COMPLIANCE WORLDWIDE INC.
TEST REPORT 437-15

In Accordance with the Requirements of
Federal Communications Commission CFR Title 47 Part 15.225, Subpart C
Industry Canada RSS 210, Issue 8, Annex 2

Low Power License-Exempt Radio Communication Devices
Intentional Radiators

Issued to

Secure Care Products, LLC
39 Chenell Drive
Concord, NH 03301
603-223-0745

for the

Secure Care
STAT® ID
13.56 MHz Door Management Radio

FCC ID: KNK-NRTLS1356

Report Issued on October 9, 2015

Tested by

Brian F. Breault
EMC Test Engineer

Reviewed By

Larry K. Stillings

Table of Contents

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1. Scope

This test report certifies that the Secure Care Products, LLC. STAT ID 13.56 MHz door management radio, as tested, meet the FCC Part 15.225 Subpart C, and Industry Canada RSS 210 requirements. The scope of this test report is limited to the test samples provided by the client, only in as much as those samples represent other production units. If any significant changes are made to the units, the changes shall be evaluated and a retest may be required.

2. Product Details

2.1. Manufacturer: Secure Care Products, LLC.
2.2. Model Number: A20470930
2.3. Serial Number: None
2.4. Description: STAT ID
Infant and child abduction protection device
13.56 MHz door management radio
Software version 1186
2.5. Power Source: 3.0 VDC (Lithium) non-replaceable
2.6. Hardware Revisions: None
2.7. Software Revisions: None
2.8. EMC Modifications: None

3. Product Configuration

3.1. Operational Characteristics & Software

Operating Instructions for Test

Use the tester to enable continuous wave features. With the transmitter at the top of the tester, push the “6” key to enable continuous wave output on the low frequency radio. This will output a continuous wave for one minute and then revert back to normal operation.

The “#” key will put the transmitter in sleep mode. The strap needs to be removed to stay in sleep mode.

The “7” key will enable a quick wakeup of the transmitter. The strap must be installed to wake up the transmitter.

3.2. EUT Hardware

Manufacturer	Model/Part # / Options	Serial Number	Volts	Frq (Hz)	Description/Function
Secure Care Products, LLC.	Door management Radio	A20470930 ID 224	3.0	DC	Infant and child abduction protection device

3.3. EUT Connected Hardware

Manufacturer	Model/Part # / Options	Serial Number	Input Voltage	Frq (Hz)	Description/Function
Secure Care Products, LLC.	13.56 MHz Radio Tester	1119430016	N/A	-	For setting up the DUT operation. Not used during testing.

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3. Product Configuration (continued)

3.4. Support Equipment & Cables

Cable Type	Length	Shield	From	To
None				

3.5. Block Diagram

4. Measurements Parameters

4.1. Measurement Equipment Used to Perform Tests

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
EMI Test Receiver, 9kHz - 7GHz [1]	Rohde & Schwarz	ESR7	101156	7/22/2017	2 Years
Spectrum Analyzer 20 Hz – 40 GHz [2]	Rohde & Schwarz	FSV40	100899	7/22/2017	2 Years
Spectrum Analyzer, 9 kHz to 40 GHz [3]	Rohde & Schwarz	FSVR40	100909	7/22/2017	2 Years
EMI Receiver	Hewlett Packard	8546A	3650A00360	6/4/2016	2 Years
Loop Antenna	EMCO	6512	9309-1139	9/23/2016	2 Years
Biconilog Antenna, 30 MHz to 2 GHz	Sunol Sciences Corp	JB1	25509	5/15/2016	2 Years
LISN 50 Ω 50 µH, 9 kHz to 30 MHz	EMCO	3825/2	9109-1860	7/21/2016	1 Year
Digital Barometer	Control Company	4195	ID236	10/8/2017	2 Years
Temperature Chamber	Associated Research	E-0029	N/A	N/A	---

[1] ESR7 Firmware revision: V2.26, Date installed: 8/15/2014 Previous V2.17, installed 6/11/2014.
[2] FSV40 Firmware revision: V2.30 SP1 Date installed: 10/22/2014 Previous V2.30, installed 7/23/2014.
[3] FSVR40 Firmware revision: V2.23, Date installed: 10/20/2014 Previous V1.63 SP1, installed 8/28/2013.

4.2 Measurement & Equipment Setup

Test Dates:	10/02/2015 to 10/13/2015
Test Engineer:	Brian Breault
Site Temperature (°C):	21.4
Relative Humidity (%RH):	32
Frequency Range:	30 kHz to 2.0 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	120 kHz (30 MHz – 1 GHz) 1 MHz (>1 GHz)
EMI Receiver Avg Bandwidth:	300 kHz (30 MHz – 1 GHz) 3 MHz (>1 GHz)
Detector Functions:	Peak, Quasi-Peak and Average

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4. Measurements Parameters (continued)

4.3 Measurement Procedure

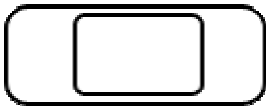
The test measurements contained in this report are based on the requirements detailed in FCC Part 15, Subpart C - Intentional Radiators, notably Section 15.225, Operation within the band 13.110 – 14.010 MHz.

The test methods used to generate the data is this test report are in accordance with ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

In addition, the measurements were performed with the device in three orthogonal positions in accordance with ANSI C63.10-2013, sections 5.10.1, 6.4.6 and Annex H. The three orthogonal axes were defined as follows:

X-Axis

Y-Axis



Z-Axis

X Axis	Upright (Strap toward rear)	Front of unit is facing the antenna at 0º
Y Axis	Horizontal on left edge	Front of unit is facing the antenna at 0º
Z Axis	Face Up (Strap down)	Bottom edge of the unit is facing the antenna at 0º

5. Choice of Equipment for Test Suits

5.1. Choice of Model

This test report is based on the test samples supplied by the manufacturer and are reported by the manufacturer to be equivalent to the production units.

5.2. Presentation

The test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for the product equipment configuration.

5.3. Choice of Operating Frequencies

The transmitter in the unit under test utilizes a single operating frequency at approximately 13.56 MHz

The other oscillator frequencies used in this device are as follows:

433.92 MHz Cutband Infant Transmitter

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6. Measurement Summary

Test Requirement	FCC Part 15 Reference	RSS Reference	Test Report Section	Result	Comment
Antenna Requirement	15.203	RSS-GEN Section 7.1.2	7.1	Compliant	
Operation within the Band 13.110 MHz – 14.010 MHz (Field Strength)	15.225 (a), (b), (c)	RSS-210 Section A2.6	7.2	Compliant	
Operation within the Band 13.110 MHz – 14.010 MHz (Frequency Tolerance)	15.225 (e)	RSS-210 Section A2.6	7.3	Compliant	
Spurious Radiated Emissions	15.209		7.4	Compliant	
Power Line Conducted Emissions	15.207	RSS-GEN Section 7.2.4		Not Required	Battery operated device
Occupied Bandwidth/ Lower and Upper Band Edges	15.215(c) C63.10	N/A	7.5	Compliant	
99% Power Bandwidth	N/A	RSS-GEN Section 4.6.1	7.6	Compliant	
Public Exposure to Radio Frequency Energy Levels.	15.247(i) 1.1307 (b)(1)	RSS-GEN 5.5, RSS 102	---	Not Required	Test Frequency is below 100 MHz.

7. Measurement Data

7.1. Antenna Requirement (Section 15.203, RSS-GEN 7.1.2)

Requirement: 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.

Status: The STAT ID door management radio antenna is contained inside a sealed unit.

Result: Compliant.

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7. Measurement Data (continued)

7.2. Radiated Field Strength of Fundamental (15.225 (a), (b) and (c))

Requirement: (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.

(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.

(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 Note: Reference ANSI C63.10-2013 sections 5.3.2 and 6.4.4.2. The following formula was used to extrapolate the measurement distance to the limit distance:

$$FS_{limit} = FS_{max} - 40\log\left(\frac{d_{near\ field}}{d_{measure}}\right) - 20\log\left(\frac{d_{limit}}{d_{near\ field}}\right)$$ Equation 1

FS_{limit} is the calculation of field strength at the limit distance (dBµV/m)	**34.71**
FS_{max} is the measured field strength, expressed in (dBµV/m)	56.10
$d_{near\ field}$ is the $\lambda/2\pi$ distance (Meters)	3.52
$d_{measure}$ is the distance of the measurement point from the EUT (Meters)	3.00
d_{limit} is the reference limit distance (Meters)	30.00

Result: The fundamental frequency radiated field strength of the device under test complies with the requirements detailed in FCC Part 15.225, Section (a).

The peak field strength of the device under test met the average requirement. For this reason, the average field strength was not factored using a duty cycle correction factor.

Freq. (MHz)	Amplitude[1] (dBµV/m)	Duty Cycle Correction	Corr. Ampl.[2] (dBµV/m)	FCC 15.225 Limit (dBµV/m)	Margin (dB)	Ant Polarity	Ant Height	Turntable Azimuth	Result
	Peak	dB	Average			Par/Per	cm	Deg	
13.56	34.71	0	N/A	84.00	-49.29	Par	100	4	Compliant

[1] Measurement has been extrapolated from 3 meters to 30 meters using Equation 1 on the previous page.
[2] The average field strength was not calculated using the duty cycle because of the large margin to the limit.

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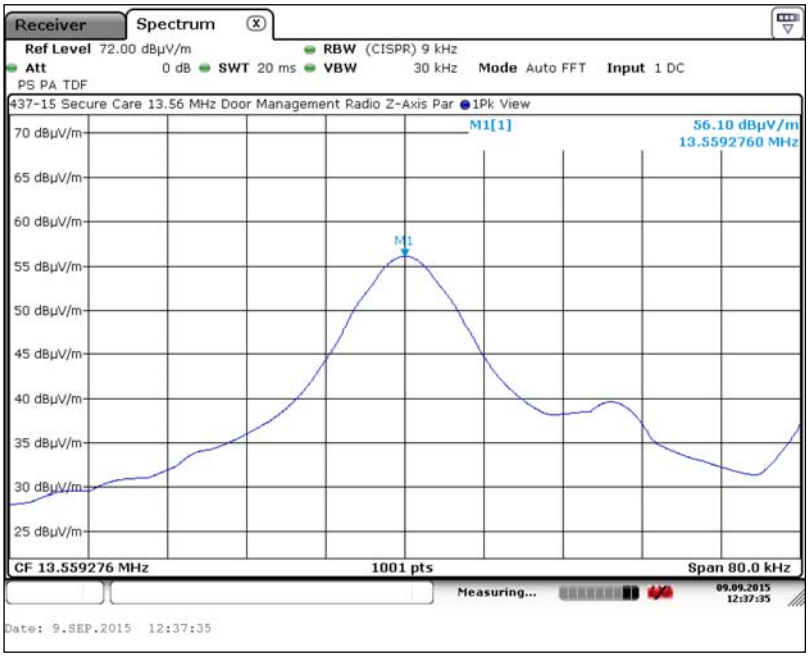
7. Measurement Data (continued)

7.2. Operation within the Band 13.110 MHz – 14.010 MHz (15.225 (a), (b) and (c))

7.2.1. Worst Case Field Strength of the Fundamental



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7. Measurement Data (continued)

7.3. Transmitter Spurious Radiated Emissions (15.225 (d), 15.209)

Requirement: The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table (Reference FCC 15.209):

Frequency (MHz)	Field Strength (µV/m)	Meas. Dist. (meters)	Field Strength (dBµV/m)	Distance (Meters)
0.009–0.490	2400/F(kHz)	300	128.5 to 93.8	3
0.490–1.705	24000/F(kHz)	30	73.8 to 63.0	3
1.705–30.0	30	30	69.5	3
30-88	100	3	40	3
88-216	150	3	43.5	3
216-960	200	3	46	3
Above 960	500	3	54	3

[1] Measurements in the 9 to 90 kHz, 110 to 490 kHz and above 1000 MHz ranges employ an average detector. Otherwise a quasi-peak detector is used.

[2] Extrapolation below 30 MHz is calculated at 40 dB/decade.

Procedure: Test measurements were made in accordance with ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices, Section 6.5.

Results: The transmitter installed in the unit under test meet the FCC Part 15.209 emissions requirements.

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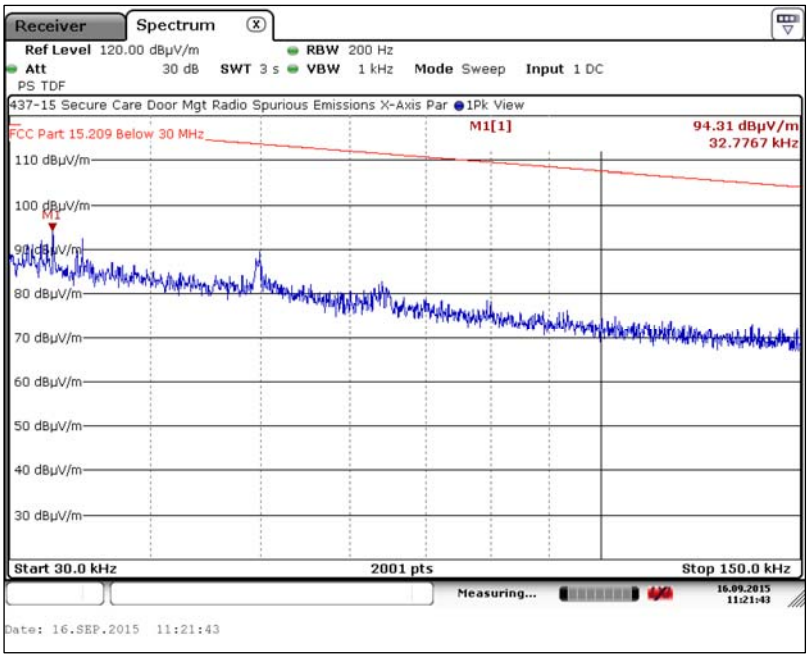
7. Measurement Data (continued)

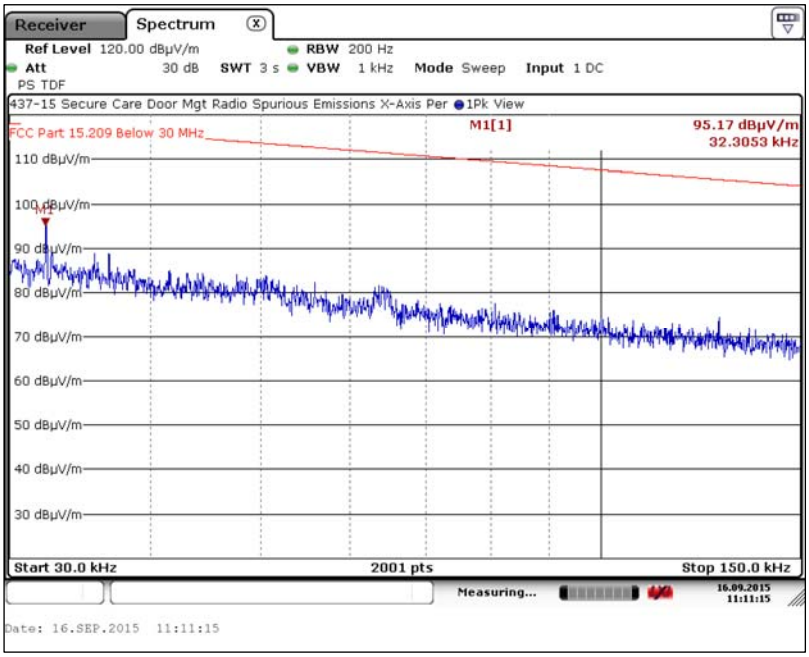
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.1. Spurious Radiated Emissions, 30 kHz to 150 kHz Test Results

7.3.1.1. X-Axis, Parallel Antenna



7.31.2. X-Axis, Perpendicular Antenna



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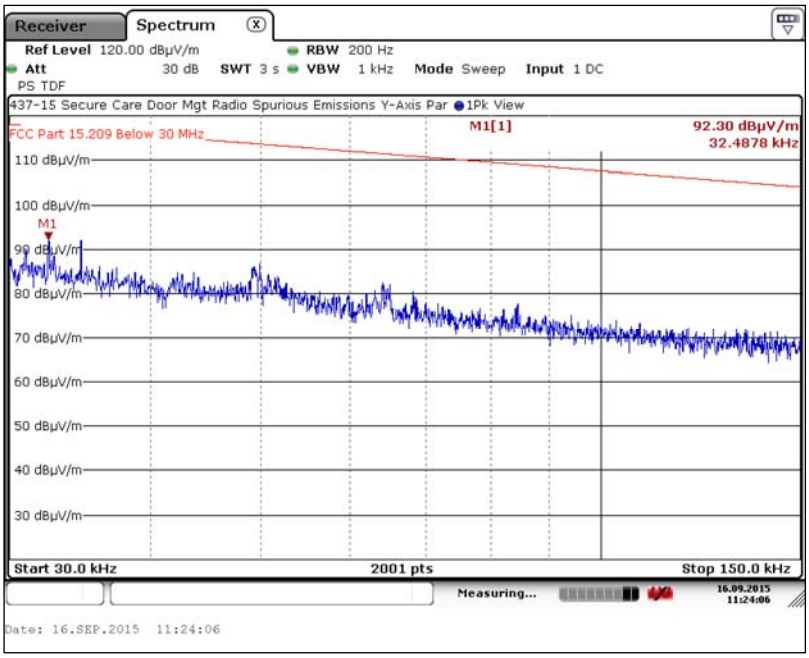
7. Measurement Data (continued)

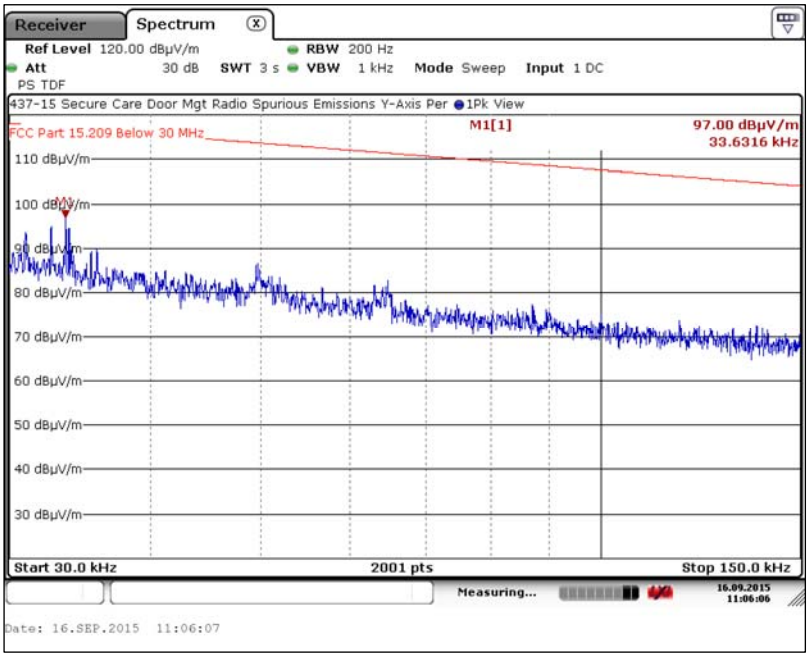
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.1. Spurious Radiated Emissions, 30 kHz to 150 kHz Test Results

7.3.1.3. Y-Axis, Parallel Antenna



7.3.1.4. Y-Axis, Perpendicular Antenna



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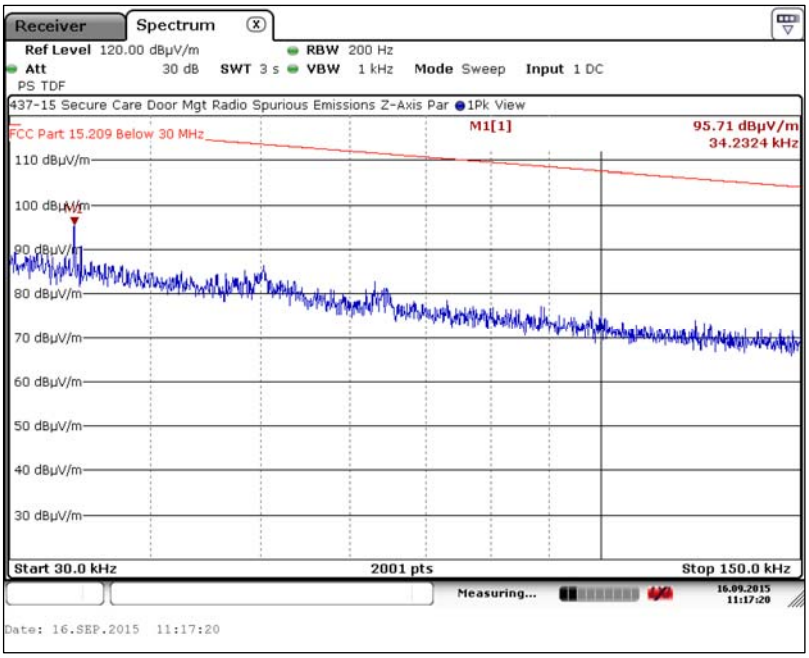
7. Measurement Data (continued)

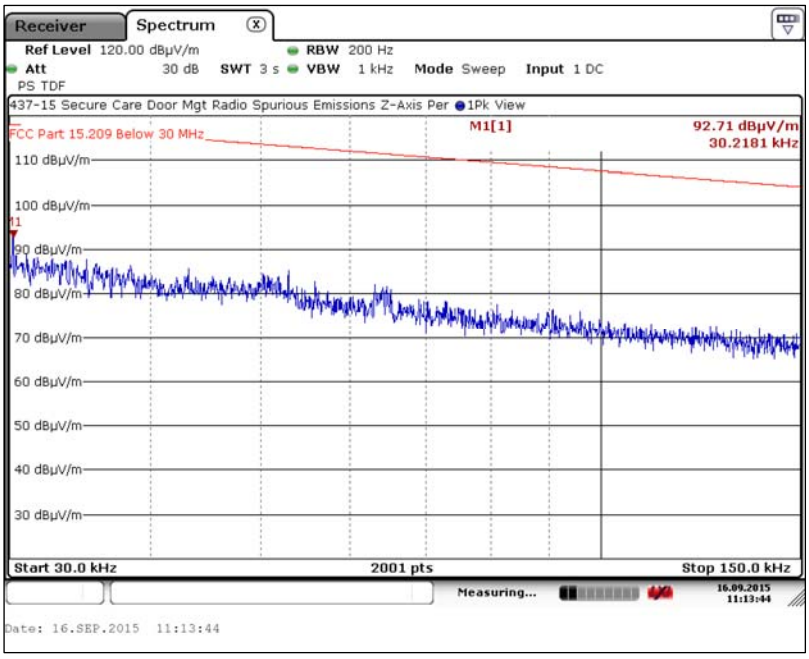
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.1. Spurious Radiated Emissions, 30 kHz to 150 kHz Test Results

7.3.1.5. Z-Axis, Parallel Antenna



7.3.1.6. Z-Axis, Perpendicular Antenna



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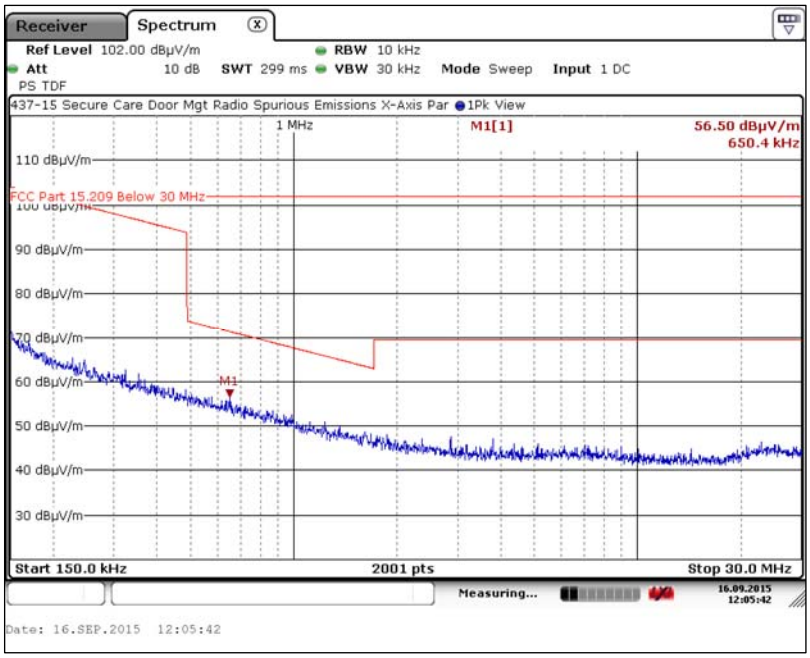
7. Measurement Data (continued)

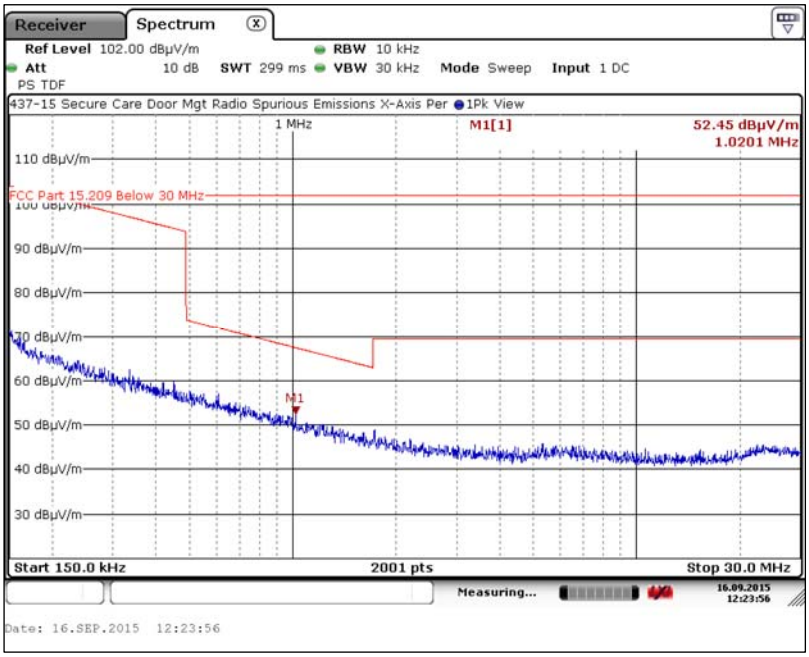
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.1. X-Axis, Parallel Antenna



7.3.2.2. X-Axis, Perpendicular Antenna



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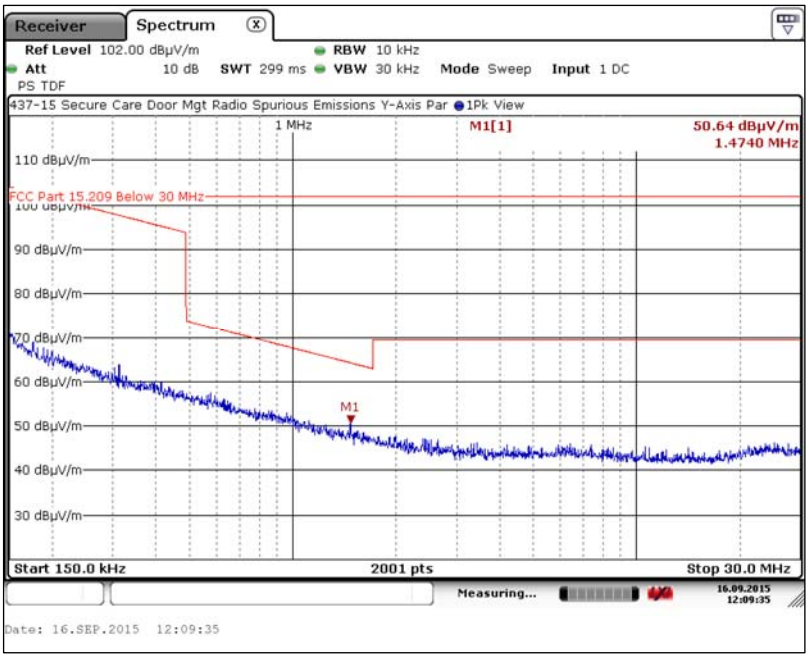
7. Measurement Data (continued)

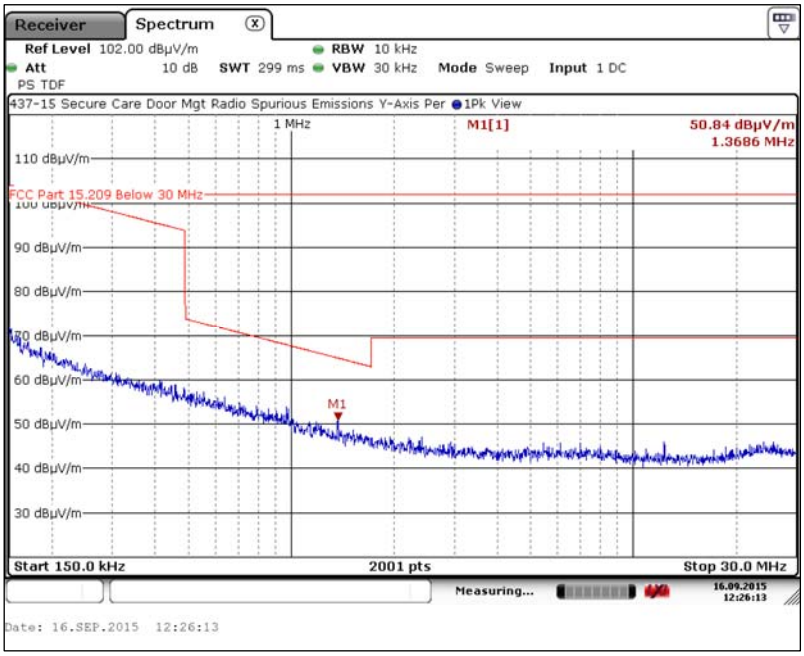
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.3. Y-Axis, Parallel Antenna



7.3.2.4. Y-Axis, Perpendicular Antenna



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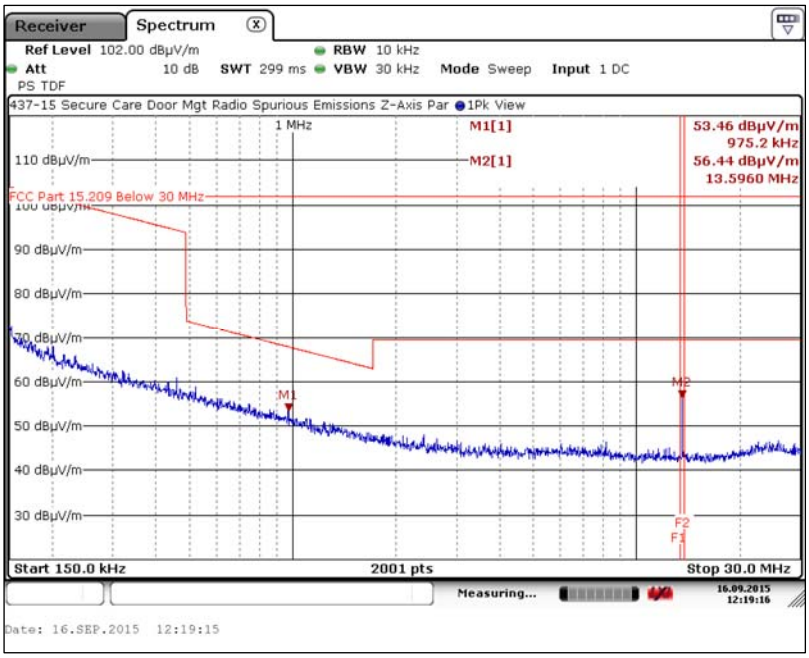
7. Measurement Data (continued)

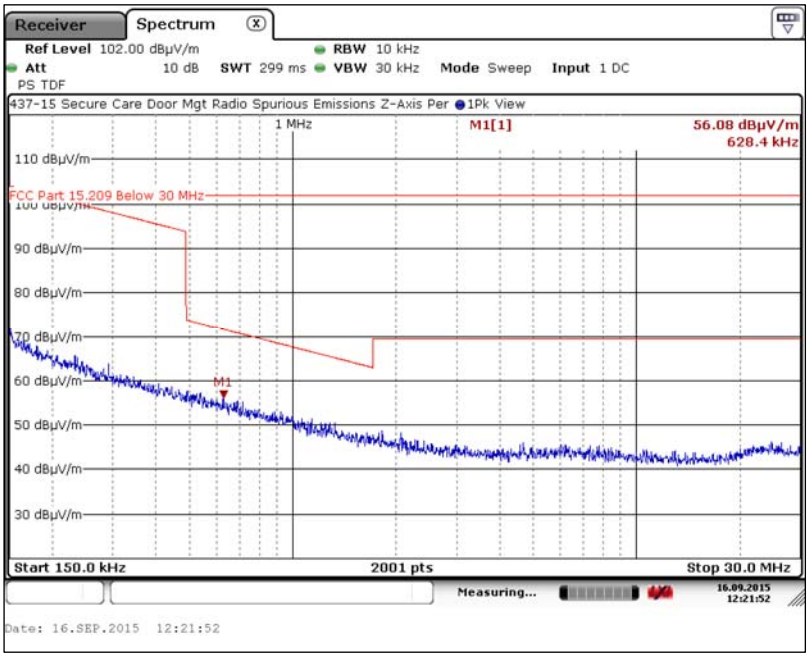
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.2. Spurious Radiated Emissions, 150 kHz to 30 MHz Test Results

7.3.2.5. Z-Axis, Parallel Antenna



7.3.2.6. Z-Axis, Perpendicular Antenna



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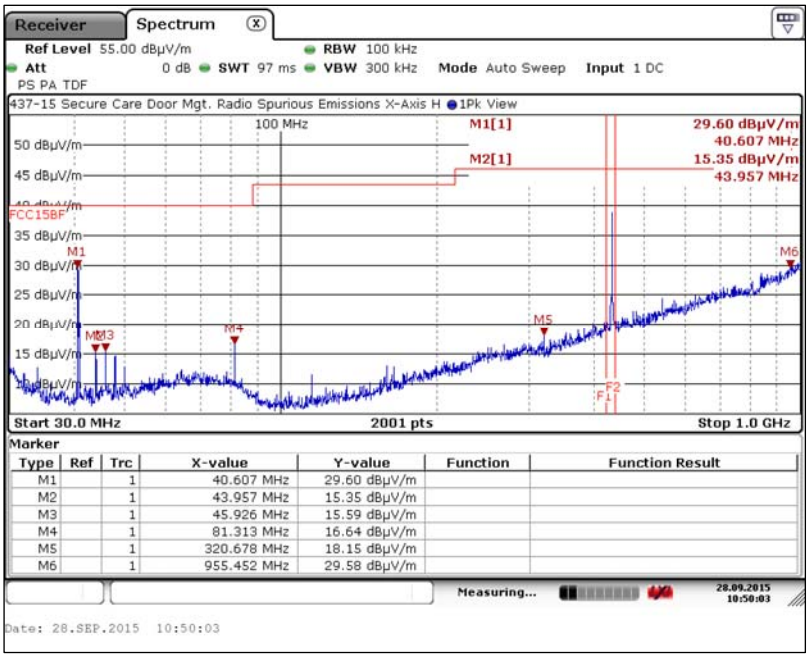
7. Measurement Data (continued)

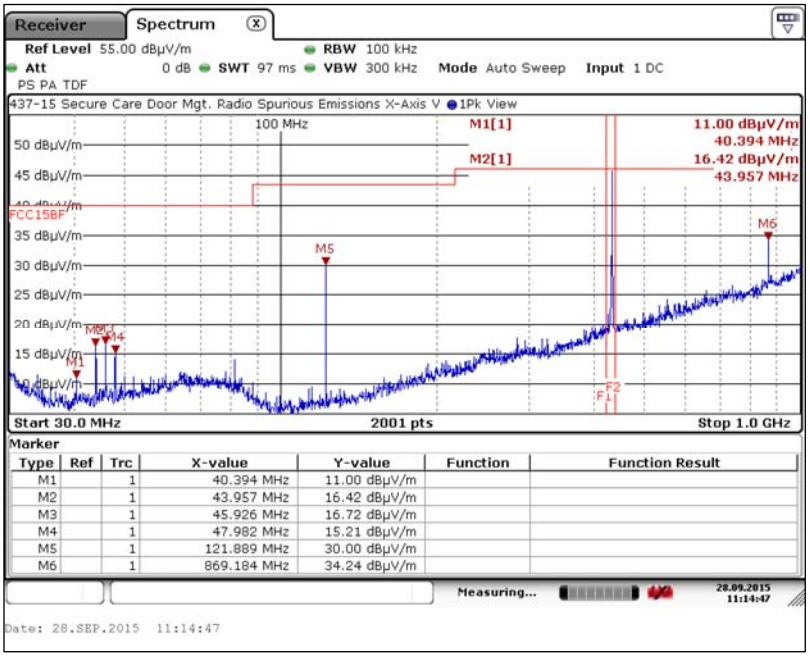
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.3. Spurious Radiated Emissions, 30 MHz to 1 GHz Test Results

7.3.3.1. X-Axis, Horizontal Polarity



7.3.3.2. X-Axis, Vertical Polarity



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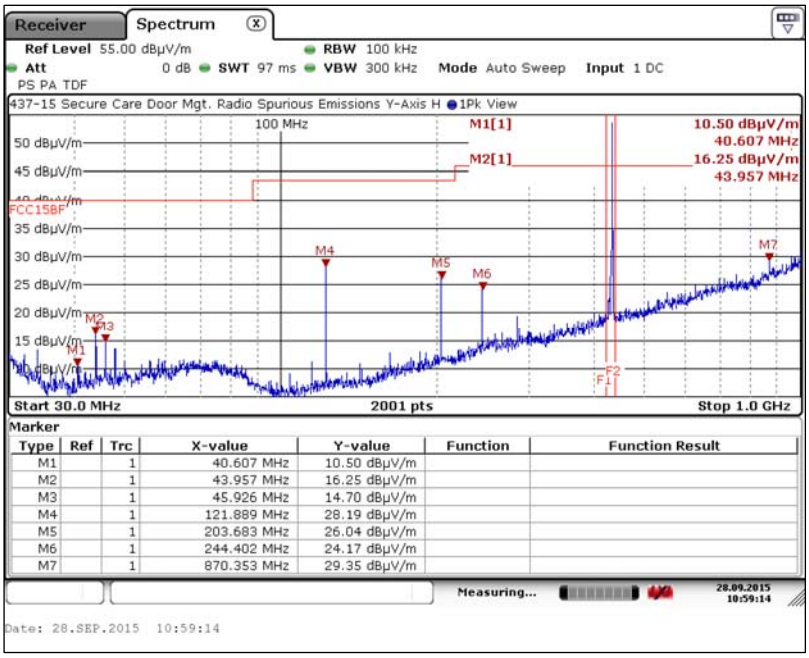
7. Measurement Data (continued)

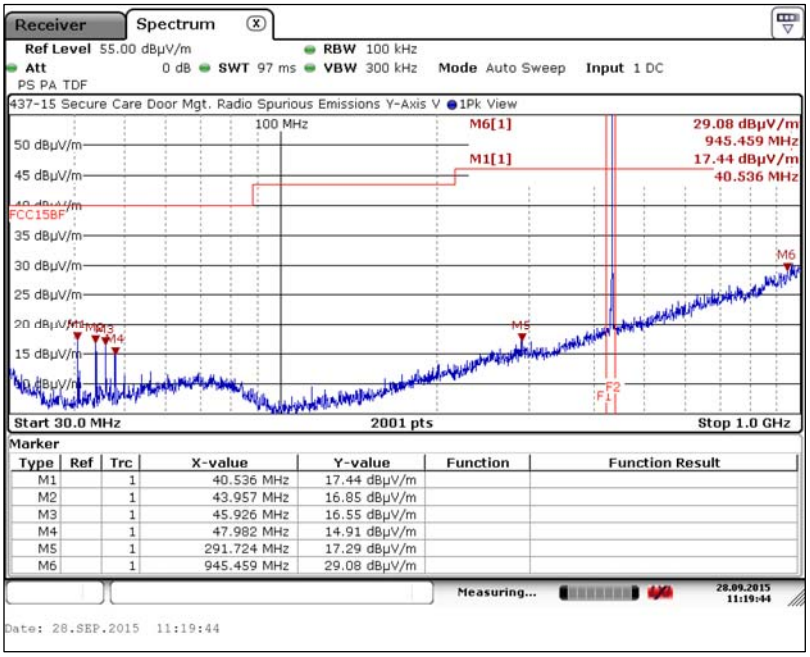
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.3. Spurious Radiated Emissions, 30 MHz to 1 GHz Test Results

7.3.3.3. Y-Axis, Horizontal Polarity



7.3.3.4. Y-Axis, Vertical Polarity



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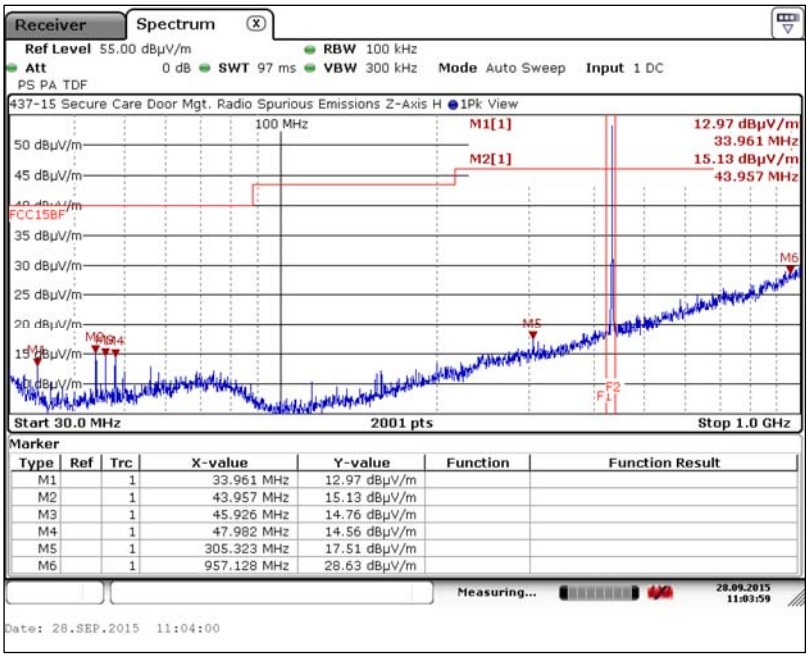
7. Measurement Data (continued)

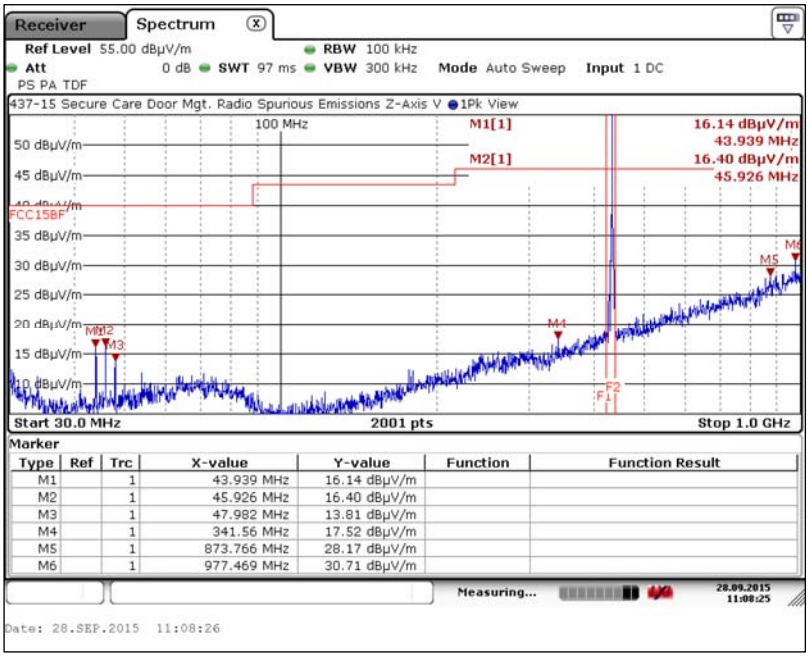
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.3. Spurious Radiated Emissions, 30 MHz to 1 GHz Test Results

7.3.3.5. Z-Axis, Horizontal Polarity



7.3.3.6. Z-Axis, Vertical Polarity



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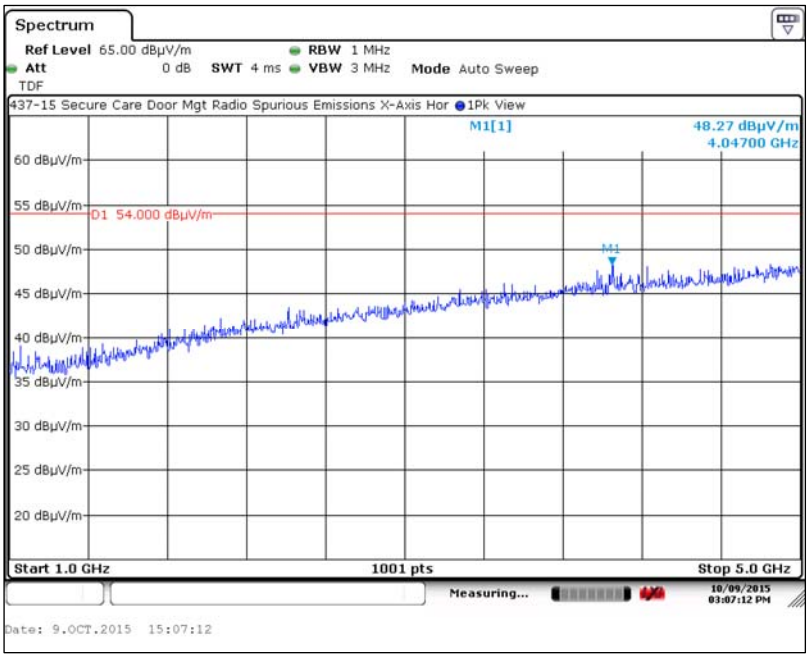
7. Measurement Data (continued)

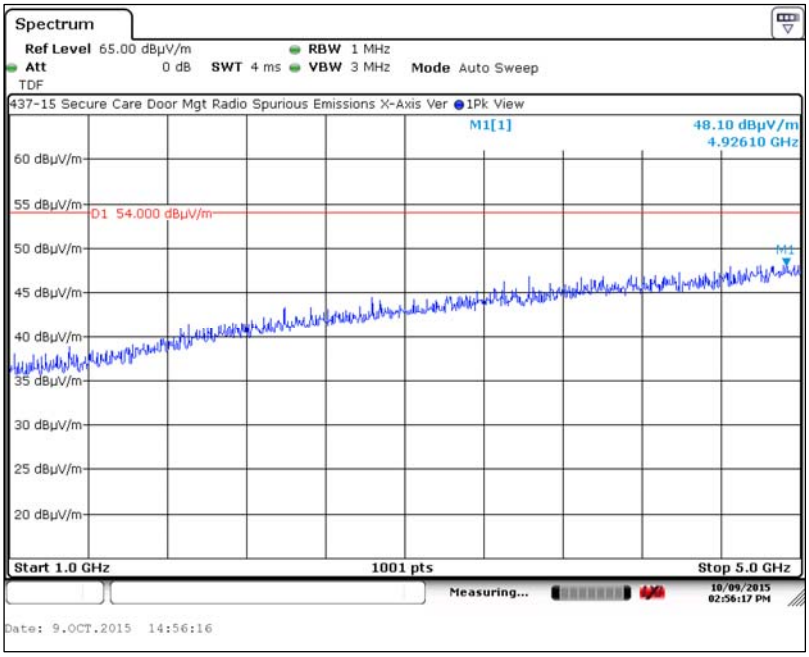
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.4. Spurious Radiated Emissions, 1 GHz to 5 GHz Test Results

7.3.4.1. X-Axis, Horizontal Polarity



7.3.4.2. X-Axis, Vertical Polarity



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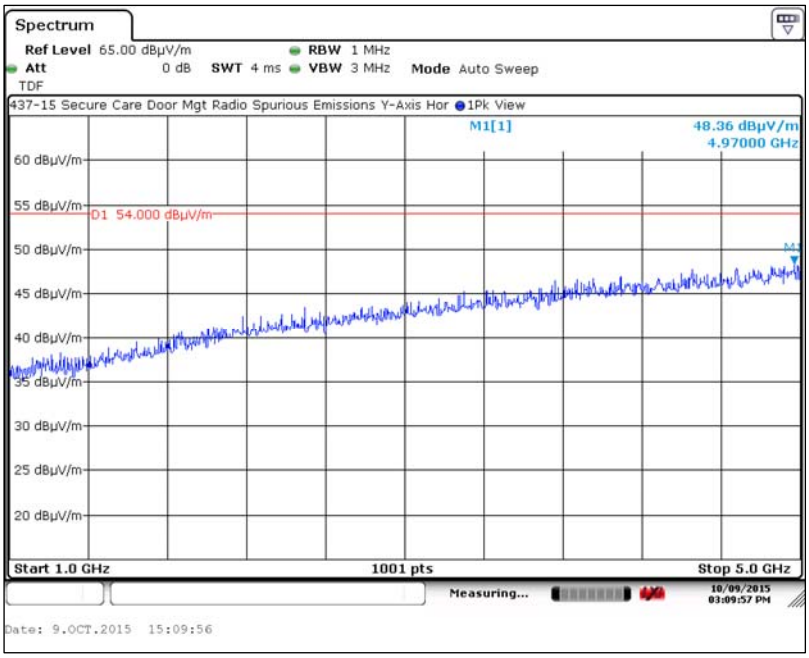
7. Measurement Data (continued)

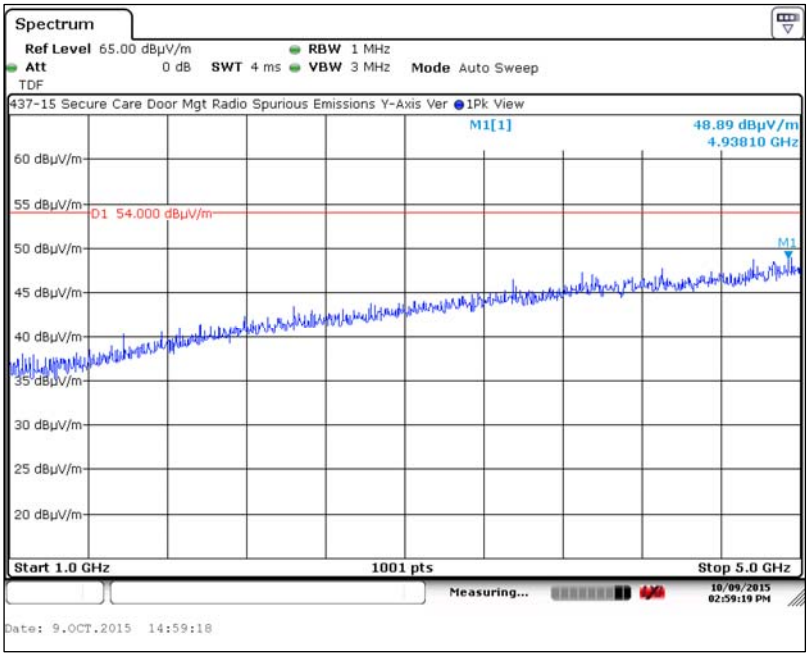
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.4. Spurious Radiated Emissions, 1 GHz to 5 GHz Test Results

7.3.4.3. Y-Axis, Horizontal Polarity



7.3.4.4. Y-Axis, Vertical Polarity



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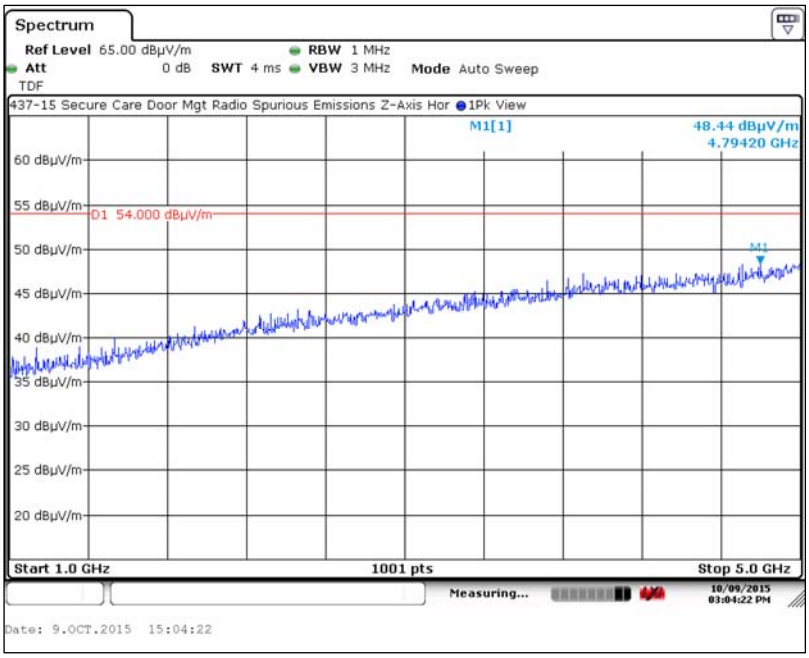
7. Measurement Data (continued)

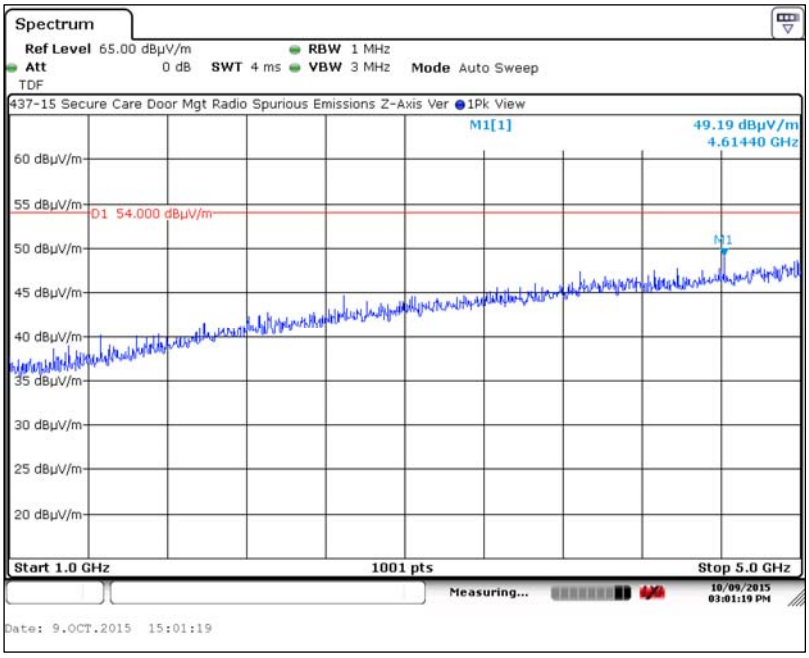
7.3. Spurious Radiated Emissions, 30 kHz to 2.0 GHz (15.225, § (d), 15.209) (cont'd)

7.3.4. Spurious Radiated Emissions, 1 GHz to 5 GHz Test Results

7.3.4.5. Z-Axis, Horizontal Polarity



7.3.4.6. Z-Axis, Vertical Polarity



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7. Measurement Data (continued)

7.4. Frequency Stability (§ 15.225 (e))

Requirement: 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 Note: The device under test is a sealed unit with an enclosed 3 volt DC battery. It was tested as it was supplied by the manufacturer.

Result: The unit under test complies with the requirements detailed in FCC Part 15.225 (e).

7.4.1. Temperature Variation

Temp °C	Meas Freq.	Limit			Offset	Result
	(MHz)	F_{MIN} (MHz)	F_{MAX} (MHz)	%	(%)	
Ambient	13.5596000[1]	N/A			N/A	
-20	13.5593500	13.558244	13.560956	±0.01	0.00184371	Compliant
-10	13.5594000	13.558244	13.560956	±0.01	0.00147497	Compliant
0	13.5594500	13.558244	13.560956	±0.01	0.00110623	Compliant
+10	13.5600000	13.558244	13.560956	±0.01	0.00294994	Compliant
+20	13.5596500	13.558244	13.560956	±0.01	0.00036874	Compliant
+30	13.5596000	13.558244	13.560956	±0.01	0.00000000	Compliant
+40	13.5596000	13.558244	13.560956	±0.01	0.00000000	Compliant
+50	13.5595500	13.558244	13.560956	±0.01	0.00036874	Compliant

[1] Nominal frequency at ambient (~21.6°C)

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7. Measurement Data (continued)

7.5. Occupied Bandwidth (Section 15.215 (c) and ANSI C63.10, Section 6.9)

Requirement: Intentional radiators operating under the alternative provisions to the general emission limits, as contained in Sections 15.217 through 15.255 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule.

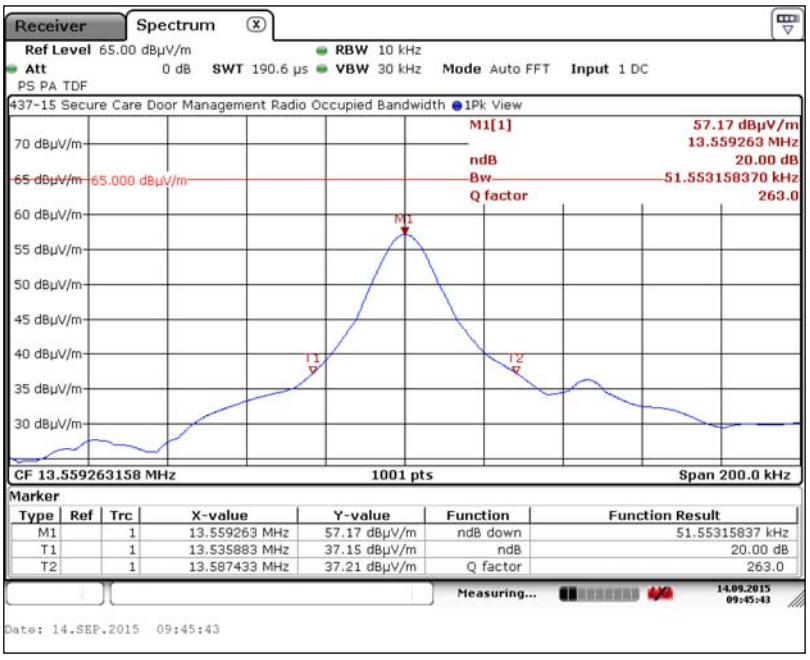
Frequency Band: F_{MIN} = 13.110 MHz

F_{MAX} = 14.010 MHz

Test Note: The reported bandwidth represents the worst case measured bandwidth of the combined three transmitters.

	-20 dB Frequency Measured	Lower & Upper Band Edge (F_{MIN} & F_{Max})	Result
	MHz	MHz	
F_{LO}	13.54	13.11	Compliant (F_{LO} > F_{MIN})
F_{HI}	13.59	14.01	Compliant (F_{HI} < F_{Max})

7.5.1. Plot of 20 dB Bandwidth vs. Frequency Band



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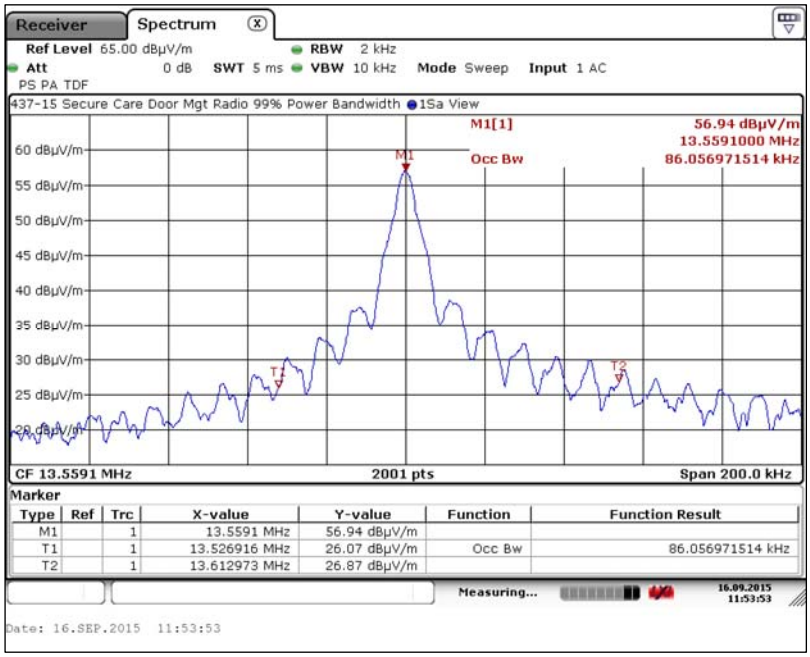
7. Measurement Data (continued)

7.6. 99% Power Bandwidth (RSS-GEN Section 4.6.1)

Requirement: When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.
The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

Procedure: This test was performed utilizing the automated 99% bandwidth function of the spectrum analyzer.

Frequency	99% Power Bandwidth
(MHz)	(kHz)
13.56	86.057



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8. Test Site Description

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with Federal Communications Commission (FCC), Industry Canada, and Voluntary Control Council Interference (VCCI) standards. A description of the test sites is on file with the FCC (registration number 96392), Industry Canada (file number IC 3023A-1).

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane required by EN 55022.

Both sites are designed to test products or systems 1.5 meters W x 1.5 meters L x 2.0 meters H, floor standing or table top.

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