SPACE SYSTEMS

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Airbus Defence and Space-built LISA Pathfinder officially handed over to European Space Agency

- Ground-breaking spacecraft passes all in-orbit tests and officially handed over to ESA on 7 March
- Test masses Jake and Elwood flying free ready to prove the technology for future gravitational wave observatories

Airbus Defence and Space, the world's second largest space company has officially handed over the LISA Pathfinder spacecraft to the European Space Agency (ESA) following a successful review from the Agency.

LISA Pathfinder, ESA's gravitational-wave detection technology demonstrator, began science operations on 1st March. With the release of the test masses (nicknamed Jake and Elwood) inside the spacecraft´s scientific instrument, the final in-orbit tests took place to ensure the masses were floating freely as designed and full science operations could begin.

"After more than 15 years working on this fascinating yet challenging programme, everyone on the team is immensely proud that we have now handed the spacecraft over to our colleagues at ESA" said François Auque, Head of Space Systems. "The success of LISA Pathfinder paves the way for future gravitational waves observatories – and now that the first wave has been measured on Earth, it's clear that a space observatory will give us an amazing new way of studying at the Universe."

LISA Pathfinder is at Lagrange point L1, 1.5 million km away from Earth, and is using its sophisticated micro-newton thrusters, inertial sensors and advanced software control to ensure that Jake and Elwood have a disturbance free environment. One millionth of a newton, is the minimum force the micro-thrusters can apply to shift the spacecraft, so that the test masses stay centred. Their typical force of 30 micronewtons would be just sufficient to stop a snowflake falling to the ground. The mission will carry out in-orbit testing of two micro-propulsion systems, one from Europe and the other from NASA.

The laser interferometers inside the spacecraft measure the relative position and orientation of the masses – which are around 40 centimetres apart – to an accuracy of less than one millionth of the width of a human hair, or less than 0.01 nanometre.

Airbus Defence and Space in the UK was chosen by the European Space Agency (ESA) to build the spacecraft and propulsion module and was responsible for delivering the integrated satellite. Airbus Defence and Space in Germany was chosen by ESA and the German

Aerospace Centre, DLR, to be the systems leader for the LTP, which was developed with contributions from European research institutes and companies.

LISA Pathfinder is paving the way for a future large space observatory that ultimately will directly observe and precisely measure gravitational waves. These minute distortions in space-time require very sensitive and highly precise measuring technologies, the performance of which can only be tested in a space environment.

About Airbus Defence and Space

Airbus Defence and Space, a division of Airbus Group, is Europe's number one defence and space enterprise and the second largest space business worldwide. Its activities include space, military aircraft and related systems and services. It employs more than 38,000 people and in 2015 generated revenues of over 13 billion Euros.

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