

INSULET CORPORATION

SAR EXCLUSION EVALUATION REPORT

SCOPE OF WORK

SAR Exclusion Evaluation on Omnipod 5 with Orion Pod

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SAR EXCLUSION EVALUATION REPORT

(FULL COMPLIANCE)

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Report Issue Date: December 20, 2024

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Model(s) Tested:

Standards: FCC Part 1.1310 (12/23)
FCC KDB Publication 447498 D01 v06
ISED RSS-102 Issue 6 December 15, 2023

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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	SAR Exclusion Evaluation FCC KDB Publication 447498 D01 v06 ISED RSS-102 Issue 6 December 15, 2023	Compliant
6	Revision History	-

3 Client Information

This EUT was tested at the request of:

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

Contact: Rachel Zhang
Telephone: 978.600.7000
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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)

The EUT is the Insulin Delivery Pod

Equipment Under Test Power Configuration

Rated Voltage	Rated Current	Rated Frequency	Number of Phases
Internal battery	N/A	N/A	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 SAR Exclusion Evaluation

FCC SAR Test Exclusion Thresholds (FCC KDB Publication 447498 D01 v06):

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

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

Calculation:

SAR Test Exclusion Thresholds = $[1.33\text{mW}/5\text{mm}] \cdot [\text{sqrt}(2.440\text{GHz})] = 0.42$

Cond. Power	Cond. Power	Antenna Gain	EIRP Power	EIRP Power	Min Separation Distance	Frequency	SAR Test Exclusion Thresholds For 1-g SAR	SAR Test Exclusion Thresholds ≤ 7.5 For 10-g Extremity SAR	Test Result
(dBm)	(mW)	(dBi)	(dBm)	(mW)	(mm)	GHz	≤ 3.0	≤ 7.5	
1.25	1.33	1.1	2.35	1.72	5	2.440	0.42	0.42	Compliant

Note: The maximum conducted power of 1.25 dBm at 2.440 GHz was taken from Intertek Report # 105948073BOX-001.FCC.

ISED RSS-102 Issue 6 Section 6.3 SAR exemption limits:

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

SAR evaluation is not required when the maximum of the conducted output power or EIRP is less than the exemption limits given in RSS-102 Issue 6 Table 11, above.

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP Power (dBm)	EIRP Power (mW)
2440	1.25	1.1	2.35	1.72

Evaluation Results: The EUT met the SAR exemption since the EIRP power is less than 3 mW at a separation distance of less than 5 mm. The separation distance of the radio's antenna structure to the human body is more than 5 mm.

SAR estimation for exempted transmitters per RSS-102 Issue 6 Clause 7.1.8

SAR values from exempted transmitters shall be included in the total exposure assessment. A SAR value of 0.4 W/kg for 1 g, 1 W/kg for 10 g, or an estimated SAR value based on the ratio of the power level and the power exemption limit may be used to determine the standalone SAR value for test configurations that do not require a SAR evaluation based on test reductions or on the exemption limits outlined in section 6.3.

The estimated SAR value, $SAR_{estimated}$, is calculated using equation below

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

Where

- P_{max} is the maximum power level including tune-up tolerance for the exempted transmitter
- $P_{max,exemption}$ is the maximum power level of exemption at the same frequency and distance for the exempted transmitter
- SAR_{limit} is the applicable SAR limit (e.g. 1.6 W/kg for 1 g or 4 W/kg for 10 g)

The EUT has a maximum conducted power of 1.25 dBm or 1.33 mW at 2440 MHz, using the worst-case

power exemption threshold at 2450 MHz of 3 mW.

$$\text{SAR}_{\text{Estimated}} = (1.33 \text{ mW} / 3\text{mW}) \times 0.25 \times 1.6 \text{ W/kg}$$

$$\text{SAR}_{\text{Estimated}} = (1.33 \text{ mW} / 3\text{mW}) \times 0.4 \text{ W/kg}$$

$$\text{SAR}_{\text{Estimated}} = 0.443 \times 0.4 \text{ W/kg}$$

$$\text{SAR}_{\text{Estimated}} = 0.177 \text{ W/kg}$$

6 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	12/20/2024	105948073BOX-001.FCCMPE	KPS <i>KPS</i>	VFV <i>VFV</i>	Original Issue
1	04/24/2025	105948073BOX-001.FCCMPE.Rev1	KPS <i>KPS</i>	VFV <i>VFV</i>	Added SAR estimation for exempted transmitters on page 7