FCC PART 15 SUBPART B & SUBPART C SECTION 15.249,
RSS 210, & RSS GEN
TEST REPORT

for

ELECTRONIC DOOR LOCK
Model: 450412

Prepared for

SPECTRUM BRANDS
19701 DaVinci
LAKE FOREST, CA 92610

Prepared by: _____

TOREY OLIVER

Reviewed by: _____

MATT HARRISON

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DATE: SEPTEMBER 15th, 2016

	REPORT BODY	APPENDICES					TOTAL
		A	*B*	*C*	*D*	*E*	
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NVLAP TESTING
NVLAP LAB CODE 200527-0
ilac-MRA

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Device Tested:	Electronic Door Lock Model: 450412 S/N: None
Product Description:	The EUT is an Electronic Door Lock.
Modifications:	The EUT was not modified in order to comply with specifications.
Manufacturer:	Spectrum Brands 19701 DaVinci Lake Forest, CA 92610
Test Date:	September 15th, 2016

Test Specifications covered by accreditation:

NVLAP® TESTING
NVLAP LAB CODE 200527-0
ilac-MRA

Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, Subpart C Sections 15.205, 15.207, 15.209, and 15.249 RSS 210 & RSS GEN
Test Procedure:	ANSI C63.4 & C63.10

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz.	The EUT is battery powered; therefore, this test was not performed.
2	Radiated RF Emissions & Harmonics, 9 kHz – 25,000 MHz.	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109 & Subpart C Sections 15.205, 15.209, & 15.249, RSS 210 & RSS GEN
3	Fundamental Field Strength	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.249 & RSS 210
4	Emissions Radiated Outside of the Fundamental Frequency Band	Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109 & Subpart C Sections 15.205, 15.209, & 15.249, RSS 210 & RSS GEN
5	Occupied Bandwidth	Complies with the limits of RSS 210 & RSS GEN

TABLE 1:
SIX HIGHEST RADIATED EMISSIONS READINGS

	Reading Type (PK / QP / AV)	Polarization (Vert / Horz)	Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Delta (dB)	Test Distance
1	PK	V	908.40	93.55	93.97	-0.42	3-Meter
2	PK	V	916.00	90.43	93.97	-3.54	3-Meter
3	PK	H	908.40	83.58	93.97	-10.39	3-Meter
4	PK	H	916.00	83.38	93.97	-10.59	3-Meter
5	AV	V	9084.00	38.03	53.98	-15.95	3-Meter
6	AV	H	9084.00	37.99	53.98	-15.99	3-Meter

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Electronic Door Lock Model: 450412. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 & C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.109, & Part 15 Subpart C sections 15.205, 15.209, 15.249, RSS GEN, & RSS 210.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Spectrum Brands

Chasen Beck	Engineer

Compatible Electronics, Inc.

Torey Oliver	Test Engineer
Matt Harrison	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on September 15th, 2016.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc. as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10: 2013	American National Standard for Testing Unlicensed Wireless Devices
RSS GEN	General Requirements for Compliance of Radio Apparatus
RSS 210	Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Electronic Door Lock Model: 450412 (EUT) was setup in a tabletop configuration. The EUT was checked in all 3 axis. The worst case was found to be the X-Axis. The EUT was continuously transmitting a data stream during transmit testing and continuously receiving during receive testing.

The tests were performed using new batteries.

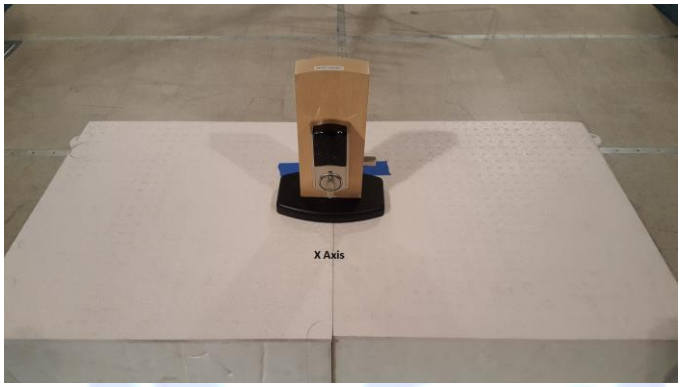
It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

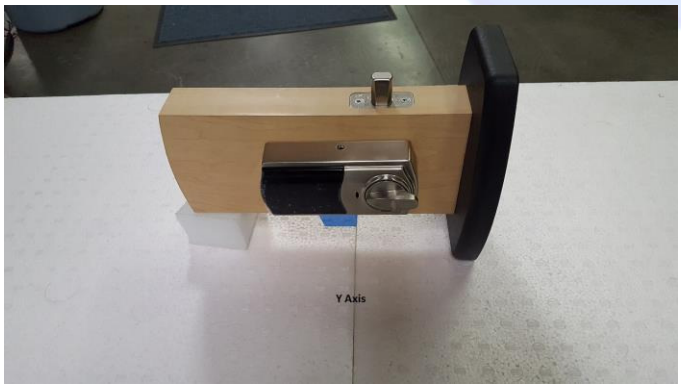
4.1.1 Photograph Test Configuration (X-Axis)

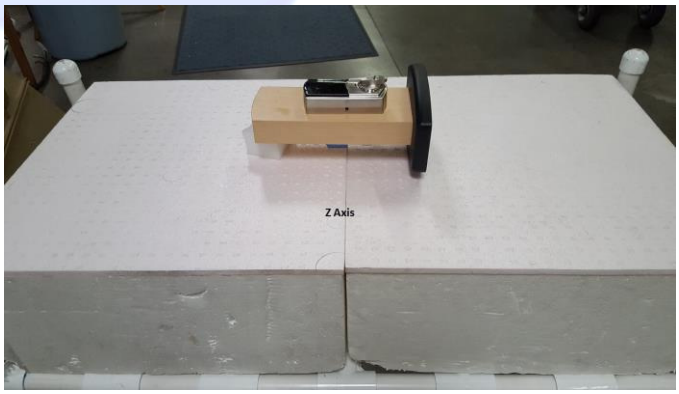
4.1.2 Cable Construction and Termination

There were no interconnecting cables.

4.1.3 Axis Orientation







5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	ELECTRONIC DOOR LOCK (EUT)	SPECTRUM BRANDS	450412	NONE
2	BATTERIES (4)	RAYOVAC	AA	NONE

5.1.1 Software Used to Exercise the Transmitter:

Version 4.25, Date: 01/10/2017, Storage Location: Spectrum Brands, Inc. located at: \\ad.spectrumhhi.com\Groups\LKF\Shared\Engineering\Electronics\10. Released Notes, Docs & Firmware\Firmware Releases For QA\Z-Wave Daughter Card\Converta

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100219	09/13/2016	09/13/2017
Antenna, Loop	Com Power	AL-130	121049	12/06/2015	12/06/2017
Antenna, CombiLog	Com Power	AC-220	25857	05/19/2016	05/19/2017
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	5/17/2016	5/17/2017
Antenna, Horn 18-26GHz	Com-Power	AH-826	081033	07/06/2014	07/06/2017
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551033	5/17/2016	5/17/2017
Pre-Amp, 18-40GHz	Com-Power	PA-840	181289	6/16/2015	6/16/2017
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	8/26/2015	8/26/2017
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 by 0.8-meter-high non-conductive table, which was placed on the ground plane.

For above 1GHz testing the EUT was placed 1.5 meters above the ground plane.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

6.4 Measurement Uncertainty

"Compatible Electronics' U_{lab} value is less than U_{cispr}, thus based on this – compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 \; u^2(x_i)}$$

Measurement		U_{cispr}	$U_{lab} = 2\ uc\ (y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	3,6 dB	2.88
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	5,2 dB	4.04

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

There are a total of two channels. The low channel is 908.4 MHz and the high channel is at 916 MHz. The EUT uses GFSK and FSK modulation.

7.2 Antenna

The Antenna is made of up a trace on the PCB.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

Test Results: The EUT is battery powered; therefore, this test was not performed.

The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The different configurations were investigated to find the worst case as well the worst case channel. The final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. There was one Microwave Preamplifier used for frequencies above 1 GHz.

For all emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz (120 kHz for QP Measurements)
1000 to 25000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4 & ANSI C63.10. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109, & Part 15 Subpart C sections 15.205, 15.209, 15.249, RSS GEN, & RSS 210. The six highest emissions are listed in table 1.

8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.249 & RSS 210.

8.1.4 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The lower and upper channels were tuned during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205, 15.249, RSS GEN, & RSS 210.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Electronic Door Lock Model: 450412 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B section 15.109, & Subpart C sections 15.205, 15.209, 15.249, RSS GEN, & RSS 210.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200527-0

ilac-MRA

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

For the most up-to-date version of our scopes and certificates please visit

http://celectronics.com/quality/scope/

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

IC OAT's Test Site Registration Number: 2154C-1

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications were made during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	ELECTRONIC DOOR LOCK Model: 450412 S/N: NONE

No additional models were tested.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

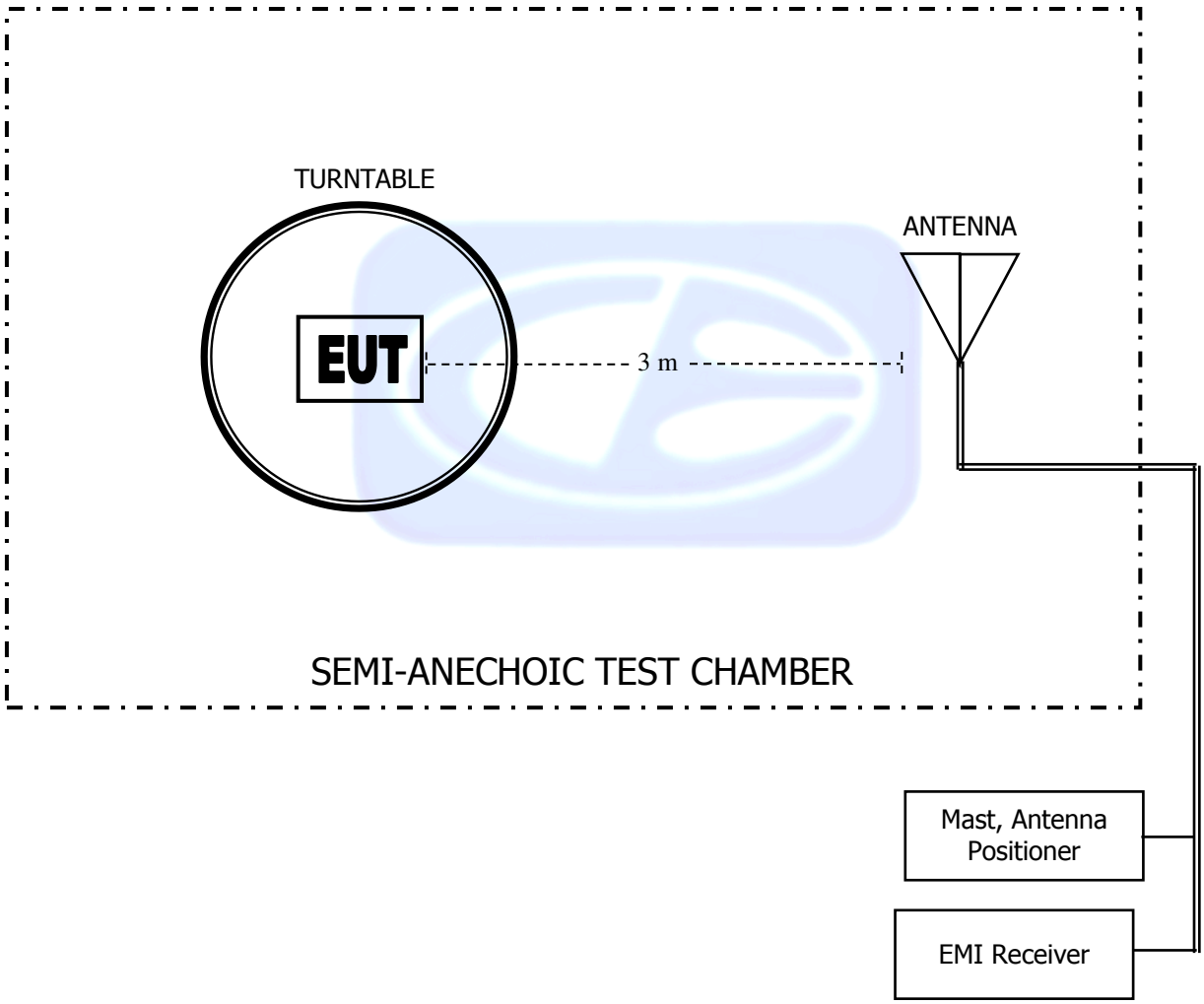
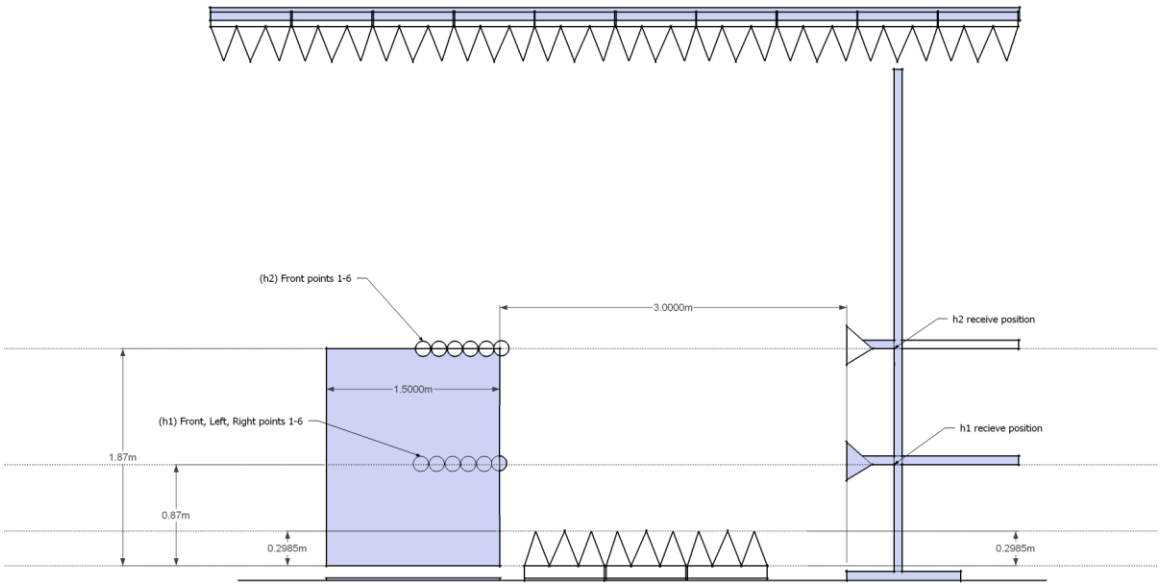


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2017

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.64	16.86	**0.8**	-36.32	15.18
0.01	-34.78	16.72	**0.9**	-36.22	15.28
0.02	-35.91	15.59	**1.0**	-36.22	15.28
0.03	-35.48	16.02	**2.0**	-35.91	15.59
0.04	-35.82	15.68	**3.0**	-35.91	15.59
0.05	-36.49	15.01	**4.0**	-36.01	15.49
0.06	-36.30	15.20	**5.0**	-35.80	15.70
0.07	-36.43	15.07	**6.0**	-36.00	15.50
0.08	-36.30	15.20	**7.0**	-35.90	15.60
0.09	-36.39	15.11	**8.0**	-35.70	15.80
0.1	-36.41	15.09	**9.0**	-35.70	15.80
0.2	-36.61	14.89	**10.0**	-35.60	15.90
0.3	-36.63	14.87	**15.0**	-36.52	14.98
0.4	-36.52	14.99	**20.0**	-35.75	15.75
0.5	-36.63	14.87	**25.0**	-37.78	13.72
0.6	-36.62	14.88	**30.0**	-38.62	12.88
0.7	-36.53	14.97			

COM-POWER AC-220

LAB R - COMBILOG ANTENNA

S/N: 25857

CALIBRATION DUE: MAY 19, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.5	**160**	13.3
35	22.5	**180**	15.0
40	23.0	**200**	14.6
45	21.5	**250**	16.5
50	21.3	**300**	18.1
60	18.2	**400**	19.4
70	13.2	**500**	20.6
80	11.6	**600**	21.6
90	11.9	**700**	23.7
100	12.6	**800**	26.0
120	15.1	**900**	26.6
140	15.2	**1000**	28.5

COM-POWER AH-118

HORN ANTENNA

S/N: 071250

CALIBRATION DUE: MAY 17, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	24.40	**9500**	39.11
1500	25.61	**10000**	39.38
2000	28.71	**10500**	39.55
2500	29.09	**11000**	39.66
3000	30.24	**11500**	40.28
3500	30.94	**12000**	40.26
4000	31.77	**12500**	40.64
4500	32.29	**13000**	41.33
5000	33.70	**13500**	41.74
5500	34.28	**14000**	41.52
6000	34.83	**14500**	41.80
6500	35.07	**15000**	43.51
7000	36.79	**15500**	41.03
7500	37.45	**16000**	40.88
8000	37.67	**16500**	40.18
8500	37.75	**17000**	42.59
9000	38.15	**17500**	44.49
		18000	45.27

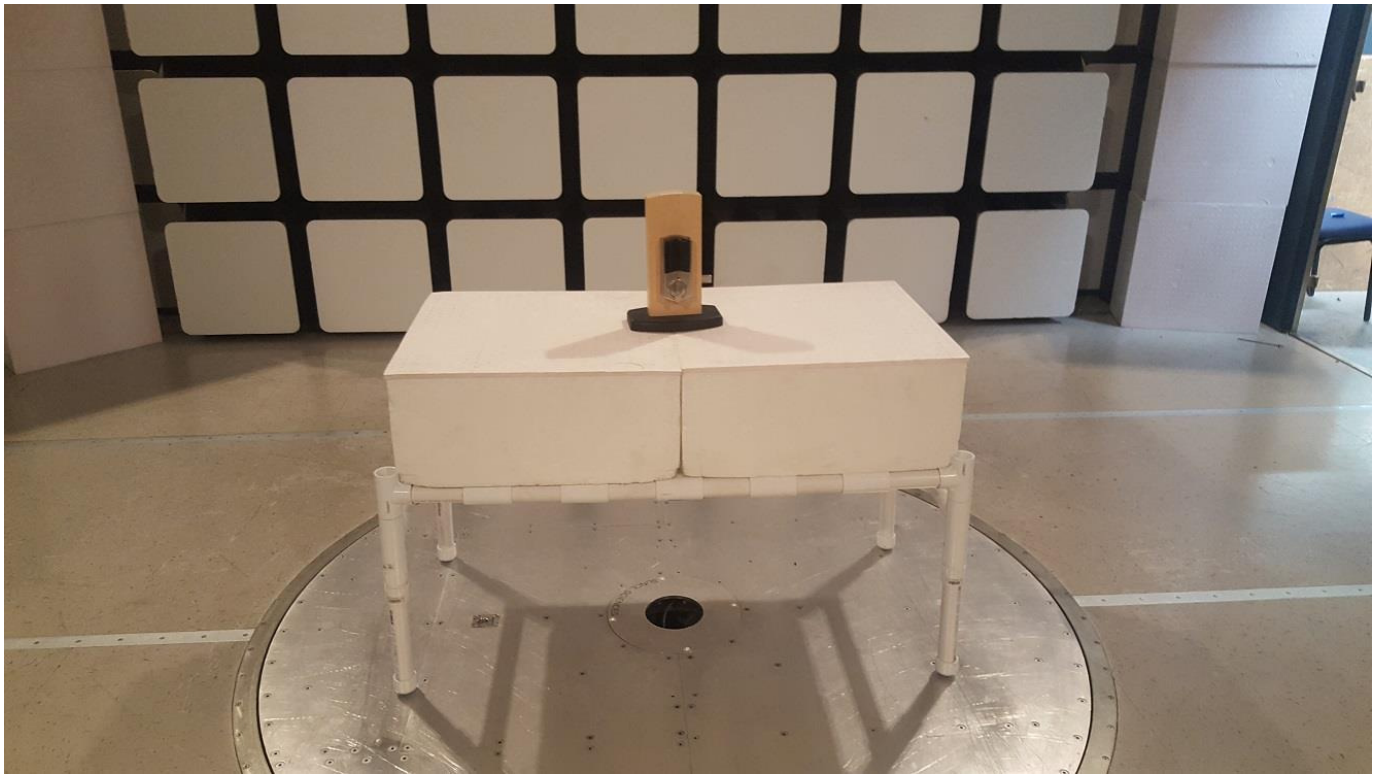
COM-POWER PAM-118A

1-18GHz - PREAMPLIFIER

S/N: 551033

CALIBRATION DUE: MAY 17, 2017

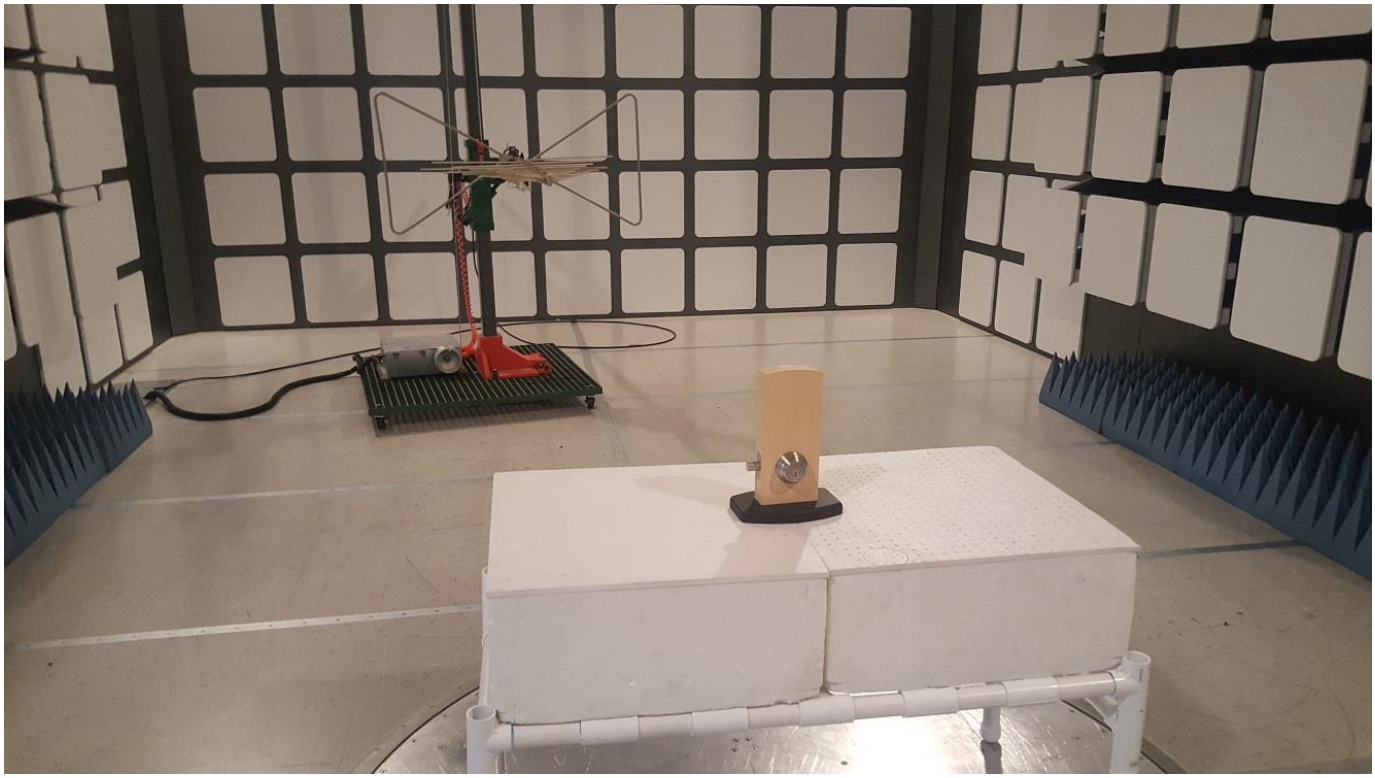
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	41.06	**5500**	40.63
1000	41.06	**6000**	40.18
1100	41.12	**6500**	40.33
1200	41.09	**7000**	39.97
1300	41.20	**7500**	40.45
1400	41.28	**8000**	39.83
1500	41.34	**8500**	39.79
1600	41.37	**9000**	39.71
1700	41.43	**9500**	39.80
1800	41.47	**10000**	41.07
1900	41.53	**11000**	40.05
2000	41.59	**12000**	40.21
2500	41.87	**13000**	40.61
3000	42.13	**14000**	39.09
3500	42.21	**15000**	39.36
4000	42.22	**16000**	38.32
4500	41.53	**17000**	38.32
5000	41.16	**18000**	36.85



FRONT VIEW

SPECTRUM BRANDS
ELECTRONIC DOOR LOCK
Model: 450412
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

SPECTRUM BRANDS
ELECTRONIC DOOR LOCK
Model: 450412
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

SPECTRUM BRANDS
ELECTRONIC DOOR LOCK
Model: 450412
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

SPECTRUM BRANDS
ELECTRONIC DOOR LOCK
Model: 450412
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

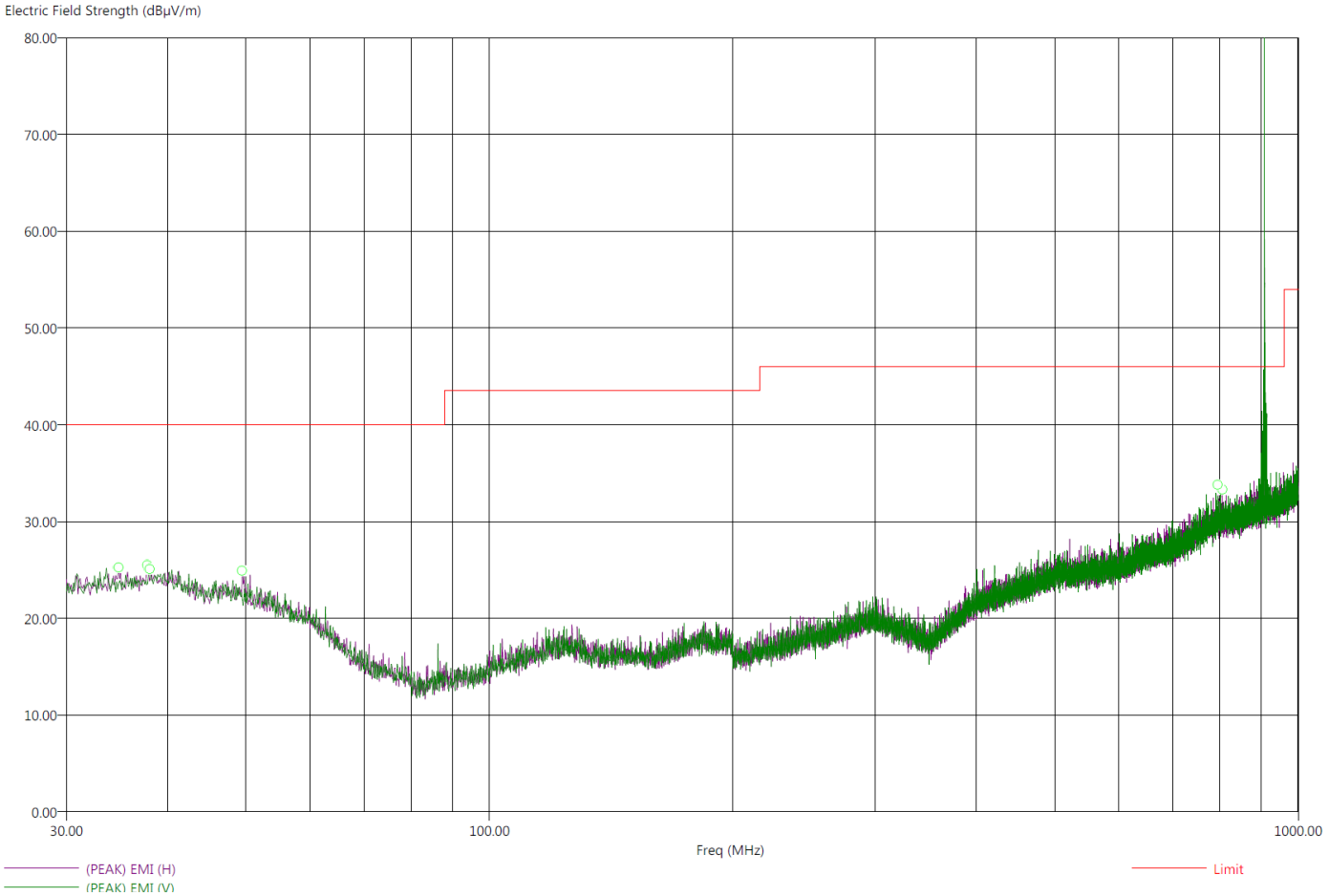
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209 9/15/2016 9:54:38 AM
File: Radiated Pre-Scan 30-1000Mhz.set Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: Electronic Lock / 450412
EUT Condition: The EUT is constantly transmitting 908.4 MHz.
Comments: Temp: 72f
Hum: 38%
Battery Powered

Compatible Electronics, Inc. FAC-3 (Lab R)



There were no radiated emissions other than harmonics found below 30 MHz or above 1GHz.
This is the worst case channel and mode for spurious emissions.

Title: FCC 15.209 9/15/2016 10:17:42 AM
File: Radiated Final 30-1000Mhz.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: Electronic Lock / 450412
EUT Condition: The EUT is constantly transmitting 908.4 MHz.
Comments: Temp: 72f
Hum: 38%
Battery Powered

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer(dB)	Cable (dB)
34.80	-20.92	19.08	24.05	40.00	H	71.75	202.83	22.50	0.35
37.80	-20.43	19.57	25.03	40.00	H	83.00	353.70	22.80	0.40
38.00	-20.43	19.57	24.58	40.00	V	307.50	339.97	22.80	0.40
49.50	-21.44	18.56	23.66	40.00	H	205.00	311.79	21.32	0.46
796.20	-18.93	27.07	32.65	46.00	H	126.00	354.00	25.92	2.53
805.30	-18.72	27.28	32.73	46.00	H	314.00	185.22	26.00	2.55

There were no radiated emissions other than harmonics found below 30 MHz or above 1GHz.
This is the worst case channel and mode.

FUNDAMENTAL & HARMONICS

DATA SHEETS

FUNDAMENTAL FIELD STRENGTH

FCC 15.249

Company:	Kwikset	Date:	9/15/2016
EUT:	Electronic Lock	Lab:	R
Model:	450412	Tested by:	Torey Oliver

Compatible Electronics, Inc. FAC-3

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table	Tower	Comments
908.40	83.58	H	93.97	-10.39	Peak	309	1.99	
908.40	93.55	V	93.97	-0.42	Peak	0	1.00	
916.00	83.38	H	93.97	-10.59	Peak	310	1.98	
916.00	90.43	V	93.97	-3.54	Peak	0	1.00	

Test distance
3 meter

HARMONICS LOW CHANNEL HORIZONTAL

FCC 15.249

Company: Kwikset
EUT: Electronic Lock
Model: 450412

Date: 9/15/2016
Lab: R
Tested by: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8	37.84	H	73.98	-36.14	Peak	1.98	293	
1816.8	23.46	H	53.98	-30.52	Avg	1.98	293	
2725.2	38.41	H	73.98	-35.57	Peak	1.41	314	
2725.2	24.51	H	53.98	-29.47	Avg	1.41	314	
3633.6	42.75	H	73.98	-31.23	Peak	1.93	355	
3633.6	28.35	H	53.98	-25.63	Avg	1.93	355	
4542.0	50.91	H	73.98	-23.07	Peak	1.22	0	
4542.0	35.19	H	53.98	-18.79	Avg	1.22	0	
5450.4	47.74	H	73.98	-26.24	Peak	1.86	298	
5450.4	33.81	H	53.98	-20.17	Avg	1.86	298	
6358.8	48.74	H	73.98	-25.24	Peak	1.47	343	
6358.8	34.70	H	53.98	-19.28	Avg	1.47	343	
7267.2		H	73.98		Peak			No Emissions Found
7267.2		H	53.98		Avg			No Emissions Found
8175.6	49.69	H	73.98	-24.29	Peak	2.09	306	
8175.6	37.23	H	53.98	-16.75	Avg	2.09	306	
9084.0	51.28	H	73.98	-22.70	Peak	1.20	359	
9084.0	37.99	H	53.98	-15.99	Avg	1.20	359	

Test distance
3 meter

HARMONICS LOW CHANNEL VERTICAL

FCC 15.249

Company: Kwikset
EUT: Electronic Lock
Model: 450412

Date: 9/15/2016
Lab: R
Tested by: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1816.8	34.96	V	73.98	-39.02	Peak			
1816.8	21.90	V	53.98	-32.08	Avg			
2725.2	39.61	V	73.98	-34.37	Peak			
2725.2	24.97	V	53.98	-29.01	Avg			
3633.6		V	73.98		Peak			No Emissions Found
3633.6		V	53.98		Avg			No Emissions Found
4542.0	49.81	V	73.98	-24.17	Peak			
4542.0	34.35	V	53.98	-19.63	Avg			
5450.4	45.19	V	73.98	-28.79	Peak			
5450.4	32.19	V	53.98	-21.79	Avg			
6358.8	45.99	V	73.98	-27.99	Peak			
6358.8	33.33	V	53.98	-20.65	Avg			
7267.2	47.70	V	73.98	-26.28	Peak			
7267.2	34.98	V	53.98	-19.00	Avg			
8175.6	49.81	V	73.98	-24.17	Peak			
8175.6	37.29	V	53.98	-16.69	Avg			
9084.0	51.03	V	73.98	-22.95	Peak			
9084.0	38.03	V	53.98	-15.95	Avg			

Test distance
3 meter

HARMONICS HIGH CHANNEL HORIZONTAL

FCC 15.249

Company: Kwikset
EUT: Electronic Lock
Model: 450412

Date: 9/15/2016
Lab: R
Tested by: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0	35.67	H	73.98	-38.31	Peak	3.26	335	
1832.0	22.53	H	53.98	-31.45	Avg	3.26	335	
2748.0	40.57	H	73.98	-33.41	Peak	1.68	330	
2748.0	25.84	H	53.98	-28.14	Avg	1.68	330	
3664.0		H	73.98		Peak			No Emissions Found
3664.0		H	53.98		Avg			No Emissions Found
4580.0	52.85	H	73.98	-21.13	Peak	1.37	349	
4580.0	35.53	H	53.98	-18.45	Avg	1.37	349	
5496.0		H	73.98		Peak			No Emissions Found
5496.0		H	53.98		Avg			No Emissions Found
6412.0	45.19	H	73.98	-28.79	Peak	1.16	7	
6412.0	32.74	H	53.98	-21.24	Avg	1.16	7	
7328.0		H	73.98		Peak			No Emissions Found
7328.0		H	53.98		Avg			No Emissions Found
8244.0	50.19	H	73.98	-23.79	Peak	1.27	321	
8244.0	37.57	H	53.98	-16.41	Avg	1.27	321	
9160.0		H	73.98		Peak			No Emissions Found
9160.0		H	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONICS HIGH CHANNEL VERTICAL

FCC 15.249

Company: Kwikset
EUT: Electronic Lock
Model: 450412

Date: 9/15/2016
Lab: R
Tested by: Torey Oliver

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1832.0		V	73.98		Peak			No Emissions Found
1832.0		V	53.98		Avg			No Emissions Found
2748.0	38.57	V	73.98	-35.41	Peak	1.86	353	
2748.0	24.79	V	53.98	-29.19	Avg	1.86	353	
3664.0		V	73.98		Peak			No Emissions Found
3664.0		V	53.98		Avg			No Emissions Found
4580.0	50.60	V	73.98	-23.38	Peak	1.74	333	
4580.0	33.88	V	53.98	-20.10	Avg	1.74	333	
5496.0		V	73.98		Peak			No Emissions Found
5496.0		V	53.98		Avg			No Emissions Found
6412.0	45.18	V	73.98	-28.80	Peak	3.99	182	
6412.0	32.63	V	53.98	-21.35	Avg	3.99	182	
7328.0		V	73.98		Peak			No Emissions Found
7328.0		V	53.98		Avg			No Emissions Found
8244.0	50.21	V	73.98	-23.77	Peak	1.22	360	
8244.0	37.63	V	53.98	-16.35	Avg	1.22	360	
9160.0		V	73.98		Peak			No Emissions Found
9160.0		V	53.98		Avg			No Emissions Found

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND

DATA SHEETS

BAND EDGES HORIZONTAL

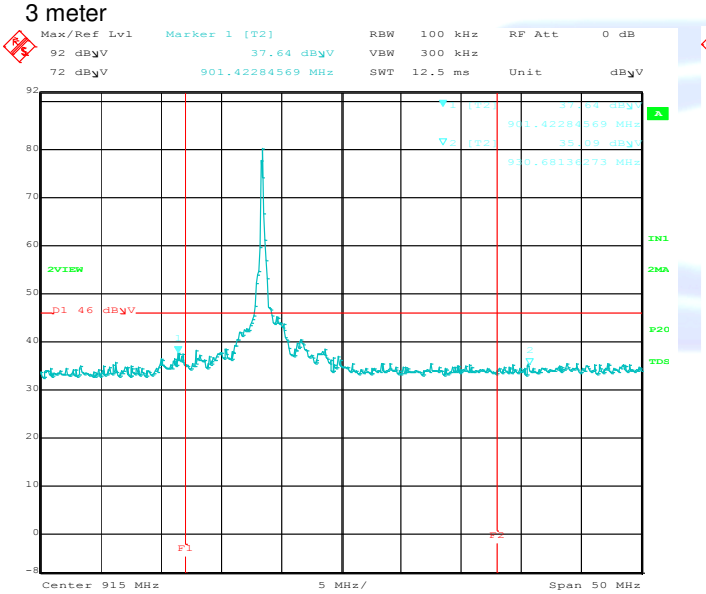
FCC 15.249 & RSS 210

Company:	Spectrum Brands	Date:	9/15/2016
EUT:	Electronic Door Lock	Lab:	R
Model:	450412	Test ENG:	Torey Oliver

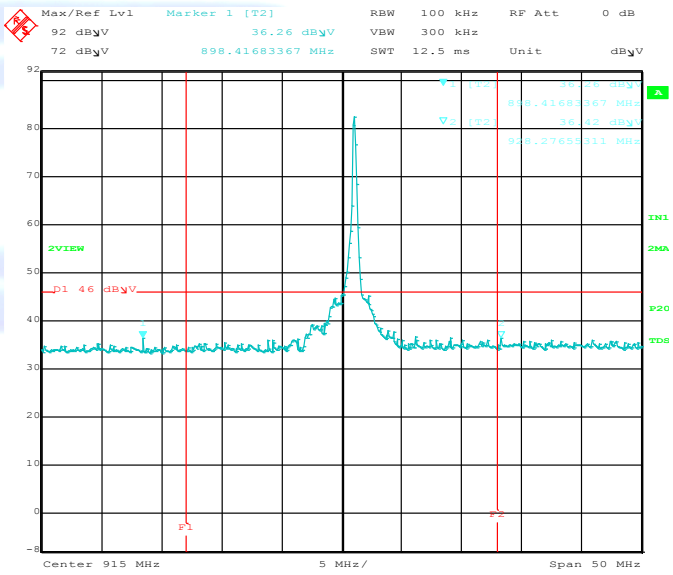
Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
901.42	37.64	H	46.00	-8.36	Peak	1.99	309	No Marker Delta
898.42	36.26	H	46.00	-9.74	Peak	1.98	310	Method Used
930.68	35.09	H	46.00	-10.91	Peak	1.99	309	No Marker Delta
928.28	36.42	H	46.00	-9.58	Peak	1.98	310	Method Used

Test distance
3 meter



Comment A: Band Edge 908.4 MHz Horizontal
Date: 31.DEC.1996 23:54:21



Comment A: Band Edge 916 MHz Horizontal
Date: 1.JAN.1997 06:39:09

BAND EDGES VERTICAL

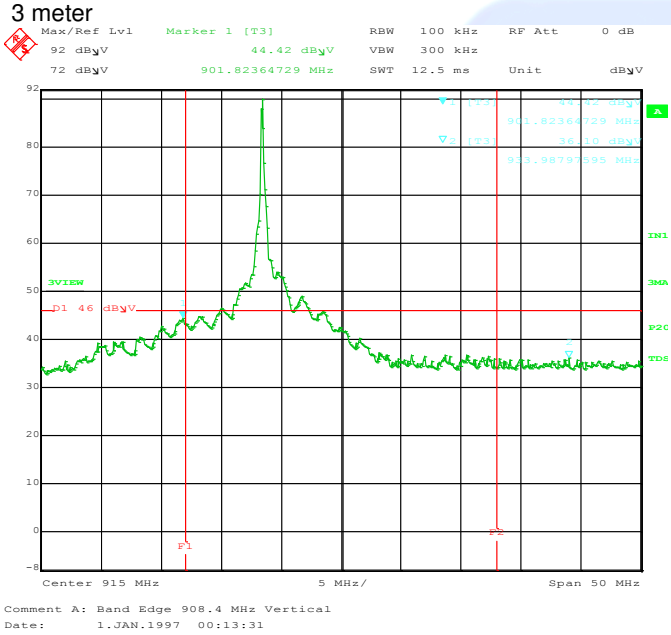
FCC 15.249 & RSS 210

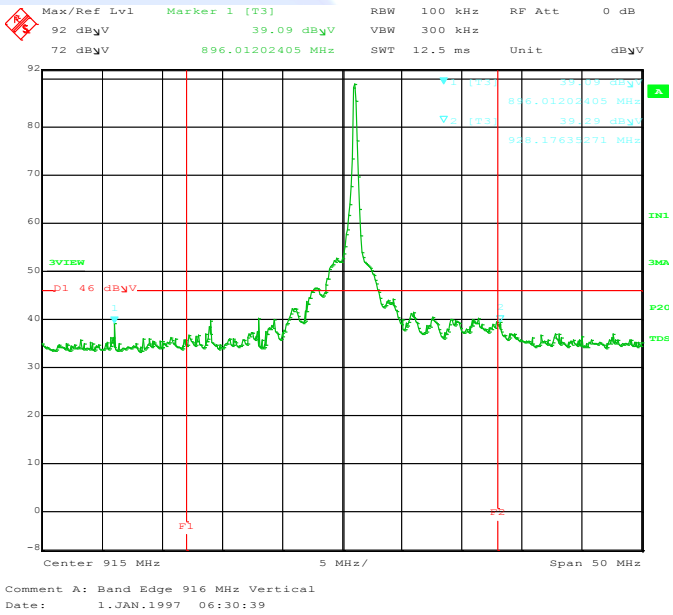
Company:	Spectrum Brands	Date:	9/15/2016
EUT:	Electronic Door Lock	Lab:	R
Model:	450412	Test ENG:	Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
901.82	44.42	V	46.00	-1.58	Peak	1.00	0	No Marker Delta
896.01	39.09	V	46.00	-6.91	Peak	1.00	0	Method Used
933.99	36.10	V	46.00	-9.90	Peak	1.00	0	No Marker Delta
928.18	39.29	V	46.00	-6.71	Peak	1.00	0	Method Used

Test distance
3 meter





OCCUPIED BANDWIDTH

DATA SHEETS

OCCUPIED BANDWIDTH

RSS GEN

Company:	Spectrum Brands	Date:	9/15/2016
EUT:	Electronic Door Lock	Lab:	R
Model:	450412	Test ENG:	Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab R)

Occupied Bandwidth

Freq. (MHz)	Measured BW (kHz)	Peak / QP / Avg	Comments
908.42	212.42	Peak	99% Bandwidth
916.00	172.34	Peak	99% Bandwidth