

RF Exposure Evaluation Report

Client: Raven Industries
205 E 6th St
Sioux Falls, SD 57104 USA

Test Report No.: RFE20210412-23-01A

Approved By:



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Revision Page

Rev. No.	Date	Description
Original	17 January 2023	Prepared by – NJohnson
A	20 June 2023	NJohnson

Regulatory Requirements:

FCC Part 1.1310, 1.1307

Summary:

The EUT's Average Power and Antenna Gain were used to evaluate the minimum distance for acceptable Maximum Permissible Exposure to the HiPointer 100 RADAR.

Power:	100W Peak Power
Duty Cycle:	5%
Average Power	5W
Antenna gain:	24.56 dBi / 286 numeric

Antenna gain, peak power, and duty cycle were declared by the manufacturer.

Limits:

from FCC Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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(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
300-1,500			f/300	<6
1,500-100,000			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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

Calculations:

The Friis transmission equation was used to calculate the field strength at the specified separation distance:

$$S = (P \times G) / (4 \times \pi \times d^2)$$

to calculate for compliance with exemption limits.

S = power density (in mW/cm²)

P = transmitter conducted power (in mW)

G = antenna numeric gain = 2.78 numeric / 4.44 dBi. Antenna gain was reported by the manufacturer

D = distance to radiation center (151 cm Controlled or 338 cm Uncontrolled)

Occupational/Controlled							
General Population/uncontrolled		YES					
HiPointer 100							
Frequency	Antenna Gain	Transmitter Average Power (Watts)	Power EIRP	Power Density	Limit at specified distance	% of limit	Result
MHz	numerical	W	mW	mW/cm ²	mW/cm ²		
9430	286.000	5.00	5000.00	0.996582	1.000000	99.66%	PASS

Distance	338	cm
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Note: The user's manual will stipulate that a 338cm distance from the user is to be maintained for Uncontrolled Exposure.

REPORT END