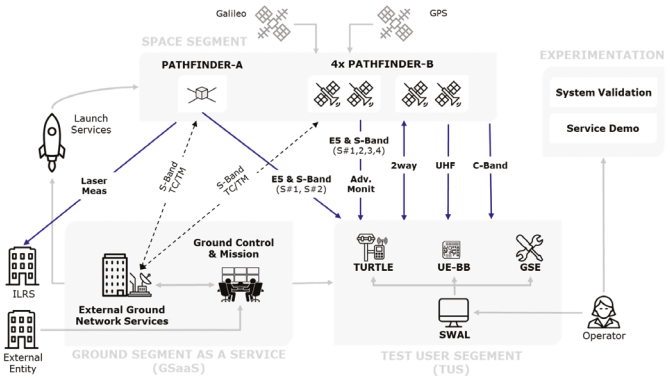
System Architecture



LEOPNT Contact Info

Andrés Juez
Division Head Low Earth Orbit Positioning Navigation and Timing (LEOPNT)
Phone: +34 676253088
email: ajuez@gmv.com

Juan R. Martín
Director of Strategy and Business Development (SBD) - NAV
Phone: +34 620578229
email : jrmartin@gmv.com

gmv.com

LEO-PNT

A product by:

gmv INNOVATING SOLUTIONS

LEO-PNT IoD Info at:
www.gmv.com/en-es/products/space/

GMV-BR-B43424

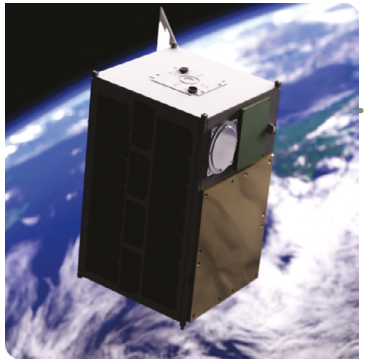
LEO-PNT

LEO-PNT In-Orbit Demonstration Contract (LEGION)

gmv INNOVATING SOLUTIONS

Pathfinder A

Platform provider: Alén Space (GMV Group)

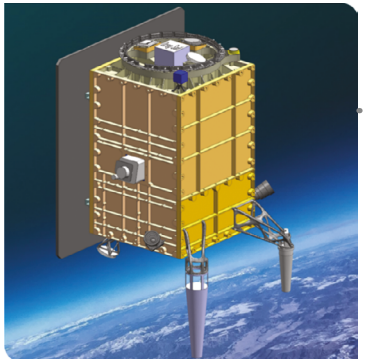


LEO-PNT IOD PathFinder-A

SIZE	
Satellite Envelope:	200 x 200 x 300 mm^3
Satellite Envelope (solar panel deployed):	200 x 400 x 300 mm^3
POWER	
BoL Battery Energy:	258 Wh
PROPULSION	
Tank Volume:	0.8U of N_2O & C_3H_6
Total Impulse:	425 Ns
Max. impulse bit:	7 Ns
MASS	
Total Dry Mass: (baseline option, w/o margin)	18.5 Kg

Pathfinder B

Platform provider: OHB



LEO-PNT IOD PathFinder-B

SIZE	
Satellite Envelope:	800 x 673 x 1200 mm^3
POWER	
EoL Power Generation:	167 W
EoL Battery Energy:	410 Wh
PROPULSION	
Tank Volume:	3.7 Kg of Xenon
Total Impulse:	34000 Ns
Max. impulse bit:	4 to 7 mN
MASS	
Total Dry Mass: (baseline option, w/o margin)	70.3 Kg

In Orbit Demonstrator

IoD signals

- Broadcast of GNSS-type signals in L and S bands.
- Broadcast of 5G/6G 3GPP NTN positioning type of signals in S-band.
- Two-way signals in band below C-band.
- Broadcast of GNSS-type signals for C-band.
- Broadcast of GNSS-type signals in UHF.

IoD target performances

- Pathfinders 3D position estimation with an error of less than 10cm RMS in real time.
- Pathfinders 3D position velocity with an error of less than 0.2mm/s RMS in real time.
- Knowledge of time of transmission with an error of less than 1.4 ns RMS.
- Accuracy of Ephemeris Data, with an error projected in the line-of- sight of the worst user direction of less than 10 cm (1-sigma).
- Horizontal accuracy of at least 5 cm within no more than 10 seconds (95%) in open sky conditions when combined with other GNSS systems.
- Horizontal accuracy of 2 m (95%) in in open sky conditions with stand-alone LEO-PNT.
- Horizontal accuracy of 30 m (95%) in urban scenarios with stand-alone LEO-PNT.