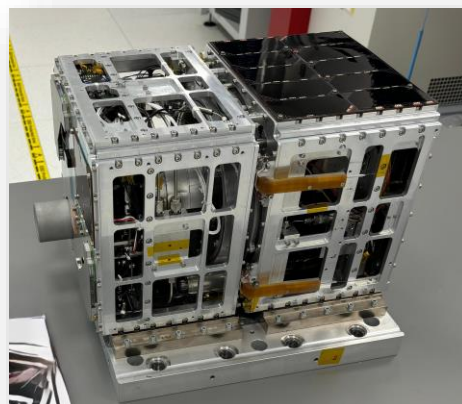


# E.T.PACK-F AUTONOMOUS DEORBIT DEVICE

An autonomous Deorbit Device based on Electro-Dynamic Tether (EDT) technology has been developed in the framework of the EIC-funded E.T.PACK-F project. Its in-orbit demonstration is scheduled on Q2 2026. Built on the technology and lessons learned of E.T.PACK-F, PERSEI Space will develop **PEARSON**, a deorbit device aimed at deorbiting satellites and launcher upper stages to make them compliance with the 5-year postmission disposal time considered in current policies and regulations.



*E.T.PACK-F Deorbit Device Engineering Qualification Model*

## E.T.PACK-F DEORBIT DEVICE CHARACTERISTICS

- **Propellant-less:** the deorbit devices uses the natural resources of the space environment to generate the deorbiting force.
- **Autonomous:** the deorbit device does not require any input from the host object.
- **Collision avoidance capability:** Lorentz force can be turned on/off by telecommand

E.T.PACK-F DEORBIT DEVICE FEATURES		
Hardware description	Mass	20 kg
	Volume	12 U
	Modules	Electron Emitter Module (EEM) and Deployment Mechanism Module (DMM)
EDT technology characteristics	Length	430m
	Material	Aluminum
	Geometry	Tape
	Electron Emitter	Hollow Cathode
Elements included to achieve autonomy	Power	Solar panels on DMM and EMM walls.
	Communication	UHF (DMM) and S-band (EEM) Antennas
	Avionics	OBC, ADCS and CDHS on DMM and EEM

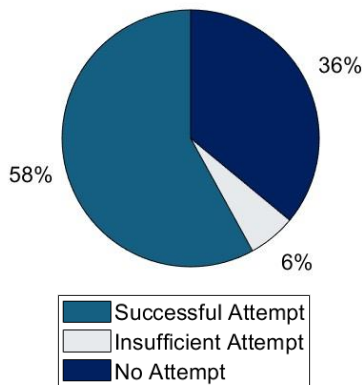
## TEST CAMPAIGN OF THE DEORBIT DEVICE

In the framework of the E.T.PACK-F project, an extensive qualification campaign of the Engineering Qualification Model of the deorbit device was carried out to validate the fulfilment of the requirements and learn about the behaviour of all its elements in variety of mechanical, thermal, vacuum and radiative environments. These tests were complemented with extensive simulation analysis and tests on individual subsystems.



DD in the dipole characterization setup at UC3M

## TARGETED CLIENTS OF THE DEORBIT DEVICE

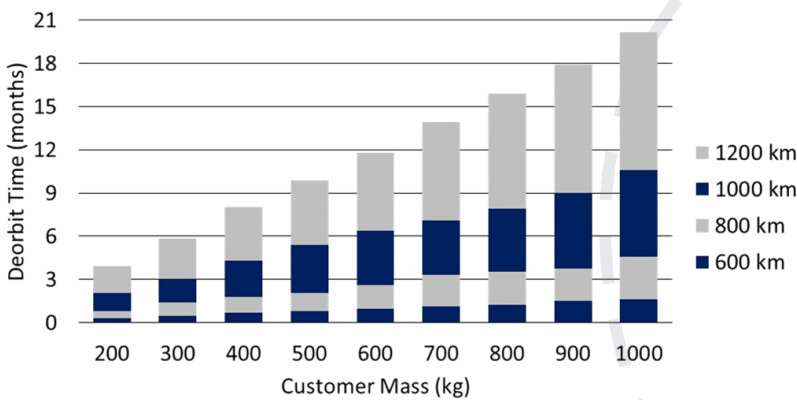


Satellite clearance in 2022 (compliant with 25-year deorbit rule). Results based on information from ESA’s annual space environment report.

PERSEI Space targets operators of satellites and upper-stage rockets in Low Earth Orbit (LEO). As shown in the figure, 42% of satellites did not comply with the 25-year deorbit guideline as of 2022. With the shift to stricter 5-year disposal requirements, mandated by the U.S. FCC and also promoted by ESA’s Zero Debris Approach policies, satellite integrators and launch providers increasingly need **dedicated deorbit devices** to comply with current and emerging regulations.

## OUR NEXT PRODUCT PEARSON

PERSEI Space wants to develop and commercialize PEARSON, an autonomous deorbit device for deorbiting objects in the hundred of kg range. The figure below shows the performance of PEARSON at mid-inclined orbits based on a simulation campaign with the BETsMA v2.0 software. For instance, PEARSON can deorbit a space debris of 700 kg from 800 km of altitude in about 3 months.



SCENARIO
Deorbit
Orbit inclination: 50°
Tether length: 1,5 km

For customized information, please contact us at:

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