

Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

FCC Rules and Regulations / Intentional Radiators

Operational in the 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz Bands

Part 15, Subpart C, Section 15.249

THE FOLLOWING "MEETS" THE ABOVE TEST SPECIFICATION

Formal Name: Carematix Weight Scale

Kind of Equipment: Medical

Test Configuration: Stand alone (Tested at 9 vdc)

Model Number(s): 2100

Model(s) Tested: 2100

Serial Number(s): 1048603

Date of Tests: April; 14 & 15, 2003

Test Conducted For: Carematix Inc.

2 North LaSalle Street, Suite 1904

Chicago, Illinois 60602

NOTICE: "This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Additional Description of Equipment Under Test" page listed inside of this report. This report must not be reproduced (except in full), without the approval of D.L.S. Electronic Systems.



Company: Carematix Inc. Model Tested: 2100

Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

SIGNATURE PAGE

Report By:

Arnom C. Rowe Test Engineer

EMC-001375-NE

Reviewed By:

William Stumpf OATS Manager

Approved By:

Brian Mattson General Manager

Company Official:

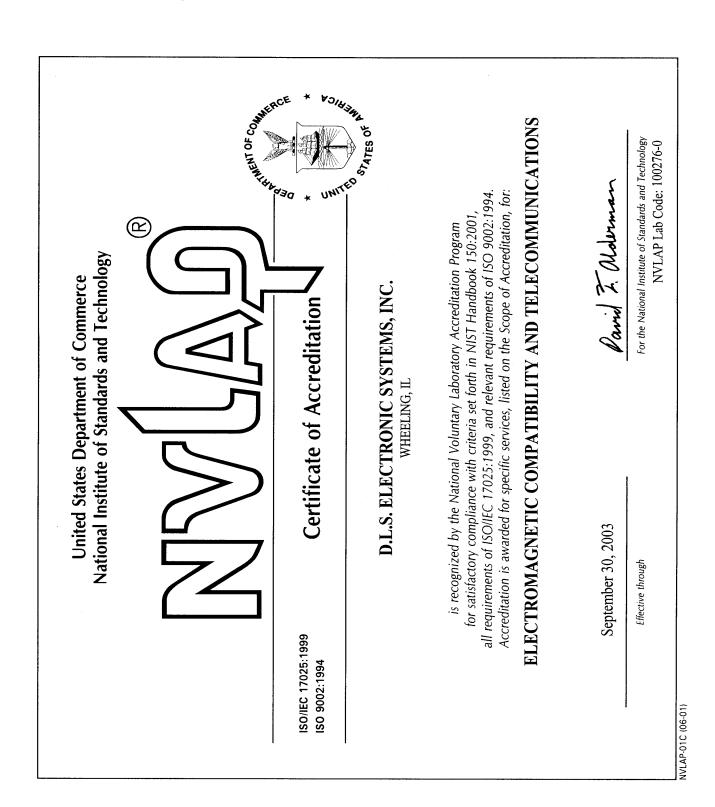
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2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009





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2100

10169

Report Number:

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 1 of 8 NVLAP LAB CODE 100276-0

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

D.L.S. ELECTRONIC SYSTEMS, INC.

1250 Peterson Drive Wheeling, IL 60090-6454 Mr. Brian J. Mattson

Phone: 847-537-6400 Fax: 847-537-6488 E-Mail: bmattson@dlsemc.com URL: http://www.dlsemc.com

NVLAP Code Designation / Description

Emissions Test Methods:

12/300220a EN 300 220-1 V1.3.1 (2000-09): Electromagnetic compatibility and Radio spectrum

Matters; Short Range Devices; Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Technical

characteristics and test methods

12/300386a EN 300 386 V.1.2.1: Electromagnetic compatibility and radio spectrum matter

(ERM); Telecommunication network equipment; Electromagnetic compatibility

(EMC) requirements

12/C6317a ANSI C63.17-1998: American National Standard for Methods of Measurement of the

Electromagnetic and Operational Compatibility of Unlicensed Personal

Communications Services (UPCS) Devices

12/CIS11 IEC/CISPR 11 + A1 (1997), EN 55011 (1998), AS/NZS 2064 (1997), and CNS

137803 (1997): Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical Radio-Frequency Equipment

September 30, 2003

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Carematix Inc.

Report Number:

2100 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 2 of 8

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	Designation / Description
12/CIS13	IEC/CISPR 13 (2001-04), EN 55013 (2001), AS/NZS 1053 (2001), and CNS 13439 (2001): Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993) with Amendments A1 (1997) & A2 (1999)
12/CIS14d	IEC/CISPR 14-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS14e	EN 55014-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS14f	AS/NZS 1044 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS14g	CNS 13783-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS15	IEC/CISPR 15 (2000-08), 6th edition, EN 55015 (2000), AS/NZS 4051 (2000), and CNS 14115 (2000): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

September 30, 2003

Effective through

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Carematix Inc.

Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 3 of 8

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	Designation / Description
12/CIS15a	AS/NZS CISPR (2002): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15b	CNS 13439 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS22	IEC/CISPR 22 (1997) and EN 55022 (1998): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438:1997: Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)
12/EM03	EN 61000-3-3 (1995), IEC 61000-3-3 (1995), and AS/NZS 2279.3 (1995): EMC - Part 3: Limits - Section 3. Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to 16A

September 30, 2003

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Carematix Inc.

2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

Page: 4 of 8

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	Designation / Description
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC15b	ANSI C63.4 (2001) with FCC Method - 47 CFR Part 15, Subpart B: Unintentional Radiators
12/FCC15c	ANSI C63.4 (2001) with FCC Method - 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15d	ANSI C63.4 (2001) with FCC Method - 47 CFR Part 15, Subpart D: Unlicensed Personal Communications Service Devices
12/FCC15e	ANSI C63.4 (2001) with FCC Method - CFR Part 15, Subpart E: Unlicensed National Information Infrastructure Service Devices
12/J111341	SAE J1113/41: Limits and methods of measurement of radio disturbance characteristics of components and modules for the protection of receivers used on board vehicles
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
12/VCCIa	Agreement of Voluntary Control Council for Interference by Information Technology Equipment - Technical Requirements: V-3/02.04

September 30, 2003

Effective through

For the National Institute of Standards and Technology



Carematix Inc.

2100

Report Number:

10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 5 of 8

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code Designation / Description

Immunity Test Methods:

GR-1089-CORE, Issue 3, October 2002: Electromagnetic Compatibility and 12/1089a Electrical Safety - Generic Criteria for Network Telecommunications Equipment (sections 2, 3.3, and 3.5) 12/160D16 RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 16 - Power Input 12/160D17 RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 17 - Voltage Spike 12/160D18 RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 18 - Audio Frequency Conducted Susceptibility -Power Inputs 12/160D19 RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 19 - Induced Signal Susceptibility RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for 12/160D20 Airborne Equipment - Section 20 - Radio Frequency Susceptibility (Radiated and Conducted) 12/160D22 RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 22 - Lightning Induced Transient Susceptibility

September 30, 2003

Effective through

For the National Institute of Standards and Technology



Carematix Inc.

Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 6 of 8

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	Designation / Description
12/160D25	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 25 - Electrostatic Dischare (ESD)
12/I01	IEC 61000-4-2 (1995) and Amendment 1 (1998) and EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3 (1995) and Amendment 1 (1998) and EN 61000-4-3: Radiated, Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4 (1995) and EN 61000-4-4: Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5 (1995) and EN 61000-4-5: Surge Immunity Test
12/I05	IEC 61000-4-6 (1996) and EN 61000-4-6: Immunity to Conducted Disturbances, Induced Radio-Frequency Fields
12/I06	IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test
12/I07	IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/J111324	SAE J1113/24: Immunity to radiated electromagnetic fields; 10 kHz to 200 MHz - Crawford TEM cell and 10 kHz to 5 GHz - Wideband TEM cell

September 30, 2003

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Carematix Inc.

Report Number:

2100 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 7 of 8 NVLAP LAB CODE 100276-0

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code Designation / Description

Radio Test Methods

12/RSS119 RSS-119, Issue 6 (March 25, 2000): Land Mobile and Fixed Radio Transmitters and

Receivers, 27.41 to 960 MHz

12/RSS123 RSS-123, Issue 1, Rev. 2 (November 6, 1999): Low Power Licensed

Radiocommunication Devices

12/RSS137 RSS-137, Issue 1, Rev. 1 (September 25, 1999): Location and Monitoring Service

(902 - 928 MHz)

12/RSS139 RSS-139, Isssue 1 (February 5, 2000): Licensed Radiocommunications Devices in

the Band 2400 - 2483.5 MHz

MIL-STD-462: Conducted Emissions:

12/A18 MIL-STD-461 Version E Method CE106

MIL-STD-462: Conducted Susceptibility:

12/B12 MIL-STD-462 Version D Method CS101

12/B13 MIL-STD-462 Version D Method CS103

12/B25 MIL-STD-461 Version E Method CS114

September 30, 2003

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Carematix Inc.

Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation

Revised Scope 07/28/2003

Page: 8 of 8

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code Designation / Description

12/B26 MIL-STD-461 Version E Method CS115

12/D20 WIII.-51D-401 Version E Method C5113

12/B27 MIL-STD-461 Version E Method CS116

MIL-STD-462: Radiated Emissions:

12/D04 MIL-STD-462 Version D Method RE101

12/D05 MIL-STD-462 Version D Method RE102

12/D06 MIL-STD-462 Version D Method RE103

MIL-STD-462: Radiated Susceptibility:

12/E08 MIL-STD-462 Version D Method RS101

12/E09 MIL-STD-462 Version D Method RS103

September 30, 2003

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Company:
Model Tested:
Report Number:

Carematix Inc. 2100

Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

TABLE OF CONTENTS

i.	Cover Page	1
ii.	Signature Page	2
iii.	NVLAP Certificate of Accreditation	3
iv.	NVLAP Scope of Accreditation	4
V.	Table of Contents	12
1.0	Summary of Test Report	13
2.0	Introduction	13
3.0	Object	13
4.0	Test Set-Up	14
5.0	Test Equipment	15
6.0	Description of Test Sample	16
7.0	Additional Description of Test Sample	19
8.0	Photo Information and Test Set-Up	20
9.0	Radiated Photos Taken During Testing	21
9.0	Radiated Photos Taken During Testing	22
10.0	Results of Tests	23
11.0	Conclusion	23
TABI	LE 1 – EQUIPMENT LIST	24
Appeı	ndix A – Electric Field Radiated Emissions Test	26
1.0	Conducted Emission Measurements	27
1.0	Conducted Data and Graph(s) taken during testing	28
2.0	Band Edge and Restrict Band Compliance	29
2.0	Data and Graph(s) taken showing the Band Edge and Restrict Band Compliance	30
3.0	Field Strength of Spurious Emission Measurements	32
3.0	Radiated Data and Graph(s) taken for Fundamental Emission Measurements	34
3.0	Radiated Data and Graph(s) taken for Field Strength Spurious Emission Measurements	41



Company: Carematix Inc.
Model Tested: 2100
Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

1.0 SUMMARY OF TEST REPORT

It was found that the Carematix Weight Scale, Model Number(s) 2100, "meets" the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.249 for operational in the 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz Bands. The conducted emissions test was not required because the Carematix Weight Scale is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line. It should be noted that the amount of margin was only 1.3 dB at 3660.2 MHz, radiated. The normal tolerance of the test equipment is ±3 dB. Due to this tolerance and the variation in normal production, a margin of at least 6 dB is recommended. With only a 1.3 dB in margin, there is a probability that if this or another unit were tested by the Domestic or Foreign Compliance Regulatory Agency using similar test equipment, it could be found to not meet the above requirement.

This test report relates only to the items tested and contains the following number of pages.

Text: 59

Charts: 8

2.0 INTRODUCTION

On April; 14 & 15, 2003, a series of radio frequency interference measurements was performed on Carematix Weight Scale, Model Number(s) 2100, Serial Number: 1048603. The tests were performed according to the procedures of the FCC as stated in the "Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz" found in the American National Standards Institute, ANSI C63.4-2000. Tests were performed by personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

3.0 OBJECT

The purpose of this series of tests was to determine if the test sample could meet the radio frequency interference emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Sections 15.35(b), 15.37(d), 15.209 & 15.249 for Intentional Radiators operating in the Bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24-24.25 GHz.



Company: Carematix Inc. Model Tested: 2100

Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

4.0 TEST SET-UP

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to the American National Standards Institute, ANSI C63.4-2000, Section 8, (Figures 11a and 11b). The conducted tests were performed with the test item placed on a non-conductive table (table top equipment), located in the test room. Equipment normally operated on the floor was tested by placing it on the metal ground plane. The ground plane has an electrical isolation layer over its surface approximately 7mm thick. The power line supplied was connected to a dual line impedance stabilization network electrically bonded to the ground plane, located on the floor. The networks were constructed per the requirements of the American National Standards Institute, ANSI C63.4-2000, Section 4, (Figure 2).

All radiated emissions tests were performed with the test item placed on a 80 cm high rotating non-conductive table, located in the test room. Equipment normally operated on the floor was placed on a metal covered turntable which is flush with the surrounding conducting ground plane. The ground plane has an electrical isolation layer over its surface approximately 7 mm thick. The EUT is separated from the turntable ground plane by a non-conductive layer. The equipment under test was set up according to ANSI C63.4-2000, Sections 6 and 8.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

All preliminary data below 1000 MHz was automatically plotted using the HP Spectrum Analyzer or ESI 26/40 Fixed Tuned Receiver. The data was taken using Peak, Quasi-Peak or the Average Detector Functions as required. This information was then used to determine the frequencies of maximum emissions. Above 1000 MHz, final data was taken using the Average Detector.

Below 1000 MHz, final data was taken using the HP Spectrum Analyzer and/or ESI 26/40 Fixed Tuned Receiver. These plots were made using the Peak or Quasi-Peak Detector functions, with manual measurements performed on the questionable frequencies using the Quasi-Peak or the Average Detector Function of the Analyzer or ESI 26/40 Fixed Tuned Receiver as required. Above 1000 MHz, final data was taken using the Average Detector on the Spectrum Analyzer.

The bandwidths shown below are specified by ANSI C63.4-2000, Section 4.2.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

6.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 7.0)

6.1 Description:

Permanently stays in transmit only mode. Transmits FSK at 915.05 MHz at 10 kbps (Manchester encoded).



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 6009

6.0 DESCRIPTION OF TEST SAMPLE: (CON'T)

6.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length: 14" Width: 14" Height: 1.573"

6.3 LINE FILTER USED:

NA

6.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

NA

Clock Frequencies:

16 MHz & 32.768 kHz



Carematix Inc.

Company: Carem Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

- 6.0 DESCRIPTION OF TEST SAMPLE: (CON'T)
 - 6.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. HUB Board PN: HUB4 Rev. 4.0



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Company: Carema Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

7.0	ADDITIONAL DESC (See also Paragraph 6	CRIPTION OF TEST SA 5.0)	AMPLE:	
	1: There were no add	itional descriptions note	d at the time of test.	
				N.
\				
I certi manu	fy that the above, as def factured as stated.	scribed in paragraph 8.0,	describes the equipment te	sted and will be
Ву:	- mh	wals	CEO	·
	Sukhwant Kha	muja	Ti	tle
For:	Carematix Inc	-	August 28 th 2003	A-4
	Com	pany	Da	ite :
GE 03	Aq	CAREMATIX INC	001025521	- Z5:4Z E002/5Z/



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

8.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 Carematix Weight Scale Model Number: 2100 Serial Number: 1048603



Carematix Inc.

Company: Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

9.0 RADIATED PHOTOS TAKEN DURING TESTING





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Company: Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

9.0 RADIATED PHOTOS TAKEN DURING TESTING





Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

10.0 RESULTS OF TESTS

The radio interference emission charts results can be seen on the pages at the end of this report. Data sheets indicating the test measurements taken during testing can also be found at the end of this report. Those points on the emission charts shown with a yellow mark are background frequencies which were verified during testing.

11.0 CONCLUSION

It was found that the Carematix Weight Scale, Model Number(s) 2100 "meets" the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.249 for operational in the 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz Bands. The conducted emissions test was not required because the Carematix Weight Scale is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

It should be noted that the amount of margin was only 1.3 dB at 3660.2 MHz, radiated. The normal tolerance of the test equipment is ± 3 dB. Due to this tolerance and the variation in normal production, a margin of at least 6 dB is recommended. With only a 1.3 dB in margin, there is a probability that if this or another unit were tested by the Domestic or Foreign Compliance Regulatory Agency using similar test equipment, it could be found to not meet the above requirement.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

TABLE $1 - EQUIPMENT\ LIST$

Test	Manufacturer	Model	Serial	Frequency	Cal Due
Equipment		Number	Number	Range	Dates
Spectrum	Hewlett/	8566B	2240A002041	100 Hz – 22 GHz	10/03
Analyzer	Packard				
Quasi-Peak	Hewlett/	85650A	2043A00121	10 kHz – 1 GHz	10/03
Adapter	Packard				
Spectrum	Hewlett/	8566B	2421A00452	100 Hz – 22 GHz	2/04
Analyzer	Packard				
Quasi-Peak	Hewlett/	85650A	2043A00450	10 kHz – 1 GHz	2/04
Adapter	Packard				
Spectrum	Hewlett/	8591A	3009A00700	9 kHz – 1.8 GHz	3/04
Analyzer	Packard				
Receiver	Electrometrics	EMC-30	44168	10 kHz – 1 GHz	9/03
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	11/03
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	12/03
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	12/03
Antenna	EMCO	3104C	00054891	20 MHz – 200 MHz	2/04
Antenna	Electrometrics	LPA-25	1114	200 MHz – 1 GHz	3/04
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3/04

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Antenna	Electrometrics	3146	1205	200 MHz – 1 GHz	3/04
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/04
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	3/04
Antenna	EMCO	3115	2479	1 GHz – 18 GHz	8/03
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/03
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/04
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	8/03
LISN	Solar	8012-50-R- 24-BNC	8305116	10 MHz – 30 MHz	8/03
LISN	Solar	8012-50-R- 24-BNC	814548	10 MHz – 30 MHz	8/03
LISN	Solar	9252-50-R- 24-BNC	961019	10 MHz – 30 MHz	12/03
LISN	Solar	9252-50-R- 24-BNC	971612	10 MHz – 30 MHz	10/03
LISN	Solar	9252-50-R- 24-BNC	92710620	10 MHz – 30 MHz	7/03

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

Part 15, Subpart C, Section 15.249a-e

OPERATION WITHIN THE BAND 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz MHz



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

1.0 CONDUCTED EMISSION MEASUREMENTS

NOTE:

The <u>conducted</u> emissions test was not required because the Carematix Blood Pressure Monitor is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

CONDUCTED <u>DATA</u> AND GRAPH(S) TAKEN DURING TESTING

PART 15.207

NOTE:

The <u>conducted</u> emissions test was not required because the Carematix Blood Pressure Monitor is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

2.0 BAND EDGE AND RESTRICT BAND COMPLIANCE

The field strength of any emissions appearing outside the 902 to 928 MHz band shall not exceed the general radiated emissions limits as stated Section 15.209. The fundamental from the Carematix Weight Scale transmitter shall not be inside the restrict band 960 to 1240 MHz.

NOTE: See the following page (s) for the graph (s) made showing compliance for Band Edge and Restrict Band:



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

DATA AND GRAPH(S) TAKEN SHOWING THE BAND EDGE AND RESTRICT BAND COMPLIANCE

PART 15.249



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

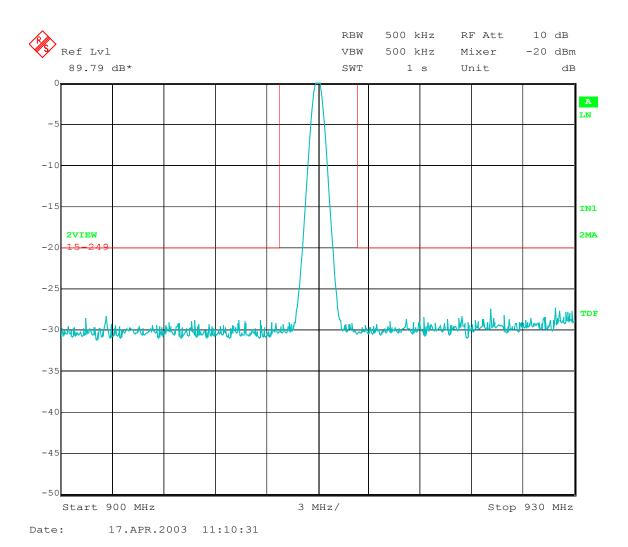
Transmit Frequency: 915 MHz

Date: 4-17-2003

Bandwidth Limit = $915 \text{ MHz} \times 0.5\% = 4.575 \text{ MHz}$

Level must be 20 dB lower outside the 4.575 MHz Bandwidth

Result: PASSED





Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

3.0 FIELD STRENGTH OF SPURIOUS EMISSION MEASUREMENTS (SECTION 15.249a-d)

The radiated measurements made at D.L.S. Electronic Systems, Inc., for the Carematix Weight Scale, Model Number: 2100, are shown in tabulated and graph form. Preliminary radiation measurements were performed at a 3 meter test distance with the limits adjusted linearly when required. The frequency range from 30 MHz to over 960 MHz, depending upon the fundamental frequency as stated in Part 15.33a, was automatically scanned and plotted at various angles.

Measurements for the Carematix Weight Scale were made up to 10000 MHz, in accordance with Section 15.33a for Intentional Radiators with a fundamental frequency of 915 MHz. For intentional radiators, the frequency range to be investigated is determined by the lowest radio frequency generated by the device without going below 30 MHz, up to at least the tenth harmonic of the highest fundamental frequency or 10 GHz, whichever is lower. At those frequencies where significant signals were detected, measurements were made over the entire frequency range specified in FCC Part 15, Subpart C, Section 15.249 at the open field test site, located at Genoa City, Wisconsin, FCC file number 31040/SIT. When required, levels were extrapolated from 10 meters to 3 meters using a linear extrapolation.

All signals in the frequency range of 30 MHz to 2000 MHz were measured with a Biconical Antenna or tuned dipoles and from 200 MHz to 1000 MHz, a Log Periodic or Tuned Dipoles were used. From 1000 MHz to 10 GHz Horn Antennas were used. During the test the equipment was rotated and the antenna was raised and lowered from 1 meter to 4 meters to find the maximum level of emissions. In order to find maximum emissions, the cables were moved through all the positions the equipment would be expected to experience in the field. The EUT, peripheral equipment and cables were configured to meet the conditions in ANSI C63.4-2000, Clauses 6 & 8. Tests were made with the receive antenna(s) in both the horizontal and vertical planes of polarization. In each case, the table was rotated to find the maximum emissions.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

3.0 FIELD STRENGTH OF SPURIOUS EMISSION MEASUREMENTS (CON'T)

For operation in the bands 902 to 928 MHz, 2400 to 2483.5 MHz, 5725 to 5875 MHz, and 24.0 to 24.25 GHz the field strength of any emissions within this band shall not exceed the field strength levels specified in the following table as stated in FCC, Part 15, Section 15.249(a).

Frequency	Field Strength of	Field Strength of	Field Strength of	Field Strength of
range in	Fundamental	Fundamental	Harmonics	Harmonics
MHz	millivolts/meter	dBuV/meter	microvolts/meter	dBuV/meter
902 to 928	50	93.98	500	53.98
2400 to 2483.5	50	93.98	500	53.98
5725 to 5875	50	93.98	500	53.98
24000 to 24250	250	107.96	2500	67.96

Field strength limits are at a distance of 3 meters. The emission limits shown are based on measurement instrumentation employing an average detector.

Emissions radiated outside of the specified frequency bands, except for harmonics are attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Preliminary radiated emission measurements were performed at a 3 meter test distance. The frequency range from 30 MHz to 1000 MHz was automatically scanned and plotted at various angles.

NOTE:

All radiated emissions measurements were made at a test room temperature of 72°F at 32% relative humidity.



Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

RADIATED DATA AND GRAPH(S) TAKEN FOR

FUNDAMENTAL EMISSION MEASUREMENTS

PART 15.249

FCC Part 15.249

Radiated Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 72 degF; 32%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit Mode

Comment: Tx Frequency = 915 MHz

Date: 04/14/2003

TEXT: "Site 3 MidV 3Mnp"

Short Description: Test Set-up Vert30-1000MHz

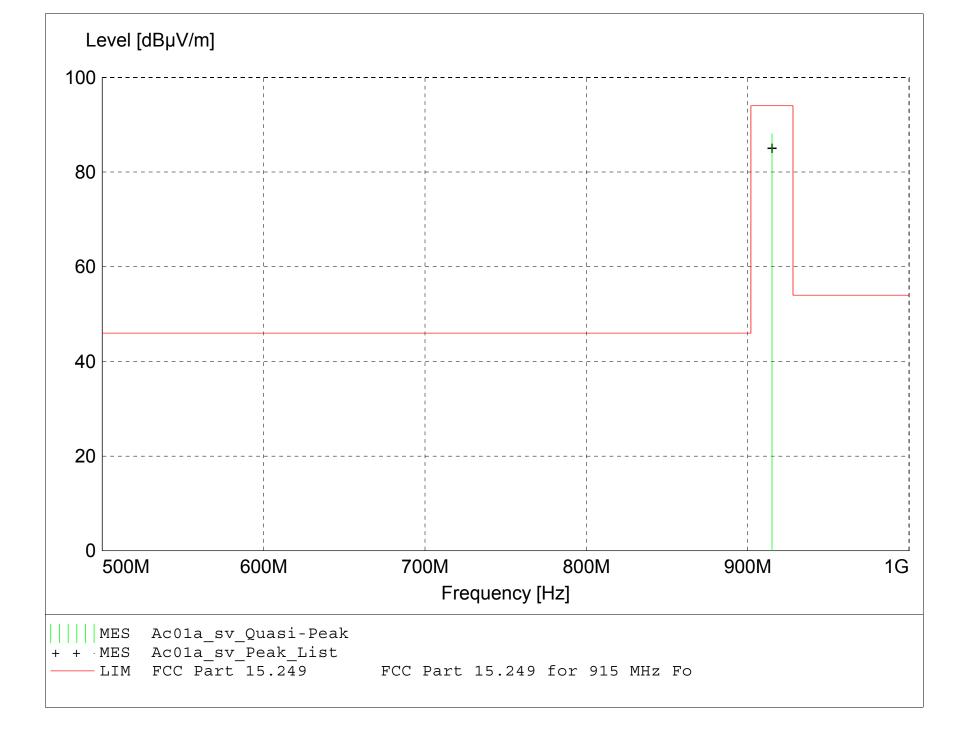
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- NONE

TEST SET-UP: EuT Measured at 3 Meters with VERTICAL Antenna Polarisation



MEASUREMENT RESULT: "Ac01a_sv_Final"

4/14/2003 10:	01AM									
Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dΒμV	dBµV/m	dВ	dΒμV/m	dΒμV/m	dВ	m	deg		
915.020000	58.98	22.36	6.8	88.1	94.0	5.9	1.00	350	OUASI-PEAK	Fundamental

FCC Part 15.249

Radiated Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 72 degF; 32%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit Mode

Comment: Tx Frequency = 915 MHz

Date: 04/14/2003

TEXT: "Site 3 MidH 3Mnp"

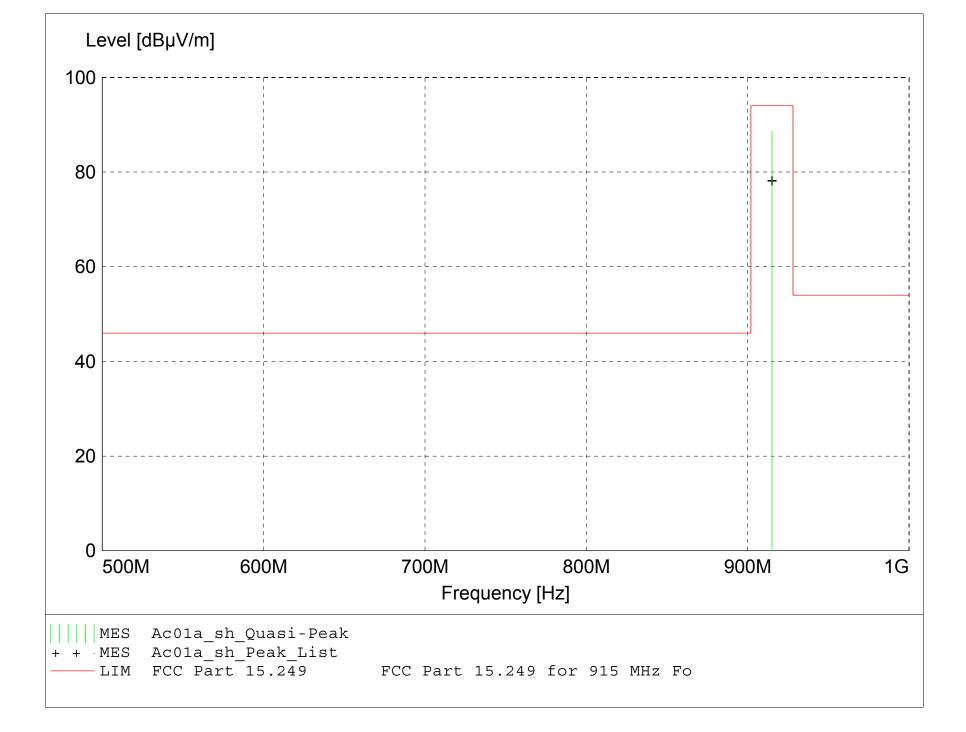
Short Description: Test Set-up Horz30-1000MHz

TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- NONE



MEASUREMENT RESULT: "Ac01a_sh_Final"

4/14/2003 10:0	04AM									
Frequency	Level		-		Limit	Margin	_			Comment
MHz	dΒμV	Factor dBµV/m	Loss dB	Level dBµV/m	dBµV/m	dB	Ant. m	deg	Detector	
915.020000	59.56	22.36	6.8	88.7	94.0	5.3	1.00	90	OUASI-PEAK	Fundamental



Company: Carematix Inc.

Model Tested: 2100 Report Number: 10169

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

RADIATED DATA AND GRAPH(S) TAKEN FOR

FIELD STRENGTH

SPURIOUS EMISSION MEASUREMENTS

PART 15.209

Electric Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 68 degF; 38%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit and Receive Modes

Comment: Frequency = 915 MHz

Date: 04/15/2003

TEXT: "Site 3 MidV 3M"

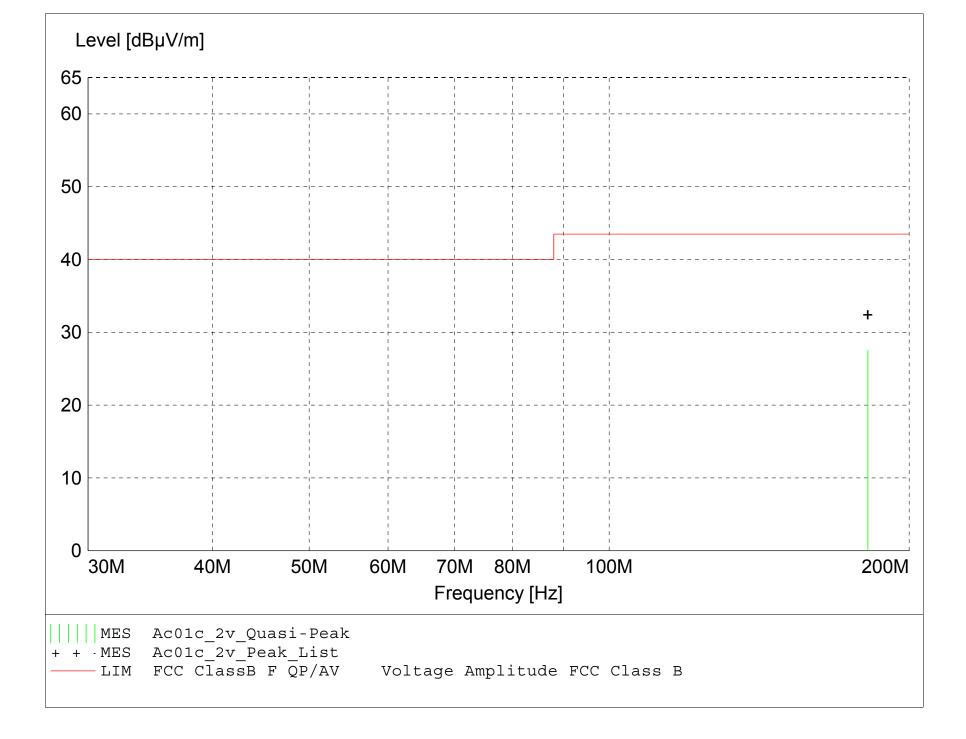
Short Description: Test Set-up Vert30-1000MHz

TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005



MEASUREMENT RESULT: "Ac01c_2v_Final"

4/15/	2003 11:0)3AM									
Fr	equency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
			Factor	Loss	Level			Ant.	Angle	Detector	
	MHz	dΒμV	dBμV/m	dВ	dBµV/m	dΒμV/m	dB	m	deg		
181	.830000	34.36	15.85	-22.7	27.5	43.5	16.0	1.00	0	QUASI-PEAK	None

Electric Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 68 degF; 38%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit and Receive Modes

Comment: Frequency = 915 MHz

Date: 04/15/2003

TEXT: "Site 3 MidH 3M"

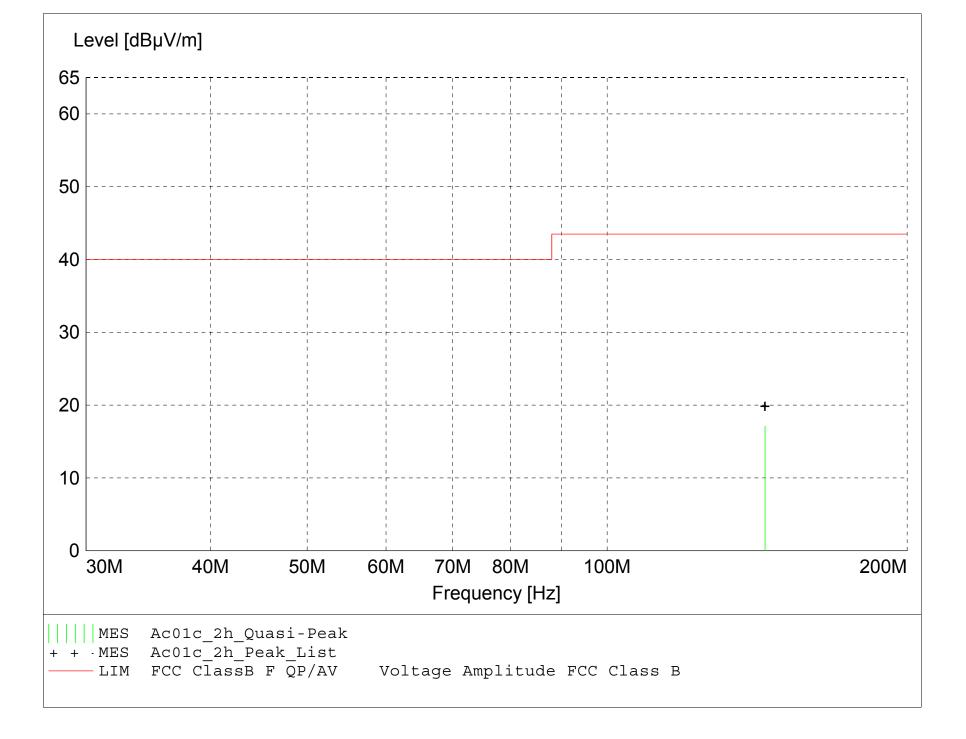
Short Description: Test Set-up Horz30-1000MHz

TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005



MEASUREMENT RESULT: "Ac01c_2h_Final"

4/15/2003 11:	09AM									
Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dΒμV	dBμV/m	dВ	dΒμV/m	dBµV/m	dВ	m	deg		
144.010000	28.34	11.81	-23.0	17.1	43.5	26.4	2.10	270	OUASI-PEAK	None

Electric Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 68 degF; 38%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit and Receive Modes

Comment: Frequency = 915 MHz

Date: 04/15/2003

TEXT: "Site 3 MidV 3M"

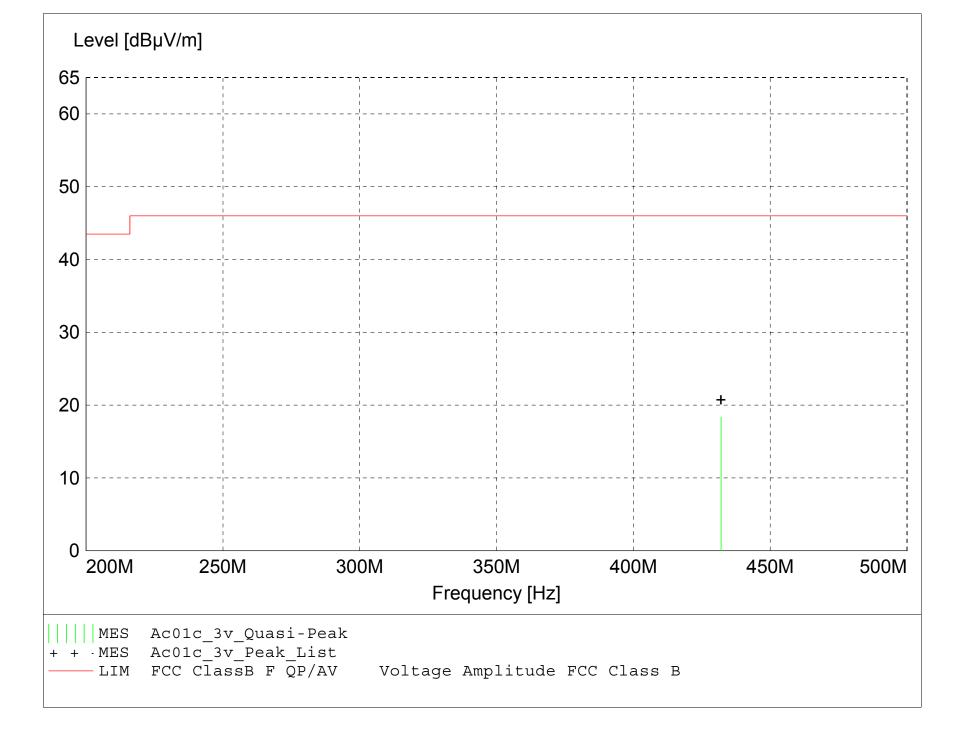
Short Description: Test Set-up Vert30-1000MHz

TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005



MEASUREMENT RESULT: "Ac01c_3v_Final"

4/15/2003 10:	51AM									
Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dΒμV	dBμV/m	dВ	dΒμV/m	dBμV/m	dB	m	deg		
432.000000	23.34	16.09	-21.1	18.4	46.0	27.6	1.00	30	OUASI-PEAK	None

Electric Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 68 degF; 38%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit and Receive Modes

Comment: Frequency = 915 MHz

Date: 04/15/2003

TEXT: "Site 3 MidH 3M"

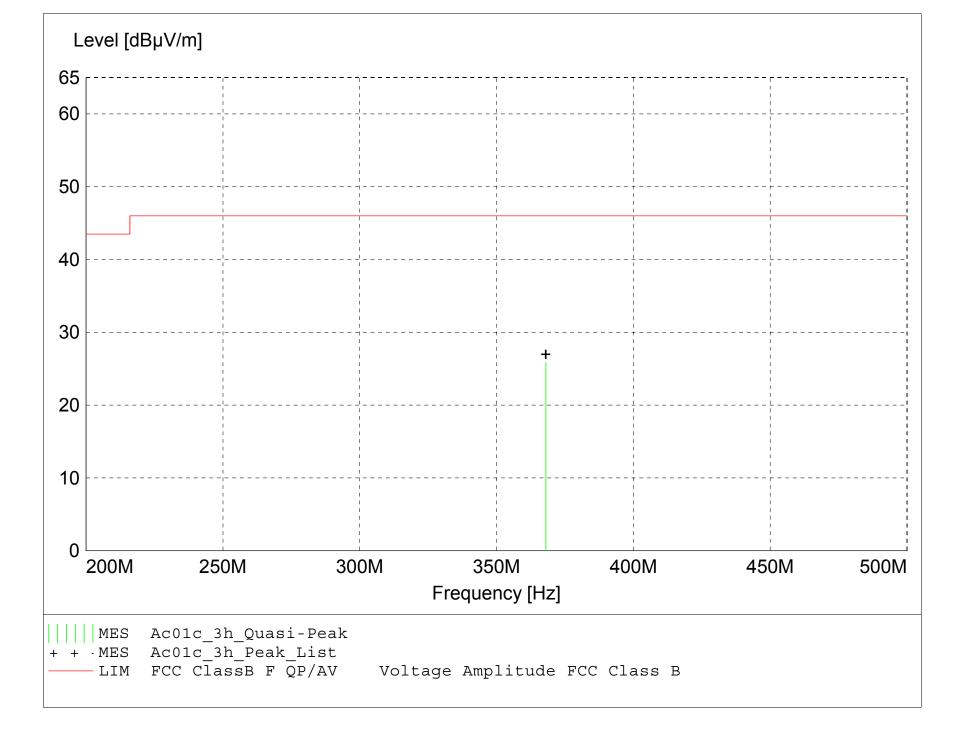
Short Description: Test Set-up Horz30-1000MHz

TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Antennas ---

Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895

Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005



MEASUREMENT RESULT: "Ac01c_3h_Final"

4/15/2003 10:	58AM									
Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dΒμV	dBμV/m	dВ	dBμV/m	dBµV/m	dВ	m	deg		
368.010000	32.39	14.95	-21.5	25.9	46.0	20.1	1.00	270	OUASI-PEAK	None

FCC Part 15.249

Radiated Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 70 degF; 32%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit Mode

Comment: Tx Frequency = 915 MHz

Date: 04/14/2003

TEXT: "Site 3 6204&184 V3MF"

Short Description: Test Set-up Vert1GHz-

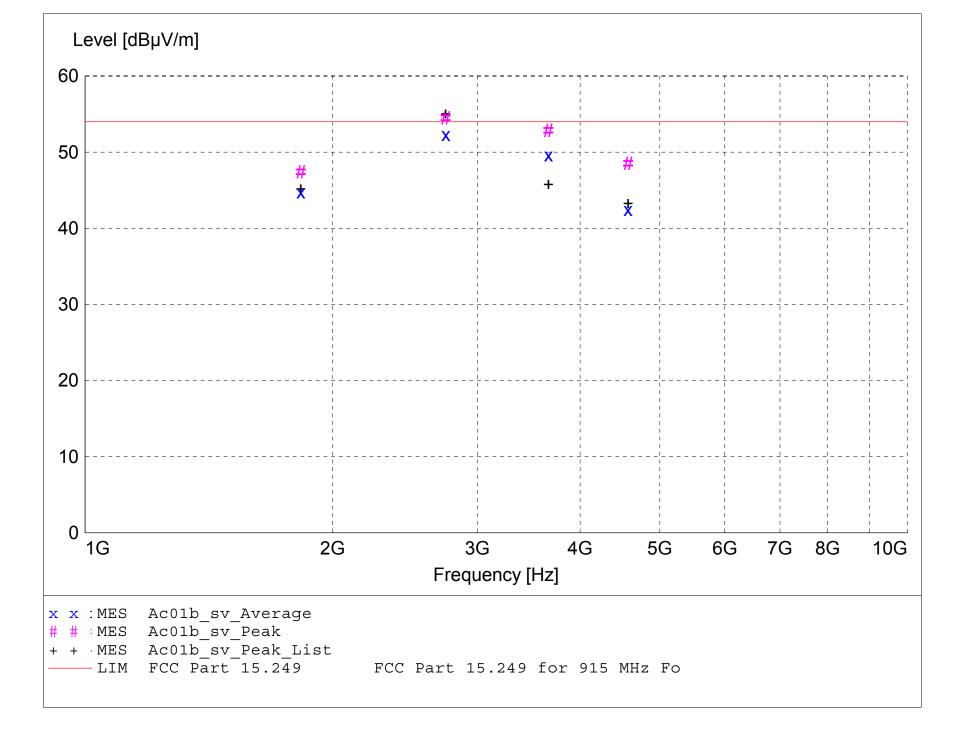
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425 10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

High Pass Filter -- Q Microwave 100460 SN: 001



MEASUREMENT RESULT: "Ac01b_sv_Final"

4/14/2003	1:26PM
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1/11/2005 1.2	OIII									
Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dΒμV	dBμV/m	dB	dBμV/m	dBμV/m	dB	m	deg		
2745.200000	63.28	31.14	-40.0	54.4	54.0	-0.4	1.00	270	MAX PEAK	3rd Harmonic
3660.200000	58.26	33.45	-38.9	52.8	54.0	1.2	1.20	90	MAX PEAK	4th Harmonic
2745.200000	61.11	31.14	-40.0	52.3	54.0	1.7	1.00	270	AVERAGE	3rd Harmonic
3660.200000	55.06	33.45	-38.9	49.6	54.0	4.4	1.20	90	AVERAGE	4th Harmonic
4575.200000	52.60	33.88	-38.0	48.5	54.0	5.5	1.00	270	MAX PEAK	5th Harmonic
1830.000000	59.22	28.12	-40.0	47.3	54.0	6.7	1.20	180	MAX PEAK	2nd Harmonic
1830.000000	56.62	28.12	-40.0	44.7	54.0	9.3	1.20	180	AVERAGE	2nd Harmonic
4575.200000	46.58	33.88	-38.0	42.4	54.0	11.6	1.00	270	AVERAGE	5th Harmonic

FCC Part 15.249

Radiated Field Strength

EUT: Carematix 2100

Manufacturer: Carematix

Operating Condition: 70 degF; 32%R.H. Test Site: DLS OF Site 3

Operator: Jason L

Test Specification: Transmit Mode

Comment: Tx Frequency = 915 MHz

Date: 04/14/2003

TEXT: "Site 3 6204&184 H3MF"

Short Description: Test Set-up Horz1GHz-

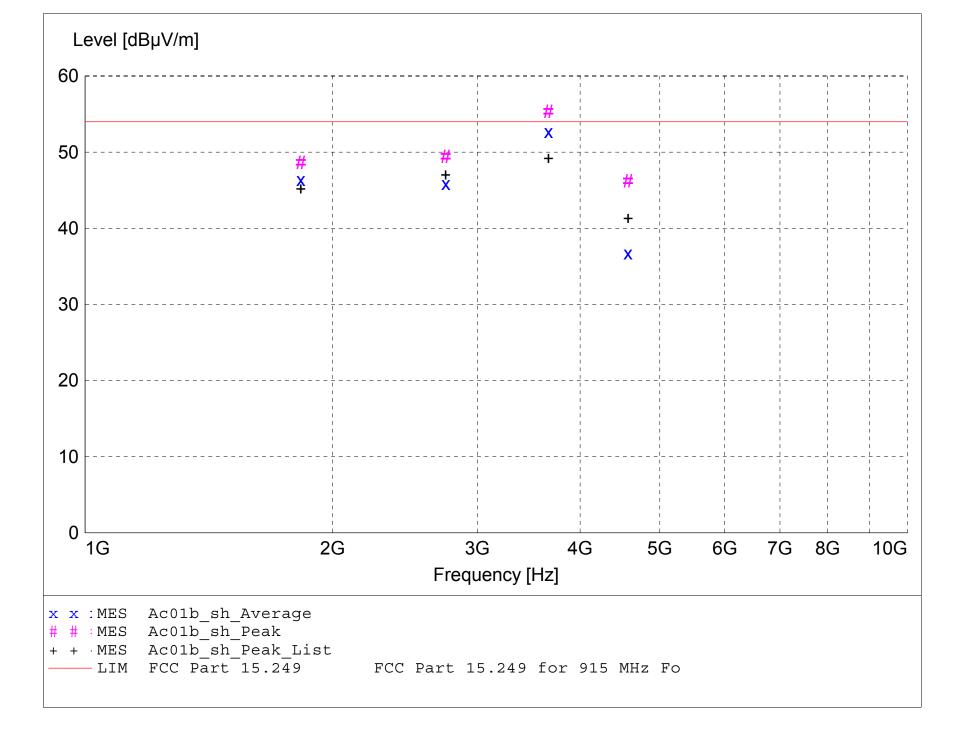
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/006

Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 10 GHz -- Miteq AMF-6D-010100-50 SN: 682425 10 - 18 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

High Pass Filter -- Q Microwave 100460 SN: 001



MEASUREMENT RESULT: "Ac01b_sh_Final"

4/14/2003	1:35PM
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4/14/2003 1.35) E 1·1									
Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dΒμV	dBµV/m	dB	dBμV/m	dBμV/m	dB	m	deg		
3660.200000	60.77	33.45	-38.9	55.3	54.0	-1.3	1.20	270	MAX PEAK	4th Harmonic
3660.200000	58.09	33.45	-38.9	52.7	54.0	1.3	1.20	270	AVERAGE	4th Harmonic
2745.200000	58.26	31.14	-40.0	49.4	54.0	4.6	1.20	300	MAX PEAK	3rd Harmonic
1830.000000	60.50	28.12	-40.0	48.6	54.0	5.4	1.20	90	MAX PEAK	2nd Harmonic
1830.000000	58.22	28.12	-40.0	46.3	54.0	7.7	1.20	90	AVERAGE	2nd Harmonic
4575.400000	50.33	33.88	-38.0	46.2	54.0	7.8	1.00	145	MAX PEAK	5th Harmonic
2745.200000	54.71	31.14	-40.0	45.9	54.0	8.1	1.20	300	AVERAGE	3rd Harmonic
4575.400000	40.87	33.88	-38.0	36.7	54.0	17.3	1.00	145	AVERAGE	5th Harmonic