



RADIO FREQUENCY EMISSIONS TEST REPORT

FOR

HEART RATE TRANSMITTER

MODEL NUMBER: QX-HS2

FCC ID: BBQHRM-1

REPORT NUMBER: 05I3583-1

ISSUE DATE: AUGUST 9, 2005

Prepared for

**CASIO COMPUTER CO.,Ltd
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Prepared by

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NVLAP[®]
LAB CODE:200065-0

Revision History

<u>Rev.</u>	<u>Revisions</u>	<u>Revised By</u>
A	Initial Issue	Thu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CASIO COMPUTER CO.,Ltd.
6-2. HONMACHI 1-CHOME
SHIBUYA-KU, TOKYO 151-8543
JAPAN

EUT DESCRIPTION: HEART RATE TRANSMITTER

MODEL: QX-HS2

SERIAL NUMBER: 01574

DATE TESTED: August 2, 2005

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



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COMPLIANCE CERTIFICATION SERVICES

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 131 kHz Transmitter, use to transmit the heart rate in sports.

6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
RF Filter Section	HP	85420E	3705A00256	11/21/2005
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2005
Bilog Antenna	Sunol Sciences	JB1	A121003	3/6/2006
EMI Test Receiver	Rohde & Schwarz	ESHS20	827129/006	10/22/2005
LISN, 10 kHz ~ 30 MHz	Fisher	50/250-25-2	114	10/21/2005
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	2593	10/21/2005
Active Loop Antenna	EMCO	6502	9202-2722	9/7/2006

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS RELATIVE TO CLASS B LIMITS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

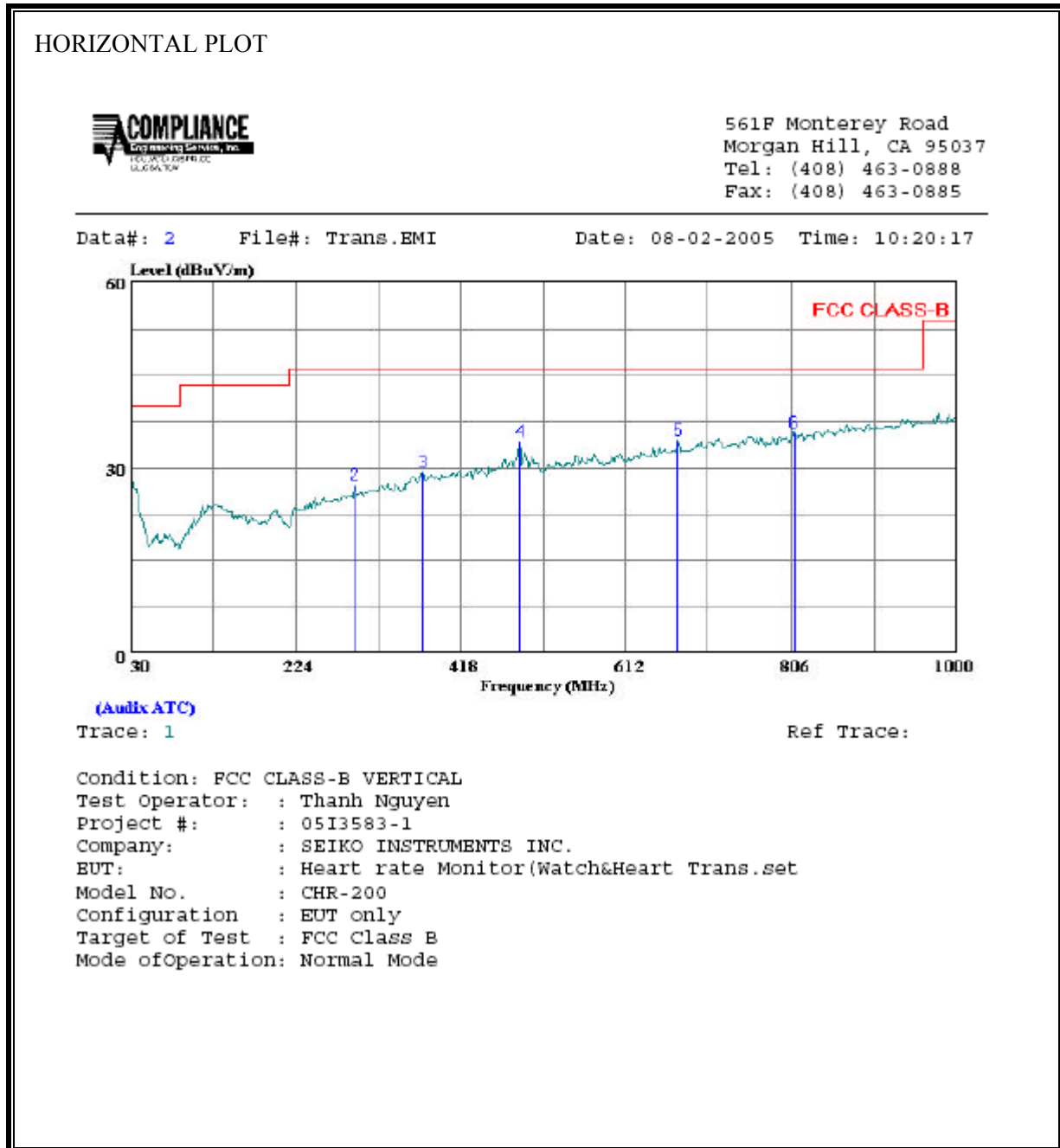
Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB μ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

Note: The lower limit shall apply at the transition frequency.

RESULTS

No Non-Compliant Noted

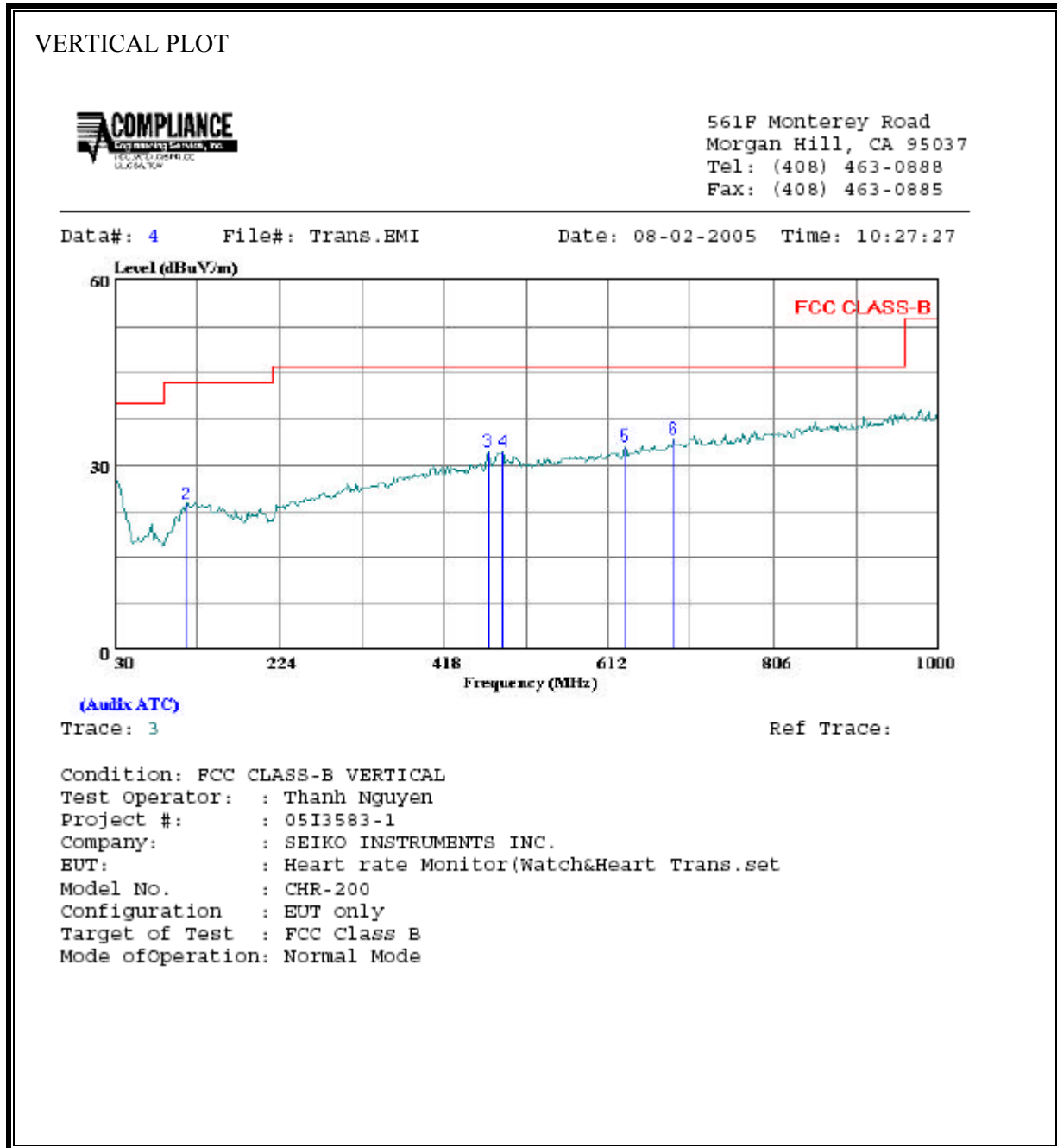
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	8.32	20.45	28.77	40.00	-11.23	Peak
2	293.840	11.82	15.42	27.24	46.00	-18.76	Peak
3	373.380	11.87	17.46	29.33	46.00	-16.67	Peak
4	487.840	14.20	20.00	34.20	46.00	-11.80	Peak
5	674.080	11.66	22.71	34.37	46.00	-11.63	Peak
6	808.910	10.93	24.71	35.64	46.00	-10.36	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



	Read		Limit	Over			
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	8.96	20.45	29.41	40.00	-10.59	Peak
2	115.360	9.15	14.60	23.75	43.50	-19.75	Peak
3	470.380	12.60	19.65	32.25	46.00	-13.75	Peak
4	487.840	12.25	20.00	32.25	46.00	-13.75	Peak
5	632.370	10.91	22.03	32.94	46.00	-13.06	Peak
6	688.630	11.41	22.87	34.28	46.00	-11.72	Peak

7.2. RADIATED EMISSIONS BELOW 30 MHZ

TEST PROCEDURE

ANSI C63.4

LIMIT

The field strength of radiated emissions from an intentional radiator, shall not exceed the following, for frequencies below 30 MHz:

Frequency range (MHz)	Limits ($\mu\text{V/m}$)	Measurement Distance (meters)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30

Note: The lower limit shall apply at the transition frequency.

Testing was done at a distance of 10m, and an extrapolation factor of 40 dB / decade was applied to readings.

RESULTS

No Non-Compliant Noted

FCC Part 15, Subpart B & C 10 Meter Distance Measurement At Open Field												
Company: Casio Computer Co., Ltd.												
Project #: 05I3583												
Model #: CHR-200												
Tester: Thanh Nguyen												
Date: August 02, 2005												
Frequency (MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	AF (dB/m)	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Loop Antenna Face On:												
0.131	42.1		42.1	10.48	-59.08	-6.51	-6.51	45.26	25.26	-51.8	-31.8	10m distance
0.262	31.25		31.25	10.38	-59.08	-17.46	-17.46	39.24	19.24	-56.7	-36.7	10m distance
0.393	33.5		33.5	10.28	-59.08	-15.30	-15.30	35.72	15.72	-51.0	-31.0	10m distance
Loop Antenna Face Off:												
0.131	31.6		31.6	10.48	-59.08	-17.01	-17.01	45.26	25.26	-62.3	-42.3	10m distance
0.262	28.8		28.8	10.38	-59.08	-19.91	-19.91	39.24	19.24	-59.1	-39.1	10m distance
* No more emissions were found up to 30MHz												
<p>Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> <p>P.K. = Peak Q.P. = Quasi Peak Reading A.F. = Antenna factor</p>												

(Note: The setup photos on pages 14 to 16 have been extracted as a separate file.)