FCC PART 15 SUBPART C
TEST REPORT

for

4 BUTTON KEY FOB
Model: SW-ATT-FOB2 (Hopping Mode)

Prepared for

LINEAR, LLC.
1950 CAMINO VIDA ROBLE, SUITE 150
CARLSBAD, CA 92008

Prepared by:____

MATT HARRISON

Approved by:_____

JEFF KLINGER

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CALIFORNIA 92630
(949) 587-0400

DATE: APRIL 7, 2014

	REPORT BODY	APPENDICES					TOTAL
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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 endorsement by NVLAP, NIST, or any other agency of the U.S. Government or other governments.

Device Tested:	4 Button Key Fob Model: SW-ATT-FOB2 (Hopping Mode) S/N: N/A
Product Description:	The EUT is a proprietary 4 Button Key Fob that reports to the Digital Life Control Panel.
Modifications:	The EUT was not modified during testing.
Manufacturer:	Linear, LLC. 1950 Camino Vida Roble, Suite 150 Carlsbad, CA 92008
Test Date:	April, 3, & 7, 2014
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart C Sections 15.205, 15.209 and 15.249
Test Procedure:	ANSI 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 – 10,000 MHz.	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.205, 15.209, 15.249

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	QP	H	927.72	93.73	93.97	-0.24	3-Meter
2	QP	H	928.05	45.74	46.00	-0.26	3-Meter
3	QP	H	915.23	93.55	93.97	-0.42	3-Meter
4	QP	H	902.00	45.00	46.00	-1.00	3-Meter
5	QP	H	902.25	88.92	93.97	-5.05	3-Meter
6	QP	V	928.00	34.50	46.00	-11.50	3-Meter

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 4 Button Key Fob Model: SW-ATT-FOB2 (Hopping Mode). The EMI measurements were performed according to the measurement procedure described in ANSI 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 C sections 15.205, 15.209 and 15.249.

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

Linear, LLC.

Josh Hansen	Regulatory Engineer

Compatible Electronics, Inc.

Matt Harrison	Test Technician
Jeff Klinger	Director of Engineering

2.4 Date Test Sample was Received

The test sample was received on April 2nd, 2014.

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 C63.10: 2009	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The 4 Button Key Fob Model: SW-ATT-FOB2 (Hopping Mode) (EUT) was setup in a tabletop configuration. The EUT was powered by 2-CR 2025 batteries. The EUT was checked in all 3-Axes and the worst case was X-Axis. The EUT was continuously transmitting a data stream on a single channel during transmitter tests and continuously receiving during receiver tests.

The 2-CR 2025 batteries were replaced with 2 new CR 2025 batteries; the transmitting signal amplitude and frequency did not vary.

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

4.1.2 Cable Construction and Termination

Cable 1

There were no interconnecting cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER	FCC ID
1	4 BUTTON KEY FOB (EUT)	LINEAR, LLC.	SW-ATT-FOB2 (Hopping Mode)	N/A	EF400120
2	BATTERY	PANASONIC	CR 2025	N/A	N/A

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	9/19/2013	9/19/2014
Antenna, Loop	Com Power	AL-130	121049	12/6/2013	12/6/2015
Antenna, CombiLog	Com Power	AC-220	25857	4/16/2013	4/16/2015
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	07/03/2012	07/03/2014
Pre-Amp, 1-18GHz	Com Power	PAM-118	443013	4/8/2013	4/8/2014
Pre-Amp, 1-18GHz	Com Power	PAM-118	443011	4/8/2013	4/8/2014
Notch Filter	Microwave Circuits	N0309153	3709-01 DC0415	5/9/2013	5/9/2014
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	081309-3	N/A	N/A
Turntable	Sunol Science Corporation	FM2011VS	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.

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.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

The FHSS uses 101 channels maximum and 50 channels minimum using a pseudo random technique. It uses GFSK modulation. The channels are separated by approximately 250 kHz. Listed below are the channels tested for compliance:

Low Channel (Edge)	== 902.25 MHz
Middle Channel	== 915.23 MHz
High Channel (Edge)	== 927.72 MHz

7.2 Antenna

The antenna is made up of an integrated PCB antenna which is located 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

(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 final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT is battery powered; therefore this test was not performed.

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

For the Harmonic emissions a linear average detector was used.

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	120 kHz
1000 to 10000	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 C63.10, EN 50147-2, and CISPR 22. 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 C sections 15.205, 15.209 and 15.249.

8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured using the EMI Receiver at a 3-meter test distance 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.

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 15.249.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The 4 Button Key Fob Model: SW-ATT-FOB2 (Hopping Mode) meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.209 and 15.249.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links

Agoura Division - http://ts.nist.gov/Standards/scopes/2000630.htm
Brea Division - http://ts.nist.gov/Standards/scopes/2005280.htm
Silverado/Lake Forest Division - http://ts.nist.gov/Standards/scopes/2005270.htm

ANSI listing
CETCB
https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

We are also certified/listed for IT products by the following country/agency:

VCCI Listing, from VCCI site
Enter "Compatible" in search form http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html

FCC Listing, from FCC OET site
FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Industry Canada Industrie Canada Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	4 BUTTON KEY FOB Model: SW-ATT-FOB2 (Hopping Mode) 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

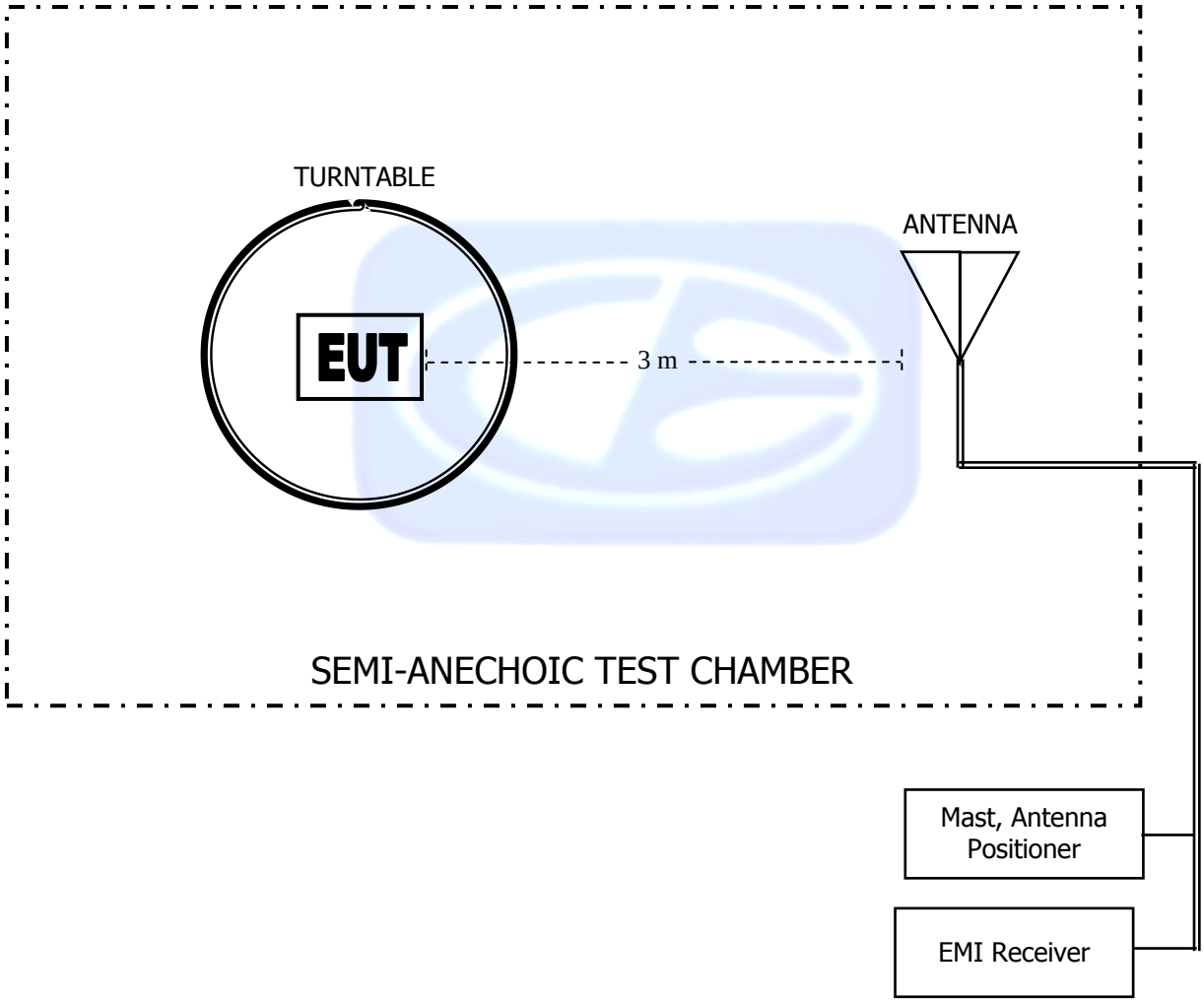
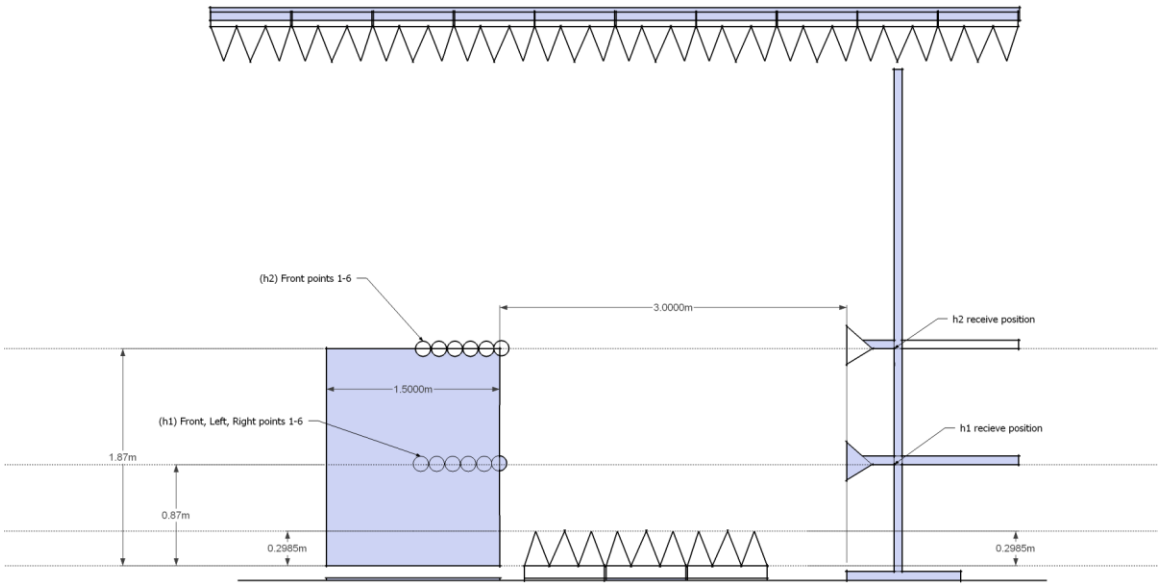


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2015

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: APRIL 16, 2015

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	17.8	**160**	8.3
35	18.4	**180**	9.4
40	19.2	**200**	9.0
45	17.2	**250**	12.0
50	17.2	**300**	13.4
60	13.5	**400**	15.0
70	8.9	**500**	17.3
80	6.0	**600**	17.8
90	7.1	**700**	20.0
100	8.0	**800**	20.5
120	9.2	**900**	20.8
140	7.5	**1000**	22.4

COM-POWER AH-118

HORN ANTENNA

S/N: 071250

CALIBRATION DUE: JULY 3, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	26.5	**9500**	40.4
1500	27.2	**10000**	40.3
2000	31.5	**10500**	41.7
2500	31.9	**11000**	42.1
3000	32.7	**11500**	42.3
3500	34.0	**12000**	42.6
4000	33.5	**12500**	41.4
4500	34.9	**13000**	42.7
5000	36.2	**13500**	43.6
5500	36.6	**14000**	42.4
6000	36.8	**14500**	42.7
6500	37.4	**15000**	45.4
7000	39.4	**15500**	45.1
7500	39.6	**16000**	42.9
8000	42.4	**16500**	44.0
8500	40.3	**17000**	46.8
9000	39.6	**17500**	47.5
		18000	46.6

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443013

CALIBRATION DUE: APRIL 8, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	26.32	**5500**	25.55
1000	24.72	**6000**	25.54
1100	25.89	**6500**	24.57
1200	25.41	**7000**	23.51
1300	26.28	**7500**	23.59
1400	25.94	**8000**	23.32
1500	25.59	**8500**	22.76
1600	26.95	**9000**	23.15
1700	25.52	**9500**	24.41
1800	25.75	**10000**	25.71
1900	26.00	**11000**	26.07
2000	25.38	**12000**	26.17
2500	26.06	**13000**	24.72
3000	26.24	**14000**	23.19
3500	25.82	**15000**	25.42
4000	26.04	**16000**	25.07
4500	25.96	**17000**	24.24
5000	26.02	**18000**	24.92

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443011

CALIBRATION DUE: April 8, 2014

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
0.500	27.01	**7.000**	23.96
1.000	25.68	**7.500**	24.28
1.500	26.55	**8.000**	24.33
2.000	26.16	**8.500**	24.42
2.500	27.21	**9.500**	25.89
3.000	26.46	**10.000**	27.73
3.500	26.52	**11.000**	28.36
4.000	27.67	**12.000**	27.21
4.500	26.32	**13.000**	27.69
5.000	26.90	**14.000**	25.94
5.500	26.72	**15.000**	24.27
6.000	26.48	**16.000**	27.22
6.500	27.12	**17.000**	26.12
		18.000	25.96

FRONT VIEW

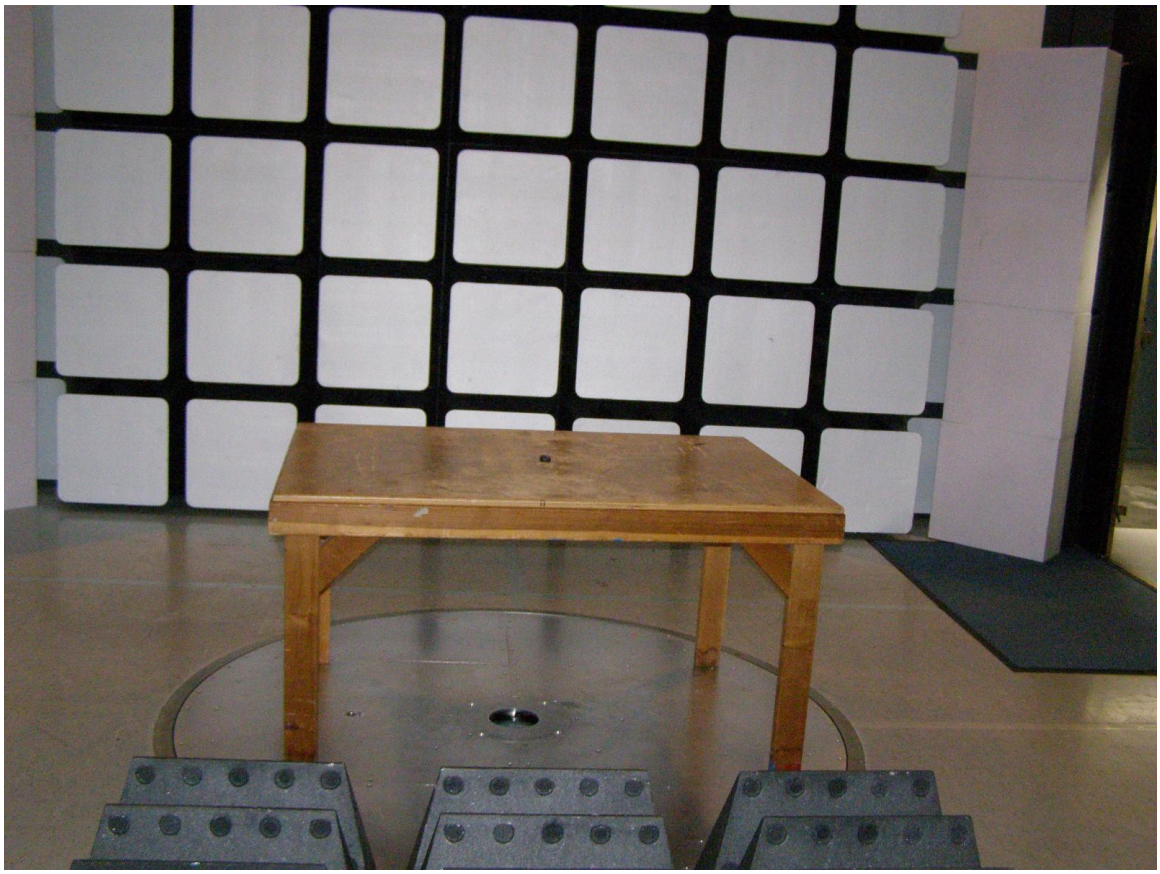
LINEAR, LLC.
4 BUTTON KEY FOB
Model: SW-ATT-FOB2 (Hopping Mode)
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

LINEAR, LLC.
4 BUTTON KEY FOB
Model: SW-ATT-FOB2 (Hopping Mode)
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

LINEAR, LLC.
4 BUTTON KEY FOB
Model: SW-ATT-FOB2 (Hopping Mode)
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

LINEAR, LLC.
4 BUTTON KEY FOB
Model: SW-ATT-FOB2 (Hopping Mode)
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

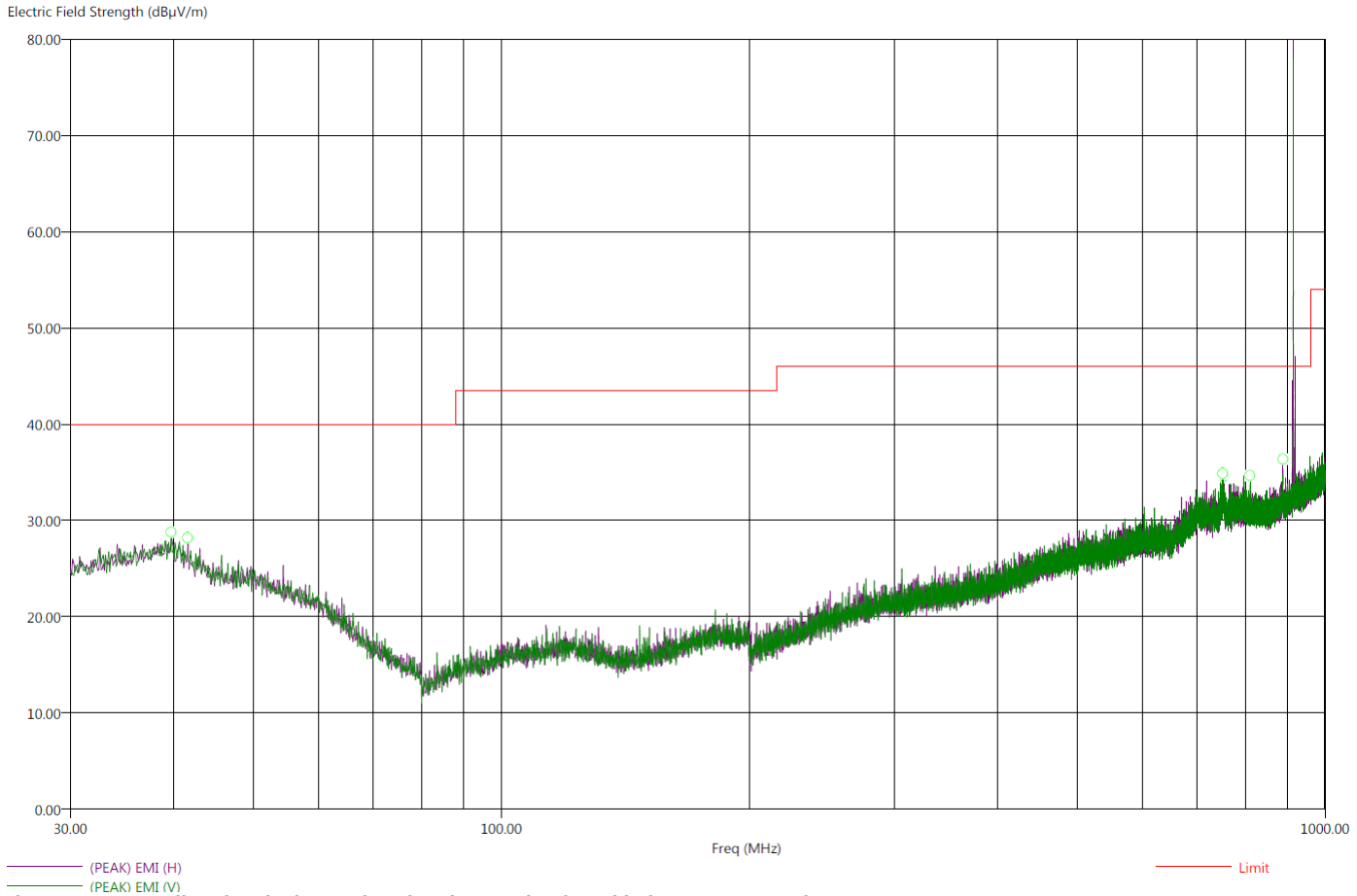
APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz_Mid.set
Operator: Matt Harrison
EUT Type: 4 Button Key Fob: SW-ATT-FOB (Hopping).
EUT Condition: Transmitting 915.23 MHz. (Worst Case)
Comments:
Temp: 70f
Hum: 39%
Battery Powered

4/3/2014 11:28:35 AM
Sequence: Preliminary Scan

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



There were no radiated emissions other than harmonics found below 30 MHz or above 1000MHz
There were no radiated emissions found in Receive Mode.

Title: FCC 15.209
File: Radiated Final 30-1000Mhz_Mid.set
Operator: Matt Harrison
EUT Type: 4 Button Key Fob: SW-ATT-FOB (Hopping).
EUT Condition: Transmitting 915.23 MHz.
Comments:
Temp: 70f
Hum: 39%
Battery Powered

4/3/2014 11:49:07 AM
Sequence: Final Measurements

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

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)
39.80	-17.39	22.61	27.72	40.00	V	152.50	311.28	19.17	1.29
41.70	-18.21	21.79	27.23	40.00	H	45.00	388.05	18.48	1.07
751.40	-16.72	29.28	35.05	46.00	V	107.25	346.80	20.27	3.01
754.00	-16.97	29.03	34.41	46.00	H	310.25	176.23	20.28	3.02
811.10	-17.88	28.12	33.25	46.00	V	290.75	249.73	20.53	3.12
888.90	-14.86	31.14	36.67	46.00	H	23.75	187.82	20.77	3.13

There were no radiated emissions other than harmonics found below 30 MHz or above 1000MHz
There were no radiated emissions found in Receive Mode.

FUNDAMENTAL & HARMONICS

DATA SHEETS

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/3/2014
Lab: R
Tested By: Matt Harrison

Fundamental Field Strength

Freq. (MHz)	Peak Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Table Angle (deg)	Tower Height (m)	Comments
902.25	91.71	H	--	--	Peak	1	360	
902.25	88.92	H	93.97	-5.05	QP	1	360	
902.25	78.77	V	--	--	Peak	1.6	85	
902.25	75.93	V	93.97	-18.04	QP	1.6	85	
915.23	97.23	H	--	--	Peak	1	305	
915.23	93.55	H	93.97	-0.42	QP	1	305	
915.23	83.76	V	--	--	Peak	1.6	85	
915.23	80.20	V	93.97	-13.77	QP	1.6	85	
927.72	96.98	H	--	--	Peak	1	296	
927.72	93.73	H	93.97	-0.24	QP	1	296	
927.72	84.37	V	--	--	Peak	1.6	278	
927.72	81.26	V	93.97	-12.71	QP	1.6	278	

Test distance
3 meter

HARMONIC EMISSIONS LOW CHANNEL HORIZONTAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/3/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.50	44.92	H	73.98	-29.06	Peak	2.83	95	
1804.50	28.23	H	53.98	-25.75	Avg	2.83	95	
2706.75	50.71	H	73.98	-23.27	Peak	1.82	155	
2706.75	32.29	H	53.98	-21.69	Avg	1.82	155	
3609.00	45.85	H	73.98	-28.13	Peak	1.51	274	
3609.00	31.85	H	53.98	-22.13	Avg	1.51	274	
4511.25	41.31	H	73.98	-32.67	Peak	1.30	280	
4511.25	30.19	H	53.98	-23.79	Avg	1.30	280	
5413.50	45.91	H	73.98	-28.07	Peak	1.00	160	
5413.50	32.19	H	53.98	-21.79	Avg	1.00	160	
6315.75	47.82	H	73.98	-26.16	Peak	1.80	360	
6315.75	35.08	H	53.98	-18.90	Avg	1.80	360	
7218.00	51.42	H	73.98	-22.56	Peak	1.30	190	
7218.00	38.52	H	53.98	-15.46	Avg	1.30	190	
8120.25	54.11	H	73.98	-19.87	Peak	1.52	75	
8120.25	41.43	H	53.98	-12.55	Avg	1.52	75	
9022.50	50.75	H	73.98	-23.23	Peak	1.47	221	
9022.50	38.54	H	53.98	-15.44	Avg	1.47	221	

Test distance
3 meter

HARMONIC EMISSIONS LOW CHANNEL VERTICAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/4/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.50	45.15	V	73.98	-28.83	Peak	1.04	82	
1804.50	28.38	V	53.98	-25.60	Avg	1.04	82	
2706.75	51.48	V	73.98	-22.50	Peak	1.2	112	
2706.75	34.63	V	53.98	-19.35	Avg	1.2	112	
3609.00	44.36	V	73.98	-29.62	Peak	1.9	159	
3609.00	31.80	V	53.98	-22.18	Avg	1.9	159	
4511.25	42.90	V	73.98	-31.08	Peak	2	256	
4511.25	28.95	V	53.98	-25.03	Avg	2	256	
5413.50	45.28	V	73.98	-28.70	Peak	2	24	
5413.50	32.19	V	53.98	-21.79	Avg	2	24	
6315.75	47.70	V	73.98	-26.28	Peak	2.43	83	
6315.75	35.11	V	53.98	-18.87	Avg	2.43	83	
7218.00	52.17	V	73.98	-21.81	Peak	1.75	275	
7218.00	38.52	V	53.98	-15.46	Avg	1.75	275	
8120.25	55.10	V	73.98	-18.88	Peak	1.6	155	
8120.25	41.46	V	53.98	-12.52	Avg	1.6	155	
9022.50	51.46	V	73.98	-22.52	Peak	2.12	240	
9022.50	38.55	V	53.98	-15.43	Avg	2.12	240	

Test distance
3 meter

HARMONIC EMISSIONS MID CHANNEL HORIZONTAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/3/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.46	48.33	H	73.98	-25.65	Peak	1.20	94	
1830.46	29.74	H	53.98	-24.24	Avg	1.20	94	
2745.69	41.14	H	73.98	-32.84	Peak	1.70	155	
2745.69	27.52	H	53.98	-26.46	Avg	1.70	155	
3660.92	43.47	H	73.98	-30.51	Peak	2.12	25	
3660.92	30.60	H	53.98	-23.38	Avg	2.12	25	
4576.15	42.20	H	73.98	-31.78	Peak	2.40	112	
4576.15	29.89	H	53.98	-24.09	Avg	2.40	112	
5491.38	44.77	H	73.98	-29.21	Peak	1.8	173	
5491.38	31.65	H	53.98	-22.33	Avg	1.8	173	
6406.61	47.86	H	73.98	-26.12	Peak	3.77	345	
6406.61	35.38	H	53.98	-18.60	Avg	3.77	345	
7321.84	51.59	H	73.98	-22.39	Peak	1.50	123	
7321.84	38.56	H	53.98	-15.42	Avg	1.50	123	
8237.07	55.43	H	73.98	-18.55	Peak	1.67	23	
8237.07	41.71	H	53.98	-12.27	Avg	1.67	23	
9152.30	51.39	H	73.98	-22.59	Peak	1.83	232	
9152.30	38.03	H	53.98	-15.95	Avg	1.83	232	

Test distance
3 meter

HARMONIC EMISSIONS MID CHANNEL VERTICAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/4/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830.46	41.66	V	73.98	-32.32	Peak	1.5	126	
1830.46	26.63	V	53.98	-27.35	Avg	1.5	126	
2745.69	40.59	V	73.98	-33.39	Peak	2.95	150	
2745.69	27.53	V	53.98	-26.45	Avg	2.95	150	
3660.92	44.51	V	73.98	-29.47	Peak	1.04	177	
3660.92	30.79	V	53.98	-23.19	Avg	1.04	177	
4576.15	43.15	V	73.98	-30.83	Peak	1.87	155	
4576.15	29.88	V	53.98	-24.10	Avg	1.87	155	
5491.38	45.46	V	73.98	-28.52	Peak	2.44	167	
5491.38	31.64	V	53.98	-22.34	Avg	2.44	167	
6406.61	47.75	V	73.98	-26.23	Peak	4	120	
6406.61	35.38	V	53.98	-18.60	Avg	4	120	
7321.84	50.81	V	73.98	-23.17	Peak	1.9	256	
7321.84	38.46	V	53.98	-15.52	Avg	1.9	256	
8237.07	54.34	V	73.98	-19.64	Peak	1.75	200	
8237.07	41.66	V	53.98	-12.32	Avg	1.75	200	
9152.30	50.41	V	73.98	-23.57	Peak	2.4	240	
9152.30	38.00	V	53.98	-15.98	Avg	2.4	240	

Test distance
3 meter

HARMONIC EMISSIONS HIGH CHANNEL HORIZONTAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/4/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.43	48.45	H	73.98	-25.53	Peak	1	98	
1855.43	30.12	H	53.98	-23.86	Avg	1	98	
2783.15	49.71	H	73.98	-24.27	Peak	1.7	161	
2783.15	32.10	H	53.98	-21.88	Avg	1.7	161	
3710.86	43.60	H	73.98	-30.38	Peak	3.65	103	
3710.86	30.82	H	53.98	-23.16	Avg	3.65	103	
4638.58	44.07	H	73.98	-29.91	Peak	2.16	75	
4638.58	30.36	H	53.98	-23.62	Avg	2.16	75	
5566.29	52.65	H	73.98	-21.33	Peak	1.9	177	
5566.29	35.31	H	53.98	-18.67	Avg	1.9	177	
6494.01	55.92	H	73.98	-18.06	Peak	1.5	25	
6494.01	39.06	H	53.98	-14.92	Avg	1.5	25	
7421.72	50.42	H	73.98	-23.56	Peak	1.44	32	
7421.72	37.78	H	53.98	-16.20	Avg	1.44	32	
8349.44	53.67	H	73.98	-20.31	Peak	2.25	196	
8349.44	41.42	H	53.98	-12.56	Avg	2.25	196	
9277.15	49.98	H	73.98	-24.00	Peak	1.76	288	
9277.15	37.10	H	53.98	-16.88	Avg	1.76	288	

Test distance
3 meter

HARMONIC EMISSIONS HIGH CHANNEL VERTICAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/4/2014
Lab: R
Tested By: Matt Harrison

Harmonic Emissions

Freq. (MHz)	Level (dBµV)	Pol (v/h)	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.43	47.16	V	73.98	-26.82	Peak	2	23	
1855.43	31.97	V	53.98	-22.01	Avg	2	23	
2783.15	53.60	V	73.98	-20.38	Peak	1.05	91	
2783.15	34.44	V	53.98	-19.54	Avg	1.05	91	
3710.86	44.45	V	73.98	-29.53	Peak	1	213	
3710.86	30.93	V	53.98	-23.05	Avg	1	213	
4638.58	46.69	V	73.98	-27.29	Peak	2.07	103	
4638.58	31.12	V	53.98	-22.86	Avg	2.07	103	
5566.29	52.14	V	73.98	-21.84	Peak	2.26	213	
5566.29	35.05	V	53.98	-18.93	Avg	2.26	213	
6494.01	54.38	V	73.98	-19.60	Peak	1.4	95	
6494.01	38.22	V	53.98	-15.76	Avg	1.4	95	
7421.72	49.95	V	73.98	-24.03	Peak	2.64	277	
7421.72	37.79	V	53.98	-16.19	Avg	2.64	277	
8349.44	53.54	V	73.98	-20.44	Peak	1.76	36	
8349.44	41.40	V	53.98	-12.58	Avg	1.76	36	
9277.15	49.98	V	73.98	-24.00	Peak	2.07	204	
9277.15	37.14	V	53.98	-16.84	Avg	2.07	204	

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND

DATA SHEETS

BAND EDGES HORIZONTAL

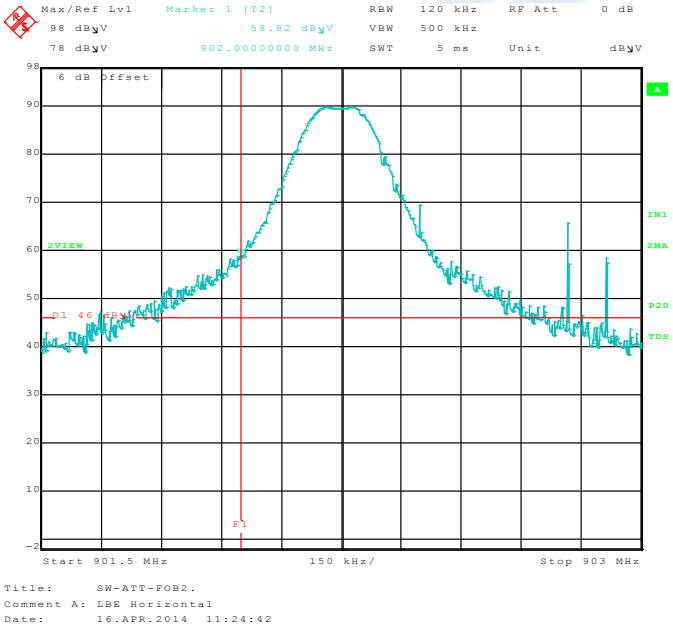
FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

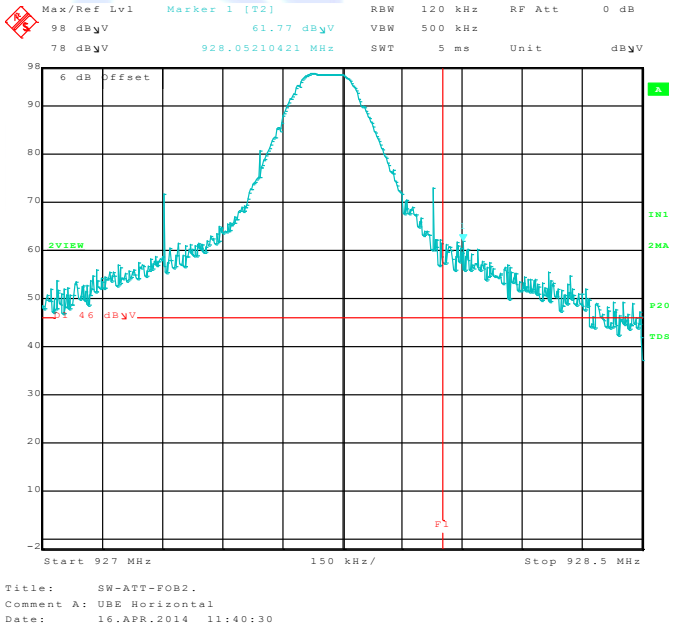
Date: 4/3/2014
Lab: R
Tested By: Matt Harrison

Band Edge

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
902.00	58.82	H	66.00	-7.18	Peak	1	360	No Marker Delta
902.00	45.00	H	46.00	-1.00	QP	1	360	Method Used
928.05	61.77	H	66.00	-4.23	Peak	1	296	No Marker Delta
928.05	45.74	H	46.00	-0.26	QP	1	296	Method Used

Test Distance
3 meters





BAND EDGES VERTICAL

FCC 15.249
Linear, LLC.
4 Button Key Fob
Model: SW-ATT-FOB2 (Hopping Mode)

Date: 4/3/2014
Lab: R
Tested By: Matt Harrison

Band Edge

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
901.95	46.96	V	66.00	-19.04	Peak	1.6	85	No Marker Delta
901.95	33.64	V	46.00	-12.36	QP	1.6	85	Method Used
928.00	47.74	V	66.00	-18.26	Peak	1.6	278	No Marker Delta
928.00	34.50	V	46.00	-11.50	QP	1.6	278	Method Used

Test Distance
3 meters