn	AV	0.0	25.9	54.0	-28.1	EUT vertical, 802.11(g) 6Mbps
12318.960	29.3	-3.4	165.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.9	54.0	-28.1	EUT horizontal, 802.11(g) 54Mbps
12317.370	29.2	-3.4	206.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.8	54.0	-28.2	EUT horizontal, 802.11(b) 1Mbps
12318.120	29.0	-3.3	1.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.7	54.0	-28.3	EUT vertical, 802.11(g) 54Mbps
12317.340	29.1	-3.4	87.0	1.1	3.0	0.0	V-Horn	AV	0.0	25.7	54.0	-28.3	EUT vertical, 802.11(b) 1Mbps
12317.770	29.1	-3.4	215.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.7	54.0	-28.3	EUT horizontal, 802.11(g) 6Mbps
12318.700	42.3	-3.4	1.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.9	74.0	-35.1	EUT vertical, 802.11(g) 36Mbps
12312.100	42.2	-3.4	256.0	1.1	3.0	0.0	V-Horn	PK	0.0	38.8	74.0	-35.2	EUT vertical, 802.11(g) 6Mbps
12305.870	42.0	-3.4	165.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.6	74.0	-35.4	EUT horizontal, 802.11(b) 11Mbps
12308.930	41.9	-3.4	206.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.5	74.0	-35.5	EUT horizontal, 802.11(g) 6Mbps
12300.130	41.8	-3.4	215.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.4	74.0	-35.6	EUT horizontal, 802.11(b) 1Mbps
12316.000	41.7	-3.4	234.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.3	74.0	-35.7	EUT horizontal, 802.11(g) 36Mbps
12319.170	41.6	-3.4	320.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.2	74.0	-35.8	EUT vertical, 802.11(g) 54Mbps
12307.300	41.4	-3.4	81.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.0	74.0	-36.0	EUT vertical, 802.11(b) 11Mbps
12303.270	41.2	-3.4	87.0	1.1	3.0	0.0	V-Horn	PK	0.0	37.8	74.0	-36.2	EUT vertical, 802.11(b) 1Mbps
12318.370	41.0	-3.4	63.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.6	74.0	-36.4	EUT horizontal, 802.11(g) 54Mbps

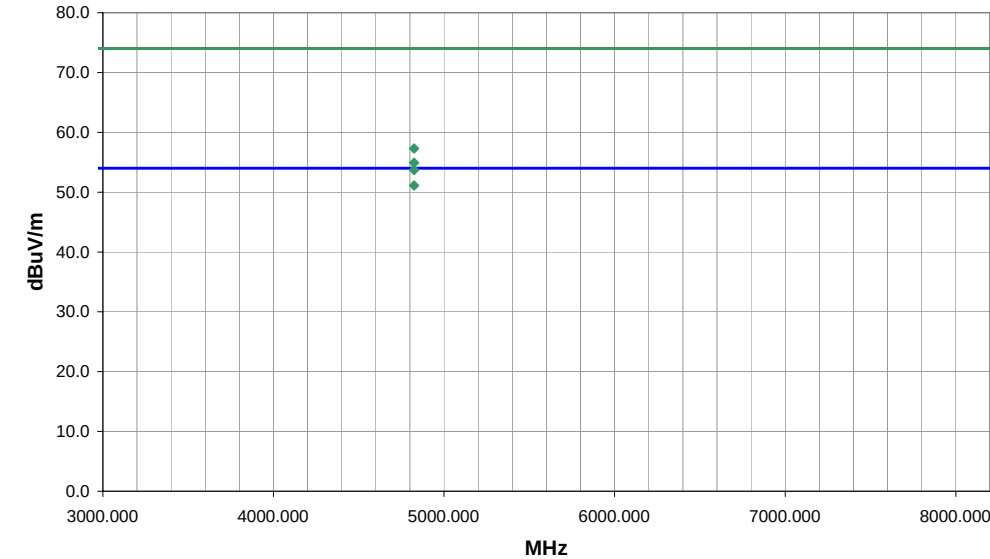
NORTHWEST		RADIATED SPURIOUS EMISSIONS										PSA 2007.07.21 EMI 2008.7.3	
EMC													
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series										Work Order: QUAT0001			
Serial Number: 000B6B773F7C										Date: 10/22/08			
Customer: Quatech										Temperature: 21			
Attendees: None										Humidity: 33%			
Project: None										Barometric Pres.: 30.38			
Tested by: Jennifer Herrett						Power: 120VAC/60Hz		Job Site: EV01					
TEST SPECIFICATIONS													
FCC 15.247 (DTS):2008						Test Method ANSI C63.4:2003, KDB No. 558074							
TEST PARAMETERS													
Antenna Height(s) (m)				1/4/2008				Test Distance (m)				3	
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b), Low Channel, 1Mbps													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #		16		 Signature									
Configuration #		3											
Results		Pass											
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
14457.330	26.4	7.3	280.0	1.0	3.0	0.0	H-Horn	AV	0.0	33.7	54.0	-20.3	EUT on side
14462.250	26.3	7.3	354.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.6	54.0	-20.4	EUT vertical
14460.750	39.2	7.3	354.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.5	74.0	-27.5	EUT vertical
14454.500	38.6	7.3	280.0	1.0	3.0	0.0	H-Horn	PK	0.0	45.9	74.0	-28.1	EUT on side

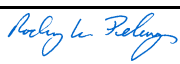
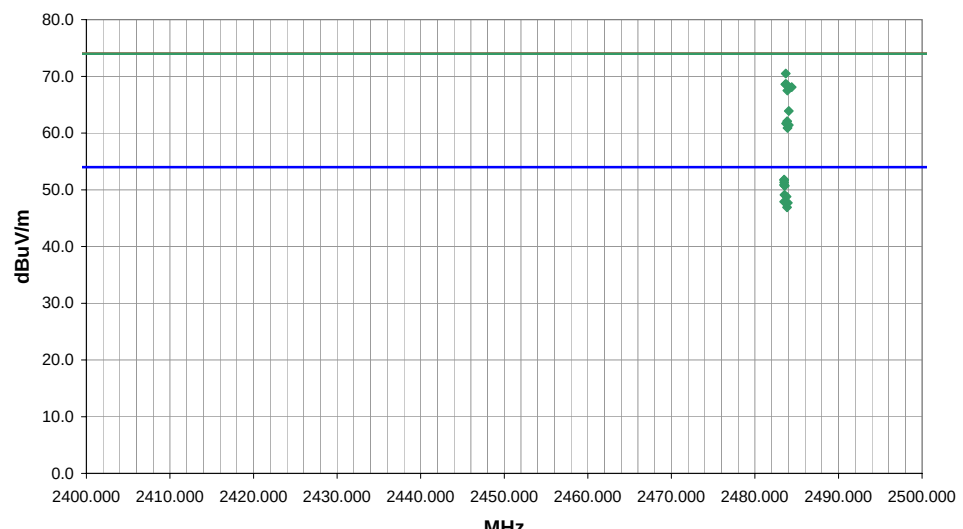
NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC													
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 00086B773F7C		Date: 10/22/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: Jennifer Herrett		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), Low Channel, See comments for data rate													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	17	Signature <i>Jennifer Herrett</i>											
Configuration #	3												
Results	Pass												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4823.950	42.0	9.5	213.0	1.3	3.0	0.0	V-Horn	AV	0.0	51.5	54.0	-2.5	EUT on side, 802.11(b) 1Mbps
4823.950	35.4	9.5	322.0	1.6	3.0	0.0	H-Horn	AV	0.0	44.9	54.0	-9.1	EUT horizontal, 802.11(b) 1Mbps
4824.000	35.2	9.5	97.0	1.3	3.0	0.0	V-Horn	AV	0.0	44.7	54.0	-9.3	EUT horizontal, 802.11(b) 1Mbps
4824.000	31.0	9.5	76.0	2.1	3.0	0.0	H-Horn	AV	0.0	40.5	54.0	-13.5	EUT vertical, 802.11(b) 1Mbps
4825.900	30.5	9.5	360.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.0	54.0	-14.0	EUT on side, 802.11(b) 11Mbps
4825.900	29.6	9.5	213.0	1.3	3.0	0.0	V-Horn	AV	0.0	39.1	54.0	-14.9	EUT on side, 802.11(b) 11Mbps
4821.950	26.3	9.5	-1.0	1.3	3.0	0.0	H-Horn	AV	0.0	35.8	54.0	-18.2	EUT on side, 802.11(g) 36Mbps
4825.450	25.9	9.5	-1.0	1.6	3.0	0.0	H-Horn	AV	0.0	35.4	54.0	-18.6	EUT on side, 802.11(g) 54Mbps
4824.000	25.5	9.5	360.0	2.1	3.0	0.0	H-Horn	AV	0.0	35.0	54.0	-19.0	EUT on side, 802.11(g) 6Mbps
4825.300	25.4	9.5	207.0	1.0	3.0	0.0	V-Horn	AV	0.0	34.9	54.0	-19.1	EUT on side, 802.11(g) 54Mbps
4824.050	44.7	9.5	213.0	1.3	3.0	0.0	V-Horn	PK	0.0	54.2	74.0	-19.8	EUT on side, 802.11(b) 1Mbps
4838.200	23.4	9.5	360.0	1.7	3.0	0.0	V-Horn	AV	0.0	32.9	54.0	-21.1	EUT on side, 802.11(g) 36Mbps
4837.050	23.3	9.5	103.0	1.2	3.0	0.0	V-Horn	AV	0.0	32.8	54.0	-21.2	EUT on side, 802.11(g) 6Mbps
4826.550	43.1	9.5	360.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.6	74.0	-21.4	EUT on side, 802.11(b) 11Mbps
4822.700	41.5	9.5	213.0	1.3	3.0	0.0	V-Horn	PK	0.0	51.0	74.0	-23.0	EUT on side, 802.11(b) 11Mbps
4824.000	40.5	9.5	322.0	1.6	3.0	0.0	H-Horn	PK	0.0	50.0	74.0	-24.0	EUT horizontal, 802.11(b) 1Mbps
4824.000	39.7	9.5	97.0	1.3	3.0	0.0	V-Horn	PK	0.0	49.2	74.0	-24.8	EUT horizontal, 802.11(b) 1Mbps
4826.050	38.9	9.5	-1.0	1.6	3.0	0.0	H-Horn	PK	0.0	48.4	74.0	-25.6	EUT on side, 802.11(g) 54Mbps
4823.850	38.7	9.5	76.0	2.1	3.0	0.0	H-Horn	PK	0.0	48.2	74.0	-25.8	EUT vertical, 802.11(b) 1Mbps
4834.950	38.0	9.5	-1.0	1.3	3.0	0.0	H-Horn	PK	0.0	47.5	74.0	-26.5	EUT on side, 802.11(g) 36Mbps

NORTHWEST		PSA 2007.07.21											
EMI 2008.7.3													
EMC													
RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/22/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: Jennifer Herrett		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS													
FCC 15.247 (DTS):2008		Test Method											
		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
New provided module sample 10-09-08, low height soldered shield. PCB Trace Antenna													
EUT OPERATING MODES													
Transmitting 802.11(b/g), High Channel, See comments for data rate													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	18	Signature <i>Jennifer Herrett</i>											
Configuration #	3												
Results	Pass												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2483.501	31.2	2.2	43.0	1.1	3.0	20.0	V-Horn	AV	0.0	53.4	54.0	-0.6	EUT on side, 802.11(g) 6Mbps
2483.501	31.0	2.2	37.0	1.1	3.0	20.0	V-Horn	AV	0.0	53.2	54.0	-0.8	EUT on side, 802.11(g) 36Mbps
2483.828	50.4	2.2	43.0	1.1	3.0	20.0	V-Horn	PK	0.0	72.6	74.0	-1.4	EUT on side, 802.11(g) 6Mbps
2483.510	30.1	2.2	37.0	1.1	3.0	20.0	V-Horn	AV	0.0	52.3	54.0	-1.7	EUT on side, 802.11(g) 54Mbps
2483.053	29.2	2.2	262.0	2.3	3.0	20.0	H-Horn	AV	0.0	51.4	54.0	-2.6	EUT vertical, 802.11(g) 54Mbps
2483.630	29.0	2.2	103.0	2.3	3.0	20.0	H-Horn	AV	0.0	51.2	54.0	-2.8	EUT vertical, 802.11(g) 6Mbps
2483.338	28.8	2.2	99.0	2.3	3.0	20.0	H-Horn	AV	0.0	51.0	54.0	-3.0	EUT vertical, 802.11(g) 36Mbps
2483.501	28.8	2.2	34.0	1.1	3.0	20.0	V-Horn	AV	0.0	51.0	54.0	-3.0	EUT on side, 802.11(b) 11Mbps
2483.760	48.1	2.2	36.0	1.1	3.0	20.0	V-Horn	PK	0.0	70.3	74.0	-3.7	EUT on side, 802.11(g) 36Mbps
2483.523	47.5	2.2	103.0	2.3	3.0	20.0	H-Horn	PK	0.0	69.7	74.0	-4.3	EUT vertical, 802.11(g) 6Mbps
2483.722	27.5	2.2	106.0	2.3	3.0	20.0	H-Horn	AV	0.0	49.7	54.0	-4.3	EUT vertical, 802.11(b) 1Mbps
2483.863	27.5	2.2	103.0	2.3	3.0	20.0	H-Horn	AV	0.0	49.7	54.0	-4.3	EUT vertical, 802.11(b) 11Mbps
2483.880	46.7	2.2	36.0	1.1	3.0	20.0	V-Horn	PK	0.0	68.9	74.0	-5.1	EUT on side, 802.11(g) 54Mbps
2483.500	26.5	2.2	36.0	1.0	3.0	20.0	V-Horn	AV	0.0	48.7	54.0	-5.3	EUT on side, 802.11(b) 1Mbps
2483.543	45.2	2.2	99.0	2.3	3.0	20.0	H-Horn	PK	0.0	67.4	74.0	-6.6	EUT vertical, 802.11(g) 36Mbps
2483.542	24.2	2.2	15.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.4	54.0	-7.6	EUT horizontal, 802.11(b) 1Mbps
2483.698	24.0	2.2	174.0	2.9	3.0	20.0	V-Horn	AV	0.0	46.2	54.0	-7.8	EUT vertical, 802.11(b) 1Mbps
2484.215	43.9	2.2	262.0	2.3	3.0	20.0	H-Horn	PK	0.0	66.1	74.0	-7.9	EUT vertical, 802.11(g) 54Mbps
2484.013	23.9	2.2	61.0	3.6	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT on side, 802.11(b) 1Mbps
2483.500	23.6	2.2	169.0	3.6	3.0	20.0	H-Horn	AV	0.0	45.8	54.0	-8.2	EUT horizontal, 802.11(b) 1Mbps

NORTHWEST		RADIATED SPURIOUS EMISSIONS		PSA 2007.07.21 EMI 2008.7.3									
EMC													
EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series				Work Order: QUAT0001									
Serial Number: 000B6B773F7C				Date: 10/23/08									
Customer: Quatech				Temperature: 20.8									
Attendees: None				Humidity: 38%									
Project: None				Barometric Pres.: 30.58									
Tested by: Rod Peloquin			Power: 120VAC/60Hz	Job Site: EV01									
TEST SPECIFICATIONS			Test Method										
FCC 15.247 (DTS):2008			ANSI C63.4:2003, KDB No. 558074										
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008		Test Distance (m)	3									
COMMENTS													
TRA24003P external omni antenna													
EUT OPERATING MODES													
Transmitting 802.11, High Channel													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	20		 Signature										
Configuration #	2												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4923.952	43.1	9.9	-1.0	1.0	0.0	0.0	H-Horn	AV	0.0	53.0	54.0	-1.0	1 Mbps, Module on side
4923.975	43.1	9.9	101.0	1.0	0.0	0.0	V-Horn	AV	0.0	53.0	54.0	-1.0	1 Mbps, Module vertical
4925.808	30.7	9.9	103.0	1.0	0.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	11 Mbps, Module vertical
7384.700	23.3	15.7	283.0	1.0	0.0	0.0	V-Horn	AV	0.0	39.0	54.0	-15.0	1 Mbps, Module vertical
7385.345	23.2	15.7	16.0	1.0	0.0	0.0	H-Horn	AV	0.0	38.9	54.0	-15.1	1 Mbps, Module on side
4924.092	46.4	9.9	101.0	1.0	0.0	0.0	V-Horn	PK	0.0	56.3	74.0	-17.7	1 Mbps, Module vertical
4924.008	46.2	9.9	-1.0	1.0	0.0	0.0	H-Horn	PK	0.0	56.1	74.0	-17.9	1 Mbps, Module on side
4922.220	44.1	9.9	103.0	1.0	0.0	0.0	V-Horn	PK	0.0	54.0	74.0	-20.0	11 Mbps, Module vertical
7385.962	36.7	15.7	16.0	1.0	0.0	0.0	H-Horn	PK	0.0	52.4	74.0	-21.6	1 Mbps, Module on side
7385.745	36.4	15.7	283.0	1.0	0.0	0.0	V-Horn	PK	0.0	52.1	74.0	-21.9	1 Mbps, Module vertical

NORTHWEST EMC										RADIATED SPURIOUS EMISSIONS				PSA 2007.07.21 EMI 2008.7.3	
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series										Work Order: QUAT0001					
Serial Number: 000B6B773F7C										Date: 10/23/08					
Customer: Quatech										Temperature: 20.8					
Attendees: None										Humidity: 38%					
Project: None										Barometric Pres.: 30.58					
Tested by: Rod Peloquin						Power: 120VAC/60Hz		Job Site: EV01							
TEST SPECIFICATIONS										Test Method					
FCC 15.247 (DTS):2008										ANSI C63.4:2003, KDB No. 558074					
TEST PARAMETERS															
Antenna Height(s) (m)				1/4/2008		Test Distance (m)				3					
COMMENTS															
TRA24003P external omni antenna															
EUT OPERATING MODES															
Transmitting 802.11, Mid Channel															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
Run #		21		 Signature											
Configuration #		2													
Results		Pass													
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments		
4883.972	43.0	9.8	231.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.8	54.0	-1.2	1 Mbps, Module vertical		
4883.975	42.9	9.8	360.0	1.2	3.0	0.0	H-Horn	AV	0.0	52.7	54.0	-1.3	1 Mbps, Module on side		
7321.842	23.7	15.6	312.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.3	54.0	-14.7	1 Mbps, Module on side		
7326.670	23.5	15.6	69.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.1	54.0	-14.9	1 Mbps, Module vertical		
4883.968	46.5	9.8	231.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.3	74.0	-17.7	1 Mbps, Module vertical		
4883.967	46.0	9.8	360.0	1.2	3.0	0.0	H-Horn	PK	0.0	55.8	74.0	-18.2	1 Mbps, Module on side		
7325.738	37.2	15.6	69.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.8	74.0	-21.2	1 Mbps, Module vertical		
7325.258	35.7	15.6	312.0	1.0	3.0	0.0	H-Horn	PK	0.0	51.3	74.0	-22.7	1 Mbps, Module on side		

NORTHWEST		RADIATED SPURIOUS EMISSIONS		PSA 2007.07.21									
EMC				EMI 2008.7.3									
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/23/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: Rod Peloquin		Power: 120VAC/60Hz		Job Site: EV01									
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
TRA24003P external omni antenna													
EUT OPERATING MODES													
Transmitting 802.11, Low Channel													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	22	 Signature											
Configuration #	2												
Results	Pass												
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4824.000	44.2	9.5	341.0	1.0	3.0	0.0	H-Horn	AV	0.0	53.7	54.0	-0.3	1 Mbps, Module on side
4823.970	41.6	9.5	235.0	1.0	3.0	0.0	V-Horn	AV	0.0	51.1	54.0	-2.9	1 Mbps, Module vertical
4823.968	47.8	9.5	360.0	1.0	3.0	0.0	H-Horn	PK	0.0	57.3	74.0	-16.7	1 Mbps, Module on side
4824.048	45.4	9.5	235.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.9	74.0	-19.1	1 Mbps, Module vertical

NORTHWEST		PSA 2007.07.21 EMI 2008.7.3											
EMC RADIATED SPURIOUS EMISSIONS													
EUT: Airborne™ Embedded Radio Module (802.11(b)(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001											
Serial Number: 000B6B773F7C		Date: 10/23/08											
Customer: Quatech		Temperature: 20.8											
Attendees: None		Humidity: 38%											
Project: None		Barometric Pres.: 30.58											
Tested by: Rod Peloquin		Power: 120VAC/60Hz											
		Job Site: EV01											
TEST SPECIFICATIONS		Test Method											
FCC 15.247 (DTS):2008		ANSI C63.4:2003, KDB No. 558074											
TEST PARAMETERS													
Antenna Height(s) (m)	1/4/2008	Test Distance (m)	3										
COMMENTS													
TRA24003P external omni antenna													
EUT OPERATING MODES													
Transmitting 802.11, High Channel													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	25	 Signature											
Configuration #	2												
Results	Pass												
													
MHz													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2483.500	29.6	2.2	277.0	1.1	3.0	20.0	H-Horn	AV	0.0	51.8	54.0	-2.2	EUT and antenna on side, 54 Mbps
2483.500	29.5	2.2	254.0	1.1	3.0	20.0	V-Horn	AV	0.0	51.7	54.0	-2.3	EUT and antenna vertical, 54 Mbps
2483.500	29.1	2.2	279.0	1.1	3.0	20.0	H-Horn	AV	0.0	51.3	54.0	-2.7	EUT and antenna on side, 36 Mbps
2483.500	28.7	2.2	253.0	1.2	3.0	20.0	V-Horn	AV	0.0	50.9	54.0	-3.1	EUT and antenna vertical, 36 Mbps
2483.508	28.6	2.2	275.0	1.0	3.0	20.0	H-Horn	AV	0.0	50.8	54.0	-3.2	EUT and antenna on side, 6 Mbps
2483.572	28.5	2.2	253.0	1.2	3.0	20.0	V-Horn	AV	0.0	50.7	54.0	-3.3	EUT and antenna vertical, 6 Mbps
2483.678	48.3	2.2	253.0	1.2	3.0	20.0	V-Horn	PK	0.0	70.5	74.0	-3.5	EUT and antenna vertical, 6 Mbps
2483.533	26.9	2.2	279.0	1.1	3.0	20.0	H-Horn	AV	0.0	49.1	54.0	-4.9	EUT and antenna on side, 11 Mbps
2483.778	26.6	2.2	277.0	1.1	3.0	20.0	H-Horn	AV	0.0	48.8	54.0	-5.2	EUT and antenna on side, 1 Mbps
2483.645	46.4	2.2	279.0	1.1	3.0	20.0	H-Horn	PK	0.0	68.6	74.0	-5.4	EUT and antenna on side, 36 Mbps
2483.667	46.4	2.2	275.0	1.0	3.0	20.0	H-Horn	PK	0.0	68.6	74.0	-5.4	EUT and antenna on side, 6 Mbps
2483.762	46.4	2.2	254.0	1.1	3.0	20.0	V-Horn	PK	0.0	68.6	74.0	-5.4	EUT and antenna vertical, 54 Mbps
2484.402	45.9	2.2	276.0	1.1	3.0	20.0	H-Horn	PK	0.0	68.1	74.0	-5.9	EUT and antenna on side, 54 Mbps
2483.488	25.7	2.2	252.0	1.2	3.0	20.0	V-Horn	AV	0.0	47.9	54.0	-6.1	EUT and antenna vertical, 11 Mbps
2483.938	25.5	2.2	265.0	1.2	3.0	20.0	V-Horn	AV	0.0	47.7	54.0	-6.3	EUT and antenna vertical, 1 Mbps
2483.873	45.3	2.2	254.0	1.2	3.0	20.0	V-Horn	PK	0.0	67.5	74.0	-6.5	EUT and antenna vertical, 36 Mbps
2483.845	24.7	2.2	347.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.9	54.0	-7.1	EUT and antenna on side, 6 Mbps
2484.043	41.7	2.2	279.0	1.1	3.0	20.0	H-Horn	PK	0.0	63.9	74.0	-10.1	EUT and antenna on side, 11 Mbps
2483.858	39.9	2.2	277.0	1.1	3.0	20.0	H-Horn	PK	0.0	62.1	74.0	-11.9	EUT and antenna on side, 1 Mbps
2483.718	39.5	2.2	347.0	1.0	3.0	20.0	V-Horn	PK	0.0	61.7	74.0	-12.3	EUT and antenna on side, 6 Mbps







Output Power

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	0
Oscilloscope	Tektronix	TDS 3052	TOF	12/7/2007	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Attenuator		93459 3330A-6	AUF	2/18/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2007	13
Power Meter	Gigatronics	8651A	SPM	12/7/2007	13
Power Sensor	Gigatronics	80701A	SPL	12/7/2007	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The EUT was transmitting at its maximum output power. The data rate of the radio was varied to determine the level that produced the highest output power.

The measurement was made using a direct connection between the RF output of the EUT and a RF detector diode. The DC output of the diode was measured with the oscilloscope. The signal generator, tuned to the transmit frequency, was then substituted for the EUT. The CW output of the signal generator was adjusted until the DC output of the RF detector diode match the peak level produced when connected to the EUT. To further reduce measurement error, the power meter and sensor were then used to measure the output power level of the signal generator.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

EMC

Output Power

EUT: Airborne™ Embedded Radio Module (802.11(b)/(g)), WLRG-RA-DP100 Series		Work Order: QUAT0001
Serial Number: 830-8000-62F1-G	Date: 07/18/08	
Customer: Quatech	Temperature: 23.46°C	
Attendees: None	Humidity: 40%	
Project: None	Barometric Pres.: 1021.3mb	
Tested by: Holly Ashkannejhad	Power: 120V/60Hz to host laptop	Job Site: EV06
TEST SPECIFICATIONS		Test Method
FCC 15.247 (DTS):2008		ANSI C63.4:2003 KDB No. 558074
COMMENTS		
Software power setting: 15.		
DEVIATIONS FROM TEST STANDARD		
No Deviations		
Configuration #	1	Signature 

802.11(b) 1 Mbps

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Sig Gen Output (dBm)	Power Meter (dBm)	Limit (dBm)
2412	1	-32.4	13.8	14.16	30.00
2442	7	-37.6	14.6	14.97	30.00
2462	11	-37.2	14.5	15	30.00

802.11(b) 11 Mbps

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Sig Gen Output (dBm)	Power Meter (dBm)	Limit (dBm)
2412	1	-30	13.3	13.69	30.00
2442	7	-38.4	14.8	15.15	30.00
2462	11	-38.8	14.7	15.19	30.00

802.11(g) 6 Mbps

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Sig Gen Output (dBm)	Power Meter (dBm)	Limit (dBm)
2412	1	-30.8	13.4	13.78	30.00
2442	7	-34.8	14.1	14.51	30.00
2462	11	-36.4	14.4	14.91	30.00

802.11(g) 36 Mbps

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Sig Gen Output (dBm)	Power Meter (dBm)	Limit (dBm)
2412	1	-33	13.9	14.25	30.00
2442	7	-41.6	15.4	15.68	30.00
2462	11	-42.8	15.5	15.89	30.00

802.11(g) 54 Mbps

Xmit Frequency (MHz)	Channel	DC on Scope (mV)	Sig Gen Output (dBm)	Power Meter (dBm)	Limit (dBm)
2412	1	-40.8	15.3	15.5	30.00
2442	7	-47	16.3	16.44	30.00
2462	11	-44.4	15.7	16.06	30.00

