



1250 Peterson Dr., Wheeling, IL 60090

Company: Dukane Corporation, AV Division
Model Tested: SRSAC1
Report Number: 13329

FCC Rules and Regulations / CFR 47

Receivers and all other Unintentional Radiators

Part 15, Subpart B, Sections 15.107a & 15.109a

THE FOLLOWING "MEETS" THE ABOVE TEST SPECIFICATION

Formal Name: Aclick

Kind of Equipment: Wireless 802.15.4 transceiver

Test Configuration: Stand alone hand-held unit (Tested at 3 vdc)

Model Number(s): SRSAC1

Model(s) Tested: SRSAC1

Serial Number(s): 0000001

Date of Tests: June 28, 2007

Test Conducted For: Dukane Corporation, AV Division
2900 Dukane Drive
St. Charles, Illinois 60174

NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP, NIST, or any agency of the U.S. Government". Please see the "Additional Description of Equipment Under Test" page listed inside of this report.

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Model Tested: SRSAC1
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SIGNATURE PAGE

Report By:

Aron C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

Company Official:

Dukane Corporation, AV Division



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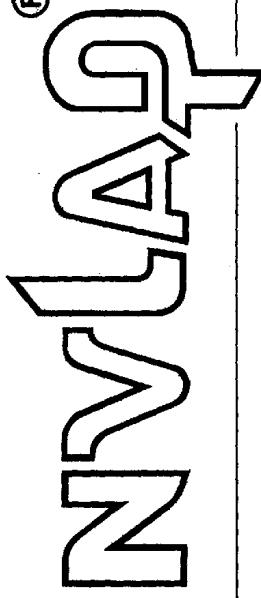


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United States Department of Commerce
National Institute of Standards and Technology

®



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to Joint ISO/IEC/IAF Communique dated 18 June 2005).



2006-10-01 through 2007-09-30

Effective dates

Darryl A. Bruce, P.E.
For the National Institute of Standards and Technology

NVLAP-01C (REV. 2006-08-13)



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Model Tested: SRSAC1
Report Number: 13329

1.0 SUMMARY OF TEST REPORT

It was found that the Aclick, Model Number(s) SRSAC1, "meets" the radio interference radiated emission requirements of FCC "Rules and Regulations", Part 15, Subpart B, Sections 15.107a & 15.109a for Receivers and all other Unintentional Radiators. The Power Line Conducted emissions test was not required because the Aclick is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

2.0 INTRODUCTION

On June 28, 2007, a series of radio frequency interference measurements was performed on Aclick, Model Number(s) SRSAC1, Serial Number: 0000001. All tests were performed according to the procedures of the FCC as stated in the American National Standards Institute, ANSI C63.4-2003. These test procedures 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 emission requirements of the FCC Rules and Regulations, Part 15, Subpart B, Sections 15.107a & 15.109a for Receivers and all other Unintentional Radiators.

4.0 TEST FACILITY

All emission tests were performed at D.L.S. Electronic Systems, Inc. according to the American National Standards Institute, ANSI C63.4-2003.

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at <http://www.dlsemc.com/certificate>. Our facilities are registered with the FCC, Industry Canada, and VCCI.

5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

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



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6.0 POWER LINE CONDUCTED EMISSION MEASUREMENTS

The Aclick is powered from a D.C. power source and will not at any time be directly plugged into the public utility lines, therefore the conducted emissions test was not performed.

7.0 RADIATED EMISSION MEASUREMENTS

All tests were performed according to the procedures of ANSI C63.4-2003. Plots and tabular data can be viewed in Appendix B of this test report.

NOTE:

FCC Part 15.33b states that measurements shall be made up to the 5th harmonic of the highest clock or timing frequency of the EUT. The highest timing frequency in the Aclick is 16MHz. Therefore measurements were made up to 12500 MHz.

NOTE:

All radiated emissions measurements were made at a test room temperature of **73°F** at **56%** relative humidity.



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8.0 DESCRIPTION OF TEST SAMPLE:

8.1 Description:

This device is a hand-held wireless transceiver operating in the ISM band from 2400Mhz to 2485Mhz. The device is battery operated and uses a 802.15.4 communications protocol. The device is intended to be used as a wireless data path for small amounts of data.

The unit will operate in a continuously transmitting mode while testing. The PC program used to control the device is Test Tool from Freescale. this program is used to force the radio into the different test modes. The unit will be running software that will allow it to communicate to the Test Tool program. The Test Tool program allows the unit to operate in continuous transmit or continuous receive modes. It also has the ability to turn modulation on or off and to change the operating channel.

8.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length: 5.6in x Width: 2.7in x Height: 1.2in

8.3 INTERNAL CLOCK FREQUENCIES:

16 MHz

8.4 DESCRIPTION OF ALL CIRCUIT BOARDS:

09-0295-00001 Blank PC board	D
10-0395-00001 PCB assembly	B



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9.0 MODIFICATIONS MADE TO EUT FOR EMC COMPLIANCE:

There were no additional descriptions noted at the time of test.

NOTE:

Constant Receive Mode for Low, Mid and High Channels.

I certify that the above, combined with paragraph 9.0, describes the equipment tested and that the equipment will be manufactured as stated.

By: _____
Signature

Title

For: _____
Company

Date



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10.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 Aclick

Model Number: SRSAC1, Serial Number: 0000001



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11.0 RADIATED PHOTOS TAKEN DURING TESTING



RADIATED FRONT VERTICAL POSITION



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11.0 RADIATED PHOTOS TAKEN DURING TESTING



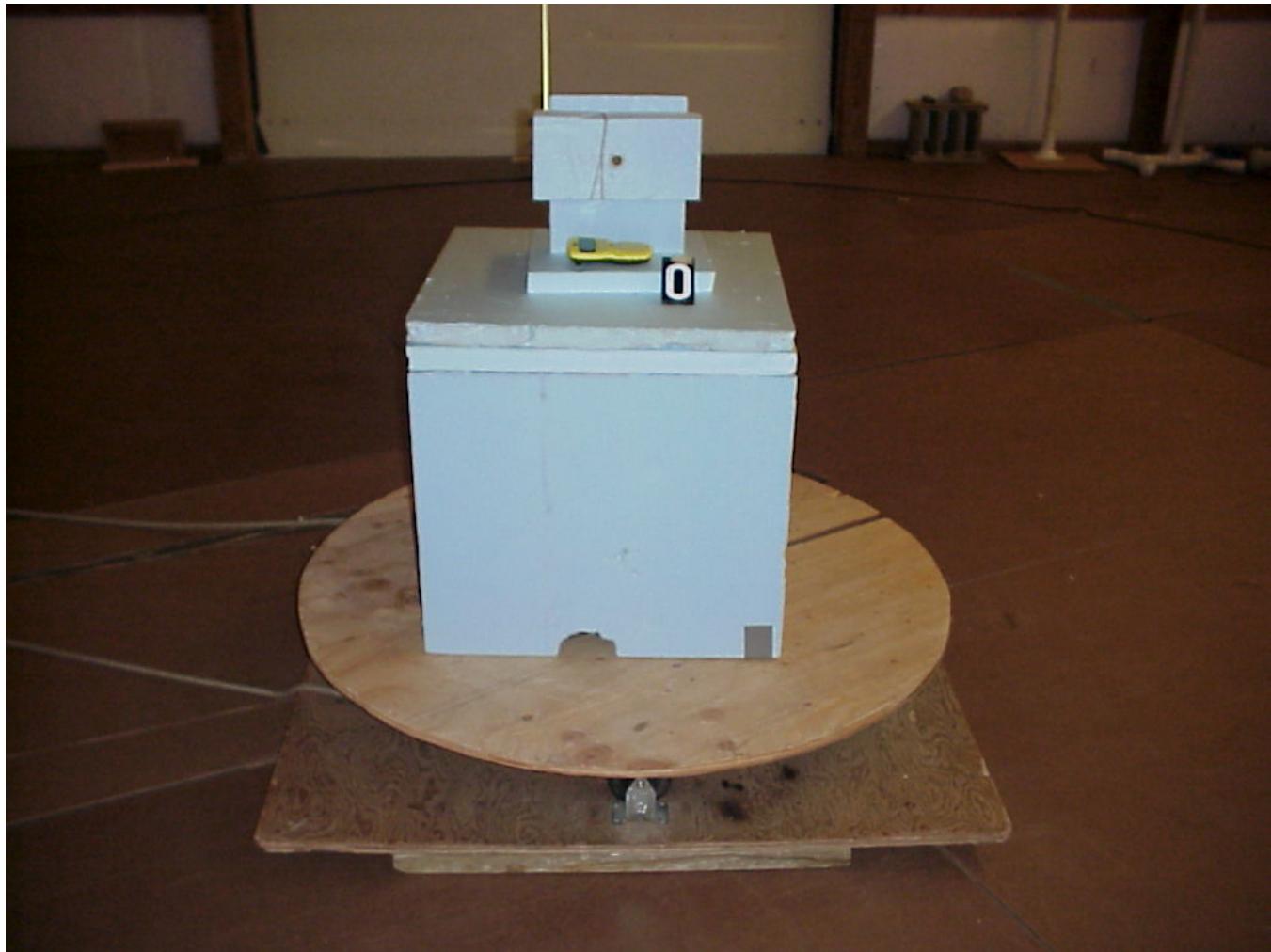
RADIATED FRONT HORIZONTAL POSITION 1



1250 Peterson Dr., Wheeling, IL 60090

Company: Dukane Corporation, AV Division
Model Tested: SRSAC1
Report Number: 13329

11.0 RADIATED PHOTOS TAKEN DURING TESTING



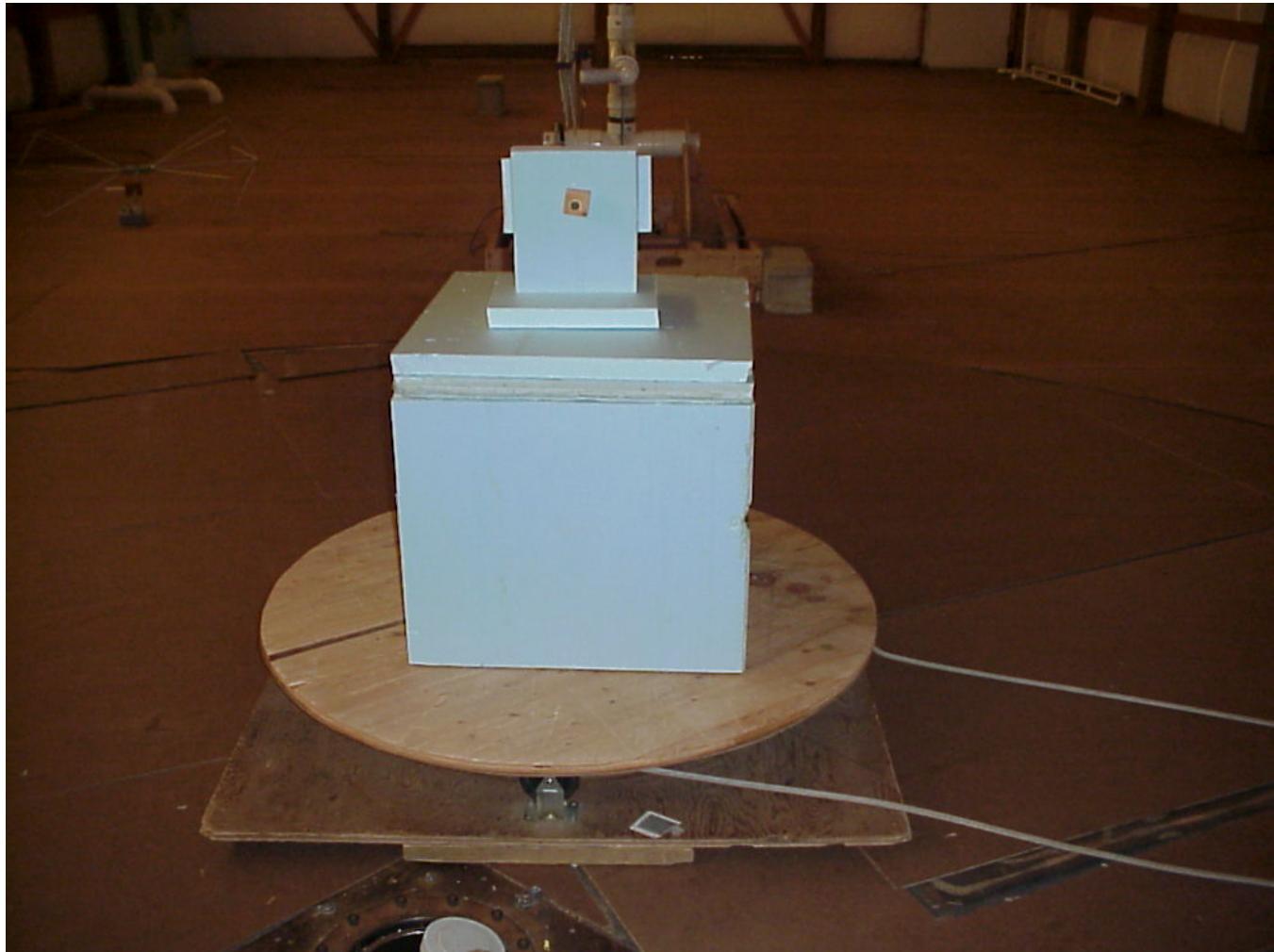
RADIATED FRONT HORIZONTAL POSITION 2



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11.0 RADIATED PHOTOS TAKEN DURING TESTING



RADIATED REAR



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12.0 CONCLUSION

It was found that the Aclick, Model Number(s) SRSAC1 "meets" the radio interference radiated emission requirements of FCC Rules and Regulations, Part 15, Subpart B, Sections 15.107a & 15.109a for Receivers and all other Unintentional Radiators. The Power Line Conducted emissions test was not required because the Aclick is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.



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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	12/07
Quasi-Peak Adapter	Hewlett/ Packard	85650A	2043A00121	10 kHz – 1 GHz	12/07
Spectrum Analyzer	Hewlett/ Packard	8566B	2421A00452	100 Hz – 22 GHz	9/07
Quasi-Peak Adapter	Hewlett/ Packard	85650A	2043A00450	10 kHz – 1 GHz	9/07
Spectrum Analyzer	Hewlett/ Packard	8591A	3009A00700	9 kHz – 1.8 GHz	3/08
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	1/08
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	10/07
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	2/08
Antenna	EMCO	3104C	00054891	20 MHz – 200 MHz	2/08
Antenna	Electrometrics	LPA-25	1114	200 MHz – 1 GHz	2/08
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3/08

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



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TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Antenna	Electrometrics	3146	1205	200 MHz – 1 GHz	3/08
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/08
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	2/08
Antenna	EMCO	3115	2479	1 GHz – 18 GHz	4/08
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/08
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/08
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	2/08
LISN	Solar	8012-50-R-24-BNC	8305116	10 MHz – 30 MHz	8/07
LISN	Solar	8012-50-R-24-BNC	814548	10 MHz – 30 MHz	8/07
LISN	Solar	9252-50-R-24-BNC	961019	10 MHz – 30 MHz	12/07
LISN	Solar	9252-50-R-24-BNC	971612	10 MHz – 30 MHz	11/07
LISN	Solar	9252-50-R-24-BNC	92710620	10 MHz – 30 MHz	7/08

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



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APPENDIX A

“RADIATED DATA AND CHARTS TAKEN DURING TESTING”

30 MHz – 1000 MHz

NOTE:

ALL DATA TAKEN WAS GREATER THAN 20 dB BELOW THE LIMIT.

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 56% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason Lauer
Test Specification: 3 VDC
Comment: Receive Mode - Low, Middle and High Frequency
Date: 06/28/2007

TEXT: "Site 2 MidV 3M"

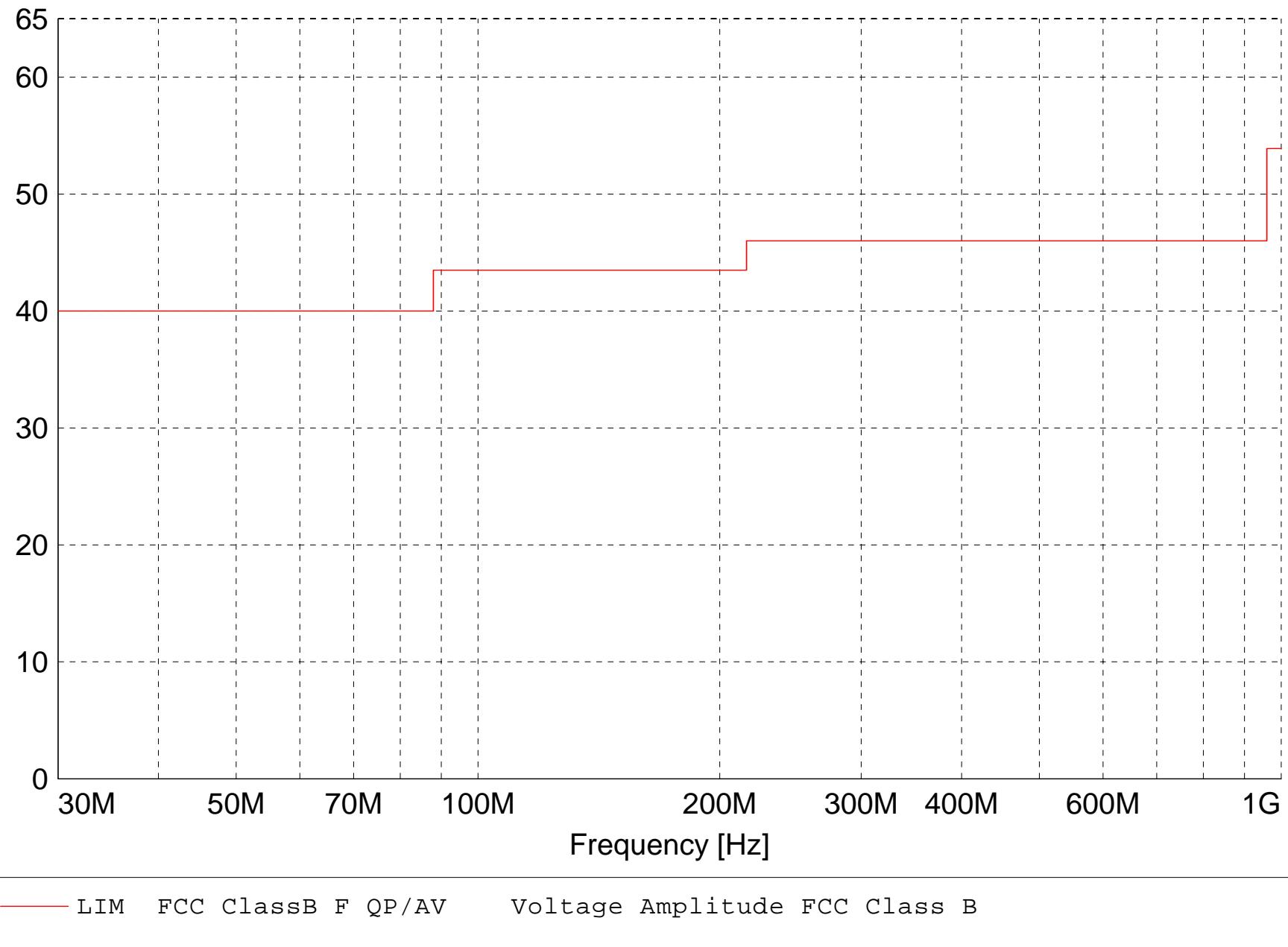
Short Description: Test Set-up Vert30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837460/002

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

Level [dB μ V/m]



Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 56% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason Lauer
Test Specification: 3 VDC
Comment: Receive Mode - Low, Middle and High Frequency
Date: 06/28/2007

TEXT: "Site 2 MidH 3M"

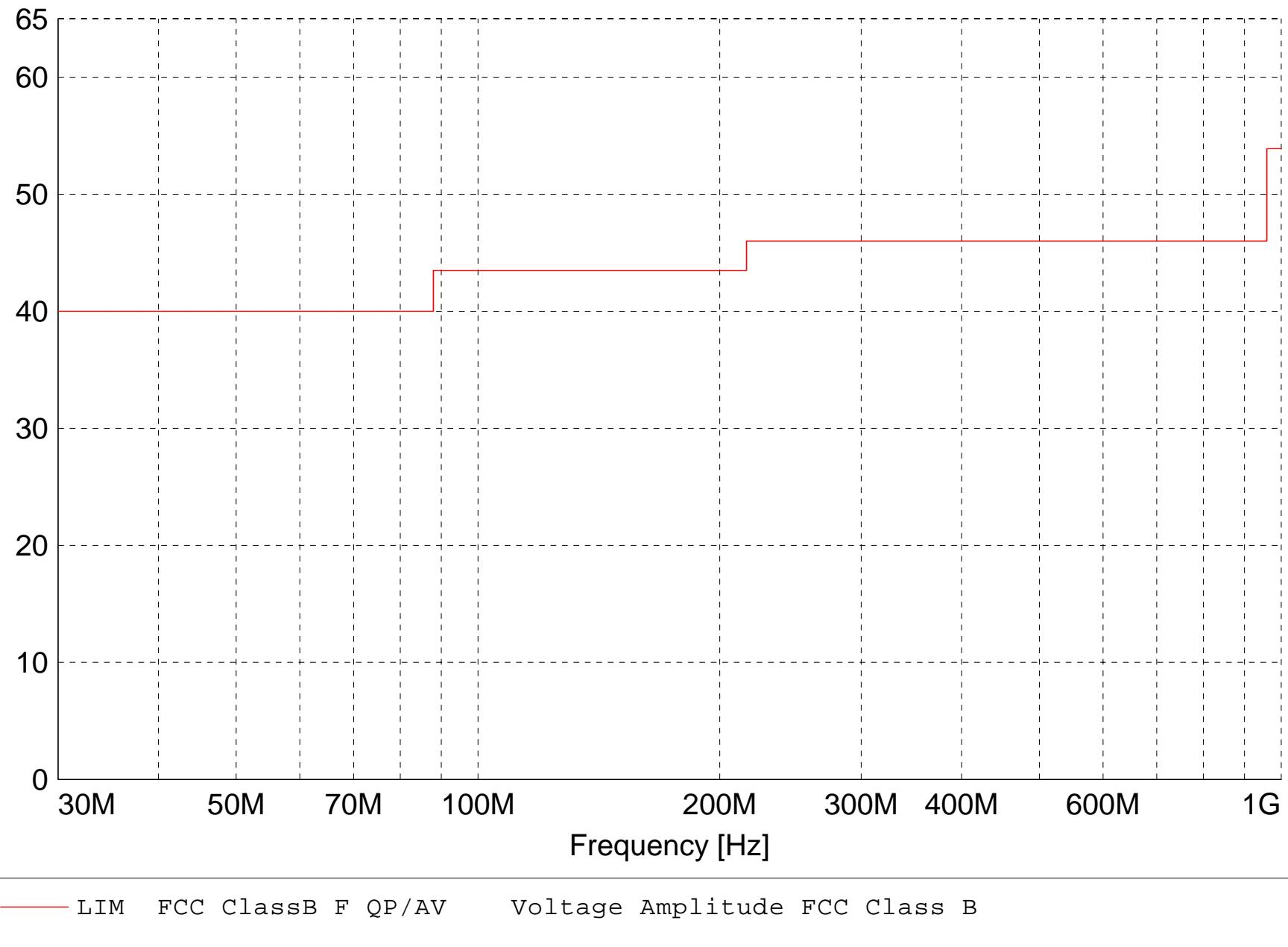
Short Description: Test Set-up Horz30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837460/002

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

Level [dB μ V/m]





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APPENDIX A

“RADIATED DATA AND CHARTS TAKEN DURING TESTING”

1000 MHz – 12500 MHz

NOTE:

ALL DATA TAKEN WAS GREATER THAN 20 dB BELOW THE LIMIT.

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - Low Frequency 2.405 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

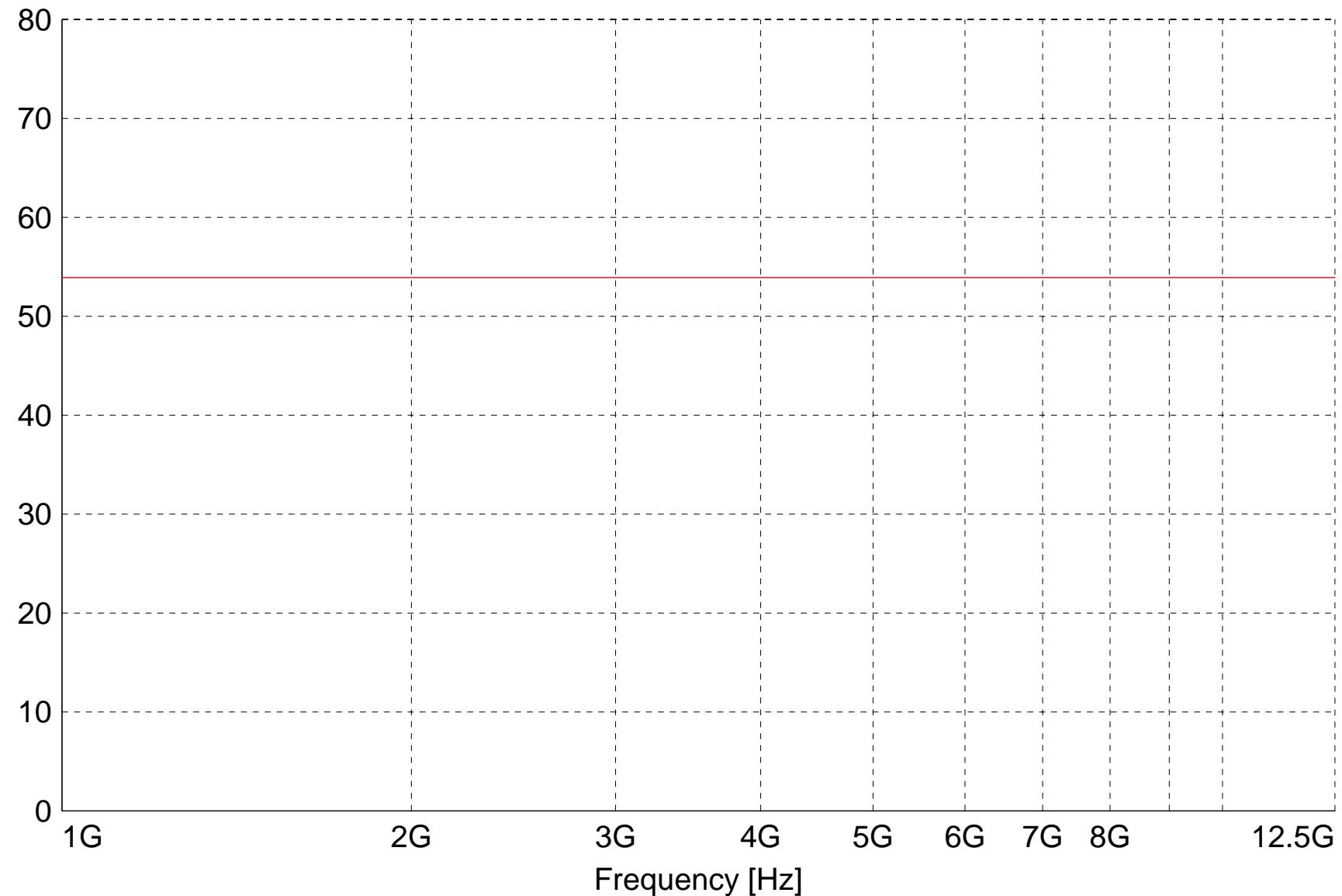
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - Low Frequency 2.405 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

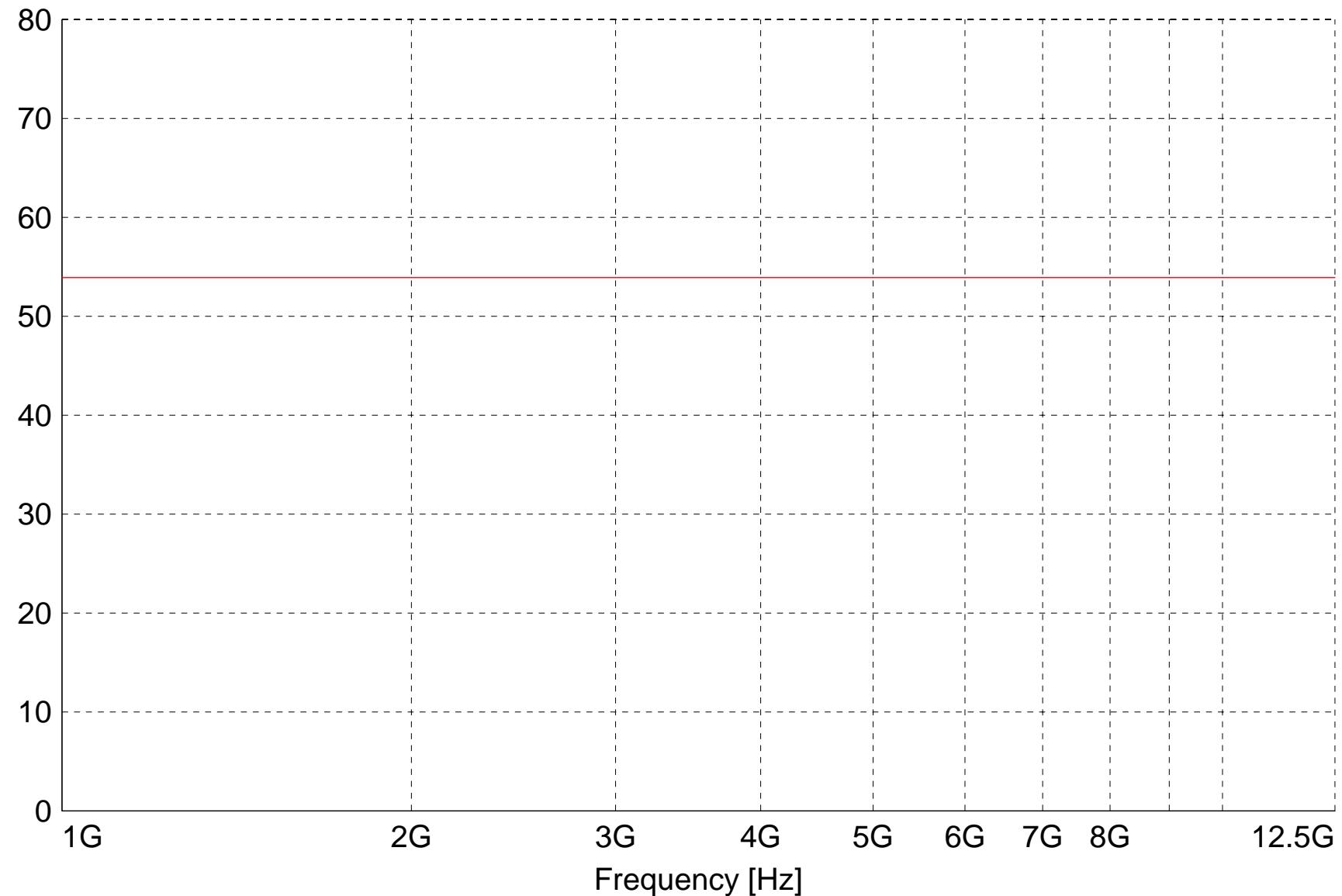
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - Middle Frequency 2.4440 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

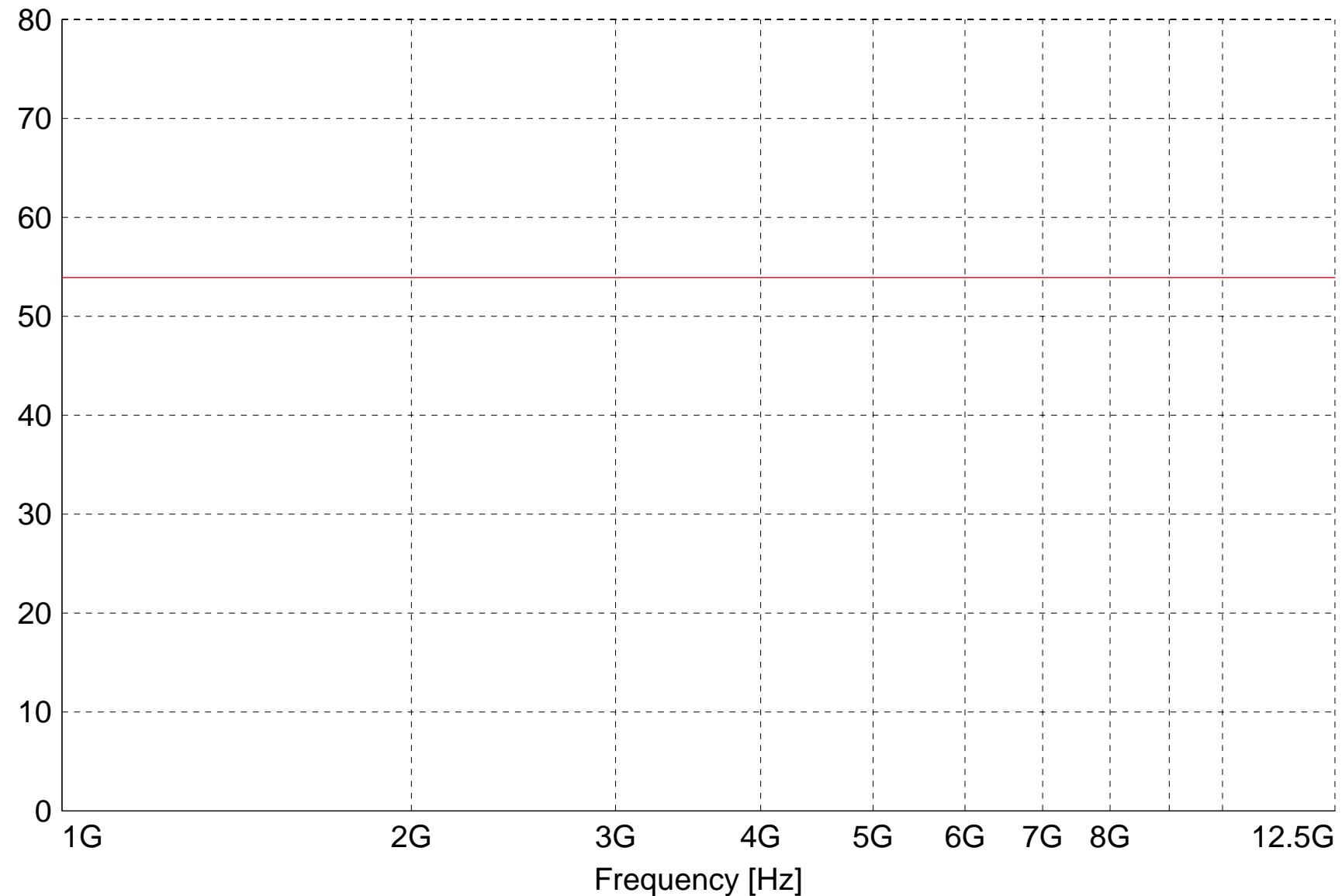
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - Middle Frequency 2.4440 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

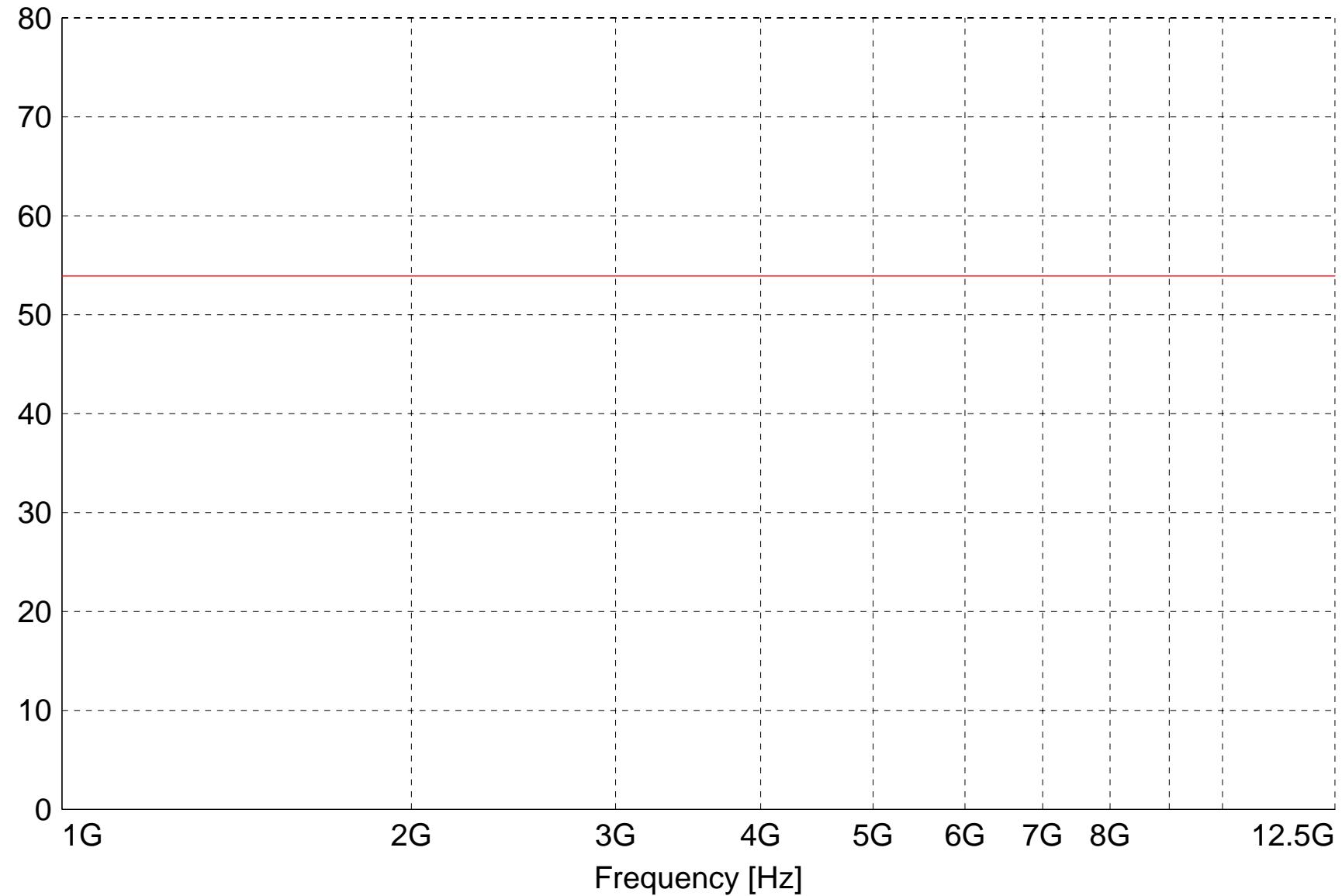
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - High Frequency 2.480 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 V3M"

Short Description: Test Set-up Vert1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

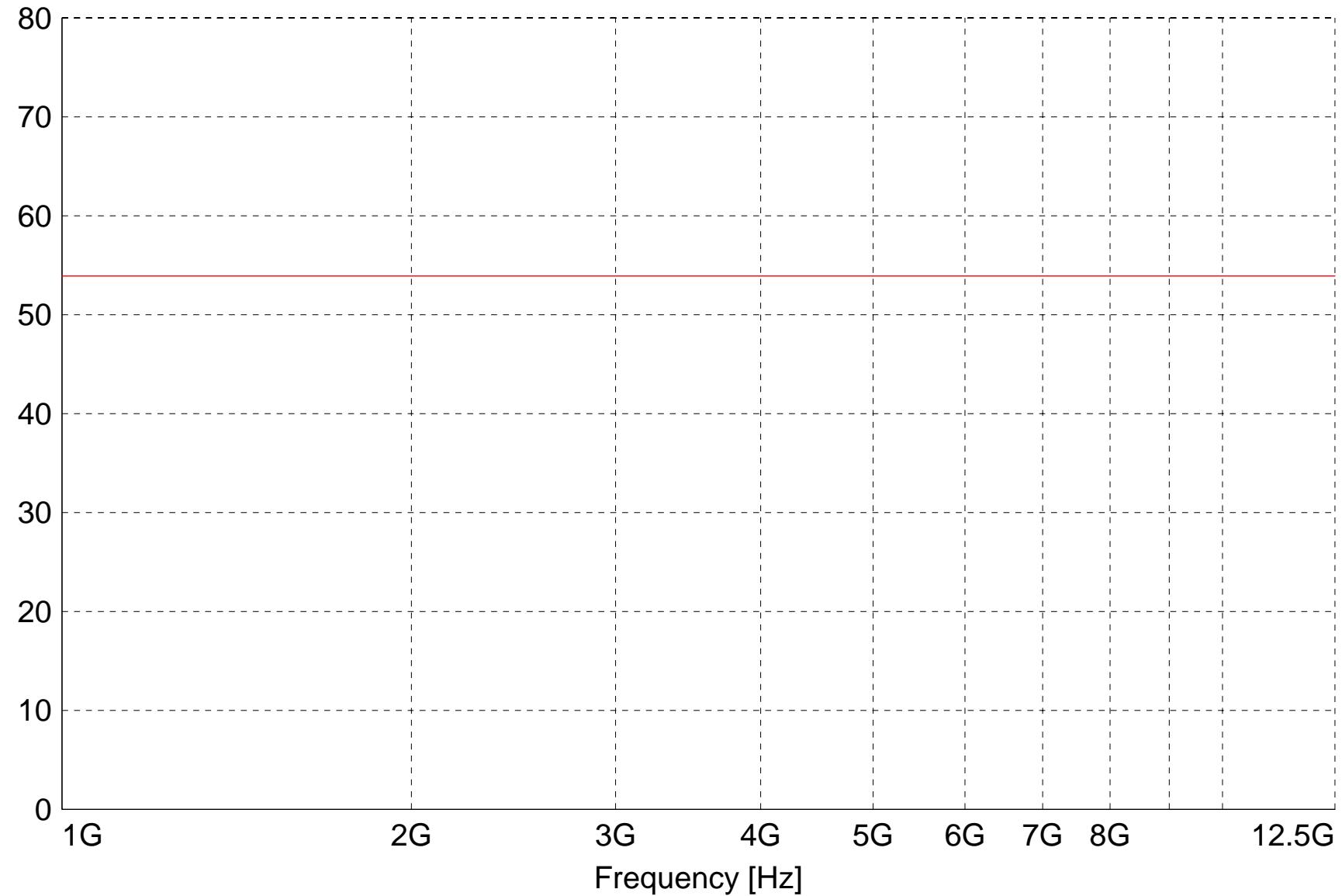
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B

Electric Field Strength

EUT: Aclick
Manufacturer: Dukane
Operating Condition: 73 degF; 54% R.H.
Test Site: D.L.S. O.F. Site 2
Operator: Jason L
Test Specification: 3 VDC
Comment: Receive Mode - High Frequency 2.480 GHz
Date: 6/28/2007

TEXT: "Site 2 6204&184 H3M"

Short Description: Test Set-up Horz1GHz-
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005

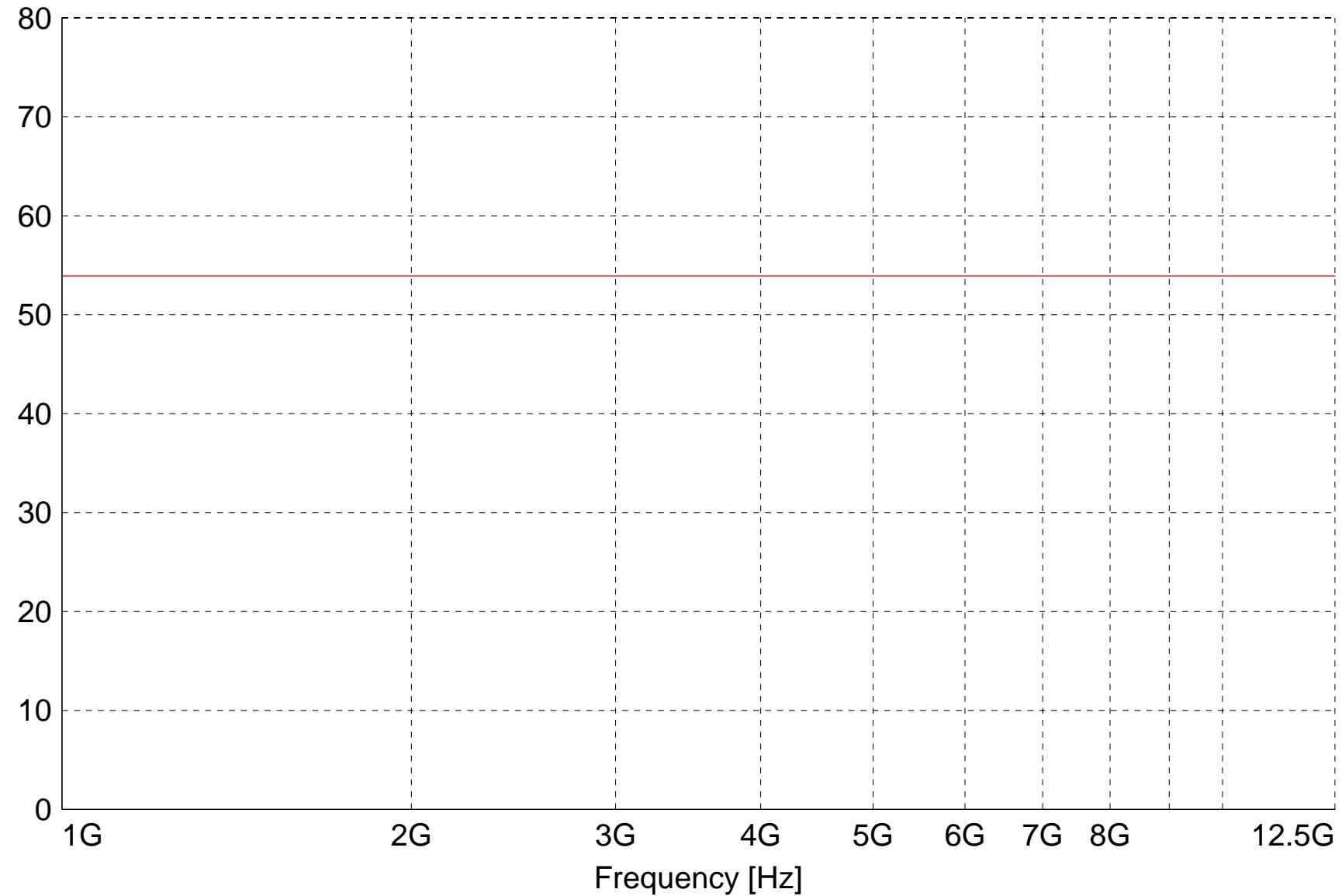
Horn Antenna --- ETS 3115 SN: 6204

Pre-Amps ---

1 - 18 GHz -- Miteq AMF-6D-010100-50 SN: 682425
18 - 26 GHz -- Miteq AMF-6F-100200-50-10P SN: 668382

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

Level [dB μ V/m]



— LIM FCC Class B F QP/AV Voltage Amplitude FCC Class B