

DIVERSIFIED T.E.S.T. TECHNOLOGIES, INC. EN 55022 Class B TEST REPORT

Genie Company
Genie Excelerator

Project Number:
5813

TEST REPORT

EN 55022
Class B

8/31/2005

Prepared for: Genie Company
by: Diversified TEST Technologies, Inc.

DIVERSIFIED T.E.S.T. TECHNOLOGIES, INC. EN 55022 Class B TEST REPORT

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Standard Information & Product Description

STANDARD: European Community EMC Directive 89/336/EEC
Generic Emissions Standard EN 61000-6-3:2001

REQUIREMENTS: EN 55022 Class B

CLIENT: **Genie Company**
22790 Lake Park BLVD
Alliance, OH 44601-3498

PRODUCT: Genie Excelerator
Model #: 4060L

Condition: New

PRODUCT RECEIVED: August 22, 2005

TEST DATES: August 22, 2005

PREPARED BY: Diversified TEST Technologies, Inc.
556 Route 222 • PO Box 8
Groton, NY 13073
607-898-4218
607-898-4830 / fax

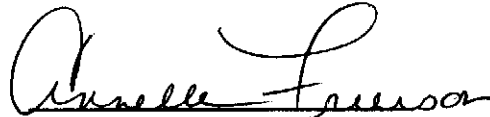
COMPILED BY:

Shaun Hoteling
Technical Associate



REVIEWED BY:

Annelle Frierson
Vice President



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Test Site Information

Location and Registration:

Radiated Emissions:

- Open field test site, Diversified T.E.S.T. Technologies, Inc.,
556 Rte 222, Groton, NY
- 30-meter open field
- The equipment under test (EUT) was placed at a 10-meter
range in an RF transparent shelter

Calibration:

- Test site calibrated in May 2004
- A copy of this calibration is on file

Equipment Calibration:

- The test equipment used is calibrated either by the
manufacturer or by an independent calibration laboratory
- All calibrations are traceable to NIST standards

Radiated Emissions:

- The testing was performed to the regulations as outlined by
the EC EMC Directive 89/336/EEC
- Radiated Emissions per Limits of EN 55022 Class B

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Report of Findings

The product/s were found as submitted or with modifications made (if any) as noted in the report to have met the minimum requirement of the EMC Directive 89/336/EEC, EN 61000-6-3:2001, EN 55022 Class B.

The findings are for Radiated Emissions per limits EN 55022 Class B and Conducted Emissions as per limits EN 55022 Class B as enforced at the time the testing was performed.

It is the responsibility of the manufacturer to ensure that the product identification and labeling are in compliance with the applicable requirements.

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Radiated Emissions Test Procedure

Table Top Product

The product was tested on our open field range, according to the European Community Directive 89/336/EEC and procedures of EN 55022. The test sample was placed on a conductive, wooden table 0.8 meters off the ground grid. The table stands on a 12-foot diameter, non-conductive turntable. With the equipment under test (EUT) operating, the turntable was rotated 360 degrees to show the worse case to the antenna.

The antenna was placed on a mast and raised to a search height of 1-4 meters. The distance from the product and the antennas was 10 meters. The spectrum receiving equipment operates the test remotely from inside a nearby building.

This report stands on the basis of only one sample. Any changes made to the system documented in this report (i.e. engineering design, manufacturing or process variables) may change the emissions profile, thereby voiding these conclusions.

The findings are for Radiated Emissions per limits EN 55022 Class B as enforced at the time the testing was performed.

Worse Case Cable Placement for Radiated Emissions Testing

The procedure used to determine the worse case analysis of cable placement is accomplished by reviewing the shielding, grounding, and bonding of ALL I/O cables. Using the manufacturer's installation instructions the initial set-up is pre-scanned.

Upon completion, the high level (low margin) areas are reviewed and cables are moved to obtain maximum radiation patterns.

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Radiated Emissions Calculations

Diversified T.E.S.T. Technologies, Inc. uses automated data reductions to determine product compliance to radiated emissions regulations. The program is fully automated and plots the signal amplitude against the frequency grid to which it was tested. The plotted charts will print out, in tabular form, the maximized frequencies that were near or over the specification limit. The automatic computation takes into account the programmed parameters required by the specifications of EN 55022; i.e., bandwidth, scan speed, and the antenna/cable loss and amplifier gain factors.

The product's signal data is compared to a current ambient scan. The frequencies that are of significant amplitude are automatically sorted out by the computer and are brought out to be further analyzed and maximized. These same frequencies are also profiled by rotating the product 360 degrees on the EMCO 12-foot turntable.

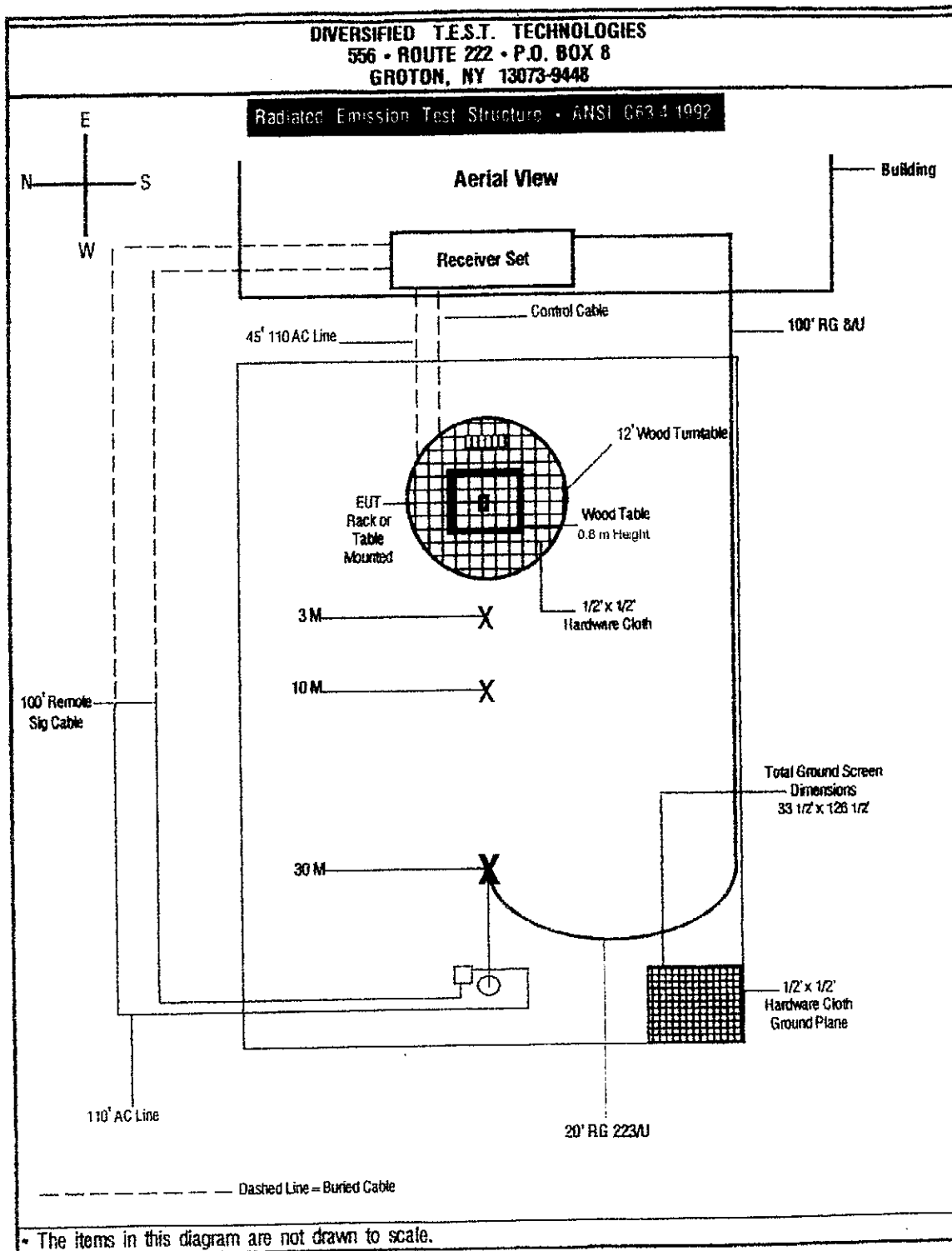
Test Instruments

1. ☒ Rohde & Schwarz EZM Spectrum Monitor, Serial #: 893273/022
2. ☒ Rohde & Schwarz ESVP Receiver, Serial # 893497/021
3. ☒ Rohde & Schwarz ESH-3 Receiver, Serial #: 892473/019
4. ☒ Hewlett Packard Plotter Model 7550A
5. ☒ Electro-Metrics BIA-25 Biconical Antenna, 20-220 MHz, Serial #: 001
6. ☒ Electro-Metrics LPA-25 Log Periodic Antenna 200-1000 MHz, Serial#1242
7. ☒ Co-ax Cable (Antennas to spectrum analyzer) 100-foot RG 8/U, 20-foot RG 223/U
8. ☒ EMCO 12-foot diameter conductive turntable
9. ☒ Non-conductive (wood) table, one meter off ground grid
10. ☒ 30-meter open field test range, grounded with ½" x ½" hardware cloth
11. ☒ AC supply cord, 100-foot, grounded
12. ☒ 100-foot signal cable for remote testing

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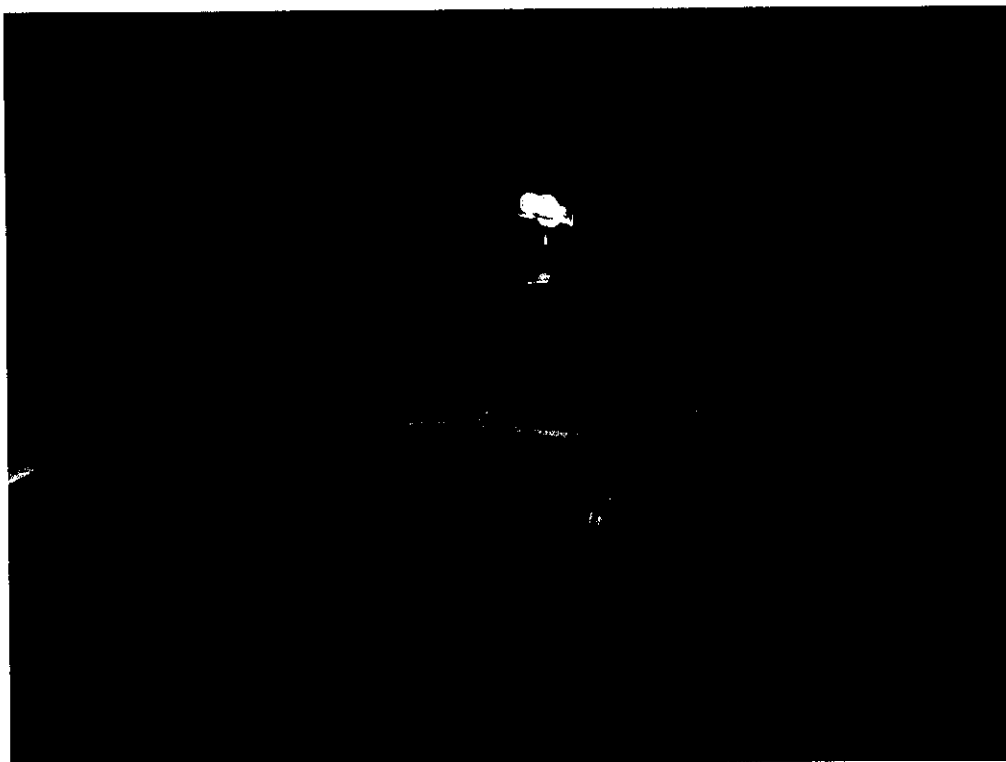
Diagrams for Radiated Emissions



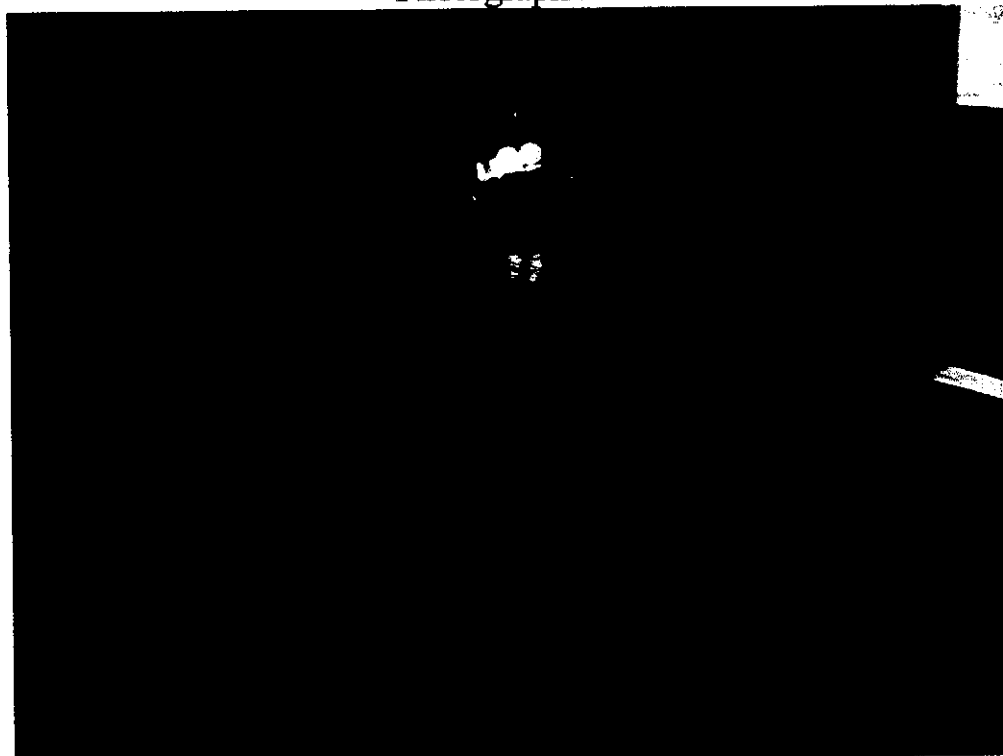
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Photographs for Radiated Emissions



Photograph #1



Photograph #2

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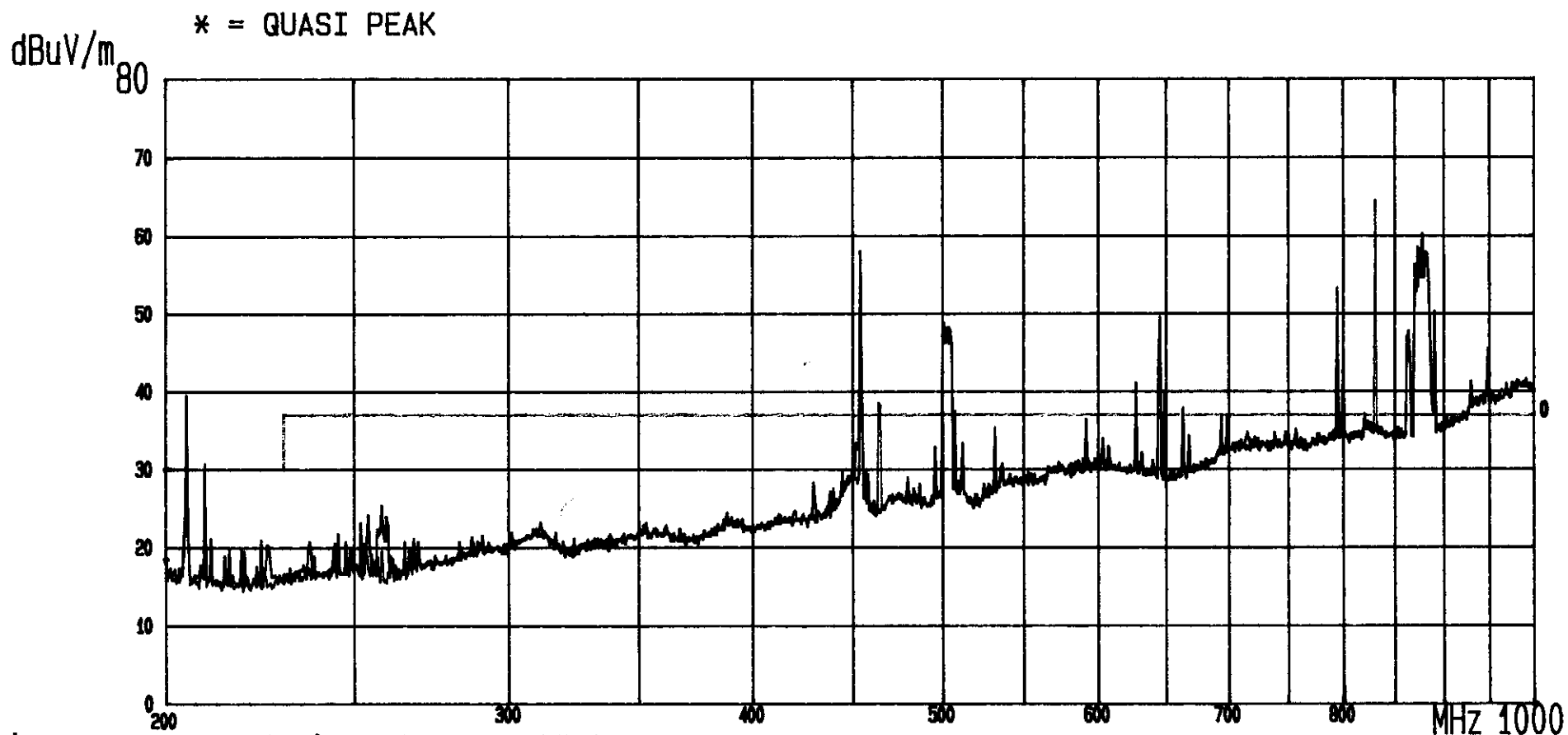
Data Charts for Radiated Emissions

6 pages of data charts to follow.

GENIE OVERHEAD PROJECT # 5813 RFI Fieldstrength Test (General)

E.U.T.: GENIE EXCELERATOR MOD.#4080L
 Oper. condition: 120VAC 60Hz
 Operator: S.HOTALING
 Test spec:
 EN 55022 CLASS B 10 METERS 200 - 1000MHZ ANT S/N: 1242

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Transd. type
200.0000	1000.0000	120	Peak	LN	0.005	



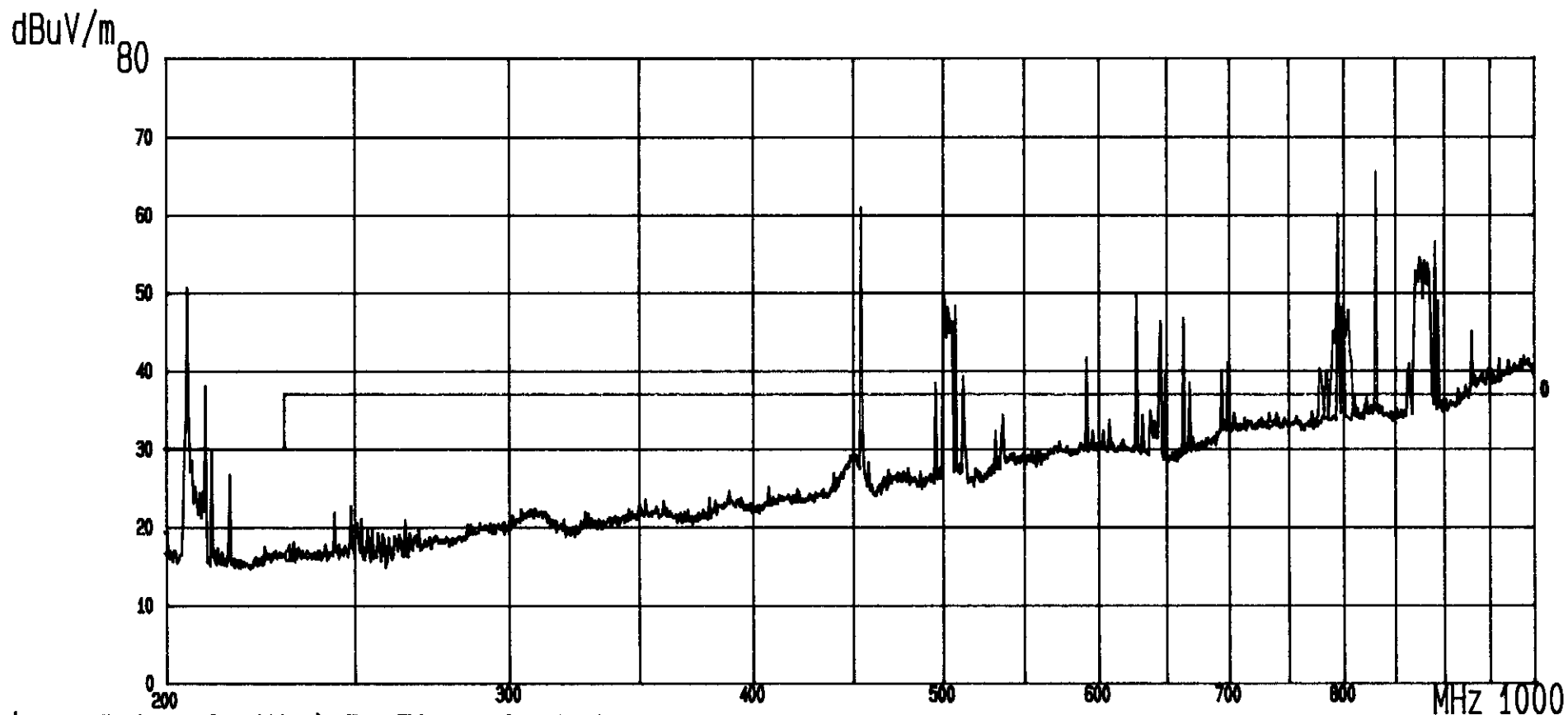
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RED: EUT ON BLUE: EUT OFF ANT: VERTICAL PRODUCTION VERSION A

GENIE OVERHEAD PROJECT # 5813 RFI Fieldstrength Test (General)

E.u.T.: GENIE EXCELERATOR MOD.#4080L
Oper. condition: 120VAC 60Hz
Operator: S.HOTALING
Test spec:
EN 55022 CLASS B 10 METERS 200 - 1000MHZ ANT S/N: 1242

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Transd. type
200.0000	1000.0000	120	Peak	LN	0.005	



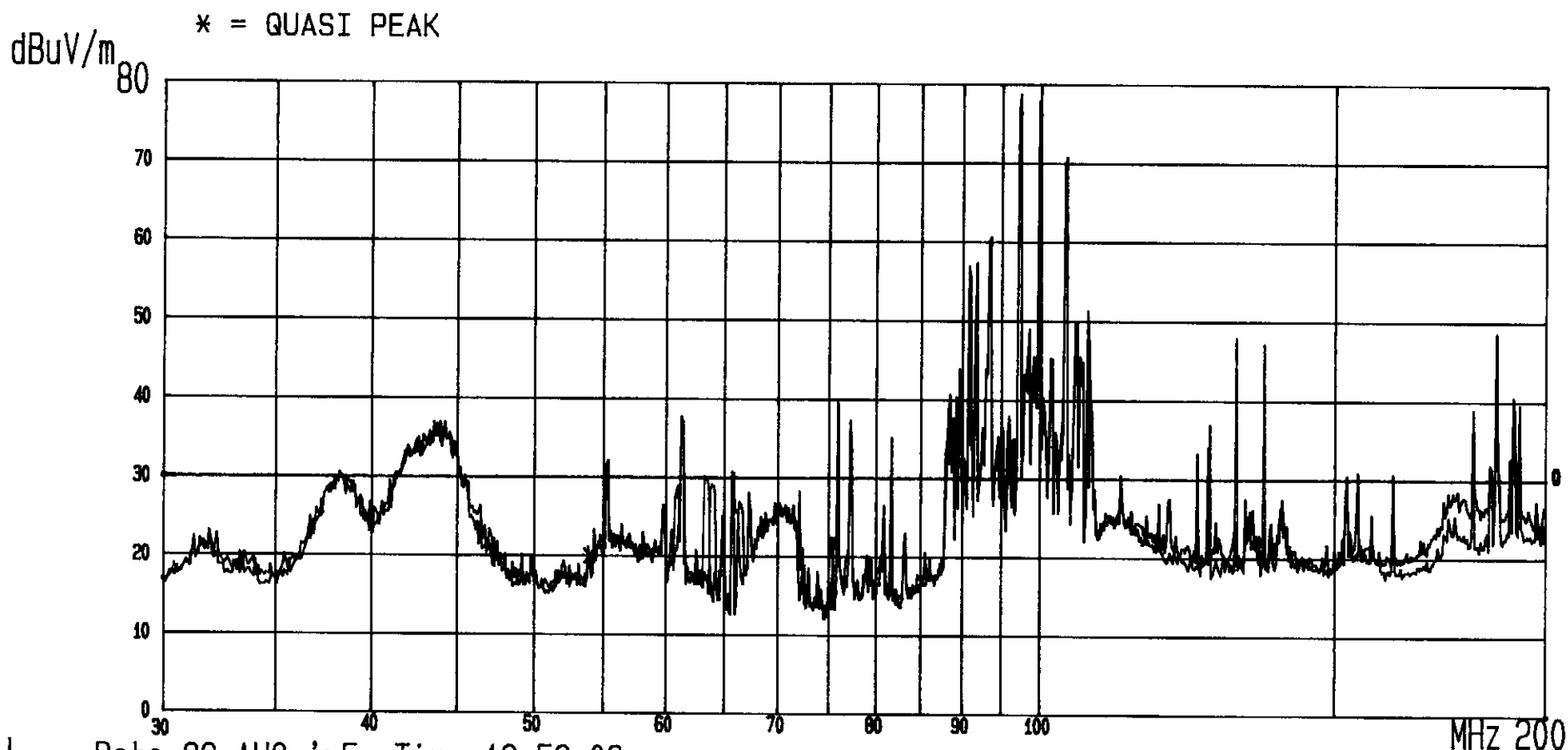
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RED: EUT ON BLUE: EUT OFF ANT: HORIZONTAL PRODUCTION VERSION A

GENIE OVERHEAD PROJECT # 5813 RFI Fieldstrength Test (General)

E.U.T.: GENIE EXCELERATOR MOD.#4050L
Oper. condition: 120VAC 60Hz
Operator: S.HOTALING
Test spec:
EN 55022 CLASS B 10 METERS 30 - 200 MHz ANT S/N: 001

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detec tor	Att. dB	Meas.T. s	Transd. type
30.0000	199.9999	120	Peak	LN	0.020	

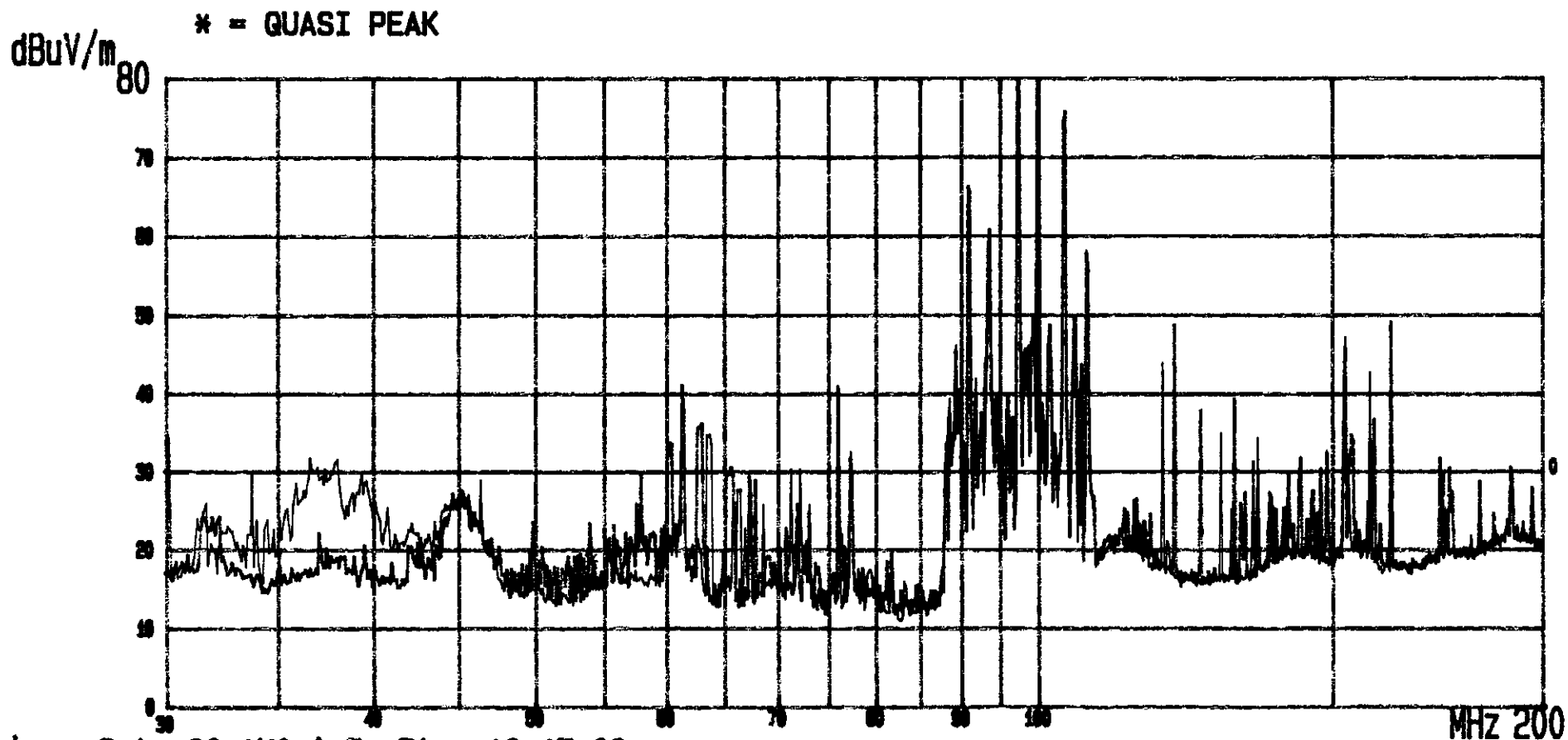


RED: EUT ON BLUE: EUT OFF ANT: HORIZONTAL PRODUCTION VERSION A

GENIE OVERHEAD PROJECT # 5813 RFI Fieldstrength Test (General)

E.U.T.: GENIE EXCELERATOR MOD. #4080L
 Oper. condition: 120VAC 60Hz
 Operator: S.HOTALING
 Test spec:
 EN 55022 CLASS B 10 METERS 30 - 200 MHz ANT S/N 001

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Traced. type
30.0000	199.9999	120	Peak	LN	0.020	



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RED: EUT ON BLUE: EUT OFF ANT: VERTICAL PRODUCTION VERSION A

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Conducted Emissions Procedure/STD Test Set-Up

Conducted Emissions testing was performed indoors on a dedicated Conducted Emissions test table. The equipment under test (EUT) was powered by a 120 VAC, 60 Hz receptacle of a 50-ohm Line Impedance Stabilizing Network (LISN) for measurement of the RF on the AC line and neutral. Each line was tested separately and the line not being tested was terminated by a 50-ohm terminator.

Conducted Emissions Instrument Settings

Conducted Emissions testing was performed using the Rohde & Schwarz Model ESH3 receiver. Testing was run in the Average and Quasi-Peak Mode with a Bandwidth of 9 kHz, from 0.15-30 MHz.

Test Instrument Used

1. ☒ Rohde and Schwarz Model ESH3 Receiver, Serial #: 892473/-19
2. ☒ Co-ax Cable (LISN to receiver) 20-foot RG -223/U
3. ☒ Non-conductive (wood) table, 0.8 meters off ground grid
4. ☒ Electro-Metrics 50-ohm LISN Model FCC/VDE-25/2, Serial #:1017
5. ☒ Rohde & Schwarz EZM Spectrum Monitor, S/N 893273/022

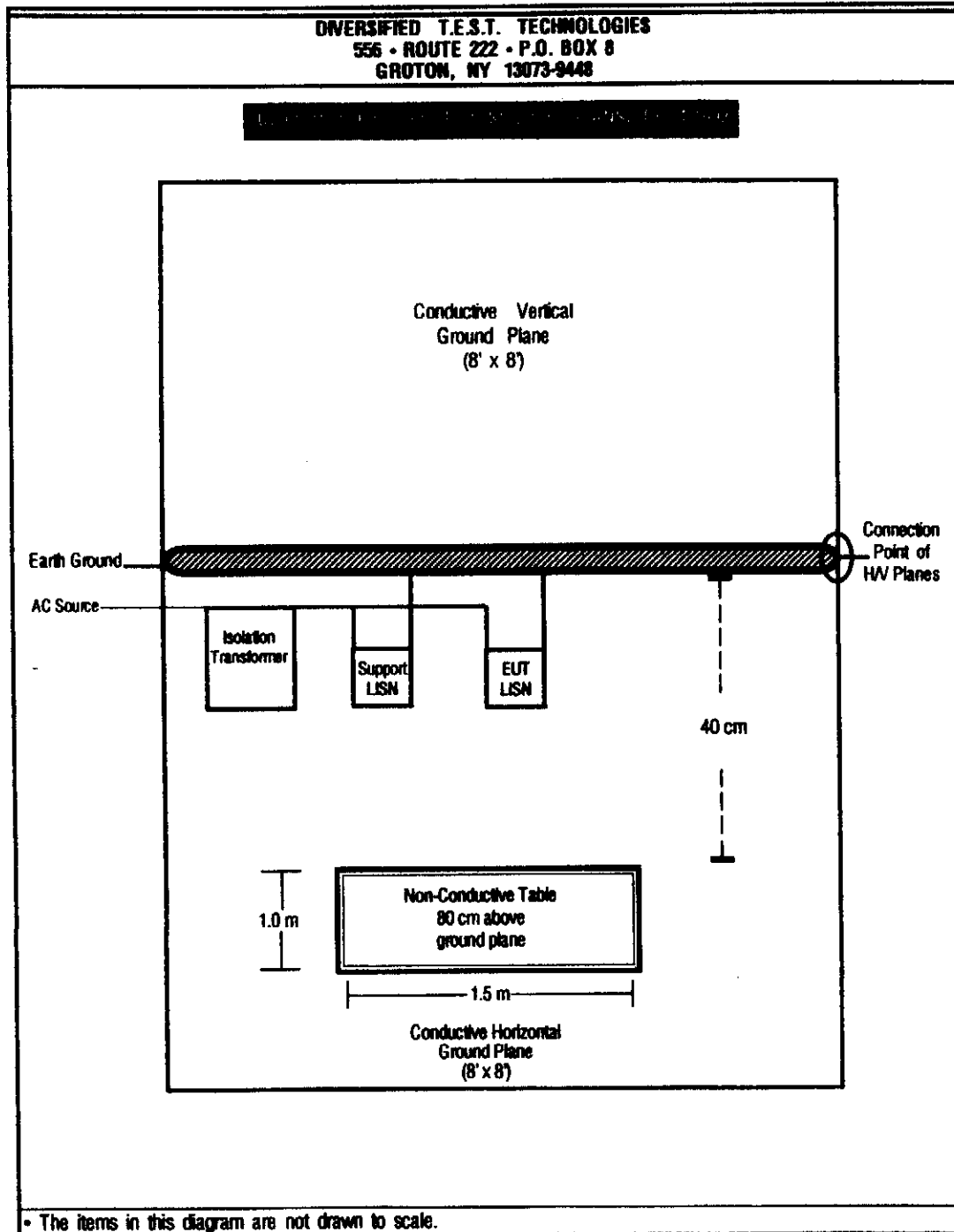
Conducted Emissions Calculations

Diversified T.E.S.T. Technologies, Inc. uses automatic data reduction to determine product compliance to conducted emissions regulations. The program is fully automated and plots the signal amplitude against the frequency grid to which it was tested. The plotted charts will print out, in tabular form, the maximized frequencies that were near or over the specification limit. The automatic computation takes into account the programmed parameters required by the specifications of EN 55022; i.e., bandwidth, scan speed, and the cable loss and amplifier gain factors.

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Diagrams for Conducted Emissions



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Photographs for Conducted Emissions



Photograph #1



Photograph #2

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Data Charts for Conducted Emissions

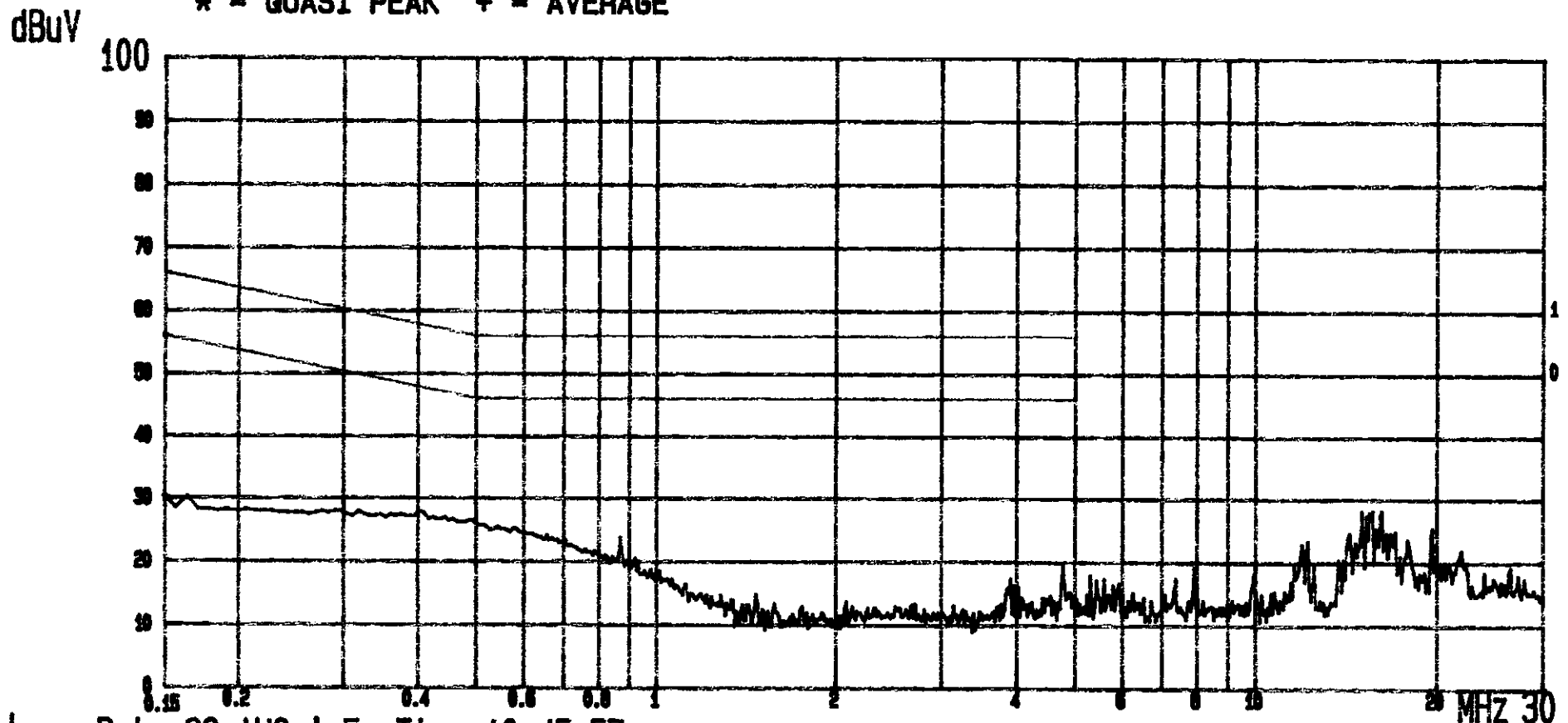
6 pages of data charts to follow

GENIE OVERHEAD DOOR PROJECT#5813 RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4080L
Oper. condition: 120VAC 60Hz
Operator: S. NOTALINE
Test spec:
FCC PART 15 CLASS B AV/EP FINAL EVALUATION

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Transd. type
0.1500	30.0000	10	Peak	LD	0.010	

Final evaluation: Quasi Peak/average
* = QUASI PEAK + = AVERAGE



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MEASURING LINE TWO: NEUTRAL PRODUCTION VERSION A STANDBY MODE

GENIE OVERHEAD DOOR PROJECT#5813

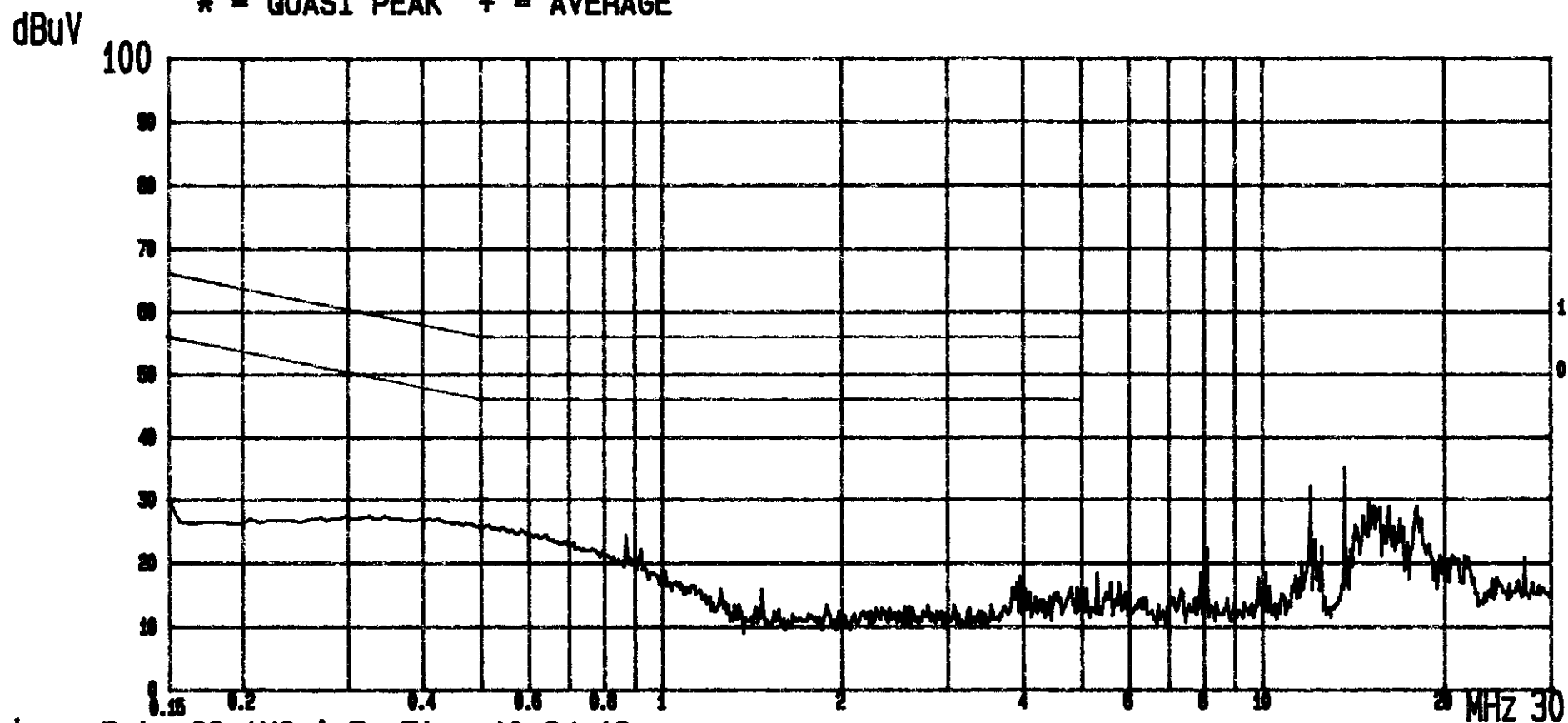
RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4080L
 Oper. condition: 120VAC 60Hz
 Operator: S. NOTALINE
 Test spec:
 FCC PART 15 CLASS B AV/CP FINAL EVALUATION

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Tuned. type
0.1500	30.0000	10	Peak	LD	0.010	

Final evaluation: Quasi Peak/average

* = QUASI PEAK + = AVERAGE



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MEASURING LINE ONE: HOT

PRODUCTION VERSION A STANDBY MODE

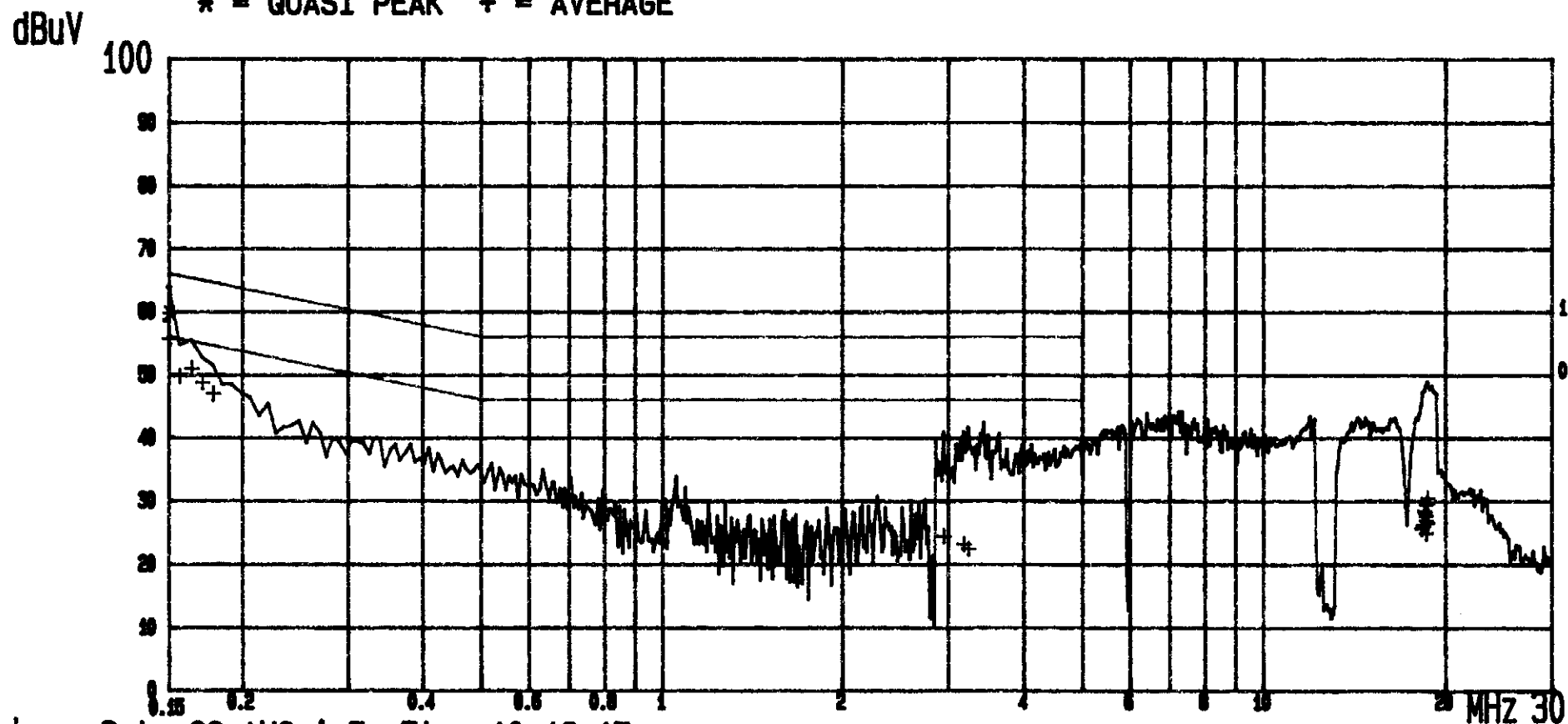
GENIE OVERHEAD DOOR PROJECT#5813 RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4080L
Oper. condition: 120VAC 60Hz
Operator: S. HOTALING
Test spec:
FCC PART 15 CLASS B AV/CP FINAL EVALUATION

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detec tor	Att. dB	Meas.T. s	Trend. type
0.1500	30.0000	10	Peak	LD	0.010	

Final evaluation: Quasi Peak/average

* = QUASI PEAK + = AVERAGE



| --- Date 22.AUG '5 Time 10:19:17

MEASURING LINE ONE: HOT

PRODUCTION VERSION A

GENIE OVERHEAD DOOR PROJECT#5813 RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4080L
Date: 22.AUG.'85

Guss Peak values			
Frequency MHz	Peak dBuV	G-Peak dBuV	GP-Margin dB
0.1500	54.1	55.9	-6.1
Average values			
Frequency MHz	Peak dBuV	Average dBuV	Average-Margin dB
0.1500	54.1	55.9	-0.1
0.1570	54.8	49.8	-5.9
0.1640	55.6	51.1	-4.4
0.1710	52.9	48.9	-6.1
0.1780	51.7	47.0	-7.7
2.9430	41.0	24.5	-21.5
3.1740	41.2	23.4	-22.6
3.2230	41.8	22.5	-23.5
18.2940	45.4	25.9	-24.1
18.3230	45.9	25.3	-23.7
18.3640	45.8	25.1	-23.9
18.4130	46.2	26.6	-21.4
18.4780	47.7	26.4	-21.6
18.5480	46.6	27.9	-22.1
18.5950	46.8	25.2	-24.8
18.6020	46.4	27.2	-22.8
18.6180	46.5	29.5	-20.5
18.6370	46.2	26.7	-23.3
18.6650	49.0	30.7	-19.3
18.6789	46.8	29.8	-20.2

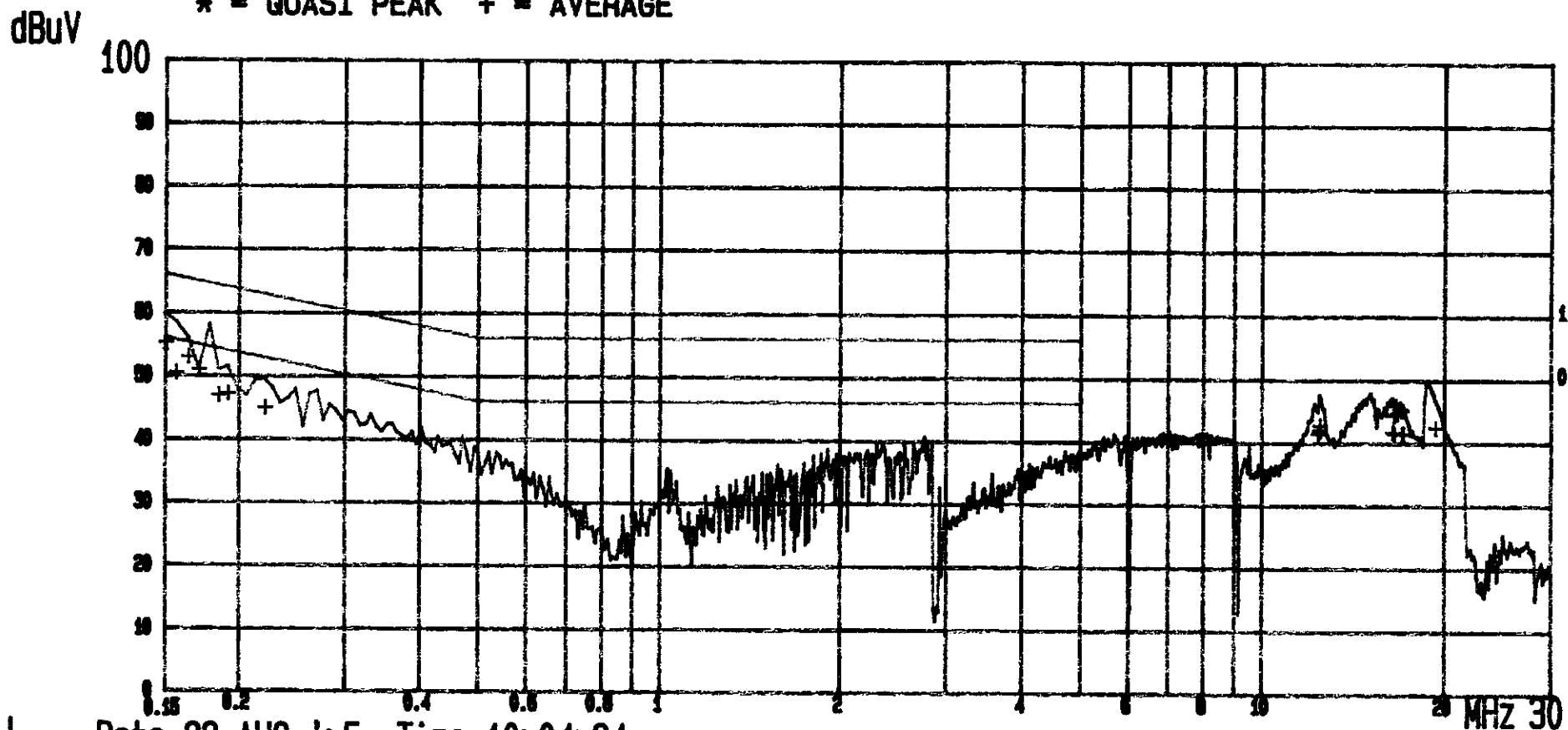
* Limit exceeded

GENIE OVERHEAD DOOR PROJECT#5813 RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4060L
Oper. condition: 120VAC 60Hz
Operator: S. HOTALING
Test spec:
FCC PART 15 CLASS B AV/SP FINAL EVALUATION

Start Fr. MHz	Stop Fr. MHz	IF-BW kHz	Detect tor	Att. dB	Meas.T. s	Transd. type
0.1500	30.0000	10	Peak	LD	0.010	

Final evaluation: Quasi Peak/average
* = QUASI PEAK + = AVERAGE



--- Date 22.AUG '15 Time 10:04:24

MEASURING LINE TWO: NEUTRAL PRODUCTION VERSION A

GENIE OVERHEAD PROJECT # 5813
RFI Fieldstrength Test (General)

E.U.T.: GENIE EXCELERATOR MOD.#4080L
Date: 22.AUG.'8

m e a s u r e d Q P v a l u e s					
Frequency	Level.	Margin	Pol	Height	Azimuth
Mhz	dBuV/m	dB	h/v	m	deg.
53.9000	18.8	-11.4	v	2.50	275
* Limit exceeded					

GENIE OVERHEAD PROJECT # 5813
RFI Fieldstrength Test (General)

E.U.T.: GENIE EXCELERATOR MOD.#4050L
Date: 22.AUG.'85

m e a s u r e d G P v a l u e s					
Frequency	Level.	Margin	Pol	Height	Azimuth
MHz	dBuV/m	dB	h/v	m	deg.
53.9000	20.0	-10.0	h	2.50	280

* Limit exceeded

GENIE OVERHEAD DOOR PROJECT#5813 RFI Voltage Test

E.U.T.: GENIE EXCELERATOR MOD.#4080L
Date: 22.AUG.'85

Quasi Peak values

no list available

Average values

Frequency MHz	Peak dBuV	Average dBuV	Average-Margin dB
0.1500	58.8	55.3	-0.7
0.1570	58.6	50.8	-5.1
0.1640	58.1	53.0	-2.5
0.1710	51.0	51.1	-3.9
0.1850	51.2	47.1	-7.4
0.1980	51.7	47.3	-6.7
0.2200	48.7	45.1	-7.8
12.3830	45.1	41.7	-8.3
12.4880	47.3	42.8	-7.1
12.4480	48.3	42.2	-7.8
16.4480	47.3	41.8	-8.2
16.5180	46.5	41.5	-8.5
16.5440	46.0	44.5	-5.5
16.6280	46.3	46.2	-3.8
16.6840	46.2	44.8	-5.1
16.8880	46.5	45.7	-4.3
16.9840	45.2	41.7	-8.3
16.9920	45.1	45.4	-4.8
17.0780	46.1	41.7	-8.3
19.3280	46.3	42.5	-7.5

* Limit exceeded