



Project: 03ME15540
File: NC4557
Date: 3 December 2003
Model: M515

Test Report

On

Electromagnetic Compatibility Testing

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to public safety and committed to
quality service for over 100 years**

File Number: NC4557
Project Number: 03ME15540
Model Number: M515
FCC ID: EP9TMXM515

Issued: 12/03/03

Test Report Details

Tests Performed By: Underwriters Laboratories Inc.
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Melville, NY 11747

Tests Performed For: Timex Corporation
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Middlebury, CT 06762

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Test Report Date: 12/03/03

Product Type: Heart Rate Monitor

Model Number: M515

Sample Serial Number: Prototype

Sample Tag Number: 0534361001

Sample Receive Date: 11/12/03

EUT Category: ITE

Testing Start Date: 11/14/03

Date Testing Complete: 11/15/03

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
Not applicable	Not applicable	Not applicable	Not applicable

1.0 G E N E R A L - Product Description

The Fitness System is a combination of heart rate monitor (M515) and a sports watch (MXXX). The heart rate monitor senses your heart rate on the chest. It calculates your heart rate and transmits it to the watch. One will simple glance at the watch display during exercise/training to make sure you are in the appropriate heart rate range this will help maintain or improve your fitness level. If set, an out of zone alarm will automatically alert you when you are not in your selected heart rate range.

The Transmit antenna is permanently attached to the M515 Transmitter.

1.1 Device Configuration During Test

The receiver receives the transmitted radio signals, decodes it and displays the information on the LCD screen of the watch. The system uses an FSK (frequency shift keying) based simplex data communication scheme. The data rate does not exceed 1024 baud. The system is designed to function up to a maximum distance of 1 meter between transmitter and receiver. Equipment Used During Test:

Use*	Product Type	Manufacturer	Model	Comments
ACC	Watch (Receiver)	M565	N/A	-----
SIM	Body Simulator	HC841	Prototype	-----

* Use = EUT - Equipment Under Test, ACC - Accessory (Not Subjected to Test), or SIM - Simulator (Not Subjected to Test)

1.1.1 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
0	Enclosure	N/E	-	-	None
1	Mains	DC	-	-	-----
2	Coaxial Cable	PMC	< 3m	Yes	-----

*AC = AC Power Port

DC = DC Power Port

N/E = Non-Electrical

I/O = Signal Input or Output Port (Not Involved in Process Control)

PMC = Process Measurement and Control Port

1.1.2 EUT Internal Operating Frequencies: The frequencies are not applicable

1.1.3 Power Interface:

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	DC	< 0.1	-----	DC	--	-----

1.2 EUT Operation Modes:

Mode #	Description
1	The receiver receives the transmitted radio signals, decodes it and displays the information on the LCD screen of the watch. The system uses an FSK (frequency shift keying) based simplex data communication scheme. The data rate does not exceed 1024 baud. The system is designed to function up to a maximum distance of 1 meter between transmitter and receiver.

1.3 EUT Configuration Modes:

Mode #	Description
1	The EUT was tested with a heart simulator constructed by Timex to transmit data between the watch and transceiver. The heart rate requires a heart beat in order to start data collection.

"The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report"

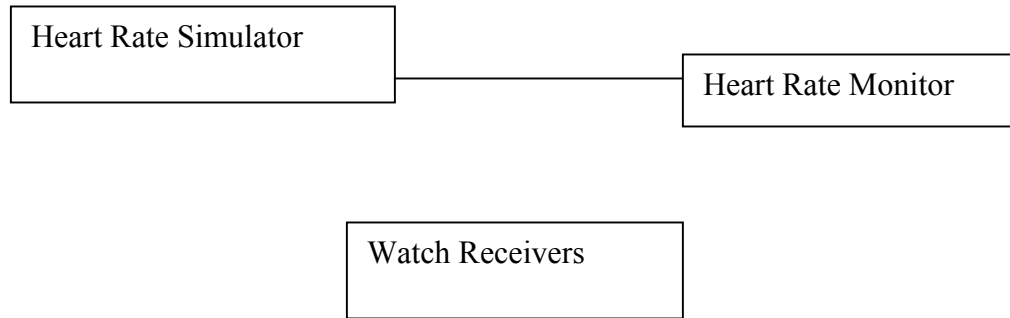
Note: The EUT orientation was tested in a vertical axis, which was deemed worst-case emissions.

Per FCC Part 2.1093 (C) this device is not required to undergo testing for radio-frequency radiation exposure.

In the frequency range 9 kHz to 70 kHz inherent instrument peak noise was observed and measured.

1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



1.5 Deviations from standard test methods.

Not Applicable

1.6 Device; Changes to the Heart Rate Monitor (chest Strap).

The chest strap was modified from the existing M515 HRM (Heart rate Monitor). This new version operates exactly the same as the existing version and will be marketed with all existing watch receivers. The changes are as follows: The PCB board layout, circuit components values changed in the front end, firmware algorithm upgrades, and different sensor pad material.

The emissions tests were completed to determine if all spurious emission continued to meet all applicable limits including the power, which is being transmitted. It was determined that the heart rate monitor continued to meet the limits as per original testing.

1.7 Test Summary

Test Name Test Requirement/Specification	Comply	Does Not Comply	See Remark
Radiated Disturbance Emissions – 10KHz to 1000 MHz Electric Field	Yes	-	1
FCC Part 15, Subpart C	Yes	-	1
Conducted Disturbance Emissions - Voltage	Yes	-	3
FCC Part 15, Subpart C	Yes	-	3

Remarks:

- 1) No Modifications required for compliance.
- 2) Modifications required to comply as described in Section 1.5
- 3) Not applicable DC power

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2.0 Conclusion:

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The Applicant as being applicable to the Equipment Under Test determined the test list. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

The equipment under test has

Met the technical requirements as defined under section(s) 5.0

Test Start Date: 11/14/03
Test Completion Date: 11/15/03



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3.0 FCC Labeling Information

3.1 Identification.

Devices Subject to Verification

In 47 CFR, Part 2, § 2.954:

“Devices subject only to verification shall be uniquely identified by the person responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified or type accepted equipment. The importer or manufacturer shall maintain adequate identification records to facilitate positive identification for each verified device.”

Devices Subject to Declaration of Conformity

In 47 CFR, Part 2, § 2.1074:

“Devices subject only to a Declaration of Conformity shall be uniquely identified by the responsible party. This identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified, type accepted or type approved equipment. The responsible party shall maintain adequate identification records to facilitate positive identification for each device.”

3.2 Compliance information

§ 2.1077 Compliance information.

(a) If a product must be tested and authorized under a Declaration of Conformity, a compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (1) Identification of the product, e.g., name and model number;
- (2) A statement, similar to that contained in § 15.19(a)(3) of this chapter, that the product complies with part 15 of this chapters; and
- (3) The identification, by name, address and telephone number, of the responsible party, as defined in § 2.909.

The responsible party for a Declaration of Conformity must be located within the United States.

(c) The compliance information statement shall be included in the user’s manual or as a separate sheet.

§ 15.19(a)(3):

“ All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

3.3 Labeling.

Labeling Certification or Verification

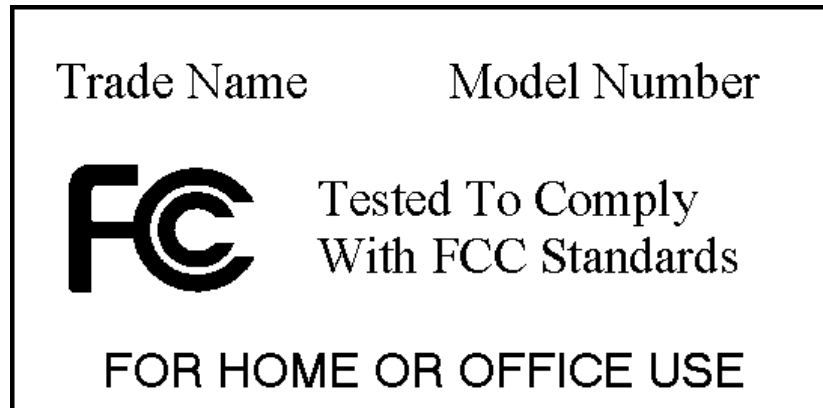
In addition to the requirements in Part 2 of this CFR 47 (See **1.6.1 Identification** above), a device subject to certification or verification shall be labeled as follows:

- (1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:
This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.
- (2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:
This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.
- (3) All other devices shall bear the following statement in a conspicuous location on the device:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- (4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.
- (5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

Declaration of Conformity Labeling

In addition to the requirements in Part 2 of CFR 47 (See **1.6.1 Identification** above), a device subject to authorization under a Declaration of Conformity shall be labeled as follows:

- (1) The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 of this chapter and the following logo:
 - (i) If the product is authorized based on testing of the product or system:



Alternate label format for small devices:



The text shown in ***bold-face italics*** may be placed in a prominent location in the instruction manual or pamphlet supplied to the user.

- (2) Label text and information should be in a size of type large enough to be readily legible, consistent with the dimensions of the equipment and the label. However, the type size for the text is not required to be larger than eight point.
- (3) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (b)(1) of this section on it, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.
- (4) The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d) of this chapter. "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

3.4 User information.

In 47 CFR, Part 15, § 15.21 **Information to user:**

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“The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.”

In 47 CFR, Part 15, § **15.105 Information to the user:**

Class A Devices

“(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.”

Class B Devices

“(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help*

“(d) For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) of this section needs to be contained only in the instruction manual for the main control unit.”

4.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is the manufacturer recommends one year or what whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

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5.0 EMISSIONS TEST REGULATIONS

The emissions tests were performed according to following regulations:

----- United States -----

FCC Part 15, Subpart B and C	Code of Federal Regulations, Part 15, Subpart B and C, Radio Frequency Devices
------------------------------	---

5.1.1 Conducted Emissions Tests

Test Not Applicable: The EUT operates on DC Power

5.1.2 Radiated Emissions Test (10 Meter Semi-Anechoic Chamber)

Test Applicable

Measurements were made in a 10-meter semi-anechoic chamber that complies to ANSI C63.4. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

Results

The system met the requirements for radiated emissions. Data Pages follow.

Temperature:	21.1°C	Mode*	
Humidity:	42%RH	Power	Operation
Pressure:	1002mbar	1	1
Date test performed:	14 November 2003		

1 fully configured sample was scanned over the following frequency range:

Electric fields:	10kHz - 30MHz	(3 meter measurement distance)
Electric fields:	30MHz - 1GHz	(10 meter measurement distance)

9kHz – 30MHz a Magnetic Loop Antenna was utilized. The limit was adjusted using the 40dB/decade-limit extrapolation method. In addition, the electric field strengths when measured with the loop antenna were maximized about the antenna full azimuth during test.

30MHz – 1.0GHz the measurement was made throughout the frequency banned on the EUT.

Tests were performed on the transmitter in accordance with the limitation set forth by CFR47 FCC Part 15 Subpart C Paragraph 15.209 and tested in accordance with the test procedures and methodologies in ANSI C63.4: 2001.

The EUT was checked throughout the frequency band 9kHz to 1.0GHz. The transmitter operated at 137.5 -141kHz. The allowable field strength limits in accordance with 15.209 were applied to the fundamental frequency. All other emissions were tested in accordance with the general limitations 15.209.

All frequencies were evaluated and the plots enclosed show worst-case emissions.

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Test equipment used for Radiated Emissions

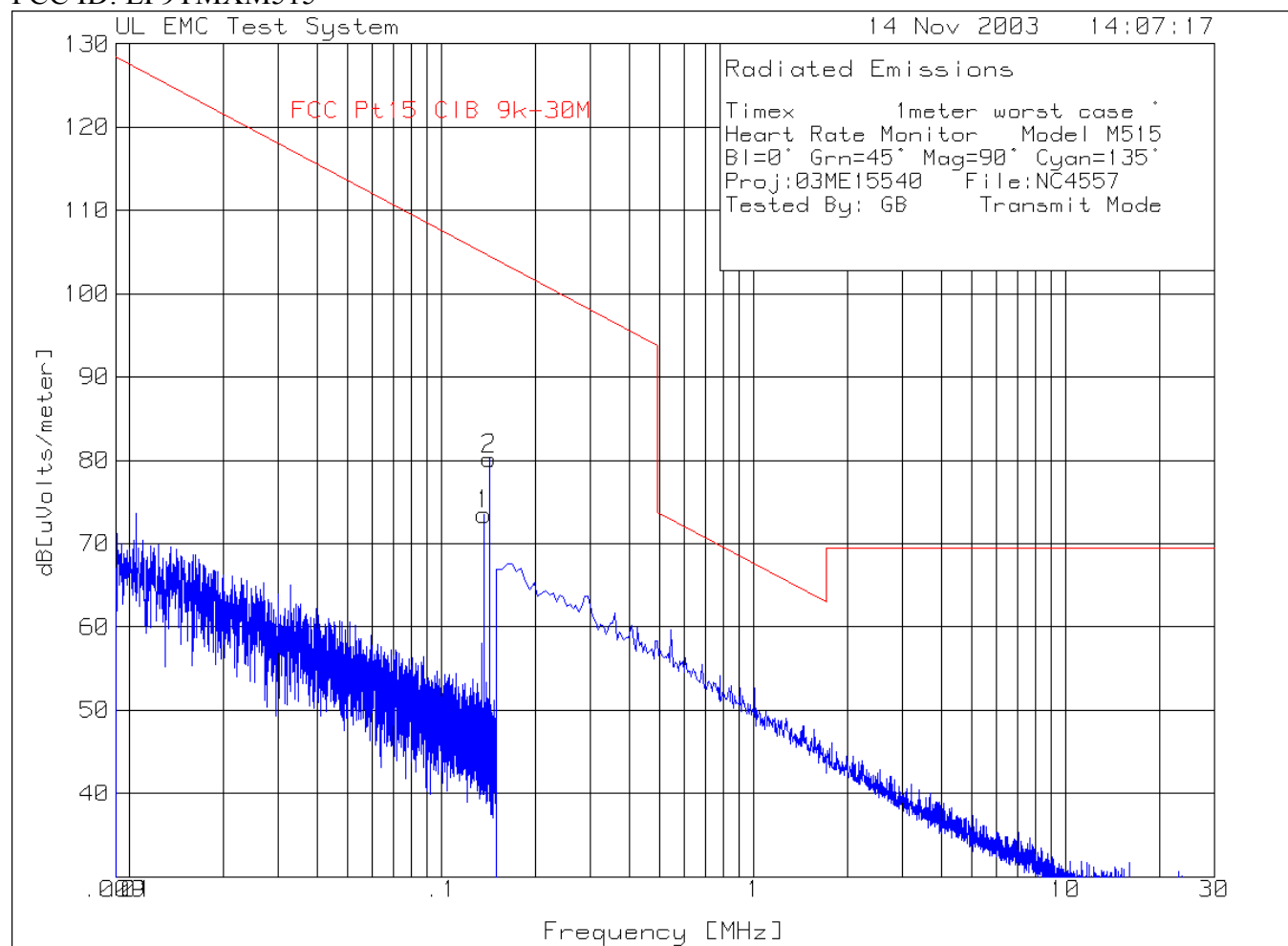
ESI26	Rhode & Schwartz	EMI Receiver	Equipment No.: ME5B-081
			Quasi Peak BW: 200Hz 9kHz to 150kHz
			RBW 10 KHz
			Quasi Peak BW: 9kHz 150kHz to 30MHz
			RBW 100 KHz
			Quasi Peak BW: 120 30 to 1000MHz
			kHz
			RBW 1.0 MHz
Range: 10KHz – 1000MHz	Last Calibration Date: 28 August 2003		Calibration Due Date: 31 August 2004

Test Accessories for Radiated Emissions

3104C	EMCO	Biconnical Antenna	Equipment No.: ME5-810
Range:	Last Calibration Date:		Calibration Due Date:
3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-811
Range: 200-1000MHz	Last Calibration Date: 27 March 2003		Calibration Due Date: 27 March 2004
6507	EMCO	Loop Antenna	Equipment No.: ME5A-151
Range: 1KHz to 30MHz	Last Calibration Date: 7 March 2003		Calibration Due Date: 7 March 2004
99760-00	Cole –Parmer	Hygrometer/Temp/Baro	Equipment No.: ME4-268
		meter	
		Ranges	Temp: 0°C-55°C
			Humidity: 25% to 95 %RH
			Pressure: 795 to 1050 mbar
	Last Calibration Date: 27 May 2003		Calibration Due Date: 27 May 2004

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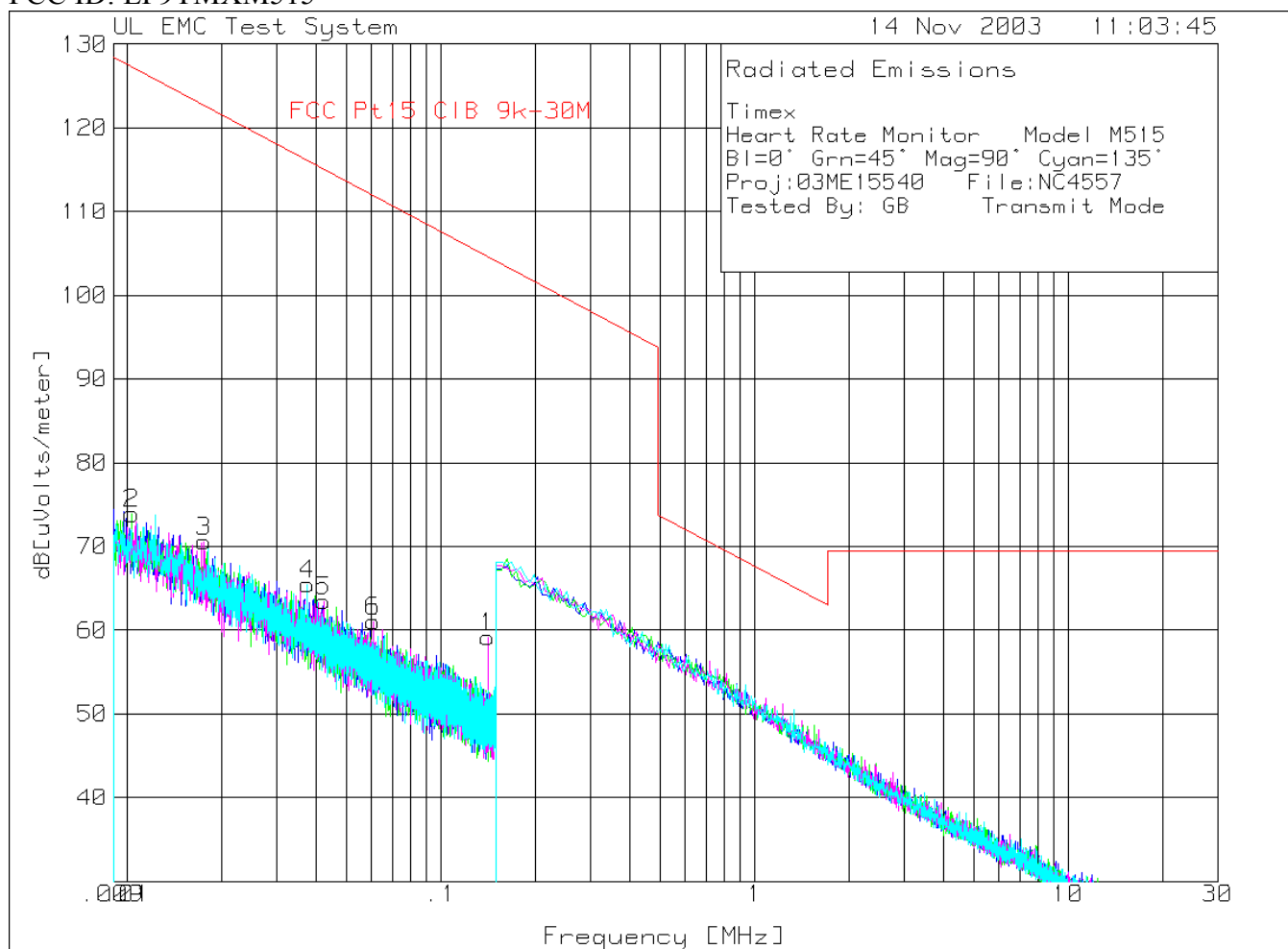
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Timex 1meter worst case °
Heart Rate Monitor Model M515
Bl=0° Grn=45° Mag=90° Cyan=135°
Proj:03ME15540 File:NC4557
Tested By: GB Transmit Mode

No.	Test Frequency [MHz]	Meter Reading [dB (uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1
=====						
Range: 1 .009 - .15MHz -----						
1	.13677	57.22 pk	0	16.3	73.52	104.9
		Height:101	Horz	Margin [dB]		-31.38
2	.1423	63.97 pk	0	16.2	80.17	104.5
		Height:101	Horz	Margin [dB]		-24.33

The Mark Frequency 137.5KHz
The Space Frequency 141.03KHz

Emissions were measured at 1 meter between 10kHz and 30MHz and the data is shown above.



The emission where the system noise floor was above the fundamental was checked with the antenna at 1 meter and the data was extrapolated back to 3 meters.

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Timex

Heart Rate Monitor Model M515

Bl=0° Grn=45° Mag=90° Cyan=135°

Proj:03ME15540 File:NC4557

Tested By: GB Transmit Mode

Test Meter Gain/Loss Transducer Level Limit:1

No. Frequency Reading Factor Factor dB[uVolts/meter]

[MHz] [dB(uV)] [dB] [dB]

=====
Range: 3 .009 - .15MHz -----

2 .01033 45.11 pk 0 28.8 73.91 127.3

Azimuth:357 Height:168 Horz Margin [dB] -53.39

Range: 5 .009 - .15MHz -----

1 .14097 42.95 pk 0 16.2 59.15 104.6

Azimuth:19 Height:148 Horz Margin [dB] -45.45

3 .01755 45.58 pk 0 25 70.58 122.7

Azimuth:0 Height:0 Horz Margin [dB] -52.12

5 .04223 44.25 pk 0 19.2 63.45 115.1

Azimuth:0 Height:0 Horz Margin [dB] -51.65

6 .06076 43.45 pk 0 17.6 61.05 111.9

Azimuth:0 Height:0 Horz Margin [dB] -50.85

Range: 7 .009 - .15MHz -----

4 .03749 45.59 pk 0 19.9 65.49 116.1

Azimuth:0 Height:0 Horz Margin [dB] -50.61

LIMIT 1: FCC Pt15 ClB 9k-30M

pk - Peak detector

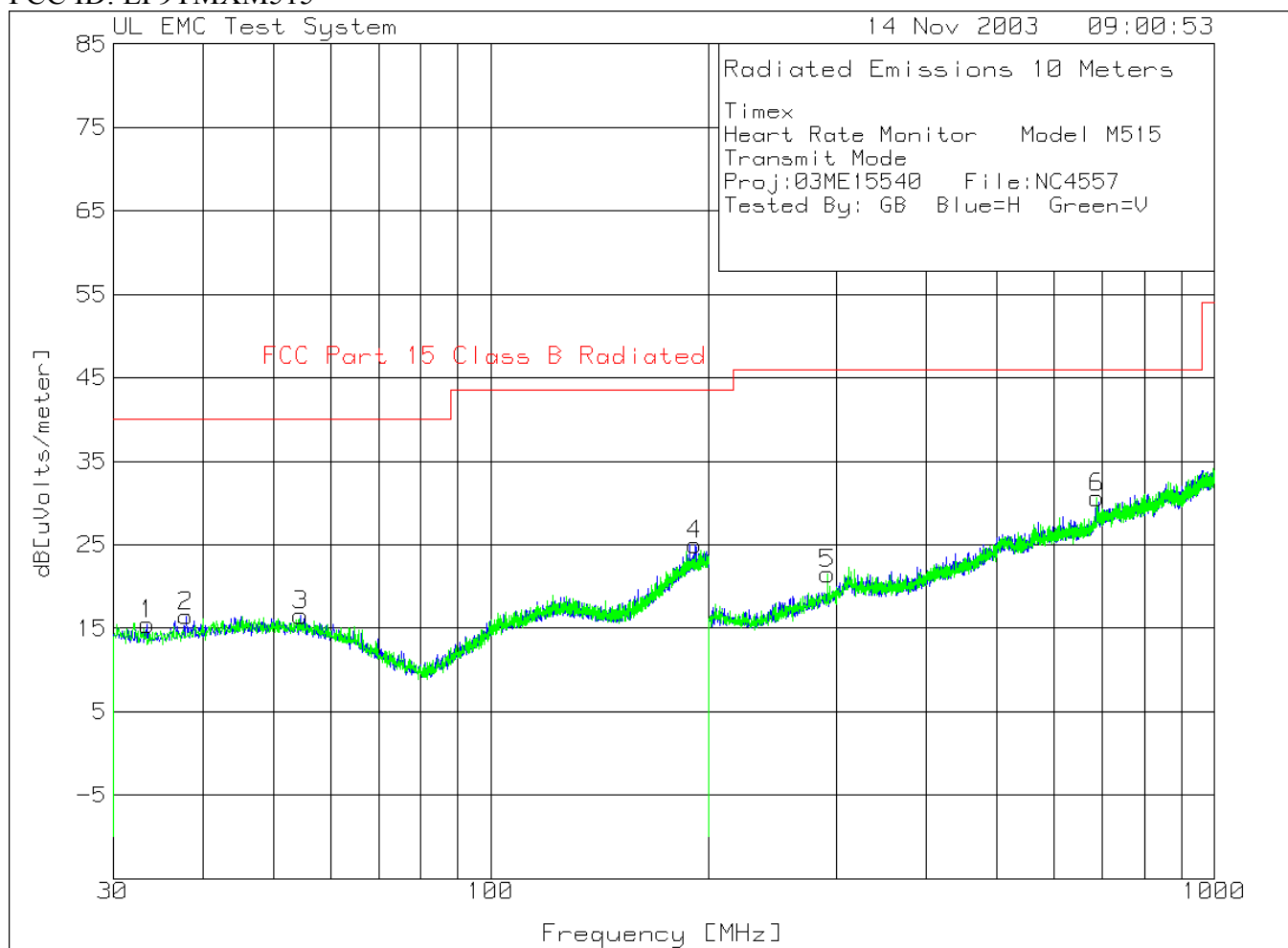
qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

avem - denotes EMI average detection

tm - Trace Math Result



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Timex
Heart Rate Monitor Model M515
Transmit Mode
Proj:03ME15540 File:NC4557
Tested By: GB Blue=H Green=V

No.	Test Frequency [MHz]	Meter Reading [dB (uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1
=====						
Horizontal 30 - 200MHz -----						
1	33.4867	2.64 pk	.8	12	15.44	40
	Azimuth:358	Height:300	Horz	Margin [dB]		-24.56
2	37.909	3.26 pk	.9	12.3	16.46	40
	Azimuth:18	Height:199	Horz	Margin [dB]		-23.54
3	54.5773	3.25 pk	1.1	12.2	16.55	40
	Azimuth:189	Height:100	Horz	Margin [dB]		-23.45
4	191.2406	5.1 pk	2	17.9	25	43.5
	Azimuth:104	Height:399	Horz	Margin [dB]		-18.5
Vertical 200 - 1000MHz -----						
5	292.0307	4.9 pk	2.5	14.1	21.5	46
	Azimuth:359	Height:400	Vert	Margin [dB]		-24.5
6	688.4295	5.42 pk	3.9	21.3	30.62	46
	Azimuth:217	Height:100	Vert	Margin [dB]		-15.38

LIMIT 1: FCC Part 15 Subpart B 15.209

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
avem - denotes EMI average detection
tm - Trace Math Result

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Sample Calculation:

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Radiated Emission Limit Conversion from dBuV/m
(Limits in accordance with paragraph 15.109)

Radiated Emissions Limit (dBuV/m) = $20 \cdot \log(uV/m)$
Radiated Emissions Limit (dBuV/m) = $20 \cdot \log(90)$
Radiated Emissions Limit (dBuV/m) = 39.0
Radiated Emissions test data obtained during measurements.

Field strength (dBuV / m) = Measured field strength (dBuV) + Antenna factor (dB) + cable factor (dB).
Field strength (dBuV / m) = 51.1 dBuV/m + 15.8 dB + 0.3 dB.
Field strength (dBuV / m) = 71.3

Radiated Emissions Limit conversion from Uv/m to dBuV/m add 40 dB / Decade.
(Limits in accordance with paragraph 15.209).

Radiated Emissions Limits General Requirements.

Frequency between 0.009-0.490 MHz,
2400/F (kHz) at 300 meters = Field strength in uV/meter.
Fundamental Frequency = 9KHz.
2400/(9KHz) at 300 meters
Radiated Emission at 9 kHz at 300 meters = 266.6uV/meter.
dBuV/m $20 \cdot \log(266.6uV/m)$.
dBuV/M = 48.5 at 300 meters.
Add 40 dB /decade
300meters to 3 meters = 80 dB.
Radiated Emission Limit = dBuV/M + dB.
48.5+80
128.5dBuV/m

Magnetic field conversion of the active loop antenna:

The magnetic field reading was converted to an electrical field reading by adding the electric field factors (dB) to the field strength reading. The electric antenna factors are established at the time of the antenna calibration.

Antenna factor (dB) + constant = Field strength dBuV/m
At 100 kHz 16.4 + 51.5 = 67.9.

Appendix A

Accreditations and Authorizations



NVLAP: Recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC EN17025 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. The specific scope includes IEC/CISPR 22:1997, Amendment 1:1995, Amendment 2:1997, EN 55022:1998, AS/NZS 1044, CNS 13438:1997, ANSI C63.4, FCC Method - 47 CFR Part 15, FCC Method - 47 CFR Part 68, AS/NZS 3548, IEC 61000-3-2, EN 61000-3-2, CISPR 14-1, EN 55014-1, AS/NZS 1044, CNS 13783-1, CISPR 22, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, and IEC 61000-4-11 testing. NVLAP Lab code: 100255-0.



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland and accepted in a letter dated September 24, 1997 (Ref. No. 91040).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2181



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: (Radiated Emissions) R-797, (Conducted Emissions) C-832, C-833, C-834 and (Conducted Emissions - Telecommunications Ports) T-160.



ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6. U.S. Identifier Number: US0113