



**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, CA 95054 • PHONE (408) 748-3585 • FAX (510) 489-6372  
13301 MCCALLEN PASS • AUSTIN, TX 78753 • PHONE (512) 287-2500 • FAX (512) 287-2513

February 10, 2014

Secure Care Products  
39 Chenell Dr.  
Concord, NH 03301

Dear Chris Stevens,

Enclosed is the EMC test report for compliance testing of the Secure Care Products, 6.78 MHz Tag, tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Part 15, Subpart B for a Class A Digital Device, and Part 15.223, Subpart C 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: (\Secure Care Products\ EMC39117A-FCC223 Rev. 2)

Certificates and reports shall not be reproduced except in full, without the written permission of MET Laboratories, Inc. This letter of transmittal is not a part of the attached report.

DOC-EMC705 2/26/2004



**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, CA 95054 • PHONE (408) 748-3585 • FAX (510) 489-6372

13301 MCCALLEN PASS • AUSTIN, TX 78753 • PHONE (512) 287-2500 • FAX (512) 287-2513

**Electromagnetic Compatibility Criteria  
Test Report**

For the

**Secure Care Products  
6.78 MHz Tag**

**Tested under**

The FCC Certification Rules Contained in Title 47 of the CFR, Parts 15 Subpart B  
for Class A Digital Devices

&

Part 15, Subpart C

For Certification as an Intentional Radiator

**MET Report: EMC39117A-FCC223 Rev. 2**

February 10, 2014

**Prepared For:**

**Secure Care Products  
39 Chenell Dr.  
Concord, NH 03301**

**Prepared By:**

**MET Laboratories, Inc.**  
914 West Patapsco Avenue  
Baltimore, MD 21230

## Electromagnetic Compatibility Criteria Test Report

For the

**Secure Care Products  
6.78 MHz Tag**

### Tested under

The FCC Certification Rules Contained in Title 47 of the CFR, Parts 15 Subpart B  
for Class A Digital Devices  
&  
Part 15, Subpart C  
For Certification as an Intentional Radiator

**MET Report: EMC39117A-FCC223 Rev. 2**



Surinder Singh, 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 Title 47 of the CFR, Part 15, Subpart C for Certification as an Intentional Radiator and Part 15, Subpart B for a Class B Unintentional Radiator under normal use and maintenance.



Asad Bajwa  
Director, Electromagnetic Compatibility Lab



## Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	October 11, 2013	Initial Issue.
1	October 15, 2013	Revised to reflect customer corrections.
2	February 10, 2014	Revised to reflect engineer corrections

## Table of Contents

<b>1. Testing Summary .....</b>	<b>1</b>
<b>2. Equipment Configuration.....</b>	<b>2</b>
2.1. Overview.....	2
2.2. References.....	3
2.3. Test Site .....	3
2.4. Description of Test Sample.....	3
2.5. Equipment Configuration.....	4
2.6. Mode of Operation.....	4
2.7. Modifications .....	5
2.7.1. Modifications to EUT .....	5
2.7.2. Modifications to Test Standard.....	5
2.8. Disposition of EUT.....	5
<b>3. Electromagnetic Compatibility Criteria for Unintentional Radiators .....</b>	<b>6</b>
3.1. § 15.109(a) Radiated Emissions Limits .....	6
<b>4. Electromagnetic Compatibility Criteria for Intentional Radiators .....</b>	<b>9</b>
4.1. §15.203 Antenna Requirement .....	9
4.2. §15.223 Carrier Occupied Bandwidth.....	10
4.3. §15.223(a) Fundamental Radiated Emission .....	12
4.4. §15.223(b) Spurious Radiated Emission.....	16
<b>5. Test Equipment .....</b>	<b>19</b>
<b>6. Compliance Information.....</b>	<b>20</b>
<b>7. Label and User's Manual Information.....</b>	<b>24</b>

## List of Tables

Table 1. Summary of Test Results .....	1
Table 2. Equipment Configuration .....	4
Table 3. Radiated Emissions Limits calculated from FCC Part 15, §15.109 (a) (b) .....	6
Table 4. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz .....	7
Table 5. 6 dB Occupied Bandwidth, Test Results .....	10

## List of Photographs

Photograph 1. Secure Care Products, 6.78 MHz Tag.....	4
Photograph 2. Radiated Emissions, 30 MHz – 1 GHz, Test Setup.....	8
Photograph 3. Transmitter Unit, Field Strength, Test Setup .....	15
Photograph 4. Radiated Spurious Emissions, Test Setup, 10 kHz – 30 MHz .....	18
Photograph 5. Radiated Spurious Emissions, Test Setup, 30 MHz – 100 MHz.....	18

## List of Terms and Abbreviations

<b>AC</b>	Alternating Current
<b>ACF</b>	Antenna Correction Factor
<b>Cal</b>	Calibration
<b>d</b>	Measurement Distance
<b>dB</b>	Deci Bels
<b>dBμV</b>	Deci-Bels above one <b>micro</b> Volt
<b>dBμV/m</b>	Deci-Bels above one <b>micro</b> Volt <b>per</b> meter
<b>DC</b>	Direct Current
<b>DCF</b>	Distance Correction Factor
<b>E</b>	Electric Field
<b>DSL</b>	Digital Subscriber Line
<b>ESD</b>	Electrostatic Discharge
<b>EUT</b>	Equipment Under Test
<b>f</b>	Frequency
<b>FCC</b>	Federal Communications Commission
<b>H</b>	Magnetic Field
<b>GHz</b>	Giga Hertz
<b>Hz</b>	Hertz
<b>ICES</b>	Interference-Causing Equipment Standard
<b>kHz</b>	kilohertz
<b>kPa</b>	kilopascal
<b>kV</b>	kilo Volt
<b>LISN</b>	Line Impedance Stabilization Network
<b>MHz</b>	MegaHertz
<b>μH</b>	<b>micro</b> Henry
<b>μF</b>	<b>micro</b> Farad
<b>μs</b>	<b>micro</b> seconds
<b>RF</b>	Radio Frequency
<b>RMS</b>	Root-Mean-Square

## 1. Testing Summary

Title 47 of the CFR, Part 15, Subpart C, Reference and Test Description	Results
§15.107 (a) Conducted Emission Limits for a Class A Digital Device	Not Applicable – battery operated.
§15.109 (a) Radiated Emission Limits for a Class A Digital Device	Compliant
§15.203 Antenna Requirement	Compliant
§15.207 Conducted Emissions	Not Applicable – battery operated.
Carrier Occupied Bandwidth	Compliant
Fundamental Radiated Emission	Compliant
Spurious Radiated Emission	Compliant

**Table 1. Summary of Test Results**

## 2. Equipment Configuration

### 2.1 Overview

MET Laboratories, Inc. was contracted by Secure Care Products to perform testing on the 6.78 MHz Tag, under Secure Care Products' purchase order number 70028807.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Secure Care Products, 6.78 MHz Tag.

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

<b>Filing Status:</b>	Original	
<b>Model(s) Tested:</b>	6.78 MHz Tag	
<b>Model(s) Covered:</b>	6.78 MHz Tag	
<b>EUT Specifications:</b>	Primary Power: 3.3VDC	
	Type of Modulations:	Manchester Encoding
	Equipment Code:	DXX
	EUT TX Frequency Ranges:	6.78MHz
<b>Analysis:</b>	The results obtained relate only to the item(s) tested.	
<b>Evaluated by:</b>	Surinder Singh	
<b>Report Date(s):</b>	February 10, 2014	



## 2.2 References

<b>CFR 47, Part 15, Subpart C</b>	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
<b>CFR 47, Part 15, Subpart B</b>	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
<b>ANSI C63.4:2003</b>	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
<b>ISO/IEC 17025:2005</b>	General Requirements for the Competence of Testing and Calibration Laboratories
<b>ANSI C63.10-2009</b>	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

System components work together to provide a complete wandering resident or infant protection system. Infants or residents are fitted with an RFID tag. The tag communicates with the Universal Exit panel and Universal Receivers to prevent tag-wearing patients from exiting monitored doors. On the full featured systems, the tag also communicates with Cut-band receivers to monitor status of tags and communicate any tampering of tags back to the system. The system can work with or without a computer and interfaces with magnetic locks, push buttons, keypads, etc. to provide a high level of security.



Photograph 1. Secure Care Products, 6.78 MHz Tag

## 2.5 Equipment Configuration

Name / Description	Part Number
6.78/433.92 MHz Transmitter	A20180900
	A20180910
	A20180920
	A20180925
	A21180900
	A21180910

Table 2. Equipment Configuration

## 2.6 Mode of Operation

In normal operation, the system will quietly lock monitored doors if tag-wearing patients enter the detection zone. This is done with the low frequency radio via the Universal External Receiver(s) and Universal Exit Panel. In the absence of motion, the low frequency transmitter will go to sleep. Higher end versions of the system also communicate via high frequency with Cut-band Receivers to provide status and tamper information to the system. System Testers are used to provide customers with a means of waking and putting to sleep System Transmitters. They may also be used to test system components such as External Receivers, Cut-band Receivers, and transmitters.

## **2.7 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.

## **2.8 Disposition of EUT**

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

### 3.0 Electromagnetic Compatibility Criteria for Unintentional Radiators

#### 3.1 § 15.109 Radiated Emissions Limits

**Test Requirement(s):** **15.109 (a)** Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the Class B limits expressed in Table 3.

**15.109 (b)** The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the Class A limits expressed in Table 3.

Frequency (MHz)	Field Strength (dBμV/m)	
	§15.109 (b), Class A Limit (dBμV) @ 10m	§15.109 (a), Class B Limit (dBμV) @ 3m
30 - 88	39.00	40.00
88 - 216	43.50	43.50
216 - 960	46.40	46.00
Above 960	49.50	54.00

**Table 3. Radiated Emissions Limits calculated from FCC Part 15, §15.109 (a) (b)**

**Test Procedures:** The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4 were used. An antenna was located 3 m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. Unless otherwise specified, measurements were made using a quasi-peak detector with a 120 kHz bandwidth.

**Test Results:** The EUT was compliant with the Class A requirement(s) of this section. Measured emissions were below applicable limits.

**Test Engineer(s):** Surinder Singh

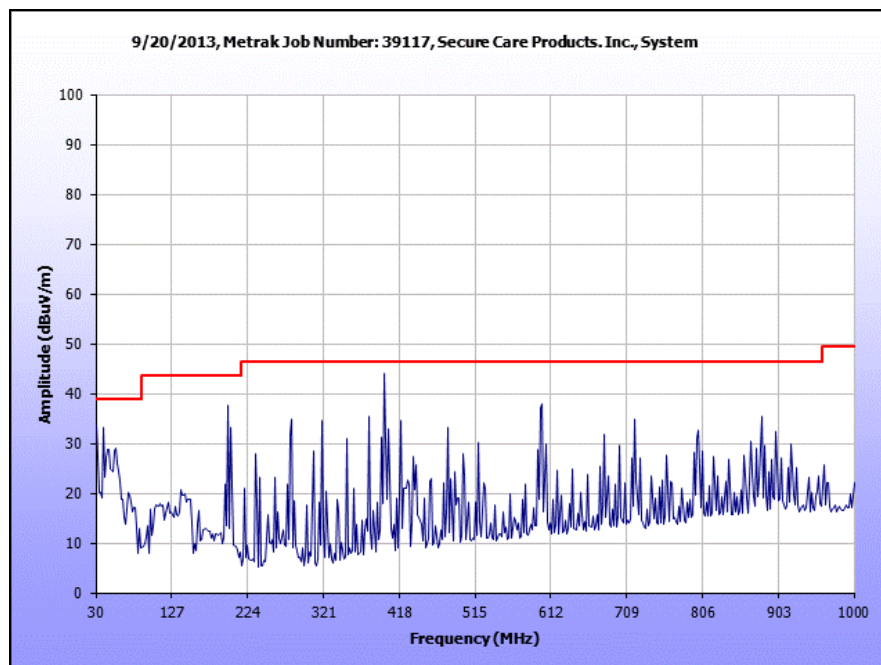
**Test Date(s):** 09/20/13

## Radiated Emissions Limits Test Results, Class A

Frequency (MHz)	EUT Azimuth (Degrees)	Antenna Polarity (H/V)	Antenna HEIGHT (m)	Uncorrected Amplitude (dBμV)	Antenna Correction Factor (dB) (+)	Cable Loss (dB) (+)	Distance Correction Factor (dB) (-)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
199.99797	64	H	1.3447	31.57	12.80	0.91	10.46	34.82	43.5	-8.68
199.99797	298	V	1.2547	31.22	12.80	0.91	10.46	34.47	43.5	-9.03
305.04396	79	H	1.0495	5.5	14.20	1.37	10.46	10.61	46.4	-35.79
305.04396	335	V	1.0495	5.1	14.20	1.37	10.46	10.21	46.4	-36.19
279.99017	130	H	1.0495	26.76	13.80	1.42	10.46	31.52	46.4	-14.88
279.99017	296	V	1.0973	24.16	13.80	1.42	10.46	28.92	46.4	-17.48
399.98744	340	H	1.1278	28.88	16.20	1.60	10.46	36.22	46.4	-10.18
399.98744	265	V	1.05	24.95	16.20	1.60	10.46	32.29	46.4	-14.11
599.99403	128	H	1.0495	17.06	19.60	2.07	10.46	28.27	46.4	-18.13
599.99403	132	V	1.0495	24.26	19.60	2.07	10.46	35.47	46.4	-10.93
679.99771	176	H	1.1547	15.92	20.60	2.19	10.46	28.25	46.4	-18.15
679.99771	2	V	1.0495	21.25	20.60	2.19	10.46	33.58	46.4	-12.82

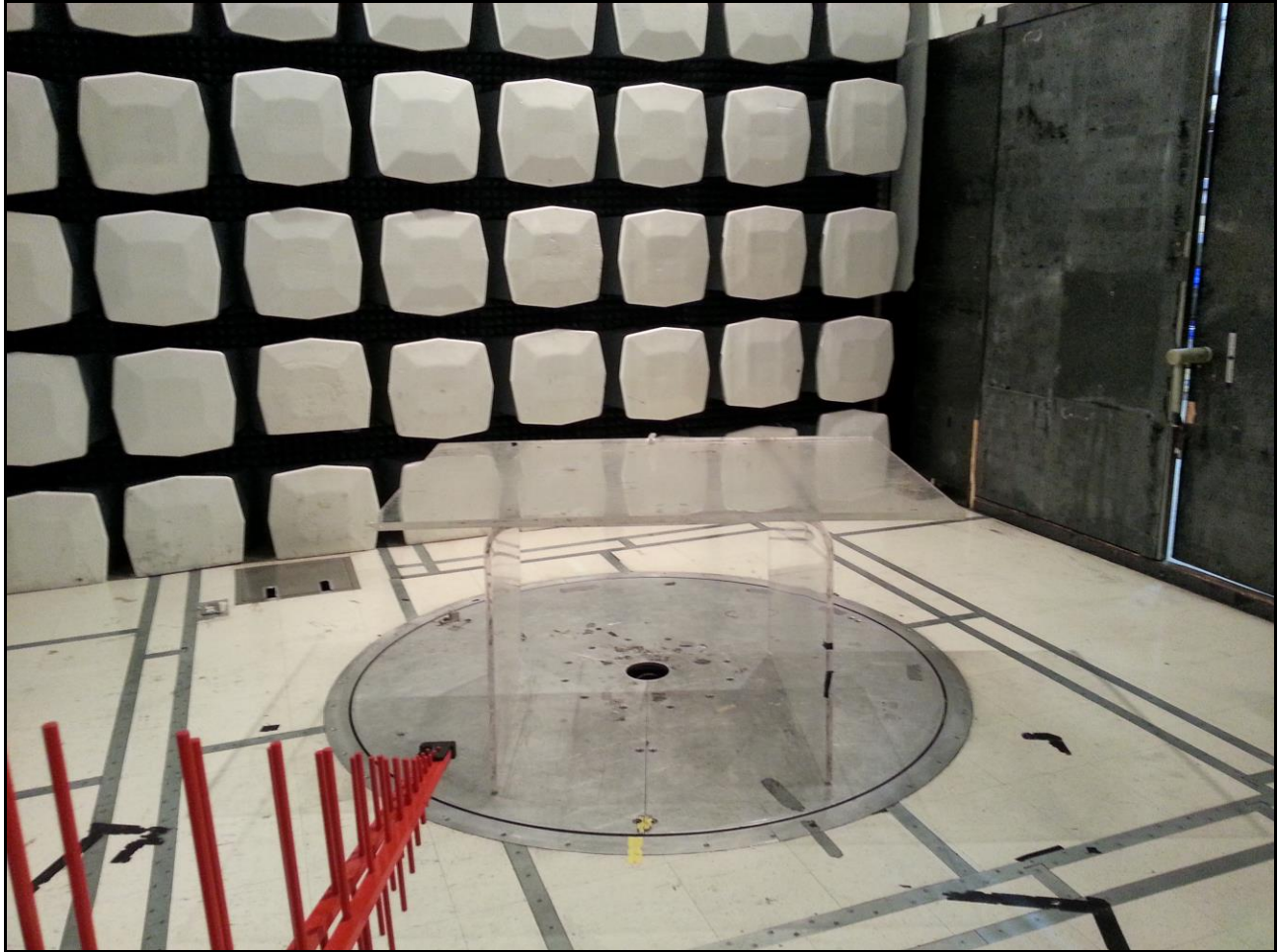
**Table 4. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz**

Note: The EUT was tested at 3 m.



**Plot 1. Radiated Emissions, 30 MHz - 1 GHz**

## Radiated Emissions Limits Test Setup



**Photograph 2. Radiated Emissions, 30 MHz – 1 GHz, Test Setup**

## **4.0 Electromagnetic Compatibility Criteria for Intentional Radiators**

### **4.1 §15.203 Antenna Requirement**

**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 to the criteria of §15.203. EUT has an integral antenna.

**Test Engineer(s):**          Surinder Singh

**Test Date(s):**                09/21/13



## 4.2 §15.223 Carrier Occupied Bandwidth

**Test Requirement(s):** For the purposes of this section, bandwidth is determined at the points 6 dB down from the modulated carrier.

**Test Procedure:** The EUT was set to transmit and placed on a 0.8m-high non-conductive stand inside a semi-anechoic chamber. Measurements were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations.

**Test Results:** The EUT was found compliant the requirements of this section.

**Test Engineer(s):** Surinder Singh

**Test Date(s):** 09/19/13 – 09/20/13

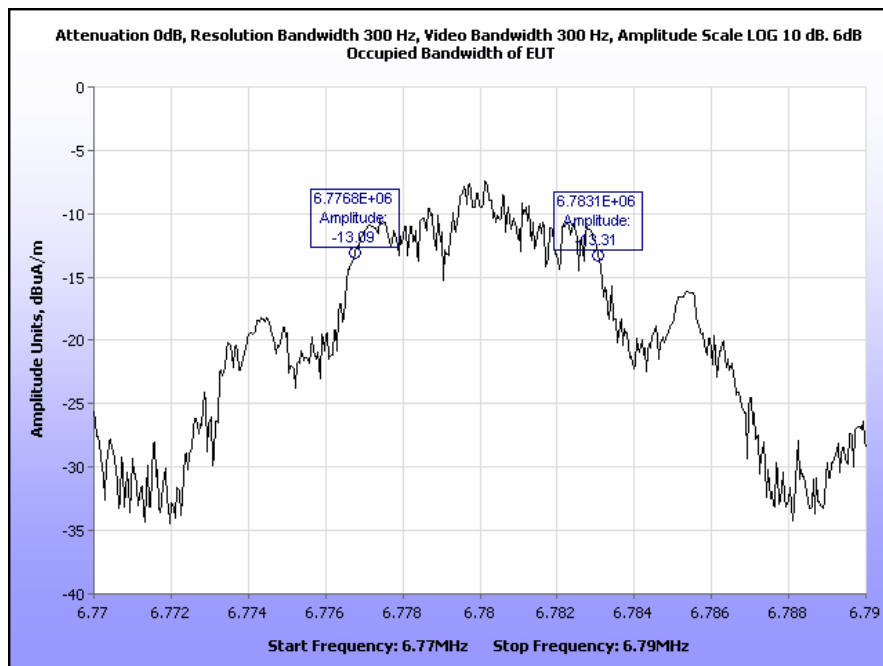
6.78MHz Transmitter unit Carrier 6dB Occupied Bandwidth			
Carrier Center Frequency (MHz)	6dB Start Frequency (MHz)	6dB Start Frequency (MHz)	Carrier Bandwidth (KHz)
6.78	6.7768	6.7831	6.3

**Table 5. 6 dB Occupied Bandwidth, Test Results**

Bandwidth of emission is less than 10% of the fundamental frequency of carrier.

Therefore, limit of field strength of emission at a distance of 30 meter shall not exceed 15microvolt/meter. The emission limit was based on the measurement instrument employing average detector.





**Plot 2. Carrier Occupied Bandwidth**

## Electromagnetic Compatibility Emission Criteria

### 4.3 §15.223(a) Fundamental Radiated Emission

**Test Requirement(s):** §15.223 (a) The field strength of any emissions within the band 1.705 – 10.0 MHz shall not exceed 100 microvolts/meter at a distance of 30 meters. However, if the bandwidth of the emission is less than 10% of the center frequency, the field strength shall not exceed 15 microvolts/meter or (the bandwidth of the device in kHz) divided by (the center frequency of the device in MHz) microvolts/meter at a distance of 30 meters, whichever is the higher level.

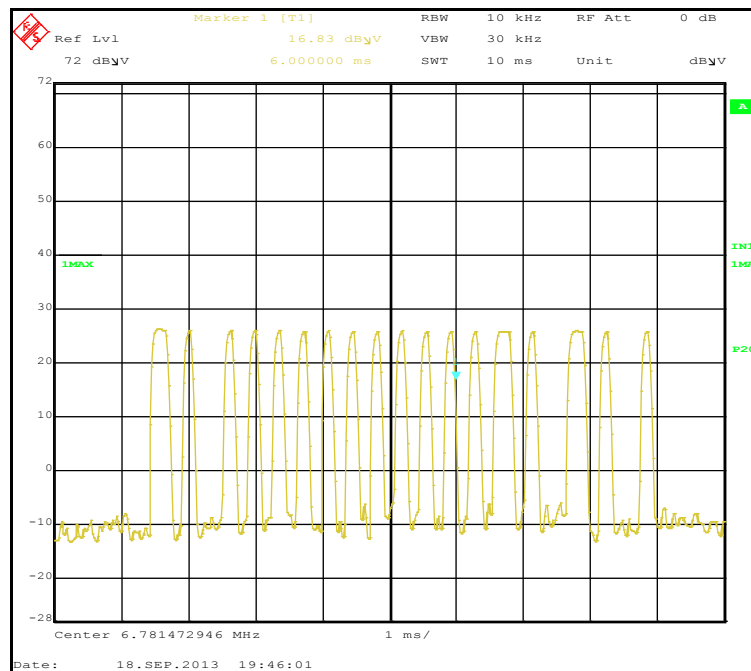
**Test Procedure:** The EUT was set to transmit and placed on a 0.8m-high non-conductive stand inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4: 2003 were used. The loop antenna was located 3 m from the EUT. Measurements were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations. A peak detector was used with a 10 kHz RBW.

**Test Results:** The EUT was found compliant with the requirements of this section.

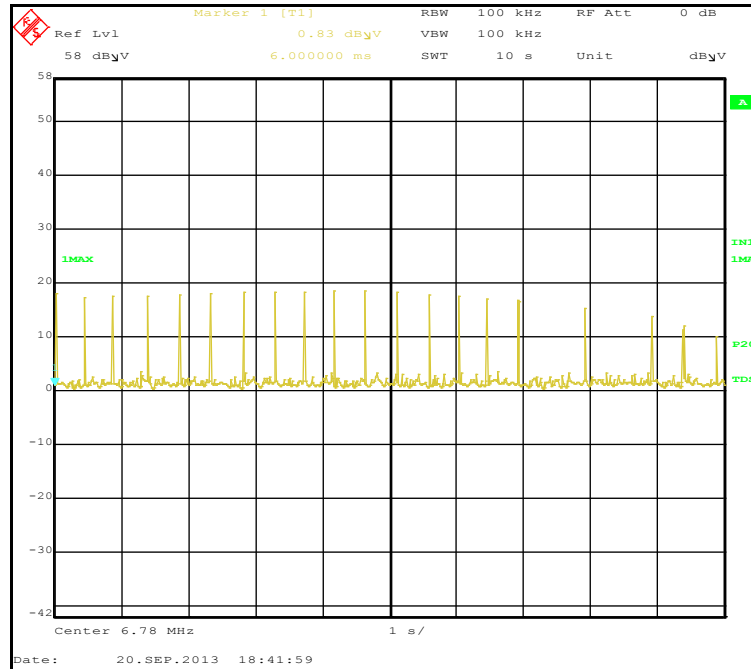
**Test Engineer(s):** Surinder Singh

**Test Date(s):** 09/19/13 – 09/20/13

Average value of field strength based upon the duty cycle and peak field strength.



**Plot 3. Duty Cycle, ON and OFF Times**



**Plot 4. Duty Cycle, Period (Pattern Repeats Every 0.5s)**

Each burst has ON time=  $(0.183\text{ms} \times 15) + (0.294\text{ms} \times 3) = 3.627\text{ms}$

Duty Cycle= On time/Period

Duty cycle =  $3.627/100 = 0.03627$

Duty Cycle in dB =  $20 \times \log(0.03627) = -28.8\text{dB}$

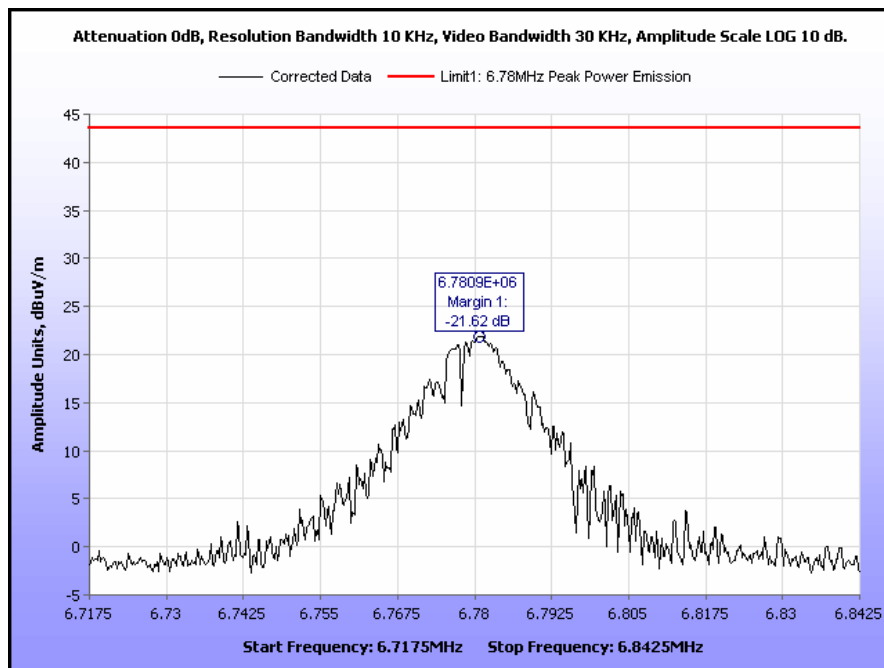
Peak Limit at 6.78MHz= Average limit from FCC  $15.223 + 20\text{dB} = 20 \times \log(15\mu\text{V}) + 20 = 43.52\text{dB}\mu\text{V/m}$  at 30m

Average Value of field strength based upon the duty cycle= Peak Field Strength (dBμV) of EUT - Duty cycle(dB)

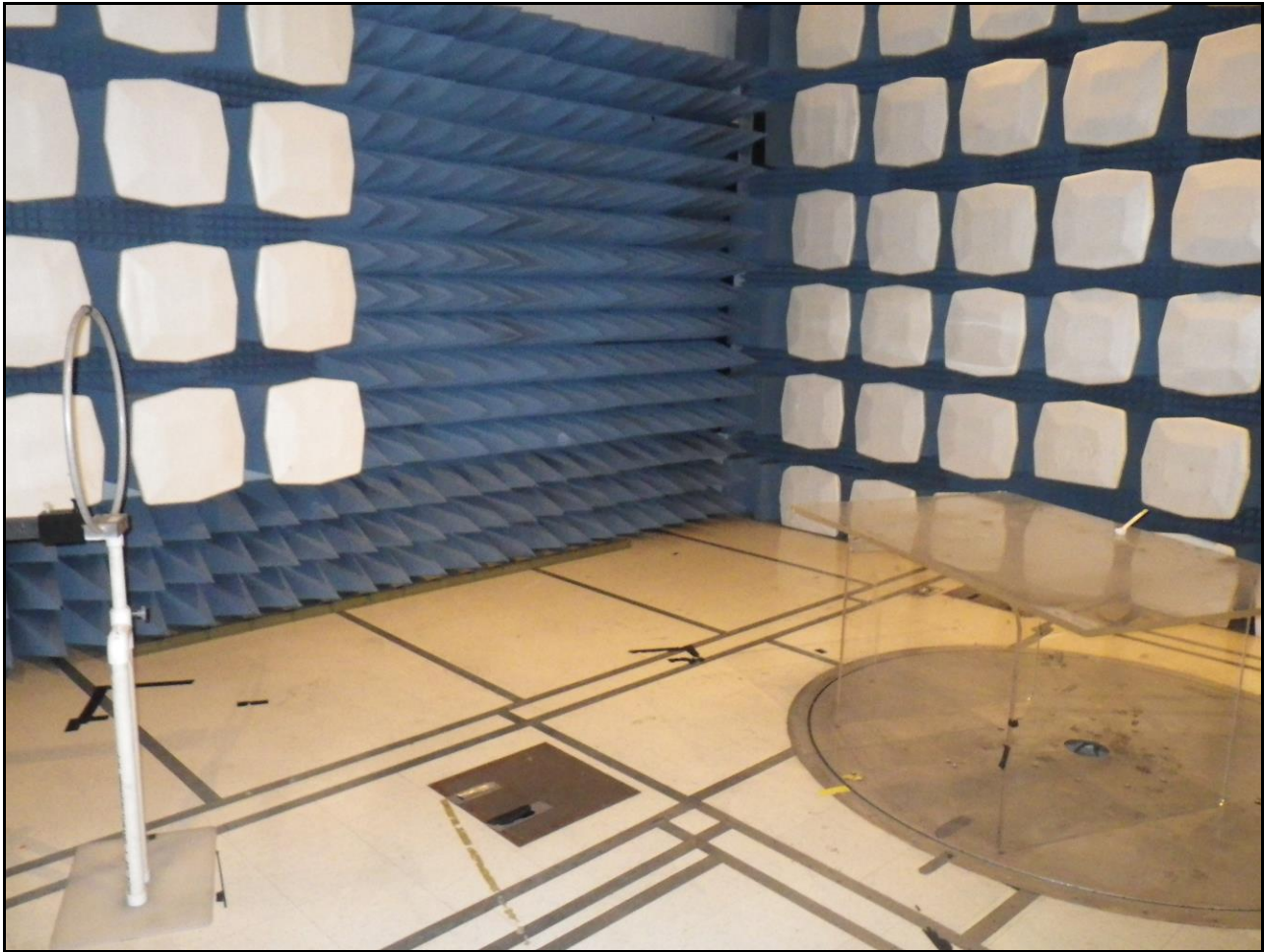
=  $21.9\text{dB}\mu\text{V} - 28.8\text{dB} = -6.9\text{dB}\mu\text{V/m}$

Average Limit=  $23.52\text{dB}\mu\text{V/m}$  at 30m

Margin=  $-6.9 - 23.52 = -30.42\text{dB}$



**Plot 5. Peak Field Strength**



**Photograph 3. Transmitter Unit, Field Strength, Test Setup**

## Electromagnetic Compatibility Emission Criteria

### 4.4 §15.223(b) Spurious Radiated Emission

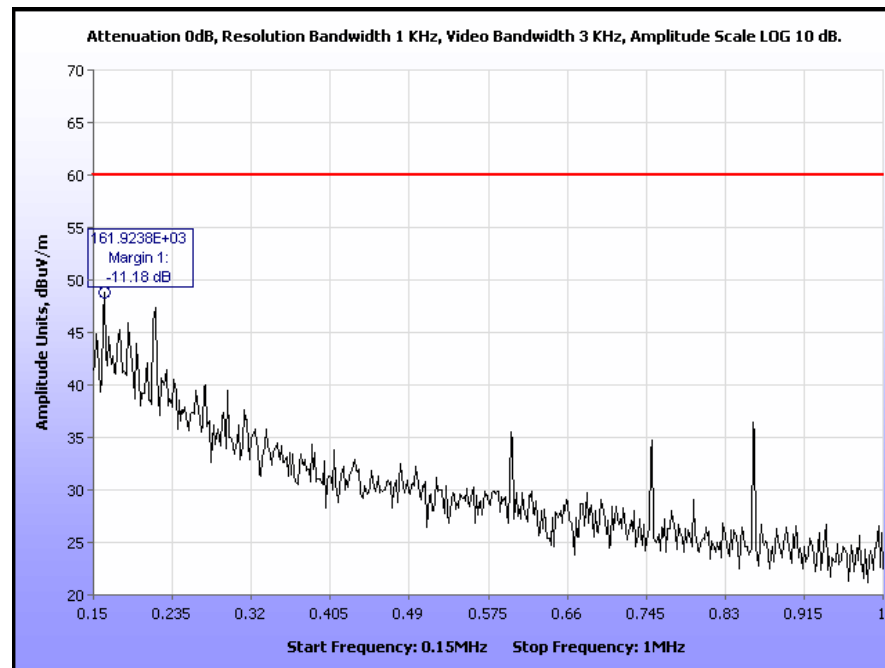
**Test Requirement(s):** §15.223 (b) The field strength of emissions outside of the band 1.705 – 10.0 MHz shall not exceed the general radiated emission limits in §15.209.

**Test Procedure:** The EUT was set to transmit and placed on a 0.8m-high non-conductive stand 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. A peak detector was used with a 100 kHz RBW (instead of 10KHz) between 30-100MHz for minimum pulse desensitization.

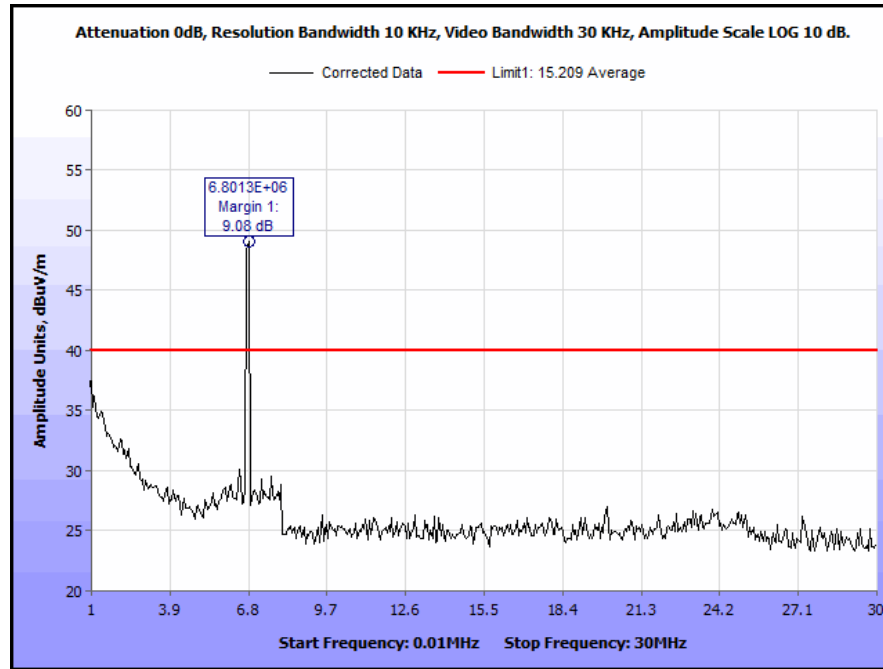
**Test Results:** The EUT was found compliant with the requirements of this section.

**Test Engineer(s):** Surinder Singh

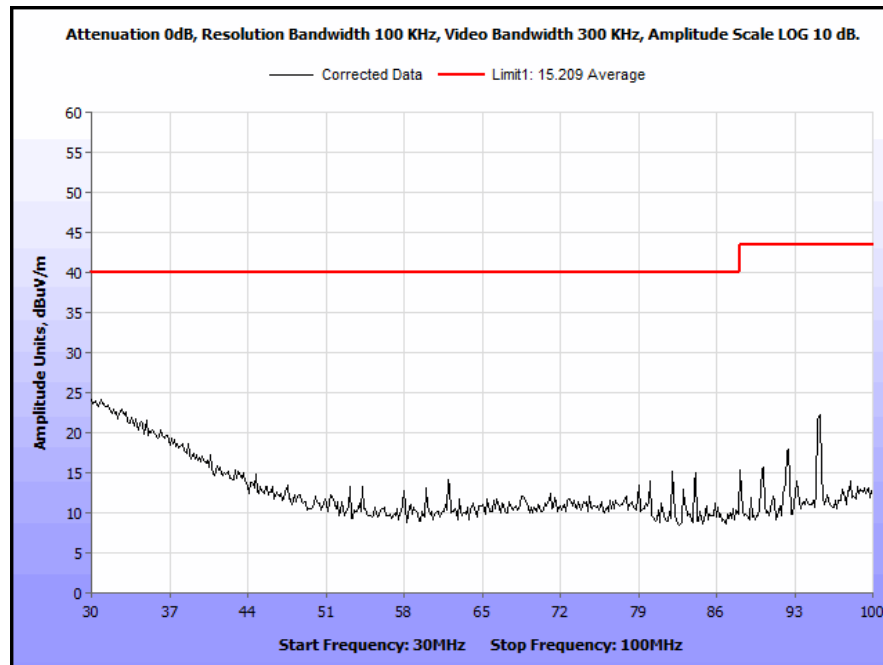
**Test Date(s):** 09/19/13 – 09/20/13



Plot 6. Radiated Spurious Emissions, 150 kHz – 1 MHz

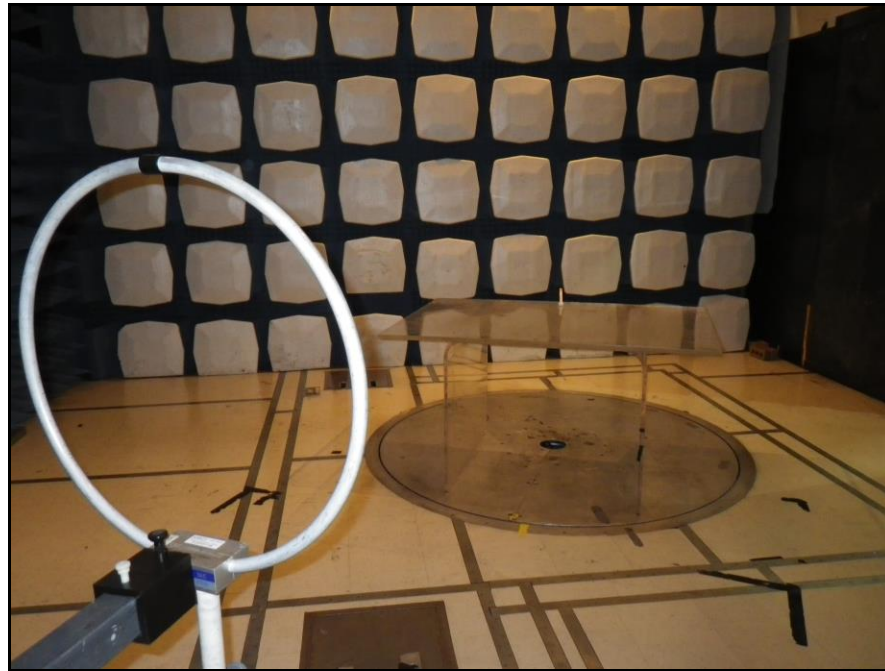


**Plot 7. Radiated Spurious Emissions, 1 MHz – 30 MHz**

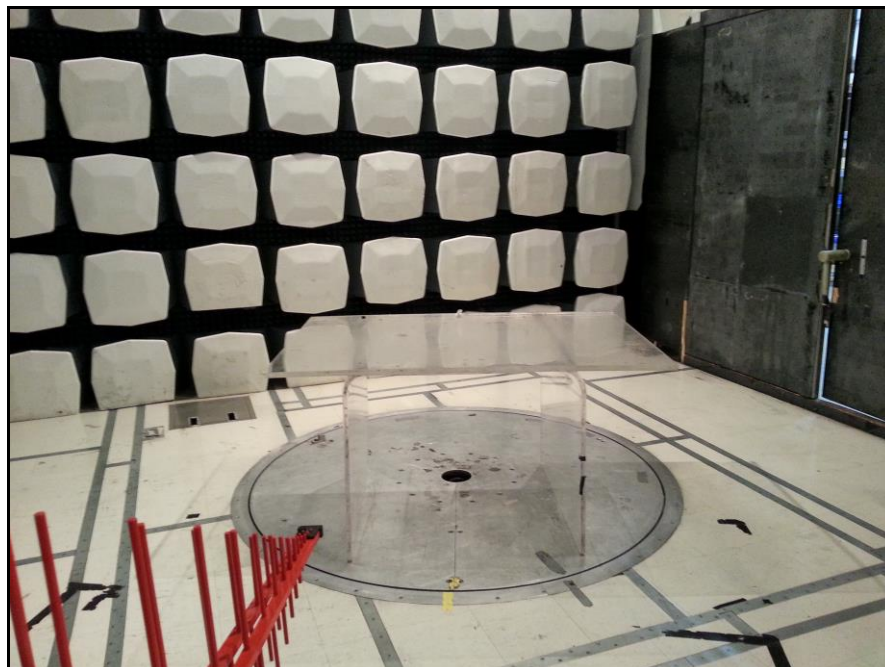


**Plot 8. Radiated Spurious Emissions, 30 MHz – 100 MHz**





**Photograph 4. Radiated Spurious Emissions, Test Setup, 10 kHz – 30 MHz**



**Photograph 5. Radiated Spurious Emissions, Test Setup, 30 MHz – 100 MHz**



## 5.0 Test Equipment

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

<b>MET Asset #</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Last Cal Date</b>	<b>Cal Due Date</b>
1T4409	EMI RECEIVER	ROHDE & SCHWARZ	ESIB7	7/16/2012	7/16/2014
1T4787	HYGROMETER / THERMOMETER / BAROMETER / DEW POINT PEN	CONTROL COMPANY	15-078-198, FB70423, 245CD	2/15/2012	2/15/2014
1T4800	ANTENNA, LOOP	EMCO	6512	8/6/2012	2/6/2014
1T4818	COMB GENERATOR	COM-POWER	CGO-520	SEE NOTE	
1T4751	ANTENNA - BILOG	SUNOL SCIENCES	JB6	1/8/2013	7/8/2014
1T2665	ANTENNA; HORN	EMCO	3115	9/5/2012	3/5/2014
1T4771	PSA SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	E4446A	02/15/2013	08/15/2014

Note: Functionally verified test equipment is verified using calibrated instrumentation at the time of testing.



## 6.0 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.<sup>1</sup> *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.

---

<sup>1</sup> 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.



## 7.0 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