

RADIO TEST REPORT – 458185APFWL

Type of assessment:

MPE Calculation report

Manufacturer:

MedRx Inc.

Description of product as marketed:

Diagnostic Audiometer

Product Marketing Name (PMN):

MedRx AWRC

Hardware Version Identification Number (HVIN):

MedRx AWRC baseboard

FCC ID:

2A6UNMEDRXAWRC

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.

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

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

Lab locations

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

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.

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Section 1 Evaluation summary

1.1 MPE calculation for simultaneous transmission

1.1.1 References, definitions and limits

FCC §2.1091(d)

- (2) (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 ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842 / f	4.89 / f	*(900 / f ²)	<6
30–300	61.4	0.163	1.0	<6
300–1500			f / 300	<6
1500–100000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	<30
1.34–30	824 / f	2.19 / f	*(180 / f ²)	<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/cm² or W/m²)
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:	ISSED limit 0.546895 mW/cm ²	FCC limit 1.000000 mW/cm ²	ISSED limit 0.546895 mW/cm ²	FCC limit 1.000000 mW/cm ²
Minimum calculated prediction distance for compliance:	5.468948 W/m ² 20 cm	10.000000 W/m ² 20 cm	5.468948 W/m ² 20 cm	10.000000 W/m ² 20 cm
Typical (declared) distance:	20 cm	20 cm	20 cm	20 cm
Average power density at prediction frequency:	0.000952 mW/cm ² 0.009522 W/m ²	0.000952 mW/cm ² 0.009522 W/m ²	0.000952 mW/cm ² 0.009522 W/m ²	0.000952 mW/cm ² 0.009522 W/m ²
Combined MPE compliance:				
Margin of Compliance:	27.59 dB	30.21 dB	27.59 dB	30.21 dB
Maximum allowable antenna gain:	28.09 dBi	30.21 dBi	28.09 dBi	30.21 dBi
Average power density to MPE limit ratio:	0.002	0.001	0.002	0.001
Total sum of ratios for FCC:	0.002			
Total sum of ratios for ISSED:	0.003			
Maximum allowed sum of ratios:	1			
		Total sum of power density for ISSED:	0.019044 W/m ²	

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 type="checkbox"/> RF Exposure Evaluation <input type="checkbox"/> Nerve Stimulation Exposure Evaluation (SPR-002)		
SAR evaluation	Multiple transmitters: <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Evaluated against exposure limits: <input type="checkbox"/> General Public Use <input type="checkbox"/> Controlled Use		
	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		
Nerve Stimulation Evaluation (SPR-002)	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	
RF exposure evaluation	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:	Safety Code 6	
	Measurement distance:	0.2	m
	RF value:	0.019	W/m ² (Calculated)

End of the test report