

## POEM-4

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### POEM-4 Latest News

Recently, POEM-4 re-entered the Earth's atmosphere and impacted the Indian Ocean, as monitored by ISRO's IS4OM (System for Safe and Sustainable Space Operations Management).

### What is POEM-4?

- **POEM-4**, or **PSLV Orbital Experiment Module-4**, is a **space research platform developed by ISRO** that **utilizes the spent fourth stage (PS4) of the PSLV rocket** as an **orbiting experimental module** in space.
- It is part of the **SpaDeX (Space Docking Experiment) mission** and represents the **fourth deployment of the POEM series**, following POEM-3.
- **POEM-4 has a three times larger payload capacity** than its predecessor, **POEM-3**, marking a major advancement in reusing upper rocket stages for scientific research.
- **Total of 24 payloads** were hosted on POEM-4: **14 payloads from ISRO and 10 payloads from non-government entities (NGEs)** including **start-ups and academic institutions**

- **Notable payloads include:**

- **Walking Robotic Arm (RRM-TD):** A **robotic manipulator** capable of inchworm-like motion, aimed at enabling **inspection and servicing** tasks in space.
- **Debris Capture Robotic Manipulator:** Developed by **Vikram Sarabhai Space Centre (VSSC)**, this innovation assists in **space debris collection and manipulation**, aligning with global efforts in **space clean-up**.
- **Gradient Control Reaction Wheel Assembly (RWA):** Designed by **ISRO Inertial Systems Unit (IISU)**, this system enhances **attitude control** and **stabilization** of the POEM platform using **reaction wheels**.

## Launch and Mission Details

- **POEM-4 was launched on December 30, 2024**, aboard **PSLV-C60**, which also carried **twin SPADEX satellites** to a **475 km altitude**.
- After satellite deployment, the **PS4 upper stage was reconfigured as POEM-4** and continued in a **nearby orbit**, serving as an experimental platform.
- POEM-4 was then **de-orbited** by restarting its engine and brought to a **circular orbit at 350 km altitude** with a **55.2° inclination**.
- The stage was **passivated** (leftover fuel vented) to **prevent accidental break-up** and ensure **safe operations in orbit**.

## POEM-4 FAQs

**Q1.** What is POEM-4?

**Ans.** POEM-4 (PSLV Orbital Experimental Module) refers to the use of the spent fourth stage of ISRO's PSLV-C60 rocket as an orbital platform for conducting scientific experiments in space.

**Q2.** What were the objectives of the POEM-4 mission?

**Ans.** The mission aimed to conduct various scientific experiments, including the germination of cowpea seeds in microgravity and the operation of India's first space robotic arm.

**Q3.** When was POEM-4 launched?

**Ans.** POEM-4 was launched on December 30, 2024, as part of the Space Docking Experiment (SpaDeX) mission.

**Source:** TH

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