

FCC – Test report

Report Number : **60/760.8.142.01** Date of Issue: 5 January 2009

Model : **HeartWear**

Product Type : **Fabric Heart Rate Monitor**

Applicant : **Dayton Industrial Co., Ltd.**

Address : **2-12 Kwai Fat Road, 11-A Kwai Chung,**
: **New Territories, Hong Kong**

Production Facility : **Kendy Enterprise Ltd.**

Address : **2-12 Kwai Fat Road, 11-A Kwai Chung,**
: **New Territories, Hong Kong**

Test Result : **Positive** **Negative**

Total pages including Appendices : **15**

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2 Details about the Test Laboratory

Details about the Test Laboratory

Company name: TÜV SÜD HONG KONG LTD.
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10 Science Park West Avenue,
Science Park, Shatin
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Report Number: 60/760.8.142.01

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3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Fabric Heart Rate Monitor
Model no.:	HeartWear
Serial number:	NIL
Options and accessories:	NIL
Rated Voltage:	3 V DC
Rated Current:	NIL
Rated Power:	NIL
Frequency:	NIL
Description of the EUT:	NIL

4 Summary of Test Standards and Results

Emission Tests						
Test Condition	Test Requirement	Test Method	Pages	Test Result		
				Pass	Fail	N/A
Radiated Emission (Fundamental & Spurious Emission)	FCC Part 15 Section 15.249	ANSI C63.4:2003	7-8, 10-13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emission 30MHz – 1000MHz	FCC Part 15 Section 15.209	ANSI C63.4:2003	9, 13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emission on AC 150kHz to 30MHz	FCC Part 15 Section 15.207	ANSI C63.4:2003	NIL	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



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5 General Remarks

Remarks

NIL

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - Not Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: 20 November 2008

Testing Start Date: 3 December 2008

Testing End Date: 3 December 2008

- TÜV SÜD HONG KONG LTD. -

Reviewed by:

Ivan Toa
Deputy Manager



Prepared by:

Twin Ngan
EMC Test Engineer



6 Emission Test Results

6.1 Radiated Emission Test (Fundamental)

Date of test : 3 December 2008

Test requirement : FCC Part 15 Section 15.249

Test method : ANSI C63.4:2003

Operating mode : On mode

Antenna polarity : Horizontal (> Vertical)

Remarks : Duty Cycle Correction = 20 Log (0.0019)= -54.4dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Field Strength of Fundamental Emissions in Peak Value			
Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
2456.9	91.4	114.0	-22.6

Field Strength of Fundamental Emissions in Average Value			
Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
2456.9	37.0	94.0	-57.0

Radiated Emission Test (Spurious Emission)

Date of test : 3 December 2008
 Test requirement : FCC Part 15 Section 15.249
 Test method : ANSI C63.4:2003
 Operating mode : On mode
 Antenna polarity : Horizontal (> Vertical)
 Remarks : Duty Cycle Correction = 20 Log (0.0019)= -54.4dB

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Field Strength of Emissions in Peak Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
4913.80	<30	74.0	<-44
7370.70	<30	74.0	<-44
9827.60	<30	74.0	<-44
12284.50	<30	74.0	<-44
14741.40	<30	74.0	<-44
17198.30	<30	74.0	<-44
19566.20	<30	74.0	<-44
22112.10	<30	74.0	<-44
24569.00	<30	74.0	<-44

Field Strength of Fundamental Emissions in Average Value

Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
4913.80	<30	54.0	<-24
7370.70	<30	54.0	<-24
9827.60	<30	54.0	<-24
12284.50	<30	54.0	<-24
14741.40	<30	54.0	<-24
17198.30	<30	54.0	<-24
19566.20	<30	54.0	<-24
22112.10	<30	54.0	<-24
24569.00	<30	54.0	<-24

Radiated Emission Test 30MHz - 1000MHz

Date of test : 3 December 2008
Test requirement : FCC Part 15 Section 15.209
Test method : ANSI C63.4:2003
Operating mode : On mode
Antenna polarity : Horizontal
Remarks : NIL

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	QP Test result dB μ V/m	QP Limit dB μ V/m	Margin dB
No significant emissions above the equipment noise floor were detected			

Frequency Range of Fundamental Emission

Date of test : 13 November 2008
Test requirement : FCC Part 15 Section 15.249
Test method : ANSI C63.4:2003
Operating mode : On mode
Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Limits for Frequency Range of Fundamental Emission

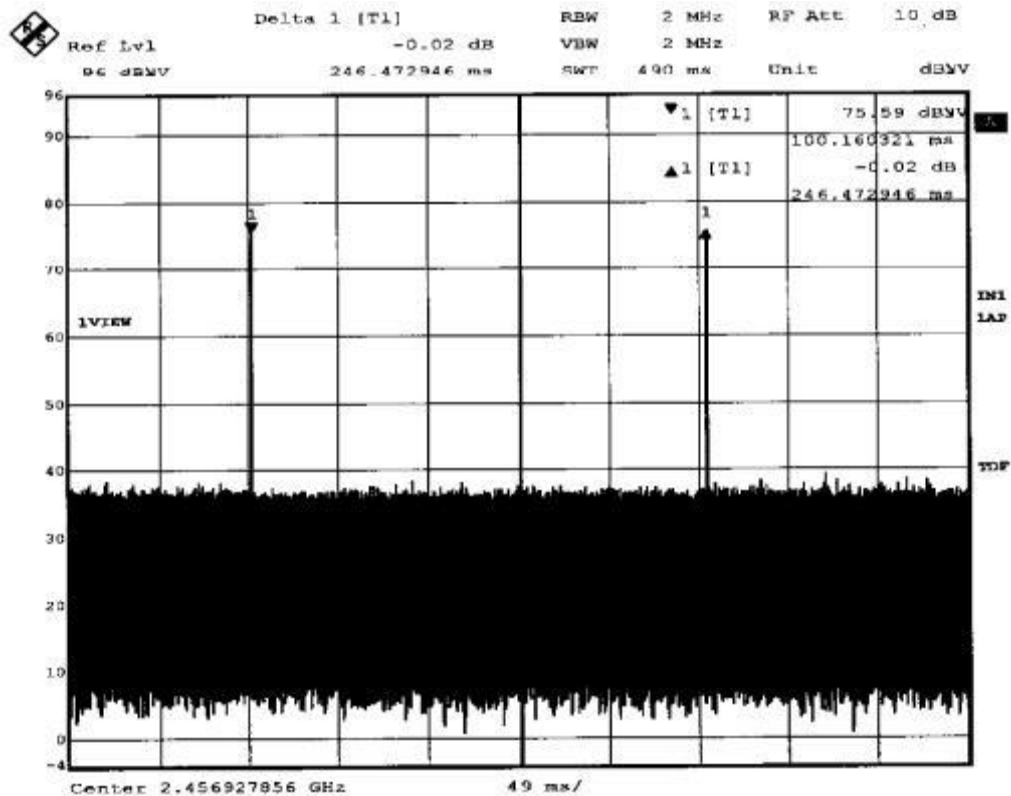
Frequency MHz	Limits MHz
2456.9	2400-2483.5

Duty Cycle Correction

Assuming any combination of short or long pulses may be obtained due to encoding the worst Case transmit duty cycle would be considered 0.19msec per 100msec = 0.19% duty cycle. Figure A and B show the characteristics of the pulse train.

$$\text{Duty Cycle Correction} = 20 \text{ Log } (0.0019) = -54.4\text{dB}$$

Figure A (Pulse Train)

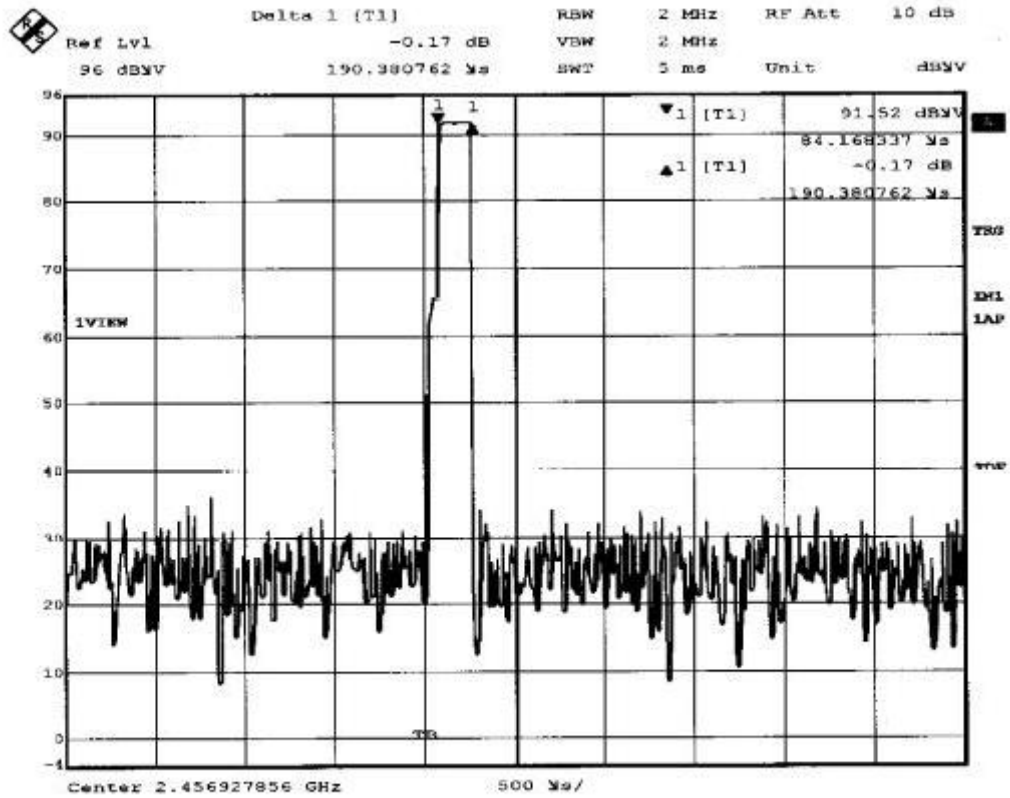


Date: 27.NOV.2008 10:04:46

1 pulse within 246.5ms

Duty Cycle Correction

Figure B (Pulse)



Date: 27.NOV.2008 10:02:55

Pulse period is 190us

Test Equipment List**Radiated Emission Test**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	DUE CAL. DATE
EM215	MULTIDEVICE CONTROLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2006/05/02	2009/05/02
EM219	BICONILOG ANTENNA	EMCO	3142C	00029071	2006/08/23	2010/09/08
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2007/07/20	2009/08/20

7 Appendix A



8 Appendix B

Radiated Emission Test Set Up

