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RADIO TEST REPORT – APFWL

Type of assessment:

MPE Calculation report

Manufacturer:

Pressure Systems International

Product Marketing Name (PMN):

ECB1

Hardware Version Identification Number (HVIN):

PSI ECB1

FCC ID:

2BNGJECB1

ISED certification number:

IC: 34232-PSIECB1

Specification:

- ◆ FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- ◆ FCC 47 CFR Part 2 Subpart J, §2.1091
- ◆ FCC KDB 447498 D01 General RF Exposure Guidance v06
- ◆ ISED Canada RSS-102 Issue 6 December 15, 2023

RSS-102 - Declaration of RF Exposure Compliance

ATTESTATION: I attest that, Annex A and the Technical Brief information was prepared by me and is correct; that the device evaluation was performed or supervised by me; that applicable measurement and evaluation methodologies have been followed; and that the device meets the SAR, APD and/or IPD limits of RSS-102.

Date of issue: May 5, 2026

Larry Finn

Prepared by

Signature

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The tests included in this report are within the scope of this accreditation.
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ANAB File Number: AT-3165.01



Lab locations

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Facilities	<i>Round Rock Site:</i> 1601 N AW Grimes Blvd. Round Rock, TX 78665 USA Tel: +1 512 244 3371 Fax: +1 512 244 1846	
Test site identifier	Organization	Round Rock
	FCC:	US3166
	ISED:	3036B-1
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 USA's ISO/IEC 17025 accreditation.

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Section 1 Evaluation summary

1.1 MPE calculation for standalone 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 1.1-1: Table 1 to §1.1310(e)(1)—Power Density Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure		
0.3–3.0	*(100)	≤6
3.0–30	*(900 / f ²)	<6
30–300	1.0	<6
300–1500	f / 300	<6
1500–100000	5	<6
(ii) Limits for General Population/Uncontrolled Exposure		
0.3–1.34	*(100)	<30
1.34–30	*(180 / f ²)	<30
30–300	0.2	<30
300–1500	f / 1500	<30
1500–100000	1.0	<30

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

References, definitions and limits, continued

RSS-102, Section 5.3.2

The electric and magnetic field strength reference levels, power density reference levels, and associated reference period for devices employed by the general public (uncontrolled environment) and controlled-use devices (controlled environment) are specified in table below. Note that the power density limits specified in these tables apply to whole body exposure conditions.

Table 1.1-2: RSS-102— Power density limits

Frequency range (MHz)	Power density (W/m ²)	Power density (mW/cm ²)	Reference Period (minutes)
Limits for controlled-use devices (controlled environment)			
10–20	10	1	6
20–48	44.72 / f ^{0.5}	4.472 / f ^{0.5}	6
48–100	6.455	0.6455	6
100–6000	0.6455 f ^{0.5}	0.06455 f ^{0.5}	6
6000–15000	50	5	616000 / f ^{1.2}
15000–30000	3.33×10 ⁻⁴ f	0.333×10 ⁻⁴ f	616000 / f ^{1.2}
Limits for devices used by the general public (uncontrolled environment)			
10–20	2	0.2	6
20–48	8.944 / f ^{0.5}	0.8944 / f ^{0.5}	6
48–300	1.291	0.1291	6
300–6000	0.02619 f ^{0.6834}	0.002619 f ^{0.6834}	6
6000–15000	10	1	616000 / f ^{1.2}
15000–30000	6.67×10 ⁻⁵ / f	0.667×10 ⁻⁵ / f	616000 / f ^{1.2}

Notes: f = frequency in MHz.

The above table refers to Health Canada's Safety Code 6 for relevant notes and additional information.

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

Prediction frequency	2402 MHz
Antenna gain	-2.19 dBi
Number of antennas	1
Maximum transmitter power	18.48 dBm (conducted per port)
Prediction distance (declared)	20 cm

1.1.3 MPE calculation

Fundamental transmit (prediction) frequency:	2402 MHz
Maximum measured conducted peak output power:	18.48 dBm
Cable and/or jumper loss:	0 dB
Maximum peak power at antenna input terminal:	18.48 dBm
Duty cycle:	100 %
Maximum calculated average power at antenna input terminal:	70.47 mW
Single Antenna gain (typical):	-2.19 dBi
Number of antennae:	1
Total system gain:	-2.19 dBi

FCC calculations

ISED calculations

Uncontrolled environment

Declared distance:	20 cm	20 cm
Average power density at declared distance:	0.008467 mW/cm ² 0.084670 W/m ²	0.008467 mW/cm ² 0.084670 W/m ²
MPE limit at prediction frequency:	1.000000 mW/cm ² 10.000000 W/m ²	0.535080 mW/cm ² 5.350805 W/m ²
Minimum calculated prediction distance for compliance:	20 cm	20 cm
Margin of Compliance:	20.72 dB	18.01 dB
with Maximum permitted antenna gain:	18.53 dBi	15.82 dBi

Controlled environment

Declared distance:	20 cm	20 cm
Average power density at declared distance:	0.008467 mW/cm ² 0.084670 W/m ²	0.008467 mW/cm ² 0.084670 W/m ²
MPE limit at prediction frequency:	5.000000 mW/cm ² 50.000000 W/m ²	3.163609 mW/cm ² 31.636086 W/m ²
Minimum calculated prediction distance for compliance:	20 cm	20 cm
Margin of Compliance:	27.71 dB	25.72 dB
with Maximum permitted antenna gain:	25.52 dBi	23.53 dBi

1.1.4 Verdict

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

End of the test report