MEASUREMENT AND TECHNICAL REPORT

AWAREPOINT CORPORATION
4275 Executive Square
La Jolla, CA 92037

DATE: 08 June 2006

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	Awarepoint Tag, Model T1	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: **Defer until:**	No: X
Company Name **agrees to notify the Commission by:** **of the intended date of announcement of the product so that the grant can be issued on that date.**	N/A	
Transition Rules Request per 15.37?	Yes:	No: X*

(*) FCC Part 15, Paragraph(s) **15.109(a), 15.209(a), 15.247(a), 15.247(b), 15.247(c), and 15.247(d)**
(*) Canadian Specification(s) **RSS-210 A8.1(1), RSS-210 A8.4(2), and RSS-210 A8.5**

Report Prepared by:

TÜV AMERICA, INC
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 678 1400
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1.0 GENERAL INFORMATION

1.1 Product Description

General Equipment Description:			
EUT Description:	Battery Powered Wireless Asset Tracking Tag.		
EUT Name:	"Awarepoint Tag"		
Model No.:	T1	Serial No.:	(varies)
Product Options:	--		
Configurations and modes to be tested:	Normal Operation		

EUT Specifications							
Length:	2.5	Width:	2.5	Height:	0.5	Weight:	2 oz.

Power Requirements (*Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively))*

Voltage:	3.5V (battery powered)	(If battery powered, make sure battery life is sufficient to complete testing.)	
# of Phases:	--		
Current (Amps/phase(max)):	0.03	Current (Amps/phase(nominal)):	0.001

EUT Power Cable

	Permanent	OR	Removable
	Shielded	OR	Unshielded
X	Not Applicable		Length (in meters):

EUT Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.

Normal Operation

Transmitting Message (to transmit message, slide the slider back and forth)

EUT System Components -- List and describe all EUT components . For FCC testing a minimum configuration is required. (i.e. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

Description	Model #	Serial #	FCC ID #
Tag is self-contained	--	--	--

Oscillator Frequencies			
Frequency	***Derived Frequency***	***Component # / Location***	***Description of Use***
32kHz	--	Y1 / front, beow connector	Atmel standby xtal
8Mhz	--	Y2 / front, lower left	Atmel main xtal
16MHz	2.4GHz	Y3 / front, center	Chipcon xtal

Power Supply						
Manufacturer	***Model #***	***Serial #***	***Type***			
Tadiran	TL-4934	--	Switched-mode:		(Frequency)	--
			Linear:	Other:	Battery	

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1.2 Related Submittal Grant

None

1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

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1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

Test Summary					
Frequency range tested: 30 MHz to 25 GHz.					
		Summary of Results			
Test Description	**Paragraph Number**	**Low Channel**	**Mid Channel**	**High Channel**	**Pass/Fail**
Bandwidth	15.247(a)(2) RSS-210 A8.1(1)	--	1310 kHz	--	Pass
Band Edge	15.247(a)(1)(i) RSS-210 A8.1(1)	Meets requirements	N/A	Meets requirements	Pass
RF Output Power	15.247(b) RSS-210 A8.4 (2)	N/A	N/A	0.001 W	Pass
Radiated Spurious Emissions – Restricted Bands (1GHz to 25GHz)	15.247(c)/ 15.209(a) RSS-210 A8.5	N/A	54.4 dBuV/m (pk) @ 4960 MHz	N/A	Pass
Peak Power Spectral Density	15.247(d)	--	>20 dB below	--	Pass
Radiated Emissions (30 to 1000 MHz)	15.209(a) RSS-210 A8.5	N/A	No Detectable Emissions	N/A	Pass
Receiver Spurious Emissions	15.109(a)	N/A	14.4 dBuV/m (pk) @ 56 MHz	N/A	Pass

Testing was performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983.

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1.5 Test Facility

The open area test site and conducted measurement data were tested by:

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The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Test Setup Photos Exhibit

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Equipment Modifications

None

2.5 Configuration of Test System

See Test Setup Photos Exhibit

3.0 BANDWIDTH EQUIPMENT/DATA
BAND EDGE EQUIPMENT/DATA
RF OUTPUT POWER EQUIPMENT/DATA
RADIATED SPURIOUS EMISSIONS EQUIPMENT/DATA
PEAK POWER SPECTRAL DENSITY EQUIPMENT/DATA
RADIATED EMISSIONS EQUIPMENT/DATA
RECEIVER SPURIOUS EMISSIONS EQUIPMENT/DATA

Test Conditions: BANDWIDTH: FCC Part 15.247(a)(2) and RSS-210 A8.1(1)
BAND EDGE: FCC Part 15.247(a)(1)(i) and RSS-210 A8.1(1)
RF OUTPUT POWER: FCC Part 15.247(b) and RSS-210 A8.4(2)
RADIATED SPURIOUS EMISSIONS: FCC Part 15.209(a), 15.247(c), and RSS-210 A8.5
PEAK POWER SPECTRAL DENSITY: FCC Part 15.247(d)
RADIATED EMISSIONS: FCC Part 15.209(a) and RSS-210 A8.5
RECEIVER SPURIOUS EMISSIONS: FCC Part 15.109(a)

The following measurements were performed at the San Diego Testing Facility:

☐ - Test not applicable

■ - Roof (Small Open Area Test Site)
■ - Canyon #1 (10- and 30-Meter Open Area Test Site), Carroll Canyon, San Diego

Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
3115	453	Double Ridge Antenna	EMCO	9412-4364	08/05
FF6549-2	781	2000 MHz High Pass Filter	Sage	006	Verified
AMF-5D-010180-35-10P	6786	Preamplifier	Miteq	549460	Verified
Micropore 190	6787	10' Coaxial Cable	United Microwave	AA-190-03.00.0	N/A
Micropore 190	6789	30' Coaxial Cable	United Microwave	AA-190-030.00.0	N/A
E4440A	7500	Spectrum Analyzer	Hewlett Packard	MY43362168	12/05

Remarks: One year calibration cycle for all test equipment and sites.

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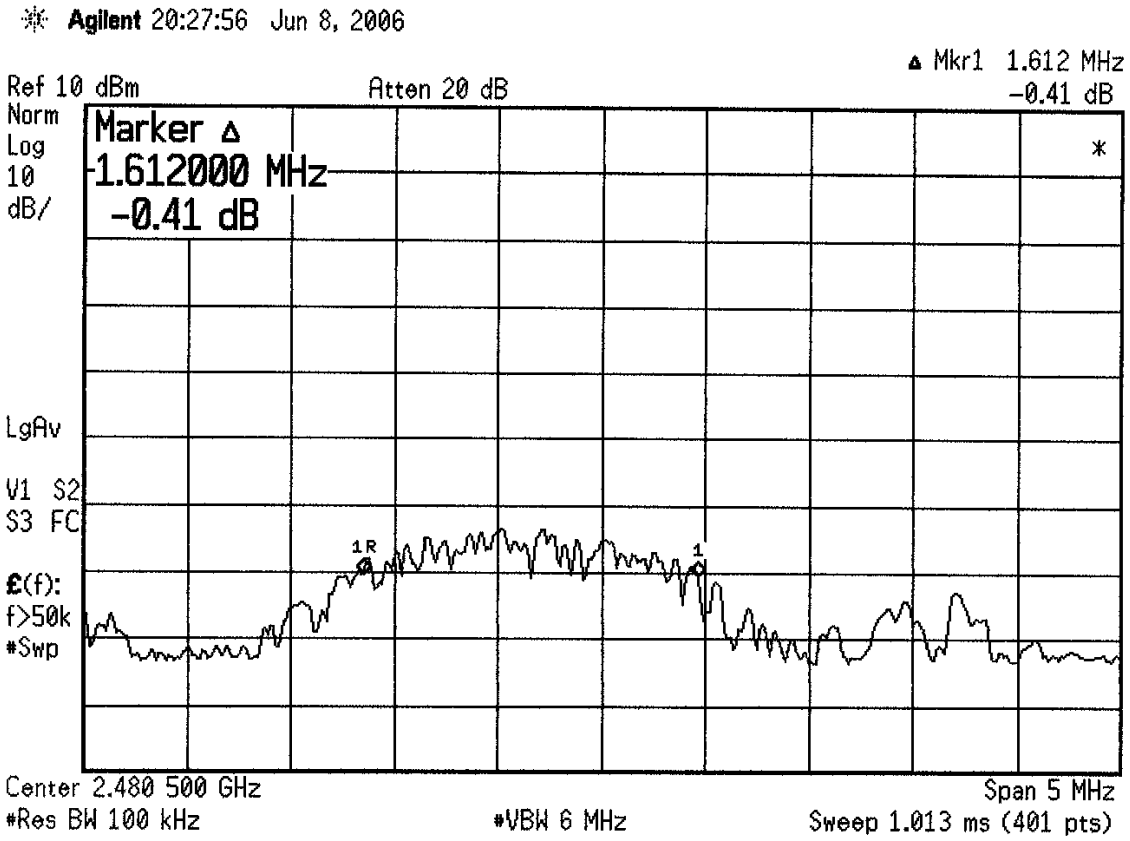
BANDWIDTH: FCC Part 15.247(a)(2) and RSS-210 A8.1(1)



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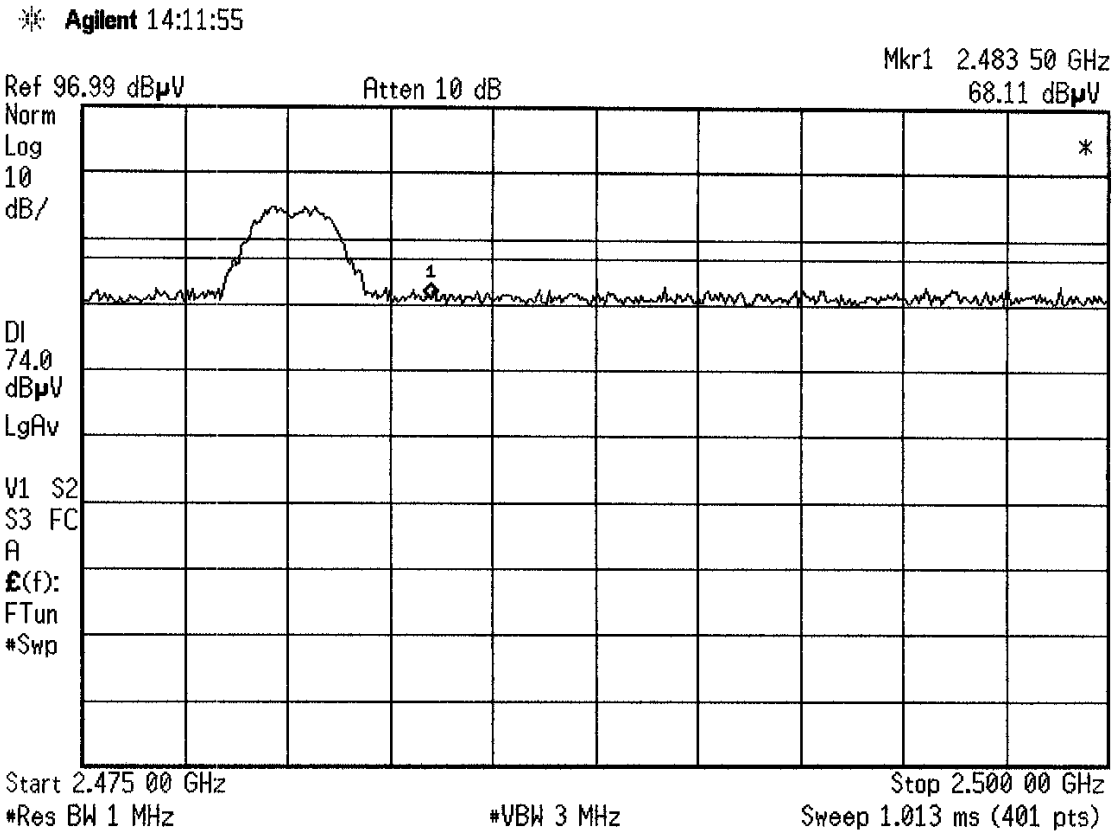
BAND EDGE: FCC Part 15.247(a)(1)(i) and RSS-210 A8.1(1)



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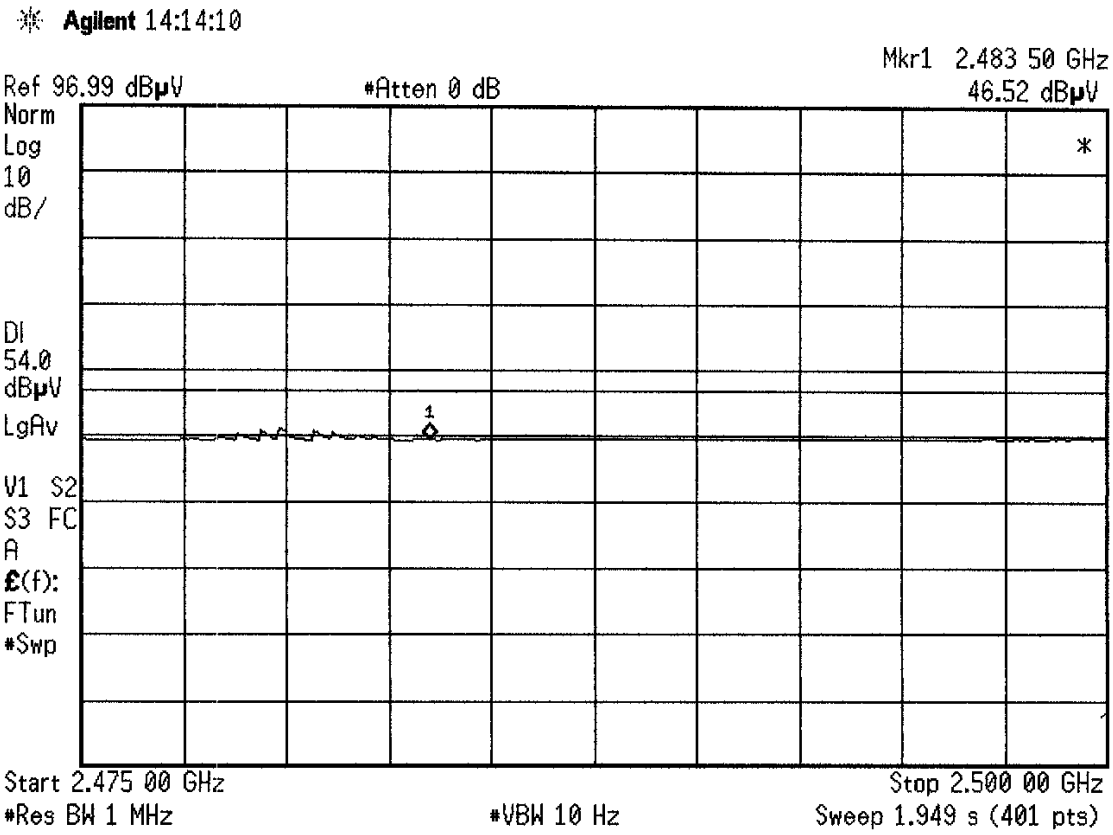
BAND EDGE: FCC Part 15.247(a)(1)(i) and RSS-210 A8.1(1)



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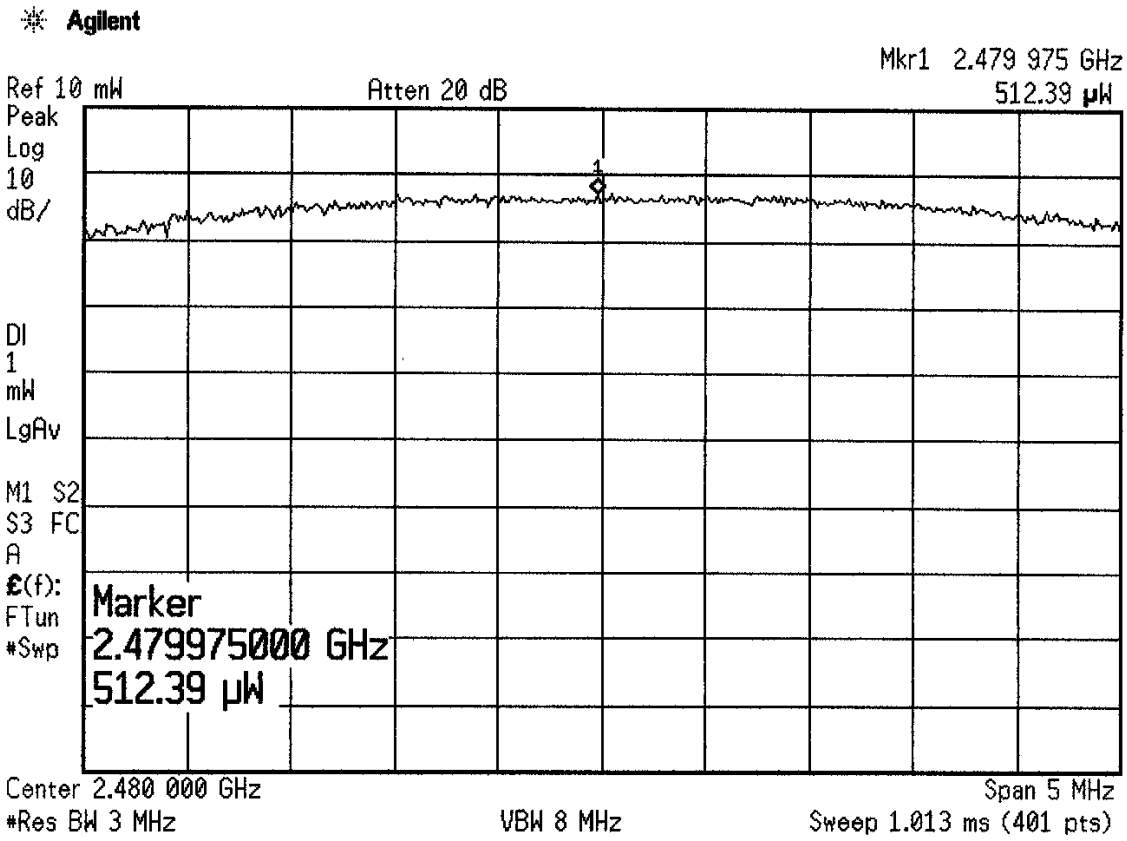
RF OUTPUT POWER: FCC Part 15.247(b) and RSS-210 A8.4(2)



T1
Output Pwr

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RADIATED SPURIOUS EMISSIONS: FCC Part 15.209(a), 15.247(c), and RSS-210 A8.5

REPORT No: SC602695 TESTER: William Dey SPEC: FCC Part 15 para 15.247/15.209(a)

CUSTOMER: Awarepoint Corporation TEST DIST: 3 Meters

E U T: Awarepoint Transceiver Model No. T1 TEST SITE: Roof

EUT MODE: Normal Operation BICONICAL: N/A

DATE: June 7, 2006 LOG: N/A

NOTES: no other emissions found OTHER: 453

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	av	HORIZONTAL (dBuv) pk	av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	av	SPEC LIMIT (dBuV/m) pk	av	MARGIN (dB) pk	av	EUT Rotation	Antenna Height	Notes
2480	55.8		50.5		34.4	**90.2**	**34.4**			90.21	34.4	0	1	Fundamental
4960	55.3	33.5	47.2	33.5	-0.4	**54.9**	**33.1**	74	54	-19.1	-20.9	0	1.5	
7440	46.1	31.36	40.21	32.16	7.6	**53.7**	**39.8**	74	54	-20.3	-14.2	90	1	ambient
9920	46.4	32.16	42.59	31.69	9.5	**55.9**	**41.6**	74	54	-18.1	-12.4	0	1	ambient
12400	41.79	32.36	44.99	33.9	13.5	**58.5**	**47.4**	74	54	-15.5	-6.57	0	1	ambient

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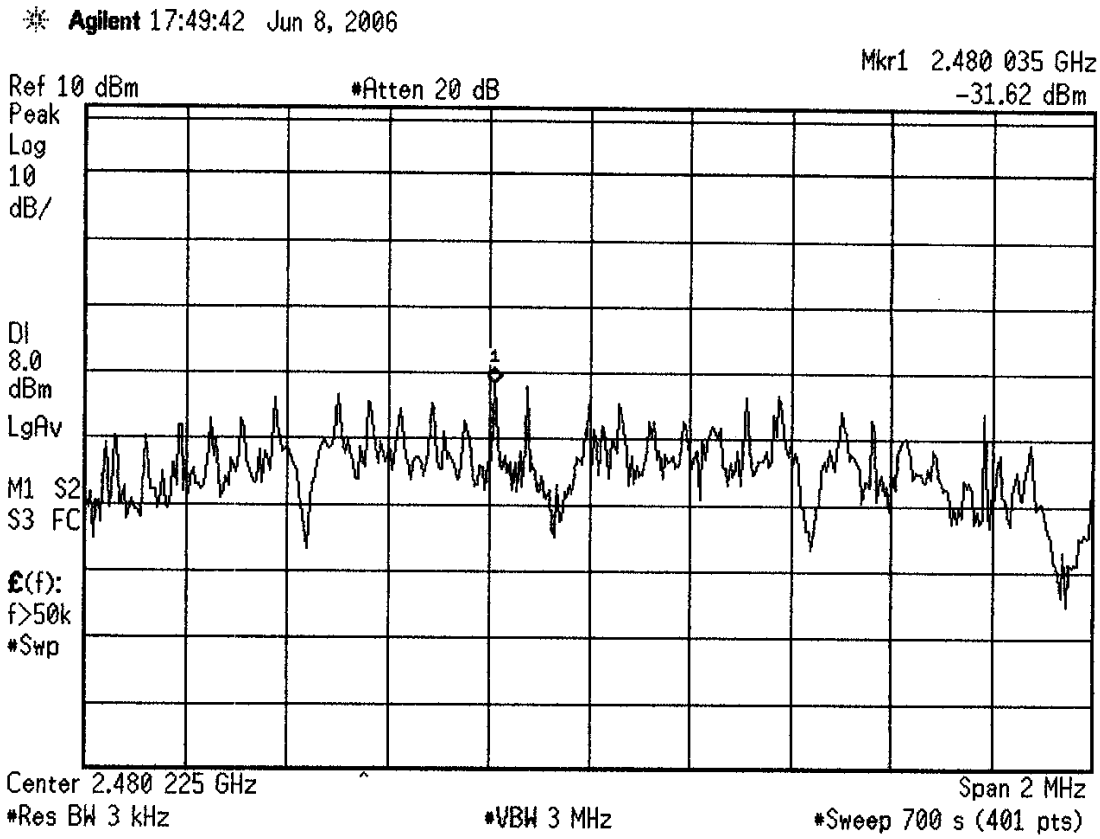
PEAK POWER SPECTRAL DENSITY: FCC Part 15.247(d)



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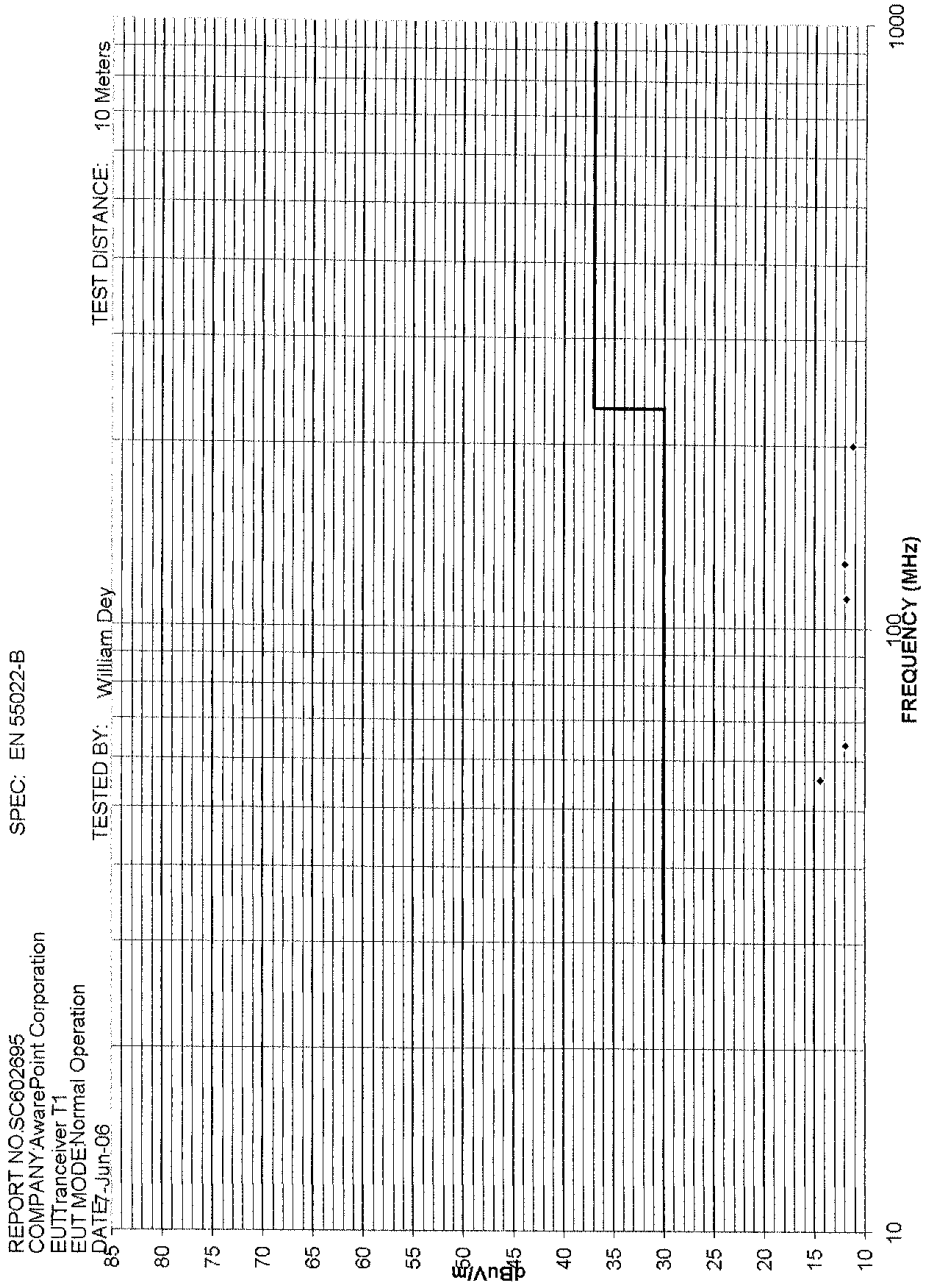
RECEIVER SPURIOUS EMISSIONS: FCC Part 15.109(a)



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RECEIVER SPURIOUS EMISSIONS: FCC Part 15.109(a)

REPORT No: SC602695 SPEC: EN 55022-B

CUSTOMER: AwarePoint Corporation TEST DIST: 10 Meters

E U T: Tranceiver T1 TEST SITE: 1

EUT MODE: Normal Operation BICONICAL: 739

DATE: 7-Jun-06 TESTED BY: William Dey LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 6732

3.8VDC

Temperature: 23C° Relative Humidity: 40%

EUT MARGIN -15.6 dB at 56 MHz

ver 1.8b

FREQUENCY (MHz)	VERTICAL measured (dBuv)	HORIZONTAL measured (dBuV)	CORRECTION FACTOR (dB/m)	MAXIMUM CORRECTED (dBuV/m)	SPECIFIED LIMIT (dBuV/m)	EUT MARGIN (dB)	EUT ROTATION (degrees)	ANTENNA HEIGHT (meters)
56.00	-0.7	-1.2	15.1	**14.4**	30	-15.6	0	1
64.00	0.5	-1	11.4	**11.9**	30	-18.1	90	1
80.00	-1.2	-1.5	10.3	**9.1**	30	-20.9	0	1
112.00	-2	-2.3	13.8	**11.8**	30	-18.2	0	1
128.00	-1.9	-1.4	13.4	**12.0**	30	-18.0	0	1
200.00	-2.1	-2	13.2	**11.2**	30	-18.8	45	1

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4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per: CFR 47, Part(s) 15.109(a), 15.209(a), 15.247(a), 15.247(b), 15.247(c), and 15.247(d)
Canadian Specification(s) RSS-210 A8.1(1), RSS-210 A8.4(2), and RSS-210 A8.5

■ - Performed

The Equipment Under Test

■ - Fulfills the requirements of: CFR 47, Part(s) CFR 47, Part(s) 15.109(a), 15.209(a), 15.247(a), 15.247(b), 15.247(c), and 15.247(d)
Canadian Specification(s) RSS-210 A8.1(1), RSS-210 A8.4(2), and RSS-210 A8.5

Testing Start Date: 30 May 2006

Testing End Date: 08 June 2006

- TÜV AMERICA, INC. -

Reviewing Engineer:

David Gray
(EMC Engineer In Charge)

Test Engineer:

William Dey
(EMC Technician)

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