

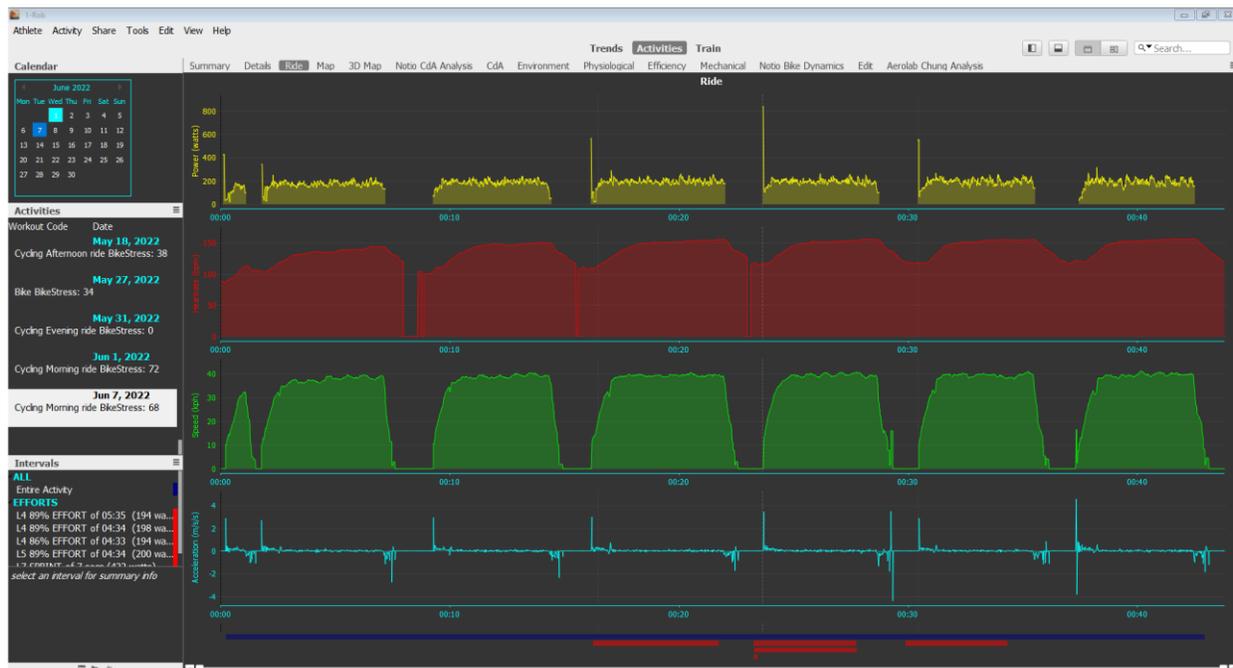
## How to test with Notio

The Notio Aerometer, in simple terms, is a device that measures a rider's wind speed using Petot tube technology, but there is a lot more science embedded in the device and its apps than just wind speed measurement.

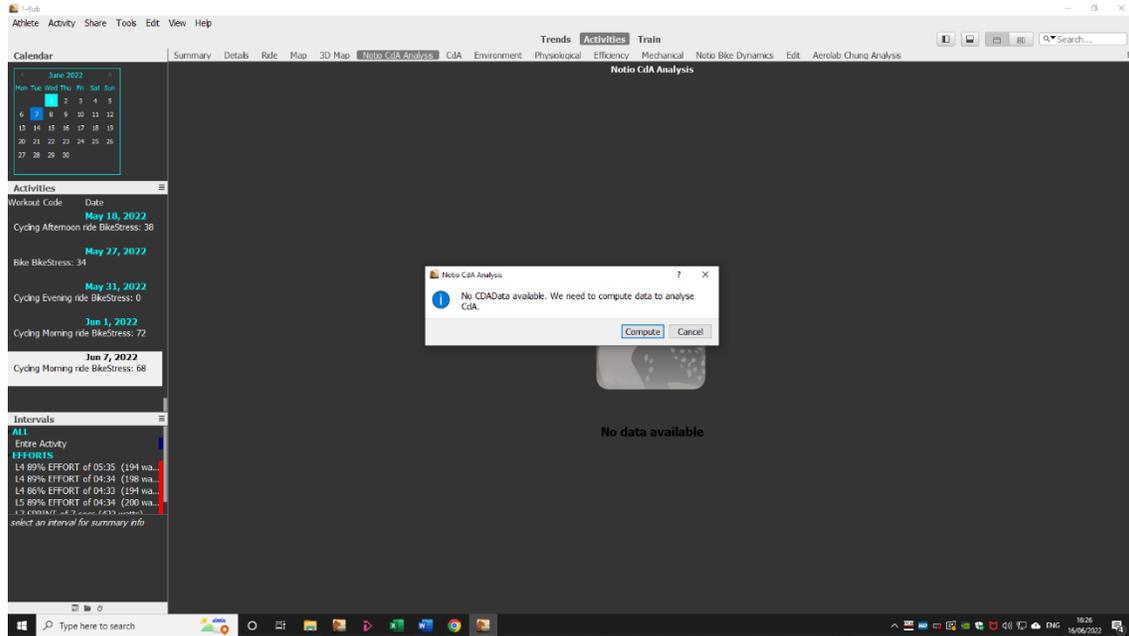
The Notio, and other similar devices, will give you a real time indication of your CdA. However, what is of interest here is using the Notio as part of our aero testing methodology. It is particularly useful if the only available test venue is out and back. There is a specific procedure in the NotioGC app for post processing out and back files.

One of the quirks of Petot tube devices is that air density appears in both the numerator and the denominator of the expression used to derive the head wind speed experienced by the device. Therefore, the rider doesn't need to worry about calculating the air density when analysing the results. The Notio and the NotioGC app take care of that. This is a benefit wherever you are testing.

Here's an example of a ride file of mine from Reading Palmer Park Velodrome:

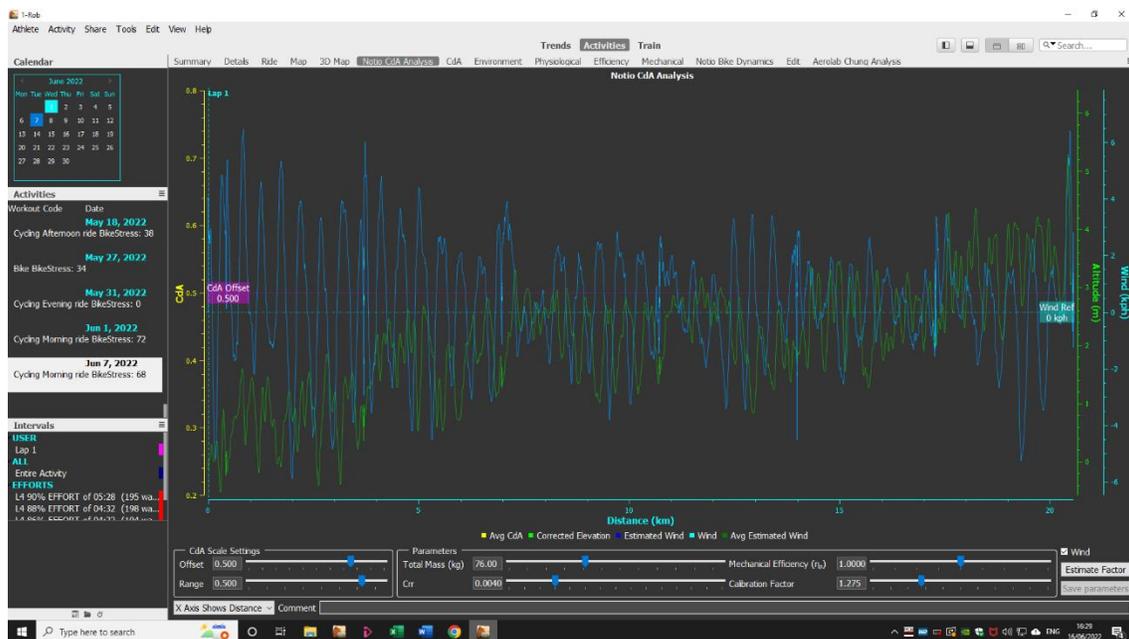


If I go to the “Notio CdA Analysis” screen I get this, so I click on “Compute”...

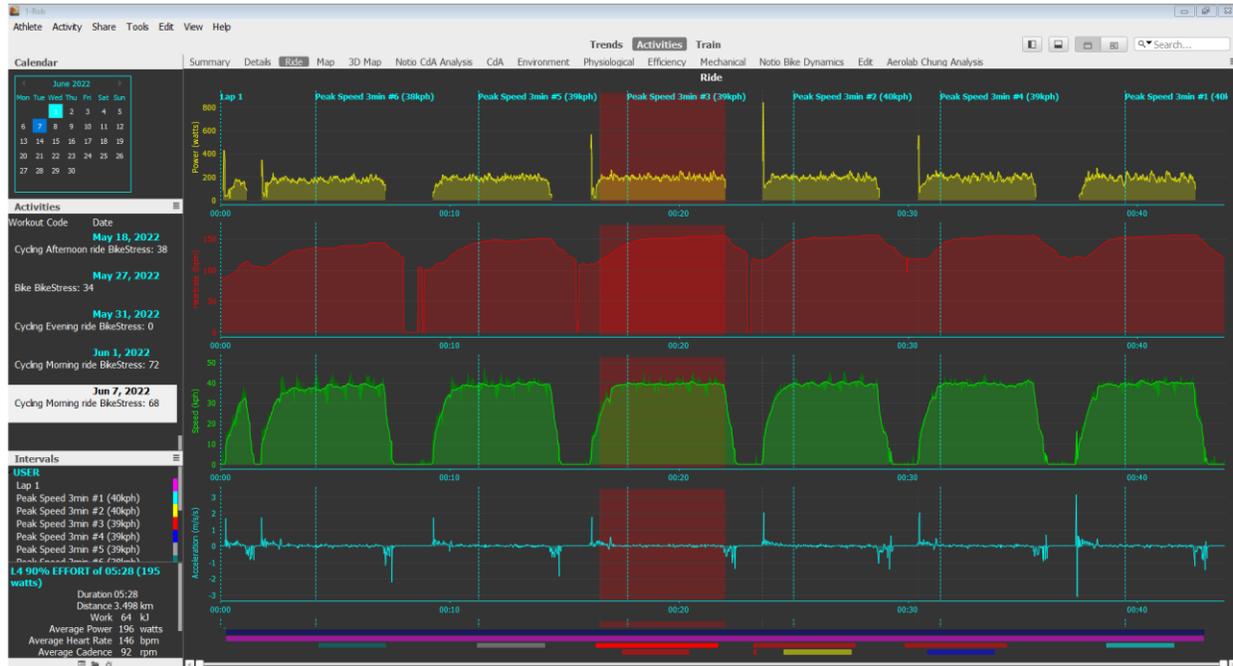


... and as a result of doing that I get this. Not very informative (!)

The system has picked up my default total weight and my default Crr. There is one parameter I need to change and that is the Mechanical Efficiency. I'm using a crank-based power meter so there is a drivetrain loss of around three percent, so I set that parameter at 0.97.



What I really want to see is the CdA for the middle part of the sections where I was in position and up to speed. I can do this by using the intervals tool to find the fastest three minutes of each section.



If I look at the summary section, I can see the CdA for those intervals. The intervals are in speed order, not test sequence order. I just need to copy the data to Excel and reorder it to make interpretation easier.

The screenshot shows the Float Aero software interface. The main window displays a summary for a cycling activity on Tuesday, June 7, 2022, at 10:32. The interface includes a calendar on the left, a list of activities, and a detailed summary table. The summary table is divided into several sections: Totals, Intervals, Power Zones, and W'bal Zones.

Totals										
	Averages		Maximums		Metrics		Model			
Duration	43:49	Speed (kph)	33.6	Speed (kph)	41.1	CTL	7	W'	14.9 kJ	
Time Recording	43:49	Power (watts)	139	Power (watts)	835	ATL	14	223 J/kg		
Time Moving	36:43	Heart Rate (bpm)	137	HeartRate (bpm)	156	TSB	0	CP	150 watts	
Distance (km)	20.553	Core Temperature (C)	37.4	Core Temperature (C)	37.9	RRC	2		2.24 w/kg	
Work (kJ)	366	Cadence (rpm)	87	Cadence (rpm)	99	TriScore	47	P-max	577 watts	
W Work (kJ)	22	Athlete Weight (kg)	67.00	W' Expanded (%)	56	sPower (watts)	152		8.52 w/kg	
Elevation Gain (meters)	3	Temp (C)	21.2	Temp (C)	22.3	Relative Intensity	0.798			

Intervals										
Interval Name	Duration	Distance (km)	Work (kJ)	Average Power (watts)	Average Heart Rate (bpm)	Average Cadence (rpm)	Average Speed (kph)	Average Wind Speed (kph)	Average CdA (m²)	
Entire Activity	43:49	20.553	366	139	137	87	33.6	0.5	0.219	
Lap 1	43:47	20.553	366	139	137	87	33.6	0.5	0.219	
Peak Speed 3min #1 (40kph)	03:00	1.986	35	194	154	96	39.7	-0.3	0.189	
Peak Speed 3min #2 (40kph)	03:00	1.983	35	196	151	96	39.7	-0.1	0.203	
Peak Speed 3min #3 (39kph)	03:00	1.967	35	196	150	95	39.3	0.3	0.202	
Peak Speed 3min #4 (39kph)	03:00	1.967	35	194	151	95	39.3	0.2	0.198	
Peak Speed 3min #5 (39kph)	03:00	1.950	34	190	147	94	39.0	0.1	0.196	
Peak Speed 3min #6 (38kph)	03:00	1.910	32	178	139	92	38.2	0.0	0.192	
L4 90% EFFORT of 65.26 (156 watts)	05:29	3.498	64	195	146	92	38.4	0.3	0.202	
L4 88% EFFORT of 64.32 (154 watts)	04:32	2.769	54	199	145	89	37.0	0.4	0.203	
L4 86% EFFORT of 64.32 (154 watts)	04:32	2.769	53	195	145	88	36.6	0.4	0.201	
L7 SPRINT of 6 secs (432 watts)	6:25	0.027	3	419	115	21	15.7	2.0	10.900	

Power Zones				
Zone	Description	Critical Power (watts): 190		
		Low (watts)	High (watts)	Time
21	Active Recovery	0	104	28
22	Endurance	104	142	01:28
23	Tempo	142	171	05:47
24	Threshold	171	199	14:07
25	VO2Max	199	228	08:23
26	Anaerobic	228	285	01:39
27	Neuromuscular	285	MAX	17

W'bal Zones						
W (Joules): 8000						
	Distance	Power	HR	Cadence	Speed	CdA
Peak Speed 3min #6 (38kph)	1.910	178	139	92	38.2	0.192
Peak Speed 3min #5 (39kph)	1.950	190	147	94	39.0	0.196
Peak Speed 3min #3 (39kph)	1.967	196	150	95	39.3	0.203
Peak Speed 3min #2 (40kph)	1.983	196	151	96	39.7	0.203
Peak Speed 3min #4 (39kph)	1.967	194	151	95	39.3	0.198
Peak Speed 3min #1 (40kph)	1.986	194	154	96	39.7	0.189

If you would like any further guidance, please contact me at [floataero@gmail.com](mailto:floataero@gmail.com) or visit the web site at [www.floataero.com](http://www.floataero.com)

