TEST REPORT

ACCREDITED

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
Cross Match Technologies GmbH
Unstrutweg 4

Jena, Germany 07743

Report Issue Date: 27 Feb 2014
Sample S/N: 130002
Sample Receipt Date: 16 Jan 2014
Sample Test Date: see data sheets

Test Report Number: 13F353B
Model Designation: RJ1479
Product Description: ID Document Reader

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 _____ Name David Foerstner

Title Engineering Group Leader Date 28 Feb 2014

Reviewed by:

Approved Signatory _____ Date 28 Feb 2014

Steve Hoke (EMC Site Manager)

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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
■ - RSS-210 Issue 8		
☐ - 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 (per 15.225) ☐ - Verification ☐ - Declaration of Conformity	

☐ - FCC Part 18

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

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

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)	2944A06901
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2532A02418
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A06604
■ -	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	2403A07352
□ -	LPA30	Electro-Metrics	Log Periodic	2280
■ -	3104C	Emco	Biconical Antenna	00075927
□ -	9005	Eaton	Log Periodic Antenna	1099

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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□ -	EMC-30	Electro-Metrics	EMI Receiver	191

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range GHz - 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

The *ANTENNA TERMINAL DISTURBANCE VOLTAGE* in the frequency range 30 MHz - 1,000 MHz were performed.

□ - Darby Test Site (Open Area Test Site)
□ - Laboratory
□ -
□ -

■ - Test not applicable

	Model Number	Manufacturer	Description	Serial Number
□ -	2F9-3C4-3C5	Wavecom	UHF PAL TV Modulator	185879
□ -	2F1-3C4-3C5	Wavecom	VHF PAL TV Modulator	157728
□ -	A-8000	IFR	Spectrum Analyzer	1306
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01433
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01477
□ -	LMV-182A	Leader	RMS Milli-Voltmeter	8010091
□ -	3202	Krhon-Hite	Active filter	5899
□-	FMT115	Leaming	FM Modulator	NONE
□ -	371	UDT	Optical power meter	06657
□ -	TSG95	Tektronix	PAL video / Audio gen	B028883

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 **4.0** dB at **3.3** MHz
MU: 5.3 dB

Radiated emissions (magnetic field) 1 MHz - 30 MHz

The requirements are ■ **- MET** □ **- NOT MET**

Minimum limit margin **21.5** dB at **13.1** MHz
MU: NA

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ■ **- MET** □ **- NOT MET**

Minimum limit margin **2.3** dB at **122.04** 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 GHz - GHz

The requirements are □ **- MET** □ **- NOT MET**

Minimum limit margin dB at GHz
MU: 4.9 dB

Antenna Terminal Disturbance Voltage 30 MHz - 1,000 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.

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.

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 **20 Jan 2014**

Testing End Date: **23 Jan 2014**

- PRODUCT SAFETY ENGINEERING INC -

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

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

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APPENDIX

A

Test Equipment Calibration Information

&

Test Data Sheets

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TEST EQUIPMENT CALIBRATION INFORMATION

Manufactirer	Model	Description	Serial Number	Cal Due *
Hewlett Packard	8566B	Spectrum Analyzer	2421A00526	
Hewlett Packard	85662A	Display	2151A03667	
Hewlett Packard	85650A	Quasi-peak Adapter	2043A00209	11/5/2014
Hewlett Packard	8566B	Spectrum Analyzer	2532A02418	11/5/2014
Hewlett Packard	85662A	Display	2403A07352	11/5/2014
Hewlett Packard	85650A	Quasi-peak Adapter	2043A00358	
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06832	
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06901	12/10/2014
Hewlett Packard	8449B	Preamp 1 - 26.5 GHz	3008A00320	
Hewlett Packard	E7402A	Portable Spectrum Analyzer	US40240204	
ETS Lindgren	3148	Log Periodic Antenna	75741	
Electro-Metrics	BIA-30	Biconical Antenna	3852	
EMCO	3104C	Biconical Antenna	75927	4/26/2014
Electro-Metrics	ALR30M	Magnetic Loop Antenna	824	7/15/2015
Electro-Metrics	EMC-30	EMI Receiver	191	7/9/2014
Electro-Metrics	3115	Double Ridge Guide Antenna	3810	
Solar	8028	LISN	829012/809022	
Com-Power	LI-125	LISN	191180/191181	9/16/2014
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	

* Cal Due Date Format = MM/DD/YY

All equipment was calibrated one year prior to the cal due date listed unless otherwise indicated

RADIATED DATA SHEET
Below (30) MHz

FCC Rule Part	Frequency Range MHz	Limit dBuV/M	Limit Dist meters	Measured Freq. (MHz)	Level dBuV/M	Margin dB
15.225 (a)	13.553 - 13.567	84	30	13.553	38.0	46.0
15.225 (b)	13.410 - 13.553	50.5	30	13.543	18.0	32.5
15.225 (b)	13.567 - 13.710	50.5	30	13.567	18.0	32.5
15.225 (c)	13.110 - 13.410	40.5	30	13.2	8.0	32.5
15.225 (c)	13.710 - 14.010	40.5	30	13.8	8.0	32.5
15.225 (d)	1.705 - 13.110	29.5	30	13.1	8.0	21.5
15.225 (d)	14.010 - 30.0	29.5	30	27.12	4.0	25.5
15.225 (d)	>30	29.5	10	40.68	26.8	2.7
15.225 (d)	>30	29.5	10	54.24	25.7	3.8
15.225 (d)	>30	29.5	10	67.80	22.8	6.7
15.225 (d)	>30	29.5	10	81.36	24.4	5.1
15.225 (d)	>30	33.0	10	94.92	27.8	5.2
15.225 (d)	>30	33.0	10	108.48	27.4	5.6
15.225 (d)	>30	33.0	10	122.04	30.7	2.3
15.225 (d)	>30	33.0	10	135.6	27.9	5.1

Note: The same limits are stated in the RSS-210 (A2.6) for Canada.

PRODUCT EMISSIONS

PSE OPEN AREA TEST SITE Data File: CROSSMATCH DSCAN FCCB@3M 20JAN14

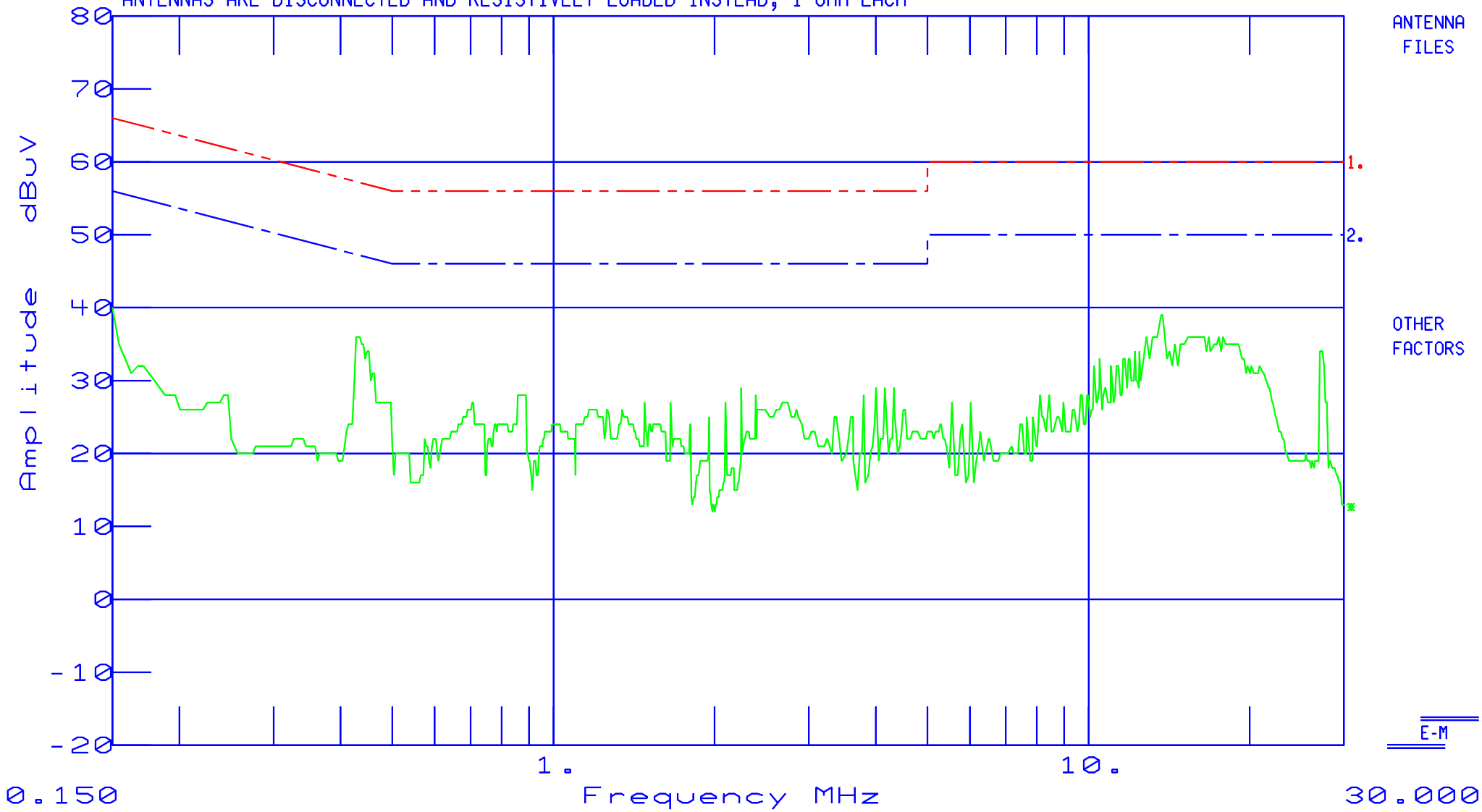
No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS
1	32.721	40.0	31.9	-8.1	PK	V	150	225	-18.2	
2	40.674	40.0	37.3	-2.7	QP	V	150	225	-17.	*13.56 HARMONIC
3	46.40	40.0	34.5	-5.5	PK	V	125	180	-16.9	
4	54.244	40.0	36.2	-3.8	PK	V	125	180	-17.8	*
5	66.728	40.0	31.6	-8.4	PK	V	100	135	-20.7	
6	67.801	40.0	33.3	-6.7	PK	V	100	135	-21.	*
7	74.740	40.0	31.0	-9.0	PK	V	125	180	-21.7	
8	81.370	40.0	34.9	-5.2	PK	V	125	90	-21.4	*
9	85.416	40.0	34.2	-5.8	PK	V	125	180	-20.1	
10	94.924	43.5	38.3	-5.2	PK	V	125	90	-17.6	*
11	100.001	43.5	34.6	-8.9	PK	V	125	180	-16.6	
12	108.465	43.5	37.9	-5.6	PK	V	125	180	-15.8	*
13	118.120	43.5	35.7	-7.8	PK	V	150	90	-15.5	
14	120.018	43.5	34.3	-9.2	PK	H	250	135	-15.5	
15	122.028	43.5	41.2	-2.3	QP	V	150	225	-15.6	*
16	135.600	43.5	38.4	-5.1	PK	V	100	180	-16.2	*
17	149.144	43.5	39.2	-4.3	QP	H	300	90	-14.9	
18	150.002	43.5	33.6	-9.9	PK	V	100	135	-14.8	
19	162.719	43.5	36.7	-6.8	PK	V	100	270	-12.2	
20	199.998	43.5	32.4	-11.1	PK	V	100	135	-11.2	
21	203.395	43.5	38.4	-5.1	PK	V	150	135	-16.	
22	218.38	46.0	36.9	-9.1	PK	H	200	270	-15.5	
23	230.522	46.0	40.0	-6.0	PK	H	200	270	-15.2	
24	242.983	46.0	37.4	-8.6	PK	H	200	270	-14.8	
25	244.079	46.0	39.2	-6.8	PK	H	150	180	-14.8	
26	257.614	46.0	43.6	-2.4	QP	H	125	180	-14.3	
27	270.68	46.0	38.7	-7.3	PK	H	125	135	-13.7	
28	284.771	46.0	39.8	-6.2	PK	H	125	135	-13.2	
29	291.624	46.0	35.9	-10.1	PK	V	150	135	-12.9	
30	357.298	46.0	37.6	-8.4	PK	H	100	180	-12.2	
31	360.094	46.0	38.4	-7.6	PK	H	250	45	-12.2	
32	480.066	46.0	36.8	-9.2	PK	H	200	180	-9.3	
33	567.003	46.0	36.6	-9.4	PK	V	150	135	-8.1	
34	659.40	46.0	40.0	-6.0	PK	H	150	135	-6.1	
35	674.998	46.0	40.6	-5.4	PK	V	150	315	-5.6	
36	701.998	46.0	39.1	-6.9	PK	V	100	270	-4.3	
37	800.019	46.0	38.6	-7.4	PK	H	125	225	-4.6	
38	890.990	46.0	38.9	-7.1	PK	V	100	270	-1.4	

Product Safety Engineering

CROSS MATCH TECHNOLOGIES GMBH

Date :	01/23/14	Time :	09:17:11.06	EMC-30 SETTINGS	SPECS
Technician :	CHIP FOERSTNER	Test Equip. :	EMC-30	Detector QuasiPeak	1) CISPR 22 Quasi Peak
Test Method :	FCCB INTENTIONAL TX	Test Number :	1	Bandwidth CISPR	2) CISPR 22 AVG
Equipment :	DSCAN AUTHENTICATOR	Sensor Loc. :	LINE	Dump/Dwell N/A	3)
Mode of Op. :	NORMAL WITH RFID TX	Sensor Pol. :		RF Atten. 10 dB	4)
Serial No. :	130002	Ext. Atten. :	0 dB	IF Atten. 10 dB	

Comment : 120 VAC / 60 HZ WITH UE POWER SUPPLY MODEL# UE60-120500SPA3, THE RFID ANTENNAS ARE DISCONNECTED AND RESISTIVELY LOADED INSTEAD, I OHM EACH



TEST TITLE: CROSS MATCH TECHNOLOGIES GMBH	PAGE 2
DATA FILE : 13353TXL.D30	Freq.(MHz)
Amplitude Units : dBuV Threshold -18 dB	15.1013

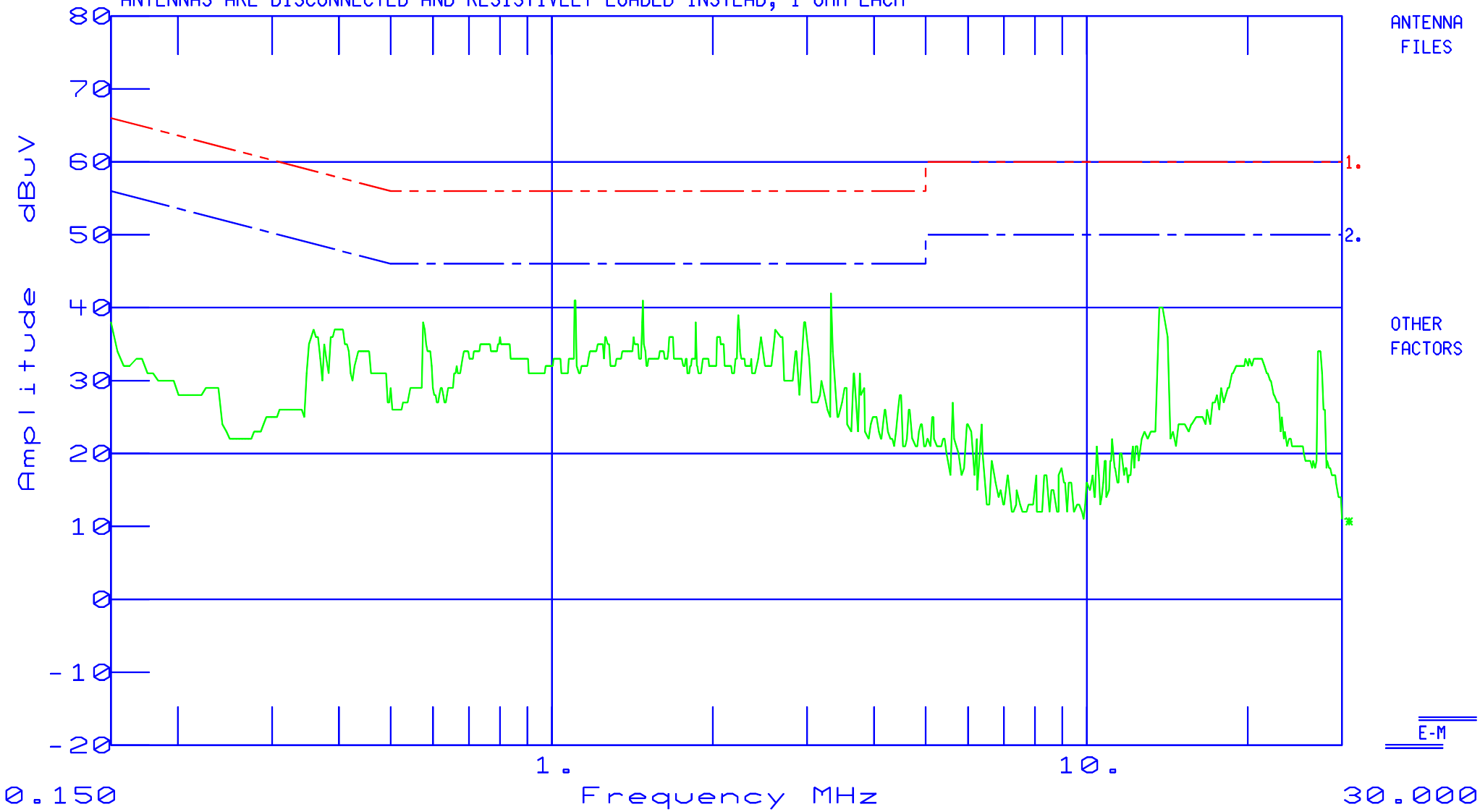
Freq(MHz)	Amp	C22BQP.S30 vs Spec(dB)	C22BAVG.S30 vs Spec(dB)
15.1013	35.0		-15.000 *
15.3428	36.0		-14.000 *
15.4098	36.0		-14.000 *
15.6782	36.0		-14.000 *
15.7184	36.0		-14.000 *
16.0102	36.0		-14.000 *
16.1578	36.0		-14.000 *
16.3456	36.0		-14.000 *
16.4664	36.0		-14.000 *
16.6039	34.0		-16.000 *
16.7750	36.0		-14.000 *
16.8855	34.0		-16.000 *
17.1829	35.0		-15.000 *
17.3500	35.0		-15.000 *
17.5137	36.0		-14.000 *
17.6808	34.0		-16.000 *
17.8279	36.0		-14.000 *
18.0150	35.0		-15.000 *
18.1353	35.0		-15.000 *
18.3492	35.0		-15.000 *
18.4428	35.0		-15.000 *
18.6834	35.0		-15.000 *
18.7502	35.0		-15.000 *
19.0176	35.0		-15.000 *
19.0577	35.0		-15.000 *
19.3499	33.0		-17.000 *
19.4975	33.0		-17.000 *
19.8060	32.0		-18.000 *
20.1145	32.0		-18.000 *
20.8590	32.0		-18.000 *
27.0466	34.0		-16.000 *
27.2145	34.0		-16.000 *
27.3286	34.0		-16.000 *
27.5468	32.0		-18.000 *

Product Safety Engineering

CROSS MATCH TECHNOLOGIES GMBH

Date :	01/23/14	Time :	09:01:29.63	EMC-30 SETTINGS	SPECS
Technician :	CHIP FOERSTNER	Test Equip. :	EMC-30	Detector QuasiPeak	1) CISPR 22 Quasi Peak
Test Method :	FCCB INTENTIONAL TX	Test Number :	1	Bandwidth CISPR	2) CISPR 22 AVG
Equipment :	DSCAN AUTHENTICATOR	Sensor Loc. :	NEUTRAL	Dump/Dwell N/A	3)
Mode of Op. :	NORMAL WITH RFID TX	Sensor Pol. :		RF Atten. 10 dB	4)
Serial No. :	130002	Ext. Atten. :	0 dB	IF Atten. 10 dB	

Comment : 120 VAC / 60 HZ WITH UE POWER SUPPLY MODEL# UE60-120500SPA3, THE RFID ANTENNAS ARE DISCONNECTED AND RESISTIVELY LOADED INSTEAD, I OHM EACH



TEST TITLE: CROSS MATCH TECHNOLOGIES GMBH	PAGE 1
DATA FILE : 13353TXN.D30	Freq.(MHz)
Amplitude Units : dBuV Threshold -6 dB	0.1500

Freq(MHz)	Amp	C22BQP.S30 vs Spec(dB)	C22BAVG.S30 vs Spec(dB)
1.1034	41.0		-5.000 *
1.1068	41.0		-5.000 *
1.4791	41.0		-5.000 *
3.3233	42.0		-4.000 *

	RJ1479		3/24/2014
Temperature	Measured Freq	Deviation	Deviation
Degrees C	Hz	Hz	%
-30	13,559,707	-293	-0.0022
-20	13,559,705	-295	-0.0022
-10	13,559,696	-304	-0.0022
0	13,559,681	-319	-0.0024
10	13,559,657	-343	-0.0025
20	13,559,636	-364	-0.0027
30	13,559,616	-384	-0.0028
40	13,559,605	-395	-0.0029
50	13,559,611	-389	-0.0029
60	13,559,644	-356	-0.0026
70	13,559,699	-301	-0.0022
	Limit = 0.01%		

Frequency versus Temperature

The AC input was varied between (102 - 138) VAC and the frequency held between 13,559,605 MHz & 13,559,611 MHz

Frequency versus Input Voltage

APPENDIX

B

System Under Test Description

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

SYSTEM COMPONENTS

****

DEVICE TYPE: EUT Cross Match RJ1479
DEVICE TYPE: Laptop Computer - Lenovo model B570
DEVICE TYPE: USB Flash Drive - Model Team Group F108 (4GB)
DEVICE TYPE: EUT Power Supply UE model UE60-120500SPA3
DEVICE TYPE: Laptop Power Supply model Lenovo CPA-A065

****

INTERFACE CABLES

****

DEVICE TYPE: EUT
SHIELD: YES
LENGTH: 2 Meters
CONNECTOR TYPE: EUT USB to Laptop USB (ferrite loaded at both ends)

DEVICE TYPE: EUT
SHIELD: YES
LENGTH: 2 Meters
CONNECTOR TYPE: USB to USB (unterminated)

****

POWER CABLES

****

DEVICE TYPE: EUT Power supply (DC OUT)
SHIELD: No
LENGTH: 1 Meters
CONNECTOR TYPE: Dedicated to (3) pin DIN

DEVICE TYPE: EUT Power supply (AC IN)
SHIELD: No
LENGTH: 2 Meters
CONNECTOR TYPE: Dedicated to IEC

DEVICE TYPE: Laptop Power supply (DC OUT)
SHIELD: No
LENGTH: 1 Meters
CONNECTOR TYPE: Dedicated to 2.5 mm barrel

DEVICE TYPE: Laptop Power supply (AC IN)
SHIELD: No
LENGTH: 2 Meters
CONNECTOR TYPE: Dedicated to IEC

APPENDIX

C

Measurement Protocol

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

ANSCI C63.4 2003 was the guiding document for test procedures as required by 47 CFR Part 15 Subpart A Section 15.31(a)(3).

The EUT was powered with an external power supply during the collection of data included within.

The data is compared to the FCC Part 15 Class B limits.

The "EMI" instrumentation is capable of calculating the final emission level based on the following formula:

Level at the receiver (dBµV) + Antenna Correction Factor (dB/M) + Cable Loss (dB) - Preamp Gain (dB) = Actual Level in dBµV/M.

The sample calculation below is based on the actual test data collected:

Observed Level		**51.9**	dBµV	
ACF	+	**14.2**	dB/M	
Cable Loss	+	**1.1**	dB	
Preamp Gain	–	**26.0**	dB	
Actual Level		**41.2**	dBµV/M	@ 122 MHz

Please have a company official review this report and sign.

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