MET Laboratories, Inc. *Safety Certification - EMI - Telecom Environmental Simulation*
914 WEST PATAPSCO AVENUE ● BALTIMORE, MARYLAND 21230-3432 ● PHONE (410) 354-3300 ● FAX (410) 354-3313
33439 WESTERN AVENUE ● UNION CITY, CALIFORNIA 94587 ● PHONE (510) 489-6300 ● FAX (510) 489-6372
3162 BELICK STREET ● SANTA CLARA, CALIFORNIA 95054 ● PHONE (408 748-3585 ● FAX (510) 489-6372

August 21, 2012

SemaConnect Inc.
175 Admiral Cochrane Dr., Suite 300
Annapolis, MD 21401

Dear Mike Meall,

Enclosed is the EMC test report for compliance testing of the SemaConnect Inc., ChargePro 620, tested to the requirements of Title 47 of the CFR, , Ch. 1 (10-1-06 ed.), Part 15.225, Subpart C and RSS-210, Issue 8, Dec. 2010 for Certification as an Intentional Radiator.

Thank you for using the services of MET Laboratories, Inc. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
MET LABORATORIES, INC.

Jennifer Warnell
Documentation Department

Reference: (\SemaConnect Inc.\ EMC34416-FCC225 Rev. 1)

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Electromagnetic Compatibility Criteria
Test Report

For the

SemaConnect Inc.
ChargePro 620

Tested under
15.225 Subpart C & RSS-210, Issue 8, Dec. 2010
for Intentional Radiators

MET Report: EMC34416-FCC225 Rev. 1

August 21, 2012

Prepared For:

SemaConnect Inc.
175 Admiral Cochrane Dr., Suite 300
Annapolis, MD 21401

Prepared By:
MET Laboratories, Inc.
914 West Patapsco Avenue
Baltimore, MD 21230

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for Intentional Radiators

MET Report: EMC34416-FCC225 Rev. 1

Len Knight, Project Engineer
Electromagnetic Compatibility Lab

Jennifer Warnell
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules Part 15.225 and Industry Canada standard RSS-210, Issue 8, Dec. 2010 under normal use and maintenance.

Shawn McMillen,
Wireless Manager, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	June 26, 2012	Initial Issue.
1	August 21, 2012	Revised to reflect engineer corrections.

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List of Terms and Abbreviations

AC	**A**lternating **C**urrent
ACF	**A**ntenna **C**orrection **F**actor
Cal	**Cal**ibration
d	**M**easurement **D**istance
dB	**D**eci **B**els
dBµV	**D**eci-**B**els above one **micro V**olt
dBµV/m	**D**eci-**B**els above one **micro V**olt **per m**eter
DC	**D**irect **C**urrent
DCF	**D**istance **C**orrection **F**actor
E	**E**lectric Field
DSL	**D**igital **S**ubscriber **L**ine
ESD	**E**lectro**s**tatic **D**ischarge
EUT	**E**quipment **U**nder **T**est
f	**F**requency
FCC	**F**ederal **C**ommunications **C**ommission
H	Magnetic Field
GHz	**G**iga **H**ert**z**
Hz	**H**ert**z**
ICES	**I**nterference-**C**ausing **E**quipment **S**tandard
kHz	**k**ilo**h**ert**z**
kPa	**k**ilo**pa**scal
kV	**k**ilo **V**olt
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
MHz	**M**ega**H**ertz
µH	**micro H**enry
µF	**micro F**arad
µs	**micro s**econds
RF	**R**adio **F**requency
RMS	**R**oot-**M**ean-**S**quare

1. Testing Summary

Title 47 of the CFR, Part 15, Subpart C, Reference and Test Description	IC Reference RSS-210 Issue 8: 2010; RSS-GEN Issue 3: 2010	Description	Results
Title 47 of the CFR, Part 15 §15.203	N/A	Antenna Requirements	Compliant
Title 47 of the CFR, Part 15 §15.207(a)	RSS-GEN (7.2.4)	Conducted Emission Limits	Compliant
Title 47 of the CFR, Part 15 §15.225(a)	RSS-210(A2.6(a))	Field Strength emissions within the band 13.553 – 13.567 MHz	Compliant
Title 47 of the CFR, Part 15 §15.225(b)	RSS-210(A2.6(b))	Field Strength emissions within the band 13.410 – 13.553 MHz and 13.567 – 13.710 MHz	Compliant
Title 47 of the CFR, Part 15 §15.225(c)	RSS-210(A2.6(c))	Field Strength emissions within the band 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	Compliant
Title 47 of the CFR, Part 15 §15.225(d)	RSS-210(A2.6(d))	Outside-Band Field Strength	Compliant
Title 47 of the CFR, Part 15 §15.225(e)	RSS-210(A2.6)	Frequency Tolerance of the Carrier	Compliant
N/A	RSS-Gen (4.10)	Receiver Spurious Emissions	Compliant

Table 1. Summary of Test Results

2. Equipment Configuration

2.1 Overview

MET Laboratories, Inc. was contracted by SemaConnect Inc. to perform testing on the ChargePro 620, under SemaConnect Inc.'s purchase order number MET1602R1.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the SemaConnect Inc., ChargePro 620.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	ChargePro 620	
Model(s) Covered:	ChargePro 620	
EUT Specifications:	Primary Power: 208 – 240 VAC, 60 Hz	
	FCC ID: OEK-19840917 IC: 10443A-19840917	
	Type of Modulations:	CW
	EUT TX Frequency Ranges:	13.56 MHz
Analysis:	The results obtained relate only to the item(s) tested.	
Evaluated by:	Len Knight	
Report Date(s):	August 21, 2012	

2.2 References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
RSS-210, Issue 8, Dec. 2010	Low-power Licence-exempt Radiocommunications Devices (All Frequency Bands): Category I Equipment
RSS-GEN, Issue 3, Dec. 2010	General Requirements and Information for the Certification of Radio Apparatus
ANSI C63.4:2003	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ISO/IEC 17025:2005	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2009	American National Standard for Testing Unlicensed Wireless Devices

2.3 Test Site

All testing was performed at MET Laboratories, Inc., 914 West Patapsco Avenue, Baltimore, MD 21230. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a semi-anechoic chamber. In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories.

2.4 Description of Test Sample

The SemaConnect Inc. ChargePro 620, Equipment Under Test (EUT), is an Electric Vehicle Supply Equipment. It is used in the charging of Plug-in Electric/Hybrid Vehicles. It contains two Radios, both of which are being used within the confines of their Grants. There is also a RFID transmitter that operates at 13.56 MHz, which we are applying to the FCC for a grant.

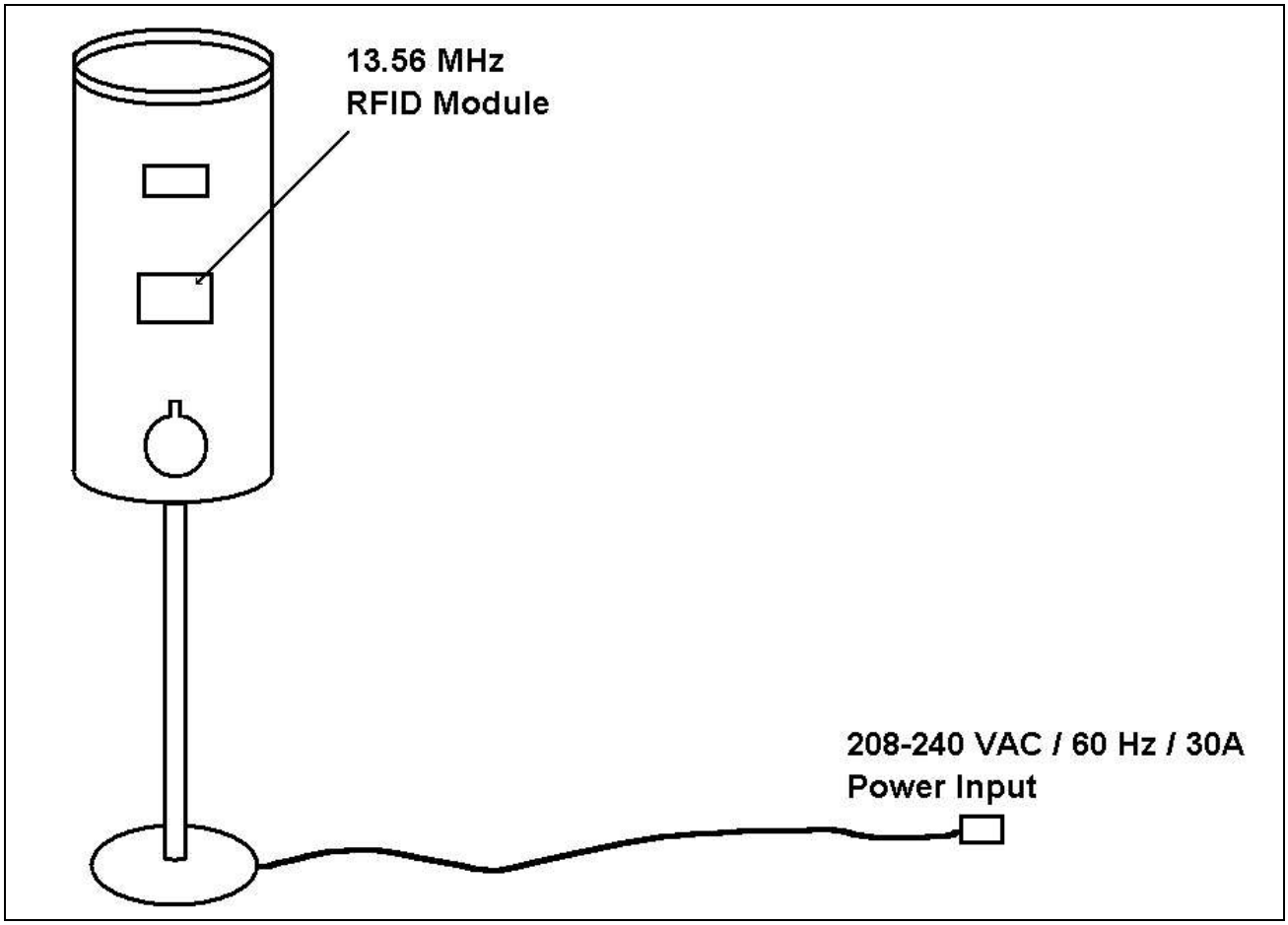


Figure 1. Block Diagram of Test Configuration

2.5 Equipment Configuration

The EUT is part of a system as shown in Figure 1, Block Diagram of Test Setup. All cards, etc., incorporated as part of the EUT is included in the following list.

Ref. ID	Name / Description	Model Number	Serial Number
N/A	ChargePro EVSE	620	Test/Eval 001/002

Table 2. Equipment Configuration

2.6 Support Equipment

Support equipment was not necessary for the operation and testing of the EUT.

2.7 Ports and Cabling Information

Ref. ID	Port Name on EUT	Cable Description	Qty.	Length (m)	Shielded (Y/N)	Termination Point
N/A	Input power lines	208-240V Input power lines	3	24 in.	N	N/A

Table 3. Ports and Cabling Information

2.8 Mode of Operation

State A: Standby mode, power is applied to unit, but no load is connected.
State B: Load is Connected, but charging has not started.
State C: Load is connected and power is applied to the load.
RFID module, when powered on,Tx/Rx's 100% duty cycle.

2.9 Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

2.10 Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to SemaConnect Inc. upon completion of testing.

3.0 Electromagnetic Compatibility Emission Criteria

3.1 §15.203 Antenna Requirements

Test Requirement: **§ 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The structure and application of the EUT were analyzed to determine compliance with Section 15.203 of the Rules. Section 15.203 states that the subject device must meet at least one of the following criteria:

a.) Antenna must be permanently attached to the unit.

b.) Antenna must use a unique type of connector to attach to the EUT.

c.) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

Results: The EUT as tested is compliant the criteria of §15.203. The EUT antenna has an integral antenna.

Test Engineer(s): Len Knight

Test Date(s): 03/01/12

Electromagnetic Compatibility Emission Criteria

3.2. §15.207(a) Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dBμV)	
	Quasi-Peak	Average
* 0.15- 0.45	66 - 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

Table 4. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Test Procedure: The EUT was placed on a 0.8 m-high wooden table inside a screen room. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω/50 μH Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.4-2003 "Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz"*. The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50 μH LISN as the input transducer to an EMC/field intensity meter. For the purpose of this testing, the transmitter was turned on. Scans were performed with the transmitter on.

Test Results: The EUT was compliant with this requirement. Measured emissions were below applicable limits.

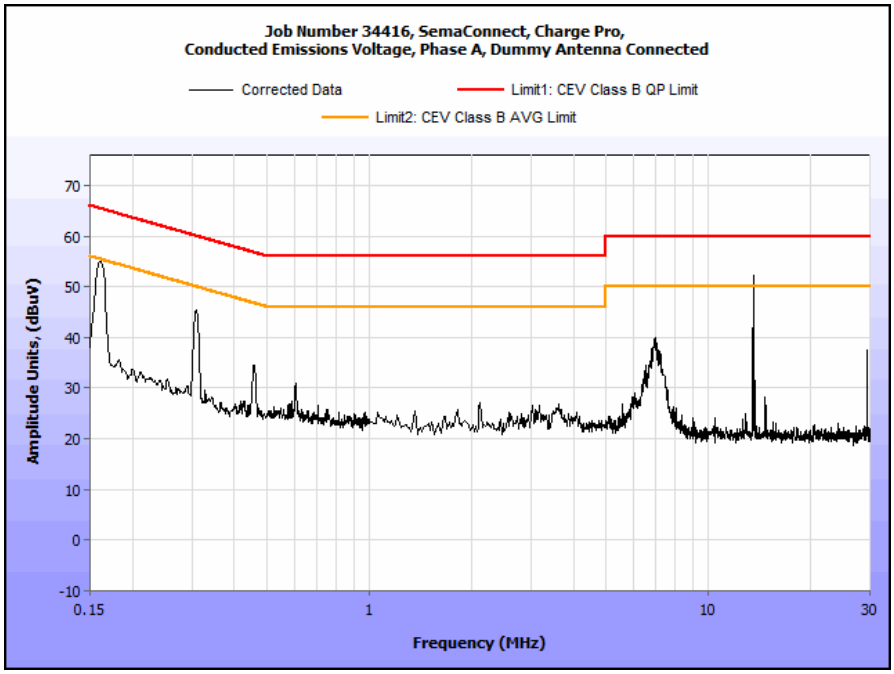
Test Engineer(s): Ben Taylor

Test Date(s): 03/06/12

15.207(a) Conducted Emissions Test Results, Phase Line A, Mean-Well

Frequency (MHz)	Uncorrected Meter Reading (dBuV) QP	Cable Loss (dB)	Corrected Measurement (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBuV) Avg.	Cable Loss (dB)	Corrected Measurement (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
0.1519	49.82	0	49.82	65.9	-16.08	51.92	0	51.92	55.9	-3.98
0.3042	39.5	0.05	39.55	60.13	-20.58	35.6	0.05	35.65	50.13	-14.48
3.651	28.78	0.21	28.99	56	-27.01	23.44	0.21	23.65	46	-22.35
7.31	39.68	0.34	40.02	60	-19.98	34.8	0.34	35.14	50	-14.86
13.56	49.8	0.44	50.24	60	-9.76	36	0.44	36.44	50	-13.56
29.491	47.15	0.69	47.84	60	-12.16	46.73	0.69	47.42	50	-2.58

Table 5. Conducted Emissions, 15.207(a), Phase Line A, Mean-Well

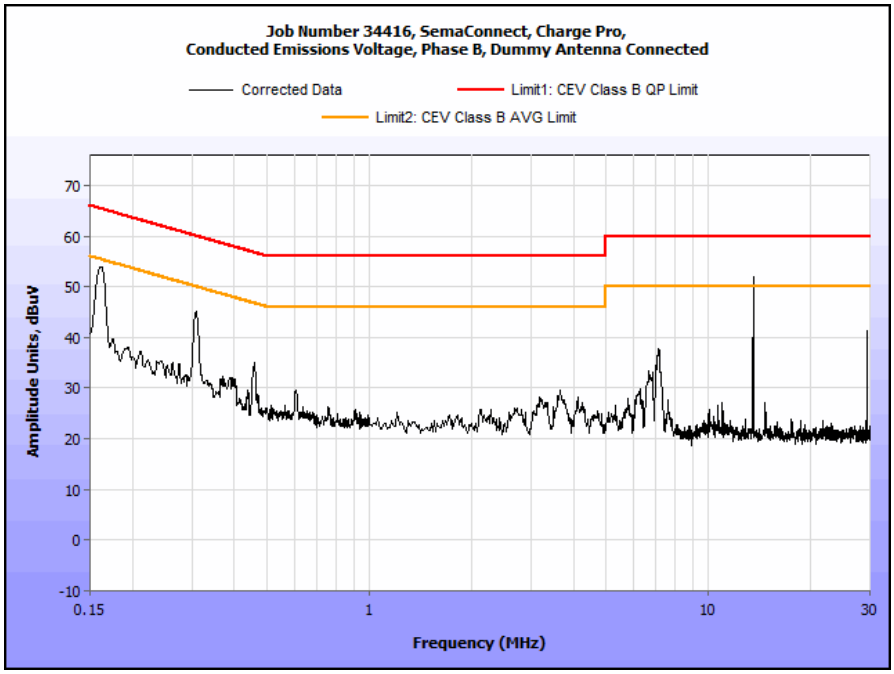


Plot 1. Conducted Emissions, 15.207(a), Phase Line A, Mean-Well

15.207(a) Conducted Emissions Test Results, Phase Line B, Mean-Well

Frequency (MHz)	Uncorrected Meter Reading (dBuV) QP	Cable Loss (dB)	Corrected Measurement (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBuV) Avg.	Cable Loss (dB)	Corrected Measurement (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
0.1512	46.78	0	46.78	65.93	-19.15	41.55	0	41.55	55.93	-14.38
0.3066	38.1	0.05	38.15	60.06	-21.91	32.14	0.05	32.19	50.06	-17.87
2.577	24.96	0.17	25.13	56	-30.87	12.5	0.17	12.67	46	-33.33
7.312	31.82	0.34	32.16	60	-27.84	26.58	0.34	26.92	50	-23.08
13.5	50.47	0.44	50.91	60	-9.09	36.41	0.44	36.85	50	-13.15
29.491	39.87	0.69	40.56	60	-19.44	39.11	0.69	39.8	50	-10.2

Table 6. Conducted Emissions, 15.207(a), Phase Line B, Mean-Well

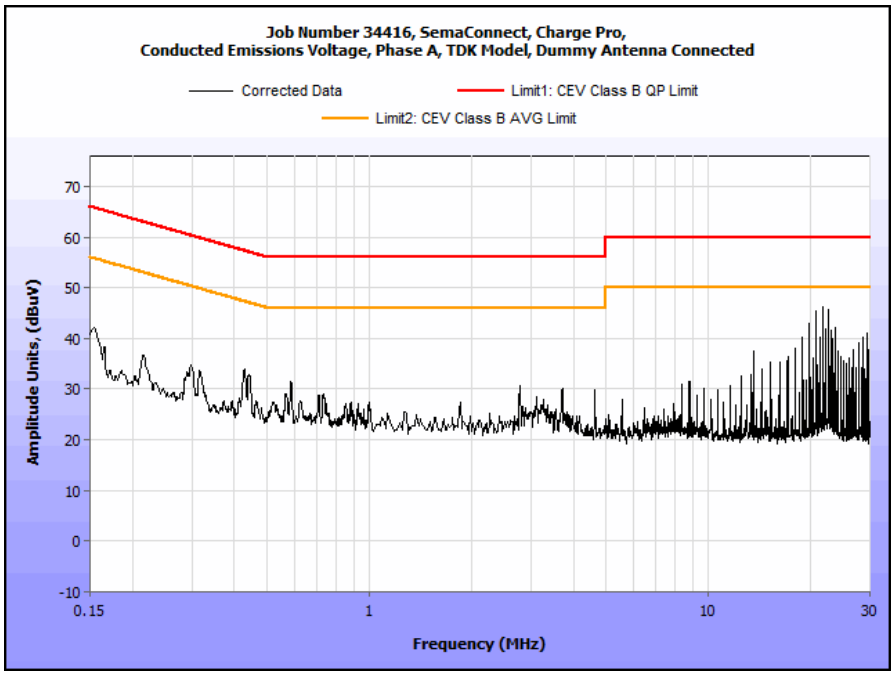


Plot 2. Conducted Emissions, 15.207(a), Phase Line B, Mean-Well

15.207(a) Conducted Emissions Test Results, Phase Line A, TDK-Lambda

Frequency (MHz)	Uncorrected Meter Reading (dBuV) QP	Cable Loss (dB)	Corrected Measurement (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBuV) Avg.	Cable Loss (dB)	Corrected Measurement (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
0.152	49.63	0	49.63	65.89	-16.26	44.35	0	44.35	55.89	-11.54
0.3037	47.27	0.05	47.32	60.14	-12.82	38.79	0.05	38.84	50.14	-11.3
3.304	30.56	0.2	30.76	56	-25.24	23.6	0.2	23.8	46	-22.2
7.298	28.7	0.34	29.04	60	-30.96	22.31	0.34	22.65	50	-27.35
13.56	36.73	0.44	37.17	60	-22.83	35.44	0.44	35.88	50	-14.12
29.491	39.59	0.69	40.28	60	-19.72	38.99	0.69	39.68	50	-10.32

Table 7. Conducted Emissions, 15.207(a), Phase Line A, TDK-Lambda

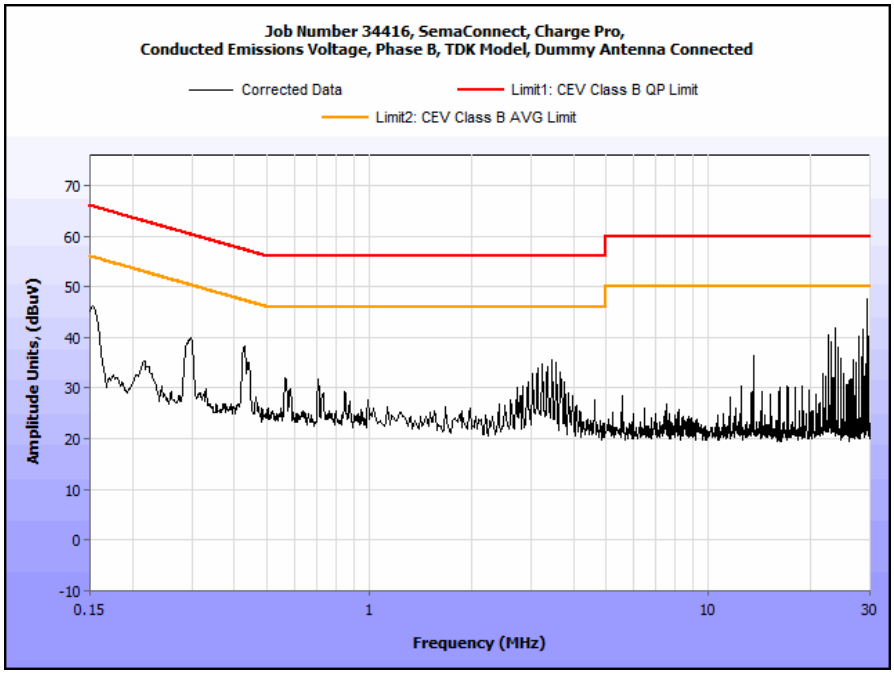


Plot 3. Conducted Emissions, 15.207(a), Phase Line A, TDK-Lambda

15.207(a) Conducted Emissions Test Results, Phase Line B, TDK-Lambda

Frequency (MHz)	Uncorrected Meter Reading (dBuV) QP	Cable Loss (dB)	Corrected Measurement (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBuV) Avg.	Cable Loss (dB)	Corrected Measurement (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
0.1534	52.64	0	52.64	65.81	-13.17	40.13	0	40.13	55.81	-15.68
0.3046	39.66	0.05	39.71	60.12	-20.41	35.14	0.05	35.19	50.12	-14.93
1.657	22.25	0.14	22.39	56	-33.61	22.24	0.14	22.38	46	-23.62
3.304	37.91	0.2	38.11	56	-17.89	22.32	0.2	22.52	46	-23.48
13.56	36.18	0.44	36.62	60	-23.38	35.24	0.44	35.68	50	-14.32
29.491	46.96	0.69	47.65	60	-12.35	46.51	0.69	47.2	50	-2.8

Table 8. Conducted Emissions, 15.207(a), Phase Line B, TDK-Lambda



Plot 4. Conducted Emissions, 15.207(a), Phase Line B, TDK-Lambda

15.207(a) Conducted Emissions Test Setup

Photograph 1. Conducted Emissions, 15.207(a), Test Setup

Electromagnetic Compatibility Emission Criteria

3.3. §15.225(a)(b)(c) Field Strength of Fundamental Emission

Test Requirement(s): **§15.225 (a)** The field strength of any emissions within the band 13.553 – 13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

§15.225 (b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

§**15.225 (c)** Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

Test Procedure: The EUT was set to transmit and placed on a turn table inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4: 2003 were used. The loop antenna was located 3 m from the EUT. Measurements were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations. The Spectrum analyzer RBW was set to 10 kHz and a peak detector was used.

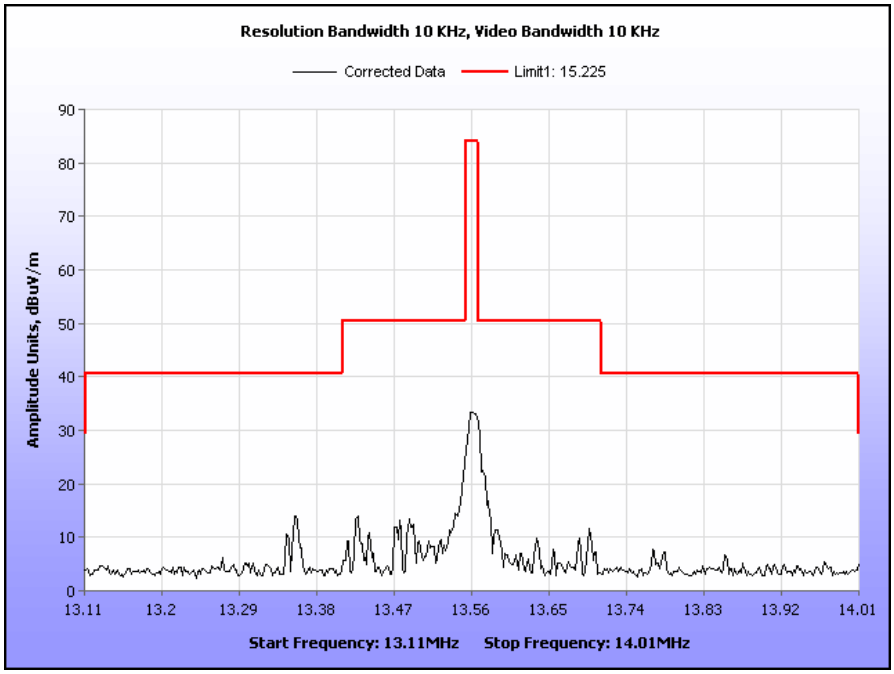
For the purposes of showing compliance, the measurements were made at 3m and then extrapolated to 30m using the following correction factor.

20log(3/30) = -20

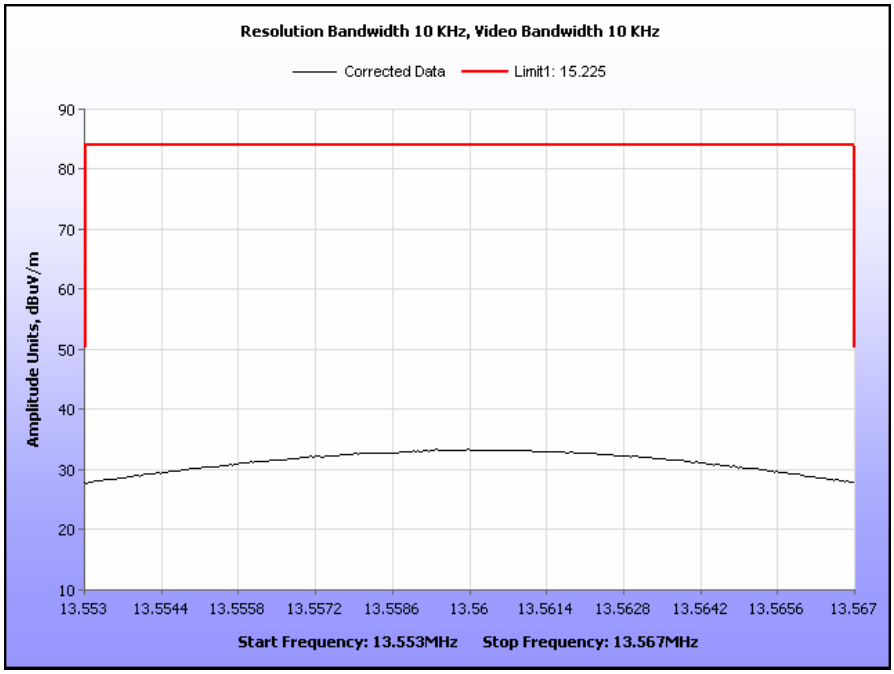
Test Results: The EUT was found compliant with Part 15.225 (a)(b)(c) requirements of this section. The following plots are provided in order to demonstrate compliance.

Test Engineer(s): Len Knight

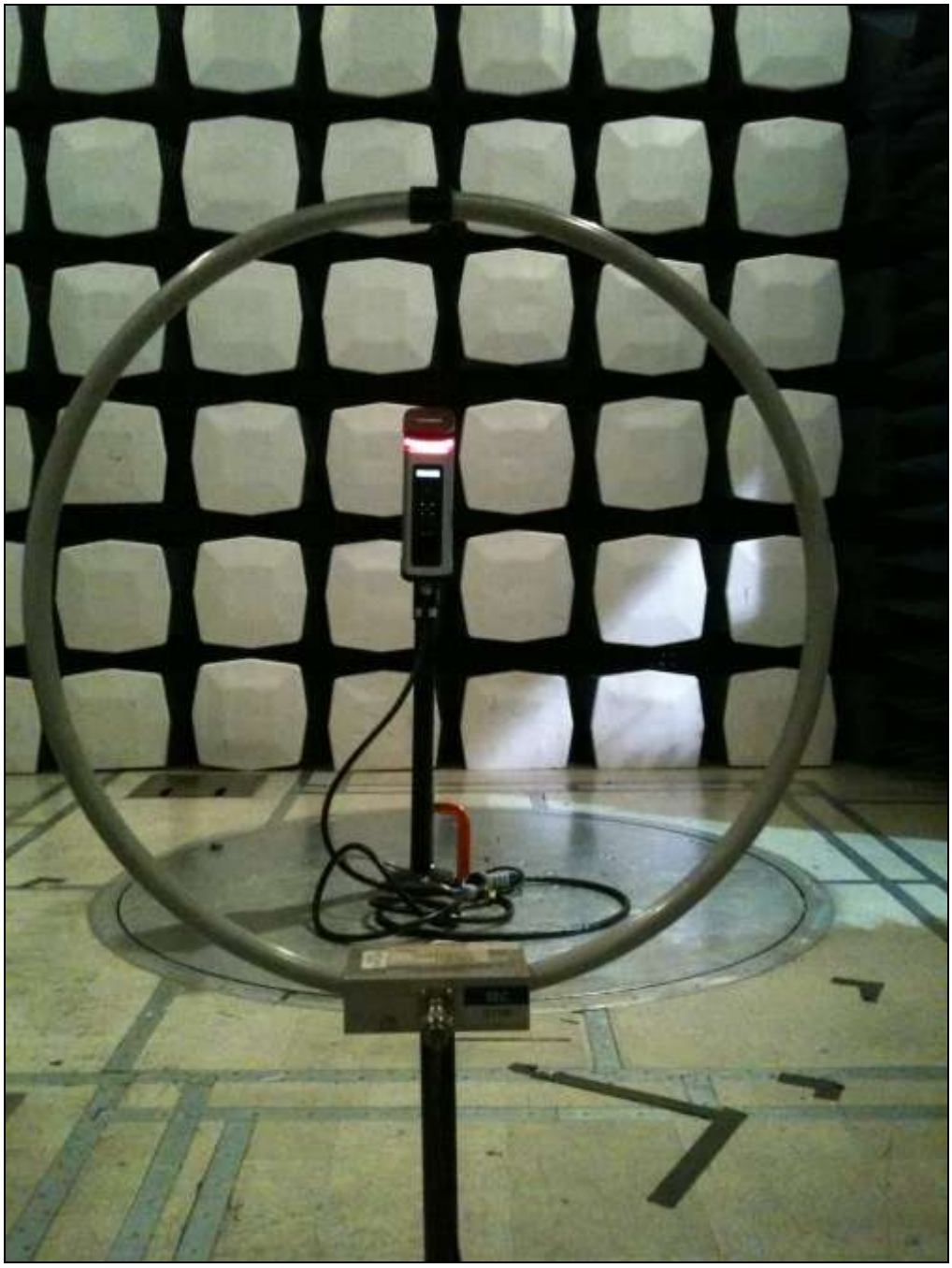
Test Date(s): 03/02/12



Plot 5. Field Strength of Fundamental Emission, 13.110 – 14.010 MHz Band



Plot 6. Field Strength of Fundamental Emission, 13.553 – 13.567 MHz Band



Photograph 2. Field Strength of Fundamental Emission, Test Setup

Electromagnetic Compatibility Emission Criteria

3.4. §15.225(d) Field Strength of Spurious Emissions

Test Requirement(s): 15.225 (d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

.

Test Procedures: The EUT was set to transmit and placed on a turn table inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4: 2003 were used. For measurements below 30 MHz a loop antenna was placed 3 m away from the unit. For measurements above 30 MHz a biconalog antenna placed 3m away from the unit was used. Measurements were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations. The spectrum analyzer RBW/VBW was set to 10 kHz for measurements below 30 MHz and to l00 kHz for measurements above 30 MHz.

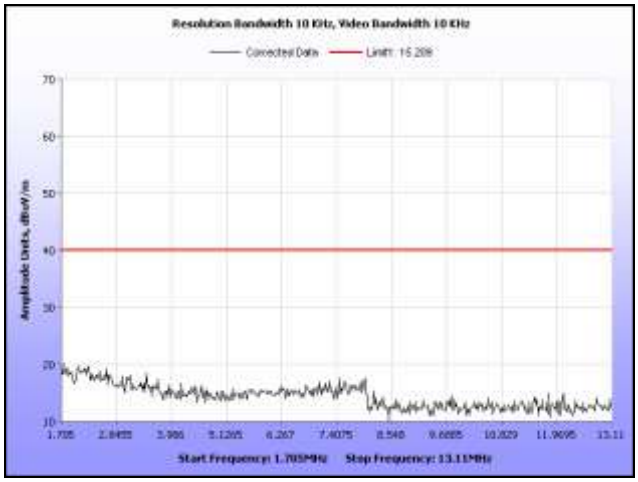
The measurements made at 3m with the loop antenna were then extrapolated to 30m using the following correction factor.

40log(1/30) = -59.1 dB 20log(3/30) = -20

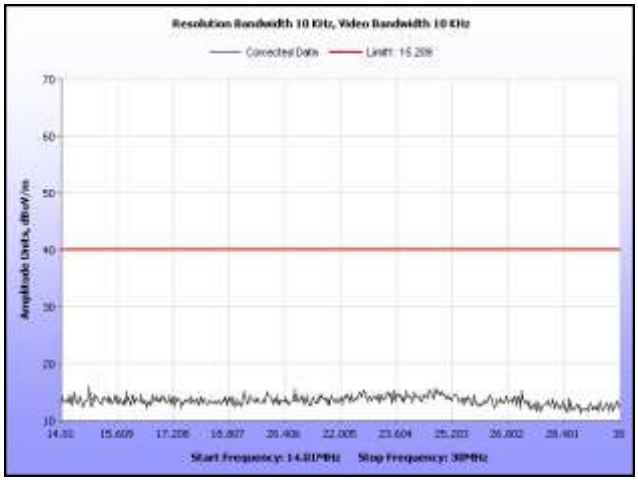
Test Results: The EUT was found compliant with Part 15.225 (d) requirements of this section. The following plots are provided in order to demonstrate compliance.

Test Engineer(s): Len Knight

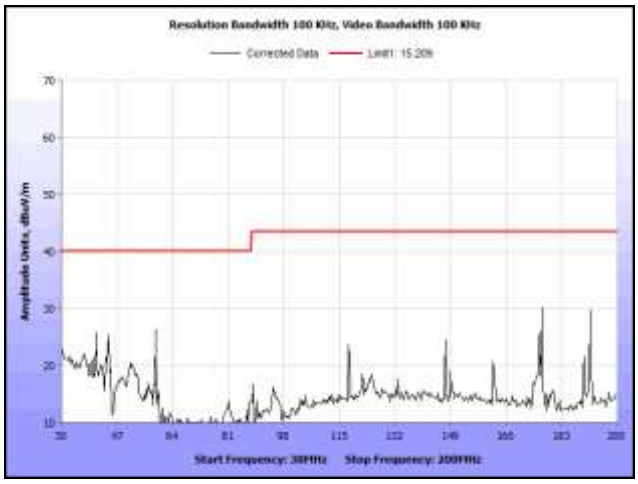
Test Date(s): 03/20/12



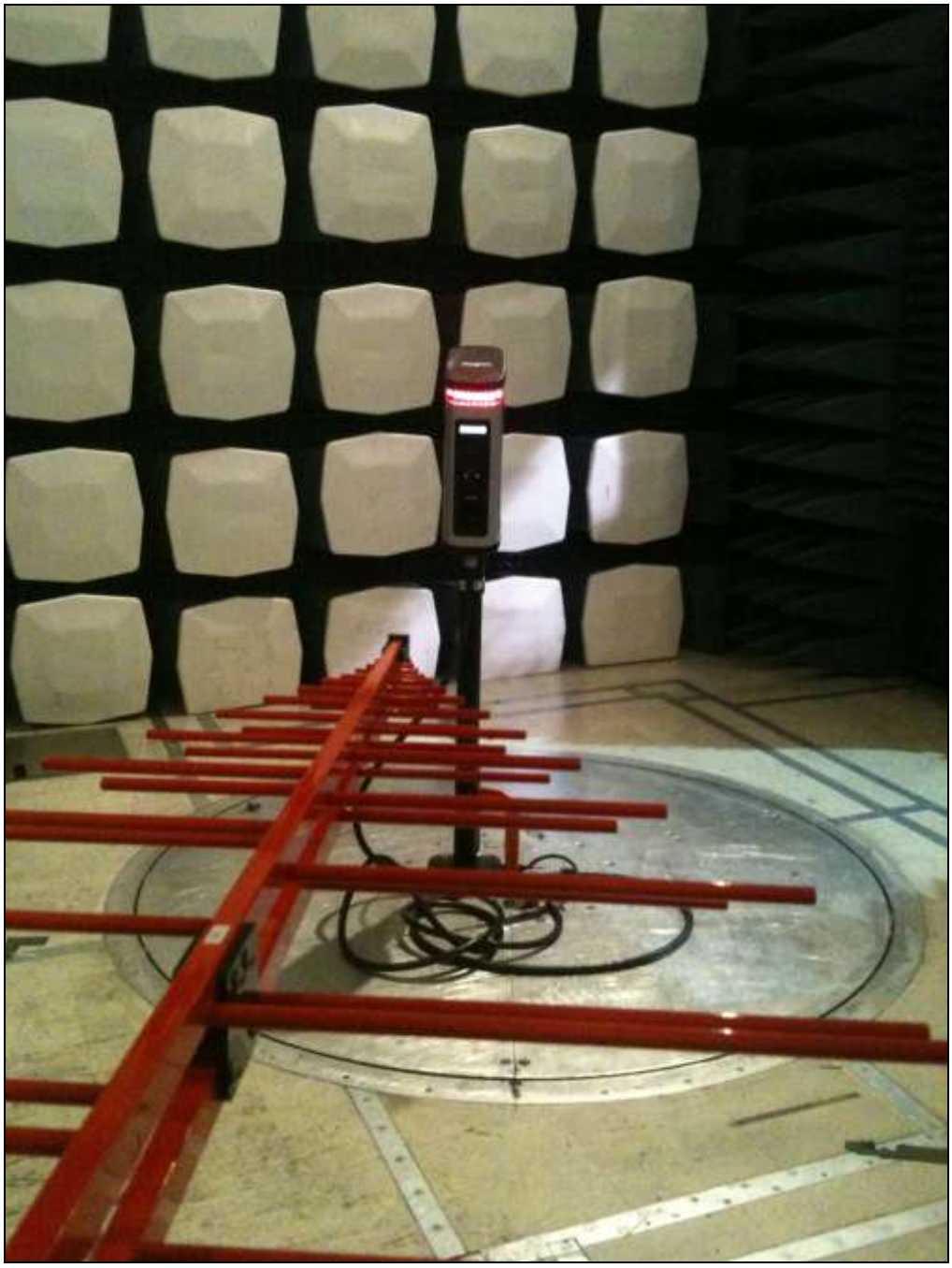
Plot 7. Field Strength of Spurious Emissions, 1.750 – 13.11 MHz



Plot 8. Field Strength of Spurious Emissions, 14.010 MHz – 30 MHz



Plot 9. Field Strength of Spurious Emissions, 30 MHz – 200 MHz



Photograph 3. Radiated Spurious Emissions, Below 1 GHz, Test Setup

Electromagnetic Compatibility Emission Criteria

3.5. §15.225(e) Frequency Stability

Test Requirement(s): **15.225(e)** The frequency tolerance of the carrier signal shall be maintained within +/-0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

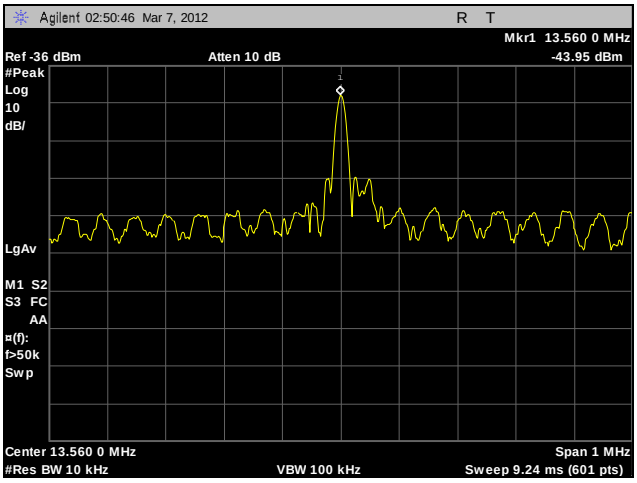
Test Procedure: The EUT was placed in the Environmental Chamber and allowed to reach desired temperature. A spectrum analyzer was used to measure the frequency drift. The EUT was set to transmit in the operating frequency range. Frequency drift was investigated for every 10ºC increment until the unit is stabilized then recorded the reading in tabular format with the temperature range of -20º to +50ºC.

Test Results: The EUT was found compliant with Part 15.225 (e) requirement(s) of this section.

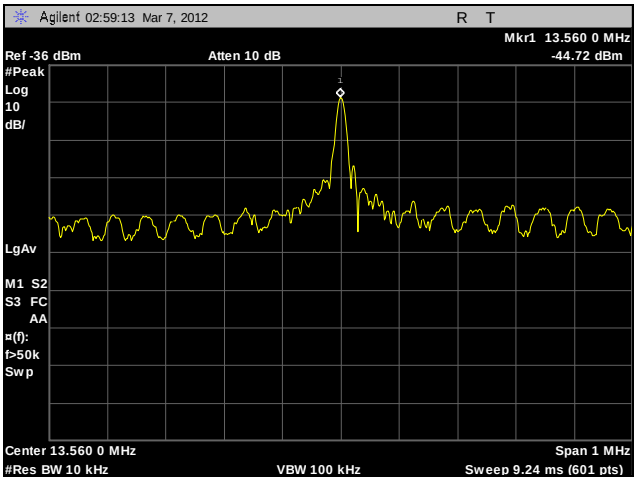
Test Engineer(s): Ben Taylor

Test Date(s): 03/20/12

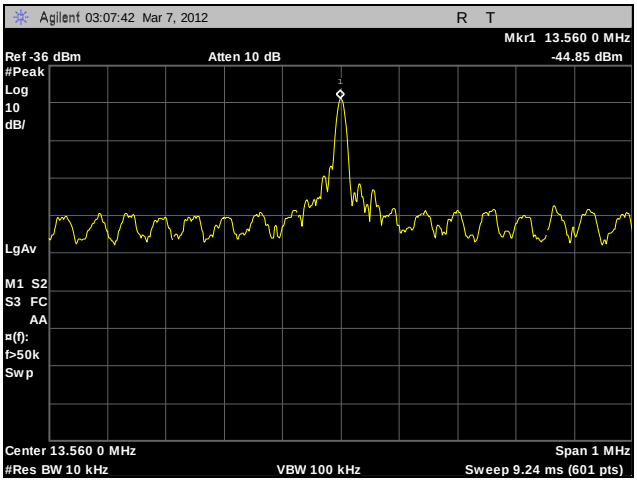
Frequency Stability – Section 15.225 (e) Test Results



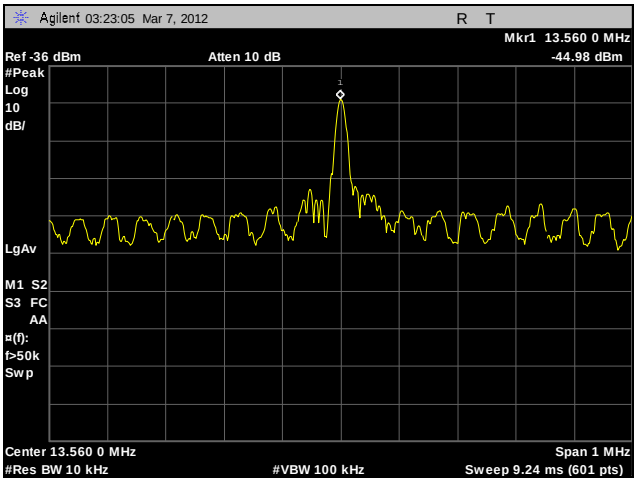
Plot 10. Frequency Stability, -20°C, 208 V



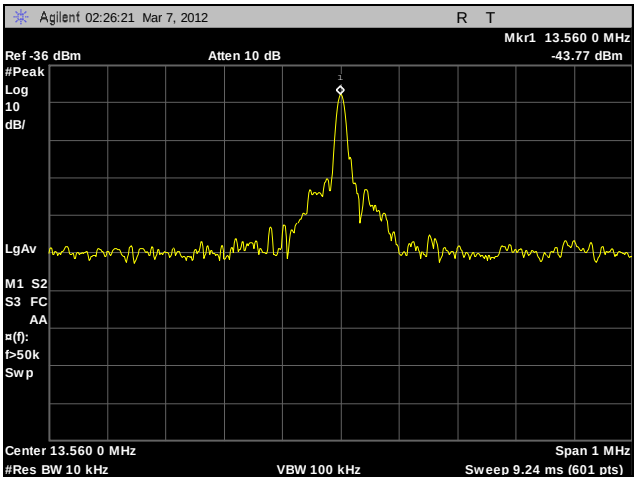
Plot 11. Frequency Stability, -10°C, 208 V



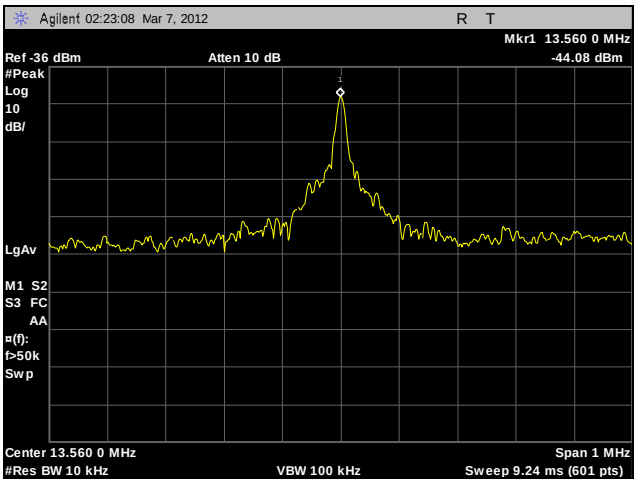
Plot 12. Frequency Stability, 0°C, 208 V



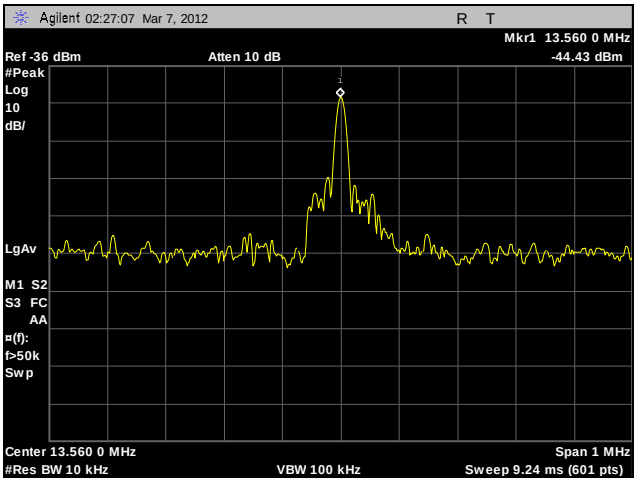
Plot 13. Frequency Stability, 10°C, 208 V



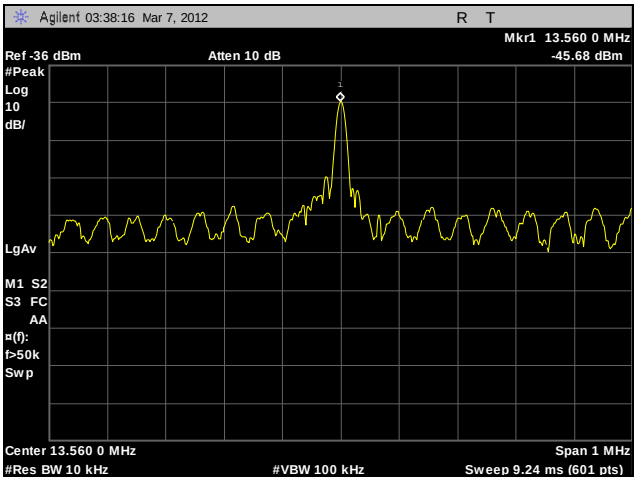
Plot 14. Frequency Stability, 20°C, 177 V



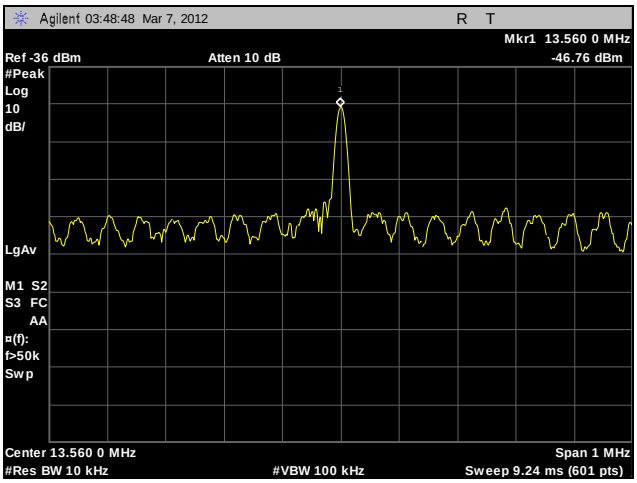
Plot 15. Frequency Stability, 20°C, 208 V



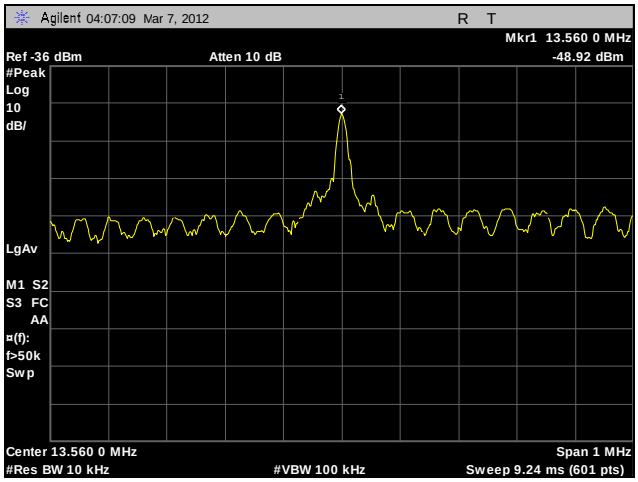
Plot 16. Frequency Stability, 20°C, 239 V



Plot 17. Frequency Stability, 30°C, 208 V



Plot 18. Frequency Stability, 40°C, 208 V



Plot 19. Frequency Stability, 50°C, 208 V

Photograph 4. Frequency Stability, Test Setup

4.0. Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2005.

MET Asset #	Nomenclature	Manufacturer	Model	Last Cal Date	Cal Due Date
1T4771	SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	E4446A	06/25/2011	06/25/2012
1T4563	LISN (10 AMP)	SOLAR ELECTRONICS	9322-50-R-10-BNC	11/30/2011	11/30/2012
1T4502	COMB GENERATOR	COM-POWER	CGC-255	11/03/2011	11/03/2012
1T4758	THERMO-HYGROMETER	CONTROL COMPANY	4040	05/21/2010	05/21/2012
1T4409	EMI RECEIVER	ROHDE & SCHWARZ	ESIB7	06/14/2011	06/14/2012
1T4751	ANTENNA - BILOG	SUNOL SCIENCES	JB6	12/07/2011	12/07/2012
1T4300A	SEMI-ANECHOIC CHAMBER # 1 (FCC)	EMC TEST SYSTEMS	NONE	01/31/2010	01/31/2013
1U0006	ANTENNA, LOOP	EMCO	6512	05/12/2011	05/12/2012

5.0. Compliance Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart I — Marketing of Radio frequency devices:

§ 2.801 Radio-frequency device defined.

As used in this part, a radio-frequency device is any device which in its operation is capable of Emitting radio-frequency energy by radiation, conduction, or other means. Radio- frequency devices include, but are not limited to:

(a) The various types of radio communication transmitting devices described throughout this chapter.

(b) The incidental, unintentional and intentional radiators defined in Part 15 of this chapter.

(c) The industrial, scientific, and medical equipment described in Part 18 of this chapter.

(d) Any part or component thereof which in use emits radio-frequency energy by radiation, conduction, or other means.

§ 2.803 Marketing of radio frequency devices prior to equipment authorization.

(a) Except as provided elsewhere in this chapter, no person shall sell or lease, or offer for sale or lease (including advertising for sale or lease), or import, ship or distribute for the purpose of selling or leasing or offering for sale or lease, any radio frequency device unless:

(1) In the case of a device subject to certification, such device has been authorized by the Commission in accordance with the rules in this chapter and is properly identified and labeled as required by §2.925 and other relevant sections in this chapter; or

(2) In the case of a device that is not required to have a grant of equipment authorization issued by the Commission, but which must comply with the specified technical standards prior to use, such device also complies with all applicable administrative (including verification of the equipment or authorization under a Declaration of Conformity, where required), technical, labeling and identification requirements specified in this chapter.

(d) Notwithstanding the provisions of paragraph (a) of this section, the offer for sale solely to business, commercial, industrial, scientific or medical users (but not an offer for sale to other parties or to end users located in a residential environment) of a radio frequency device that is in the conceptual, developmental, design or pre-production stage is permitted prior to equipment authorization or, for devices not subject to the equipment authorization requirements, prior to a determination of compliance with the applicable technical requirements *provided* that the prospective buyer is advised in writing at the time of the offer for sale that the equipment is subject to the FCC rules and that the equipment will comply with the appropriate rules before delivery to the buyer or to centers of distribution.

(e)(1) Notwithstanding the provisions of paragraph (a) of this section, prior to equipment authorization or determination of compliance with the applicable technical requirements any radio frequency device may be operated, but not marketed, for the following purposes and under the following conditions:

(i) Compliance testing;

(ii) Demonstrations at a trade show provided the notice contained in paragraph (c) of this section is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iii) Demonstrations at an exhibition conducted at a business, commercial, industrial, scientific or medical location, but excluding locations in a residential environment, provided the notice contained in paragraphs (c) or (d) of this section, as appropriate, is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iv) Evaluation of product performance and determination of customer acceptability, provided such operation takes place at the manufacturer's facilities during developmental, design or pre-production states; or

(v) Evaluation of product performance and determination of customer acceptability where customer acceptability of a radio frequency device cannot be determined at the manufacturer's facilities because of size or unique capability of the device, provided the device is operated at a business, commercial, industrial, scientific or medical user's site, but not at a residential site, during the development, design or pre-production stages.

(e)(2) For the purpose of paragraphs (e)(1)(iv) and (e)(1)(v) of this section, the term *manufacturer's facilities* includes the facilities of the party responsible for compliance with the regulations and the manufacturer's premises, as well as the facilities of other entities working under the authorization of the responsible party in connection with the development and manufacture, but not the marketing, of the equipment.

(f) For radio frequency devices subject to verification and sold solely to business, commercial, industrial, scientific and medical users (excluding products sold to other parties or for operation in a residential environment), parties responsible for verification of the devices shall have the option of ensuring compliance with the applicable technical specifications of this chapter at each end user's location after installation, provided that the purchase or lease agreement includes a provision that such a determination of compliance be made and is the responsibility of the party responsible for verification of the equipment.

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart J — Equipment Authorization Procedures:

§ 2.901 Basis and Purpose

(a) In order to carry out its responsibilities under the Communications Act and the various treaties and international regulations, and in order to promote efficient use of the radio spectrum, the Commission has developed technical standards for radio frequency equipment and parts or components thereof. The technical standards applicable to individual types of equipment are found in that part of the rules governing the service wherein the equipment is to be operated.[1] *In addition to the technical standards provided, the rules governing the service may require that such equipment be verified by the manufacturer or importer,* be authorized under a Declaration of Conformity, or receive an equipment authorization from the Commission by one of the following procedures: certification or registration.

(b) The following sections describe the verification procedure, the procedure for a Declaration of Conformity, and the procedures to be followed in obtaining certification from the Commission and the conditions attendant to such a grant.

§ 2.948 Description of measurement facilities.

(a) Each party making measurements of equipment that is subject to an equipment authorization under Part 15 or Part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.

(1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.

(i) If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for the verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.

(ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.

[1] In this case, the equipment is subject to the rules of Part 15. More specifically, the equipment falls under Subpart C (of Part 15), which deals with unintentional radiators.

(2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current.

§ 2.955 Retention of records.

(a) For each equipment subject to verification, the responsible party, as shown in §2.909 shall maintain the records listed as follows:

(1) A record of the original design drawings and specifications and all changes that have been made that may affect compliance with the requirements of §2.953.

(2) A record of the procedures used for production inspection and testing (if tests were performed) to insure the conformance required by §2.953. (Statistical production line Emission testing is not required.)

(b) The records listed in paragraph (a) of this section shall be retained for two years after the manufacture of said equipment item has been permanently discontinued, or until the conclusion of an investigation or a proceeding if the manufacturer or importer is officially notified that an investigation or any other administrative proceeding involving his equipment has been instituted.

§ 2.956 FCC inspection and submission of equipment for testing.

(a) Each responsible party shall upon receipt of reasonable request:

(1) Submit to the Commission the records required by §2.955.

(2) Submit one or more sample units for measurements at the Commission's Laboratory.

(i) Shipping costs to the Commission’s Laboratory and return shall be borne by the responsible party.

(ii) In the event the responsible party believes that shipment of the sample to the Commission's Laboratory is impractical because of the size or weight of the equipment, or the power requirement or for any other reason, the responsible party may submit a written explanation why such shipment is impractical and should not be required.

6.0. Label and User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart A — General:

§ 15.19 Labeling requirements.

(a) In addition to the requirements in Part 2 of this chapter, a device subject to certification or verification shall be labeled as follows:

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73 of this chapter, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.

(3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

§ 15.21 Information to user.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart C — Unintentional Radiators:

§ 15.105 Information to the user.

(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expense.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful power line and ground at the power terminal. The lower limit applies at the band edges.

End of Report