

How to perform roll down testing

For those without a power meter all is not lost. If we take power out of the picture by freewheeling, the formulae in Golden Cheetah Aerolab and MyWindSock can still process the data and provide results.

The first thing you need to find is a suitable hill to use for the roll down testing. Not too steep, not too shallow, reasonably straight so that you can freewheel safely until you reach a stable speed (I don't like to use the expression *terminal* velocity). Using the flatter part at the top of the hill you get yourself up to a reasonable starting speed of around 40kph, and then when you get on the gradient you simply freewheel in the test position.

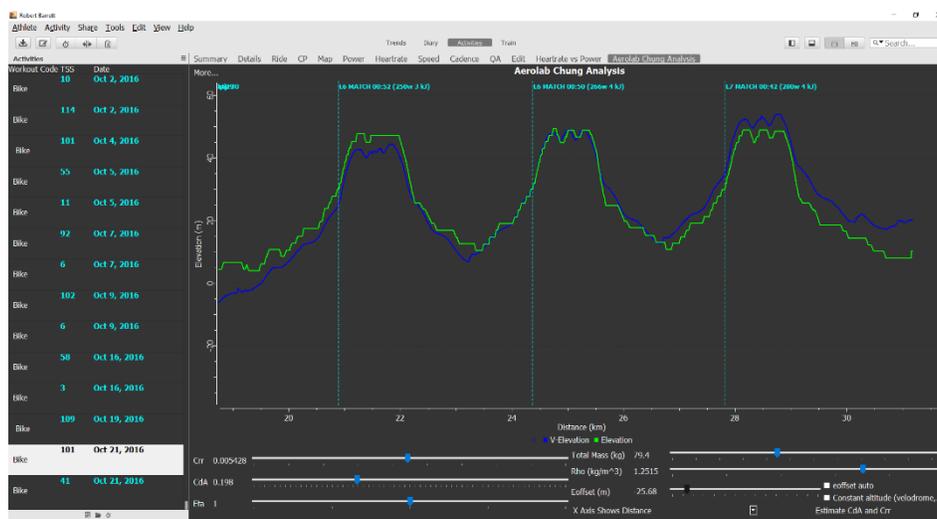
Unfortunately, to do repeat tests you have to get yourself back up the hill, unless you've got a friend that will take you and the bike back up in a car.

Naturally the usual factors of traffic and wind will affect the testing, so ideally a still morning with minimal or zero traffic.

Safety is also a consideration if the hill has traffic joining from side roads. There is one hill I know off that is ideal for this type of testing except that it has a spear junction from a side road near the bottom. If I was testing on that hill, I'd have a friend at that junction to warn drivers about what was going on, and signal to me if I needed to get on the brakes.

A few years ago, I did three roll-downs using Sawyers Hill in Richmond Park. This was pretty much with zero wind. There was a light wind from the north-west. Sawyers Hill was sheltered from this wind by the buildings at Richmond Gate and the hill. The leaves on the trees by Sawyers Hill were pretty much motionless when I was doing the three runs.

This is a screen shot of the roll down section. What we do with this is look at just the downhill sections.



You can use the Aerolab or MWS methods to analyse the results, or simply look at the maximum stable speed obtained at the end of each run to determine which configuration is the fastest / lowest CdA.

