

Test Plan

Model 3 Roof Rack Consumption/Efficiency

- Pick a day with stable weather conditions and minimal wind
- Night before test, set car to charge to 90%, aim to have charging complete just before planned start time
- Start running test about 9 or 10am to avoid really early morning cold conditions
- Run tests as close together to minimize weather changes
- Use same temperature setting in the car throughout the day, do not change it
- Testing location will be straight stretch of road between either end of Callbeck Rd, near Hall Siding
 - About 1.8km long, -20m (going North to South)
- Record values from Trip A in my usual tracking spreadsheet; for duration of test, will be using "Since Last Charge" instead of Trip A, so ensure NOT to recharge/plug-in at any point during the testing cycle!
- Each test will consist of 3 passes north to south and south to north (attempt to negate any wind conditions and the elevation change)
- Each pass will have the trip meter running for about 1 km, AFTER attaining the set speed, and BEFORE slowing down
 - This is to remove any effects from acceleration/deceleration at different rates

Test 1: Pod + Rack

- Pod + rack (currently already mounted)
- Car will warm up interior on way to test location, so should not vary
- Travel at 100 km/h, or even 110 km/h if safe to do so (90 km/h if not)
- Set cruise control on straight stretch, and about 100m past N Callbeck Rd, have assistant reset Trip A
- Record road conditions with video camera during Pass 1
- Take photo of Trip A at 100m before the south end of Callbeck Rd (photo to include entire screen, so it shows speed and temp outside and map, which will indicate time and direction of travel); turn around at Callbeck Rd

- Start Pass 2 heading north from S Callbeck Rd; upon attaining set speed, reset Trip A; at end of straight stretch take photo of Trip A. Turn around at N Callbeck Rd and repeat.
- At some point during the passes, take a measurement of sound in the interior of the car using the decibel meter set to A weighting; take a photo of measurement (or perhaps a video if the needle is jumping around a bunch); hold decibel meter at approx ear level in front seat region.
- Continue for 6 passes in total.
- At conclusion of 6th pass, continue on home after taking photo of Trip A meter

In between Test 1 and 2, return home, have a quick drink of water/snack, remove pod. DO NOT plug in car.

Return to test location.

Test 2: Rack only

- Car interior should be similar temperature as before; travel at same speed as for Test 1 for all 6 Passes
- Record road conditions with video camera during Pass 1
- Reset Trip A and take photos at end of each pass as before
- Record sound measurement as in Test 1

In between Test 2 and 3, return home, have a quick drink of water/snack, remove rack (video elements of this). DO NOT plug in car. Return to test location.

Test 3: Bare Roof

- Car interior should be similar temperature as before; travel at same speed as for Test 1 and 2 for all 6 Passes
- Record road conditions with video camera during Pass 1
- Reset Trip A and take photos at end of each pass as before
- Record sound measurement as in Test 1 and 2

Return home, video any pertinent elements to putting the rack back on, taking note of the time it took and whether it was any quicker than the first time. Pay attention to how many turns of the bolt to get it snug - manual says to 8 Nm; that equates to about 80 kg/cm of lever arm! Measure the length of the Allen key, figure out what that works out to in KG, then use the kitchen scale to push on the end of the wrench to get to that figure. (e.g. if the Allen key is 10cm long, then I need to apply 8 kg of force).