

# Microtek Medical, Inc.

## RF Exposure Exhibit

### SCOPE OF WORK

EMC TESTING – Fluid Warmer System, Model Tested: EFW5L

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105352296MPK-008

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**RF Exposure Exhibit  
(mobile devices)**

**Report Number: 105352296MPK-008**

**Project Number: G105352296**

**Report Issue Date: April 17, 2023**

**Product Designation: Fluid Warmer System**

**Model Tested: EFW5L**

**FCC ID: 2BAY2-EFW5L**

**IC: 30245-EFW5L**

**to**

**47CFR 2.1091**

**RSS-102 Issue 5**

**for**

**Microtek Medical, Inc.**

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Report No. 105352296MPK-00X	
<b>Equipment Under Test:</b>	Fluid Warmer System
<b>Trade Name:</b>	Microtek Medical, Inc.
<b>Model(s) Tested:</b>	EFW5L
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<b>Applicable Regulation:</b>	47CFR 2.1091 RSS-102 Issue 5

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## 1.0 RF Exposure Summary

Test	Reference FCC	Reference Industry Canada	Result
Radio frequency Radiation Exposure Evaluation	47 CFR§2.1091	RSS-102 Issue 5	Complies

## 2.0 RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 and RSS-102 are followed.

### 2.1 FCC Limits

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
<b>(A)Limits For Occupational / Control Exposures</b>				
0.3 – 3.0	614	1.63	*100	6
3.0 – 30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300 - 1500	...	...	F/300	6
1500 - 100,000	...	...	5	6
<b>(B)Limits For General Population / Uncontrolled Exposure</b>				
0.3 – 1.34	614	1.63	*100	30
1.34 – 30	824/f	2.19/f	*180/f <sup>2</sup>	30
30 – 300	27.5	0.073	0.2	30
300 - 1500	...	...	F/1500	30
1500 - 100,000	...	...	1.0	30

F = Frequency in MHz

\* = plane wave equivalent density

## 2.2 Industry Canada Limits

According to RSS-102, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6.

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range	Electric Field	Magnetic Field	Power Density	Reference Period
(MHz)	(V/m rms)	(A/m rms)	(W/m <sup>2</sup> )	(minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ f <sup>0.5</sup>	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	58.07/ f <sup>0.25</sup>	0.1540/ f <sup>0.25</sup>	8.944/ f <sup>0.5</sup>	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 f <sup>0.3417</sup>	0.008335 f <sup>0.3417</sup>	0.02619 f <sup>0.6834</sup>	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ f <sup>1.2</sup>
150000-300000	0.158 f <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> f <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> f	616000/ f <sup>1.2</sup>
Note: f is frequency in MHz. * Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

### 3.0 Test Results (Mobile Configuration)

#### 3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is at least 20 cm away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 20 cm or more separation distance with the antenna should be included in user's manual.

#### 3.2 EIRP calculations

The Fluid Warmer System, Model: EFW5L consists of a 13.56 MHz RFID radio. For RF exposure compliance refer report # 105352296MPK-001.

#### 3.3 Maximum RF Power

##### Fluid Warmer System

Frequency Range (MHz)	Peak FS @10m (dBμV/m)	Note
13.56	30.38	FS measurement was taken from Report # 105352296MPK-001

### 3.4 RF Exposure Calculation

#### 3.4.1 RF Exposure calculation for RFID, Fluid Warmer System, Model: EFW5L:

Frequency Range (MHz)	Peak FS @10m (dBμV/m)	Peak FS @20 cm* (dBμV/m)	Peak FS @20 cm (V/m)	RSS Limit (V/m)	FCC Limit (V/m)	Results
13.56	30.38	98.33	0.08	27.46	60.77	Complies

\* Distance Correction Factor was used.

#### 4.0 Document History

Revision/ Job Number	Writer Initials	Reviewers Initials	Date	Change
1.0/ G105352296	GGR	ML	April 17, 2023	Original document