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:	Modular (can be designed in as a module in various end products) (Tested at 6 vdc)
FCC ID Number:	Q35-MOD6
Frequency Band:	902-928 MHz
Model Number(s):	AS01HUB5A0001A and AS01HUB5A0001B
Model(s) Tested:	AS01HUB5A0001A and AS01HUB5A0001B
Serial Number(s):	NA
Date of Tests:	February 26 & 27, 2004
Test Conducted For:	Carematix Inc. 2 North LaSalle Street, Suite 1805 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.

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:

Carematix Inc.

1250 Peterson Dr., Wheeling, IL 6009

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

D.L.S. ELECTRONIC SYSTEMS, INC.
WHEELING, IL

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

September 30, 2004
Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 100276-0

NVLAP-01C (06-01)

1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 1 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

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:	
12/160D21	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 21 - Emission of Radio Frequency Energy
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/C63.17	ANSI C63.17-1998: American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

September 30, 2004

Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 2 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
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
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

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 3 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 100276-0**

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
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) + A1 (2001): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
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.

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 4 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS **NVLAP LAB CODE 100276-0**

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
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
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

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 5 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 100276-0**

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
12/FCC15e	ANSI C63.4 (2001) with FCC Method - CFR Part 15, Subpart E: Unlicensed National Information Infrastructure Service Devices
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

Immunity Test Methods:

12/1089a	GR-1089-CORE, Issue 3, October 2002: Electromagnetic Compatibility and 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

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 6 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS — **NVLAP LAB CODE 100276-0**

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
12/160D19	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 19 - Induced Signal Susceptibility
12/160D20	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for 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
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

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 7 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
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
12/J111341	SAE J1113/41 (1995-07): Limits and methods of measurement of radio disturbance characteristics of components and modules for the protection of receivers used on board vehicles

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)

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 8 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
12/RSS139	RSS-139, Isssue 1 (February 5, 2000): Licensed Radiocommunications Devices in the Band 2400 - 2483.5 MHz
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

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
12/B26	MIL-STD-461 Version E Method CS115
12/B27	MIL-STD-461 Version E Method CS116

MIL-STD-462 : Radiated Emissions:

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

September 30, 2004
Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

1250 Peterson Dr., Wheeling, IL 6009

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 9 of 9

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

D.L.S. ELECTRONIC SYSTEMS, INC.

NVLAP Code	*Designation / Description*
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, 2004

Effective through

For the National Institute of Standards and Technology

NVLAP-01S (06-01)

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 13
1.0 Summary of Test Report 15
2.0 Introduction 15
3.0 Object 15
4.0 Test Set-Up 16
5.0 Test Equipment 17
6.0 Ambient Measurements 18
7.0 Description of Test Sample 19
8.0 Additional Description of Test Sample 22
9.0 AS01HUB5A0001A Photo Information and Test Set-Up 23
10.0 AS01HUB5A0001A Radiated Photos Taken During Testing 24
10.0 AS01HUB5A0001A Conducted Photos Taken During Testing 27
9.0 AS01HUB5A0001B Photo Information and Test Set-Up 28
10.0 AS01HUB5A0001B Conducted Photos Taken During Testing 31
11.0 Results of Tests 32
12.0 Conclusion 32
TABLE 1 – EQUIPMENT LIST 33

1250 Peterson Dr., Wheeling, IL 6009

TABLE OF CONTENTS

Appendix A – Electric Field Radiated Emissions Test.....35
1.0 Conducted Emission Measurements.....36
1.0 Conducted Data and Graph(s) taken during testing.....37
2.0 Band Edge and Restrict Band Compliance.....54
2.0 Data and Graph(s) taken showing the Band Edge and Restrict Band Compliance.....55
3.0 Field Strength of Spurious Emission Measurements.....58
3.0 Radiated Data and Graph(s) taken for Fundamental Emission Measurements.....60
3.0 Radiated Data and Graph(s) taken for Field Strength Spurious Emission Measurements 73

1250 Peterson Dr., Wheeling, IL 6009

1.0 SUMMARY OF TEST REPORT

It was found that the Carematix Weight Scale, Model Number(s) AS01HUB5A0001A and AS01HUB5A0001B, **''meets''** the radio interference conducted and 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. It should be noted that the amount of margin was only .7 dB at .15 MHz, conducted. 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 .7 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: 85

2.0 INTRODUCTION

On February 26 & 27, 2004, a series of radio frequency interference measurements was performed on Carematix Weight Scale, Model Number(s) AS01HUB5A0001A and AS01HUB5A0001B, Serial Number: NA. 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 C63.4-2001. 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.

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 C63.4-2001, 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 C63.4-2001, 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 C63.4-2001, Sections 6 and 8.

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 C63.4-2001, 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.

1250 Peterson Dr., Wheeling, IL 6009

6.0 AMBIENT MEASUREMENTS

For emissions measurements, broadband antennas and an EMI Test Receiver with a panoramic spectrum display are used. First the frequency range is scanned and displayed on the test receiver display. Next the scanned frequency range is divided into smaller ranges, and then it is manually tuned through to determine the emissions from the EUT. A headset or loudspeaker is connected to the test receiver's AM/FM demodulated output as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT. If there is any doubt as to the source of the emission, it is further investigated by rotating the EUT, or by disconnecting the power from the EUT.

The EUT is set up in its typical configuration and operated in its various modes. For tabletop systems, cables are manipulated within the range of likely configurations. For floor-standing equipment, the cables are located in the same manner as the user would install them and no further manipulation is made. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions. For each mode of operation, the frequency spectrum is monitored. Variations in antenna height, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) are explored to produce the emissions that have the highest amplitude relative to the limit. These methods are performed to the specifications in ANSI C63.4: 2001.

1250 Peterson Dr., Wheeling, IL 6009

7.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 8.0)

7.1 Description:

Two test boards for each model (four total) were tested. One board, in each model, permanently stays in continuous transmit mode and the other in the receive mode. Transmission is FSK at 915.05 MHz at kbps (Manchester encoded). Receiver LO is at 915.190 MHz.

1250 Peterson Dr., Wheeling, IL 6009

7.0 DESCRIPTION OF TEST SAMPLE: (CON'T)

7.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

2.8" long x 1.225" wide .5" high

7.3 LINE FILTER USED:

NA

7.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

NA

Clock Frequencies:

32.768 kHz & 16 MHz

1250 Peterson Dr., Wheeling, IL 60090

7.0 DESCRIPTION OF TEST SAMPLE: (CON'T)

7.5.1 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. HUB5 Board PN: BR01HUB5A0001A, Rev 1.0
2. HUB5 Board PN: BR01HUB5A0001B, Rev 1.0

1250 Peterson Dr., Wheeling, IL 60090

8.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE:
(See also Paragraph 7.0)

1: Model Number AS0HUB5A0001A (longer antenna) output power was reduced approximately by 3 dB to meet the fundamental radiated emissions requirements.

2. Model Number AS0HUB5A0001B (shorter antenna) output power was reduced by 2.5 dB to meet the fundamental radiated emissions requirements.

3. In both models the shielded was well grounded to meet low radiated (915.19 MHz) emission requirements.

4. In AS0HUB5A0001B the 4.7 pF cap was moved closed to antenna to meet harmonic emissions requirements.

I certify that the above, as described in paragraph 7.0, describes the equipment tested and will be manufactured as stated.

By: _____ _____
Signature Title

For: _____ _____
Company Date

1250 Peterson Dr., Wheeling, IL 60090

9.0 PHOTO INFORMATION AND TEST SET-UP (AS01HUB5A0001A)

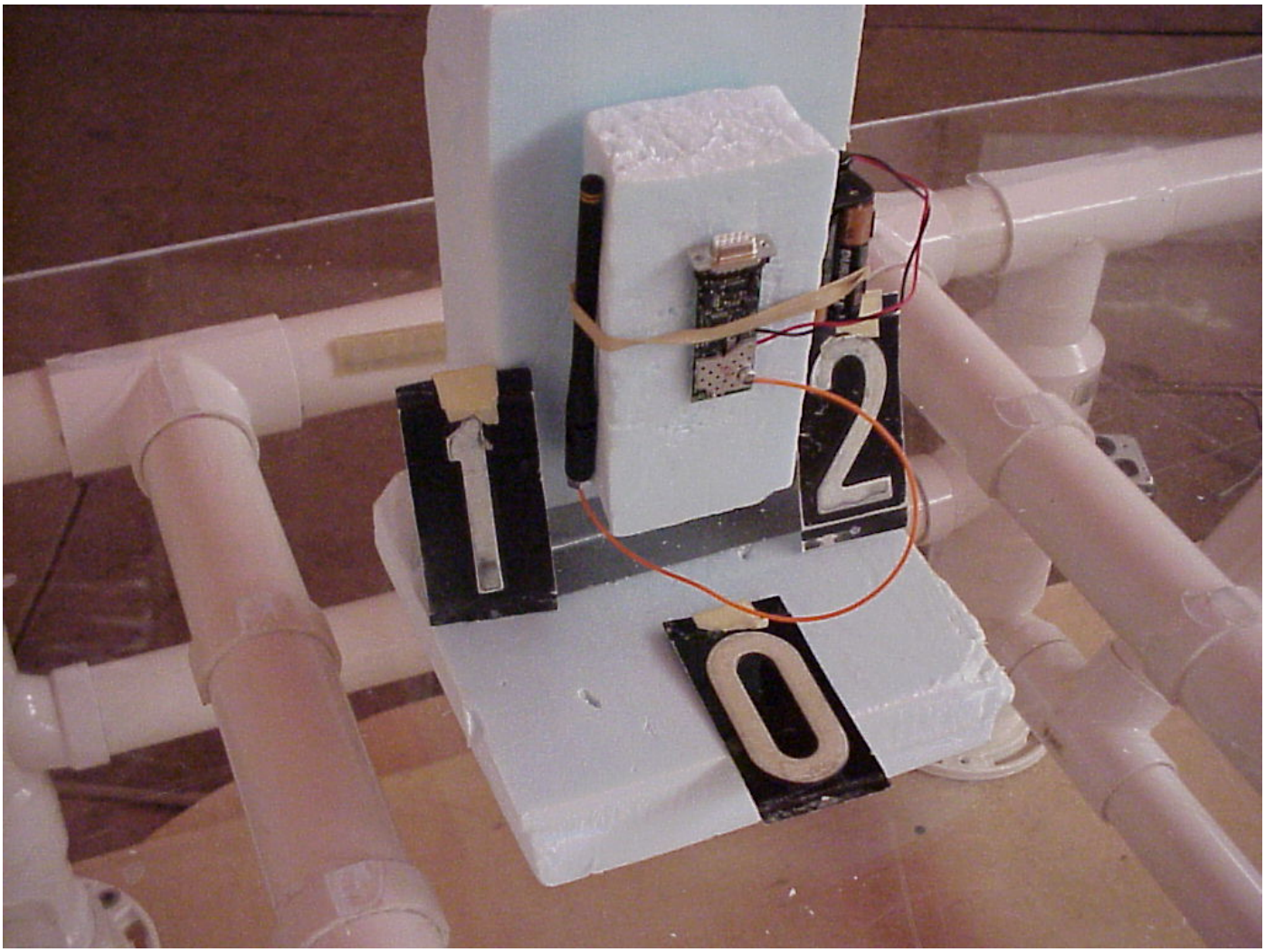
Item 0 Carematix Weight Scale
Model Number: AS01HUB5A0001A Serial Number: NA

Item 1 Antenna Version AS0HUB5A0001A with 30 cm wire.

Item 2 Battery Pack with 14 cm wires (4 AA batteries).

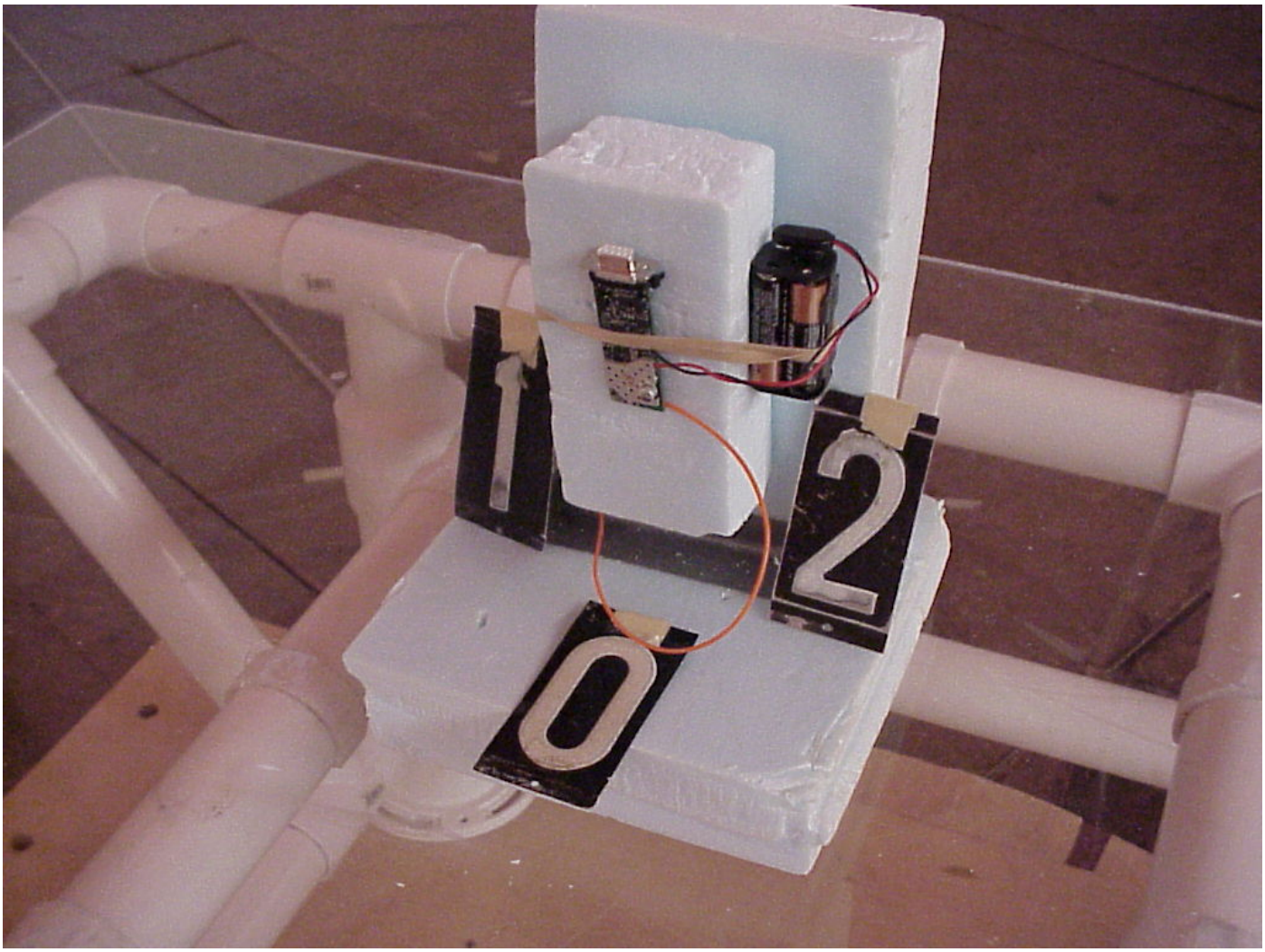
1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001A)



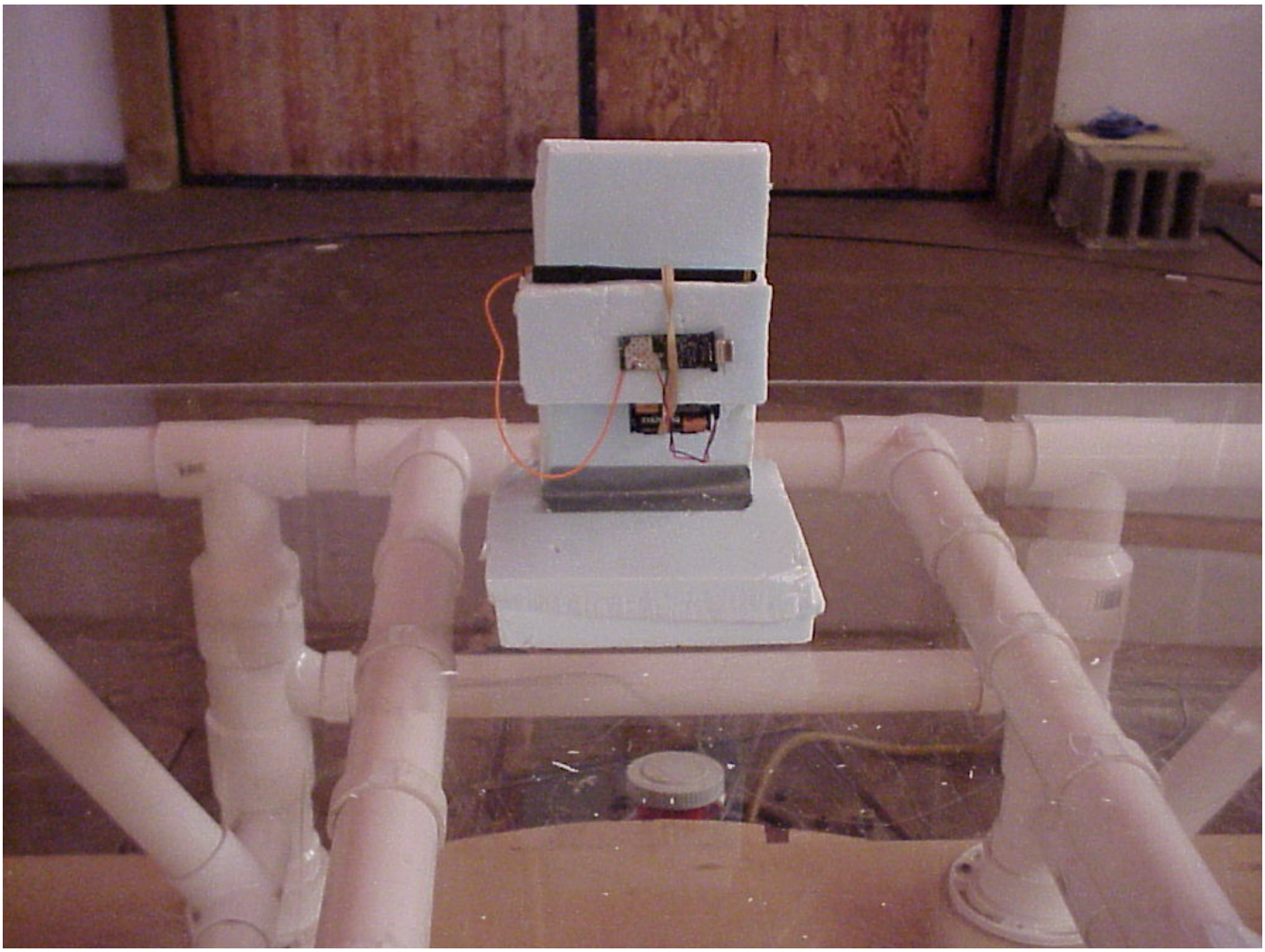
1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001A)



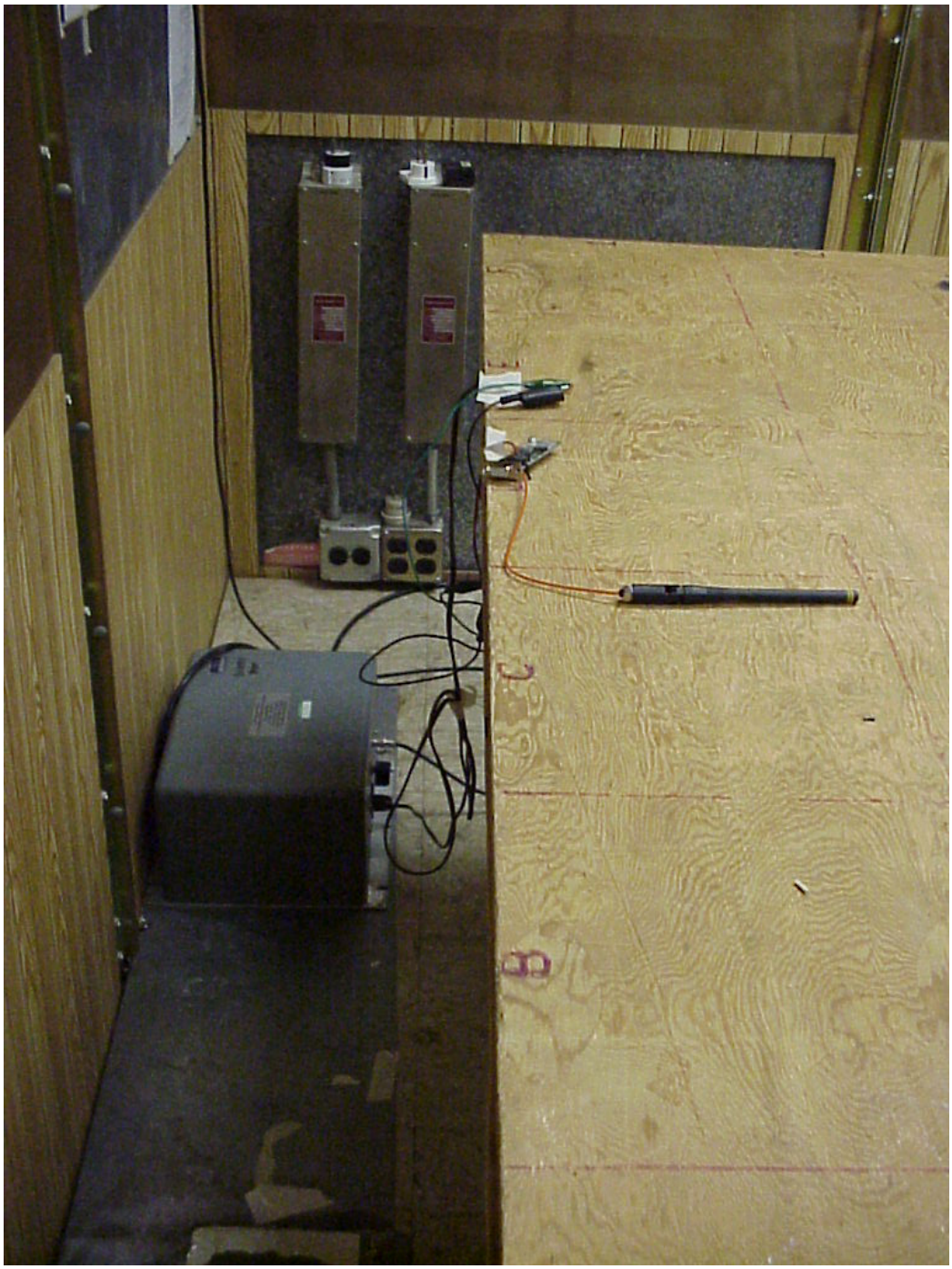
1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001A)



1250 Peterson Dr., Wheeling, IL 60090

10.0 CONDUCTED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001A)



1250 Peterson Dr., Wheeling, IL 60090

9.0 PHOTO INFORMATION AND TEST SET-UP (AS01HUB5A0001B)

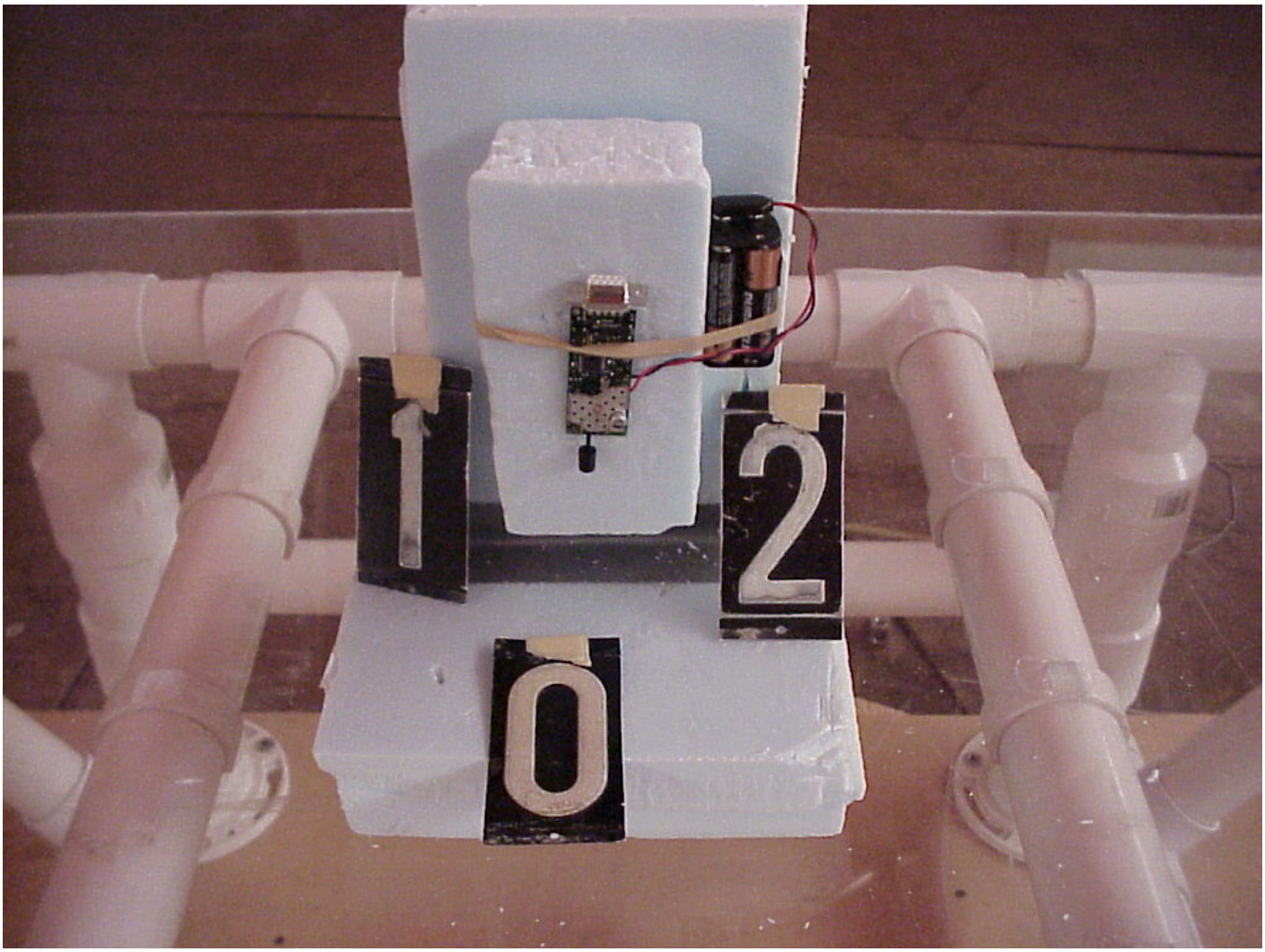
Item 0 Carematix Weight Scale
Model Number: AS01HUB5A0001B Serial Number: NA

Item 1 Antenna Version AS0HUB5A0001B with 14 cm wire.

Item 2 Battery Pack with 14 cm wires (4 AA batteries).

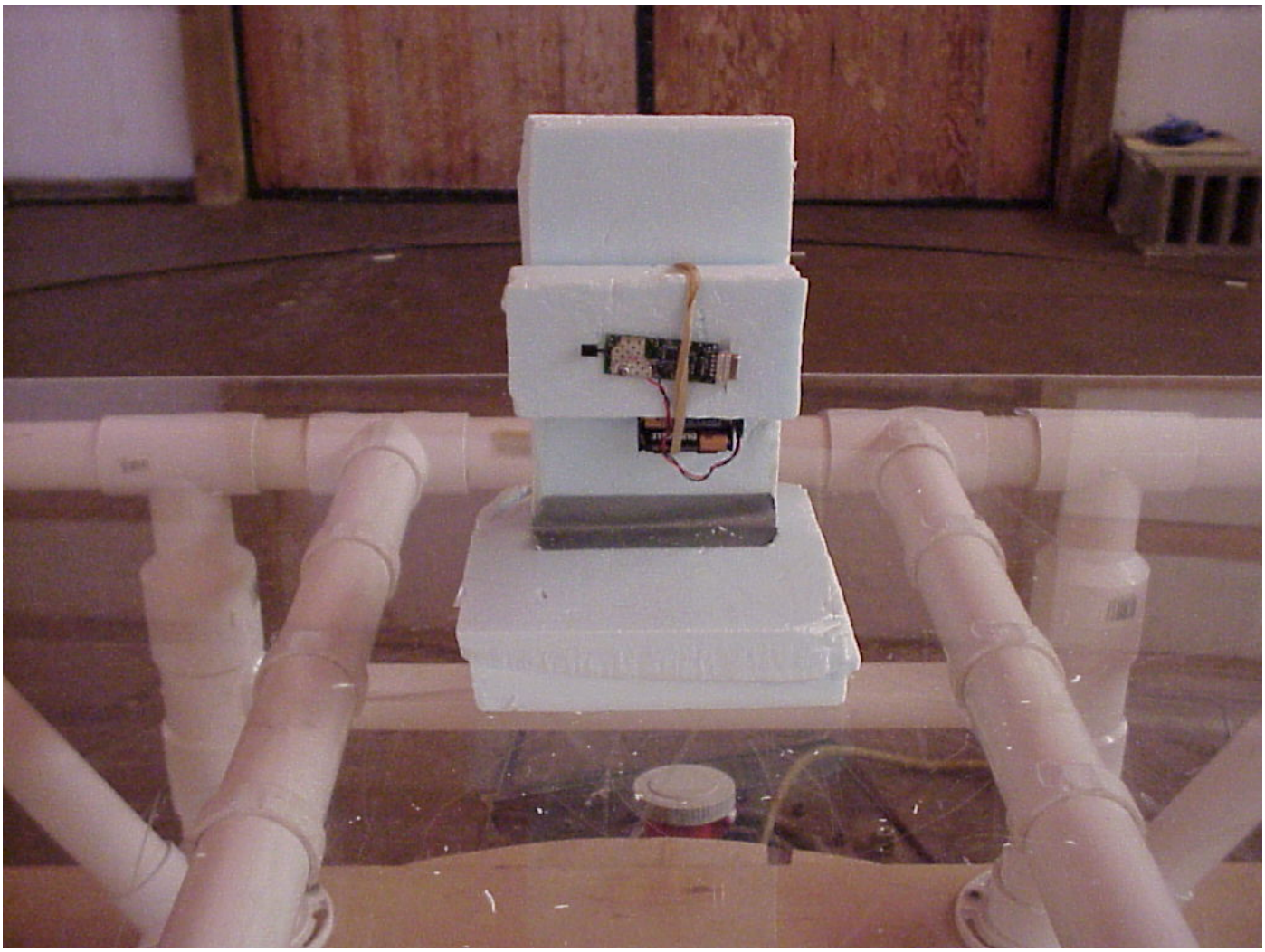
1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001B)



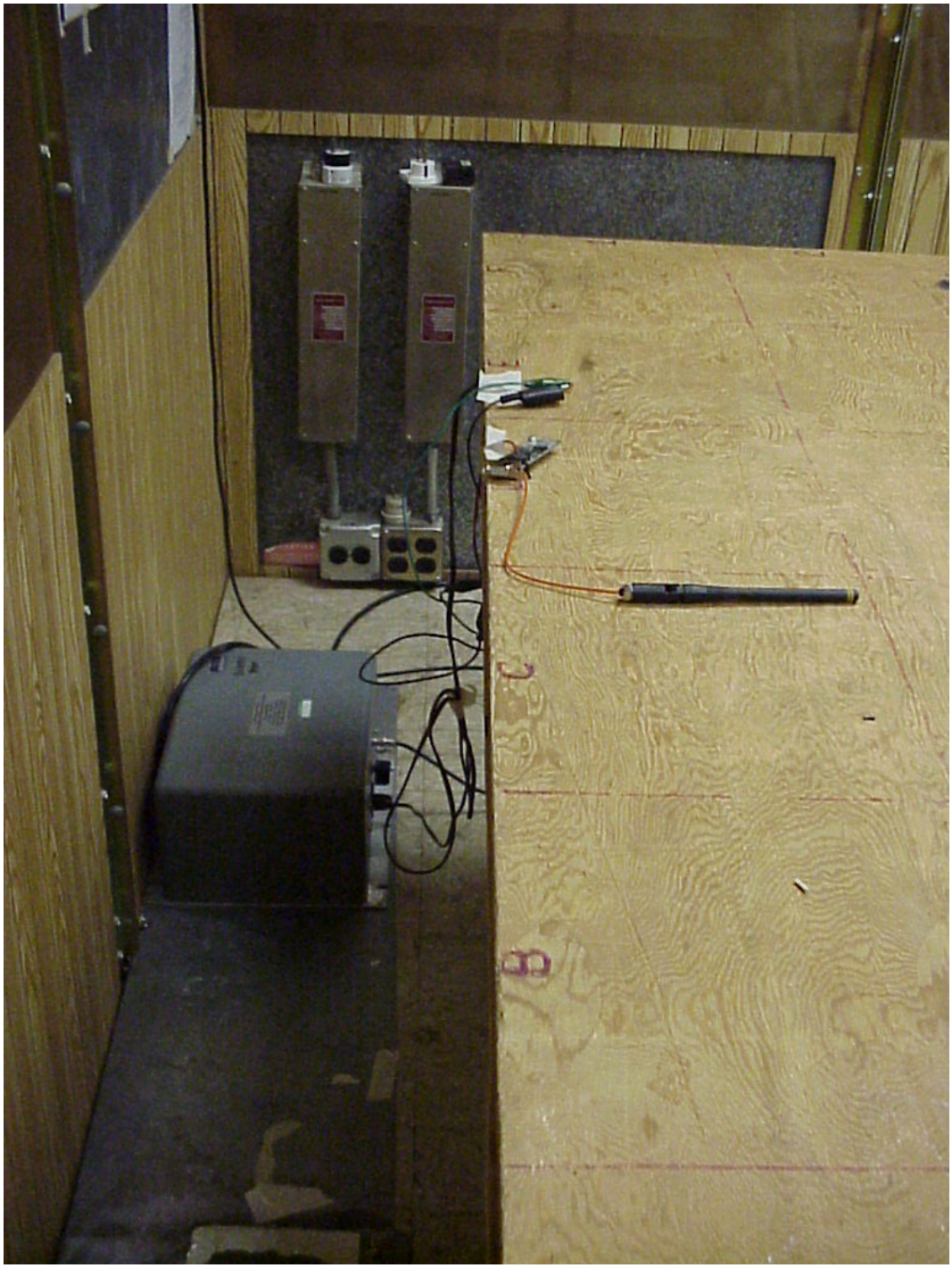
1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001B)



1250 Peterson Dr., Wheeling, IL 60090

10.0 CONDUCTED PHOTOS TAKEN DURING TESTING (AS01HUB5A0001B)



1250 Peterson Dr., Wheeling, IL 60090

11.0 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. Points on the emission charts shown with a yellow mark are background frequencies that were verified during testing.

12.0 CONCLUSION

It was found that the Carematix Weight Scale, Model Number(s) AS01HUB5A0001A and AS01HUB5A0001B **''meets''** the radio interference conducted and 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.

It should be noted that the amount of margin was only .7 dB at .15 MHz, conducted. 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 .7 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.

1250 Peterson Dr., Wheeling, IL 60090

TABLE 1 – EQUIPMENT LIST

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

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	8/04
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/04
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/04
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	8/04
LISN	Solar	8012-50-R-24-BNC	8305116	10 MHz – 30 MHz	8/04
LISN	Solar	8012-50-R-24-BNC	814548	10 MHz – 30 MHz	8/04
LISN	Solar	9252-50-R-24-BNC	961019	10 MHz – 30 MHz	12/04
LISN	Solar	9252-50-R-24-BNC	971612	10 MHz – 30 MHz	10/04
LISN	Solar	9252-50-R-24-BNC	92710620	10 MHz – 30 MHz	7/04

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

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

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

1.0 CONDUCTED EMISSION MEASUREMENTS

Conducted emissions were measured over the frequency range from .45 MHz to 30 MHz in accordance with the power line measurements as specified in FCC Part 15, Subpart C, Section 15.207 & ANSI C63.4-2000. Since the device is operated from the public utility lines, the 120 Vac, 60 Hz power leads, high (hot) and low (neutral) sides, were measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. During the test, the cables were placed and items moved (when appropriate) to maximize emissions. All signals were then recorded. The allowed levels for Intentional Radiators which is designed to connected to the public utility (AC) power line shall not exceed 250 uV (47.96 dBuV) from .45 MHz to 30 MHz

NOTE:

All test measurements were made at a screen room temperature of **70°F** at **24%** relative humidity.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

CONDUCTED DATA AND GRAPH(S) TAKEN DURING TESTING

PART 15.207

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

FCC Part 15 Class B

Voltage Mains Test

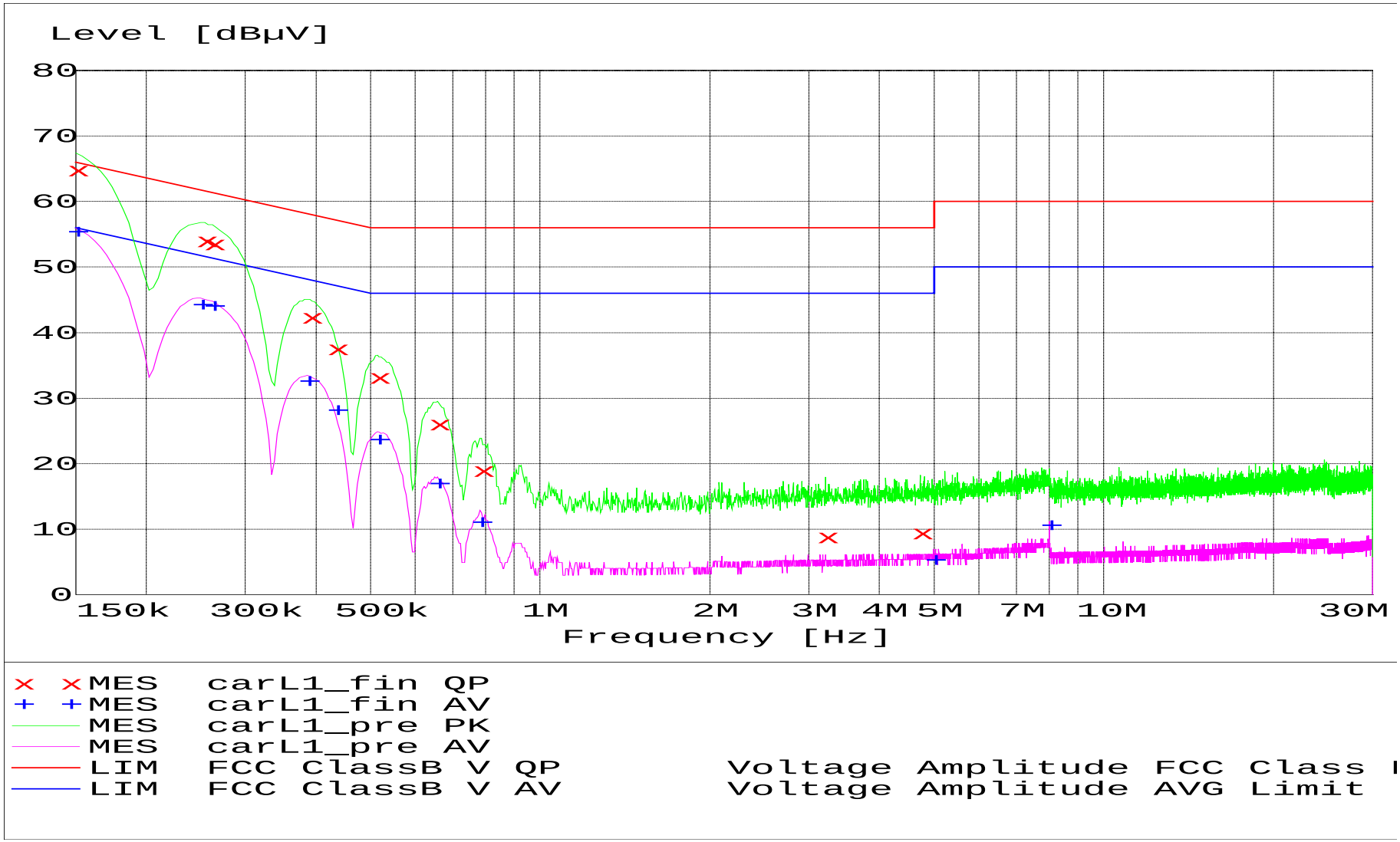
```
EUT:                    AS01HUB5A0001A
Manufacturer:           Carematix Inc.
Operating Condition:    70 deg. F,  24 %  R.H.
Test Site:              Screen Room (OF)
Operator:               Craig Brandt
Test Specification:     Continuous transmit mode
Comment:                Date: 02-27-04
                        Line 1
```

SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN 961019

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL1_fin QP"

2/27/2004 1:30PM

LINE 1 QUASI PEAK

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	64.80	11.6	66	1.2
0.254000	54.00	10.9	62	7.6
0.262000	53.50	10.9	61	7.8
0.390000	42.30	10.6	58	15.8
0.434000	37.50	10.6	57	19.7
0.514000	33.10	10.5	56	22.9
0.658000	26.00	10.5	56	30.0
0.786000	18.90	10.5	56	37.1
3.210000	8.80	10.8	56	47.2
4.722000	9.40	10.9	56	46.6

1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL1_fin AV"

2/27/2004 1:30PM

LINE 1 AVERAGE

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	55.30	11.6	56	0.7
0.250000	44.20	10.9	52	7.5
0.262000	44.00	10.9	51	7.3
0.386000	32.50	10.6	48	15.6
0.434000	28.10	10.6	47	19.0
0.514000	23.60	10.5	46	22.4
0.658000	16.90	10.5	46	29.1
0.782000	11.00	10.5	46	35.0
4.986000	5.20	10.9	46	40.8
8.002000	10.50	11.2	50	39.5

1250 Peterson Dr., Wheeling, IL 60090

FCC Part 15 Class B

Voltage Mains Test

```
EUT:                  AS01HUB5A0001A
Manufacturer:         Carematix Inc.
Operating Condition:  70 deg. F,  24 %  R.H.
Test Site:            Screen Room (OF)
Operator:             Craig Brandt
Test Specification:   Continuous transmit mode
Comment:              Date: 02-27-04
                      Line 2
```

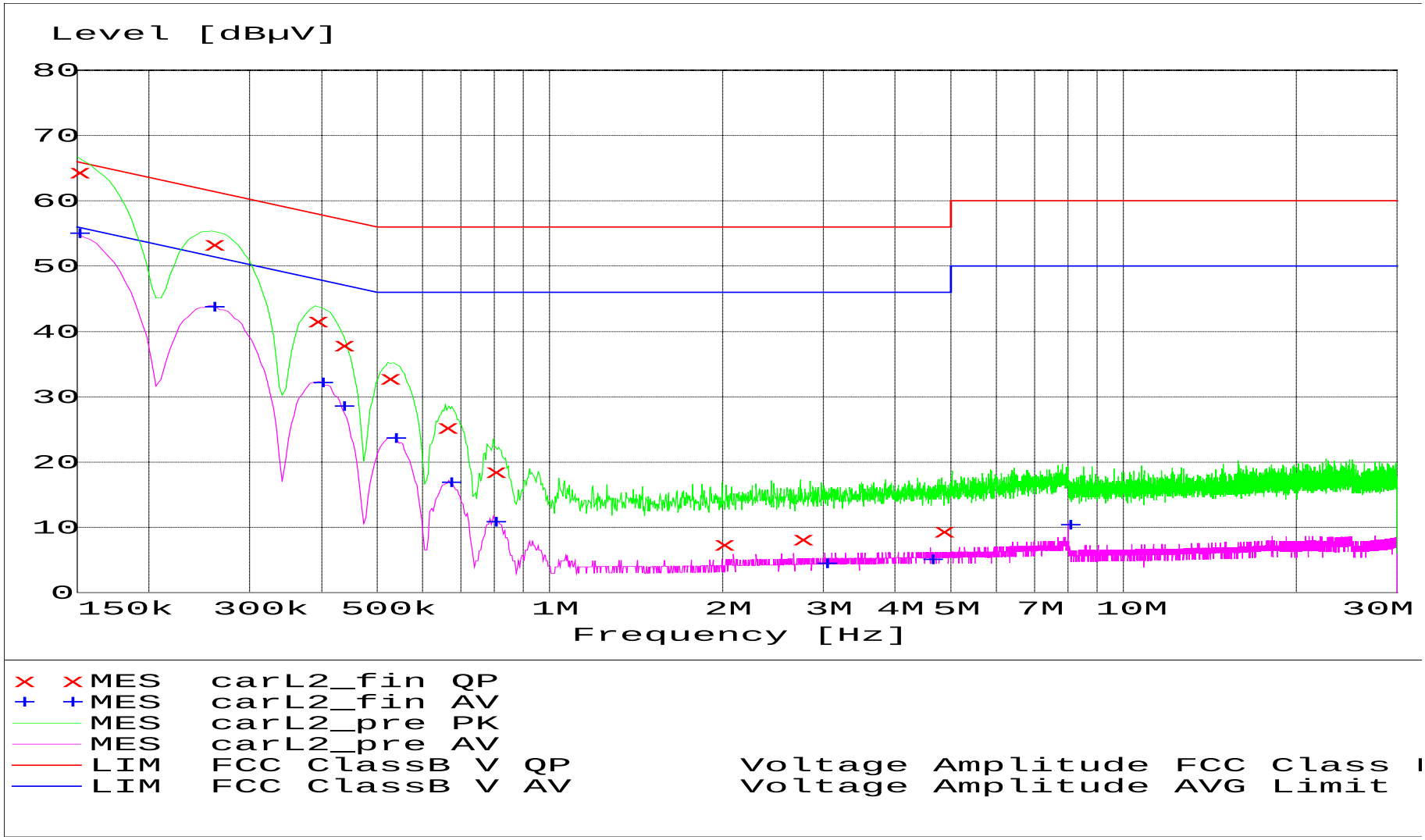
SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN 961019

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

Company: Carematix Inc.
Model Tested: AS01HUB5A0001A and AS01HUB5A0001B
Report Number: 10594



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL2_fin QP"

2/27/2004 1:35PM

LINE 2 QUAI PEAK

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	64.40	11.6	66	1.6
0.258000	53.30	10.9	62	8.2
0.390000	41.60	10.6	58	16.4
0.434000	37.90	10.6	57	19.3
0.522000	32.80	10.5	56	23.2
0.658000	25.30	10.5	56	30.7
0.798000	18.50	10.5	56	37.5
1.998000	7.40	10.7	56	48.6
2.734000	8.20	10.8	56	47.8
4.818000	9.40	10.9	56	46.6

1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL2_fin AV"

2/27/2004 1:35PM

LINE 2 AVERAGE

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	55.00	11.6	56	1.0
0.258000	43.70	10.9	52	7.8
0.398000	32.10	10.6	48	15.8
0.434000	28.50	10.6	47	18.6
0.534000	23.60	10.5	46	22.4
0.666000	16.80	10.5	46	29.2
0.798000	10.80	10.5	46	35.2
3.018000	4.40	10.9	46	41.6
4.606000	5.00	10.9	46	41.0
8.002000	10.30	11.2	50	39.7

1250 Peterson Dr., Wheeling, IL 60090

FCC Part 15 Class B

Voltage Mains Test

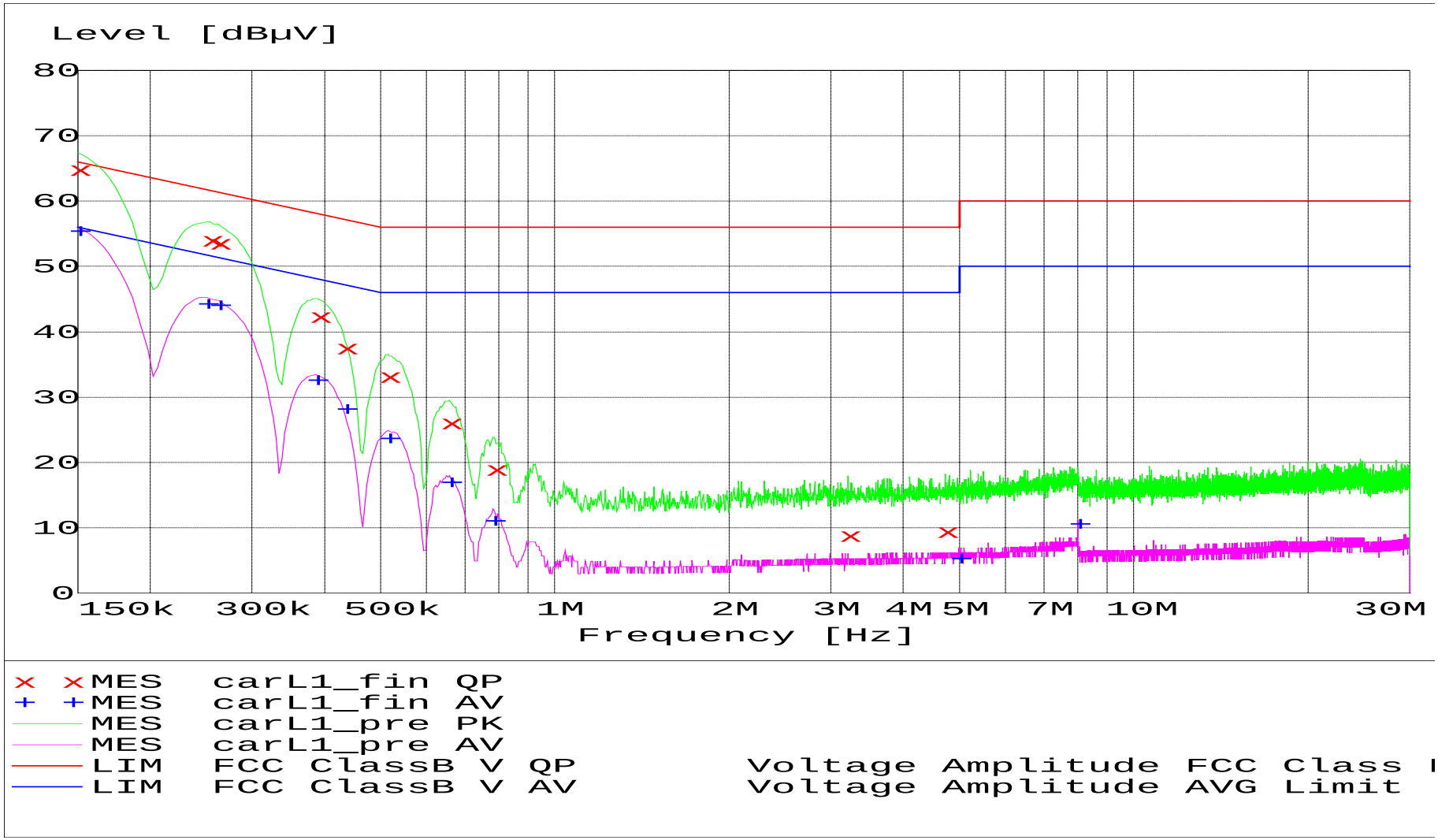
```
EUT:                    AS01HUB5A0001A
Manufacturer:           Carematix Inc.
Operating Condition:    70 deg. F,  24 %  R.H.
Test Site:              Screenroom (OF)
Operator:               Craig Brandt
Test Specification:     Continuous transmit mode
Comment:                Date: 02-27-04
                        Line 1
```

SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN 961019

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL1_fin QP"

2/27/2004 1:30PM

LINE 1 QUASI PEAK

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	64.80	11.6	66	1.2
0.254000	54.00	10.9	62	7.6
0.262000	53.50	10.9	61	7.8
0.390000	42.30	10.6	58	15.8
0.434000	37.50	10.6	57	19.7
0.514000	33.10	10.5	56	22.9
0.658000	26.00	10.5	56	30.0
0.786000	18.90	10.5	56	37.1
3.210000	8.80	10.8	56	47.2
4.722000	9.40	10.9	56	46.6

1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL1_fin AV"

2/27/2004 1:30PM

LINE 1 AVERAGE

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	55.30	11.6	56	0.7
0.250000	44.20	10.9	52	7.5
0.262000	44.00	10.9	51	7.3
0.386000	32.50	10.6	48	15.6
0.434000	28.10	10.6	47	19.0
0.514000	23.60	10.5	46	22.4
0.658000	16.90	10.5	46	29.1
0.782000	11.00	10.5	46	35.0
4.986000	5.20	10.9	46	40.8
8.002000	10.50	11.2	50	39.5

1250 Peterson Dr., Wheeling, IL 60090

FCC Part 15 Class B

Voltage Mains Test

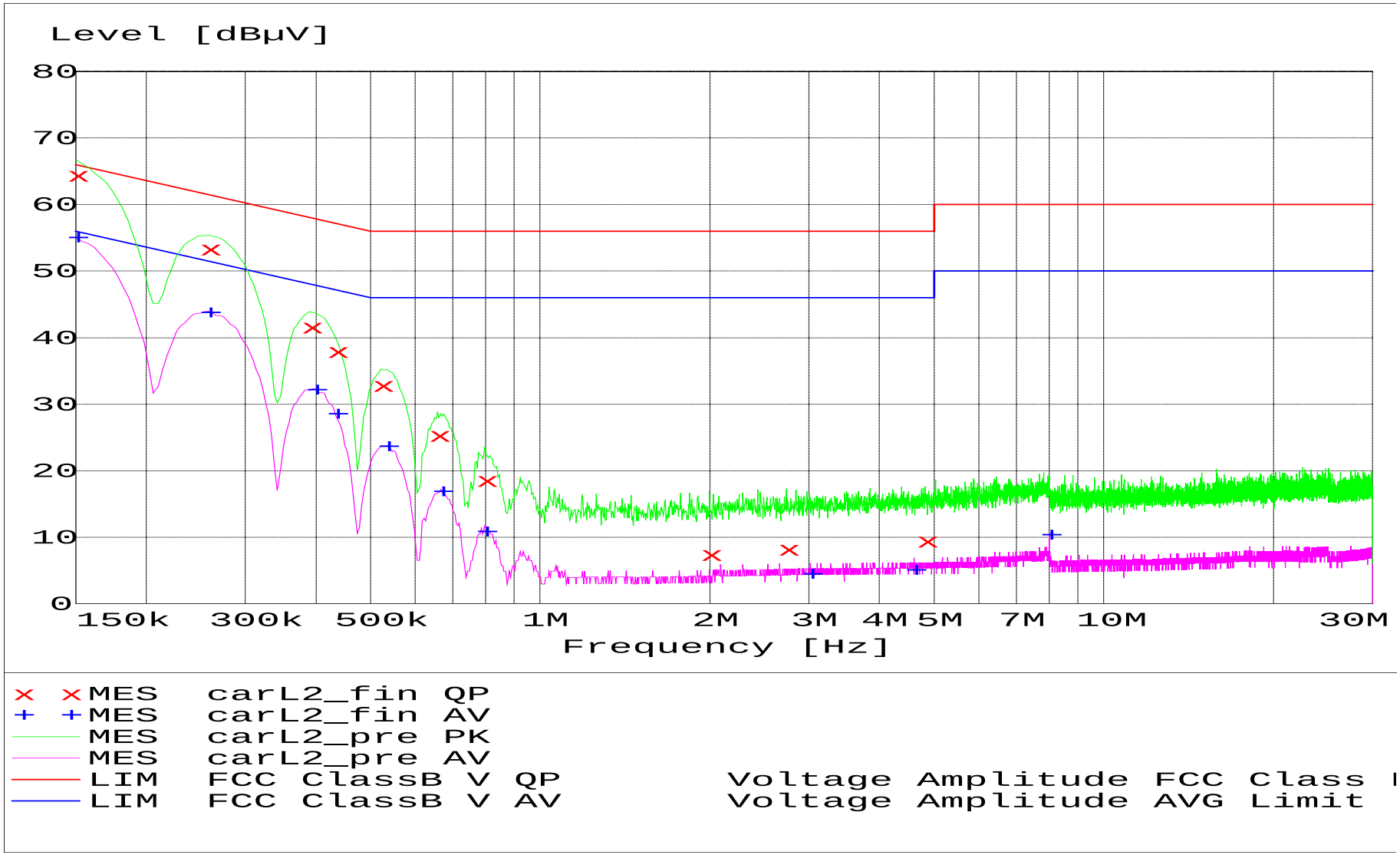
```
EUT:                  AS01HUB5A0001A
Manufacturer:         Carematix Inc.
Operating Condition:  70 deg. F,  24 %  R.H.
Test Site:            Screenroom (OF)
Operator:             Craig Brandt
Test Specification:   Continuous transmit mode
Comment:              Date: 02-27-04
                      Line 2
```

SCAN TABLE: "FCC ClassB Voltage"

Short Description: FCC Class B Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	LISN 961019

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL2_fin QP"

2/27/2004 1:35PM

LINE 2 QUASI PEAK

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	64.40	11.6	66	1.6
0.258000	53.30	10.9	62	8.2
0.390000	41.60	10.6	58	16.4
0.434000	37.90	10.6	57	19.3
0.522000	32.80	10.5	56	23.2
0.658000	25.30	10.5	56	30.7
0.798000	18.50	10.5	56	37.5
1.998000	7.40	10.7	56	48.6
2.734000	8.20	10.8	56	47.8
4.818000	9.40	10.9	56	46.6

DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "carL2_fin AV"

2/27/2004 1:35PM

LINE 2 AVERAGE

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB
0.150000	55.00	11.6	56	1.0
0.258000	43.70	10.9	52	7.8
0.398000	32.10	10.6	48	15.8
0.434000	28.50	10.6	47	18.6
0.534000	23.60	10.5	46	22.4
0.666000	16.80	10.5	46	29.2
0.798000	10.80	10.5	46	35.2
3.018000	4.40	10.9	46	41.6
4.606000	5.00	10.9	46	41.0
8.002000	10.30	11.2	50	39.7

1250 Peterson Dr., Wheeling, IL 60090

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:

1250 Peterson Dr., Wheeling, IL 60090

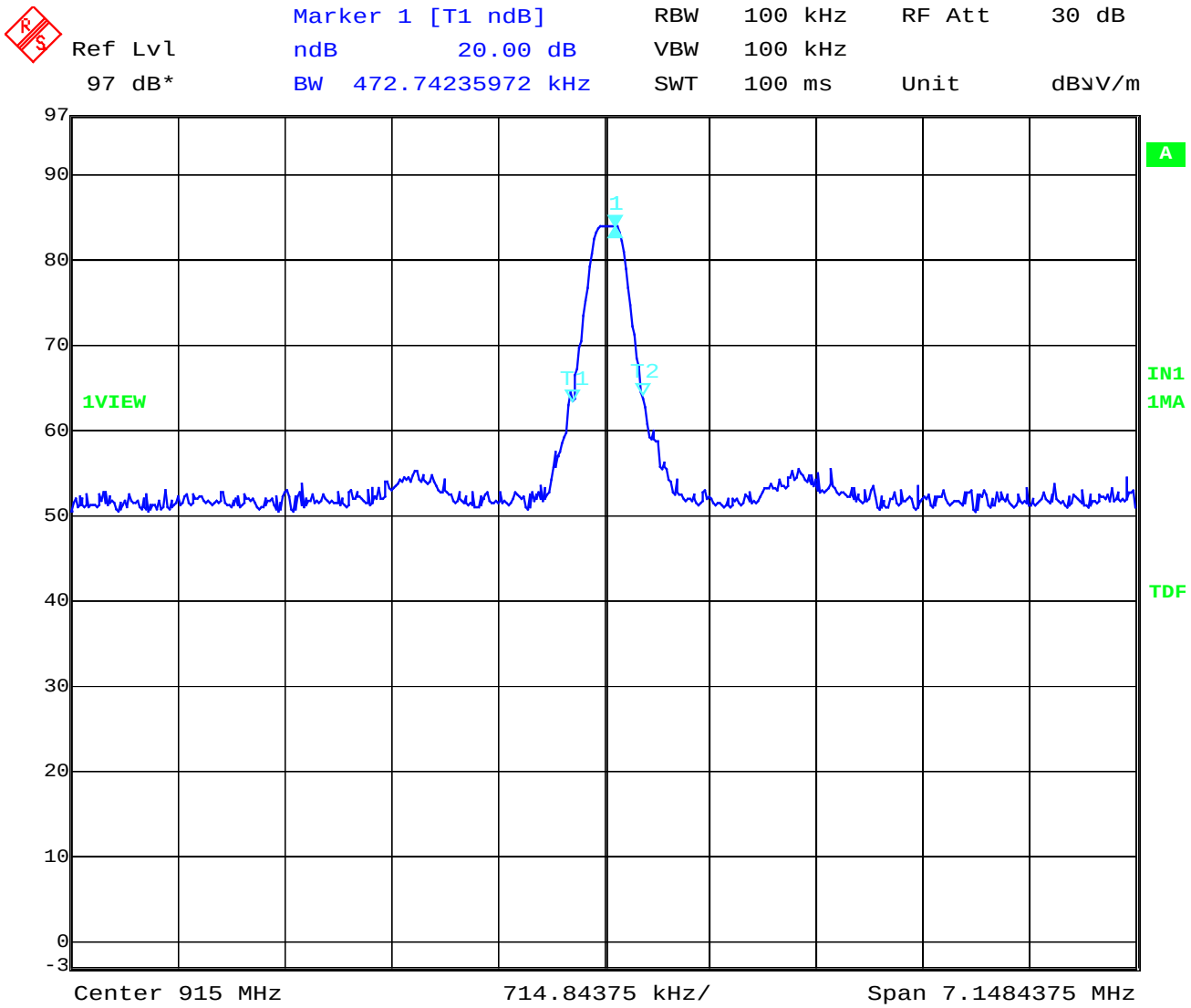
DATA AND GRAPH(S) TAKEN SHOWING THE BAND EDGE AND RESTRICT BAND COMPLIANCE

PART 15.249

1250 Peterson Dr., Wheeling, IL 60090

Company: Carematix Inc.
Test: 20 dB Bandwidth
Date: 02-26-04

Model: AS01HUB5A0001A

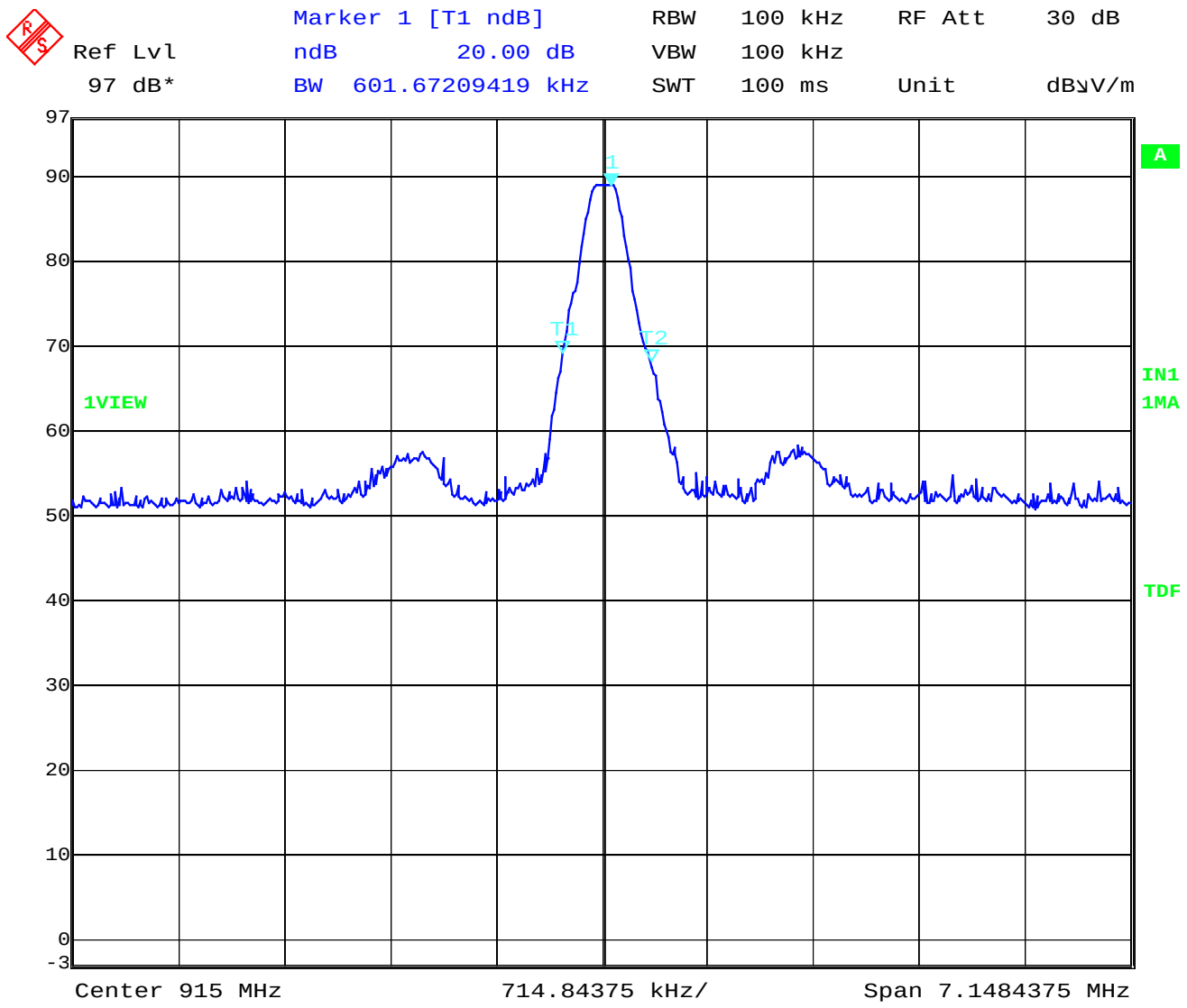


Date: 26.FEB.2004 15:21:04

1250 Peterson Dr., Wheeling, IL 60090

Company: Carematix Inc.
Test: 20 dB Bandwidth
Date: 02-26-04

Model: AS01HUB5A0001B



Date: 26.FEB.2004 15:22:33

1250 Peterson Dr., Wheeling, IL 60090

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: AS01HUB5A0001A and AS01HUB5A0001B, 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 915.05 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.

1250 Peterson Dr., Wheeling, IL 60090

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 range in MHz	Field Strength of Fundamental millivolts/meter	Field Strength of Fundamental dBuV/meter	Field Strength of Harmonics microvolts/meter	Field Strength of Harmonics 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 **68°F** at **29%** relative humidity.

1250 Peterson Dr., Wheeling, IL 60090

RADIATED DATA AND GRAPH(S) TAKEN FOR

FUNDAMENTAL EMISSION MEASUREMENTS

PART 15.249

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                  AS01HUB5A0001A
Manufacturer:         Carematix Inc.
Operating Condition:  68 deg. F.; 29% R.H.
Test Site:            Site 2
Operator:             Craig Brandt
Test Specification:
Comment:              Continuous Transmit Mode
                      Date:2-26-04
```

TEXT: "Site 2 MidV 3M"

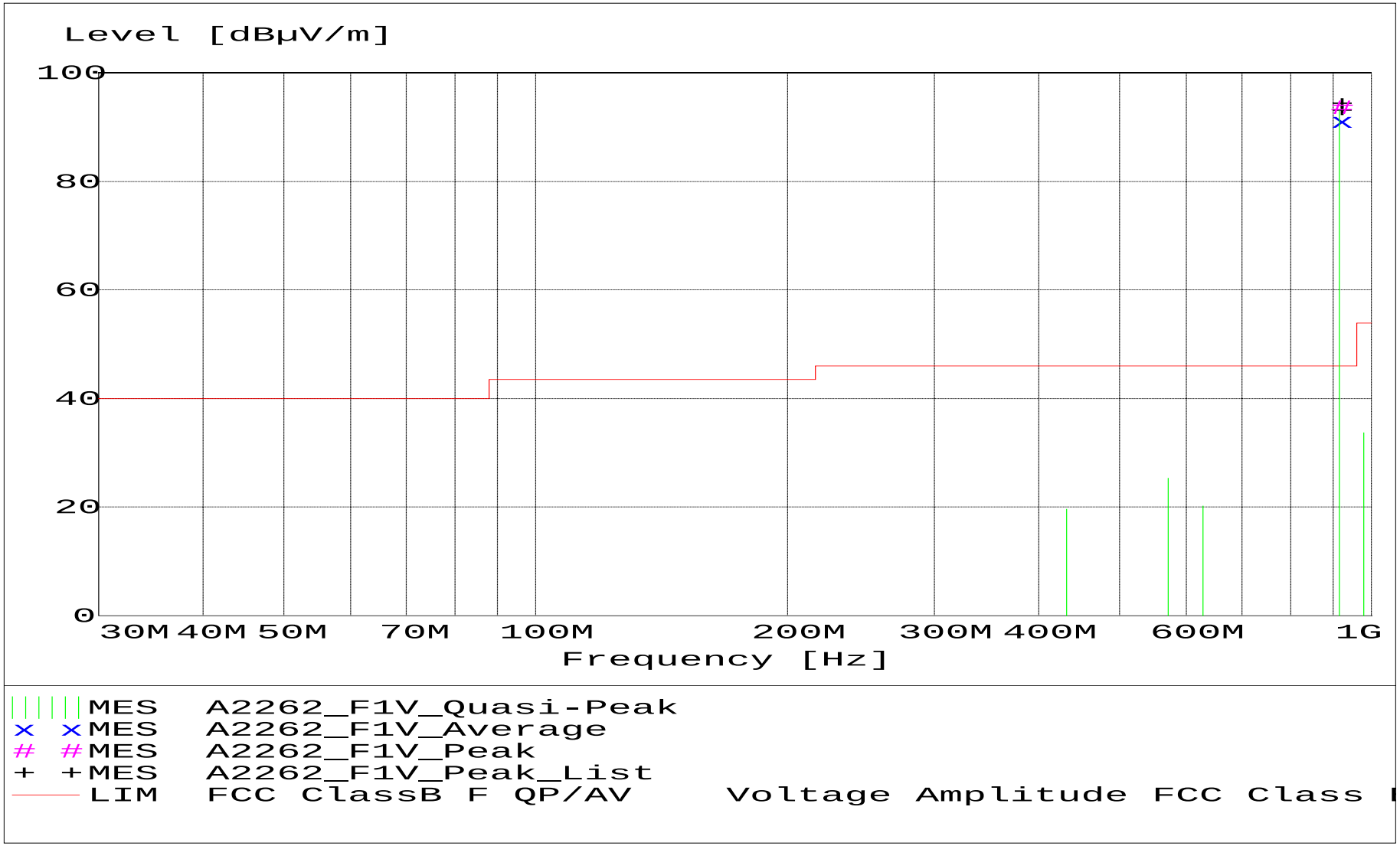
```
  Short Description:            Test Set-up Vert30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/005

                Antennas ---
                Biconical    -- EMCO 3104C SN: 0005-4892
                Log Periodic -- Electro Metrics LPA-25 SN: 1205

                Pre-Amp  --- Rohde & Schwarz TS-PR10 SN: 032001/004

TEST SET-UP:    EUT Measured at 3 Meters with VERTICAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2262_F1V_Final"

2/27/04 11:02AM

AS01HUB5A0001A / VERTICAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector	Comment
915.050000	88.89	23.19	-18.5	93.6	46.0	-47.6	1.00	90	MAX PEAK	Fundamental
915.050000	88.45	23.19	-18.5	93.1	46.0	-47.1	1.00	90	QUASI-PEAK	Fundamental
915.050000	86.33	23.19	-18.5	91.0	46.0	-45.0	1.00	90	AVERAGE	Fundamental
979.050000	27.54	24.10	-17.9	33.7	53.9	20.2	1.00	0	QUASI-PEAK	None
571.040000	27.62	18.33	-20.7	25.3	46.0	20.7	1.00	90	QUASI-PEAK	None
628.790000	21.37	19.37	-20.5	20.2	46.0	25.8	1.00	90	QUASI-PEAK	None

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001A
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H.
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 MidH 3M"

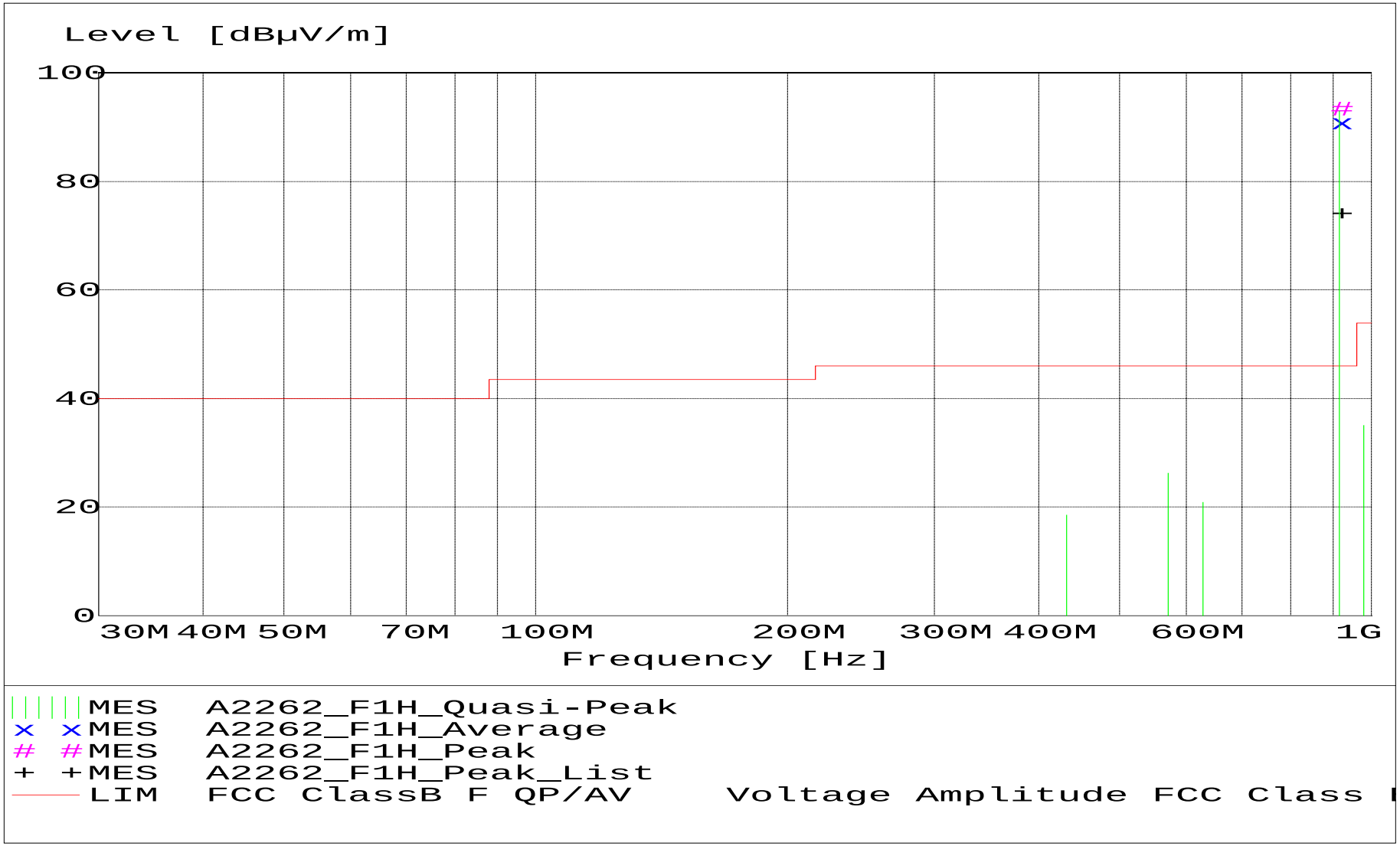
```
  Short Description:            Test Set-up Horz30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/005

                Antennas ---
                Biconical    -- EMCO 3104C SN: 0005-4892
                Log Periodic -- Electro Metrics LPA-25 SN: 1205

                Pre-Amp  --- Rohde & Schwarz TS-PR10 SN: 032001/004

TEST SET-UP:    EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2262_F1H_Final"

2/27/04 10:50AM

AS01HUB5A0001A / HORIZONTAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
915.040000	88.64	23.19	-18.5	93.3	46.0	-47.3	2.20	0	MAX PEAK	Fundamental
915.040000	88.25	23.19	-18.5	92.9	46.0	-46.9	2.20	0	QUASI-PEAK	Fundamental
915.040000	86.08	23.19	-18.5	90.8	46.0	-44.8	2.20	0	AVERAGE	Fundamental
979.050000	28.79	24.10	-17.9	35.0	53.9	18.9	1.20	0	QUASI-PEAK	None
571.040000	28.61	18.33	-20.7	26.2	46.0	19.8	1.20	180	QUASI-PEAK	None
628.790000	22.03	19.37	-20.5	20.9	46.0	25.1	1.20	180	QUASI-PEAK	None
431.990000	24.03	16.05	-21.5	18.6	46.0	27.4	2.10	225	QUASI-PEAK	None

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001B
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 MidV 3M"

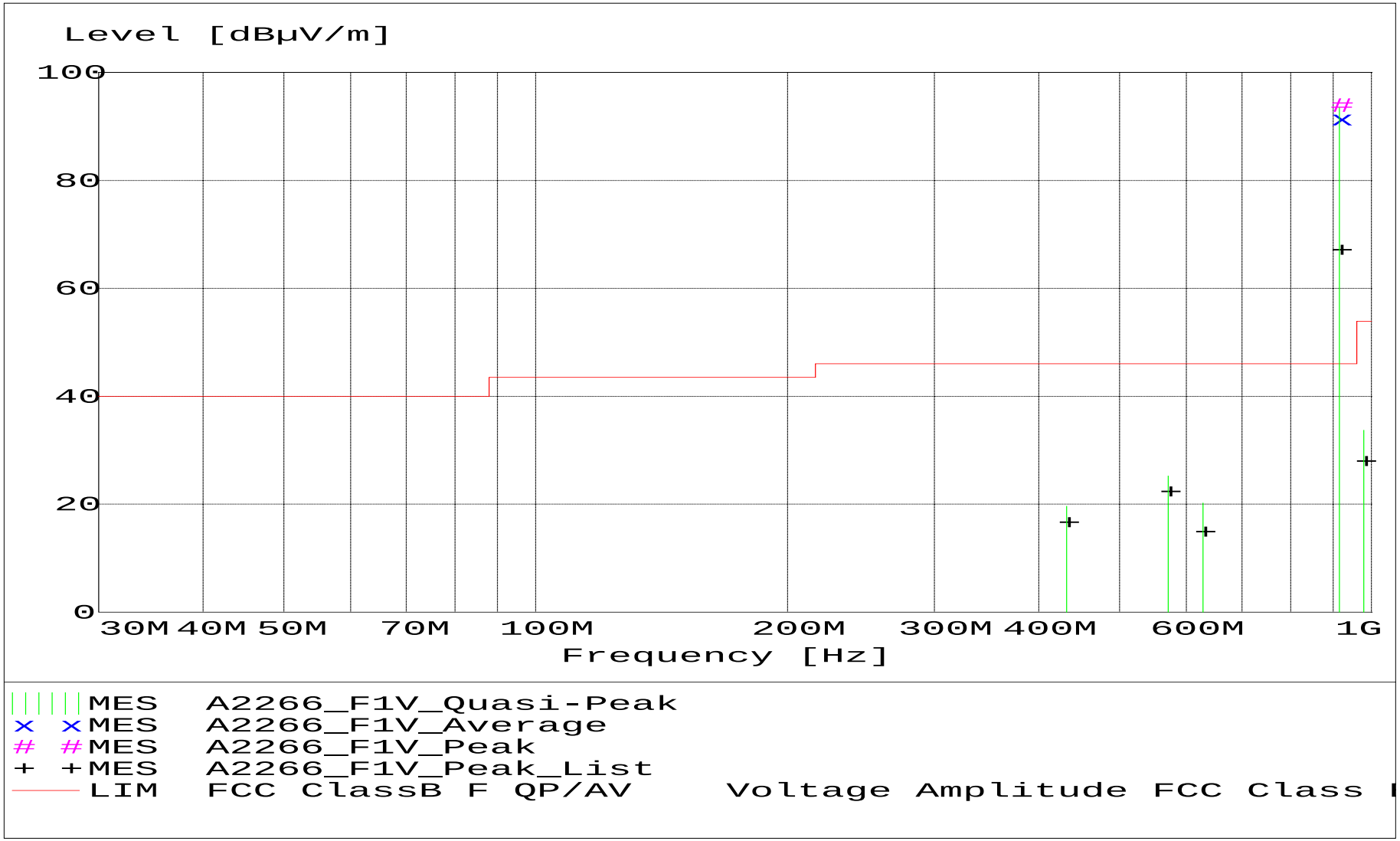
```
  Short Description:            Test Set-up Vert30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/005

                Antennas ---
                Biconical    -- EMCO 3104C SN: 0005-4892
                Log Periodic -- Electro Metrics LPA-25 SN: 1205

                Pre-Amp  --- Rohde & Schwarz TS-PR10 SN: 032001/004

TEST SET-UP:    EUT Measured at 3 Meters with VERTICAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2266_F1V_Final"

2/27/04 10:16AM

AS01HUB5A0001B / VERTICAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
915.030000	89.23	23.19	-18.5	93.9	46.0	-47.9	1.00	225	MAX PEAK	Fundamental
915.030000	88.79	23.19	-18.5	93.5	46.0	-47.5	1.00	225	QUASI-PEAK	Fundamental
915.030000	86.69	23.19	-18.5	91.4	46.0	-45.4	1.00	225	AVERAGE	Fundamental
979.050000	27.54	24.10	-17.9	33.7	53.9	20.2	1.00	0	QUASI-PEAK	None
571.040000	27.62	18.33	-20.7	25.3	46.0	20.7	1.00	90	QUASI-PEAK	None
1.990000	25.10	16.05	-21.5	19.6	46.0	26.4	1.00	135	QUASI-PEAK	None

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001B
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H.
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 MidH 3M"

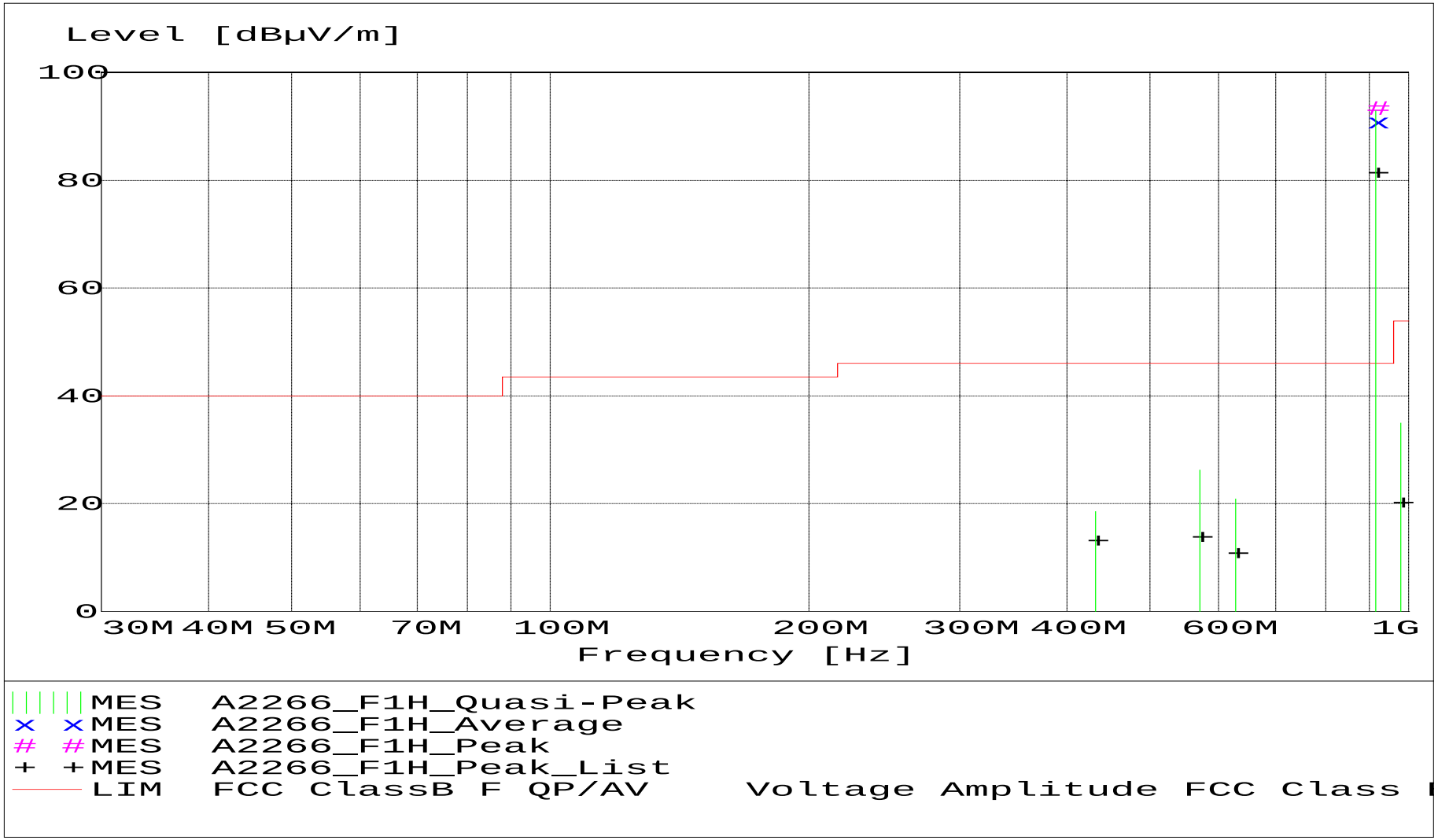
```
  Short Description:            Test Set-up Horz30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/005

                Antennas ---
                Biconical    -- EMCO 3104C SN: 0005-4892
                Log Periodic -- Electro Metrics LPA-25 SN: 1205

                Pre-Amp  --- Rohde & Schwarz TS-PR10 SN: 032001/004

TEST SET-UP:    EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



DLS ELECTRONIC SYSTEMS, INC.
1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2266_F1H_Final"

2/27/04 10:11AM

AS01HUB5A0001B / HORIZONTAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
915.030000	88.59	23.19	-18.5	93.3	46.0	-47.3	1.20	180	MAX PEAK	Fundamental
915.030000	88.17	23.19	-18.5	92.9	46.0	-46.9	1.20	180	QUASI-PEAK	Fundamental
915.030000	86.06	23.19	-18.5	90.7	46.0	-44.7	1.20	180	AVERAGE	Fundamental
979.050000	28.79	24.10	-17.9	35.0	53.9	18.9	1.20	0	QUASI-PEAK	None
571.040000	28.61	18.33	-20.7	26.2	46.0	19.8	1.20	180	QUASI-PEAK	None
628.790000	22.03	19.37	-20.5	20.9	46.0	25.1	1.20	180	QUASI-PEAK	None
431.990000	24.03	16.05	-21.5	18.6	46.0	27.4	2.10	225	QUASI-PEAK	None

1250 Peterson Dr., Wheeling, IL 60090

RADIATED DATA AND GRAPH(S) TAKEN FOR

FIELD STRENGTH

SPURIOUS EMISSION MEASUREMENTS

PART 15.209

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001A
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H.
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 5731&106 V3M"

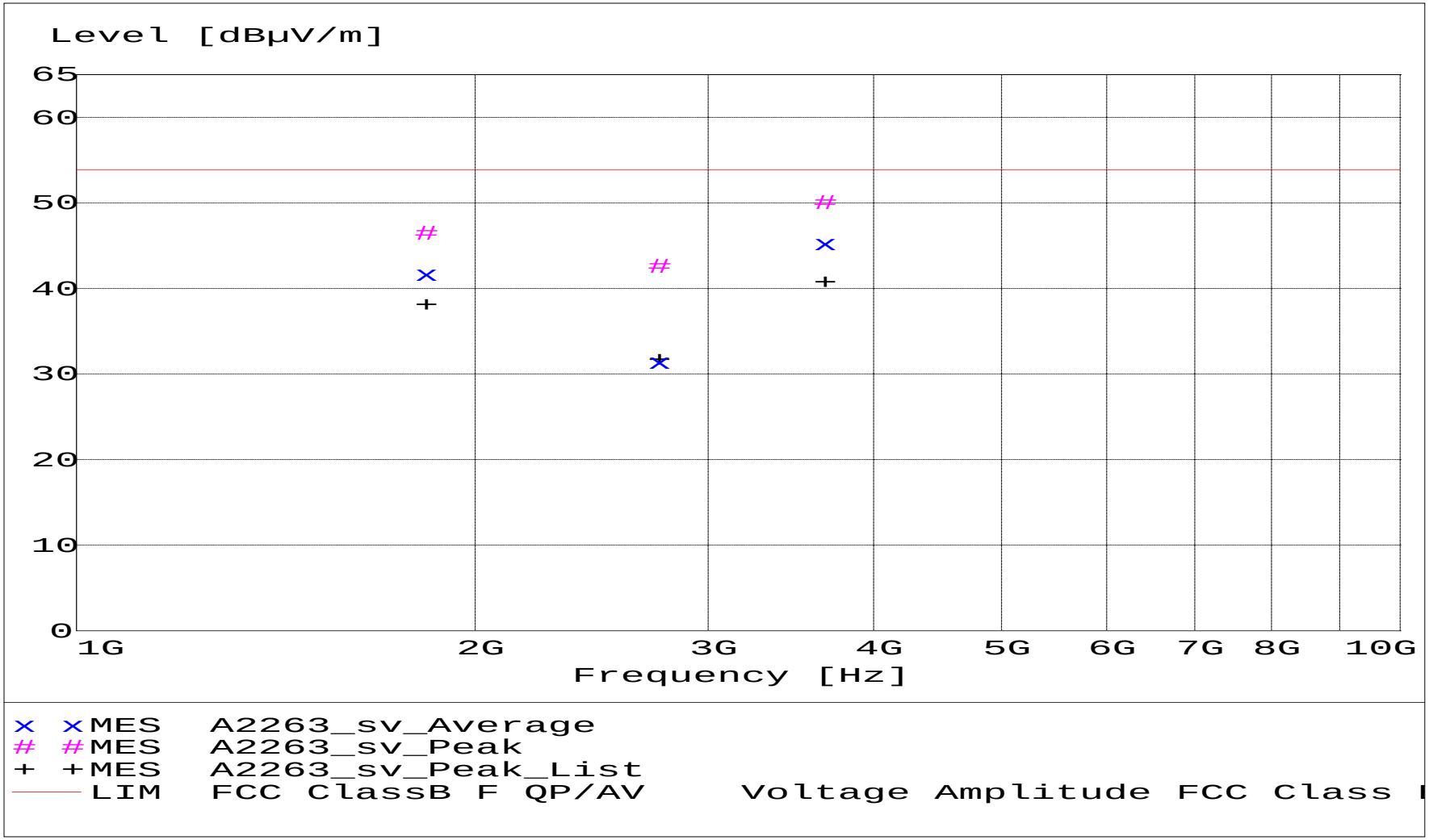
```
Short Description:          Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                   1 - 10 GHz  -- Miteq AMF-6B-100200-50 SN: 313936
                   10 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 213976

TEST SET-UP:    EUT Measured at 3 Meters with VERTICAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2263_sv_Final"

2/26/04 10:20AM

AS01HUB5A0001A / VERTICAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector
3660.250000	53.73	31.78	-35.4	50.1	53.9	3.8	1.00	180	MAX PEAK
1830.100000	54.99	27.69	-36.2	46.5	53.9	7.4	2.00	315	MAX PEAK
3660.250000	48.90	31.78	-35.4	45.3	53.9	8.6	1.00	180	AVERAGE
2745.100000	48.64	29.79	-35.8	42.6	53.9	11.3	2.00	90	MAX PEAK
1830.100000	50.21	27.69	-36.2	41.7	53.9	12.2	2.00	315	AVERAGE
2745.100000	37.38	29.79	-35.8	31.4	53.9	22.5	2.00	90	AVERAGE

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001A
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H.
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 5731&106 H3M"

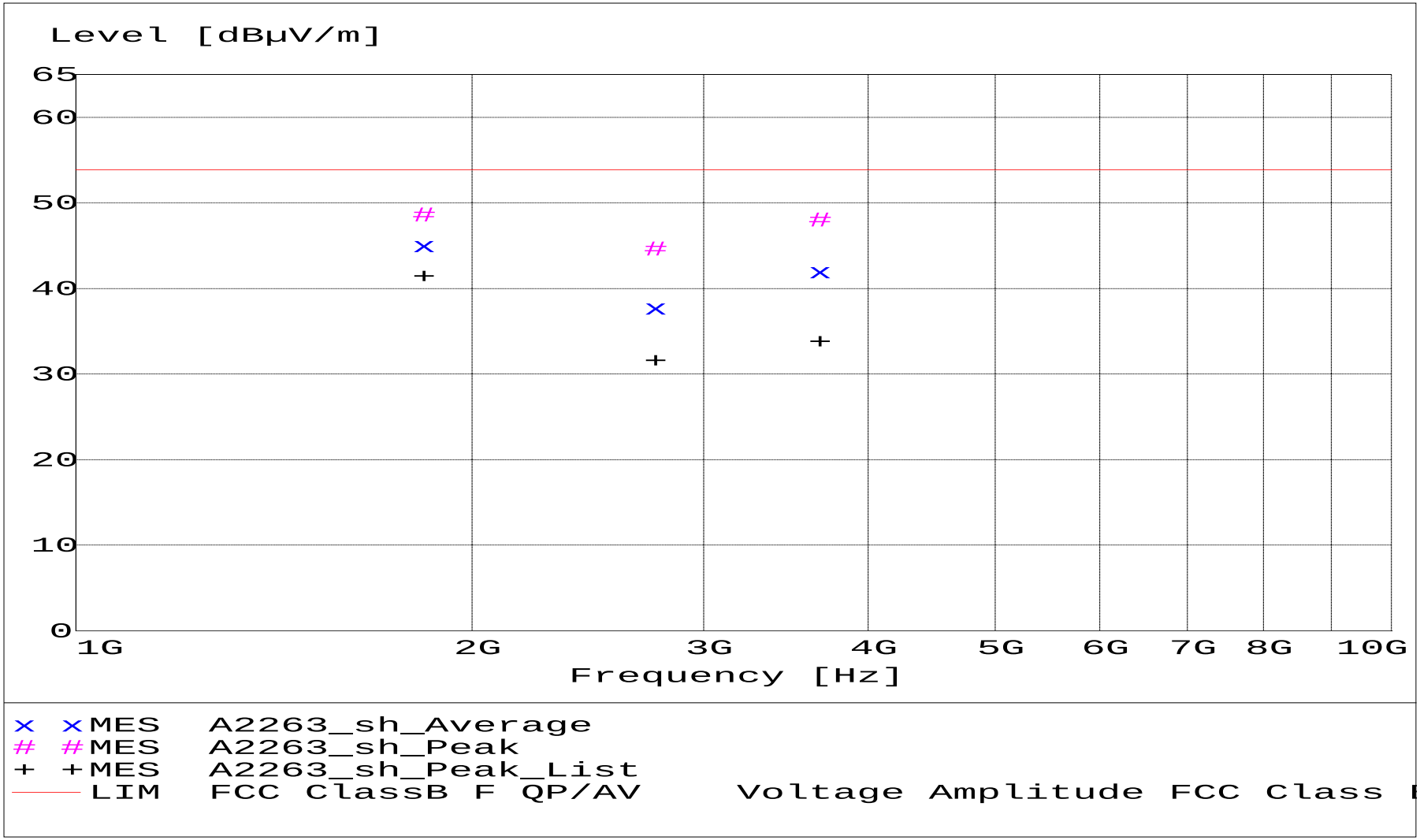
```
  Short Description:            Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                   1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 213976
                   10 - 18 GHz -- Miteq AMF-6B-100200-50 SN: 313936

TEST SET-UP:    EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2263_sh_Final"

2/26/04 10:13AM

AS01HUB5A0001A / HORIZONTAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector
1830.100000	57.14	27.69	-36.2	48.6	53.9	5.3	1.50	0	MAX PEAK
3660.250000	51.62	31.78	-35.4	48.0	53.9	5.9	1.50	0	MAX PEAK
1830.100000	53.53	27.69	-36.2	45.0	53.9	8.9	1.50	0	AVERAGE
2745.150000	50.61	29.79	-35.8	44.6	53.9	9.3	1.50	315	MAX PEAK
3660.250000	45.61	31.78	-35.4	42.0	53.9	11.9	1.50	0	AVERAGE
2745.150000	43.71	29.79	-35.8	37.7	53.9	16.2	1.50	315	AVERAGE

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                    AS01HUB5A0001B
Manufacturer:           Carematix Inc.
Operating Condition:    68 deg. F.; 29% R.H.
Test Site:              Site 2
Operator:               Craig Brandt
Test Specification:
Comment:                Continuous Transmit Mode
                        Date:2-26-04
```

TEXT: "Site 2 5731&106 V3M"

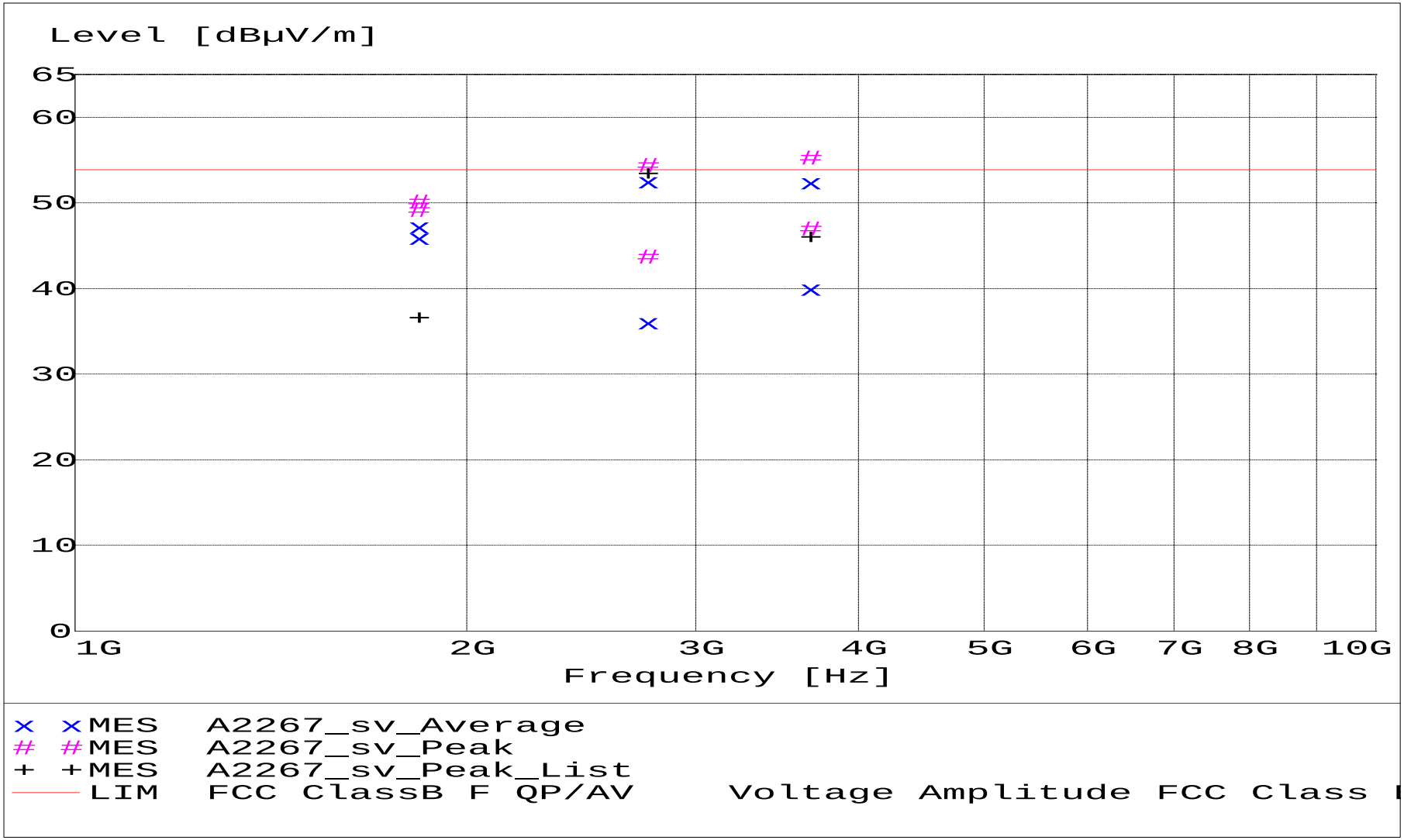
```
  Short Description:            Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                   1 - 10 GHz  -- Miteq AMF-6B-100200-50 SN: 313936
                   10 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 213976

TEST SET-UP:    EUT Measured at 3 Meters with VERTICAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2267_sv_Final"

2/27/04 12:05PM

AS01HUB5A0001B / VERTICAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector	Comment
1830.050000	58.62	27.69	-36.2	50.1	53.9	3.8	1.60	45	MAX PEAK	None
3660.150000	50.61	31.78	-35.4	47.0	53.9	6.9	1.50	0	MAX PEAK	None
1830.050000	54.39	27.69	-36.2	45.9	53.9	8.0	1.20	0	AVERAGE	None
2745.150000	49.69	29.79	-35.8	43.7	53.9	10.2	1.50	225	MAX PEAK	None
3660.150000	43.57	31.78	-35.4	39.9	53.9	14.0	1.50	0	AVERAGE	None
2745.150000	42.00	29.79	-35.8	36.0	53.9	17.9	1.50	225	AVERAGE	None

1250 Peterson Dr., Wheeling, IL 60090

FCC Class B 3 Meter

Electric Field Strength

```
EUT:                  AS01HUB5A0001B
Manufacturer:         Carematix Inc.
Operating Condition:  68 deg. F.; 29% R.H.
Test Site:            Site 2
Operator:             Craig Brandt
Test Specification:
Comment:              Continuous Transmit Mode
                      Date:2-26-04
```

TEXT: "Site 2 5731&106 H3M"

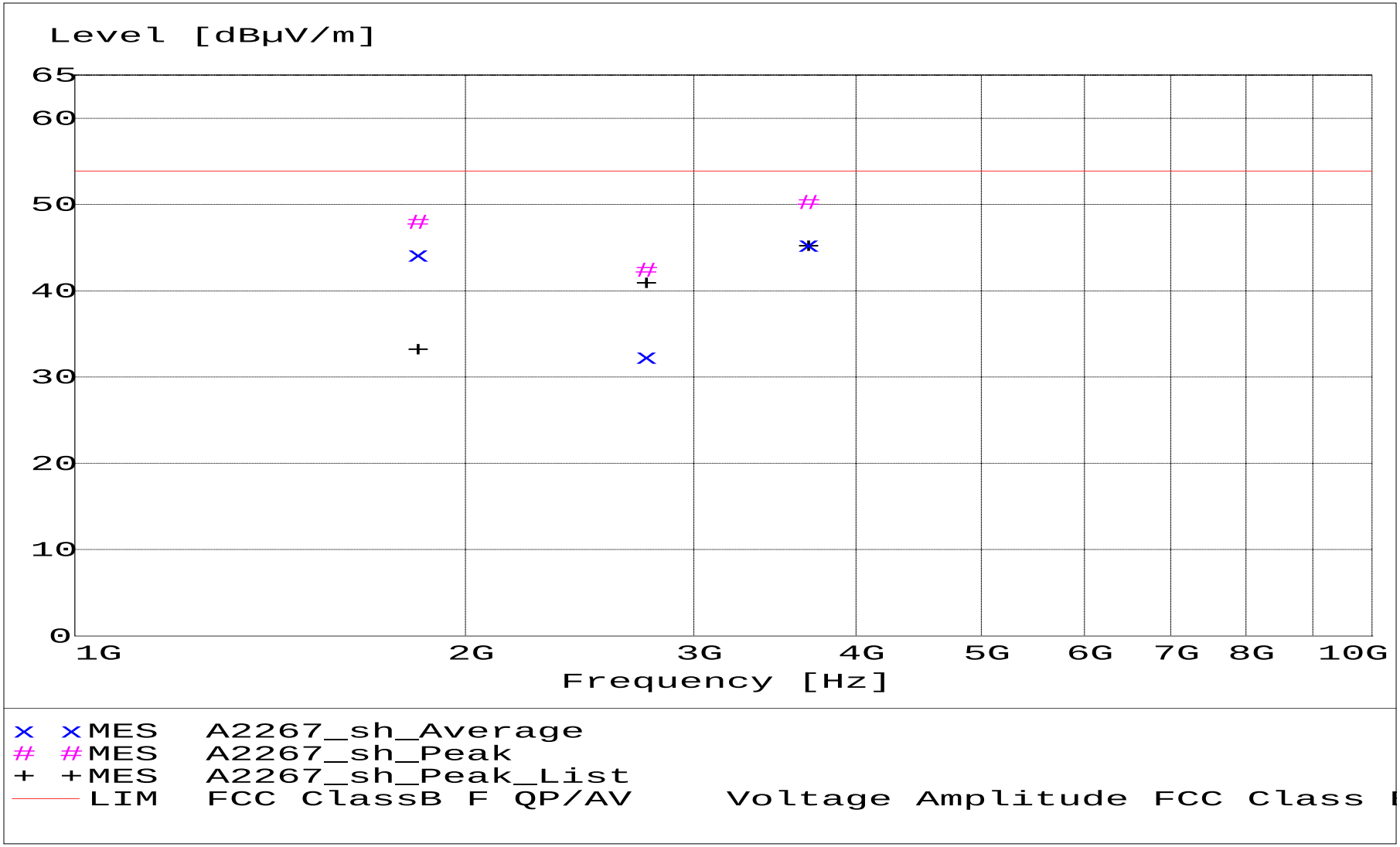
```
  Short Description:            Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde & Schwarz ESI 40 SN: 837808/006

                Horn Antenna --- EMCO 3115 SN: 9903-5731

                Pre-Amps ---
                   1 - 10 GHz  -- Miteq AMF-6D-010100-50 SN: 213976
                   10 - 18 GHz -- Miteq AMF-6B-100200-50 SN: 313936

TEST SET-UP:    EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization
```

1250 Peterson Dr., Wheeling, IL 60090



1250 Peterson Dr., Wheeling, IL 60090

MEASUREMENT RESULT: "A2267_sh_Final"

2/27/04 12:01PM

AS01HUB5A0001B / HORIZONTAL Antenna Polarization

Frequency MHz	Level dBµV	Antenna Factor dBµV/m	System Loss dB	Total Level dBµV/m	Limit dBµV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector	Comment
3660.150000	53.87	31.78	-35.4	50.2	53.9	3.7	1.00	30	MAX PEAK	None
1830.050000	56.47	27.69	-36.2	47.9	53.9	6.0	1.50	0	MAX PEAK	None
3660.150000	48.92	31.78	-35.4	45.3	53.9	8.6	1.00	30	AVERAGE	None
1830.050000	52.66	27.69	-36.2	44.1	53.9	9.8	1.50	0	AVERAGE	None
2745.100000	48.40	29.79	-35.8	42.4	53.9	11.5	1.30	30	MAX PEAK	None
2745.100000	38.32	29.79	-35.8	32.3	53.9	21.6	1.30	30	AVERAGE	None