

# RADIO TEST REPORT – 458185APFWL

Type of assessment:

**MPE Calculation report**

Manufacturer:

**MedRx Inc.**

Product Marketing Name (PMN):

**MedRx AWRC**

FCC ID:

**2A6UNMEDRXAWRC**

Description of product as marketed:

**Diagnostic Audiometer**

Hardware Version Identification Number (HVIN):

**MedRx AWRC baseboard**

ISED certification number:

**IC: 28531-MEDRXAWRC**

Specifications:

- ◆ FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- ◆ FCC 47 CFR Part 2 Subpart J, §2.1091, §2.1093
- ◆ FCC KDB 447498 D01 General RF Exposure Guidance v06
- ◆ ISED Canada RSS-102 Issue 5 Amendment 1, (February 2021)
- ◆ Health Canada Safety Code 6

**RSS-102 Annex C Attestation:**

I attest that the radiocommunication apparatus meets the exemption from the routine evaluation limits in these standards; that the Technical Brief was prepared and the information contained therein is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed; and that the device meets the SAR and/or RF field strength limits of the above standards.

Date of issue: August 16, 2022

Tarek Elkholy, EMC/RF Specialist

Prepared by



Signature

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada.  
The tests included in this report are within the scope of this accreditation.  
The SCC Accreditation Symbol is an official symbol of the Standards Council of Canada, used under licence.

FCC File Number: 15064 (Ottawa/Almonte); 151100 (Montreal); 151097 (Cambridge)

[www.nemko.com](http://www.nemko.com)

FCC and RSS-102 Annex C – SAR Exemption; Date: May 2021



---

Lab locations

Company name	Nemko Canada Inc.			
Facilities	<i>Ottawa site:</i> 303 River Road Ottawa, Ontario Canada K1V 1H2	<i>Montréal site:</i> 292 Labrosse Avenue Pointe-Claire, Québec Canada H9R 5L8	<i>Cambridge site:</i> 1-130 Saltsman Drive Cambridge, Ontario Canada N3E 0B2	<i>Almonte site:</i> 1500 Peter Robinson Road West Carleton, Ontario Canada K0A 1L0
	Tel: +1 613 737 9680 Fax: +1 613 737 9691	Tel: +1 514 694 2684 Fax: +1 514 694 3528	Tel: +1 519 650 4811	Tel: +1 613 256-9117
Test site identifier	<b>Organization</b>	<b>Ottawa/Almonte</b>	<b>Montreal</b>	<b>Cambridge</b>
	FCC: ISED:	CA2040 2040A-4	CA2041 2040G-5	CA0101 24676
Website	<a href="http://www.nemko.com">www.nemko.com</a>			

---

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

---

Copyright notification

Nemko Canada Inc. authorizes the applicant to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

Nemko Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

© Nemko Canada Inc.

## Table of Contents

<b>Table of Contents .....</b>	<b>3</b>
<b>Section 1      Evaluation summary .....</b>	<b>4</b>
1.1    MPE calculation for simultaneous transmission .....	4

## Section 1 Evaluation summary

### 1.1 MPE calculation for simultaneous transmission

#### 1.1.1 References, definitions and limits

##### FCC §2.1091(d)

(2) For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in paragraph (e)(1) of this section, may be used instead of whole-body SAR limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b) of this part, except for portable devices as defined in §2.1093 of this chapter as these evaluations shall be performed according to the SAR provisions in §2.1093.

**Table** Error! No text of specified style in document.-1: Table 1 to §1.1310(e)(1)—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> )	Averaging time (minutes)
<b>(i) Limits for Occupational/Controlled Exposure</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
1500–100000			5	<6
<b>(ii) 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
1500–100000			1.0	<30

Notes: f = frequency in MHz. \* = Plane-wave equivalent power density.

#### RSS-102, Section 2.5.2

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f^{0.5}$  W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $0.0131 f^{0.6834}$  W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

**References, definitions and limits, continued**

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where:  $S$  = power density (mW/cm<sup>2</sup> or W/m<sup>2</sup>)

$P$  = power input to the antenna (mW or W)

$G$  = power gain of the antenna in the direction of interest relative to an isotropic radiator

$R$  = distance to the center of radiation of the antenna (cm or m)

**1.1.2 EUT technical information**

	Transmitter 1	Transmitter 2
Prediction frequency	2.48 GHz	2.48 GHz
Antenna type	Chip antenna	Chip antenna
Antenna gain	0.5 dBi	0.5 dBi
Maximum transmitter conducted power	6.3 dBm	6.3 dBm
Prediction distance	20 cm	20 cm

**1.1.3 MPE calculation**

	Transmitter 1	Transmitter 2
Fundamental transmit (prediction) frequency:	2480 MHz	2480 MHz
Maximum measured conducted peak output power:	6.3 dBm	6.3 dBm
Cable and/or jumper loss:	0 dB	0 dB
Maximum peak power at antenna input terminal:	6.3 dBm	6.3 dBm
Tx On time:	1.000 ms	1.000 ms
Tx period time:	1.000 ms	1.000 ms
Average factor:	100 %	100 %
Maximum calculated average power at antenna input terminal:	4.265795 mW	4.265795 mW
Single Antenna gain (typical):	0.5 dBi	0.5 dBi
Number of antennae:	1	1
Total system gain:	0.50 dBi	0.50 dBi
 MPE limit for uncontrolled exposure at prediction frequency:	 ISED limit 0.546895 mW/cm <sup>2</sup> FCC limit 1.000000 mW/cm <sup>2</sup>	 ISED limit 0.546895 mW/cm <sup>2</sup> FCC limit 1.000000 mW/cm <sup>2</sup>
Minimum calculated prediction distance for compliance:	20 cm	20 cm
Typical (declared) distance:	20 cm	20 cm
Average power density at prediction frequency:	0.000952 mW/cm <sup>2</sup> 0.009522 W/m <sup>2</sup>	0.000952 mW/cm <sup>2</sup> 0.009522 W/m <sup>2</sup>
Combined MPE compliance:	27.59 dB	30.21 dB
Margin of Compliance:	28.09 dBi	30.21 dBi
Maximum allowable antenna gain:	0.002	0.001
Average power density to MPE limit ratio:	0.002	0.002
Total sum of ratios for FCC:	0.003	0.003
Total sum of ratios for ISED:	1	1
Total sum of power density for ISED:	0.019044 W/m <sup>2</sup>	

**1.1.4 Verdict**

The calculation is below the limit; therefore, the product is passing the RF Exposure requirements for the declared distance.

## 1.1.1 RSS-102, Annex A - RF technical brief cover sheet

ISED Certification Number	IC: 28531-MEDRXAWRC	
Product marketing name (PMN)	Diagnostic Audiometer	
Hardware version identification number (HVIN)	MedRx AWRC baseboard	
Firmware version identification number (FVIN)	N/A	
Host marketing name (HMN)	N/A	
Applicant company number	28531	
Applicant name	MedRx Inc.	
SAR/RF exposure test laboratory	2040A-4 (3 m semi anechoic chamber)	
Type of evaluation	<input type="checkbox"/> SAR Evaluation: Device Used in the Vicinity of the Human Head <input type="checkbox"/> SAR Evaluation: Body-Worn Device and Body-Supported Device <input type="checkbox"/> SAR Evaluation: Limb-Worn Device <input checked="" type="checkbox"/> <b>RF Exposure Evaluation</b> <input type="checkbox"/> Nerve Stimulation Exposure Evaluation (SPR-002)	
SAR evaluation	Multiple transmitters: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Nerve Stimulation Evaluation (SPR-002)	Evaluated against exposure limits: <input type="checkbox"/> General Public Use <input type="checkbox"/> Controlled Use	
RF exposure evaluation	Duty cycle used in evaluation: N/A %	
	Separation distance: N/A mm	
	Standard used for evaluation: N/A	
	SAR value: N/A W/kg	
	<input type="checkbox"/> Measured <input type="checkbox"/> Computed <input type="checkbox"/> Calculated	
	Evaluated against exposure limits: <input type="checkbox"/> General Public Use <input type="checkbox"/> Controlled Use	
	Measurement distance: N/A m	
	Field Strength: N/A <input type="checkbox"/> V/m (electric) <input type="checkbox"/> A/m (magnetic) <input type="checkbox"/> Measured <input type="checkbox"/> Computed <input type="checkbox"/> Calculated	
	Exposure condition: <input type="checkbox"/> Whole body/Torso/Head <input type="checkbox"/> Leg <input type="checkbox"/> Arm <input type="checkbox"/> Hand/Foot	
	Evaluated against exposure limits: <input type="checkbox"/> General Public Use <input type="checkbox"/> Controlled Use	
	Duty cycle used in evaluation: 100 %	
	Operational frequency: 2480 MHz	
	Standard used for evaluation: <b>Safety Code 6</b>	
	Measurement distance: 0.2 m	
	RF value: 0.019 W/m <sup>2</sup> (Calculated)	

End of the test report