

INSULET CORPORATION MPE REPORT

SCOPE OF WORK

MPE CALCULATION – Omnipod 5 SAW Pod

REPORT NUMBER

104993662BOX-010e

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MPE REPORT

(FULL COMPLIANCE)

Report Number: 104993662BOX-010e

Project Number: G104993662

Report Issue Date: March 29, 2022

Model(s) Evaluated: Omnipod 5 SAW Pod

Standards: FCC Part 1 Subpart I (03/2022)

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 5, March 19, 2015

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

Tested by:

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Client:

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1 Introduction and Conclusion

This evaluation report covers for a portable device subject to routine environmental evaluation for RF exposure. A portable device is defined as a transmitting device designed to be used with any part of its radiating structure in direct contact with the user's body.

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 5)	Compliant
7	Revision History	-

3 Client Information

This EUT was evaluated at the request of:

Client: Insulet Corporation
100 Nagog Park
Acton, MA 01720
USA

Contact: Rachel Zhang
Telephone: 978.600.7000
Fax: None
Email: rozhang@insulet.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Insulet Corporation
100 Nagog Park
Acton, MA 01720
USA

Description of Equipment Under Test (provided by client)

Insulin management system.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
4.5 V (3x 1.5V batteries)	N/A	DC	N/A

Variant Models: None.

5 Human RF Exposure

5.1 Requirement(s)

FCC §1.1310 Radiofrequency radiation exposure limits

Maximum output power measured (conducted) = 1.55 dBm

Maximum output power measured (EIRP) = 1.55 dBm + 1.5 dBi = 3.05 dBm or 2.02 mW

FCC SAR Exemption per KDB 447498

- a) For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the *thresholds* are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. } \sqrt{f_{\text{GHz}}})] < 3.0 \text{ for 1-g SAR and } < 7.5 \text{ for 10-g extremity SAR}^{30}$$

RSS 102 SAR Exemption

Table 1: SAR evaluation – Exemption limits for routine use on frequency and separation distance

Frequency (MHz)	Exemption Limits (mW)		
	At separation distance of ≤ 5 mm	At separation distance of 10 mm	At separation distance of 15 mm
≤ 300	71 mW	101 mW	132 mW
450	52 mW	70 mW	88 mW
835	17 mW	30 mW	42 mW

The exemption limits in Table 1 are based on measurements and simulations of human body parts at separation distances of 5 mm to 25 mm from a flat phantom, providing a SAR value of approximately 0.08 W/kg. For low frequencies (300 MHz to 835 MHz), the exemption limits are derived from the following equation:

5.2 Method

An MPE evaluation was performed in order to show that the device was compliant with FCC §2.1091 and ICES-102. The maximum power density was calculated for each transmitter at a separation distance of < 50 mm. The calculation was performed using the maximum gain from the internal and external antennas declared by the manufacturer.

The maximum permissible exposure (MPE) is predicted by using the following equation:

- a) For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the *thresholds* are determined by the following:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. } [V(f_{\text{channel}})] < 3.0 \text{ for 1-g SAR and } < 7.5 \text{ for 10-g extremity SAR} } \right]^{30}$$

5.3 Results:

The sample tested was found to Comply.

5.4 Data:

Human RF Exposure

Maximum output power measured (conducted) = 1.55 dBm

Maximum output power measured (EIRP) = 1.55 dBm + 1.5 dBi = 3.05 dBm or 2.02 mW

FCC SAR Exemption per KDB 447498

- a) For 100 MHz to 6 GHz and *test separation distances* ≤ 50 mm, the *thresholds* are determined by the following:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. } [V(f_{\text{channel}})] < 3.0 \text{ for 1-g SAR and } < 7.5 \text{ for 10-g extremity SAR} } \right]^{30}$$

$$= (2.02/5) * (\text{sqrt}(2.480))$$

$$= 0.63622 < 3.0 \text{ (below the limit SAR Exempt per FCC)}$$

RSS 102 SAR Exemption

The measured maximum output power of 2.02 mW is less than 4 mW limit specified at 2450 MHz, the BLE meets SAR exclusion.

6 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	March 29, 2022	104993662BOX-010e	VFV <i>VFV</i>	KPS <i>KPS</i>	Original Issue