1250 Peterson Dr., Wheeling, IL 60090

Company: Telezygology, Inc.
Model Tested: 7121CF
Report Number: 15144

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:	TZ CloudHub Plus RFID Module
Kind of Equipment:	Security and Access control.
Test Configuration:	It can operate both as a stand-alone device or as a network device. (Tested at 120 vac, 60 Hz)
Model Number(s):	7121CF
Model(s) Tested:	7121CF
Serial Number(s):	N/A
Date of Tests:	February 26 & 27, 2009
Test Conducted For:	Telezygology, Inc. 520 W. Erie Street Chicago, Illinois 60654

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.

SIGNATURE PAGE

Report By:

Arnom C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

TABLE OF CONTENTS

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

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-ILAC-IAF Communique dated 18 June 2005).

2008-10-01 through 2009-09-30

Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2006-09-13)

1.0 SUMMARY OF TEST REPORT

It was found that the TZ CloudHub Plus RFID Module, Model Number(s) 7121CF **meets** the radio interference Power Line Conducted and Radiated emission requirements of FCC "Rules and Regulations", Part 15, Subpart B, Sections 15.107a & 15.109a for Receivers and all other Unintentional Radiators.

2.0 INTRODUCTION

On February 26 & 27, 2009, a series of radio frequency interference measurements was performed on TZ CloudHub Plus RFID Module, Model Number(s) 7121CF, Serial Number: N/A. 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

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.

6.0 POWER LINE CONDUCTED EMISSION MEASUREMENTS

Power Line Conducted emissions were measured in accordance with the American National Standards Institute, ANSI C63.4-2003. Plots and tabular data can be viewed in Appendix A of this test report.

All test measurements were made at a screen room temperature of **70°F** at **25%** relative humidity.

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.

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 TZ CloudHub Plus RFID Module is .125 MHz. Therefore measurements were made up to 1000 MHz.

All radiated emissions measurements were made at a test room temperature of 68°F at 28% relative humidity.

8.0 D.L.S. ELECTRONIC SYSTEMS, INC. MEASUREMENT UNCERTAINTY

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Line Conducted Uncertainty		
		Uncertainty (+/- dB)
Contribution	Probability Distribution	150 kHz – 30 MHz
Combined Standard, Uncertainty	Normal	1.05
Expanded Uncertainty	Normal (k-2)	2.10

Radiated Emission Uncertainty in MHz (1/4/08)									
		(+/- dB)	(+/- dB)	(+/- dB)	(+/- dB)	(+/- dB)	(+/- dB)	(+/- dB)	(+/- dB)
Contribution	Probability Distribution	3M	3M	3M	3M	10 M	10 M	10 M	10 M
		30-100	100-700	700-1000	700-1000	30-100	100-700	700-1000	700-1000
Combined Standard Uncertainty	Normal	1.70	1.62	1.66	1.55	1.64	1.58	1.66	1.54
Expanded Uncertainty	Normal (k=2)	**3.40**	**3.23**	**3.33**	**3.11**	**3.29**	**3.16**	**3.31**	**3.09**

9.0 DESCRIPTION OF TEST SAMPLE:

9.1 DESCRIPTION:

The TZ CloudHub Plus RFID interconnect module is designed to control up to 64 TZ devices for security and access control applications in commercial and residential environments. After initial setup with a PC running either the TZ Device Manager or a custom software application, the CloudHub can operate and log activity without a computer connected to its USB interface. The CloudHub features an on-board micro-controller, an internal RFID reader, and four independent RS-485 serial communication ports for connection to a TZ network. The network's utilization can be as simple as a single TZ Intevia device or one that is extended with TZ CloudLinks to include many more, including multiple TZ RFID readers or Wiegand inputs.

9.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length: 152.4mm x Width: 90.8mm x Height: 40.1mm

9.3 INTERNAL CLOCK FREQUENCIES:

125 kHz

9.4 LINE FILTER:

N/A

9.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

Mother board	3045_00
Daughter board	112072_01 A

10.0 MODIFICATIONS MADE TO EUT FOR EMC COMPLIANCE:

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

11.0 CONCLUSION

It was found that the TZ CloudHub Plus RFID Module, Model Number(s) 7121CF **meets** the radio interference Power Line Conducted and Radiated emission requirements of FCC Rules and Regulations, Part 15, Subpart B, Sections 15.107a & 15.109a for Receivers and all other Unintentional Radiators.

12.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 TZ CloudHub Plus RFID Module
Model Number: 7121CF; Serial Number: N/A

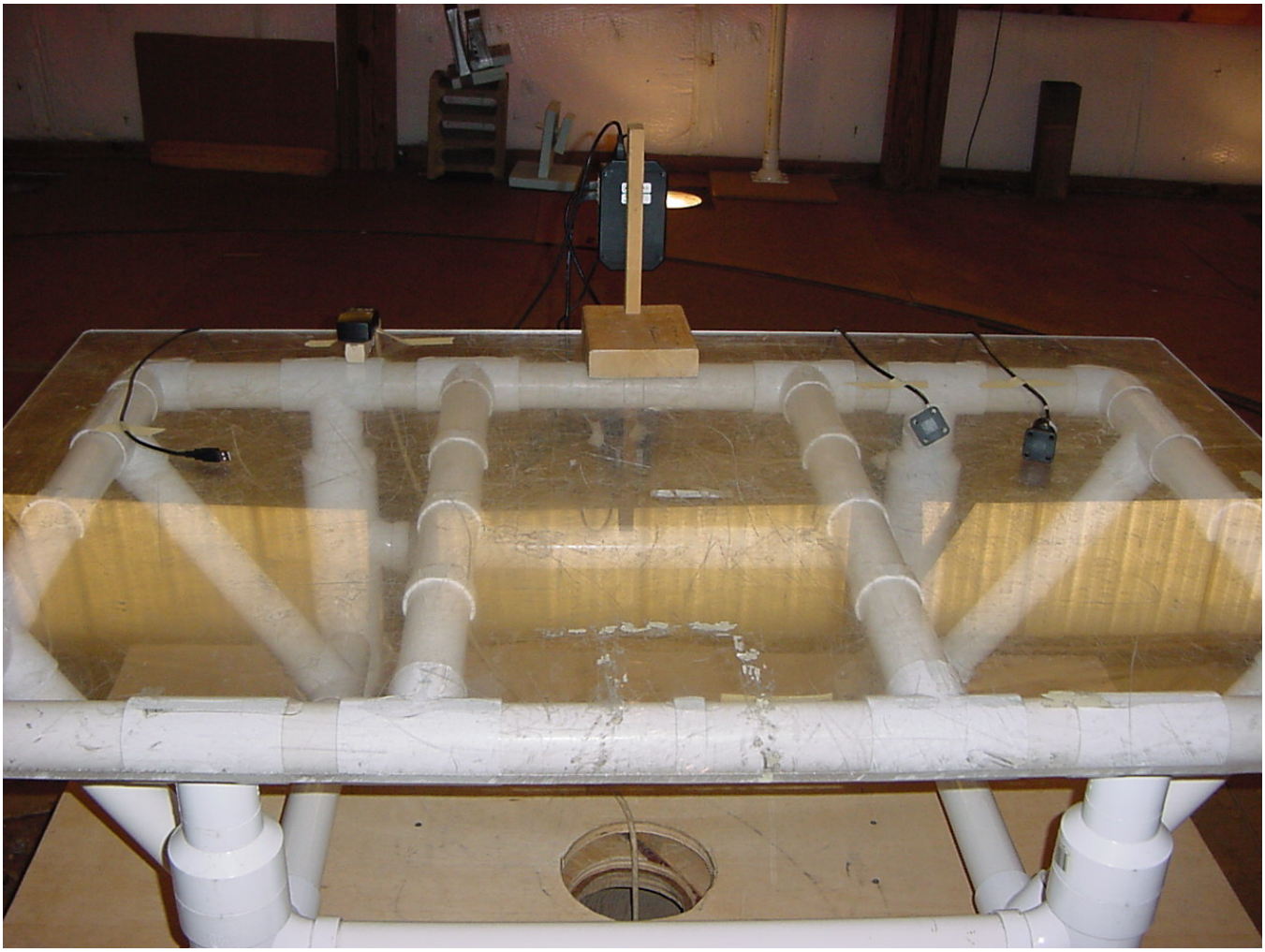
Item 1 Non-shielded TZ Intevia Radial with RS-485 cable. 5m
Model Number: 4110CF

Item 2 Non-shielded TZ Intevia Radial with RS-485 cable. 5m
Model Number: 4110CF

Item 3 Phihong Switching Power Supply
Model Number: PSM11R-120; Serial Number: Q04264

Item 4 Non-shielded USB cable. 1.5m

13.0 ID PHOTO TAKEN DURING TESTING



CLOUDHUB RADIATED FRONT

13.0 ID PHOTO TAKEN DURING TESTING

CLOUDHUB RADIATED BACK

14.0 POWER LINE CONDUCTED PHOTO TAKEN DURING TESTING

CLOUDHUB AC LINE CONDUCTED FRONT

15.0 POWER LINE CONDUCTED PHOTO TAKEN DURING TESTING (CON'T)

CLOUDHUB AC LINE CONDUCTED BACK

TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	12/09
LISN	Solar	9252-50-R-24-BNC	961019	10 kHz – 30 MHz	7/09
Filter- High-Pass	SOLAR	7930-10	921541	12 kHz	1/10
Limiter	Electro-Metrics	EM-7600	706	10 kHz – 30 MHz	1/10
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	3/09
Antenna	EMCO	6502	2038	9 kHz – 30 MHz	8/09
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	3/09
Preamplifier	Rohde & Schwarz	TS-PR10	032001/004	9 kHz – 1 GHz	1/10
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	4/10
Antenna	EMCO	3146	1205	200 MHz – 1 GHz	4/10

APPENDIX A

CONDUCTED EMISSIONS DATA

AND

CHARTS TAKEN DURING TESTING

FCC Part 15 Class B

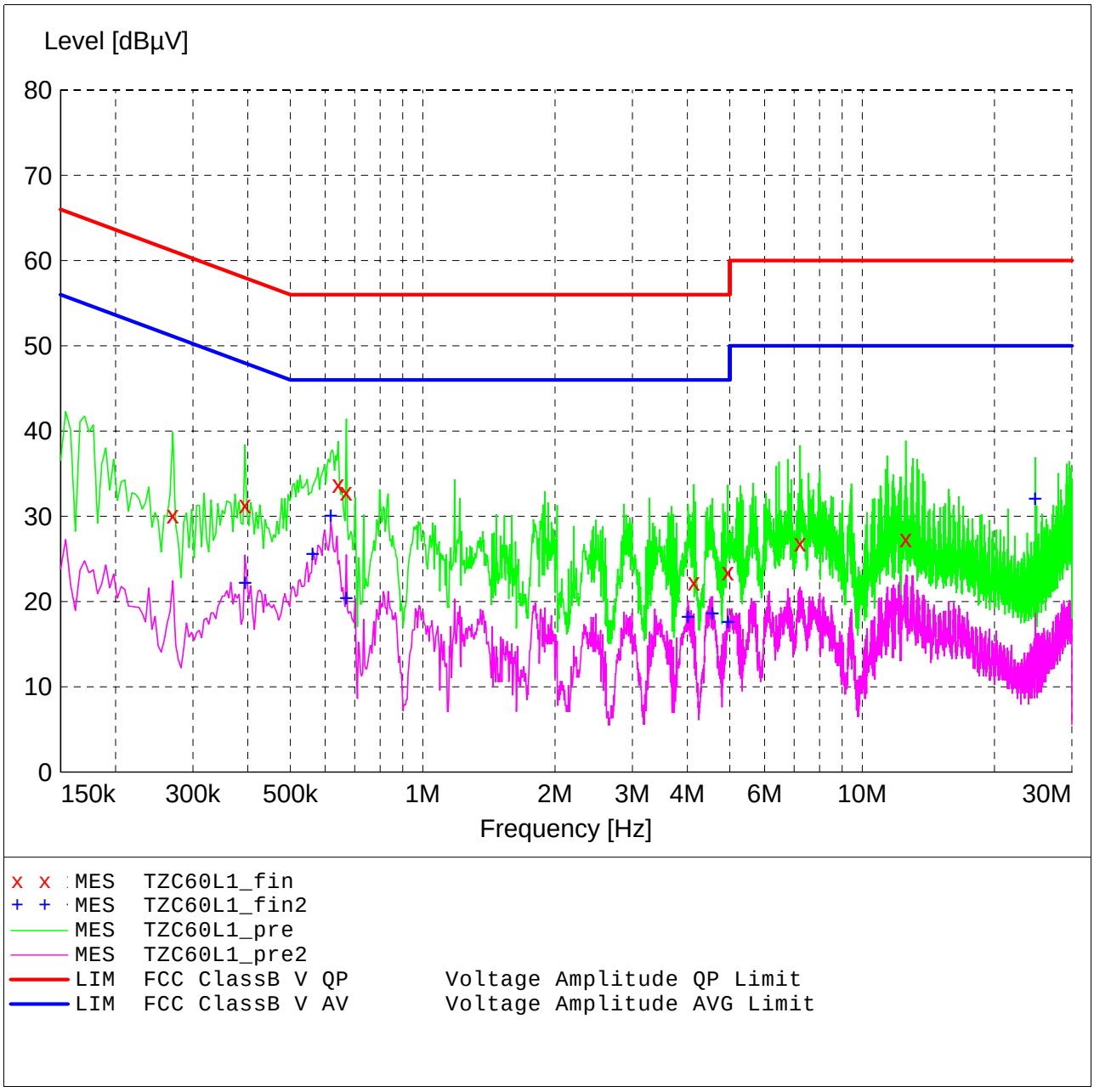
Voltage Mains Test

EUT:	TZ Cloudhub Plus RFID 7121CF
Manufacturer:	Telezygology
Operating Condition:	70 deg. F, 25% R.H.
Test Site:	DLS O.F. Site 1 (Screenroom)
Operator:	Adam A
Test Specification:	120 V 60 Hz
Comment:	Line 1
	Date: 02-27-2009

SCAN TABLE: "Line Cond Scrn RmFin"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "TZC60L1_fin"

2/27/2009 9:52AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.270000	30.20	12.3	61	30.9	QP	---	---
0.394000	31.40	11.7	58	26.6	QP	---	---
0.642000	33.80	11.4	56	22.2	QP	---	---
0.670000	32.90	11.3	56	23.1	QP	---	---
4.142000	22.30	10.9	56	33.7	QP	---	---
4.946000	23.50	10.9	56	32.5	QP	---	---
7.222000	26.90	11.1	60	33.1	QP	---	---
12.570000	27.40	11.4	60	32.6	QP	---	---

MEASUREMENT RESULT: "TZC60L1_fin2"

2/27/2009 9:52AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.394000	22.20	11.7	48	25.8	CAV	---	---
0.562000	25.60	11.4	46	20.4	CAV	---	---
0.618000	30.10	11.4	46	15.9	CAV	---	---
0.670000	20.40	11.3	46	25.6	CAV	---	---
4.018000	18.20	10.9	46	27.8	CAV	---	---
4.566000	18.60	10.9	46	27.4	CAV	---	---
4.946000	17.60	10.9	46	28.4	CAV	---	---
24.758000	32.10	12.0	50	17.9	CAV	---	---

FCC Part 15 Class B

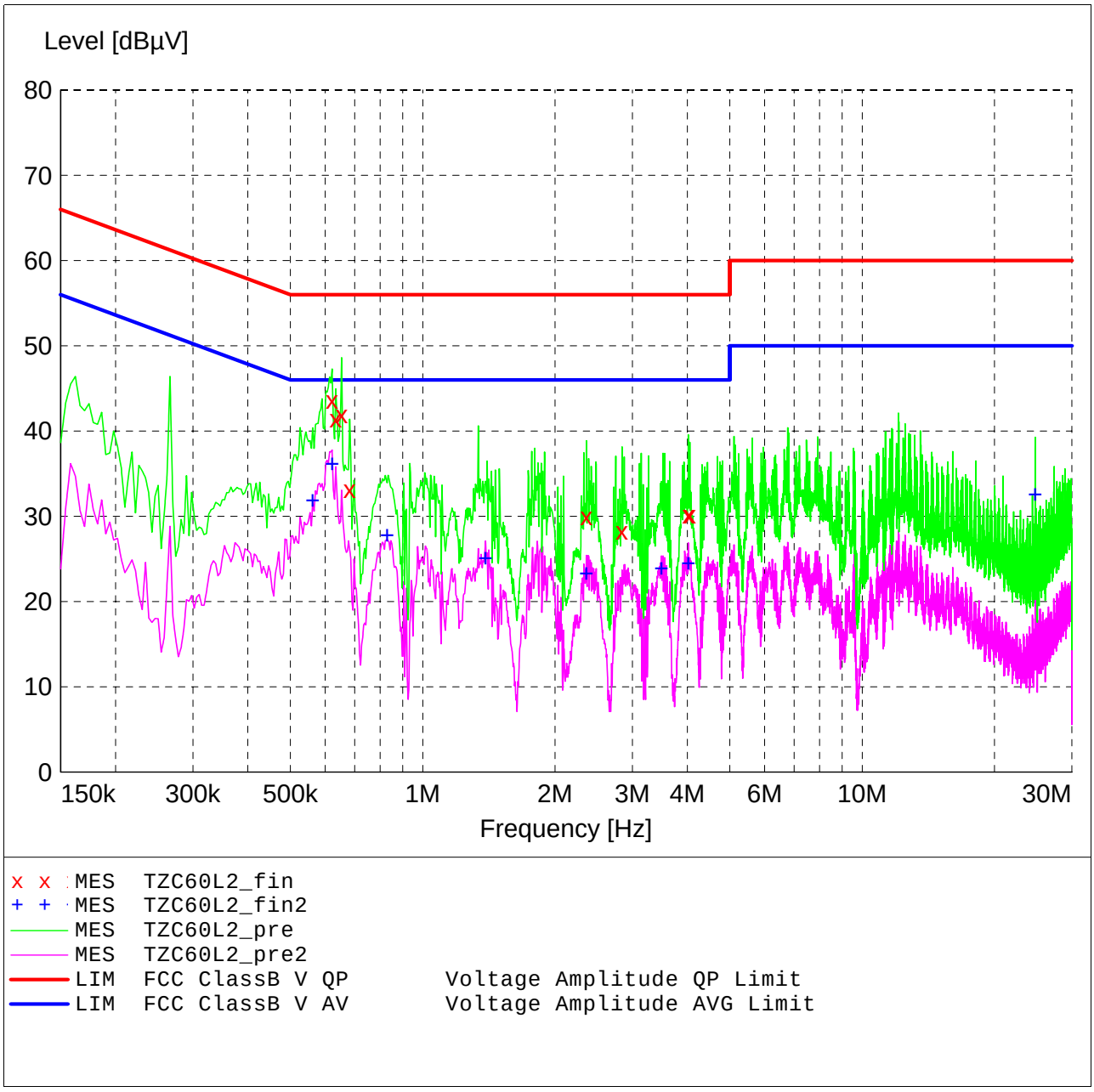
Voltage Mains Test

EUT:	TZ Cloudhub Plus RFID 7121CF
Manufacturer:	Telezygology
Operating Condition:	70 deg. F, 25% R.H.
Test Site:	DLS O.F. Site 1 (Screenroom)
Operator:	Adam A
Test Specification:	120 V 60 Hz
Comment:	Line 2
	Date: 02-27-2009

SCAN TABLE: "Line Cond Scrn RmFin"

Short Description: Line Conducted Emissions

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.0 kHz	QuasiPeak CISPR AV	2.0 s	9 kHz	LISN DLS#128



MEASUREMENT RESULT: "TZC60L2_fin"

2/27/2009 9:48AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.622000	43.60	11.4	56	12.4	QP	---	---
0.634000	41.40	11.4	56	14.6	QP	---	---
0.654000	41.90	11.3	56	14.1	QP	---	---
0.682000	33.20	11.3	56	22.8	QP	---	---
2.358000	30.00	11.1	56	26.0	QP	---	---
2.842000	28.30	11.1	56	27.7	QP	---	---
4.022000	30.20	10.9	56	25.8	QP	---	---
4.054000	30.20	10.9	56	25.8	QP	---	---

MEASUREMENT RESULT: "TZC60L2_fin2"

2/27/2009 9:48AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.562000	31.90	11.4	46	14.1	CAV	---	---
0.622000	36.20	11.4	46	9.8	CAV	---	---
0.830000	27.80	11.2	46	18.2	CAV	---	---
1.390000	25.10	11.0	46	20.9	CAV	---	---
2.358000	23.30	11.1	46	22.7	CAV	---	---
3.494000	23.90	11.0	46	22.1	CAV	---	---
4.022000	24.50	10.9	46	21.5	CAV	---	---
24.762000	32.60	12.0	50	17.4	CAV	---	---

APPENDIX B

RADIATED EMISSIONS DATA

AND

CHARTS TAKEN DURING TESTING

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 TZ Cloudhub Plus RFID 7121CF
Manufacturer:        Telezygology
Operating Condition: 68 deg. F; 28% R.H.
Test Site:           DLS O.F. Site 2
Operator:            Adam A
Test Specification:  120V 60Hz
Comment:             125 kHz transmit frequency
                     Date:  02-26-2009
```

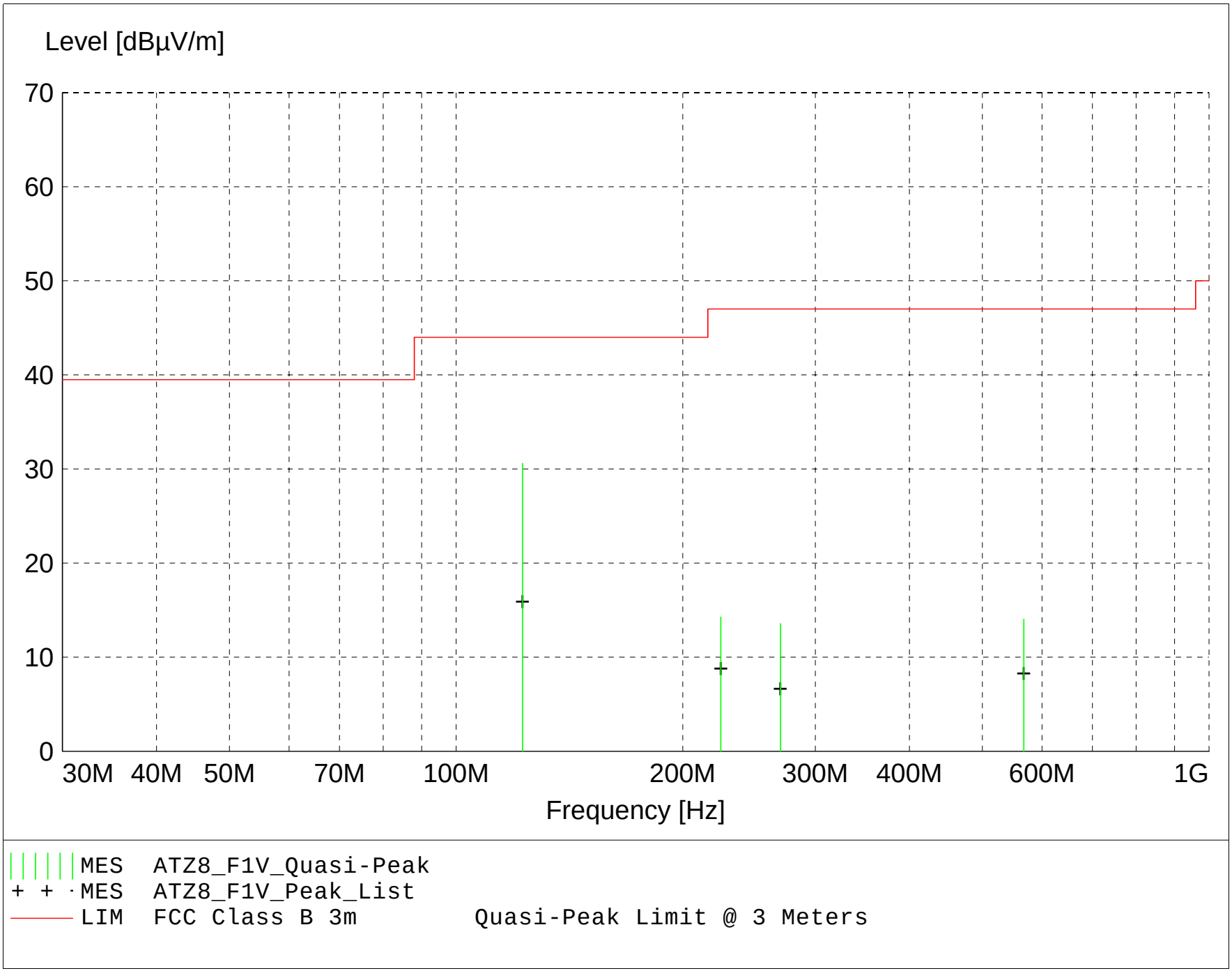
TEXT: "Site 2 MidV 3M"

```
  Short Description:            Test Set-up Vert30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

                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 [dBµV/m]
70
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES ATZ8_F1V_Quasi-Peak
MES ATZ8_F1V_Peak_List
LIM FCC Class B 3m
Quasi-Peak Limit @ 3 Meters

MEASUREMENT RESULT: "ATZ8_F1V_Final"

2/26/2009 1:29PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
122.540000	40.93	12.77	-23.1	30.6	44.0	13.4	1.00	245	QUASI-PEAK	None
224.720000	25.47	11.21	-22.4	14.3	47.0	32.7	1.00	340	QUASI-PEAK	None
567.740000	16.05	18.49	-20.5	14.0	47.0	33.0	1.00	0	QUASI-PEAK	None
269.660000	22.76	12.93	-22.1	13.6	47.0	33.4	1.00	0	QUASI-PEAK	None

FCC Part 15 Class B

Electric Field Strength

```
EUT:                 TZ Cloudhub Plus RFID 7121CF
Manufacturer:        Telezygology
Operating Condition: 68 deg. F; 28% R.H.
Test Site:           DLS O.F. Site 2
Operator:            Adam A
Test Specification:  120V 60Hz
Comment:             125 kHz transmit frequency
                     Date:  02-26-2009
```

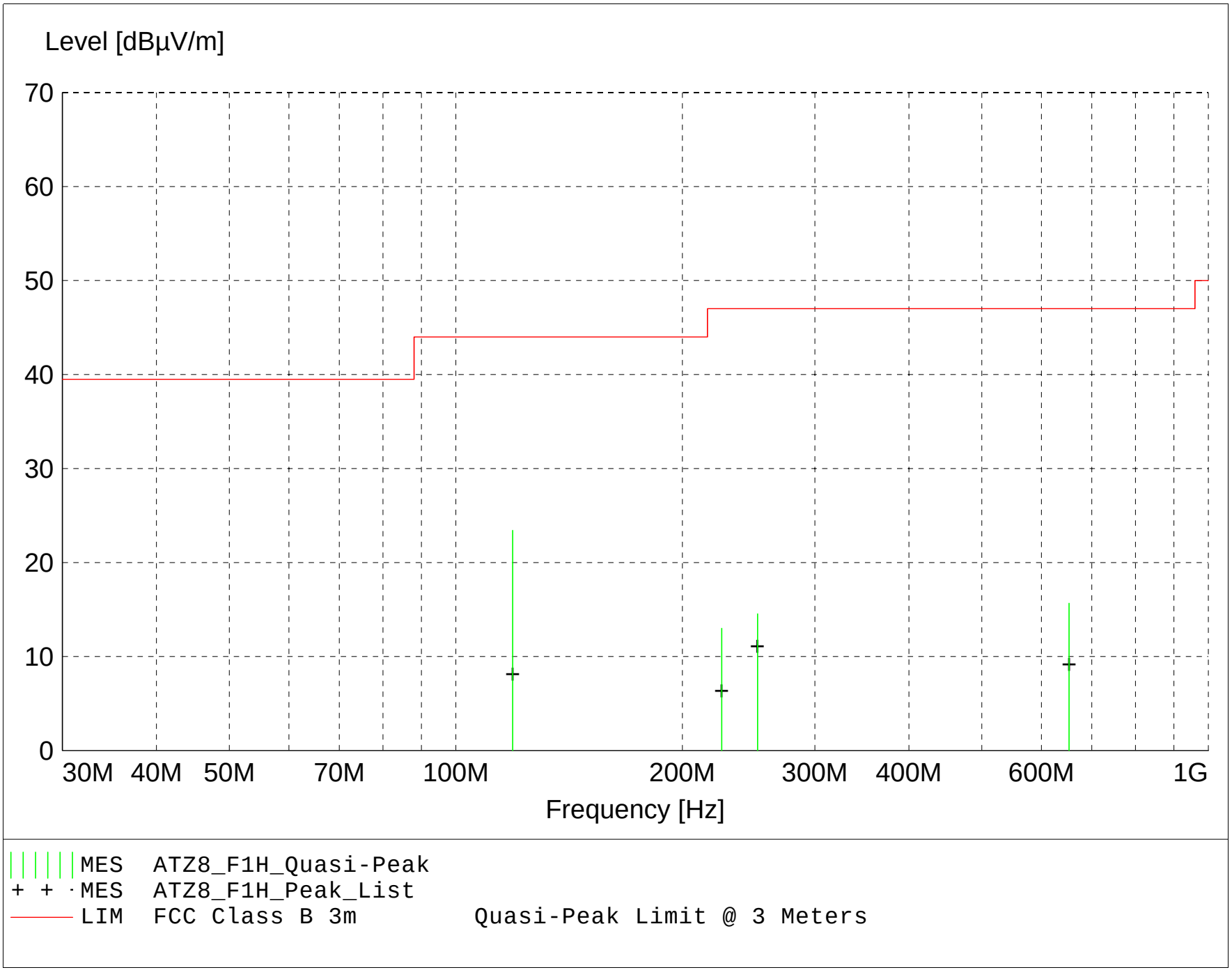
TEXT: "Site 2 MidH 3M"

```
  Short Description:            Test Set-up Horz30-1000MHz
TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 26 SN: 837491/010

                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 [dBµV/m]
70
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES ATZ8_F1H_Quasi-Peak
MES ATZ8_F1H_Peak_List
LIM FCC Class B 3m
Quasi-Peak Limit @ 3 Meters

MEASUREMENT RESULT: "ATZ8_F1H_Final"

2/26/2009 1:43PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
119.000000	33.62	12.93	-23.1	23.4	44.0	20.6	2.80	255	QUASI-PEAK	None
653.000000	15.92	19.78	-20.0	15.7	47.0	31.3	1.00	0	QUASI-PEAK	None
251.720000	24.58	12.23	-22.3	14.5	47.0	32.5	3.00	0	QUASI-PEAK	None
225.560000	24.17	11.22	-22.4	13.0	47.0	34.0	3.00	340	QUASI-PEAK	None