



Test Report - RF Exposure Evaluation Report for SAR Exclusion

Applicant: Kastle Systems International

Signature:

A handwritten signature in black ink, appearing to read "Tim Royer".

Sr. EMC Engineer
EMC-003838-NE



Name & Title:

Tim Royer, EMC Engineer

Date of Signature

02/15/2023

Signature:

A handwritten signature in black ink, appearing to read "Kristoffer Costa".

Name & Title:

Kristoffer Costa, EMC Technician

Date of Signature

02/15/2023

This test report relates only to the items tested as identified and is not valid for any subsequent changes or modifications made to the equipment under test.

Table of Contents

1.	APPLICANT INFORMATION.....	3
2.	LOCATION OF TESTING	3
2.1	TEST LABORATORY	3
3.	TEST SAMPLE(S) (EUT/DUT)	4
3.1	DESCRIPTION OF THE EUT.....	4
4.	HISTORY OF TEST REPORT CHANGES	7

1. Applicant Information

Applicant: Kastle Systems International
Address: 6402 Arlington Blvd.
Falls Church, Virginia 22042 United States

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at IIA's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669.

FCC test firm # 578780
FCC Designation # US1070
FCC site registration is under A2LA certificate # 0955.01
ISED Canada test site registration # 2056A
EU Notified Body # 1177
For all designations see A2LA scope # 0955.01

3. Test Sample(s) (EUT/DUT)

The test sample was received: 02/9/2023

Dates of Testing: 02/09/2023

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	2ALZSKR100-M
Brief Description	Access Control Reader
Model(s) #	KR100-M
Voltage Rating (AC or Batt.)	12V/DC

Band (MHz)	Mode	Number of Ant.
N/A	Receive	1

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.

SAR EXCLUSION CALCULATION:

Section 4.3.1 General SAR test exclusion guidance

Equation:

For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,³⁰ where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

RSS 102 Section 2.5 Exemption Limits for Routine Evaluation

Equation:

- below 20 MHz⁶ and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

Conclusion: SAR testing is not required.

MPE

Frequency Band	Separation Distance (mm)	Max Power + Tolerance (dBm)	Max Power + Tolerance (mW)	SAR Exclusion Value	Limit for 1-g SAR	Limit for 10-g SAR (Extremities)	SAR Exclusion
13.56-13.56 MHz	5	-67.55	0.00	0.00	3.0	7.5	SAR EXEMPT

4. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_6481-24_RF Exp SAR Exclusion_	1	Initial release	02/15/2023

END OF TEST REPORT
