

MEASUREMENT AND TECHNICAL REPORT

CARDIONET
1010 2nd Avenue
San Diego, CA 92101

DATE: 01 September 2006

This Report Concerns:	Original Grant:	Class II Change: X
Equipment Type:	Gateway Bluetooth	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: Defer until:	No: X
Company Name agrees to notify the Commission by:	N/A	
of the intended date of announcement of the product so that the grant can be issued on that date.		
Transition Rules Request per 15.37?	Yes:	No: X*
(*) FCC Part 15, Paragraph(s) 15.209(a)		
Report Prepared by:	TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364	

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1.0 GENERAL INFORMATION

1.1 Product Description

Gateway Bluetooth

1.2 Related Submittal Grant

Q2331307, Infineon Technologies

1.3 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests after the addition of an antenna.

TEST DESCRIPTION	PARAGRAPH NUMBER	PASS/FAIL/SUMMARY
Radiated Emissions	15.209(a)	Pass

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

1.4 Test Facility

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

TÜV AMERICA, INC
 10040 Mesa Rim Road
 San Diego, CA 92121-2912
 Phone: 858 678 1400
 Fax: 858 546 0364

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 Configuration of Test System

See Test Setup Photos Exhibit

3.0 EQUIPMENT/DATA

Test Conditions:
RADIATED EMISSIONS - FCC Part 15.209(a) 2

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

- Test not applicable

■ - Roof (Small Open Area Test Site)

Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Calibrated
3115	6669	Double Ridge Antenna	EMCO	9412-4364	11 August 2005
E4440A	7500	Spectrum Analyzer	Hewlett Packard	MY43362168	01/06
AMF-5D-010180-35-10P	6786	Amplifier	Miteq	549460	Verified

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

REPORT No: SC605128 TESTER: SPEC: FCC Part 15 para 15.209(a)

CUSTOMER: CardioNet

TEST DIST: 3 Meters

E U T: Gateway Bluetooth

TEST SITE: Roof

EUT MODE: Transmit

BICONICAL: N/A

DATE: September 1, 2006

LOG: N/A

NOTES: No other emissions found to 25GHz 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.beleata

FREQ (MHz)	VERTICAL (dBuV)		HORIZONTAL (dBuV)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
2401.95	51.7		59.6		34.547	94.15						156	1.9	Fundamental
4803.9	35.76		39.1		5.13716	44.24	5.14	74	54	-29.8	-48.9	213	1.35	
7205.85	27		27		10.3294	37.33	10.3	74	54	-36.7	-43.7			ambient
9607.8	27		27		13.7372	40.74	13.7	74	54	-33.3	-40.3			ambient
12009.75	27		27		19.2864	46.29	19.3	74	54	-27.7	-34.7			ambient
14411.7	27		27		19.4587	46.46	19.5	74	54	-27.5	-34.5			ambient
16813.65	27		27		29.7223	56.72	29.7	74	54	-17.3	-24.3			ambient
2441	50.4		58.4		34.6876	93.09						161	1.9	Fundamental
4882	37.7		41.5		5.4808	46.98	5.48	74	54	-27	-48.5	213	1.3	
7322.95	33.1		27		10.5167	43.62	10.5	74	54	-30.4	-43.5	188	1.2	
9763.95	27		27		14.0807	41.08	14.1	74	54	-32.9	-39.9			ambient
12204.95	27		27		19.0131	46.01	19	74	54	-28	-35			ambient
14645.95	27		27		19.746	46.75	19.7	74	54	-27.3	-34.3			ambient
17086.95	27		27		23.4261	50.43	23.4	74	54	-23.6	-30.6			ambient
2480	48.3		55.2		34.828	90.03						159	2.2	Fundamental
4939.95	27		37.8		5.82378	43.62	5.82	74	54	-30.4	-48.2	215	1.3	
7439.95	27		27		10.7039	37.7	10.7	74	54	-36.3	-43.3			ambient
9919.95	27		27		14.4239	41.42	14.4	74	54	-32.6	-39.6			ambient
12400	27		27		18.74	45.74	18.7	74	54	-28.3	-35.3			ambient
14879.95	27		27		19.98	46.98	20	74	54	-27	-34			ambient
17359.95	27		27		24.1359	51.14	24.1	74	54	-22.9	-29.9			ambient
2484.5	15.2		15.2		34.8442	50.04	34.8	74	54	-24	-19.2			bandedge - ambient
2400	17.4		17.4		34.54	51.94	34.5	74	54	-22.1	-19.5			bandedge - ambient

4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per CFR 47, Part(s) 15.209(a)

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of CFR 47, Part(s) 15.209(a)

Testing Start Date: 01 September 2006

Testing End Date: 01 September 2006

- TÜV AMERICA, INC. -

Reviewing Engineer:



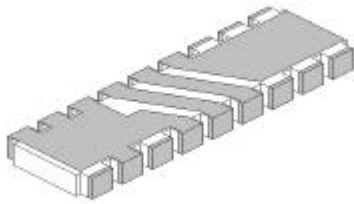
David Gray
(EMC Engineer)

AHD1403-244ST01

Preliminary

1. Features

- a) Small sizes and low profile
- b) Wide frequency range



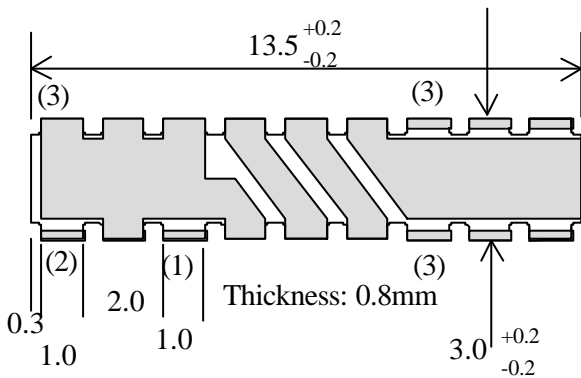
2. Specifications

Type	AHD1403-244ST01
Dimensions	13.5 × 3 × 0.8 mm
Operating frequency	2400 – 2484 MHz
Operating temperature	-25 - +85 °C

3. Characteristics (Reference)

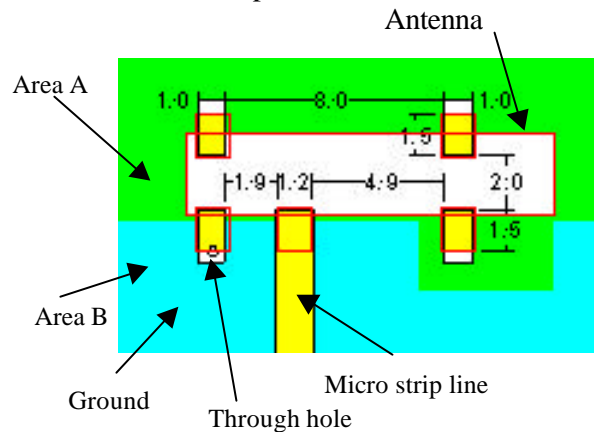
Bandwidth in VSWR ≤ 2	140 MHz
Gain –peak-	0 dBd
Gain –average-	-6.6 dBd
Radiation Efficiency	36 %

4. Dimensions



- (1) in/out terminal
- (2) GND
- (3) Fixing Electrode

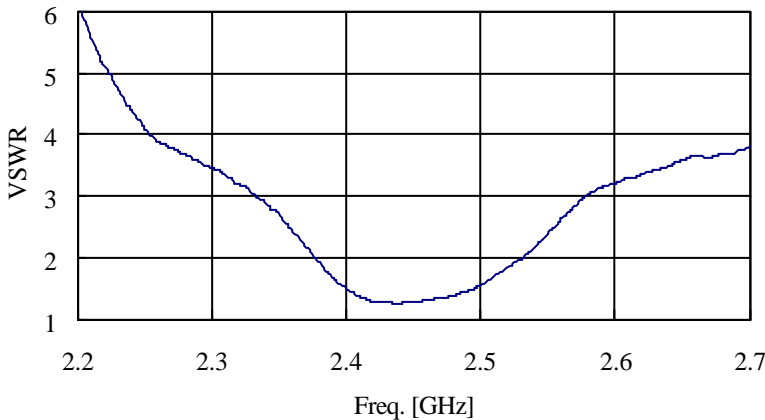
5. Recommended land pattern



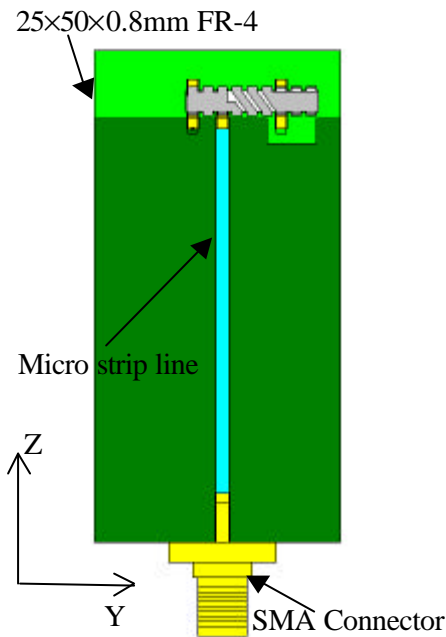
Note:

- *1 We recommend to make ground plane on area 'B'. You may not make ground plane on area 'A'.
- *2 Please connect this land to the ground with thru holes.

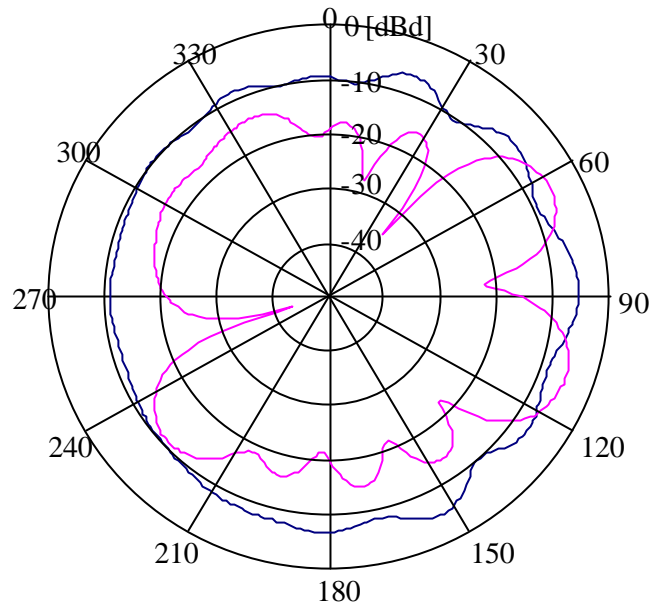
6. VSWR vs. Frequency



7. Test Board



8. Radiation pattern in XY plane $f=2442\text{MHz}$



9. Series of center Frequencies(f_0)

In case of surface mount antennas, the center frequency is dependent on the PCB size or other surrounding components and materials, and therefore can be different from what is measured with our standard test board. For the AHD1403-244ST, we have therefore prepared series of items having different center frequencies with a certain frequency step, in order to cancel the above mentioned frequency shift by the environmental factors.

So with our AHD1403-244ST series, you can easily and quickly find the most suitable antenna for your own mounting conditions.

Example 1:

If you take the AHD1403-244ST**01** (nominal $f_0=2440\text{MHz}$), but see that the center frequency is 2490MHz (50MHz higher) when mounted on your own board :

We recommend to use AHD1403-244ST**25** (nominal $f_0=2390\text{MHz}$, $\Delta f_0=-50\text{MHz}$).

Example 2:

If you take the AHD1403-244ST**01** (nominal $f_0=2440\text{MHz}$), but see that the center frequency is 2350MHz (90MHz lower) when mounted on your own board :

We recommend to use AHD1403-244ST**10** (nominal $f_0=2530\text{MHz}$, $\Delta f_0=+90\text{MHz}$).

Note:

- 1)The specifications given herein may be changed or modified at anytime without prior notice.
- 2)Please request specifications for the part your plan to use.

Contact us :

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