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iKeyless LLC SAR EXEMPTION REPORT

SCOPE OF WORK

SAR EXEMPTION CALCULATION
ON THE KEY FOB REMOTE

REPORT NUMBER

106071733LEX-004

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SAR EXEMPTION TEST REPORT

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Product Name: Key Fob Remote
Model FDSSL-G140

Standards: FCC Part 2.1093
RSS-102 Issue 6

Tested by:
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Client:
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1 Introduction and Conclusion

SAR exemption calculations were performed on the product constructed as described in section 4. Information provided by the client including maximum output power, antenna gain(s), and minimum separation distance(s) was used to determine if the product under evaluation was exempt from SAR. Any change in these stated values may invalidate these results. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product under evaluation is **exempt** from SAR requirements for each of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) evaluated. Intertek does not make any claims of compliance for samples or variants which were not evaluated.

2 Test Summary

Section	Requirement	Result
5	FCC SAR Exemption Criteria (FCC Title 47 CFR Part 1.1307, 2.1093)	Exempt from SAR
6	ISED SAR Exemption Criteria (RSS-102 Issue 6)	Exempt from SAR



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	iKeyless LLC
Address:	12101 Sycamore Station Place Suite 140 Louisville, KY, 40299 USA
Contact:	Brian Corbett
Telephone:	502-791-3117
Email:	bcorbett@ikeyless.com
Manufacturer Information	
Manufacturer Name:	iKeyless LLC
Manufacturer Address:	12101 Sycamore Station Place Suite 140 Louisville, KY, 40299 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Key Fob Remote
Model Number	FDSSL-G140
Type of Transmission	RFID
Rated RF Output Power	-9.704dBm
Antenna(s) and Gain	-5.07dBi
Frequency Range	902-928MHz
Number of Channel(s)	2
Ratings	3VDC (Internal Battery)
Description of Equipment Under Test (provided by client)	
The Key Fob Remote is a key fob with wireless capabilities.	

4.1 Variant Models:

There were no variant models covered by this evaluation.



4.2 Antenna Separation

The following information was provided by iKeyless LLC and may affect compliance. Intertek does not make any claims of compliance for values other than those shown below.

The minimum antenna separation is 5mm



4.3 Maximum Output Power

The output power was taken from Intertek report 106071733-002 FCC 15.249 Report and shown below.

7.6 Test Data:

Frequency (MHz)	Output Power (dBm)	Output Power (W)
903.421	-9.704	0.000107



5 FCC SAR Exemption

5.1 Criteria

FCC Title 47 CFR Part 1.1307(3)(i):

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);



5.2 Results

The output power is less than 0dBm and therefore exempt from SAR based on FCC Title 47 CFR Part 1.1307(3)(i)(A).



6 ISED SAR Exemption

6.1 Criteria

RSS-102 Issue 6 § 6.3: SAR exemption limits

Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 11: Power limits for exemption from routine SAR evaluation based on the separation distance

Frequency (MHz)	≤ 5 mm (mW)	10 mm (mW)	15 mm (mW)	20 mm (mW)	25 mm (mW)	30 mm (mW)	35 mm (mW)	40 mm (mW)	45 mm (mW)	> 50 mm (mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

The exemption limits in Table 11 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue.

For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 2.5.

For controlled-use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in table 11 are multiplied by a factor of 5.

When the operating frequency of the device is between two frequencies located in table 11, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in table 11, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed. For example, in case of a 7 mm separation distance, either use the exception value for a 5 mm separation distance or interpolate between the limits corresponding to 5 mm and 10 mm separation distances



6.2 Results

Device	Frequency (MHz)	Output Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Separation Distance (mm)	Limit (mW)	Exempt from SAR?
RFID	902.382	-9.704	-5.07	0.033	5	20.0	Yes
RFID	903.432	-9.704	-5.07	0.033	5	20.1	Yes

$$SAR_{\text{estimated}} = \frac{P_{\text{max}}}{P_{\text{max,exemption}}} \times 0.25 \times SAR_{\text{limit}} \text{ W/kg}$$

$$SAR_{\text{estimated}} = 0.00017 \text{ W/kg}$$

**7 Revision History**

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	3/18/2025	106071733LEX-004	MC	JP	Original Issue