Report on the FCC and ISED Testing of the

iKeyless, LLC
CDSSL-G000

In accordance with FCC Rule Part 15.231 & ISED Radio Standard RSS-210

America

Add value.
Inspire trust.

Prepared for: iKeyless, LLC
828 E Market St
Louisville, KY 40206

FCC ID: X32-CDSSG000 IC: 8797A-CDSSG000

COMMERCIAL-IN-CONFIDENCE

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Pete Walsh	**Service Line Manager**	**Authorized Signatory**	2019-January-21

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FCC Accreditation Designation Number US1063 Tampa, FL Test Laboratory	Innovation, Science, and Economic Development Canada Accreditation Main Site Number 2087A-2 Tampa, FL Test Laboratory Satellite Site Number: 4175C Boca Raton, FL Test Laboratory

EXECUTIVE SUMMARY
A sample of this product was tested and found to be compliant with FCC Rule Part 15.231, ISED Radio Standard RSS-210

A2LA Cert. No. 2955.15

ACCREDITATION
Our A2LA Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our A2LA Accreditation.

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Innovation, Science and Economic Development Canada's Radio Standards Specification RSS-210.

1.2 Manufacturer Information

iKeyless, LLC
828 E Market St
Louisville, KY 40206

1.3 Product description

The device is an aftermaket replacement remote for the keyless entry systems of automobiles. The device is marketed with two different rear shells to house the side cut key blade and the high security key blade, respectively.

Technical Details
Frequency of Operation: 433.92 MHz
Number of Channels: 1
Modulation: FSK, ASK
Data Rate: 2.4 kbps, 9.6 kbps
Antenna / Gain: Coil Antenna, -11 dBi
Input Voltage: 3 VDC (CR2032 Battery)

Test Sample Serial Number(s): 1, 2, 3, 4, 5, 6 (radiated emissions), 7 Timing Measurements

Test Sample Condition: The test samples were in good operating condition whith visible physical defects.

1.4 Test Methodology and Considerations

The EUT is battery operated only without any provision for connection to the AC mains. The EUT is exempted from the power line conducted emissions requirements.

The remotes were pre-programmed by the manufacturer to operate at maximum power.

The timing measurements were measured using a near-field probe.

Preliminary radiated emission measurements were performed for the EUT in three orthogonal orientations. The worst-case orientation was determined to be the EUT set vertically on the tabletop. Additional measurements were preformed to determine the worst shell configuration. The side cut key configuration led to the highest fundamental emission levels while the high security key configuration led to the highest spurious emission levels. The results are reported accordingly for the three modulations reported in the document.

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

TÜV SÜD America, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
http://www.tuv-sud-america.com

Innovation, Science and Economic Development Canada Lab Code: 4175C

2.2 Laboratory Accreditations/Recognitions/Certifications

TÜV SÜD America, Inc. is accredited to ISO/IEC 17025 by American Association for Laboratory Accreditation (A2LA) and has been issued certificate number 2955.15 in recognition of this accreditation. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

Main Site Information:

TÜV SÜD America, Inc.
5610 West Sligh Ave., Suite 100
Tampa, FL 33634
Phone: 813-284-2715
www.tuv-sud-america.com

FCC Designation Number US1063
FCC Test Firm Registration #: 160606
Innovation, Science, and Economic Development Canada Lab Code: 2087A-2

2.3 Radiated & Conducted Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl flooring.

The turntable is driven by pneumatic motor, which can support a 2000 lb. load. The turntable is flush with the chamber floor which it is connected to, around its circumference, with a continuous metallic loaded spring. An EMCO Model 1060 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

The control room is an RF shielded enclosure attached to the semi-anechoic chamber with two bulkhead panels for connecting RF, and control cables. The dimension of the room is 7.3 m x 4.9 m x 3 m high and the entrance doors of both control and conducted rooms are 3 feet (0.91 m) by 7 feet (2.13 m).

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3.1-1 below:

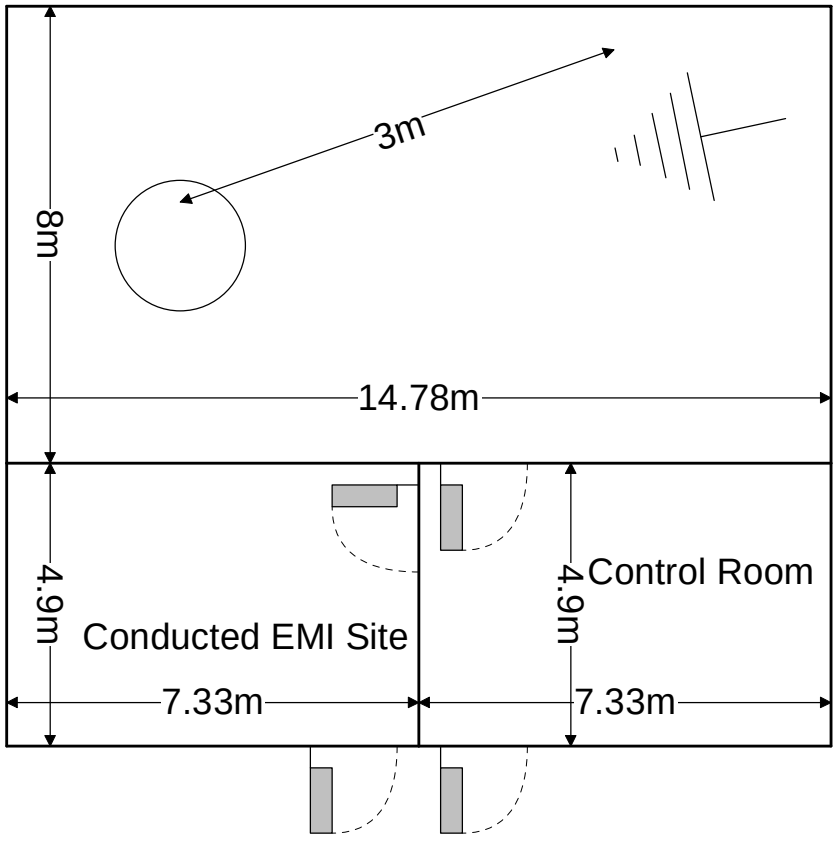


Figure 2.3.1-1: Semi-Anechoic Chamber Test Site

2.3.2 Conducted Emissions Test Site Description

The dimensions of the shielded conducted room are 7.3 x 4.9 x 3 m^3. The power line conducted emission site includes two LISNs: a Solar Model 8028-50 50 Ω/50 µH and an EMCO Model 3825/2R, which are installed as shown in the figure below. For evaluations requiring 230 V, 50 Hz AC input, a Polarad LISN (S/N 879341/048) is used in conjunction with a California Instruments signal generator Model 2001RP-OP1.

A diagram of the room is shown below in figure 2.3.2-1:

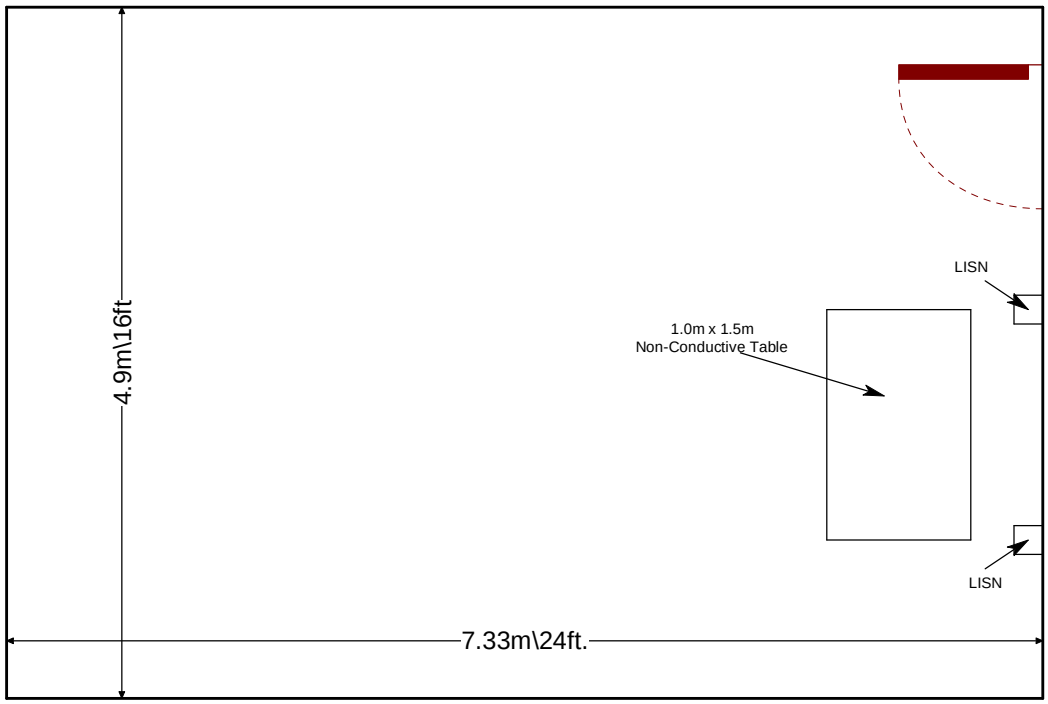


Figure 2.3.2-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2018.
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2018.
- Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 4, November 2014.
- Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-210 - Licence-Exempt Radio Apparatus: Category I Equipment, Issue 9 August 2016.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
BEMC00078	EMCO	6502	Active Loop Antenna	9104-2608	5/9/2018	5/9/2020
BEMC00283	Rohde & Schwarz	FSP40	Spectrum Analyzer	1000033	11/28/2017	11/28/2019
BEMC00523	Agilent	E7405A	9kHz-26.5GHz EMC analyzer/HYZ	MY45103293	11/27/2018	11/27/2020
BEMC02002	EMCO	3108	30 MHz to 200 MHz Biconical Antenna	2147	11/28/2017	11/30/2019
BEMC02004	EMCO	3146	200 MHz to 1 GHz Log Periodic Antenna	1385	12/27/2017	12/27/2019
BEMC02006	EMCO	3115	Linear Polarized Horn antenna, 1-18 GHz	2573	4/7/2017	4/7/2019
BEMC02011	Hewlett-Packard	HP 8447D	100 kHz to 1.3 GHz low-noise, high gain amplifier	2443A03952	10/18/2018	10/18/2019
BEMC02083	Mini-Circuits	NHP-600	600 MHz High Pass Filter	2083	5/17/2018	5/17/2019
BEMC02094	Mini Circuits	SHP-1000+	High Pass Filter, 1000-3000 MHz, 50 OHM	R UU27401137	2/28/2018	2/28/2019
BEMC02095	ETS Lindgren	TILE4! - Version 4.2.A	Tile Automation Software	85242	NCR	NCR
BEMC02110	Aeroflex Inmet	40AH2W-10	Attenuator 10dB, 2.9 mm-M/F, DC-40GHz 2 W	2110	8/5/2018	8/5/2019
BEMC02112	Teledyne Storm Products	921-0101-036	Duratest High Frequency Cable Max. frequency 26.5GHz	12-06-698	10/16/2018	10/16/2019
BEMC02121	Teledyne Storm Products	A81-0303	Radiated Cable Set	2121	7/26/2018	7/26/2019
BEMC02138	Hewlett Packard	8449B	Pre-Amplifier	3008A00320	11/26/2018	11/26/2019
BEMC02141	FAU EMI R&D Lab	EMI-LOOP	PCB Loop Antenna	EM002	NCR	NCR

Notes:

- NCR=No Calibration Required
- The assets calibration cycle information is provided to cover the entire test period. The assets were only used during the active period of the calibration cycle.

5 SUPPORT EQUIPMENT

Table 5-1: EUT and Support Equipment

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	iKeyless, LLC	CDSSL-G000	1,2,3,4,5,6

Table 5-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	The EUT is standalone only, without any provisions for connection of ancillary equipment.			

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

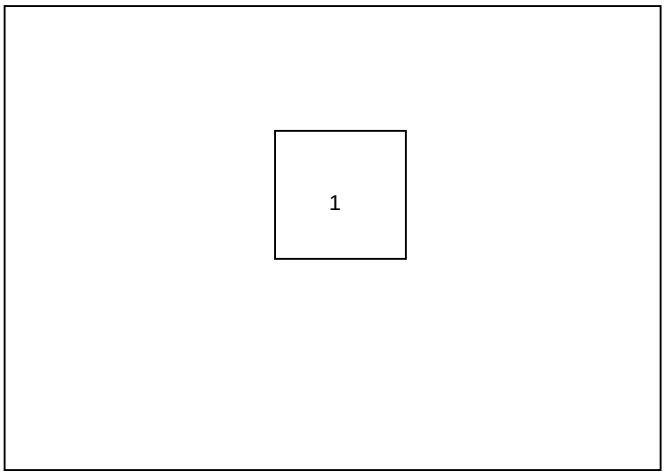


Figure 6-1: EUT Test Setup

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

Test Begin Date: November 30, 2018
Test End Date: December 31, 2018

Table 7-1: Summary of Tests

Test Description	FCC 47 CFR Rule Part	ISED Canada RSS Section	Test Results
Antenna Requirements	FCC: Section 15.203		Compliant
20dB / 99% Bandwidth	FCC: Section 15.231(c)	ISED Canada: RSS-210 A.1.3	Compliant
Field Strength of Fundamental and Spurious Emissions	FCC: Sections 15.231(b)	ISED Canada: RSS-210 A.1.2	Compliant
Periodic Operations	FCC: Section 15.231(a)	ISED Canada: RSS-210 A.1.1	Compliant
Power Line Conducted Emissions	FCC: Section 15.207	ISED Canada: RSS-Gen 8.8	N/A

7.1 Antenna Requirement – FCC: Section 15.203

The EUT uses an intenaal PCB trace loop antenna that is etched directly to the PCB. The antenna is not removable and therefore meets the requirements of FCC Part 15.203.

7.2 20dB / 99% Bandwidth: FCC: Section 15.231(c); ISED Canada: RSS-210 A.1.3

7.2.1 Measurement Procedure

The spectrum analyzer span was set to 2 to 5 times the estimated bandwidth of the emission. The RBW was set from 1% to 5% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The 20-dB function of the analyzer was utilized to determine the 20-dB bandwidth of the emission.

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission, including the emissions skirts. The RBW was set from 1% to 5% of the estimated 99% bandwidth. The occupied 99% bandwidth was measured by using the occupied bandwidth function of the spectrum analyzer set to 99% with a peak detector.

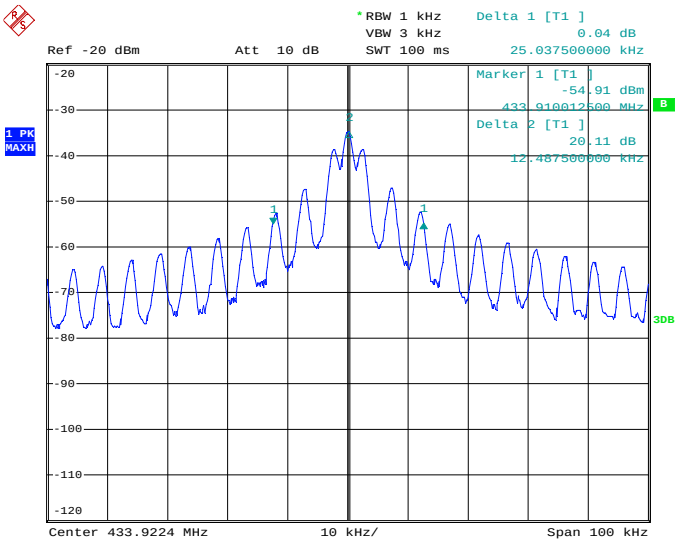
7.2.2 Measurement Results

0.25% of the 433.92 MHz center frequency is equivalent to 1.08 MHz. Therefore the 20 dB and 99% bandwidths of the emission are less than 0.25% of the center frequency.

Performed by: Thierry Jean-Charles

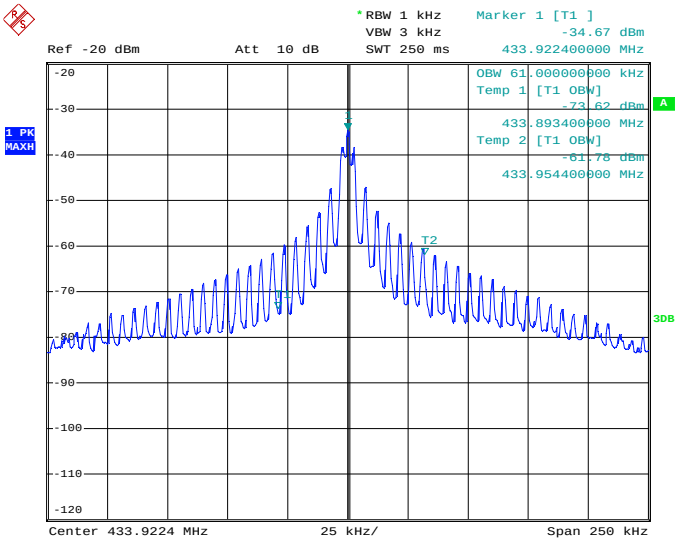
Table 7.2.2-1: 20dB / 99% Bandwidth – ASK

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
433.92	25.0375	61.00



Date: 14.DEC.2018 18:32:18

Figure 7.2.2-1: 20dB Bandwidth – ASK



Date: 14.DEC.2018 18:20:51

Figure 7.2.2-2: 99% Bandwidth – ASK

Table 7.2.2-2: 20dB / 99% Bandwidth – FSK1 14 kHz Deviation

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
433.92	119.25	151.00

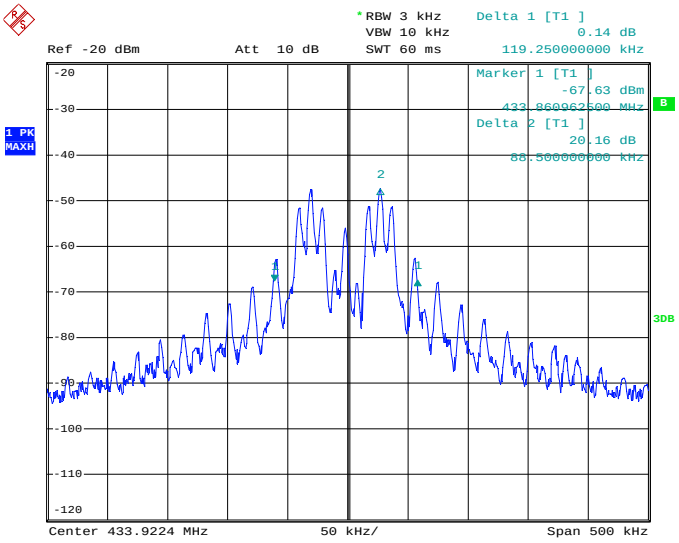


Figure 7.2.2-3: 20dB Bandwidth – FSK1 14 kHz Deviation

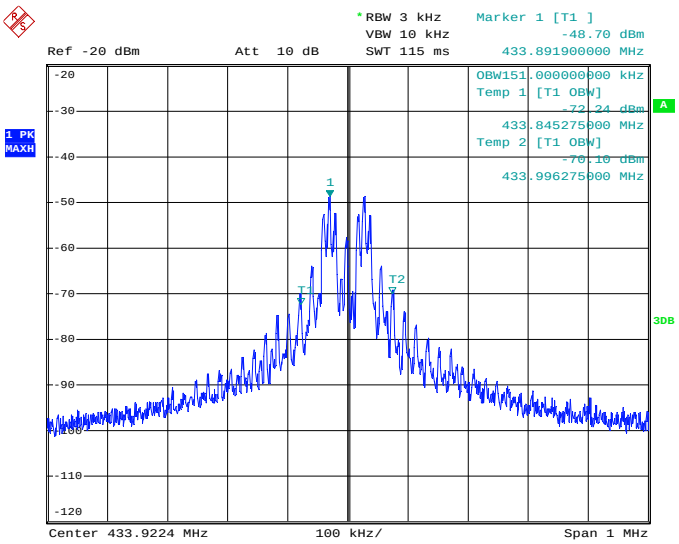


Figure 7.2.2-4: 99% Bandwidth – FSK1 14 kHz Deviation

Table 7.2.2-3: 20dB / 99% Bandwidth – FSK2 30 kHz Deviation

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
433.92	77.175	90.500

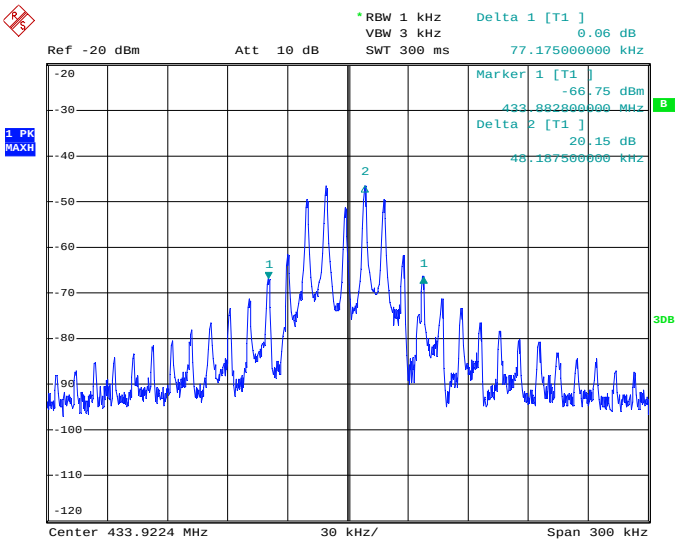


Figure 7.2.2-1: 20dB Bandwidth – FSK2 30 kHz Deviation

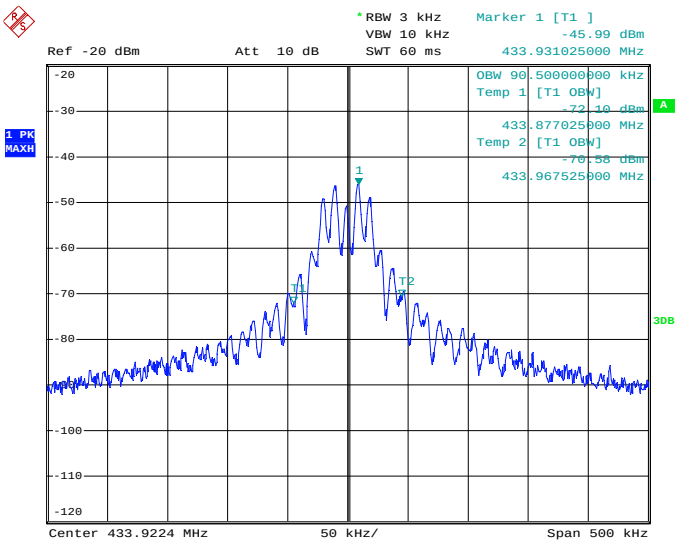


Figure 7.2.2-2: 99% Bandwidth – FSK2 30 kHz Deviation

7.3 Radiated Spurious Emissions – FCC: Section 15.231(b); ISED Canada: RSS-210 A.1.2

7.3.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 9 kHz to 4.5 GHz, 10 times the highest fundamental frequency.

Measurements below 30 MHz were performed in a semi-anechoic chamber with a 3-meter separation distance between the EUT and measurement antenna. The EUT was rotated 360° to maximize each emission. The magnetic loop receiving antenna was positioned with its lowest point 1 meter above the ground. The loop antenna was aligned along the site axis, orthogonal to the site axis, and ground-parallel to the site axis.

The spectrum analyzer's resolution and video bandwidths were set to 200 Hz and 1000 Hz respectively for frequencies below 150 kHz and 9 kHz and 30 kHz respectively for frequencies above 150 kHz and below 30 MHz.

For measurements above 30 MHz, the EUT was rotated through 360° and the receive antenna height was varied from 1 meter to 4 meters so that the maximum radiated emissions level would be detected. For frequencies below 1000 MHz, measurements were made using a resolution bandwidth (RBW) of 120 kHz and a video bandwidth (VBW) of 300 kHz. For frequencies above 1000 MHz, measurements were made with RBW of 1 MHz and a VBW of 3 MHz.

An average detector was used for all measurement. The peak emissions were also compared to a limit corresponding to 20 dB above the maximum permitted average limit according to Part 15.35. The final measurements were then corrected by antenna correction factors and cable loss for comparison to the limits. Further, compliance with the provisions of 15.205 was demonstrated using the measurement instrumentation specified in that section where applicable.

7.3.2 Duty Cycle Correction

The EUT uses three distinct modulations with their associated duty cycle. A Duty Cycle Correction factor was applied to the peak measurement for the corrected average level results. The duty cycle correction factors are provided below:

ASK Modulation: Duty Cycle Correction of 26.808% corresponding to 20*log(26.808/100) = -11.4347 dB.
FSK1 14 kHz Deviation Modulation: Duty Cycle Correction of 26.52% corresponding to 20*log(26.52/100) = -11.52 dB.
FSK2 30 kHz Deviation Modulation: Duty Cycle Correction of 13.22% corresponding to 20*log(13.22/100) = -17.57 dB.

Justification of the duty cycle is provided in the equipment's theory of operation document.

7.3.3 Measurement Results

Performed by: Thierry Jean-Charles, Jean Rene

Radiated spurious emissions found in the band of 9 kHz to 4.5 GHz are reported in Table 7.3.3-1 to Table 7.3.3-3 below.

Table 7.3.3-1: Radiated Spurious Emissions Tabulated Data – ASK

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg	(H/V)	(dB)	pk	avg	pk	avg	pk	avg
ASK Modulation										
Fundamental Frequency										
433.9	64.73	64.73	H	18.33	83.06	71.62	100.8	80.8	17.7	9.2
433.9	71.80	71.80	V	18.33	90.13	78.69	100.8	80.8	10.7	2.1
Spurious Emissions										
867.84	35.73	35.73	H	-1.41	34.32	22.88	80.8	60.8	46.5	37.9
867.84	40.13	40.13	V	-1.41	38.72	27.28	80.8	60.8	42.1	33.5
1301.7	42.74	42.74	H	-3.80	38.94	27.51	74	54	35.1	26.5
1301.7	43.13	43.13	V	-3.80	39.33	27.90	74	54	34.7	26.1
1735.6	41.70	41.70	H	-0.97	40.73	29.29	80.8	60.8	40.1	31.5
1735.6	42.61	42.61	V	-0.97	41.64	30.20	80.8	60.8	39.2	30.6
2169.5	41.20	41.20	H	1.58	42.78	31.34	80.8	60.8	38.0	29.5
2169.5	41.53	41.53	V	1.58	43.11	31.67	80.8	60.8	37.7	29.1
2603.4	41.07	41.07	H	2.74	43.81	32.38	80.8	60.8	37.0	28.4
2603.4	41.75	41.75	V	2.74	44.49	33.06	80.8	60.8	36.3	27.7
3037.3	40.99	40.99	H	4.06	45.05	33.61	80.8	60.8	35.8	27.2
3037.3	41.20	41.20	V	4.06	45.26	33.82	80.8	60.8	35.5	27.0
3471.2	38.77	38.77	H	5.90	44.67	33.23	80.8	60.8	36.1	27.6
3471.2	40.92	40.92	V	5.90	46.82	35.38	80.8	60.8	34.0	25.4
3905.1	40.82	40.82	H	7.69	48.51	37.08	74	54	25.5	16.9
3905.1	42.37	42.37	V	7.69	50.06	38.63	74	54	23.9	15.4
4339	39.39	39.39	H	8.29	47.68	36.24	74	54	26.3	17.8
4339	40.48	40.48	V	8.29	48.77	37.33	74	54	25.2	16.7

Notes:

- **The fundamental emission level was measured using RBW = 1 MHz, which is wider than the 20 dB and 99% bandwidths of the fundamental emissions.**
- **The corrected average levels correspond to the peak levels corrected with a duty cycle correction factor of -11.43 dB.**

Table 7.3.3-2: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg	(H/V)	(dB)	pk	avg	pk	avg	pk	avg
FSK1 14 kHz Modulation										
Fundamental Frequency										
433.9	63.61	63.61	H	18.33	81.94	70.41	100.8	80.8	18.9	10.4
433.9	70.19	70.19	V	18.33	88.52	76.99	100.8	80.8	12.3	3.8
Spurious Emissions										
867.84	37.14	37.14	H	-1.41	35.73	24.2	80.8	60.8	45.1	36.6
867.84	41.00	41.00	V	-1.41	39.59	28.06	80.8	60.8	41.2	32.7
1301.7	42.63	42.63	H	-3.80	38.83	27.3	74	54	35.2	26.7
1301.7	42.92	42.92	V	-3.80	39.12	27.59	74	54	34.9	26.4
1735.6	41.78	41.78	H	-0.97	40.81	29.28	80.8	60.8	40.0	31.5
1735.6	42.99	42.99	V	-0.97	42.02	30.49	80.8	60.8	38.8	30.3
2169.5	40.71	40.71	H	1.58	42.29	30.76	80.8	60.8	38.5	30.0
2169.5	41.38	41.38	V	1.58	42.96	31.43	80.8	60.8	37.8	29.4
2603.4	41.08	41.08	H	2.74	43.82	32.29	80.8	60.8	37.0	28.5
2603.4	42.45	42.45	V	2.74	45.19	33.66	80.8	60.8	35.6	27.1
3037.3	41.03	41.03	H	4.06	45.09	33.56	80.8	60.8	35.7	27.2
3037.3	41.66	41.66	V	4.06	45.72	34.19	80.8	60.8	35.1	26.6
3471.2	40.21	40.21	H	5.90	46.11	34.58	80.8	60.8	34.7	26.2
3471.2	40.87	40.87	V	5.90	46.77	35.24	80.8	60.8	34.0	25.6
3905.1	40.62	40.62	H	7.69	48.31	36.79	74	54	25.7	17.2
3905.1	42.02	42.02	V	7.69	49.71	38.19	74	54	24.3	15.8
4339	39.54	39.54	H	8.29	47.83	36.30	74	54	26.2	17.7
4339	40.21	40.21	V	8.29	48.50	36.97	74	54	25.5	17.0

Notes:

- **The fundamental emission level was measured using RBW = 1 MHz, which is wider than the 20 dB and 99% bandwidths of the fundamental emissions.**
- **The corrected average levels correspond to the peak levels corrected with a duty cycle correction factor of -11.52 dB.**

Table 7.3.3-3: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg			pk	avg	pk	avg	pk	avg
FSK2 30 kHz Modulation										
Fundamental Frequency										
433.9	63.49	63.49	H	18.33	81.82	64.24	100.8	80.8	19.0	16.6
433.9	70.20	70.20	V	18.33	88.53	70.95	100.8	80.8	12.3	9.8
Spurious Emissions										
867.84	36.53	36.53	H	-1.41	35.12	17.54	80.8	60.8	45.7	43.3
867.84	41.09	41.09	V	-1.41	39.68	22.1	80.8	60.8	41.1	38.7
1301.7	42.50	42.50	H	-3.80	38.70	21.13	74	54	35.3	32.9
1301.7	43.52	43.52	V	-3.80	39.72	22.15	74	54	34.3	31.9
1735.6	41.69	41.69	H	-0.97	40.72	23.14	80.8	60.8	40.1	37.7
1735.6	42.63	42.63	V	-0.97	41.66	24.08	80.8	60.8	39.1	36.7
2169.5	40.75	40.75	H	1.58	42.33	24.75	80.8	60.8	38.5	36.0
2169.5	41.66	41.66	V	1.58	43.24	25.66	80.8	60.8	37.6	35.1
2603.4	41.40	41.40	H	2.74	44.14	26.57	80.8	60.8	36.7	34.2
2603.4	42.50	42.50	V	2.74	45.24	27.67	80.8	60.8	35.6	33.1
3037.3	41.50	41.50	H	4.06	45.56	27.98	80.8	60.8	35.2	32.8
3037.3	42.04	42.04	V	4.06	46.10	28.52	80.8	60.8	34.7	32.3
3471.2	39.73	39.73	H	5.90	45.63	28.05	80.8	60.8	35.2	32.7
3471.2	41.07	41.07	V	5.90	46.97	29.39	80.8	60.8	33.8	31.4
3905.1	40.28	40.28	H	7.69	47.97	30.40	74	54	26.0	23.6
3905.1	41.56	41.56	V	7.69	49.25	31.68	74	54	24.7	22.3
4339	39.68	39.68	H	8.29	47.97	30.39	74	54	26.0	23.6
4339	40.05	40.05	V	8.29	48.34	30.76	74	54	25.7	23.2

Notes:

- **The fundamental emission level was measured using RBW = 1 MHz, which is wider than the 20 dB and 99% bandwidths of the fundamental emissions.**
- **The corrected average levels correspond to the peak levels corrected with a duty cycle correction factor of -17.57 dB.**

7.3.4 Sample Calculation

$R_C = R_U + CF_T$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak
Corrected Level: 42.74 + (-3.80) = 38.94 dBµV/m
Margin: 74.00 dBµV/m – 38.94 dBµV/m = 35.06 dB

Example Calculation: Average
Corrected Level: 42.74 + (-3.80) -11.4347= 27.51 dBµV/m
Margin: 54.00 dBµV – 27.51 dBµV/m = 26.49 dB

7.4 Periodic Operation – FCC: CFR 47 15.231(a); ISED Canada: RSS-210 A.1.1

7.4.1 Test Methodology

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. A transmitter activated automatically shall cease transmission within 5 seconds after activation. The transmitter was activated manually and was evaluated using a spectrum analyzer at zero span.

7.4.2 Test Results

Performed by: Thierry Jean-Charles

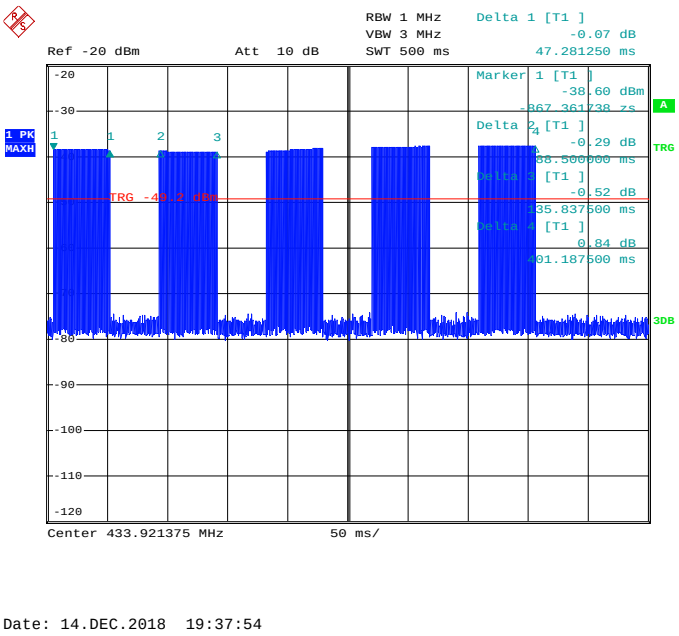


Figure 7.4.2-1: Periodic Operation – 500 Milliseconds – ASK Modulation

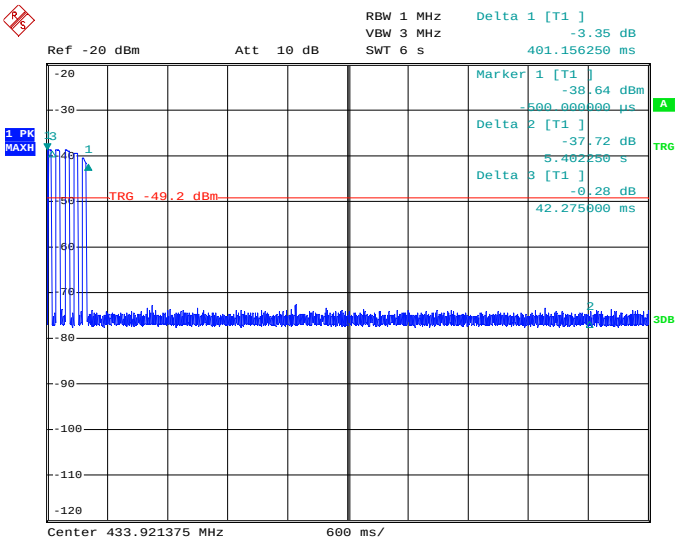


Figure 7.4.2-2: Periodic Operation – 5 Seconds – ASK Modulation

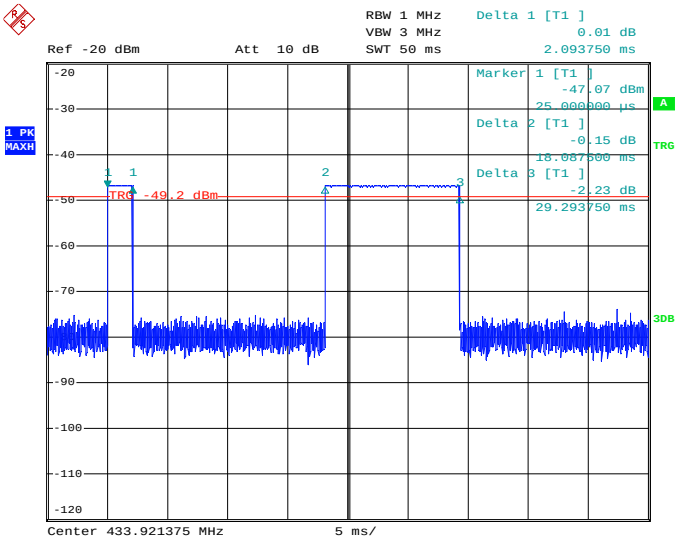


Figure 7.4.2-3: Periodic Operation – 50 Milliseconds – FSK 14 kHz Modulation

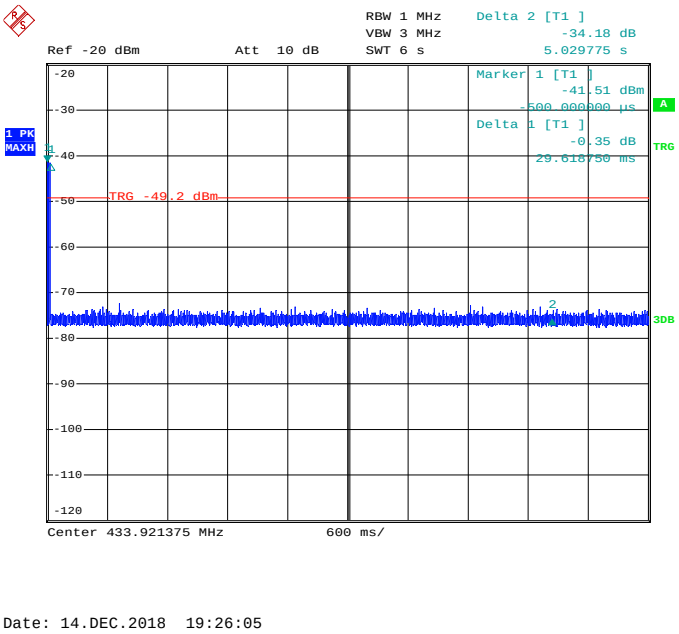


Figure 7.4.2-4: Periodic Operation – 5 Seconds – FSK 14 kHz Modulation

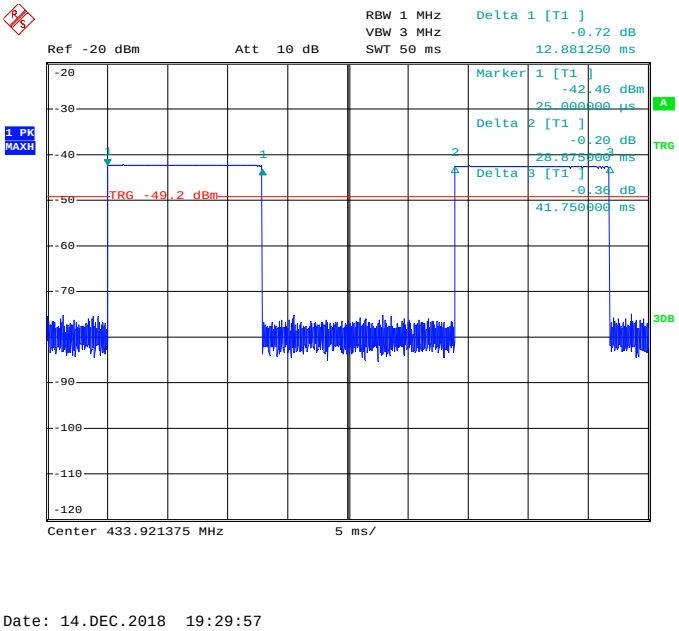


Figure 7.4.2-5: Periodic Operation – 50 Milliseconds – FSK 30 kHz Modulation

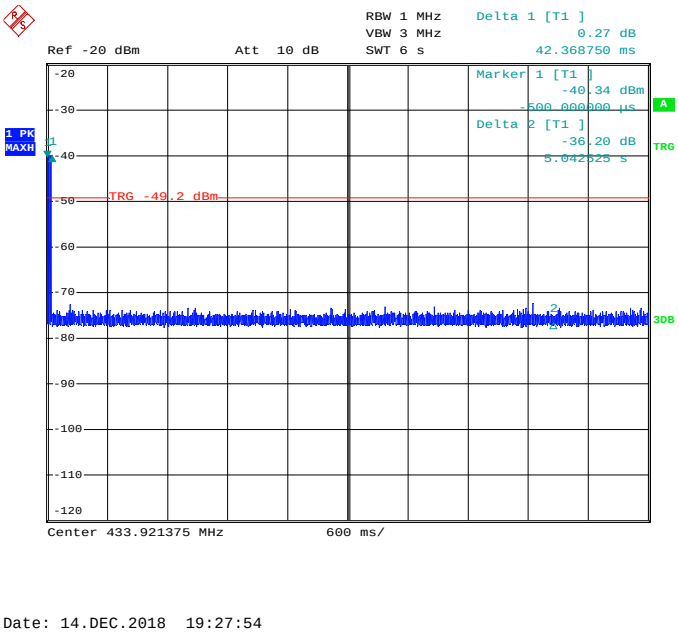


Figure 7.4.2-6: Periodic Operation – 5 Seconds – FSK 30 kHz Modulation

8 MEASUREMENT UNCERTAINTIES

The expanded laboratory measurement uncertainty figures (U_{Lab}) provided below correspond to an expansion factor (coverage factor) k = 1.96 which provide confidence levels of 95%.

Table 8-1: Measurement Uncertainties

Parameter	U_{lab}
Occupied Channel Bandwidth	± 0.009 %
RF Conducted Output Power	± 1.15 dB
Power Spectral Density	± 1.15 dB
Antenna Port Conducted Emissions	± 1.15 dB
Radiated Emissions ≤ 1GHz	± 5.86 dB
Radiated Emissions > 1GHz	± 4.65 dB
Temperature	± 0.860 °C
Radio Frequency	$\pm 2.832 \times 10^{-8}$
AC Power Line Conducted Emissions	±3.72 dB

9 CONCLUSION

In the opinion of TÜV SÜD America, Inc. the model CDSSL-G000, manufactured by iKeyless, LLC meet the requirements of FCC Part 15 subpart C and Innovation, Science and Economic Development Canada's Radio Standards Specification RSS-210.

END REPORT