



Press Release

12 August 2014

TechDemoSat-1 video from orbit captures spectacular view of Earth and a flypast of the launcher

Surrey Satellite Technology Ltd (SSTL) has released a video from a camera mounted on an exterior panel of TechDemoSat-1, which shows the satellite moments after separation from the Fregat upper stage of its Soyuz-2 launcher, and as it begins its first orbit in Space. TechDemoSat-1 was launched on 8th July 2014, and is an in-orbit technology demonstration mission, carrying innovative payloads for British academia and industry.

The video is approximately one minute in duration and can be viewed on SSTL's YouTube channel using the following URL: <http://youtu.be/Oaq0Ctesltg>

The video capture starts rolling approximately 30 seconds after TechDemoSat-1 is injected into orbit by the launcher, and was taken by an inspection camera mounted on the exterior of the spacecraft, with the lens trained on the satellite's Antenna Pointing Mechanism. As the video rolls the camera lens captures the first moments of TechDemoSat-1's mission, starting with a view into the darkness of free Space. At 6 seconds in, the Sun appears at the top of the frame as a very bright white flare, with a black dot at the centre where the image is saturated by the intensity of the light. As the Sun disappears from view, the satellite's rotation reveals a spectacular vista of "blue marble" Earth below, with the lens capturing cloudy skies over the Pacific, south of French Polynesia.

At 25 seconds into the video the Fregat upper stage of the Soyuz-2 rocket appears as a gold object passing away from the satellite left to right at a distance of approximately 60 metres. At 34 seconds a white "dot" crosses the frame left to right – this is almost certainly one of the other satellites that shared the ride into orbit with TechDemoSat-1. The video finishes with the rotation of the spacecraft bringing the Earth back into view.

Sir Martin Sweeting, SSTL's Executive Chairman said "It is very rare to see actual footage of our satellites in orbit, and so viewing the video taken from TechDemoSat-1 moments after separation from the rocket has been a hugely rewarding and exciting experience for everyone at SSTL. We are delighted with the progress of commissioning the TechDemoSat-1 platform, and are looking forward to the next phase – the demonstration of a range of new technologies being flown on this innovative mission."

SSTL's Operations team have now completed commissioning of TechDemoSat-1's systems, and the commissioning of the payloads on-board this technology demonstration spacecraft has begun. TechDemoSat-1 is the first satellite to be controlled from the new Operations Centre at the Satellite Applications Catapult in Harwell.

The inspection camera on-board TechDemoSat-1 will monitor the behaviour of key mechanical payloads, including the Antenna Pointing Mechanism which is in view for the duration of this video. The camera was manufactured by SSTL's optics experts from COTS (Commercial-Off-The-Shelf) technologies and combines a colour CMOS camera with a high performance machine vision lens. Both the camera and lens were stripped down and ruggedized to survive the vibration and shock loads experienced during launch. The camera system was optimised to give a depth of field capable of delivering an in-focus image of the Antenna Pointing Mechanism and also the Earth in the background. The camera is connected to the spacecraft's High Speed Data Recorder which captures the data as well as allowing control over the camera settings.

Additional information about the TechDemoSat-1 inspection camera:

- Colour video system capable of high frame rates
- CMOS megapixel colour camera with 1280 x 1024 resolution
- Camera system field of view 65 x 54 degrees (Diagonal 78 degrees).
- Full control of camera parameters including Frame-Rate, Integration Time, Gains, ROI (Region of Interest)
- Multiple exposures controlled by on-board High Speed Data Recorder to allow high dynamic range functionality
- The camera system is mounted on the Earth Facing Facet of the spacecraft with the Antenna Pointing Mechanism in view



TechDemoSat-1 is an in-orbit technology demonstration mission, part-funded by a grant from the UK's Technology Strategy Board and SEEDA (South East England Development Agency). The spacecraft carries eight separate payloads from UK academia and industry, providing valuable in-orbit validation for new technologies, and also flies more than 25 new developments for SSTL.

More information about TechDemoSat-1 and the payloads flying on it can be found at <http://www.sstl.co.uk/Missions/TechDemoSat-1--Launched-2014>

About SSTL

Surrey Satellite Technology Limited (SSTL) is the world's leading small satellite company, delivering operational space missions for a range of applications including Earth observation, science and communications. The Company designs, manufactures and operates high performance satellites and ground systems for a fraction of the price normally associated with space missions, with 500 staff working on turnkey satellite platforms, space-proven satellite subsystems and optical instruments.

Since 1981 SSTL has built and launched 43 satellites – as well as providing training and development programmes, consultancy services, and mission studies for ESA, NASA, international governments and commercial customers, with its innovative approach that is changing the economics of space.

Headquartered in Guildford, UK, SSTL is part of the Airbus Group.

www.sstl.co.uk

Notes to editor:

This press release can be downloaded as a Word or PDF document at the following url: <http://www.sstl.co.uk/news-and-events>

[The video can be accessed at](http://youtu.be/Oaq0Ctesltg) <http://youtu.be/Oaq0Ctesltg>

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