

Medtronic MiniMed

TEST REPORT FOR

**MiniMed Flex Charger, Model: MMT-8070
and
MiniMed Insulin Pump, Model M065019C001***

*(See Appendix C for Manufacturers Declaration)

**Tested to The Following:
FCC KDB 680106 D01 Wireless Power Transfer v04
(for WPT Mobile Devices, 100kHz to 4MHz)**

Report No.: 111245-50

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PREPARED FOR:

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The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
22116 23rd Drive S.E. Suite A
Bothell, WA 98021

Software Versions

Software	Version
Wavecontrol SMP	2.3.0.1

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Canada	Japan
Canyon Park, Bothell, WA	US0103	US1024	3082C	A-0136
Brea, CA	US0103	US1024	3082D	A-0136
Fremont, CA	US0103	US1024	3082B	A-0136
Mariposa, CA	US0103	US1024	3082A	A-0136

*CKC's list of NIST designated countries can be found at: <https://standards.gov/cabs/designations.html>

Summary of Results

Standard / Specification: FCC OET KDB 680106 D01 Wireless Power Transfer v04

Test Procedure	Description	Modifications	Results
KDB 680106 Section 3.2	E-Field Limit	NA	Pass
KDB 680106 Section 3.2	H-Field Limit	NA	Pass

NA = Not Applicable

ISO/IEC 17025 Decision Rule

The equipment sample utilized for testing is selected by the manufacturer. The declaration of pass or fail herein is a binary statement for simple acceptance rule (ILAC G8) based upon assessment to the specification(s) listed above, without consideration of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of testing.

Modifications/Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Modifications
NA

***Modifications listed above must be incorporated into all production units.**

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

Equipment Under Test (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1 (Charging Unit with Resistor Load)

Device	Manufacturer	Model	SN
MiniMed Flex Charger	Medtronic MiniMed	MMT-8070	MDCHGR01031
MiniMed Insulin Pump	Medtronic MiniMed	M065019C001	JUN042025-1-001 and JUN042025-1-004 (pump units with resistor load, both units used interchangeably)
AC Adapter	Phihong	AQ15A-050B	NA

Support Equipment

Device	Manufacturer	Model	SN
NA	NA	NA	NA

Configuration 2 (Charging Normal Unit)

Device	Manufacturer	Model	SN
MiniMed Flex Charger	Medtronic MiniMed	MMT-8070	MDCHGR01031
MiniMed Insulin Pump	Medtronic MiniMed	M065019C001*	DV10000252 and DV10000498 (used interchangeably)
AC Adapter	Phihong	AQ15A-050B	NA

Support Equipment

Device	Manufacturer	Model	SN
NA	NA	NA	NA

Configuration 3 (Charger Only)

Device	Manufacturer	Model	SN
MiniMed Flex Charger	Medtronic MiniMed	MMT-8070	MDCHGR01031
AC Adapter	Phihong	AQ15A-050B	NA

Support Equipment

Device	Manufacturer	Model	SN
NA	NA	NA	NA

EUT and Accessory Photo(s)



EUT Pump



Pump with Load



Wireless Charger

Support Equipment Photo(s)



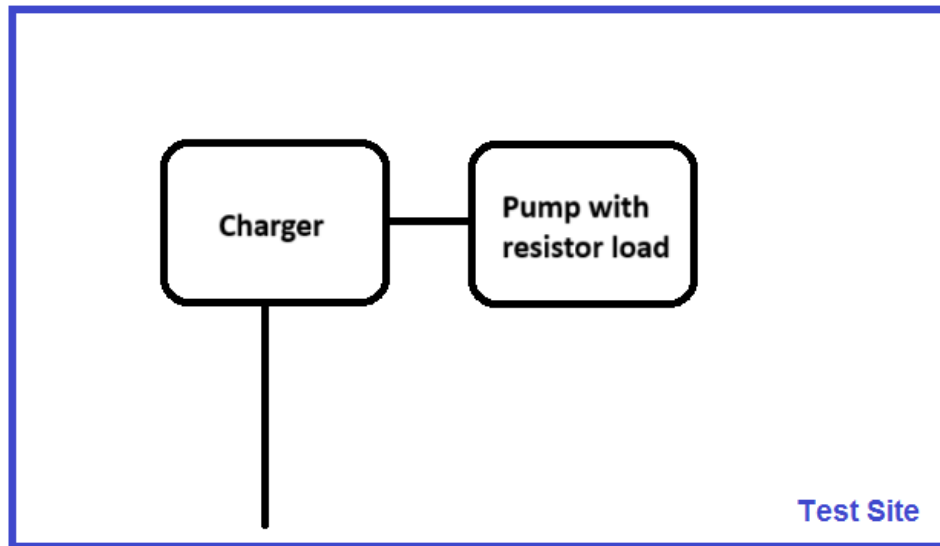
AC Adapter

Block Diagram of Test Setup(s)

Config#	Description of Block Diagram
1	Charger is continuously transmitting with a pump that has a resistive load for maximum charger current.
2	Charger is continuously transmitting with a normal pump client, various levels of charge on the client are investigated.
3	Charger is transmitting intermittently as expected during normal operation without a client.

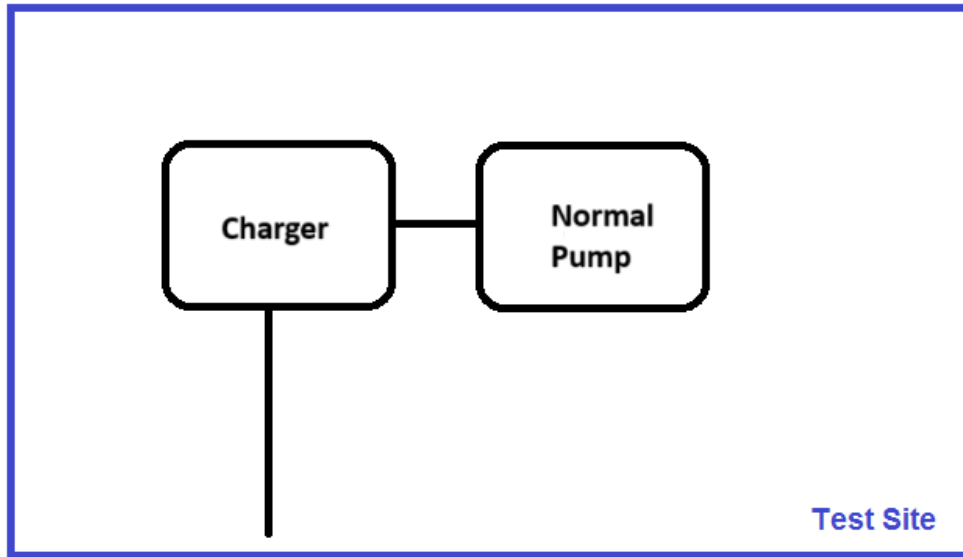
Configuration #1 (Charger Resistive Unit)

Test Setup Block Diagram



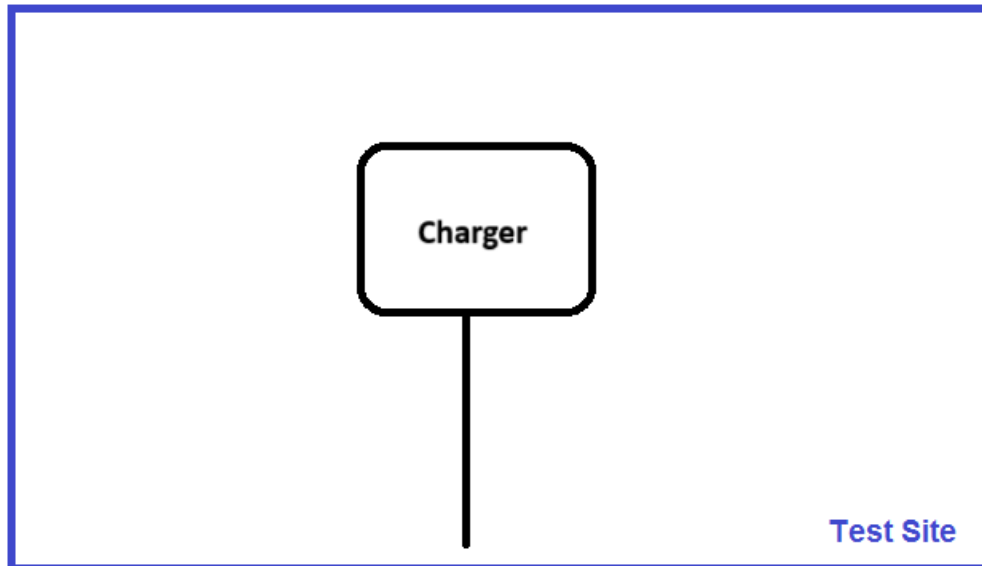
Configuration #2 (Charging Normal Unit)

Test Setup Block Diagram



Configuration #3 (Charger Only)

Test Setup Block Diagram



Purpose:

To demonstrate compliance for RF Exposure requirements for WPT devices, categorized as Mobile devices in the 100kHz to 4MHz range per FCC requirements.

Test Procedure:

This equipment is evaluated in accordance with the guidelines set forth in KDB 680106 D01 Wireless Power Transfer v04.

The measurement probe is set at 20cm.

An investigation is performed on all sides and relevant modes to find the worst case E field and H field at 20cm.

Other Considerations:

Report considers stand-alone configuration only.

The manufacturer declares the charging configuration is to be considered mobile. The equipment is not intended to be used while charging. The alignment magnets are strong enough to hold the pump to the charger on a person or in a pocket. Directions to the end user and marketing does is NOT for portable use, it is intended to be a desktop charger.

Decision Rule:

Outcome of RF exposure assessment is listed in the comment section(s) below as a binary statement for simple acceptance rule according to ILAC-G8 (2019).

Test Results

Test Setup/Conditions

Test Location:	Bothell Lab Bench	Test Engineer:	M. Atkinson
Test Method:	KDB 680106 D01 Wireless Power Transfer v04 (October 24, 2023)	Test Date(s):	10/6/2025
Configuration:	1, 2, 3		
Test Conditions:	The unit was continuously operating. Multiple modes/configurations were investigated to find the worst case peak E and H fields. The manufacturer declares the frequency of operation of the charger is from 110kHz to 205kHz. Wireless charger by itself. Wireless charger with a resistive load to maximize charge current. Wireless charger with a normal unit (checked with a fully drained battery, and near full charge). The charger still transmits without a client device, and this was found to have the worst case peak E and H fields. All fields measured with a client device were lower. The manufacturer declares the system while charging is considered for Mobile use only. The worst case configuration was found to be with the charger by itself, positioned opposite the top of the charger.		

Environmental Conditions

Temperature (°C)	22-23	Relative Humidity (%):	35-40
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Test Equipment

Asset#	Description	Manufacturer	Model	Cal Date	Cal Due
03792	Field Meter	WaveControl	SMP2	10/22/2024	10/22/2026
03854	Field Probe	WaveControl	WP400-3	10/22/2024	10/22/2026

Electric Field Strength Test Data

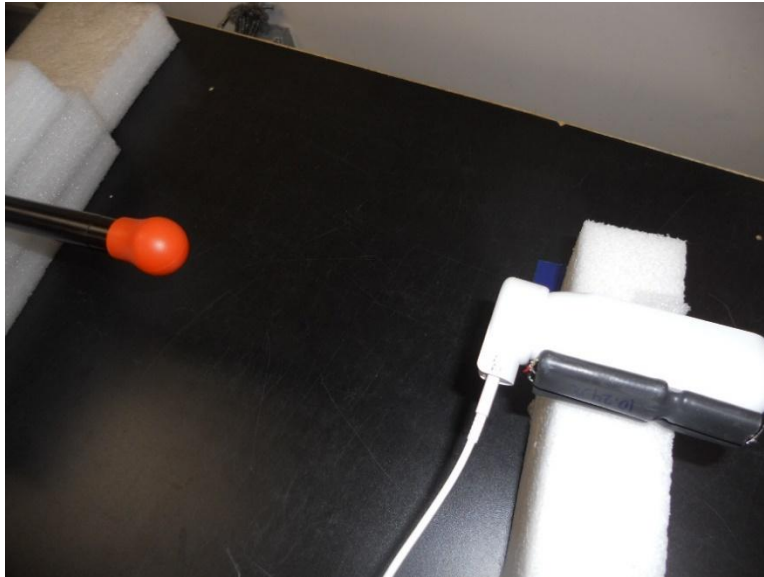
Frequency	Operational Mode	Location	Max Peak Value (V/m)	Limit (V/m)	Results
130kHz	Charger Only	Position 1	1.17	614	Pass

Magnetic Field Strength Test Data

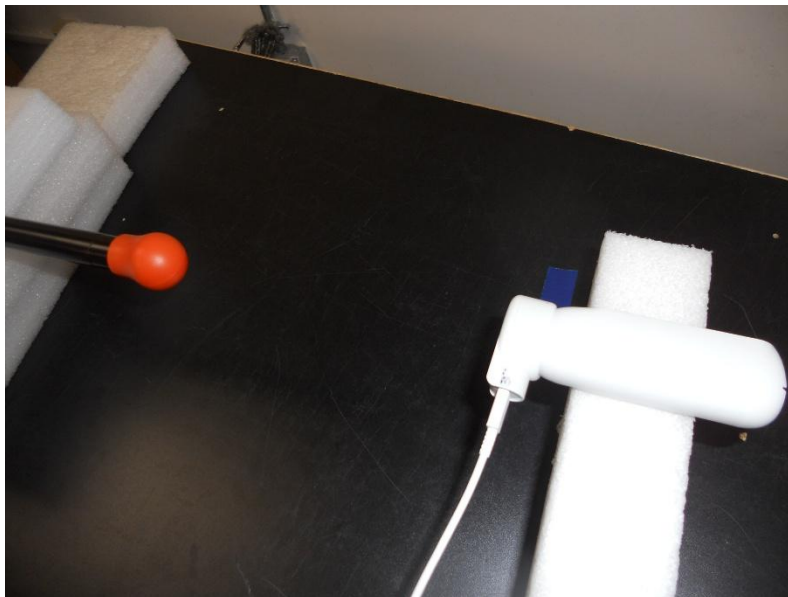
Frequency	Operational Mode	Location	Max Peak Value (A/m)	Limit (A/m)	Results
130kHz	Charger Only	Position 1	0.082	1.63	Pass

Position	Description	Distance	Comments
1	Above Charger Coil	20cm	The worst case E and H field at 20cm was found to be directly opposite the top side of the charger coil.

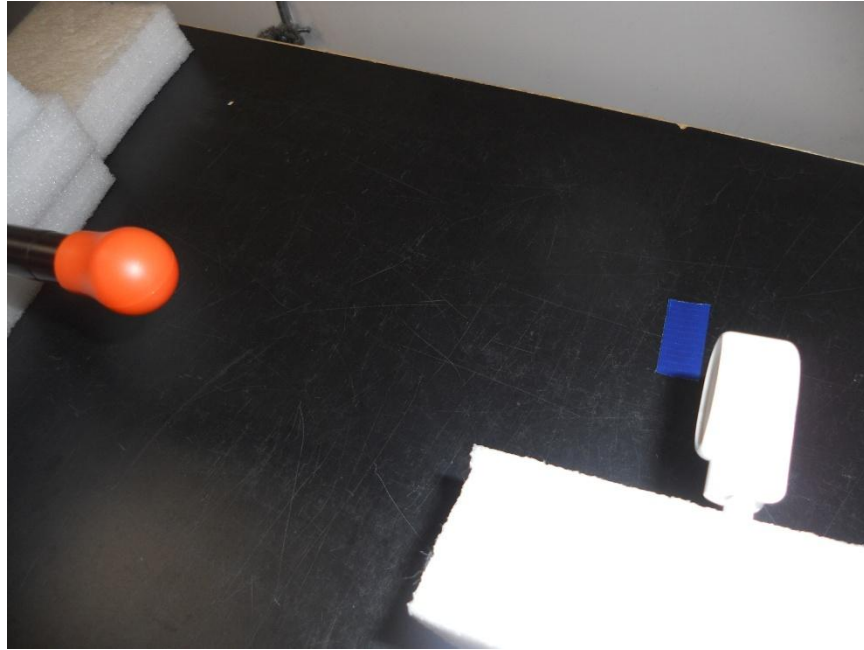
Test Setup Photos



Charger and Unit with Resistive Load



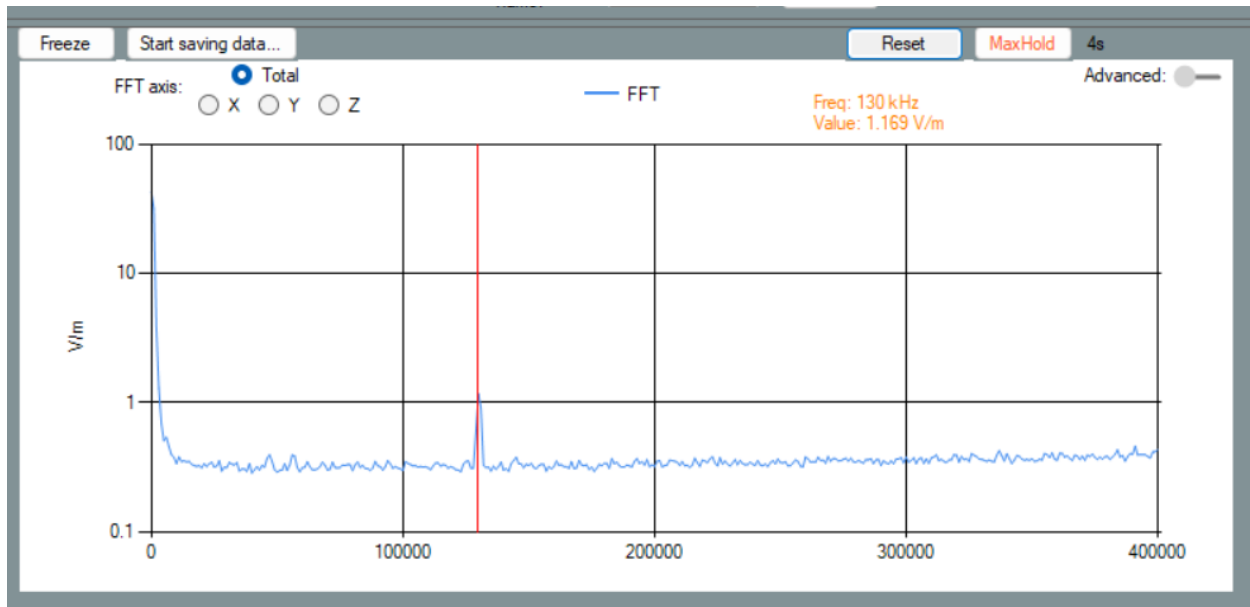
Charger and Normal Unit



Charger Only (worst case)

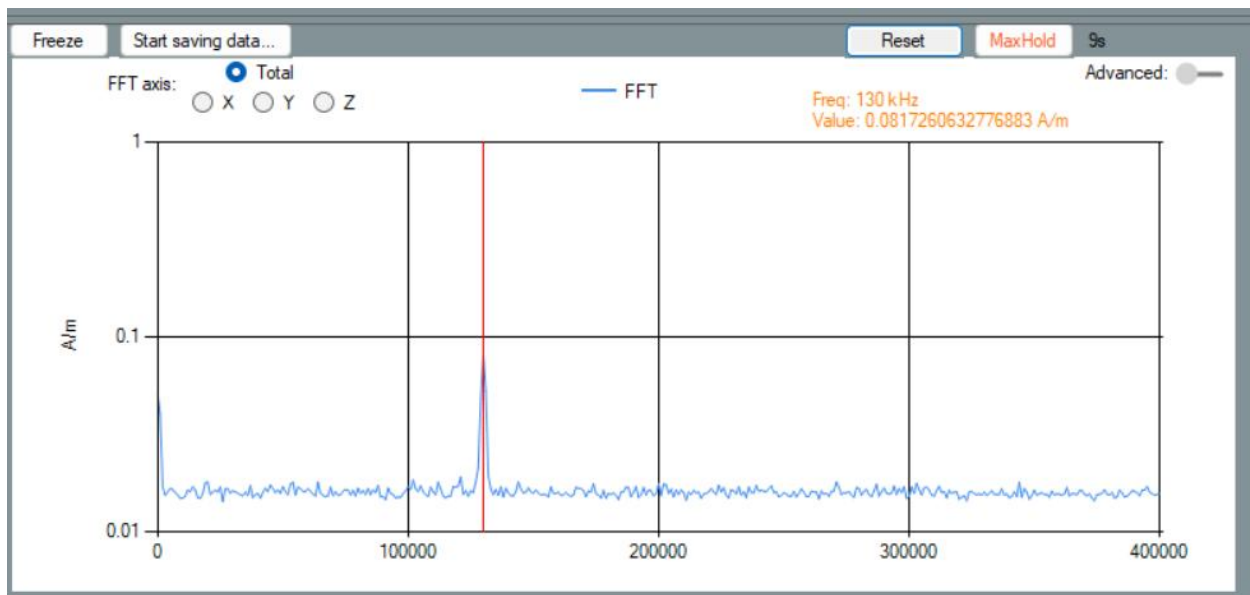
Plot(s)

Plot of worst-case E field measurement



Note: Peak data is shown from marker max hold

Plot of worst case H field measurement



Note: Peak data is shown from marker max hold

APPENDIX A - RF Exposure Limits

United States Compliance Requirements (1.1310):

RF Exposure Evaluation Limits Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-3.0	614	1.63	*(100)	< 6
3.0-30	1842 / f _{MHz}	4.89 / f _{MHz}	*(900 / f _{MHz} ²)	< 6
30-300	61.4	0.163	1	< 6
300-1500	--	--	f _{MHz} / 300	< 6
1500-100,000	--	--	5.0	< 6

RF Exposure Evaluation Limits General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	< 30
1.34-30	824 / f _{MHz}	2.19 / f _{MHz}	*(180 / f _{MHz} ²)	< 30
30-300	27.5	0.073	0.2	< 30
300-1500	--	--	f _{MHz} / 1500	< 30
1500-100,000	--	--	1.0	< 30

* Plane wave equivalent power density

Limit is calculated based on the mid-band frequency used in the operating frequency range.

Exemption Limits for Stand-Alone Portable (SAR) and Mobile Routine Evaluation:

In accordance with 47 CFR 1.1307(b)(3)(i)

Exemption Threshold for Maximum Time Averaged Output Power or EIRP (mW)		
Frequency (MHz)	$0.5 \leq d \leq 20\text{cm}$	$20\text{cm} < d \leq 40\text{cm}$
0.1 – 100,000	≤ 1 (including $d < 0.5$)	
0.3 – 1.34	$1.64 * 192 * d^2 \mid d \geq \lambda/2\pi$	
1.34 – 30	$1.64 * 345 * \frac{d^2}{f_{\text{MHz}}^2} \mid d \geq \lambda/2\pi$	
30 – 300	$1.64 * 0.383 * d^2 \mid d \geq \lambda/2\pi$	
300 - 1500 -	$1.64 * 0.00128 * d^2 * f_{\text{MHz}} \mid d \geq \lambda/2\pi, \text{ or}$ $1.64 * 2.04 * f_{\text{MHz}} * \left(\frac{d}{20}\right)^{-\text{Log}\left(\frac{60}{2040 * f_{\text{MHz}}^{1.5}}\right) - 4.5}$	$1.64 * 0.00128 * d^2 * f_{\text{MHz}} \mid d \geq \lambda/2\pi, \text{ or}$ $1.64 * 2.04 * f_{\text{MHz}}$
1500 – 6000	$1.64 * 1.92 * d^2 \mid d \geq \lambda/2\pi, \text{ or}$ $1.64 * 3060 * \left(\frac{d}{20}\right)^{-\text{Log}\left(\frac{60}{3060 * f_{\text{MHz}}^{0.5}}\right) - 1.5}$	$1.64 * 1.92 * d^2 \mid d \geq \lambda/2\pi, \text{ or}$ $1.64 * 3060$
6000 – 100,000	$1.64 * 1.92 * d^2 \mid d \geq \lambda/2\pi$	

Equations have been modified from the published version to reflect consistent units of d in cm, P_{th} in mW (EIRP) and f in MHz.

APPENDIX B - References

Informative Publications:

1. ANSI C95.1 (2005) IEEE Standard for Safety Level with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz, 2005.
2. International Commission on Non-Ionizing Radiation Protection. *Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)*. Health Physics 74 (4): 494-522; 1998.
3. International Commission on Non-Ionizing Radiation Protection *Statement on the "Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz)." Health Physics 97(3):257-259, 2009*
4. International Commission on Non-Ionizing Radiation Protection. *Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1Hz to 100kHz)*. Health Physics 99 (6): 818-836; 2010.
5. ANSI C63.30 (2021) American National Standard for Methods of Measurements of Radio-Frequency Emissions from Wireless Power Transfer Equipment
6. FCC OET KDB 680106 D01 Wireless Power Transfer v04 (October 24, 2023) Equipment Authorization of Wireless Power Transfer Devices

Appendix C - Manufacturer Declaration

The following models have been tested by CKC Laboratories:

M065019C001

M065019C001 represents the hardware of our MiniMed Flex Insulin Pump Platform which may include a variety of different brand names and model numbers that offer different therapies. Users will be able to upgrade their pump to a more comprehensive model via a firmware update. This update will enable the user to access more therapy options without having to purchase a different pump. The firmware updates will not impact RF, EMC and Safety characteristics.

The manufacturer declares that the following additional models are identical electrically or any differences between them do not affect their RF and EMC characteristics and therefore meets the level of testing equivalent to the tested models.

Insulin Pump	Brand Name	Configuration
RF: M065019C001	Instinct	MMT-8001
	MiniMed Flex	MMT-8062
		MMT-8063
	MiniMed Flex 2 (NMX8)	MMT-8162
		MMT-8163

Note: The products identified in the table above differ in software/firmware related to automated insulin delivery features and associated algorithms. The software and firmware do not affect product radio or electromagnetic compatibility performance or compliance. Hardware documentation such as RF schematics, RF block diagram, and RF component layouts are identical between these insulin pump models. Additional configuration identifiers (e.g., K) may be added to the base configuration number for inventory management purposes. NMX8 is the internal name for the MiniMed Flex 2 system and will be used for clinical trials. Instinct model was used for device verification testing purposes.