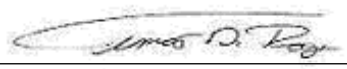
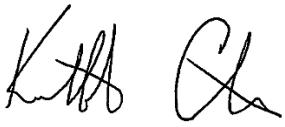
Test Report - FCC Part 1.1310/ MPE
Applicant: Ciholas Inc.

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 01/28/2025

Signature: 

Name & Title: Kristoffer Costa, EMC Technician

Date of Signature 01/28/2025

This test report relates only to the items tested as identified and is not valid for any subsequent changes or modifications made to the equipment under test.

Table of Contents

1. APPLICANT INFORMATION 3
2. LOCATION OF TESTING 3
2.1 TEST LABORATORY 3
3. TEST SAMPLE(S) (EUT/DUT) 4
3.1 DESCRIPTION OF THE EUT 4
4. TEST METHODS & APPLICABLE REGULATORY LIMITS 5
4.1 TEST METHODS/STANDARDS/GUIDANCE: 5
4.1.1 FCC Limits for Maximum Permissible Exposure (MPE) 5
4.2 EQUATIONS 6
5. RF EXPOSURE RESULTS 7
6. HISTORY OF TEST REPORT CHANGES 8

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

1. Applicant Information

Applicant:	Ciholas Inc.
Address:	3700 Bell Rd Newburgh, Indiana, 47630, United States

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at IIA's permanent laboratory located at 13146 NW 86th Drive, Suite 400, Alachua, Florida 32615.

FCC test firm # 578780
FCC Designation # US1070
FCC site registration is under A2LA certificate # 0955.01
ISED Canada test site registration # 2056A
EU Notified Body # 1177
For all designations see A2LA scope # 0955.01

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

3. Test Sample(s) (EUT/DUT)

The test sample was received: 5/16/2024

Dates of Testing: 5/17/2024 – 5/31/2024

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	2ALIR-AN203
Brief Description	UWB Anchor.
Model(s) #	E00974
Firmware version	N/A
Software version	N/A
Serial Number	N/A

Technical Characteristics	
Frequency Range	3.4 GHz- 4.8 GHz Low band 7.25 GHz- 10.25 GHz High Band
RF O/P Power (Max.)	30.4 dBm/ 1.096 W
Modulation	FM
Number of Channels	N/A
Duty Cycle	100%
Antenna Connector	N/A
Voltage Rating (AC or Batt.)	POE

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

4. Test methods & Applicable Regulatory Limits

4.1 Test methods/Standards/Guidance:

The following guidance FCC KDB 447498 D01 General RF Exposure Guidance v06 was used for RF exposure evaluation as per FCC Part 1.1310 and FCC Part 2.1091 and part 2.1093. Full test results are available in this report.

4.1.1 FCC 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)
A 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
B 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

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

4.2 Equations

POWER DENSITY

E(V/m) = SQRT (30 * P * G) / d

Pd(W/m^2) = E^2 / 377

S = EIRP / (4 * Pi * D^2v)

Where:

S = Power density, in mW/cm^2
EIRP = Equivalent Isotropic Radiated Power, in mW
D = Separation distance in cm

Power density is converted from units of mW/cm^2 to units of W/m^2 by multiplying by 10.

DISTANCE

D = SQRT (EIRP / (4 * Pi * S))

Where:

D = Separation distance in cm
EIRP = Equivalent Isotropic Radiated Power, in mW
S = Power density in mW/cm^2

SOURCE-BASED DUTY CYCLE (When applicable (for example, multi-slot mobile phone applications) A duty cycle factor may be applied.)

Source-based time-average EIRP = (DC / 100) * EIRP

Where:

DC = Duty Cycle in % as applicable.
EIRP = Equivalent Isotropic radiated Power, in mW

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

5. RF Exposure Results

Low Band

MPE

Frequency Band	Evaluation Distance (cm)	Max Power + Tolerance (dBm)	Antenna Gain (dBi)	Duty Cycle (%)	EIRP (W)	Power Density	Limit for Uncontrolled Exposure	Limit for Controlled Exposure	Distance Required to meet Uncontrolled Exposure Limt (cm)
3400-4800 MHz	20	-23.27	0.00	100%	0.0000	0 mW/cm2	1 mW/cm2	5 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

High Band

MPE

Frequency Band	Evaluation Distance (cm)	Max Power + Tolerance (dBm)	Antenna Gain (dBi)	Duty Cycle (%)	EIRP (W)	Power Density	Limit for Uncontrolled Exposure	Limit for Controlled Exposure	Distance Required to meet Uncontrolled Exposure Limt (cm)
7250-10250 MHz	20	-25.00	0.00	100%	0.0000	0 mW/cm2	1 mW/cm2	5 mW/cm2	20.00

RESULT: Pass at DISTANCE 20 cm

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

6. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_13732-24_FCC 1.1310/ MPE_2	1	Initial release	01/16/2025
	2	Change in page 7	01/28/2025

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).

END OF TEST REPORT

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc., a subsidiary of Industrial Inspection & Analysis, Inc. (IIA).