

Awarepoint Corporation

**Model: RM1
PN: 200239-01**

Report No. AWAR0002 Rev 01

Report Prepared By



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

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EMC Test Report

Certificate of Test

Last Date of Test: March 31, 2010
Awarepoint Corporation
Model: RM1 / PN: 200239-01

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247:2010	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.209:2010	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2010	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2010	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2010	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2010	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.207:2010	ANSI C63.10:2009	Pass

Modifications made to the product

See the Modifications section of this report

Test Facility

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

Northwest EMC, Inc.
41 Tesla Ave.
Irvine, CA 92618

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 #2834B-2).

Approved By:



Don Facticeau, IS Manager



NVLAP Lab Code: 200676-0

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

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	Add configuration number	5/18/10	37
01	Delete reference to clocks/oscillators	5/18/10	25

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.



Accreditations and Authorizations

FCC

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



NVLAP

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



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

Industry Canada

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



CAB

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



NEMKO

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





Accreditations and Authorizations

Australia/New Zealand

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



VCCI

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



BSMI

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



GOST

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



KCC

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



VIETNAM

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



SCOPE

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

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

How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

Performance Criteria 1:

- The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

Performance Criteria 2:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention, once the test signal was removed. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention, once the test signal was removed.

Performance Criteria 3:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of changing EUT settings, or even resetting the system. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion of test.

Performance Criteria 4:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- In most cases there is no specific criterion to compare this to; it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.



Northwest EMC Locations



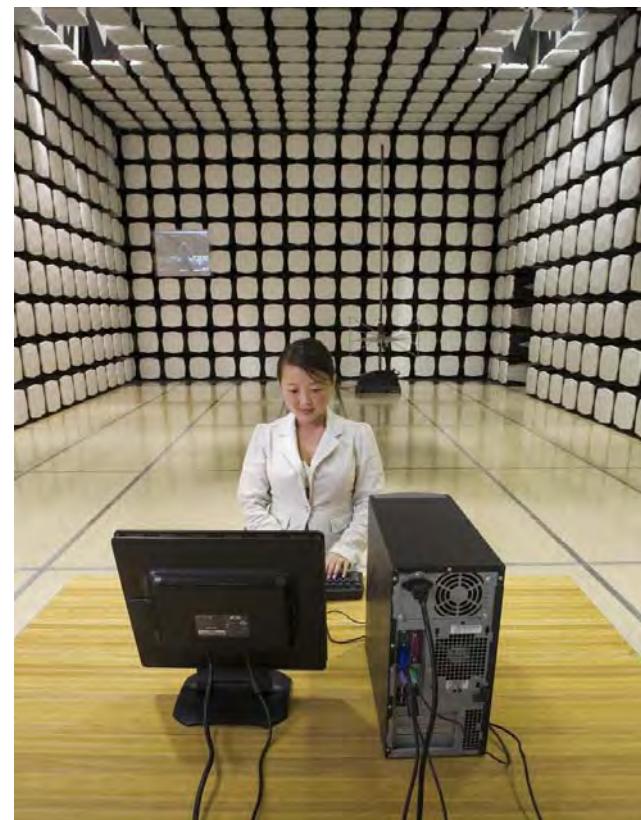
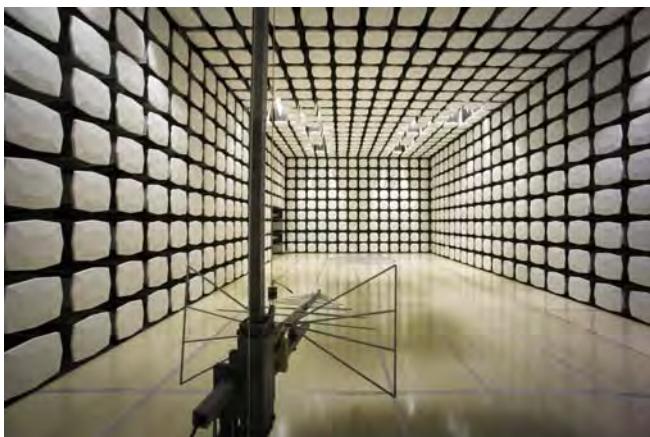
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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

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

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

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



Party Requesting the Test

Company Name:	Awarepoint Corporation
Address:	225 Broadway Ave Suite 1670
City, State, Zip:	San Diego, CA 92101
Test Requested By:	Eric Hoffman
Model:	RM1 / PN: 200239-01
First Date of Test:	March 29, 2010
Last Date of Test:	March 31, 2010
Receipt Date of Samples:	March 29, 2010
Equipment Design Stage:	Production
Equipment Condition:	No Damage

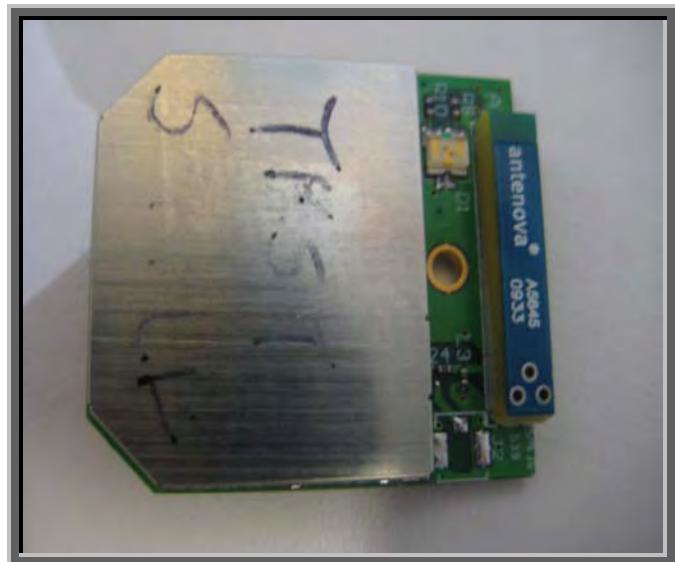
Information Provided by the Party Requesting the Test**Functional Description of the EUT (Equipment Under Test):**

2.4 GHz DTS transmitter

Testing Objective:

Demonstrate compliance of the device to FCC 15.247 requirements.

EUT Photo



CONFIGURATION 1 AWAR0002

EUT				
Description	Manufacturer	Model/Part Number	Serial Number	
2.4GHz Zigbee Radio	Awarepoint	RM1 / PN: 200239-01	01034100515	

CONFIGURATION 2 AWAR0002

EUT				
Description	Manufacturer	Model/Part Number	Serial Number	
2.4GHz Zigbee Radio	Awarepoint	RM1 / PN: 200239-01	01034100515	

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
AC-DC supply	Panasonic	RD-9443HA	Unknown

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Cable	No	1.8m	No	EUT	AC Mains

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

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	3/29/2010	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	3/30/2010	Power Spectral Density	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	3/30/2010	Band Edge Compliance	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	3/30/2010	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	3/30/2010	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.
6	3/31/2010	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Occupied Bandwidth

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
OC11 Cables	None	1-8GHz RE Cables	OCR	3/12/2009	13
Spectrum Analyzer	Agilent	E4440A	AFA	2/9/2010	13

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made in a radiated configuration in a semi-anechoic chamber with the fundamental of the carrier full maximized for its highest radiated power. The EUT was transmitting at its maximum data rate with the typical modulation and a test duty cycle.

Occupied Bandwidth

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C°C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016mb
Tested by: Jeremiah Darden	Job Site: OC11

TEST SPECIFICATIONS

FCC 15.247:2010	Test Method
	ANSI C63.10:2009

COMMENTS

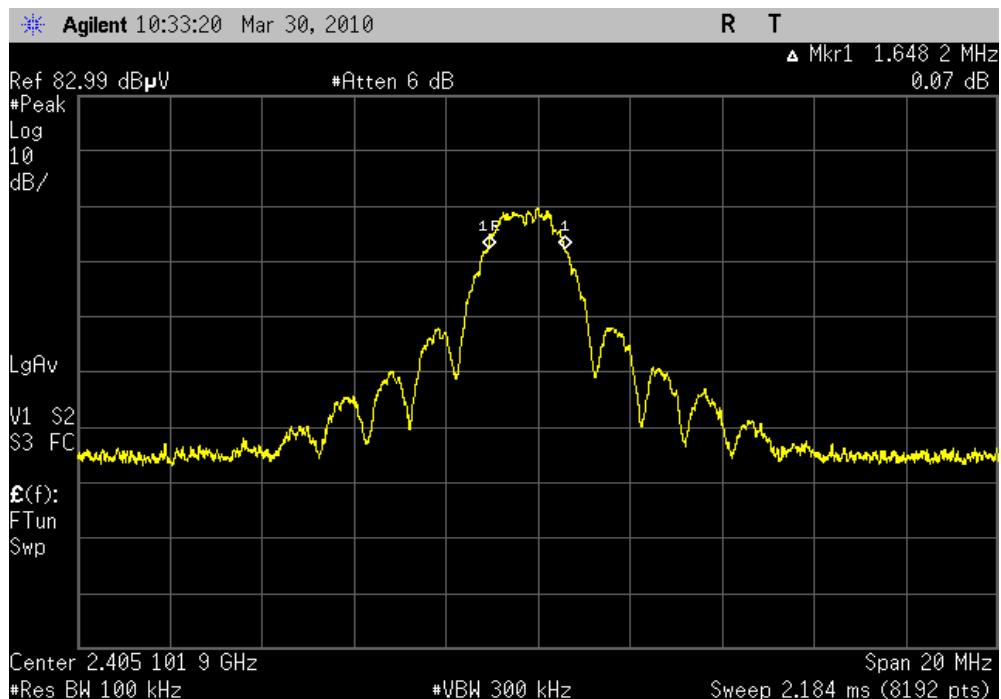
None

DEVIATIONS FROM TEST STANDARD

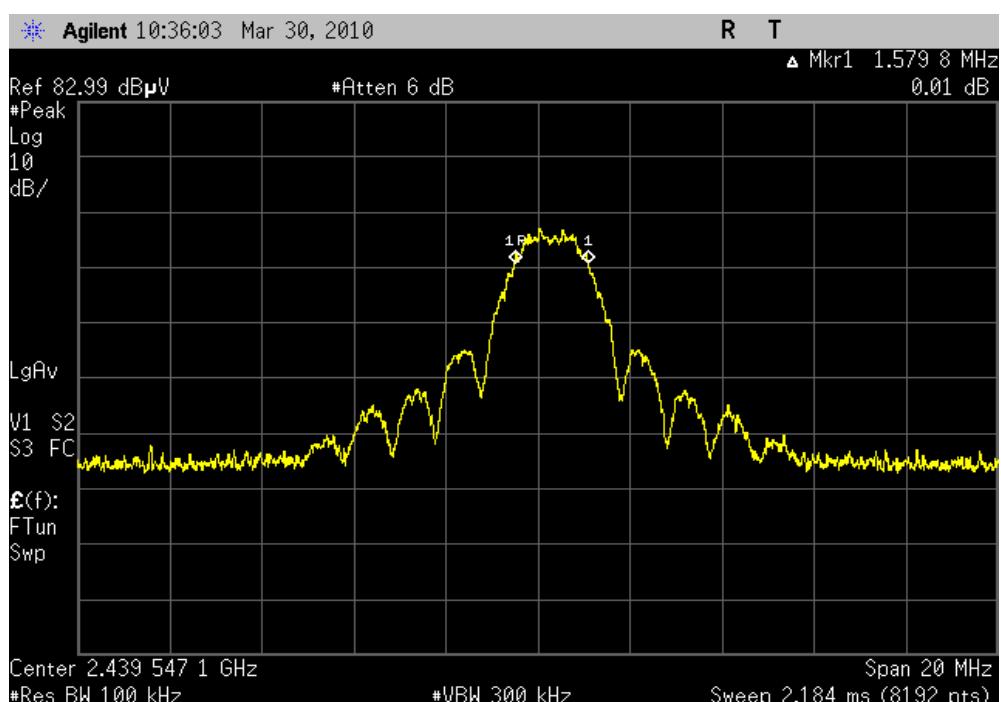
No Deviations

Configuration #	1	Signature	Value	Limit	Results
Low 2405 MHz			1.648 MHz	>= 500 kHz	Pass
Mid 2440 MHz			1.579 MHz	>= 500 kHz	Pass
High 2475 MHz			1.602 MHz	>= 500 kHz	Pass

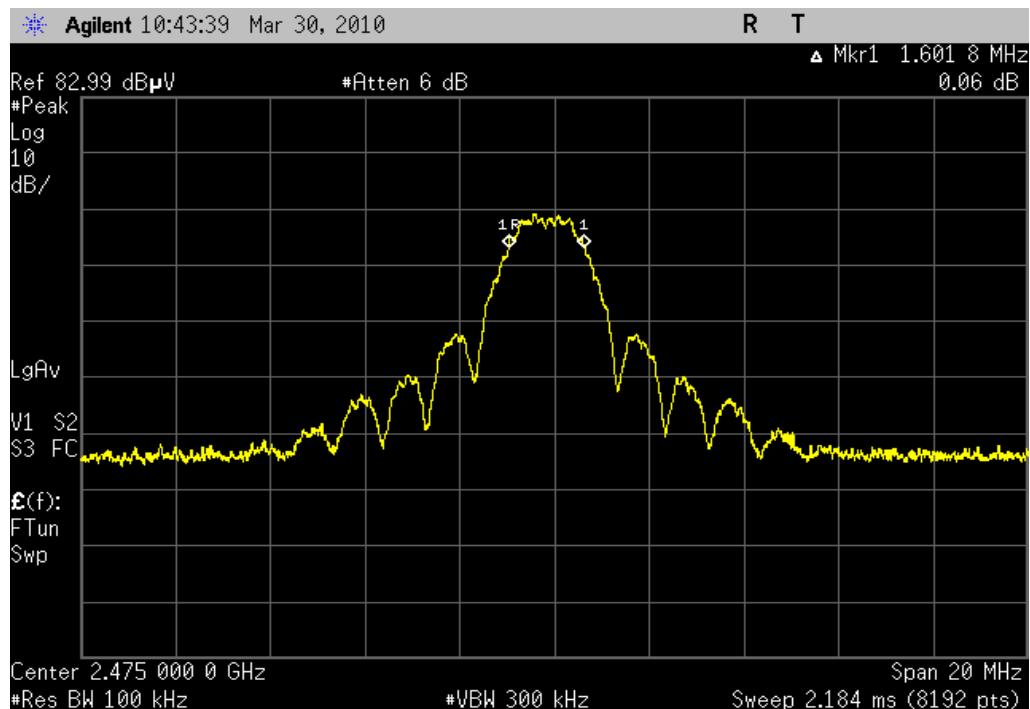
Result:	Pass	Value:	1.648 MHz	Limit:	>= 500 kHz
Low					



Result:	Pass	Value:	1.579 MHz	Limit:	>= 500 kHz
Mid					



Result: Pass	High	Value: 1.602 MHz	Limit: >= 500 kHz
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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

2405, 2440, 2475 MHz

FREQUENCY RANGE INVESTIGATED

Start Frequency	2400 MHz	Stop Frequency	2483.5 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
OC11 Cables	None	1-8GHz RE Cables	OCR	3/12/2009	13
Spectrum Analyzer	Agilent	E4440A	AFA	2/9/2010	13

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	0.2
0.15 - 30.0	10.0	9.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0	120.0
Above 1000	1000.0	N/A	N/A	1000.0

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

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The resolution bandwidth was set to 3 MHz and the video bandwidth was set to 8 MHz. A peak detector was used. The EUT was transmitting at its maximum data rate. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height.

The field strength measurement was converted to effective radiated power (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 5.

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

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC11

TEST SPECIFICATIONS

FCC 15.247:2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

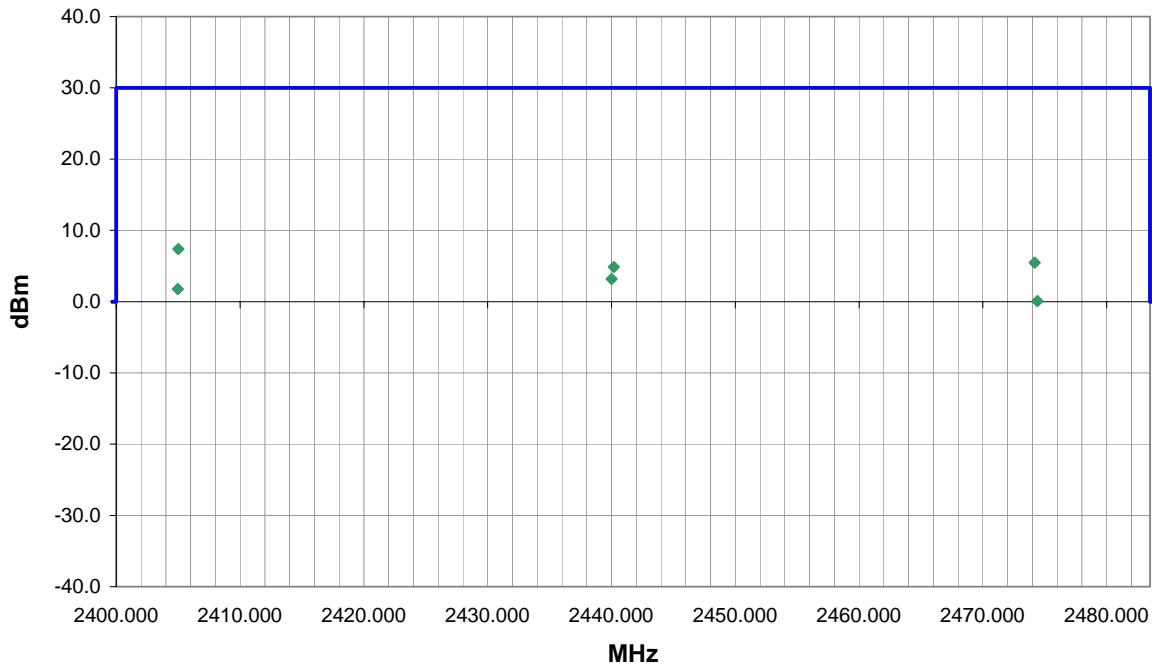
EUT OPERATING MODES

2405, 2440, 2475 MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	13	Signature
Configuration #	1	
Results	Pass	



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
2405.010			354.0	1.1			H-Horn	PK	5.46E-03	7.4	30.0	-22.6
2474.181			161.0	1.1			H-Horn	PK	3.52E-03	5.5	30.0	-24.5
2440.192			32.0	1.1			H-Horn	PK	3.07E-03	4.9	30.0	-25.1
2440.012			309.0	1.1			V-Horn	PK	2.08E-03	3.2	30.0	-26.8
2404.981			270.0	1.4			V-Horn	PK	1.50E-03	1.8	30.0	-28.2
2474.407			79.0	1.1			V-Horn	PK	1.02E-03	0.1	30.0	-29.9

Band Edge Compliance

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
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
OC11 Cables	None	1-8GHz RE Cables	OCR	3/12/2009	13
Spectrum Analyzer	Agilent	E4440A	AFA	2/9/2010	13

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

Since the EUT has an integral antenna, the radiated emissions at the edges of the authorized bands were measured. The EUT was set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at its only data rate available.

The spectrum was scanned across each band edge from at least 10 MHz below the band edge to 10 MHz above the band edge.

EMC**Band Edge Compliance**

EUT: Model: RM1 / PN: 200239-01

Work Order: AWAR0002

Serial Number: 01034100515

Date: 03/30/10

Customer: Awarepoint Corporation

Temperature: 19C°C

Attendees: Eric Hoffman

Humidity: 30%

Project: None

Barometric Pres.: 1016mb

Tested by: Jeremiah Darden

Power: 120V/60Hz

Job Site: OC11

TEST SPECIFICATIONS

Test Method

FCC 15.247:2010

ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #

1

Signature



Low 2405MHz

Value

Limit

Results

High 2475MHz

-39.03dB

<= -20dB

Pass

-45.17dB

<= -20dB

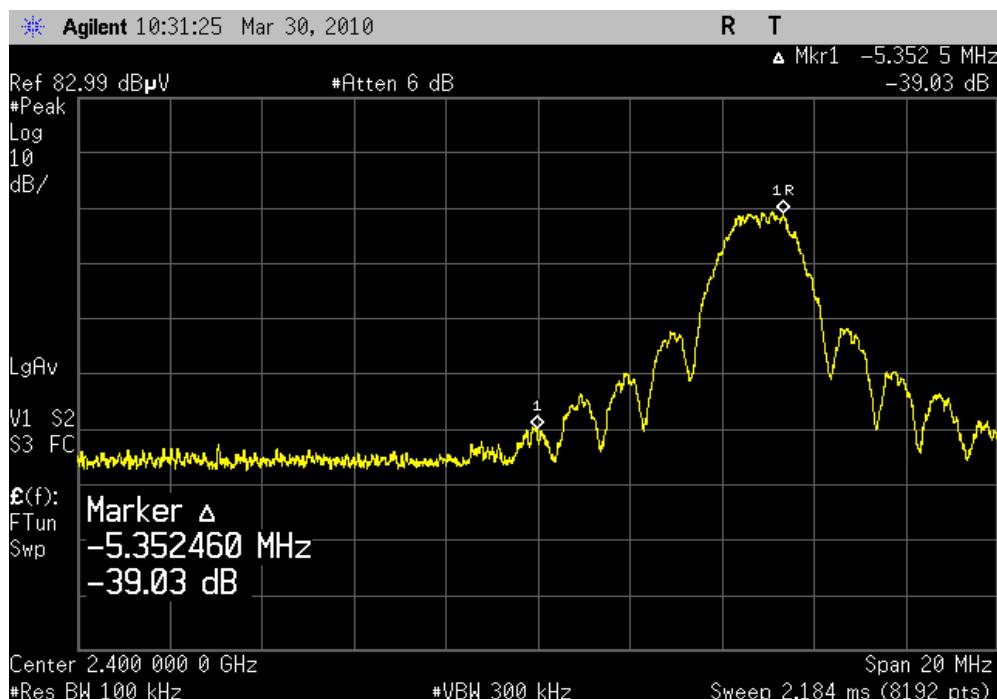
Pass

Low 2405MHz

Result: Pass

Value: -39.03dB

Limit: <= -20dB

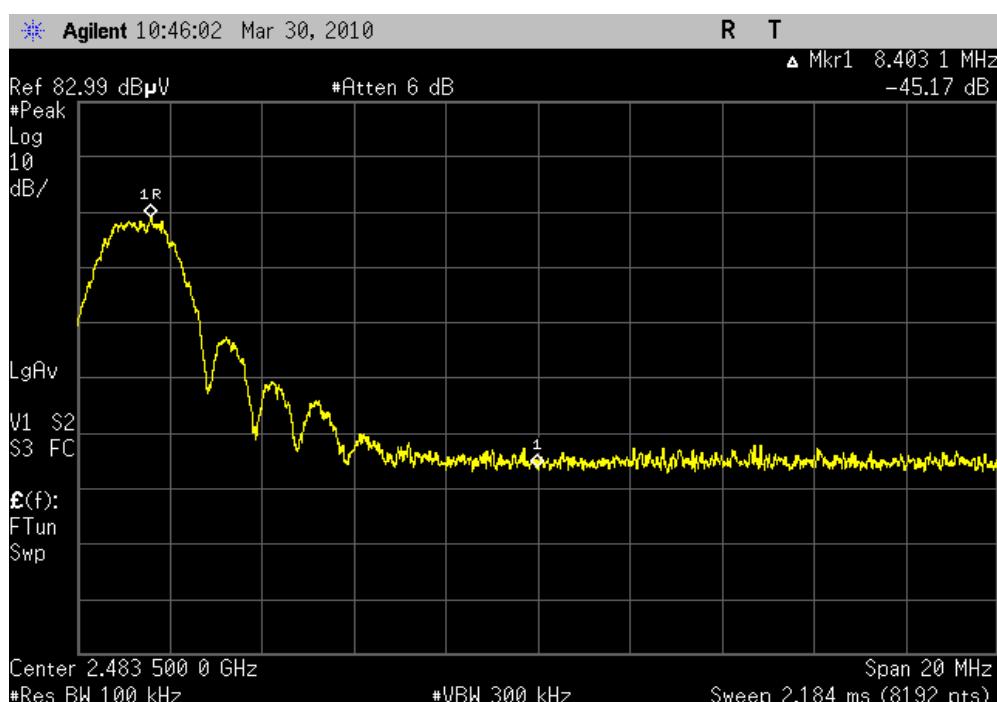


High 2475MHz

Result: Pass

Value: -45.17dB

Limit: <= -20dB



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
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
OC11 Cables	None	1-8GHz RE Cables	OCR	3/12/2009	13
Spectrum Analyzer	Agilent	E4440A	AFA	2/9/2010	13

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 peak power spectral density was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power spectral density was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The EUT was transmitting at its maximum data rate for each modulation type available. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height. Per the procedure outlined in ANSI C63.10:2009, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 35 dB for correction to 3 kHz."

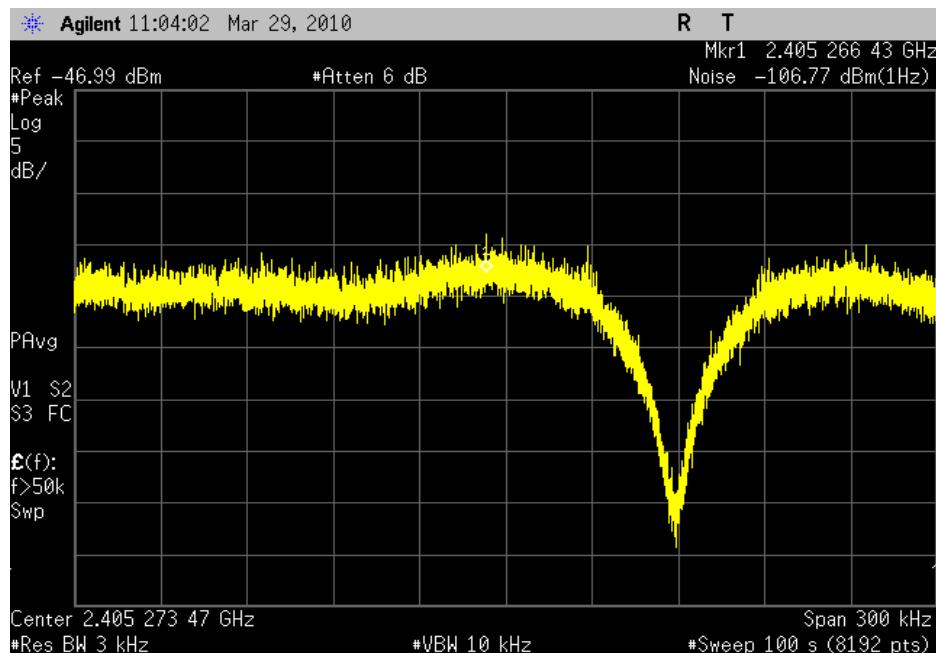
The field strength measurement of power spectral density was converted to effective radiated power spectral density (dBm/3kHz) (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 6.

POWER SPECTRAL DENSITY

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002		
Serial Number: 01034100515	Date: 03/30/10		
Customer: Awarepoint Corporation	Temperature: 19C°C		
Attendees: Eric Hoffman	Humidity: 30%		
Project: None	Barometric Pres.: 1016mb		
Tested by: Jeremiah Darden	Job Site: OC11		
TEST SPECIFICATIONS			
FCC 15.247:2010	Test Method: ANSI C63.10:2009		
COMMENTS			
2405, 2440, 2475 MHz			
DEVIATIONS FROM TEST STANDARD			
No Deviations			
Configuration #	1		
Signature 			
Signature			
	Value	Limit	Results
Low Channel	-25.9 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass
Mid Channel	-24.3 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass
High Channel	-23.2 dBm/3kHz, EIRP	<= 8 dBm/3kHz	Pass

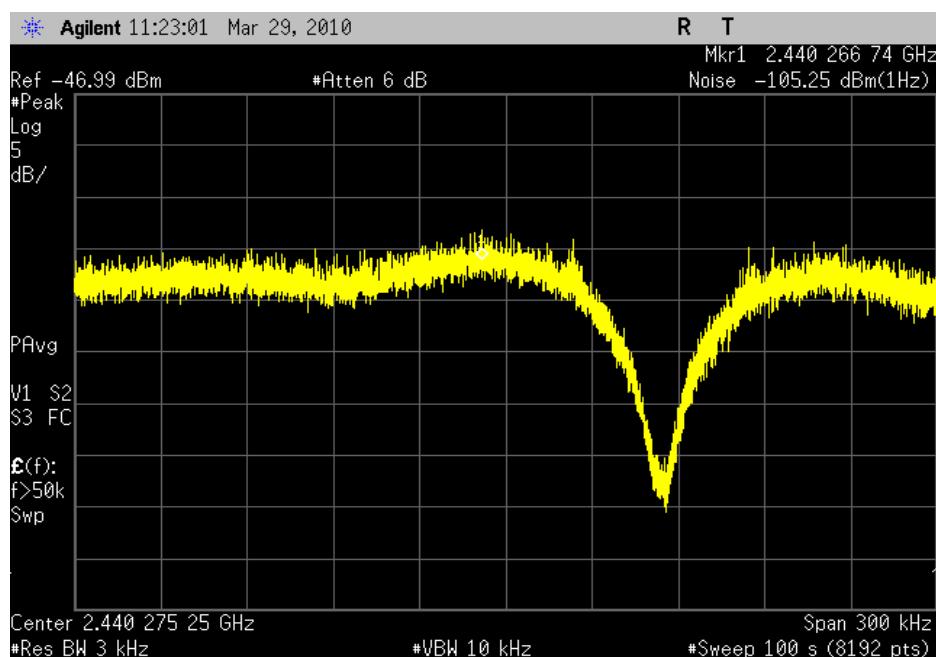
Low Channel		
Result: Pass	Value: -25.9 dBm/3kHz, EIRP	Limit: <= 8 dBm/3kHz

Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-106.77	-71.77	34.1	-37.67	-25.9



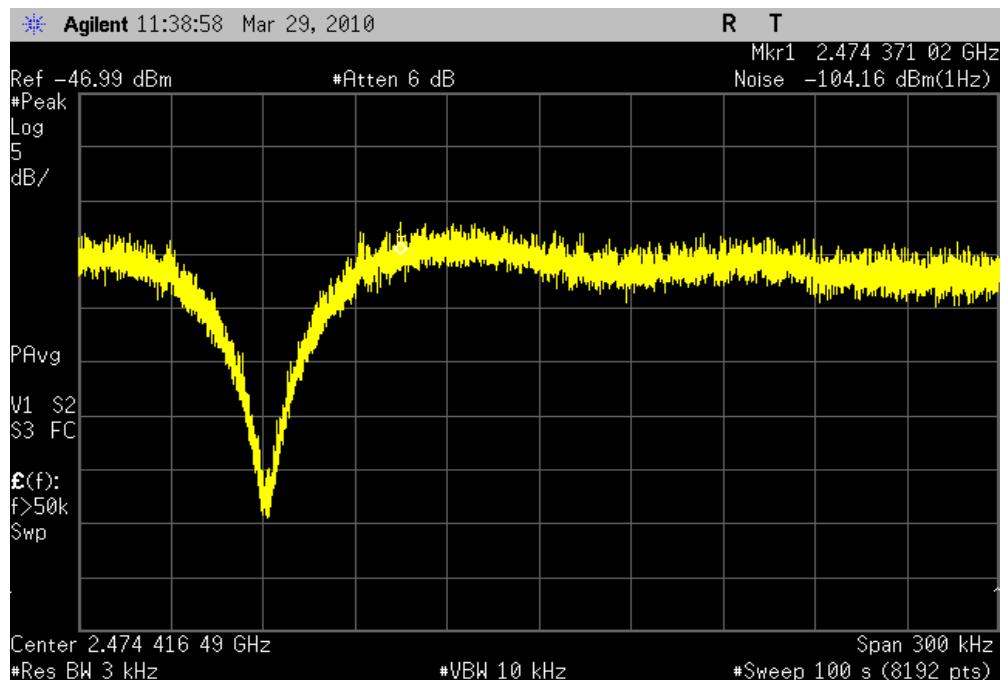
Mid Channel		
Result: Pass	Value: -24.3 dBm/3kHz, EIRP	Limit: <= 8 dBm/3kHz

Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-105.25	-70.25	34.2	-36.05	-24.3



High Channel			
Result: Pass	Value: -23.2 dBm/3kHz, EIRP	Limit: <= 8 dBm/3kHz	

Meter Reading (dBm/Hz)	Meter Reading (dBm/3kHz)	Factor (dB)	Field Strength PSD (dBm/3kHz/meter)	PSD EIRP (dBm/3kHz) (EIRP)
-104.16	-69.16	34.2	-34.96	-23.2



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

2405MHz
2440MHz
2475MHz

POWER SETTINGS INVESTIGATED

3.3VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	26.5GHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Biconilog	EMCO	3142	AXJ	2/24/2010	13
OC10 Cables	None	10kHz-1GHz RE Cables	OCH	4/1/2010	13
Pre-Amplifier	Miteq	AM-1616-1000	AOM	4/1/2010	13
Spectrum Analyzer	Agilent	E4446A	AYA	1/15/2010	13
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	4/3/2009	13
Antenna, Horn	EMCO	3160-09	AHN	NCR	0
OC floating Cable	None	18-26GHz RE Cables	OCK	4/3/2009	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVP	12/21/2009	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVL	4/11/2010	13
Antenna, Horn	ETS	3160-07	AHX	NCR	0
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	9/10/2009	13
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
OC11 Cables	None	12-18GHz RE Cables	OCS	4/11/2010	13
OC11 Cables	None	1-8GHz RE Cables	OCR	3/19/2010	13

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

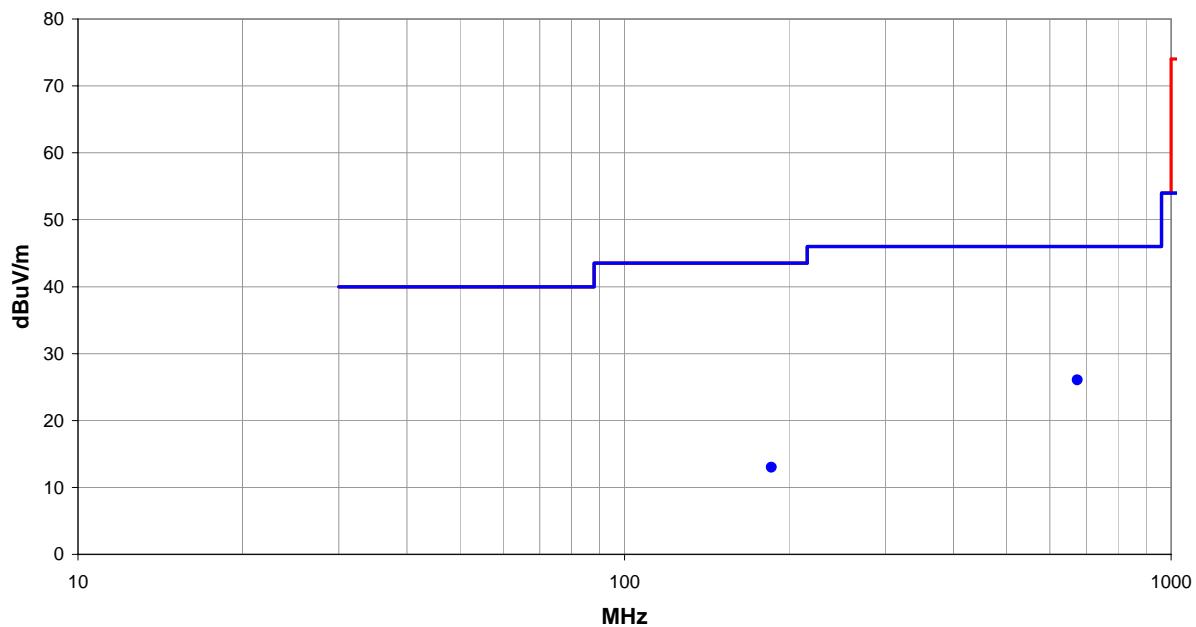
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify 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 C63.10:2009). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

All radiated emissions were measured. The emissions that fell in the restricted bands of 15.205 were measured to the 15.209 limits and all other emissions were compared to the -20 dBc limit of 15.247(d).

Work Order:	AWAR0002	Date:	03/30/10	
Project:	None	Temperature:	19C	
Job Site:	OC10	Humidity:	30	
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by: Jeremiah Darden
EUT:	Model: RM1 / PN: 200239-01			
Configuration:	1			
Customer:	Awarepoint Corporation			
Attendees:	Eric Hoffman			
EUT Power:	3.3VDC			
Operating Mode:	2475MHz			
Deviations:	No deviations.			
Comments:	Y-axis worse case			

Test Specifications		Test Method	
FCC 15.209:2010		ANSI C63.10:2009	

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



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
673.490	17.2	8.9	3.2	84.0	3.0	0.0	Horz	QP	0.0	26.1	46.0	-19.9
185.674	17.3	-4.3	2.2	1.0	3.0	0.0	Vert	QP	0.0	13.0	43.5	-30.5

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/29/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

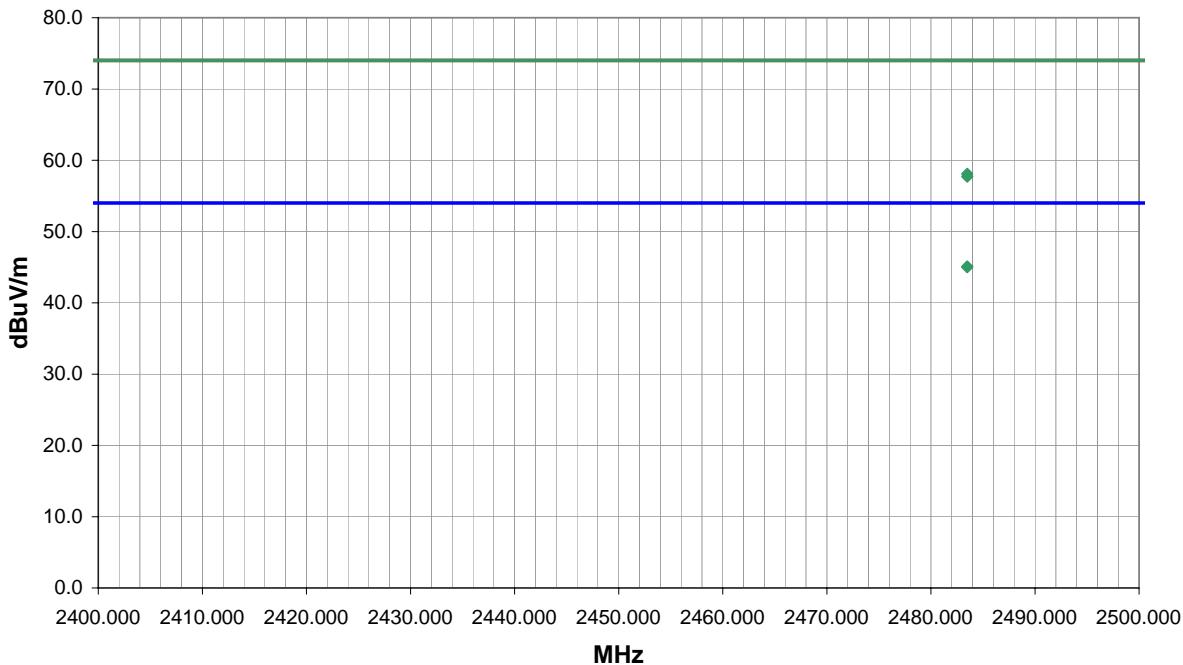
EUT OPERATING MODES

2475MHz

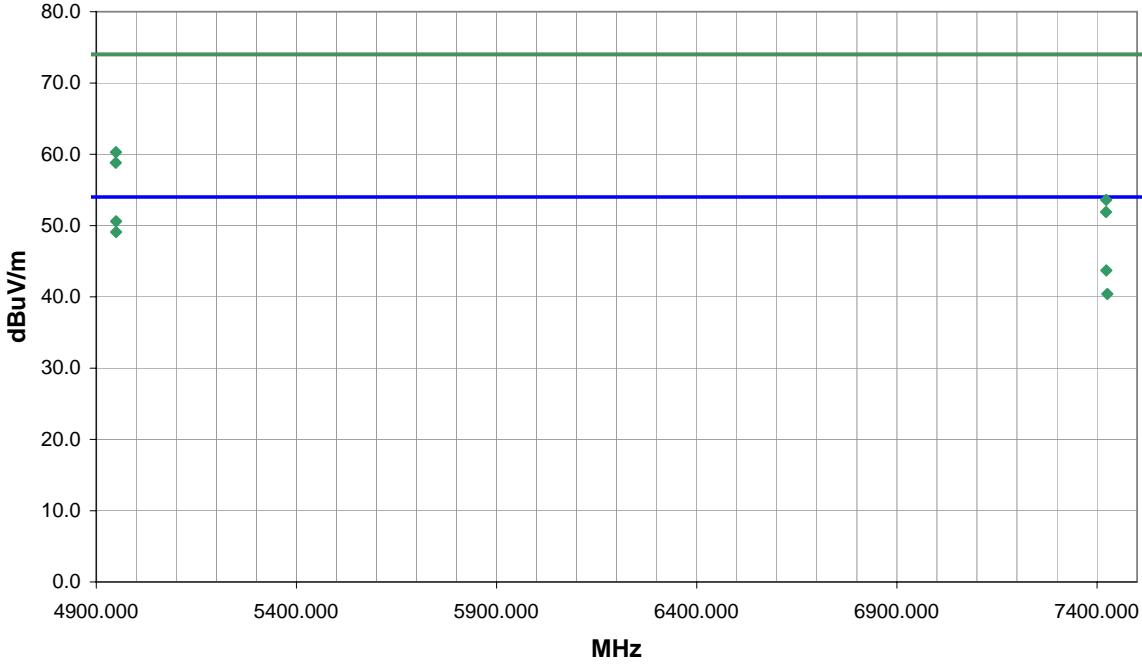
DEVIATIONS FROM TEST STANDARD

No deviations.

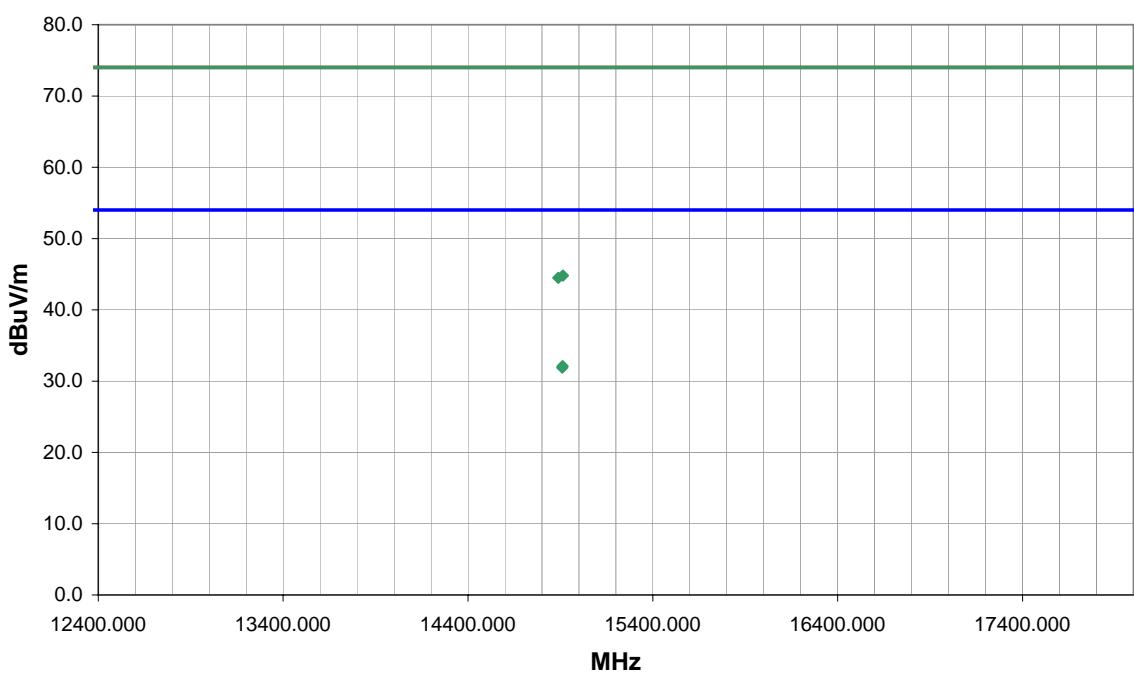
Run #	7	Signature
Configuration #	1	
Results	Pass	



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)
2483.496	29.2	-4.1	203.0	1.4	3.0	20.0	H-Horn	AV	0.0	45.1	54.0	-8.9
2483.497	29.1	-4.1	203.0	1.4	3.0	20.0	V-Horn	AV	0.0	45.0	54.0	-9.0
2483.496	42.2	-4.1	203.0	1.4	3.0	20.0	H-Horn	PK	0.0	58.1	74.0	-15.9
2483.497	41.8	-4.1	203.0	1.4	3.0	20.0	V-Horn	PK	0.0	57.7	74.0	-16.3

SPURIOUS RADIATED EMISSIONS DATA SHEET												PSA 2008.07.21
												EMI 2006.4.26
EUT: Model: RM1 / PN: 200239-01						Work Order: AWAR0002						
Serial Number: 01034100515						Date: 03/29/10						
Customer: Awarepoint Corporation						Temperature: 19C						
Attendees: Eric Hoffman						Humidity: 30%						
Project: None						Barometric Pres.: 1016						
Tested by: Jeremiah Darden						Power: 3.3VDC		Job Site: OC10				
TEST SPECIFICATIONS												Test Method
FCC 15.247: 2010						ANSI C63.10:2009						
TEST PARAMETERS												
Antenna Height(s) (m)			1 - 4			Test Distance (m)			3			
COMMENTS												
Y-axis worse case												
EUT OPERATING MODES												
2475MHz												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
Run #	8											
Configuration #	1											
Results	Pass											
 <p>The graph plots dBuV/m on the y-axis (0.0 to 80.0) against MHz on the x-axis (4900.000 to 7400.000). A horizontal blue line at 54 dBuV/m represents the specification limit. Measured data points are shown as green diamonds. The measured values are consistently below the 54 dBuV/m limit across the entire frequency range.</p>												
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)
4949.627	46.1	4.5	305.0	1.0	3.0	0.0	H-Horn	AV	0.0	50.6	54.0	-3.4
4949.643	44.6	4.5	205.0	1.1	3.0	0.0	V-Horn	AV	0.0	49.1	54.0	-4.9
7423.111	33.5	10.2	350.0	1.2	3.0	0.0	V-Horn	AV	0.0	43.7	54.0	-10.3
7425.761	30.2	10.2	267.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.4	54.0	-13.6
4948.982	55.8	4.5	305.0	1.0	3.0	0.0	H-Horn	PK	0.0	60.3	74.0	-13.7
4948.780	54.3	4.5	205.0	1.1	3.0	0.0	V-Horn	PK	0.0	58.8	74.0	-15.2
7422.735	43.4	10.2	350.0	1.2	3.0	0.0	V-Horn	PK	0.0	53.6	74.0	-20.4
7422.658	41.7	10.2	267.0	1.0	3.0	0.0	H-Horn	PK	0.0	51.9	74.0	-22.1

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/29/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Power: 3.3VDC
Test Method	
TEST SPECIFICATIONS	
FCC 15.247: 2010	ANSI C63.10:2009
TEST PARAMETERS	
Antenna Height(s) (m)	1 - 4
Test Distance (m)	
3	
COMMENTS	
Y-axis worse case	
EUT OPERATING MODES	
2475MHz	
DEVIATIONS FROM TEST STANDARD	
No deviations.	
Run #	9
Configuration #	1
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)
14912.040	30.3	1.8	122.0	1.0	3.0	0.0	V-Horn	AV	0.0	32.1	54.0	-21.9
14909.880	30.2	1.7	337.0	1.2	3.0	0.0	H-Horn	AV	0.0	31.9	54.0	-22.1
14913.670	43.0	1.8	122.0	1.0	3.0	0.0	V-Horn	PK	0.0	44.8	74.0	-29.2
14888.470	42.7	1.8	337.0	1.2	3.0	0.0	H-Horn	PK	0.0	44.5	74.0	-29.5

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/29/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

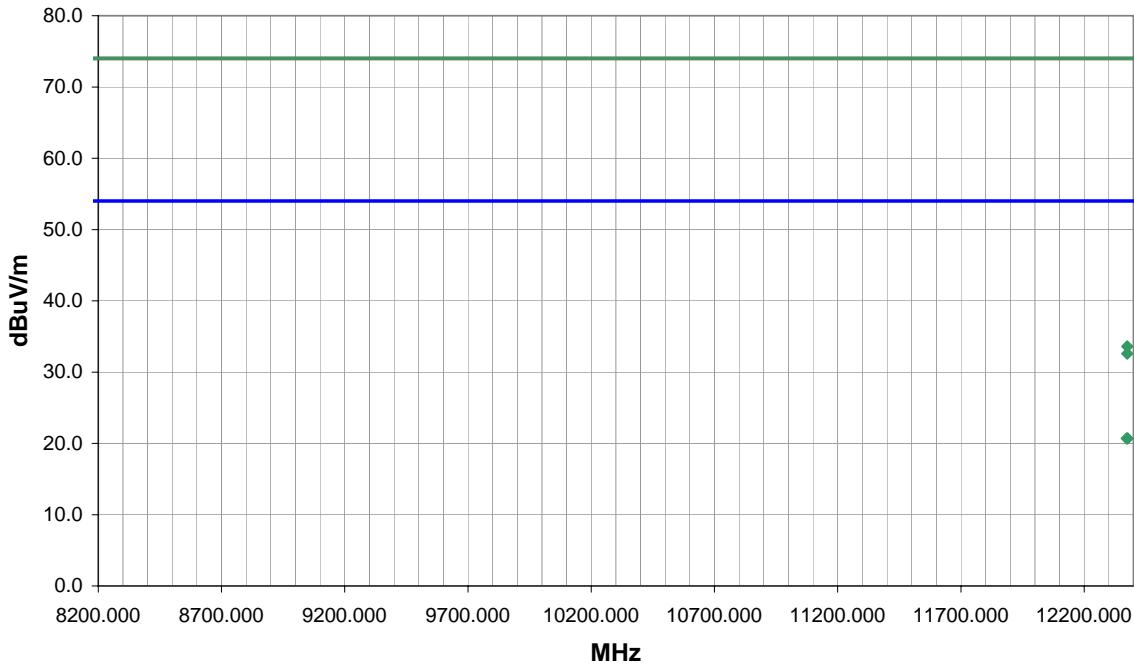
EUT OPERATING MODES

2475MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	10	Signature
Configuration #	1	
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)
12372.540	28.6	-7.9	51.0	1.0	0.0	0.0	V-Horn	AV	0.0	20.7	54.0	-33.3
12376.290	28.6	-7.9	185.0	1.0	0.0	0.0	H-Horn	AV	0.0	20.7	54.0	-33.3
12374.660	41.5	-7.9	51.0	1.0	0.0	0.0	V-Horn	PK	0.0	33.6	74.0	-40.4
12374.880	40.5	-7.9	185.0	1.0	0.0	0.0	H-Horn	PK	0.0	32.6	74.0	-41.4

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/29/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010	ANSI C63.10:2009
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TEST PARAMETERS

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

Y-axis worse case

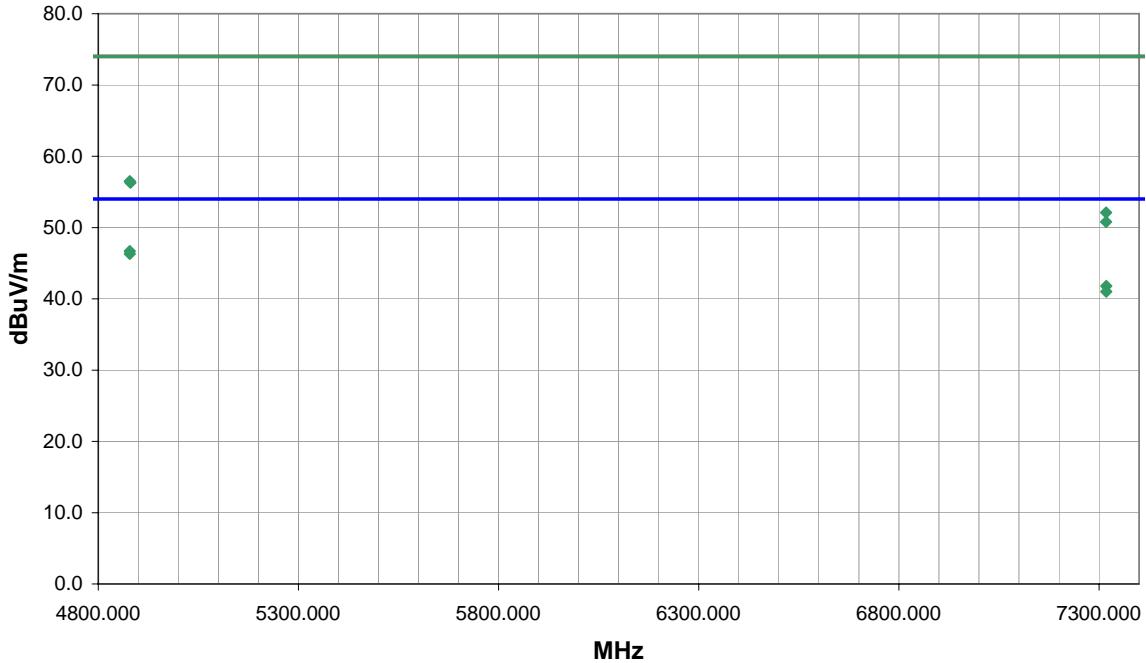
EUT OPERATING MODES

2440MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	11	
Configuration #	1	
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)
4878.722	42.4	4.3	151.0	1.3	3.0	0.0	H-Horn	AV	0.0	46.7	54.0	-7.3
4878.718	42.0	4.3	95.0	1.9	3.0	0.0	V-Horn	AV	0.0	46.3	54.0	-7.7
7318.052	31.8	10.0	291.0	1.2	3.0	0.0	H-Horn	AV	0.0	41.8	54.0	-12.2
7318.003	31.0	10.0	34.0	1.3	3.0	0.0	V-Horn	AV	0.0	41.0	54.0	-13.0
4878.642	52.2	4.3	151.0	1.3	3.0	0.0	H-Horn	PK	0.0	56.5	74.0	-17.5
4880.477	52.0	4.3	95.0	1.9	3.0	0.0	V-Horn	PK	0.0	56.3	74.0	-17.7
7317.612	42.1	10.0	34.0	1.3	3.0	0.0	V-Horn	PK	0.0	52.1	74.0	-21.9
7317.680	40.8	10.0	291.0	1.2	3.0	0.0	H-Horn	PK	0.0	50.8	74.0	-23.2

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/29/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

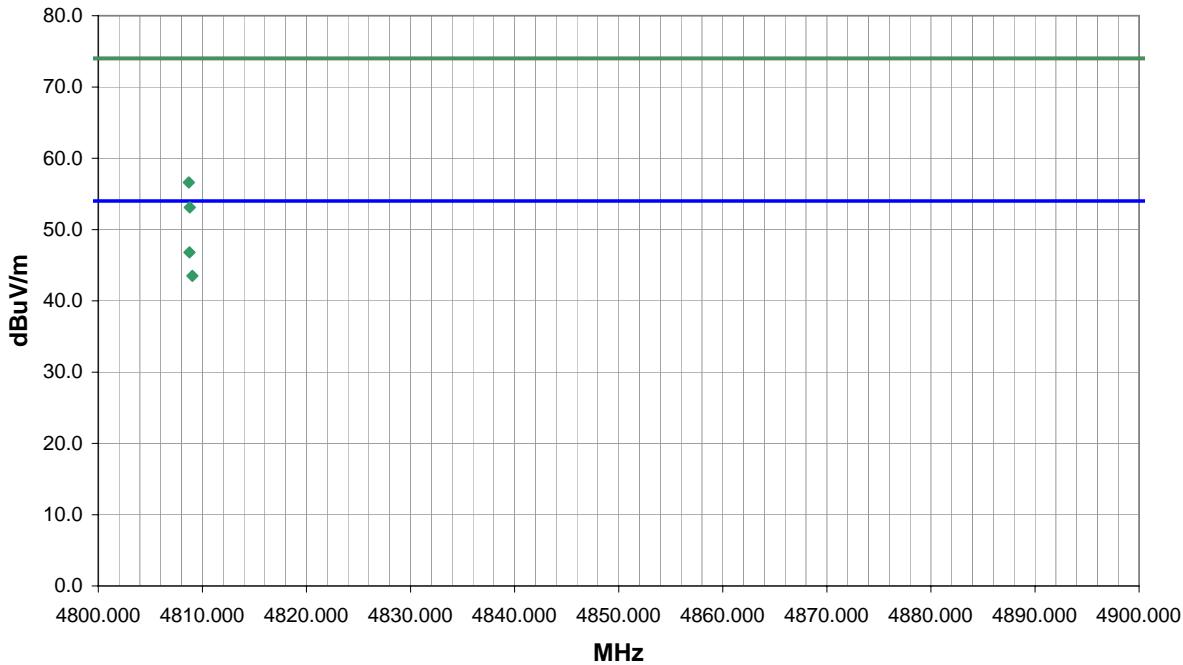
EUT OPERATING MODES

2405MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	12	Signature
Configuration #	1	
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)
4808.761	42.6	4.2	154.0	1.3	3.0	0.0	H-Horn	AV	0.0	46.8	54.0	-7.2
4809.039	39.3	4.2	346.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.5	54.0	-10.5
4808.696	52.5	4.1	154.0	1.3	3.0	0.0	H-Horn	PK	0.0	56.6	74.0	-17.4
4808.787	49.0	4.1	346.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.1	74.0	-20.9

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC11

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

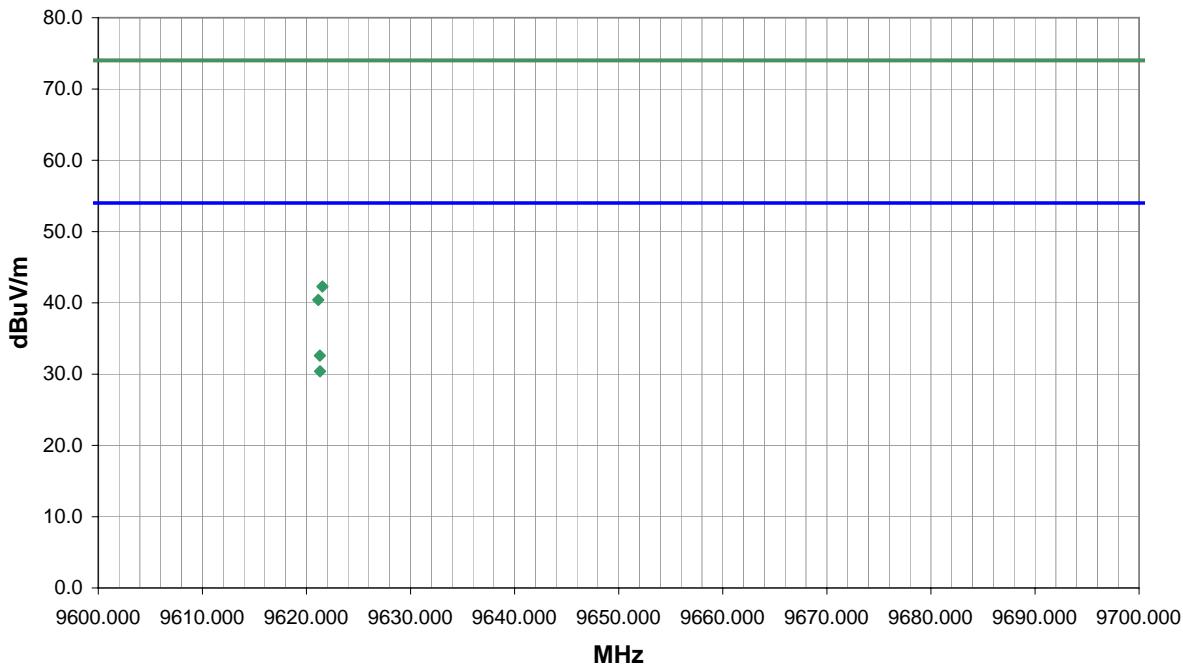
EUT OPERATING MODES

2405MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	14	Signature
Configuration #	1	
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)
9621.296	44.8	-12.2	7.0	1.2	3.0	0.0	V-Horn	AV	0.0	32.6	54.0	-21.4
9621.312	42.6	-12.2	15.0	1.4	3.0	0.0	H-Horn	AV	0.0	30.4	54.0	-23.6
9621.537	54.5	-12.2	7.0	1.2	3.0	0.0	V-Horn	PK	0.0	42.3	74.0	-31.7
9621.136	52.6	-12.2	15.0	1.4	3.0	0.0	H-Horn	PK	0.0	40.4	74.0	-33.6

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

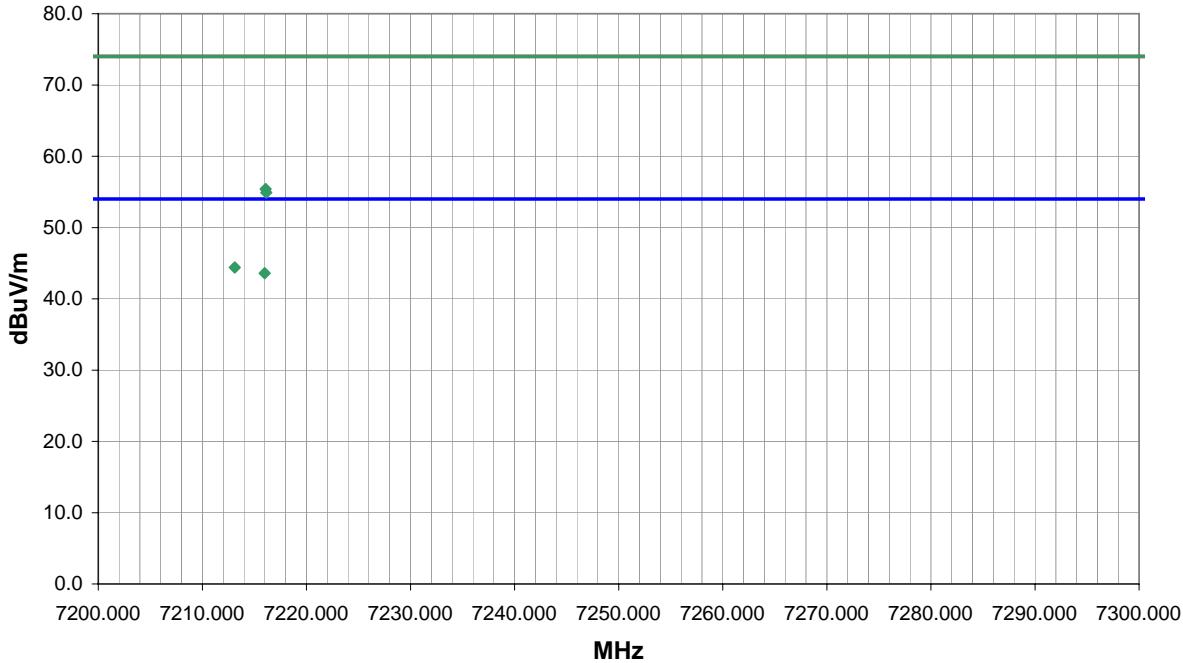
EUT OPERATING MODES

2405MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	15	Signature
Configuration #	1	
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)
7213.113	34.7	9.7	356.0	1.5	3.0	0.0	V-Horn	AV	0.0	44.4	54.0	-9.6
7215.984	33.9	9.7	138.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.6	54.0	-10.4
7216.073	45.7	9.7	356.0	1.5	3.0	0.0	V-Horn	PK	0.0	55.4	74.0	-18.6
7216.145	45.2	9.7	138.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.9	74.0	-19.1

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

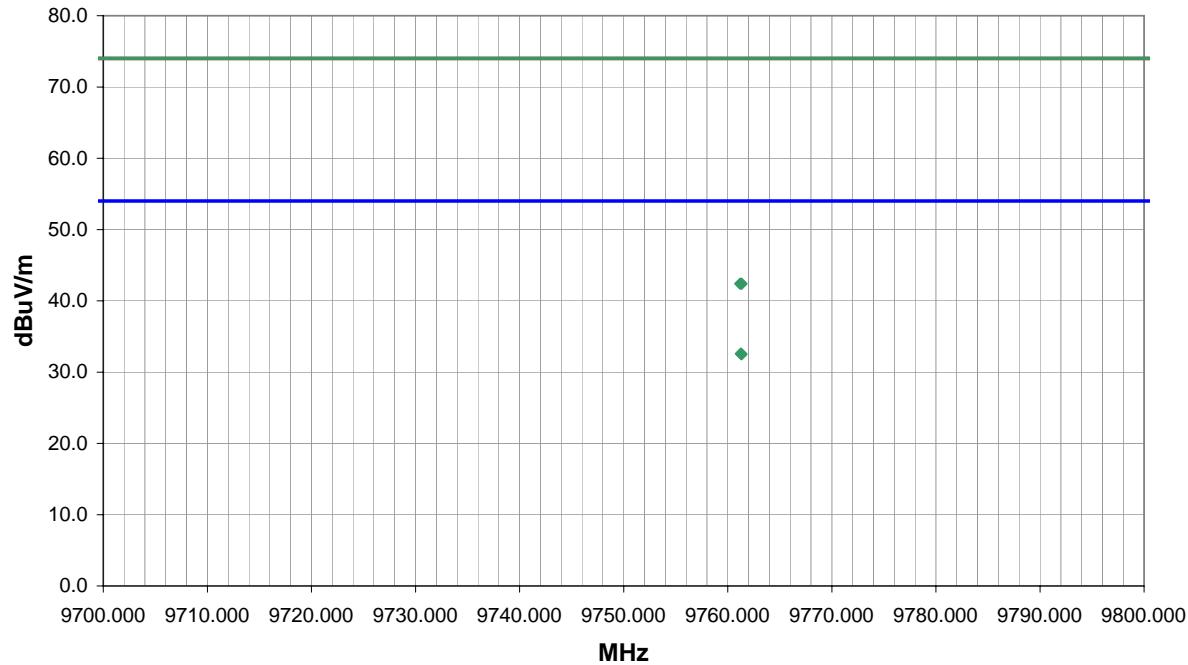
EUT OPERATING MODES

2440MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	16	Signature
Configuration #	1	
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)
9761.265	44.7	-12.1	11.0	1.5	0.0	0.0	V-Horn	AV	0.0	32.6	54.0	-21.4
9761.318	44.6	-12.1	9.0	1.4	0.0	0.0	H-Horn	AV	0.0	32.5	54.0	-21.5
9761.205	54.5	-12.1	11.0	1.5	0.0	0.0	V-Horn	PK	0.0	42.4	74.0	-31.6
9761.315	54.5	-12.1	9.0	1.4	0.0	0.0	H-Horn	PK	0.0	42.4	74.0	-31.6

EUT: Model: RM1 / PN: 200239-01	Work Order: AWAR0002
Serial Number: 01034100515	Date: 03/30/10
Customer: Awarepoint Corporation	Temperature: 19C
Attendees: Eric Hoffman	Humidity: 30%
Project: None	Barometric Pres.: 1016
Tested by: Jeremiah Darden	Job Site: OC10

TEST SPECIFICATIONS

FCC 15.247: 2010 | ANSI C63.10:2009

TEST PARAMETERS

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

COMMENTS

Y-axis worse case

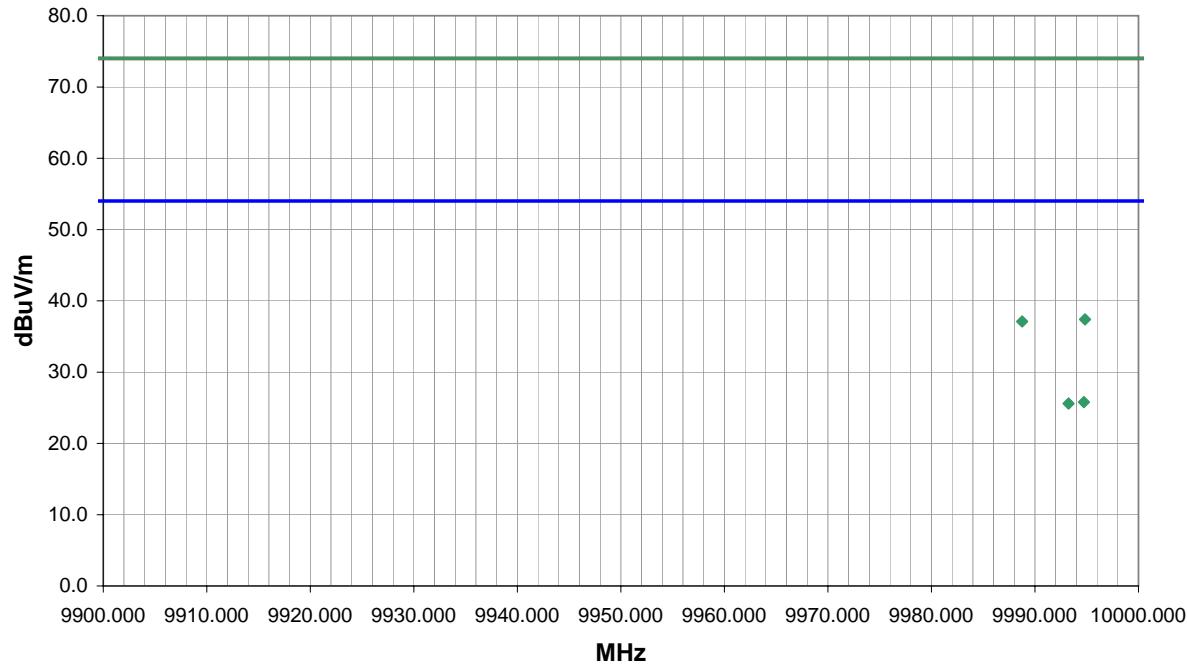
EUT OPERATING MODES

2405MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17	Signature
Configuration #	1	
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)
9994.726	38.0	-12.2	231.0	1.0	0.0	0.0	V-Horn	AV	0.0	25.8	54.0	-28.2
9993.253	37.8	-12.2	301.0	1.0	0.0	0.0	H-Horn	AV	0.0	25.6	54.0	-28.4
9994.841	49.6	-12.2	301.0	1.0	0.0	0.0	H-Horn	PK	0.0	37.4	74.0	-36.6
9988.771	49.3	-12.2	231.0	1.0	0.0	0.0	V-Horn	PK	0.0	37.1	74.0	-36.9

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

MODES OF OPERATION

2475 MHz, High channel

2405 MHz, Low channel

2440 MHz, Mid channel

POWER SETTINGS INVESTIGATED

120V/60Hz

CONFIGURATIONS INVESTIGATED

AWAR0002 - Config 2

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator	Pasternack	6N10W-20	AWC	1/27/2010	13 mo
OC06 Cables	None	CE Cables	OCM	3/8/2010	13 mo
High Pass Filter	TTE	H97-100K-50-720B	HFP	3/8/2010	13 mo
LISN	Solar	9252-50-R-24-BNC	LIC	3/10/2009	13 mo
Receiver	Rohde & Schwarz	ESCI	ARG	3/15/2010	13 mo

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.

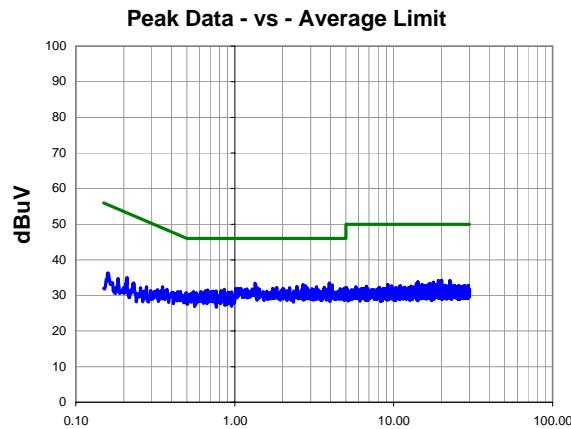
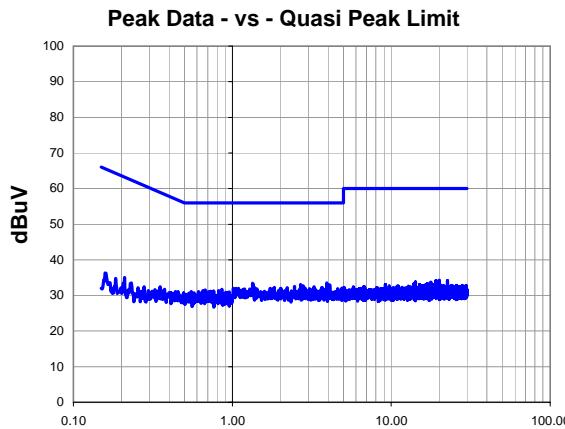
MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

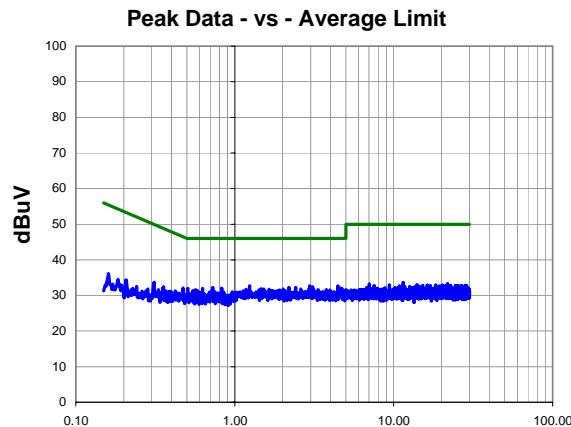
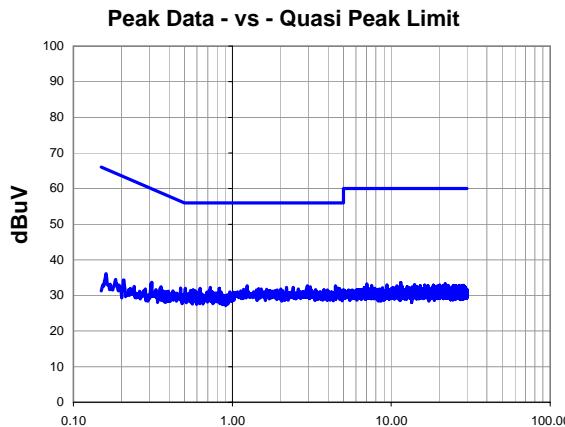
Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to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

Work Order:	AWAR0002	Date:	03/31/10		
Project:	None	Temperature:	19C	<i>Jose Luis Flores</i>	
Job Site:	OC06	Humidity:	30		
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by:	Luis Flores
EUT:	Model: RM1 / PN: 200239-01				
Configuration:	2				
Customer:	Awarepoint Corporation				
Attendees:	Eric Hoffman				
EUT Power:	120V/60Hz				
Operating Mode:	2440 MHz, Mid channel				
Deviations:	No deviations.				
Comments:	Transmit				
Test Specifications			Test Method		
FCC 15.207:2010			ANSI C63.10:2009		
Run #	1	Line:	High Line	Ext. Attenuation:	20
				Results	Pass



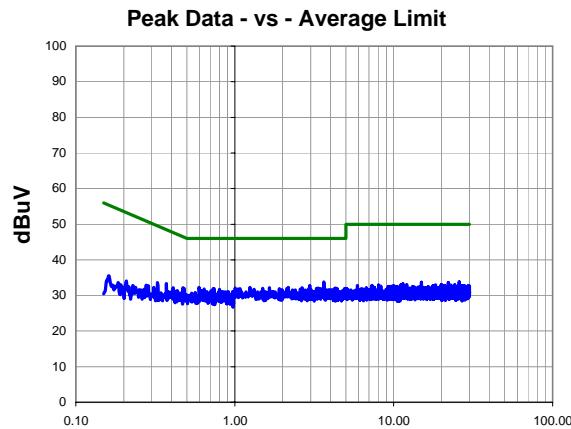
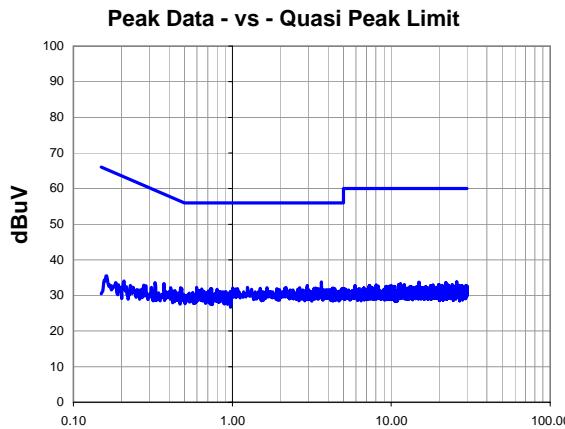
Peak Data - vs - Quasi Peak Limit						Peak Data - vs - Average Limit					
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
3.928	13.0	20.5	33.5	56.0	-22.5	3.928	13.0	20.5	33.5	46.0	-12.5
1.344	13.0	20.4	33.4	56.0	-22.6	1.344	13.0	20.4	33.4	46.0	-12.6
2.688	12.6	20.5	33.1	56.0	-22.9	2.688	12.6	20.5	33.1	46.0	-12.9
4.104	12.5	20.5	33.0	56.0	-23.0	4.104	12.5	20.5	33.0	46.0	-13.0
2.792	12.2	20.5	32.7	56.0	-23.3	2.792	12.2	20.5	32.7	46.0	-13.3
2.464	12.1	20.4	32.5	56.0	-23.5	2.464	12.1	20.4	32.5	46.0	-13.5
3.264	11.9	20.5	32.4	56.0	-23.6	3.264	11.9	20.5	32.4	46.0	-13.6
1.840	11.9	20.4	32.3	56.0	-23.7	1.840	11.9	20.4	32.3	46.0	-13.7
3.664	11.8	20.5	32.3	56.0	-23.7	3.664	11.8	20.5	32.3	46.0	-13.7
1.384	11.8	20.4	32.2	56.0	-23.8	1.384	11.8	20.4	32.2	46.0	-13.8
2.216	11.8	20.4	32.2	56.0	-23.8	2.216	11.8	20.4	32.2	46.0	-13.8
4.920	11.6	20.5	32.1	56.0	-23.9	4.920	11.6	20.5	32.1	46.0	-13.9
2.008	11.6	20.4	32.0	56.0	-24.0	2.008	11.6	20.4	32.0	46.0	-14.0
3.064	11.4	20.5	31.9	56.0	-24.1	3.064	11.4	20.5	31.9	46.0	-14.1
4.608	11.4	20.5	31.9	56.0	-24.1	4.608	11.4	20.5	31.9	46.0	-14.1
0.859	11.3	20.4	31.7	56.0	-24.3	0.859	11.3	20.4	31.7	46.0	-14.3
0.675	11.1	20.4	31.5	56.0	-24.5	0.675	11.1	20.4	31.5	46.0	-14.5
0.653	11.0	20.4	31.4	56.0	-24.6	0.653	11.0	20.4	31.4	46.0	-14.6
0.821	11.0	20.4	31.4	56.0	-24.6	0.821	11.0	20.4	31.4	46.0	-14.6
0.762	10.9	20.4	31.3	56.0	-24.7	0.762	10.9	20.4	31.3	46.0	-14.7

Work Order:	AWAR0002	Date:	03/31/10		
Project:	None	Temperature:	19C	<i>Jose Luis Flores</i>	
Job Site:	OC06	Humidity:	30		
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by:	Luis Flores
EUT:	Model: RM1 / PN: 200239-01				
Configuration:	2				
Customer:	Awarepoint Corporation				
Attendees:	Eric Hoffman				
EUT Power:	120V/60Hz				
Operating Mode:	2440 MHz, Mid channel				
Deviations:	No deviations.				
Comments:	Transmit				
Test Specifications			Test Method		
FCC 15.207:2010			ANSI C63.10:2009		
Run #	2	Line:	Neutral	Ext. Attenuation:	20
				Results	Pass



Peak Data - vs - Quasi Peak Limit						Peak Data - vs - Average Limit					
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
1.240	12.3	20.4	32.7	56.0	-23.3	1.240	12.3	20.4	32.7	46.0	-13.3
2.960	12.2	20.5	32.7	56.0	-23.3	2.960	12.2	20.5	32.7	46.0	-13.3
4.456	12.1	20.5	32.6	56.0	-23.4	4.456	12.1	20.5	32.6	46.0	-13.4
3.096	11.9	20.5	32.4	56.0	-23.6	3.096	11.9	20.5	32.4	46.0	-13.6
0.726	11.9	20.4	32.3	56.0	-23.7	0.726	11.9	20.4	32.3	46.0	-13.7
2.192	11.9	20.4	32.3	56.0	-23.7	2.192	11.9	20.4	32.3	46.0	-13.7
2.416	11.8	20.4	32.2	56.0	-23.8	2.416	11.8	20.4	32.2	46.0	-13.8
4.608	11.6	20.5	32.1	56.0	-23.9	4.608	11.6	20.5	32.1	46.0	-13.9
0.507	11.5	20.5	32.0	56.0	-24.0	0.507	11.5	20.5	32.0	46.0	-14.0
0.626	11.6	20.4	32.0	56.0	-24.0	0.626	11.6	20.4	32.0	46.0	-14.0
0.828	11.6	20.4	32.0	56.0	-24.0	0.828	11.6	20.4	32.0	46.0	-14.0
1.464	11.5	20.4	31.9	56.0	-24.1	1.464	11.5	20.4	31.9	46.0	-14.1
2.016	11.4	20.4	31.8	56.0	-24.2	2.016	11.4	20.4	31.8	46.0	-14.2
0.473	11.6	20.5	32.1	56.5	-24.4	0.473	11.6	20.5	32.1	46.5	-14.4
0.567	11.1	20.5	31.6	56.0	-24.4	0.567	11.1	20.5	31.6	46.0	-14.4
0.544	10.9	20.5	31.4	56.0	-24.6	0.544	10.9	20.5	31.4	46.0	-14.6
0.842	10.7	20.4	31.1	56.0	-24.9	0.842	10.7	20.4	31.1	46.0	-14.9
0.609	10.4	20.4	30.8	56.0	-25.2	0.609	10.4	20.4	30.8	46.0	-15.2
0.312	13.0	20.7	33.7	59.9	-26.2	0.312	13.0	20.7	33.7	49.9	-16.2
11.470	12.9	20.7	33.6	60.0	-26.4	11.470	12.9	20.7	33.6	50.0	-16.4

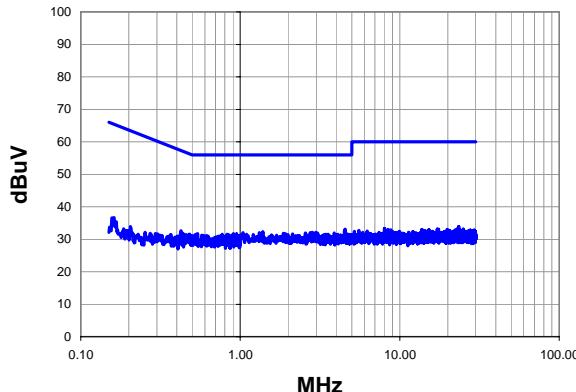
Work Order:	AWAR0002	Date:	03/31/10		
Project:	None	Temperature:	19C	<i>Jose Luis Flores</i>	
Job Site:	OC06	Humidity:	30		
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by:	Luis Flores
EUT:	Model: RM1 / PN: 200239-01				
Configuration:	2				
Customer:	Awarepoint Corporation				
Attendees:	Eric Hoffman				
EUT Power:	120V/60Hz				
Operating Mode:	2405 MHz, Low channel				
Deviations:	No deviations.				
Comments:	Transmit				
Test Specifications			Test Method		
FCC 15.207:2010			ANSI C63.10:2009		
Run #	3	Line:	Neutral	Ext. Attenuation:	20
				Results	Pass



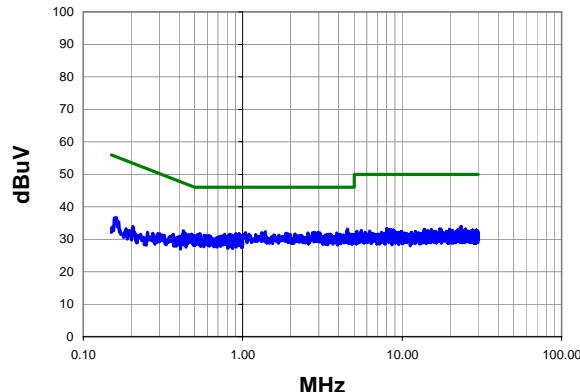
Peak Data - vs - Quasi Peak Limit						Peak Data - vs - Average Limit					
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
3.640	13.3	20.5	33.8	56.0	-22.2	3.640	13.3	20.5	33.8	46.0	-12.2
2.960	12.3	20.5	32.8	56.0	-23.2	2.960	12.3	20.5	32.8	46.0	-13.2
1.248	11.9	20.4	32.3	56.0	-23.7	1.248	11.9	20.4	32.3	46.0	-13.7
2.176	11.9	20.4	32.3	56.0	-23.7	2.176	11.9	20.4	32.3	46.0	-13.7
0.597	11.8	20.4	32.2	56.0	-23.8	0.597	11.8	20.4	32.2	46.0	-13.8
1.656	11.8	20.4	32.2	56.0	-23.8	1.656	11.8	20.4	32.2	46.0	-13.8
2.656	11.7	20.5	32.2	56.0	-23.8	2.656	11.7	20.5	32.2	46.0	-13.8
3.336	11.6	20.5	32.1	56.0	-23.9	3.336	11.6	20.5	32.1	46.0	-13.9
4.312	11.6	20.5	32.1	56.0	-23.9	4.312	11.6	20.5	32.1	46.0	-13.9
1.496	11.6	20.4	32.0	56.0	-24.0	1.496	11.6	20.4	32.0	46.0	-14.0
3.264	11.5	20.5	32.0	56.0	-24.0	3.264	11.5	20.5	32.0	46.0	-14.0
4.248	11.5	20.5	32.0	56.0	-24.0	4.248	11.5	20.5	32.0	46.0	-14.0
4.976	11.5	20.5	32.0	56.0	-24.0	4.976	11.5	20.5	32.0	46.0	-14.0
0.731	11.5	20.4	31.9	56.0	-24.1	0.731	11.5	20.4	31.9	46.0	-14.1
0.740	11.5	20.4	31.9	56.0	-24.1	0.740	11.5	20.4	31.9	46.0	-14.1
1.904	11.5	20.4	31.9	56.0	-24.1	1.904	11.5	20.4	31.9	46.0	-14.1
0.643	11.4	20.4	31.8	56.0	-24.2	0.643	11.4	20.4	31.8	46.0	-14.2
0.473	11.7	20.5	32.2	56.5	-24.3	0.473	11.7	20.5	32.2	46.5	-14.3
0.801	11.3	20.4	31.7	56.0	-24.3	0.801	11.3	20.4	31.7	46.0	-14.3
0.482	11.4	20.5	31.9	56.3	-24.4	0.482	11.4	20.5	31.9	46.3	-14.4

Work Order:	AWAR0002	Date:	03/31/10		
Project:	None	Temperature:	19C	<i>Jose Luis Flores</i>	
Job Site:	OC06	Humidity:	30		
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by:	Luis Flores
EUT:	Model: RM1 / PN: 200239-01				
Configuration:	2				
Customer:	Awarepoint Corporation				
Attendees:	Eric Hoffman				
EUT Power:	120V/60Hz				
Operating Mode:	2405 MHz, Low channel				
Deviations:	No deviations.				
Comments:	Transmit				
Test Specifications			Test Method		
FCC 15.207:2010			ANSI C63.10:2009		
Run #	4	Line:	High Line	Ext. Attenuation:	20
				Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

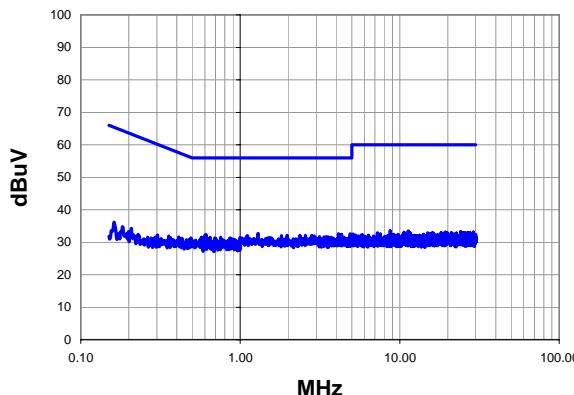
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
4.536	12.6	20.5	33.1	56.0	-22.9
1.384	11.9	20.4	32.3	56.0	-23.7
2.824	11.6	20.5	32.1	56.0	-23.9
3.888	11.4	20.5	31.9	56.0	-24.1
2.560	11.4	20.5	31.9	56.0	-24.1
0.539	11.2	20.5	31.7	56.0	-24.3
0.905	11.3	20.4	31.7	56.0	-24.3
0.949	11.2	20.4	31.6	56.0	-24.4
0.531	11.0	20.5	31.5	56.0	-24.5
0.770	11.1	20.4	31.5	56.0	-24.5
0.827	11.1	20.4	31.5	56.0	-24.5
0.835	10.9	20.4	31.3	56.0	-24.7
0.425	12.0	20.6	32.6	57.3	-24.8
0.573	10.7	20.5	31.2	56.0	-24.8
0.886	10.8	20.4	31.2	56.0	-24.8
0.616	10.7	20.4	31.1	56.0	-24.9
0.476	11.0	20.5	31.5	56.4	-24.9
0.862	10.4	20.4	30.8	56.0	-25.2
0.437	11.3	20.5	31.8	57.1	-25.3
23.470	13.0	20.9	33.9	60.0	-26.1

Peak Data - vs - Average Limit

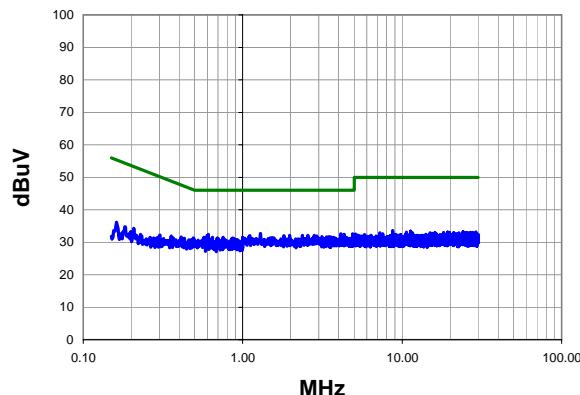
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
4.536	12.6	20.5	33.1	46.0	-12.9
1.384	11.9	20.4	32.3	46.0	-13.7
2.824	11.6	20.5	32.1	46.0	-13.9
3.888	11.4	20.5	31.9	46.0	-14.1
2.560	11.4	20.5	31.9	46.0	-14.1
0.539	11.2	20.5	31.7	46.0	-14.3
0.905	11.3	20.4	31.7	46.0	-14.3
0.949	11.2	20.4	31.6	46.0	-14.4
0.531	11.0	20.5	31.5	46.0	-14.5
0.770	11.1	20.4	31.5	46.0	-14.5
0.827	11.1	20.4	31.5	46.0	-14.5
0.835	10.9	20.4	31.3	46.0	-14.7
0.425	12.0	20.6	32.6	47.3	-14.8
0.573	10.7	20.5	31.2	46.0	-14.8
0.886	10.8	20.4	31.2	46.0	-14.8
0.616	10.7	20.4	31.1	46.0	-14.9
0.476	11.0	20.5	31.5	46.4	-14.9
0.862	10.4	20.4	30.8	46.0	-15.2
0.437	11.3	20.5	31.8	47.1	-15.3
23.470	13.0	20.9	33.9	50.0	-16.1

Work Order:	AWAR0002	Date:	03/31/10	
Project:	None	Temperature:	19C	
Job Site:	OC06	Humidity:	30	
Serial Number:	1034100515	Barometric Pres.:	1016	<i>Jose Luis Flores</i>
EUT:	Model: RM1 / PN: 200239-01			Tested by: Luis Flores
Configuration:	2			
Customer:	Awarepoint Corporation			
Attendees:	Eric Hoffman			
EUT Power:	120V/60Hz			
Operating Mode:	2475 MHz, High channel			
Deviations:	No deviations.			
Comments:	Transmit			
Test Specifications		Test Method		
FCC 15.207:2010		ANSI C63.10:2009		
Run #	5	Line:	High Line	Ext. Attenuation:
				20
				Results
				Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

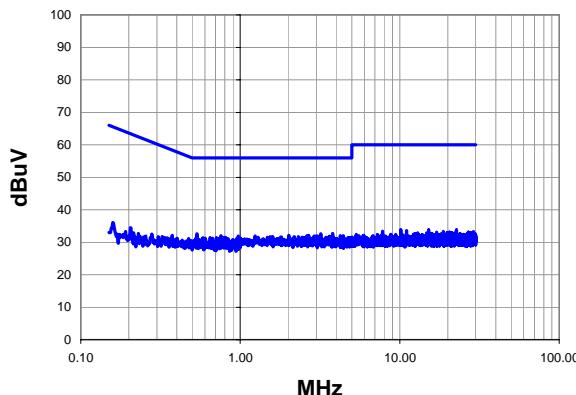
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
1.296	12.3	20.4	32.7	56.0	-23.3
4.128	12.1	20.5	32.6	56.0	-23.4
4.888	12.1	20.5	32.6	56.0	-23.4
0.609	12.0	20.4	32.4	56.0	-23.6
4.320	11.9	20.5	32.4	56.0	-23.6
1.968	11.7	20.4	32.1	56.0	-23.9
2.368	11.7	20.4	32.1	56.0	-23.9
2.808	11.6	20.5	32.1	56.0	-23.9
0.599	11.6	20.4	32.0	56.0	-24.0
1.816	11.6	20.4	32.0	56.0	-24.0
3.144	11.2	20.5	31.7	56.0	-24.3
3.472	11.2	20.5	31.7	56.0	-24.3
0.570	11.0	20.5	31.5	56.0	-24.5
0.646	11.1	20.4	31.5	56.0	-24.5
0.753	11.1	20.4	31.5	56.0	-24.5
0.998	11.0	20.4	31.4	56.0	-24.6
0.692	10.9	20.4	31.3	56.0	-24.7
0.855	10.8	20.4	31.2	56.0	-24.8
0.869	10.8	20.4	31.2	56.0	-24.8
0.923	10.4	20.4	30.8	56.0	-25.2

Peak Data - vs - Average Limit

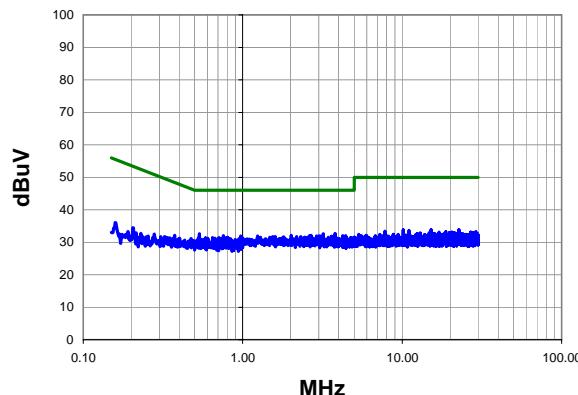
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
1.296	12.3	20.4	32.7	46.0	-13.3
4.128	12.1	20.5	32.6	46.0	-13.4
4.888	12.1	20.5	32.6	46.0	-13.4
0.609	12.0	20.4	32.4	46.0	-13.6
4.320	11.9	20.5	32.4	46.0	-13.6
1.968	11.7	20.4	32.1	46.0	-13.9
2.368	11.7	20.4	32.1	46.0	-13.9
2.808	11.6	20.5	32.1	46.0	-13.9
0.599	11.6	20.4	32.0	46.0	-14.0
1.816	11.6	20.4	32.0	46.0	-14.0
3.144	11.2	20.5	31.7	46.0	-14.3
3.472	11.2	20.5	31.7	46.0	-14.3
0.570	11.0	20.5	31.5	46.0	-14.5
0.646	11.1	20.4	31.5	46.0	-14.5
0.753	11.1	20.4	31.5	46.0	-14.5
0.998	11.0	20.4	31.4	46.0	-14.6
0.692	10.9	20.4	31.3	46.0	-14.7
0.855	10.8	20.4	31.2	46.0	-14.8
0.869	10.8	20.4	31.2	46.0	-14.8
0.923	10.4	20.4	30.8	46.0	-15.2

Work Order:	AWAR0002	Date:	03/31/10	<i>Jose Luis Flores</i>	
Project:	None	Temperature:	19C		
Job Site:	OC06	Humidity:	30		
Serial Number:	1034100515	Barometric Pres.:	1016	Tested by: Luis Flores	
EUT:	Model: RM1 / PN: 200239-01				
Configuration:	2				
Customer:	Awarepoint Corporation				
Attendees:	Eric Hoffman				
EUT Power:	120V/60Hz				
Operating Mode:	2475 MHz, High channel				
Deviations:	No deviations.				
Comments:	Transmit				
Test Specifications			Test Method		
FCC 15.207:2010			ANSI C63.10:2009		
Run #	6	Line:	Neutral	Ext. Attenuation:	20
				Results	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
3.800	12.2	20.5	32.7	56.0	-23.3
0.536	12.1	20.5	32.6	56.0	-23.4
3.200	12.1	20.5	32.6	56.0	-23.4
2.016	11.7	20.4	32.1	56.0	-23.9
2.688	11.6	20.5	32.1	56.0	-23.9
0.757	11.6	20.4	32.0	56.0	-24.0
2.624	11.5	20.5	32.0	56.0	-24.0
4.248	11.5	20.5	32.0	56.0	-24.0
4.424	11.5	20.5	32.0	56.0	-24.0
0.973	11.5	20.4	31.9	56.0	-24.1
1.240	11.5	20.4	31.9	56.0	-24.1
3.600	11.3	20.5	31.8	56.0	-24.2
0.803	11.1	20.4	31.5	56.0	-24.5
0.648	11.0	20.4	31.4	56.0	-24.6
0.709	11.0	20.4	31.4	56.0	-24.6
0.585	10.9	20.5	31.4	56.0	-24.6
0.672	10.8	20.4	31.2	56.0	-24.8
0.896	10.4	20.4	30.8	56.0	-25.2
10.160	13.2	20.6	33.8	60.0	-26.2
15.190	13.0	20.8	33.8	60.0	-26.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)
3.800	12.2	20.5	32.7	46.0	-13.3
0.536	12.1	20.5	32.6	46.0	-13.4
3.200	12.1	20.5	32.6	46.0	-13.4
2.016	11.7	20.4	32.1	46.0	-13.9
2.688	11.6	20.5	32.1	46.0	-13.9
0.757	11.6	20.4	32.0	46.0	-14.0
2.624	11.5	20.5	32.0	46.0	-14.0
4.248	11.5	20.5	32.0	46.0	-14.0
4.424	11.5	20.5	32.0	46.0	-14.0
0.973	11.5	20.4	31.9	46.0	-14.1
1.240	11.5	20.4	31.9	46.0	-14.1
3.600	11.3	20.5	31.8	46.0	-14.2
0.803	11.1	20.4	31.5	46.0	-14.5
0.648	11.0	20.4	31.4	46.0	-14.6
0.709	11.0	20.4	31.4	46.0	-14.6
0.585	10.9	20.5	31.4	46.0	-14.6
0.672	10.8	20.4	31.2	46.0	-14.8
0.896	10.4	20.4	30.8	46.0	-15.2
10.160	13.2	20.6	33.2	50.0	-16.2
15.190	13.0	20.8	33.8	50.0	-16.2