Test Report# TR\_15757-24\_ RF Exp SAR Exclusion \_ Revision: 2





# Test Report - RF Exposure Evaluation Report for SAR Exclusion Applicant: Ciholas Inc.

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Date of Signature_	9/5/2024	
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Date of Signature	9/5/2024	

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.



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#### 1. Applicant Information

Applicant:Ciholas Inc.Address:3700 Bell RdNewburgh, 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 86<sup>th</sup> 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

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

The test sample was received: 8/27/2024

Dates of Testing: 8/27/2024 - 8/29/2024

# 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-LP203				
Brief Description	UWB System				
Model(s) #	LP203				
Firmware version	N/A				
Software version	N/A				
Serial Number	N/A				

Technical Characteristics					
Frequency Range	3100 MHz- 10600 MHz				
Modulation	BPSK				
Number of Channels	N/A				
Duty Cycle	100%				
Antenna Connector	N/A				
Voltage Rating (AC or Batt.)	DC				

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.

## 1. Test methods & Applicable Regulatory Limits

#### 1.1 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.

#### 1.1.1 FCC Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	agnetic field Power density rength (A/m) (mW/cm <sup>2</sup> )						
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 <sup>2</sup> )	<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 Gene	ral Population/Unco	ntrolled Exposure						
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					
300-1,500			f/1500	<30					
1,500-100,000			1.0	<30					



1.2 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  $\frac{M}{m^2}$  to units of  $\frac{W}{m^2}$  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



## 2. RF Exposure Results

Radiated fundamental measurements

Tuned Frequency (MHz)	Detector	Meter Reading (dBuV)	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
6489.60	PK	43.90	0.84	35.84	3.00	80.58	-16.80	-14.00	2.80
7987.20	PK	44.89	0.84	36.13	3.00	81.86	-15.51	-14.00	1.51

# MPE

Frequency Band	Separation Distance (mm)	Max Power + Tolerance (dBm)	Max Power + Tolerance (mW)	SAR Exclusion Value	Limit for 1-g SAR	Limit for 10-g SAR (Extremeties)	SAR Exclusion
3100-10600 MHz	5	-16.80	0.02	0.01	3.0	7.5	SAR EXEMPT

Conclusion: SAR testing is not required



# 3. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue	
	1	Initial release	10/15/2024	
TR_15757-24_ RF Exp SAR Exclusion _	2	Updated Pages 5&6	12/10/2024	



END OF TEST REPORT