

SARGENT MANUFACTURING CO. MPE CALCULATION REPORT

SCOPE OF WORK

MPE Calculation of Electronic Access Control System With 125 kHz RFID Module, Model PC428D0089SA00CX

REPORT NUMBER

105838170BOX-001.125kHz_MPE.2

ISSUE DATE

December 19, 2024

REVISION DATE

July 2, 2025

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MPE CALCULATION REPORT

(FULL COMPLIANCE)

Report Number: 105838170BOX-001.125kHz_MPE.2

Project Number: G105838170

Report Issue Date: December 19, 2024

Report Revision Date: July 2, 2025

Model(s) Tested: PC428D0089SA00CX

Standards: FCC Part 1 Subpart I, May 2025

Procedures Implementing the National Environmental Policy Act of 1969
*§1.1307 Actions that may have a significant environmental effect, for which
Environmental Assessments (EAs) must be prepared.*

ISED RSS-102 Issue 6, December 15, 2023

Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus
(All Frequency Bands)

Tested by:
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USA

Client:
Sargent Manufacturing Co.
110 Sargent Drive
New Haven, CT 6511
USA

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1 Introduction and Conclusion

This evaluation report covers for a mobile device subject to routine environmental evaluation for RF exposure. A mobile device is defined as a transmitting device designed to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

The evaluation indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining sections are the verbatim text from the actual evaluation during the investigation. These sections include the evaluation name, the specified Method, and 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 evaluated **complies** with the requirements of the standard(s) indicated. The results obtained in this 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 Evaluation Summary

Section	Test full name	Result
3	Client Information	-
4	Description of Equipment Under Evaluation and Variant Models	-
5	System Setup and Method	-
6	Power Density Calculation (FCC §1.1310; ISED RSS-102 Issue 6)	Compliant
7	Revision History	-

3 Client Information

This EUT was tested at the request of:

Client: Sargent Manufacturing Company
100 Sargent Drive
New Haven, CT 6511
USA

Contact: Manuel Medeiros
Telephone: 1 862 221-6491
Email: manny.medeiros@assaabloy.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Sargent Manufacturing Co.
110 Sargent Drive
New Haven, CT 6511
USA

Description of Equipment Under Test (provided by client)

Electronic access control system

Equipment Under Test Power Configuration

Rated Voltage	Rated Current	Rated Frequency	Number of Phases
6 V (4 x 1.5 V Batteries)	1.5 A	DC	N/A

Variant Models:

The following variant models have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 RF Exposure Evaluation

5.1 Requirement(s)

In accordance with FCC 47 CFR Part 2.1093 A portable device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

Portable devices must be evaluated using the specified in FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-1992.

5.2 Method

Per KDB 447498 D04 Interim General RF Exposure Guidance v01 Clause 2.1.2.

1-mW Test Exemption

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

5.3 Calculation:

The highest field strength reading from Intertek Report # 105838170BOX-001.125kHz is 65.06 dBuV/m.

Maximum Measured Field Strength (FS) = 65.06 dBuV/m at 3 meters for 125 kHz

EIRP = FS – 95.2, [ANSI C63.10-2013 Equation, $EIRP = FS_{Mea} + 20 \cdot \log(d_{Mea}) - 104.7$]

EIRP = 65.06-95.2

EIRP = -30.14 dBm

EIRP = 0.000968 mW

5.4 Results:

Per KDB 447498 D04 Interim General RF Exposure Guidance v01 with the maximum time-averaged power is less than 1mW, the RF exposure evaluation is not required.

6 ISED RSS-102 Issue 6 Clause 6.3 SAR exemption limits

6.1 Requirement(s)

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 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.

6.2 Calculation

The highest field strength reading from Intertek Report # 105838170BOX-001.125kHz is 65.06 dBuV/m.

Maximum Measured Field Strength (FS) = 65.06 dBuV/m at 3 meters for 125 kHz

$EIRP = FS - 95.2$, [ANSI C63.10-2013 Equation, $EIRP = FS_{Mea} + 20 \cdot \log(d_{Mea}) - 104.7$]

$EIRP = 65.06 - 95.2$

$EIRP = -30.14$ dBm

$EIRP = 0.000968$ mW

6.3 Results:

Per ISED RSS-102 Issue 6 Clause 6.3 with the maximum time-averaged power is less than 45 mW, the RF exposure evaluation is not required.

7 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	12/19/2024	105838170BOX-001.125kHz_MPE	KPS <i>KPS</i>	VFV <i>VFV</i>	Original Issue
1	06/23/2025	105838170BOX-001.125kHz_MPE.1	KPS <i>KPS</i>	VFV <i>VFV</i>	Updated the calculation in Section 5.3 and Section 6.2
2	07/02/2025	105838170BOX-001.125kHz_MPE.2	KPS <i>KPS</i>	VFV <i>VFV</i>	Updated RF Exposure Calculation