

TEST REPORT



Testing Certification # 1367-01

Laboratory ID

PRODUCT SAFETY ENGINEERING, INC.
12955 Bellamy Brothers Boulevard
Dade City, Florida 33525 USA
PH (352) 588-2209 FX (352) 588-2544

Submitter ID

Clare Controls, Inc.
7519 Pennsylvania Ave.
Suite 104
Sarasota, FL 34243

Report Issue Date: 11 Dec 2014

Sample S/N: None

Sample Receipt Date: 14 Oct 2014

Sample Test Date: see data sheets

Test Report Number: 14F350B1

Model Designation: CLIQ Connect Host

Product Description: Host Controller

Description of non-standard test method or test practice: *None*

Estimated Measurement Uncertainty: *See page 9. This uncertainty represents and expanded uncertainty expressed at approximately 95% confidence level using a coverage factor of k=2.*

Special limitations of use: *None*

Traceability: *reference standards of measurement have been calibrated by a competent body using standards traceable to the NIST.*

According to testing performed at Product Safety Engineering, Inc., the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in regulations indicated on page (3) of the test report. The test results contained herein relate only to the item identified above. It is the manufacturer's responsibility to assure that additional production units are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Project Engineer, I hereby declare that the equipment tested as specified above conforms to the requirements indicated on page (3) of the test report.

Signature

A handwritten signature in black ink, appearing to read 'David Foerstner'.

Name David Foerstner

Title Engineering Group Leader

Date 11 Dec 2014

Reviewed by:

Approved

Steve Hoke

A handwritten signature in black ink, appearing to read 'Steve Hoke'.

Signatory Date 11 Dec 2014

(EMC Site Manager)

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Test Report Number 14F350B1

Product Safety Engineering, Inc 12955 Bellamy Brothers Blvd. Dade City, FL 33525
Tel (352) 588-2209 Fax (352) 588-2544

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EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

☐ - EN 61000-6-3:2007

☐ - EN 61000-6-4:2007

☐ - EN 55011 : 2009/A1:2010

☐ - Group 1

☐ - Group 2

☐ - Class A

☐ - Class B

☐ - EN 55013 : 2001 /A1:2003 /A2:2006

☐ - EN 55014 -1: 2006/A2:2011

☐ - Household appliances and similar

☐ - Portable tools

☐ - Semiconductor devices

☐ - EN 55022:2010/AC:2011

☐ - Class A

☐ - Class B

☐ - CISPR 22:2008

☐ - Class A

☐ - Class B

☐ -AS/NZS CISPR 22:2009

☐ - Class A

☐ - Class B

☐ - ICES-003

☐ - Class A

☐ - Class B

☐ - CNS 13438

☐ - Class A

☐ - Class B

☐ - VCCI V-3/2010.4

☐ - Class A

☐ - Class B

■ - FCC Part 15 (per ANSI C63.4)

☐ - Class A

☐ - Class B

■ - Certification

☐ - Verification

☐ - Declaration of Conformity

☐ - FCC Part 18

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Environmental conditions during testing:

	LAB	OATS
Temperature: *	_____	: _____
Relative Humidity: **	_____	: _____

* The ambient temperature during the testing was within the range of (50° - 104° F) unless indicted above.
** The humidity levels during the testing was within the range of (10% - 90%) relative humidity unless indicated above.

Power supply system : 120 Volts 60 Hz SINGLE phase

Sign Explanations:

- ☐ - not applicable
- ☒ - applicable

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

☐ - Test not applicable

- ☐ - Darby Test Site (Open Area Test Site)
☒ - Darby Laboratory

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
☐	8028-50	Solar	50 Ω LISN	829012, 829022
☐	8012	Solar	50 Ω LISN	924840
☒	EMC-30	Electro-Metrics	EMI Receiver	191
☐	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
☐	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
☐	85662A	Hewlett Packard	Analyzer Display	2403A07352
☐	8028-50	Solar	50 Ω LISN	903725, 903726
☐	FCC-TLISN-T4-02	Fisher Custom Com.	Telecom ISN	20454
☐	FCC-TLISN-T8-02	Fisher Custom Com.	Telecom ISN	20452
☒	LI-125	Com-Power	50 Ω LISN	191080/191081

Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

- ☒ - Darby Test Site (Open Area Test Site)
☐ -
☐ -

at a test distance of :

- ☐ - 3 meters
☒ - 30 meters

☐ - Test not applicable

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
☐	3148	EMCO	Log Periodic Antenna	00044783
☐	BIA-25	Electro-Metrics	Biconical Antenna	4283
☒	8566B	Hewlett-Packard	Spectrum Analyzer	2532A02418
☒	85662A	Hewlett-Packard	Analyzer Display	2403A07352
☒	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
☒	ALR-30M	Electro-Metrics	Loop Antenna	824
☒	8447D	Hewlett Packard	Preamplifier	2944A06901
☐	EMC-30	Electro-Metrics	EMI Receiver	191
☐	ALA-130/A	Antenna Research	Loop Antenna	106

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Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

☐ - Test not applicable

- ☒ - Darby Site (Open Area Test Site)
- ☐ - Darby Lab
- ☐ -

at a test distance of :

- ☐ - 3 meters
- ☒ - 10 meters
- ☐ - 30 meters

Test equipment used :

Model Number	Manufacturer	Description	Serial Number
☐ - HLP 3003C	EMC Automation	Hybrid Periodic Antenna	017501
☒ - 8447D	Hewlett-Packard	Preamplifier (26dB)	2944A06832
☒ - 8566B	Hewlett-Packard	Spectrum Analyzer	2532A02418
☒ - 85662A	Hewlett-Packard	Analyzer Display	2403A07352
☐ - 85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
☐ - BIA 25	Electro-Metrics	Biconical Antenna	4283
☐ - EMC-30	Electro-Metrics	EMI Receiver	191
☐ - 8566B	Hewlett Packard	Spectrum Analyzer	2532A02418
☒ - 85650A	Hewlett Packard	Quasi-Peak Adapter	2043A00358
☐ - 85662A	Hewlett Packard	Analyzer Display	2403A06604
☐ - LPA30	Electro-Metrics	Log Periodic	2280
☒ - 3104C	Emco	Biconical Antenna	00075927
☒ - 3148	ETS Lindgren	Log Periodic Antenna	75741

Emissions Test Conditions): DISTURBANCE POWER

The *DISTURBANCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

☒ - Test not applicable

- ☐ - Darby Lab
- ☐ -

Test equipment used :

Model Number	Manufacturer	Description	Serial Number
☐ - MDS-21	Rhode&Schwarz	Absorbing Clamp	8608447020
☐ - 8566B	Hewlett-Packard	Spectrum Analyzer	2532A02418
☐ - 85662A	Hewlett-Packard	Analyzer Display	2403A07352
☐ - 85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00358
☐ - 8447D	Hewlett-Packard	Amplifier (26 dB)	2944A06901

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The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 10 GHz were performed in a horizontal and vertical polarization at the following test location :

■ - Darby Test Site (Open Area Test Site)

- -
□ -
□ -

at a test distance of:

- - 1 meters
■ - 3 meters
□ - 10 meters

□ - **Test not applicable**

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2532A02418
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00358
■ -	8449B	Hewlett-Packard	Preamplifier	3008A00320
■ -	3115	Electro-Mechanics	Double Ridge Guide Horn	3810

Emissions Test Conditions): CONDUCTED EMISSIONS - TELECOMMUNICATIONS PORT measurements were performed in the frequency range 0.15 MHz - 30 MHz at the following test location :

■ - **Test not applicable**

- - Darby Lab
□ -

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	FCC-TLISN-T8-02	Fischer Custom Com	T-LISN	20452
□ -	FCC-TLISN-T4-02	Fischer Custom Com	T_LISN	20454
□ -				
□ -				

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Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

- ☐ - Standby
- ☐ - Test program (H - Pattern)
- ☐ - Test program (color bar)
- ☐ - Test program (customer specific)
- ☒ - Practice operation
- ☐ - Normal Operating Mode
- ☐ -

Configuration of the device under test:

- ☒ - See System Under Test Information in Appendix B

Rationale for EUT setup / configuration:

ANSI C63.4:2003

Emission Test Results:

Conducted emissions 150 kHz - 30 MHz

The requirements are ☒ - MET ☐ - NOT MET
Minimum limit margin 1.7 dB at 0.19 MHz
MU: 5.3 dB

Radiated emissions (magnetic field) 10 kHz - 30 MHz

The requirements are ☒ - MET ☐ - NOT MET
Minimum limit margin > 10 dB at All
MU: NA

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ☒ - MET ☐ - NOT MET
Minimum limit margin 0.5 dB at 908.375 MHz
MU: 5.2 dB

Interference Power at the mains and interface cables 30 MHz - 300 MHz

The requirements are ☐ - MET ☐ - NOT MET
Minimum limit margin dB at MHz
MU: NA

Radiated emissions 1 GHz - 10 GHz

The requirements are ☒ - MET ☐ - NOT MET
Minimum limit margin 3.0 dB at 2.748 GHz
MU: 4.9 dB

Emissions Test Conditions): CONDUCTED EMISSIONS - TELECOMMUNICATIONS PORT 0.15 to 30 MHz

The requirements are ☐ - MET ☐ - NOT MET
Minimum limit margin dB at MHz
MU: NA

MU = Measurement Uncertainty

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GENERAL REMARKS:

Conducted emissions - Exploratory measurements are used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation is performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest is monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one and arrangement and mode of operation that produces the emission closest to the limit across all the measured conductors is recorded. Software used is Electro metrics OS-30-CAT ver 1.10

Radiated emissions - The equipment under test is oriented at (0) degrees azimuth with respect to the measuring antenna. The antenna is placed in the vertical polarity and the software performs an automated set of measurements across the frequency range of interest. When complete, a database of all signals labeled "suspects" is displayed and the test engineer manually investigates any signal that is within (15) dB of the limit. Those determined to be from the EUT are placed on a separate database labeled "finals" and those not from the EUT are placed in the ambient database. The EUT is then rotated (90) degrees and the process is repeated. Upon completion of (4) scans, the antenna polarity is changed to horizontal, the EUT orientation is set to (45) degrees and the process is repeated (4) additional times. After every scan, the final list is completed re-measured and updated for amplitude and polarity if higher in amplitude. The EUT antenna was manipulated to maximize each reported emission.

Once all (8) scans are complete, the highest (6) signals are re-measured by maximizing the amplitude with cable manipulation, antenna height and EUT azimuth. The final (6) six signals are included in the test report. Software used is HP 85870A Opt655/Rev A.02.01.

We investigated the frequency range of (10) kHz to (10) GHz.

SUMMARY:

The requirements according to the technical regulations are

■ - met

□ - **not** met.

The device under test does

■ - fulfill the general approval requirements mentioned on page 3.

□ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date 15 Oct 2014

Testing End Date: 24 Oct 2014

- PRODUCT SAFETY ENGINEERING INC -

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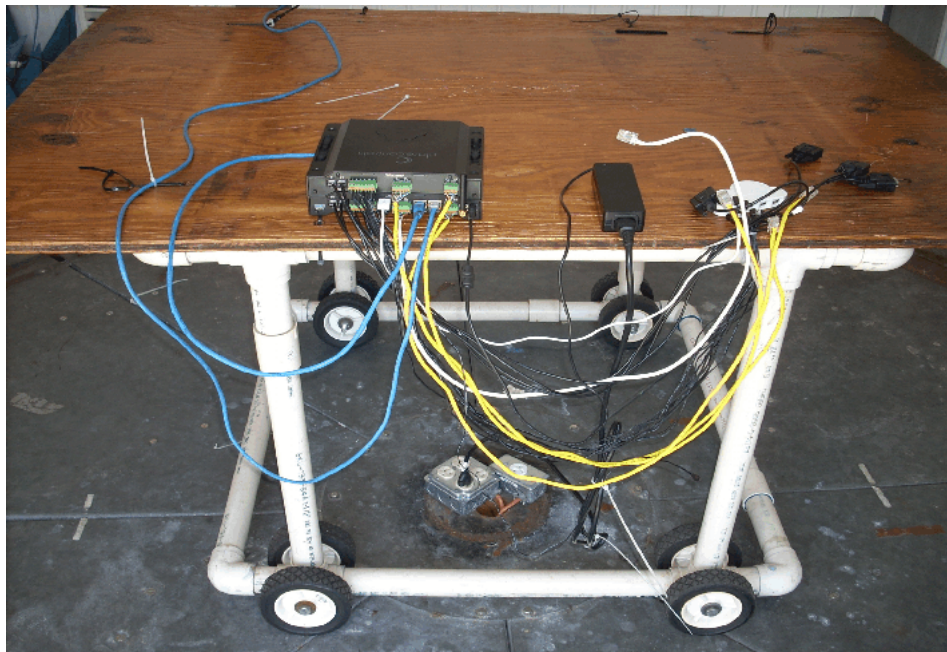
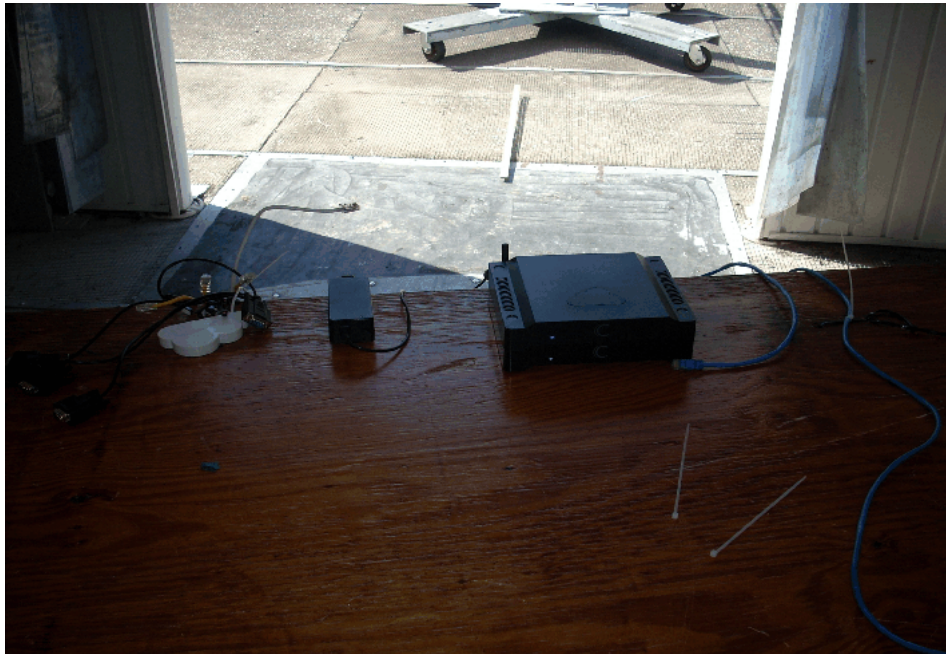
Test-setup photo(s):
Conducted emission 150 kHz - 30 MHz



Test Report Number 14F350B

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Test-setup photo(s):
Radiated emission 30 MHz - 1000 MHz



Test Report Number 14F350B

Product Safety Engineering, Inc 12955 Bellamy Brothers Blvd. Dade City, FL 33525
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APPENDIX

A

Test Equipment Calibration Information & Test Data Sheets

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	TEST EQUIPMENT CALIBRATION INFORMATION			
Manufacturer	Model	Description	Serial Number	Cal Due *
Hewlett Packard	8566B	Spectrum Analyzer	2421A00526	
Hewlett Packard	85662A	Display	2151A03667	
Hewlett Packard	85650A	Quasi-peak Adapter	2043A00209	
Hewlett Packard	8566B	Spectrum Analyzer	2532A02418	11/5/2015
Hewlett Packard	85662A	Display	2403A07352	11/5/2015
Hewlett Packard	85650A	Quasi-peak Adapter	2043A00358	11/5/2015
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06832	3/4/2015
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06901	
Hewlett Packard	8449B	Preamp 1 - 26.5 GHz	3008A00320	6/6/2015
Hewlett Packard	E7402A	Portable Spectrum Analyzer	US40240204	
ETS Lindgren	3148	Log Periodic Antenna	75741	** 2/7/2016
Electro-Metrics	BIA-30	Biconical Antenna	3852	
EMCO	3104C	Biconical Antenna	75927	** 5/14/2016
Electro-Metrics	ALR30M	Magnetic Loop Antenna	824	
Electro-Metrics	EMC-30	EMI Receiver	191	7/11/2015
Electro-Metrics	3115	Double Ridge Guide Antenna	3810	** 7/16/2015
Solar	8028	LISN	829012/809022	
Com-Power	LI-125	LISN	191180/191181	9/22/2015
Schwartzbeck	MDS-21	Absorbing Clamp	2581	
Fisher Custom	FCC-TLISN-T4-02	T LISN	20454	
Fisher Custom	FCC-TLISN-T8-02	Fisher Custom	20452	
ATM	42-441-6	Stanard Gain Horn Antenna	E531612-01	
Electro-Metrics	3117	Double Ridge Guide Antenna	109296	
Solar	7334-1	Loop Sensor	32317	
Sun Systems	EC127	Enviromental Chamber	EC0154	NA
Fluke	52	Digital Thermometer	447553	
		* Cal Due Date Format = MM/DD/YYYY		
All equipment was calibrated one year prior to the cal due date listed unless otherwise indicated				
** These devices are on a (2) year calibration cycle				

						3 Meter Distance					
10/22/2014 thru 10/24/2014			Harmonics of One Low Freq 908.375 MHz and One High Freq 916.0 MHz are Measured								
			FUNDAMENTAL EMISSIONS								
Freq.	Quasi peak				PA	Adj QP	QP	Delta	Polarity	Detector	
	Measured @ 3 m		ACF	CL	Gain		Limit				
MHz	dBuV		dB/M	dB	dB	dBuV/M	dBuV/M	dB			
908.375	64.3		23.6	5.6	0	93.5	94	-0.5	V	QP	
908.4	64.2		23.6	5.6	0	93.4	94	-0.6	V	QP	
916	63.8		23.6	5.6	0	93	94	-1	V	QP	
			Harmonics of 916.0 MHz								
Freq.	AVERAGE DET LEVEL				System Gain	Adj AVG	Average	Delta	Polarity	Detector	
	Measured @ 3 m		ACF		PA - CL		Limit				
MHz	dBuV				dB	dBuV/M	dBuV/M	dB			
1832	35.3		27.5		23	39.8	54	-14.2	V	Average	
2748	43.5		29.2		21.7	51	54	-3	V	Average	
3664	33.8		32.1		20.5	45.4	54	-8.6	V	Average	
4580	27.5		32.5		18.4	41.6	54	-12.4	V	Average	
5496	26.1		34.4		16.5	44	54	-10	V	Average	
			* All Harmonic Emissions above 5 GHz are greater than (10) dB below limit								
			Harmonics of 908.375 MHz								
Freq.	AVERAGE DET LEVEL				System Gain	Adj AVG	Average	Delta	Polarity	Detector	
	Measured @ 3 m		ACF		PA - CL		Limit				
MHz	dBuV				dB	dBuV/M	dBuV/M	dB			
1816.8	32.8		27.5		23	37.3	54	-16.7	H	Average	
2725.1`	42.1		29.2		21.7	49.6	54	-4.4	H	Average	
3633.5	31.3		32.1		20.5	42.9	54	-11.1	H	Average	
4541.9	28		32.5		18.4	42.1	54	-11.9	V	Average	
5450.3	27.2		34.4		16.5	45.1	54	-8.9	V	Average	
			* All Harmonic Emissions above 5 GHz are greater than (10) dB below limit								

PRODUCT EMISSIONS

DARBY OPEN AREA TEST SITE

PSE OPEN AREA TEST SITE

Data File: CLARE CLIQ CISB@10M 15OCT2014

No	EMISSION	SPEC	MEASUREMENTS			SITE			CORR	COMMENTS
	FREQUENCY MHz	LIMIT dBuV/m	ABS	dLIM dB	MODE	POL	HGT cm	AZM deg	FACTOR dB	
1	32.215	30.0	25.7	-4.3	PK	V	150	225	-18.3	
2	35.557	30.0	26.7	-3.3	PK	V	125	180	-17.8	
3	50.447	30.0	23.5	-6.5	PK	V	150	270	-17.	
4	60.293	30.0	25.0	-5.0	PK	V	150	270	-19.1	
5	64.465	30.0	23.4	-6.6	PK	V	100	135	-20.1	
6	67.820	30.0	23.9	-6.1	PK	V	100	135	-21.	
7	69.703	30.0	26.8	-3.2	QP	V	125	180	-21.4	
8	75.00	30.0	22.9	-7.1	PK	V	150	270	-21.7	
9	79.420	30.0	24.1	-5.9	PK	V	100	270	-21.9	
10	82.028	30.0	25.2	-4.8	QP	V	100	135	-21.2	
11	86.330	30.0	25.9	-4.1	QP	V	100	135	-19.8	
12	104.193	30.0	25.1	-4.9	PK	V	125	90	-16.2	
13	108.022	30.0	23.8	-6.2	QP	V	125	180	-15.8	
14	108.812	30.0	27.0	-3.0	QP	H	300	135	-15.7	
15	128.980	30.0	23.9	-6.1	PK	V	100	135	-16.	
16	136.087	30.0	24.3	-5.7	PK	V	100	270	-16.2	
17	150.292	30.0	23.0	-7.0	PK	V	100	270	-14.7	
18	159.433	30.0	23.4	-6.6	PK	V	100	270	-12.7	
19	171.587	30.0	27.9	-2.1	QP	V	100	225	-10.9	
20	180.77	30.0	25.8	-4.2	PK	V	100	135	-10.2	
21	189.226	30.0	24.8	-5.2	QP	H	350	180	-9.9	
22	199.074	30.0	24.9	-5.1	PK	V	125	90	-11.1	
23	229.646	30.0	26.8	-3.2	QP	H	350	270	-15.4	
24	250.009	37.0	34.8	-2.2	QP	V	100	180	-14.9	
25	257.473	37.0	29.6	-7.4	PK	V	100	180	-14.5	
26	271.030	37.0	29.7	-7.3	PK	V	100	180	-13.8	
27	375.000	37.0	35.5	-1.5	QP	H	300	225	-12.4	
28	389.998	37.0	28.7	-8.3	PK	H	300	225	-12.3	
29	500.006	37.0	32.5	-4.5	PK	H	200	225	-9.3	
30	585.005	37.0	30.9	-6.2	PK	V	100	90	-7.9	
31	625.001	37.0	32.6	-4.4	QP	H	150	270	-7.4	
32	750.003	37.0	32.0	-5.0	PK	H	100	180	-5.1	
33	780.020	37.0	35.5	-1.5	QP	H	100	90	-4.9	
34	875.003	37.0	31.9	-5.1	PK	H	100	180	-2.7	
35	975.001	37.0	32.4	-4.6	QP	V	100	90	0.4	
36	1000.00	37.0	32.4	-4.6	QP	H	100	135	1.2	Mkr @ 1000 MHz

16-Oct-14											
	CLARE CLIQ, UnIntentional Radiator Emissions										
			1.0 to 5.0 GHz								
		Freq (GHz)	Level	Polarity	ACF	Site gain / loss	FS	Limit	Margin		
			dBuV		dBuV/m	dB	dBuV/M	dBuV/M	dB		
	1	1	50.2	V	24.7	28.1	46.8	54	-7.2		
	2	1.100	47.5	H	25.8	27.8	45.5	54	-8.5		
	3	1.125	46.8	H	25.8	27.8	44.8	54	-9.2		
	4	1.169	48	H	25.8	27.3	46.5	54	-7.5		
	5	1.400	47.6	V	25.9	26.6	46.9	54	-7.1		
	6	1.560	52.5	H	26.3	26.1	52.7	54	-1.3		
	7	1.625	39.9	H	26.5	25.7	40.7	54	-13.3		
	8	2.340	39.5	H	28.2	22.2	45.5	54	-8.5		
	9	2.730	41.1	V	29.1	21.5	48.7	54	-5.3		
	10	3.120	34.5	V	31.1	20.3	45.3	54	-8.7		
			All measurements made at (3) meter distance, using Average Detector								
			Average Detector Limit = 54 dBuV/M								
			Peak Detector Limit = 74 dBuV/M								
			All Peak Measurements Greater Than 10 dB Below the Peak Limit								
			The Z-Wave Intentional Radiator levels reported on another Data page								
			Test Report # 14F350								

Product Safety Engineering

CLARE CVNTRLS INC.

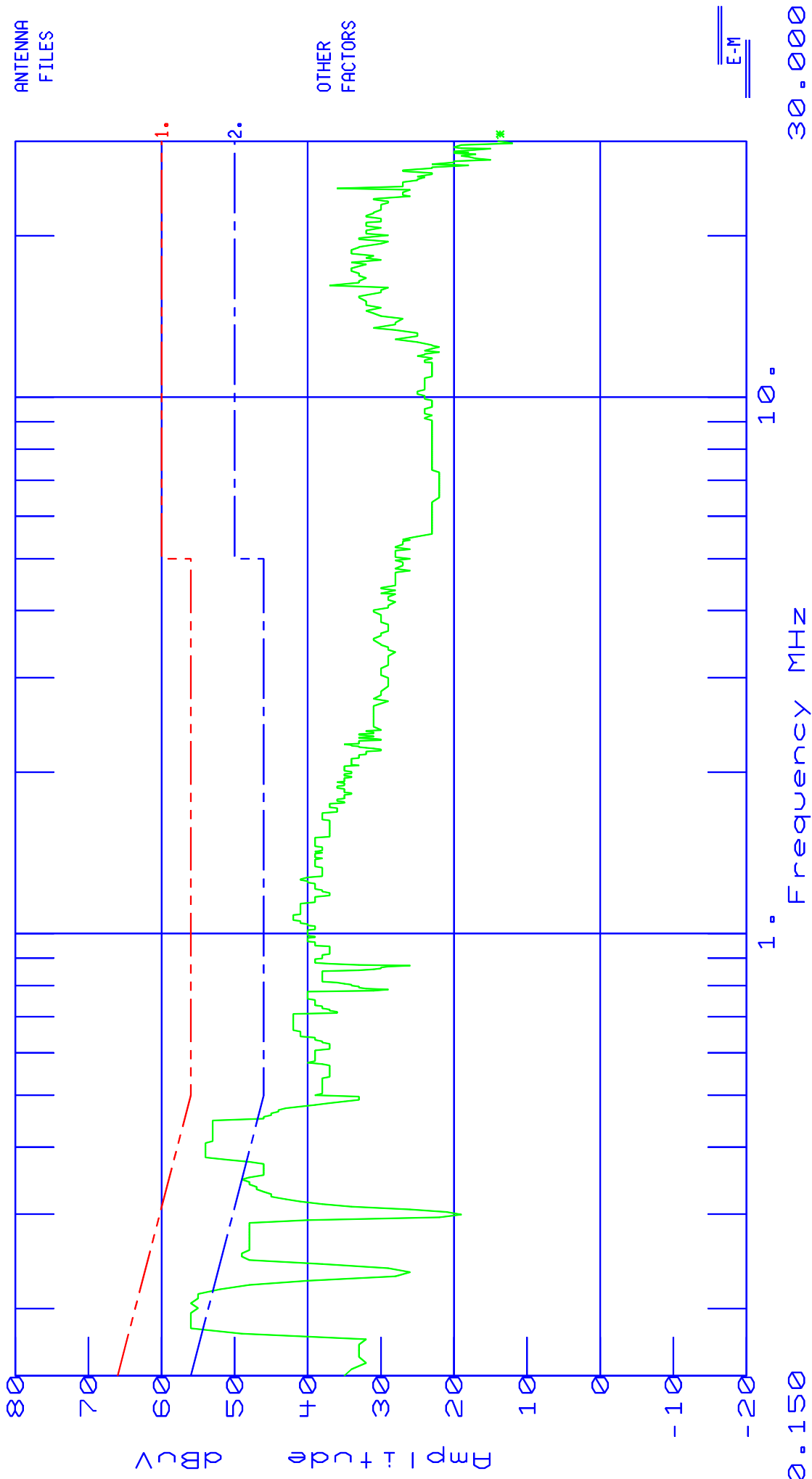
Date : 10/15/14
Technician : CHIP FOERSTNER
Test Method : EN55022 CLASS B
Equipment : CLIQ
Mode of Op. : NORMAL
Serial No. :

Time : 15:23:11.48
Test Equip. : EMC-30
Test Number : 1
Sensor Loc. : LINE
Sensor Pol. :
Ext. Atten. : 0 dB

Comment : 120 VAC / 60 HZ MW POWER SUPPLY GS40A12-P15

EMC-30 SETTINGS
Detector QuasiPeak
Bandwidth CISPR
Dump/Dwell IN/A
RF Atten. 10 dB
IF Atten. 10 dB

SPECS
1) CISPR 22 Quasi Peak
2) CISPR 22 AVG
3)
4)



TEST TITLE: CLARE CVONROLS INC.	PAGE 1
DATA FILE : 14350_L.D30	Freq. (MHz)
Amplitude Units : dBuV	0.1500
Threshold 5 dB	

Freq(MHz)	Amp	C22BQP. S30 vs Spec(dB)	C22BAVG. S30 vs Spec(dB)
0.3824	54.0		5.773 *
0.3859	54.0		5.849 *
0.3894	54.0		5.924 *
0.3929	54.0		5.998 *
0.3963	54.0		6.069 *
0.3998	54.0		6.142 *
0.4033	54.0		6.215 *
0.4068	54.0		6.287 *
0.4103	53.0		5.358 *
0.4137	53.0		5.426 *
0.4172	53.0		5.496 *
0.4207	53.0		5.566 *
0.4241	53.0		5.633 *
0.4276	53.0		5.701 *
0.4311	53.0		5.769 *
0.4346	53.0		5.836 *
0.4380	53.0		5.900 *
0.4415	53.0		5.967 *
0.4450	53.0		6.032 *
0.4484	53.0		6.095 *

Product Safety Engineering

CLARE CVNTRLS INC.

Date : 10/16/14
Technician : CHIP FOERSTNER
Test Method : EN55022 CLASS B
Equipment : CLIQ
Mode of Op. : NORMAL
Serial No. :

Time : 07:21:21.33
Test Equip. : EMC-30
Test Number : 1
Sensor Loc. : LINE
Sensor Pol. :
Ext. Atten. : 0 dB

Comment : 120 VAC / 60 HZ MW POWER SUPPLY GS40A12-P15

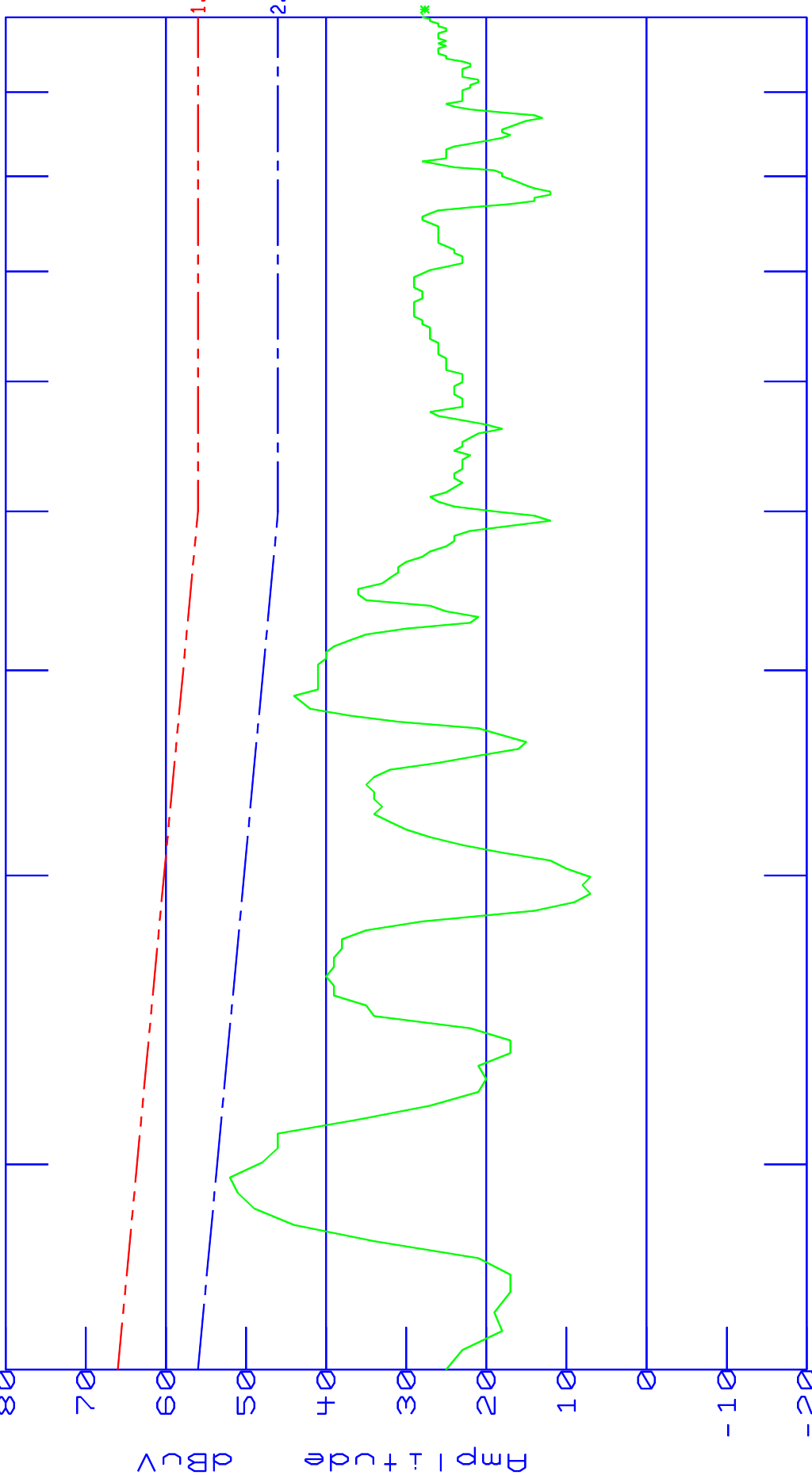
EMC-30 SETTINGS
Detector Average
Bandwidth CISPR
Dump/Dwell IN/A
RF Atten. 10 dB
IF Atten. 10 dB

SPECS
1) CISPR 22 Quasi Peak
2) CISPR 22 AVG
3)
4)

ANTENNA FILES

OTHER FACTORS

E-M



0.150

Frequency MHz

1.000

TEST TITLE: CLARE CVONROLS INC.	PAGE 1
DATA FILE :14350_LA.D30	Freq. (MHz)
Amplitude Units : dBuV	0.1500
Threshold -3 dB	

Freq(MHz)	Amp	C22BQP. S30 vs Spec(dB)	C22BAVG. S30 vs Spec(dB)
0.1922	51.0		-2.941 *
0.1964	52.0		-1.761 *

Product Safety Engineering

CLARE CVONROLS INC.

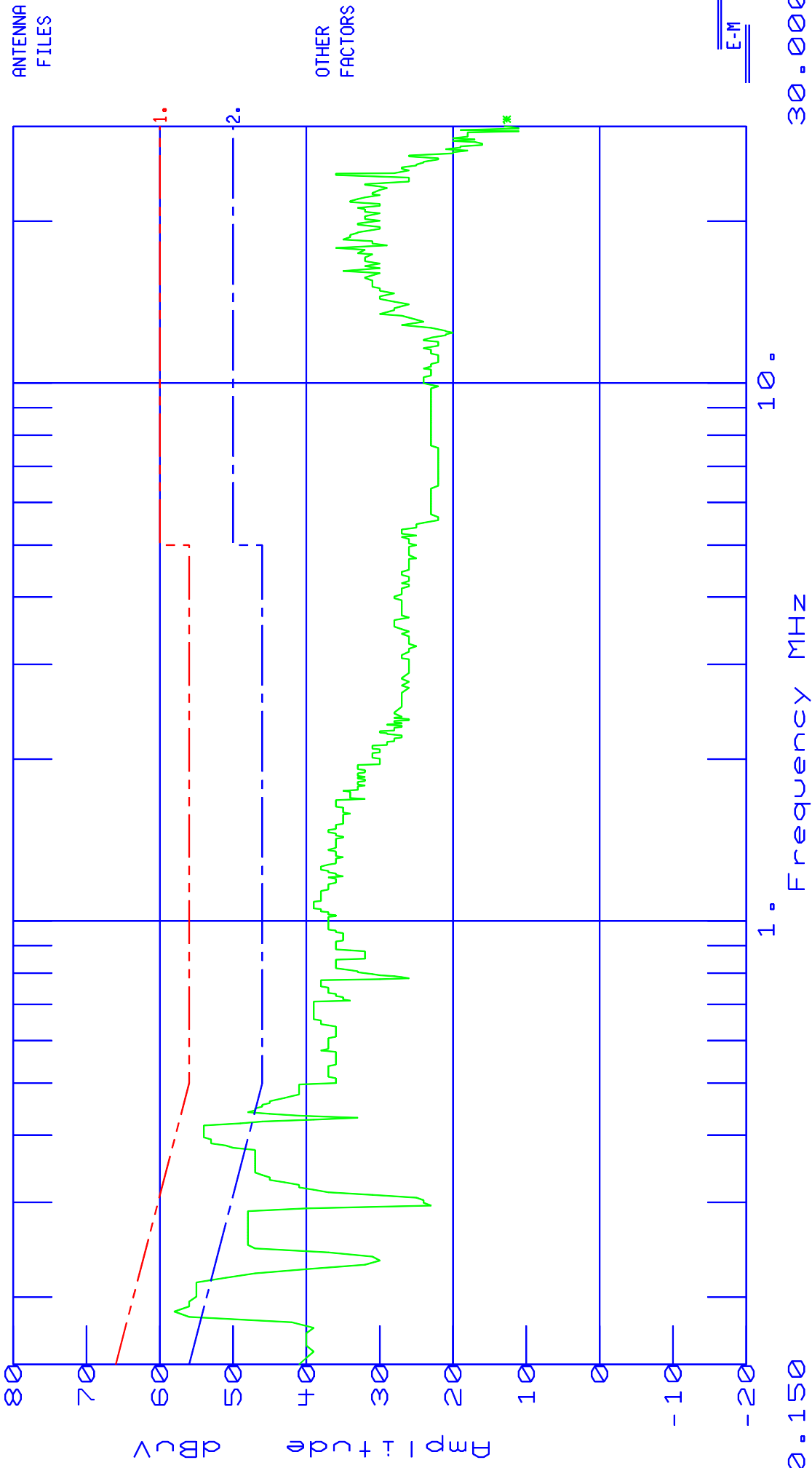
Date : 10/16/14
Technician : CHIP FOERSTNER
Test Method : EN55022 CLASS B
Equipment : CLIQ
Mode of Op. : NORMAL
Serial No. :

Time : 07:42:12.15
Test Equip. : EMC-30
Test Number : 1
Sensor Loc. : NEUTRAL
Sensor Pol. :
Ext. Atten. : 0 dB

Comment : 120 VAC / 60 HZ MW POWER SUPPLY GS40A12-P15

EMC-30 SETTINGS
Detector QuasiPeak
Bandwidth CISPR
Dump/Dwell IN/A
RF Atten. 10 dB
IF Atten. 10 dB

SPECS
1) CISPR 22 Quasi Peak
2) CISPR 22 AVG
3)
4)



TEST TITLE: CLARE CVONROLS INC.	PAGE 1
DATA FILE : 14350_N.D30	Freq. (MHz)
Amplitude Units : dBuV	0.1880
Threshold 5 dB	

Freq(MHz)	Amp	C22BQP. S30 vs Spec(dB)	C22BAVG. S30 vs Spec(dB)
0.3963	54.0		6.069 *
0.3998	54.0		6.142 *
0.4033	54.0		6.215 *
0.4068	54.0		6.287 *
0.4103	54.0		6.358 *
0.4137	54.0		6.426 *
0.4172	54.0		6.496 *

Product Safety Engineering

CLARE CVNTRLS INC.

Date : 10/16/14
Technician : CHIP FOERSTNER
Test Method : EN55022 CLASS B
Equipment : CLIQ
Mode of Op. : NORMAL
Serial No. :

Time : 07:29:32.09
Test Equip. : EMC-30
Test Number : 1
Sensor Loc. : NEUTRAL
Sensor Pol. :
Ext. Atten. : 0 dB

Comment : 120 VAC / 60 HZ MW POWER SUPPLY GS40A12-P15

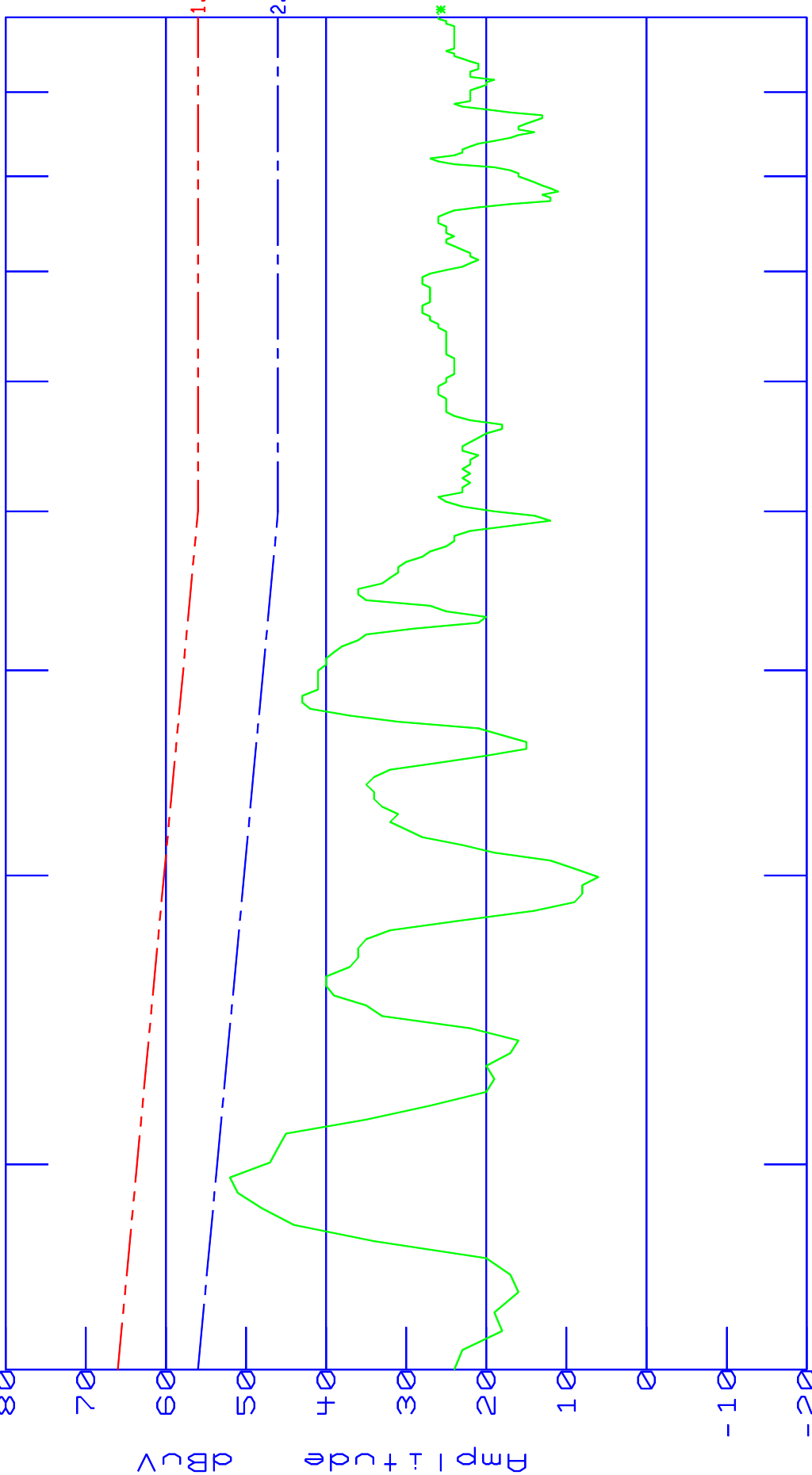
EMC-30 SETTINGS
Detector Average
Bandwidth CISPR
Dump/Dwell IN/A
RF Atten. 10 dB
IF Atten. 10 dB

SPECS
1) CISPR 22 Quasi Peak
2) CISPR 22 AVG
3)
4)

ANTENNA FILES

OTHER FACTORS

E-M



0.150

Frequency MHz

1.000

TEST TITLE: CLARE CVONROLS INC.	PAGE 1
DATA FILE :14350_NA.D30	Freq. (MHz)
Amplitude Units : dBuV	Threshold -3 dB
	0.1500

Freq(MHz)	Amp	C22BQP. S30 vs Spec(dB)	C22BAVG. S30 vs Spec(dB)
0.1922	51.0		-2.941 *
0.1964	52.0		-1.761 *

APPENDIX

B

System Under Test Description

SYSTEM COMPONENTS

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

DEVICE TYPE: EUT, CLIQ.connect, ClareOS I/O Module

DEVICE TYPE: EUT, Power Supply, Mean Well Model# MW GS40A12-P1J

DEVICE TYPE: Support for EUT, Wireless Router, airRouter (required to be ferrite loaded during radiated emissions test)

DEVICE TYPE: Support for EUT USB Device Kikkerland

DEVICE TYPE: Support for EUT HP Laptop

DEVICE TYPE: EUT, CLIQ.host, 2 inch Z-Wave Antenna

Test Report Number 14F350

INTERFACE CABLES

DEVICE TYPE: EUT , CLIQ.host, ClareOS Controller Module

SHIELD: Yes

LENGTH: 1 Meter

CONNECTOR TYPE: #1, USB to dedicated at USB switch. #2 USB memory card

PORT: USB (2 USB Ports)

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: RJ11 to 9 Pin D-Sub unterminated

PORT: RS232 (2 Serial ports)

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 6 pairs

PORT: IR-Serial Outputs

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 4 ports, 8 pin

PORT: I/O Versiports 1 -4

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 6 pins

PORT: Relay Output

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: (2) RJ45 Shielded Jacks, UnShielded Ethernet cables to Router

PORT: LAN Ports, Ethernet, Cobranet

INTERFACE CABLES continued

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: N/A

LENGTH: 2 inch

CONNECTOR TYPE: Threaded Antenna Jack

PORT: Z-Wave Antenna Input

DEVICE TYPE: EUT, CLIQ.connect, I/O Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: RJ11 to 9 Pin D-Sub unterminated

PORT: RS232 (2 Serial ports)

DEVICE TYPE: EUT, CLIQ.connect, I/O Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 6 pairs

PORT: IR-Serial Outputs

DEVICE TYPE: EUT, CLIQ.connect, I/O Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 4 ports, 8 pin

PORT: I/O Versiports 1 -4

DEVICE TYPE: EUT, CLIQ.connect, I/O Module

SHIELD: No

LENGTH: 1 Meter

CONNECTOR TYPE: terminal block with 6 pins

PORT: Relay Output

AC/DC LINE CORDS

DEVICE TYPE: EUT, CLIQ.host, ClareOS Controller Module

SHIELD: NO

LENGTH: 1 METER BUNDLED AC Cord

CONNECTOR TYPE: IEC TO DEDICATED (To Mean Well Power supply)

DEVICE TYPE: EUT, CLIQ.connect, ClareOS I/O Module

Internal Connection, Devices Snap together

DEVICE TYPE: Support for EUT, Wireless Router, airRouter (required to be ferrite loaded during radiated emissions test)

SHIELD: NO

LENGTH: 1 METER DC Cable

CONNECTOR TYPE: Mini DC Plug TO DEDICATED (9VDC)

DEVICE TYPE: Support for EUT HP Laptop and Powersupply

SHIELD: NO

LENGTH: 1 METER BUNDLED AC Cord

CONNECTOR TYPE: IEC TO DEDICATED (To HP Powersupply)

APPENDIX

C

Bandwidth Plots

MRK 908.37 MHz

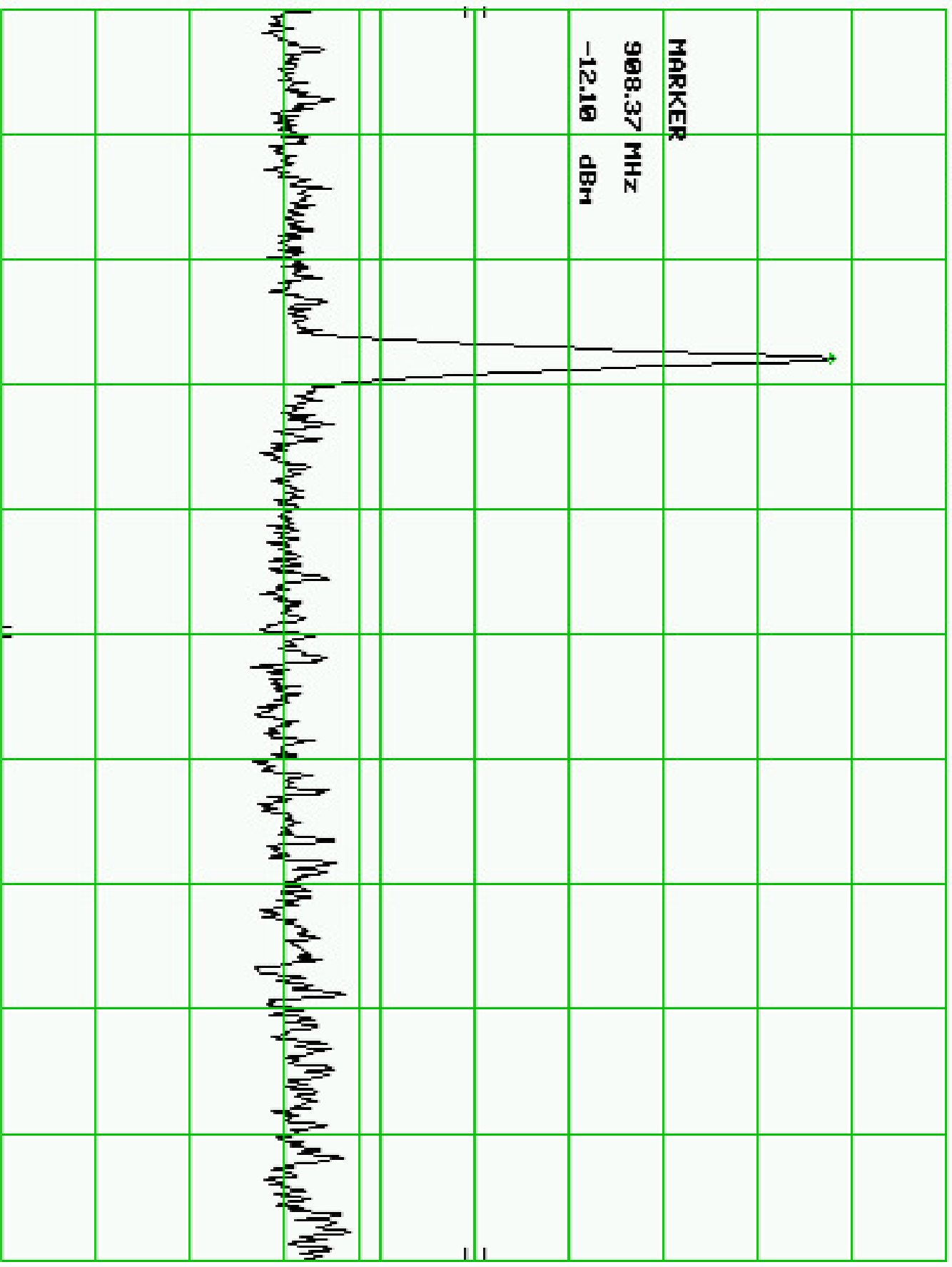
-12.10 dBm

h₂

10 dB/

POS PK

DL
-62.1
dBm



START 900.0 MHz

RES BW 100 KHz

VBW 100 KHz

STOP 930.0 MHz
SMP 500 msec

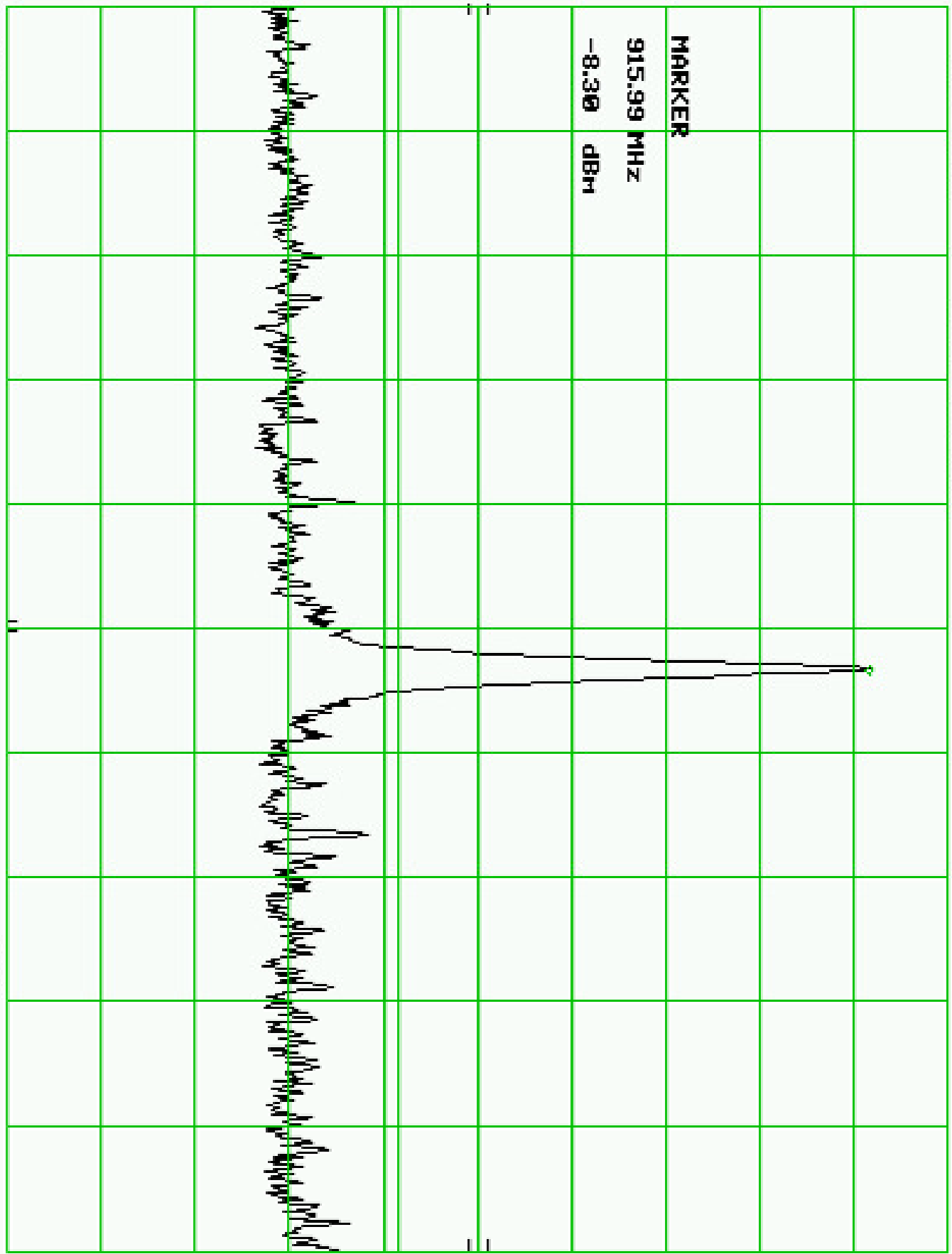
h7D

10 dB/

POS PK

DL
-58.3
dBm

REF 0.0 dBm ATTN 10 dB MKR 915.99 MHz -8.30 dBm



START 900.0 MHz RES BW 100 KHz STOP 930.0 MHz VBW 100 KHz SWP 500 msec