

## Edelbaum Approximation

The results of this notebook calculate the low-thrust orbit transfer using the Edelbaum Approximation of a satellite moving from an orbit of 300 km to 550 km. This range is a typical orbit transfer for Starlink satellites to travel after being transported to space. The satellite specifications are approximated since they are not all known, except for the mass of 260 kg in the v1.5 Starlink satellite.

### Output Values:

== Satellite Specifications ==

Initial mass: 260 kg

Thrust: 0.015 N

Specific Impulse: 1600 s

Mass flow rate:  $9.56 \times 10^{-7}$  kg

== Orbit Transfer Analysis ==

Starting altitude: 300 km

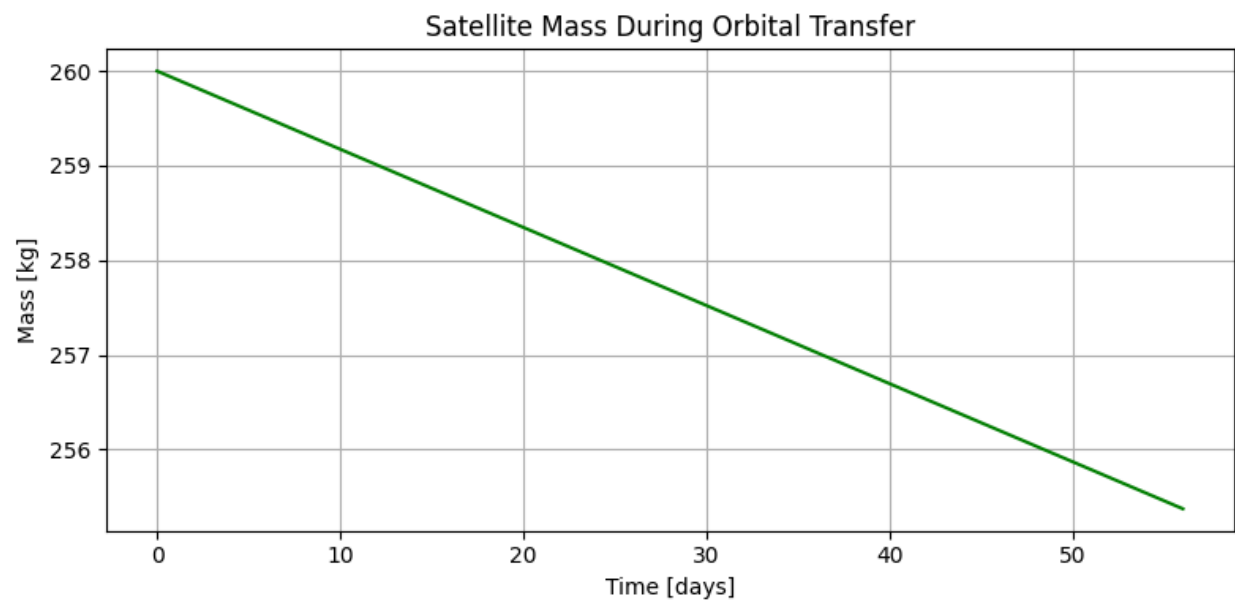
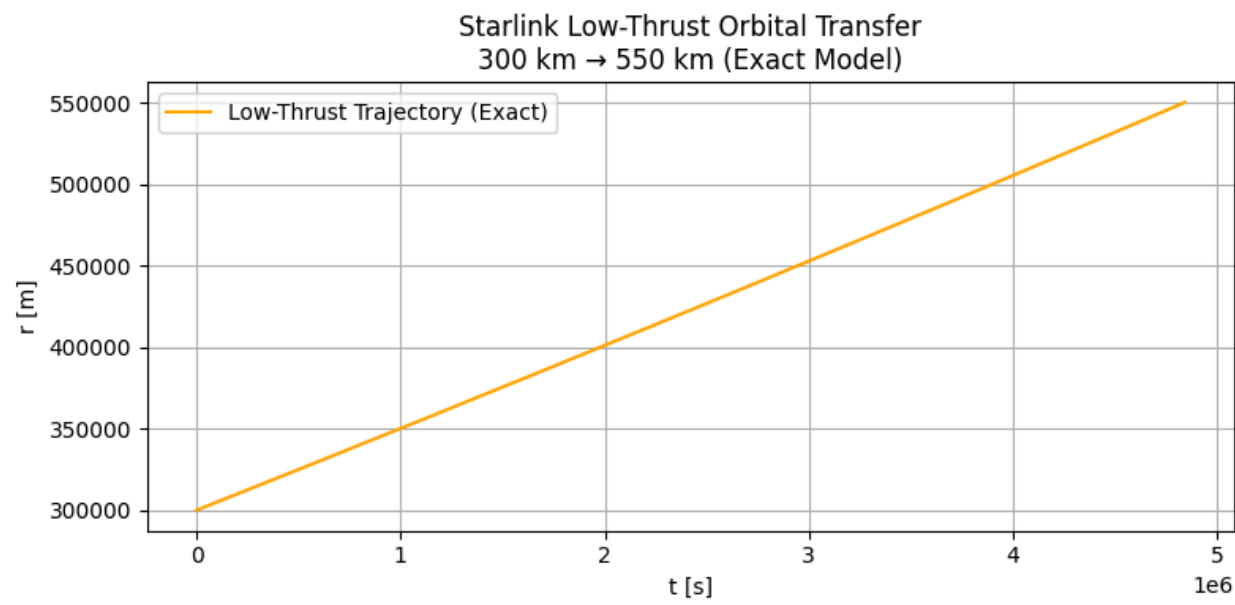
Final altitude: 550 km

Time of flight: 4840708 seconds (56.03 days)

Final mass: 255.37 kg

Propellant used: 4.63 kg

Plots:



Plot with invalid (different) satellite specification to help visualize the orbit with the same algorithm:

