

# Assessment Report

REP108758-1R1ARFWL

Type of assessment:

MPE Calculation report

Manufacturer:

WaveLynx Technologies Corporation

Model / HVIN:

AX-01, AX-02, AX-05

Product Marketing Name (PMN):

AX-01, AX-02, AX-05

Model / HVIN variant(s):

N/A

FCC ID:

2AE13WLTC-AXM-125

IC certification number:

20063-WLTAXM0125

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 2023)

## RSS-102 Annex B - Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex A is correct; 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 RSS-102.

Date of issue: September 10, 2025

James Cunningham, EMC/WL Laboratory Manager

Prepared by

Signature



Lab locations=

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ISED Test Site	2040B-3

Prepared by	James Cunningham, EMC/WL Laboratory Manager
Date	September 10, 2025
Signature	

Limits of responsibility

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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.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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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 1.1-1: 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 5

For the purpose of this standard, ISED has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6:

**Table 1.1-2: Table 4 to RSS-102 — RF Field Strength Limits**

Frequency range (MHz)	Electric field strength (V/m rms)	Magnetic field strength (A/m rms)	Power density (W/m <sup>2</sup> )	Reference Period (minutes)
<b>Limits for Controlled Environment</b>				
10–20	61.4	0.163	10	6
20–48	129.8 / f <sup>0.25</sup>	0.3444 / f <sup>0.25</sup>	44.72 / f <sup>0.5</sup>	6
48–100	49.33	0.1309	6.455	6
100–6000	15.60 f <sup>0.25</sup>	0.04138 f <sup>0.25</sup>	0.6455 f <sup>0.5</sup>	6
6000–15000	137	0.364	50	6
<b>Limits for Uncontrolled Environment</b>				
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

Notes: f = frequency in MHz

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 (125 kHz RFID)	Transmitter 2 (13.56 MHz RFID)	Transmitter 3 (Bluetooth Low Energy)
Prediction frequency	125 kHz	13.56 MHz	2480 MHz
Antenna type	Integrated inductor coil	PCB trace antenna	Chip antenna
Antenna gain	2 dBi	2 dBi	2.8 dBi
Maximum transmitter conducted power	-44.61 dBm (0.035 μW)	-35.47 dBm (0.284 μW)	-12.75 dBm (0.053 mW)
Prediction distance	20 cm	20 cm	20 cm

Data sources:

- Antenna information taken from WaveLynx document: "AX-05 Technical Report 06112025"
- 125 kHz RFID transmitter conducted power taken from Nemko test report REP108758-3TRFWL. Measured field strength of 54.769 dBμV/m at 3m measurement distance converted to effective radiated power and antenna gain subtracted.
- 13.56 MHz RFID transmitter conducted power taken from Nemko test report REP108758-2TRFWL. Measured field strength of 63.91 dBμV/m at 3m measurement distance converted to effective radiated power and antenna gain subtracted.
- 2.4 GHz Bluetooth Low Energy transmitter conducted power taken from Nemko test report REP108758-1TRFWL.

### 1.1.3 MPE calculation

	125 kHz RFID		13.56 MHz RFID		Bluetooth Low Energy	
Fundamental transmit (prediction) frequency:	<u>0.125</u> MHz		<u>13.56</u> MHz		<u>2480</u> MHz	
Maximum measured conducted peak output power:	<u>-44.61</u> dBm		<u>-35.47</u> dBm		<u>-12.75</u> dBm	
Cable and/or jumper loss:	<u>0</u> dB		<u>0</u> dB		<u>0</u> dB	
Maximum peak power at antenna input terminal:	<u>-44.61</u> dBm		<u>-35.47</u> dBm		<u>-12.75</u> dBm	
Duty cycle:	<u>100</u> %		<u>100</u> %		<u>100</u> %	
Maximum calculated average power at antenna input terminal:	<u>3.5E-05</u> mW		<u>0.00028</u> mW		<u>0.053</u> mW	
Single Antenna gain (typical):	<u>2</u> dBi		<u>2</u> dBi		<u>2.8</u> dBi	
Number of antennae:	<u>1</u>		<u>1</u>		<u>1</u>	
Total system gain:	<u>2.00</u> dBi		<u>2.00</u> dBi		<u>2.80</u> dBi	
<b>MPE limit for uncontrolled exposure at prediction frequency:</b>	<u>N/A</u> mW/cm <sup>2</sup>	<u>N/A</u> mW/cm <sup>2</sup>	<u>0.200</u> mW/cm <sup>2</sup>	<u>0.979</u> mW/cm <sup>2</sup>	<u>0.547</u> mW/cm <sup>2</sup>	<u>1.000</u> mW/cm <sup>2</sup>
<b>MPE limit for controlled exposure at prediction frequency:</b>	<u>N/A</u> W/m <sup>2</sup>	<u>N/A</u> W/m <sup>2</sup>	<u>2.000</u> W/m <sup>2</sup>	<u>9.789</u> W/m <sup>2</sup>	<u>5.469</u> W/m <sup>2</sup>	<u>10.000</u> W/m <sup>2</sup>
<b>Minimum calculated prediction distance for compliance:</b>	<u>N/A</u> mW/cm <sup>2</sup>	<u>N/A</u> mW/cm <sup>2</sup>	<u>1.000</u> mW/cm <sup>2</sup>	<u>4.895</u> mW/cm <sup>2</sup>	<u>3.215</u> mW/cm <sup>2</sup>	<u>5.000</u> mW/cm <sup>2</sup>
Typical (declared) distance:	<u>N/A</u> W/m <sup>2</sup>	<u>N/A</u> W/m <sup>2</sup>	<u>10.000</u> W/m <sup>2</sup>	<u>48.947</u> W/m <sup>2</sup>	<u>32.146</u> W/m <sup>2</sup>	<u>50.000</u> W/m <sup>2</sup>
<b>Average power density at prediction frequency:</b>	<u>N/A</u> cm	<u>N/A</u> cm	<u>20</u> cm	<u>20</u> cm	<u>20</u> cm	<u>20</u> cm
<b>MPE compliance for simultaneous operation:</b>	<u>N/A</u> mW/cm <sup>2</sup>	<u>N/A</u> mW/cm <sup>2</sup>	<u>0.000000</u> mW/cm <sup>2</sup>	<u>0.000000</u> mW/cm <sup>2</sup>	<u>0.000020</u> mW/cm <sup>2</sup>	<u>0.000020</u> mW/cm <sup>2</sup>
Margin of Compliance for controlled environment:	<u>N/A</u> dB	<u>N/A</u> dB	<u>70.48</u> dB	<u>77.38</u> dB	<u>52.03</u> dB	<u>53.95</u> dB
with Maximum permitted antenna gain:	<u>N/A</u> dBi	<u>N/A</u> dBi	<u>72.48</u> dBi	<u>79.38</u> dBi	<u>54.83</u> dBi	<u>56.75</u> dBi
Margin of Compliance for uncontrolled environment:	<u>N/A</u> dB	<u>N/A</u> dB	<u>63.49</u> dB	<u>70.39</u> dB	<u>44.34</u> dB	<u>46.96</u> dB
with Maximum permitted antenna gain:	<u>N/A</u> dBi	<u>N/A</u> dBi	<u>65.49</u> dBi	<u>70.39</u> dBi	<u>47.14</u> dBi	<u>46.96</u> dBi
Average power density to MPE limit ratio (uncontrolled):	<u>N/A</u>	<u>N/A</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Average power density to MPE limit ratio (controlled):	<u>N/A</u>	<u>N/A</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Total sum of ratios for FCC (uncontrolled):	<u>0.00002</u> <1					
Total sum of ratios for ISED (uncontrolled):	<u>0.00004</u> <1					
Maximum allowed sum of ratios:	<u>1</u>					
Total sum of ratios for FCC (controlled):	<u>0.000004</u> <1					
Total sum of ratios for ISED (controlled):	<u>0.000006</u> <1					
Total RF value for ISED	<u>0.00020</u> 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.

End of the test report