Lunar Exploration (2)
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Author: Mrs. Nelly Offord (Phillips)
Surrey Satellite Technology Ltd (SSTL), United Kingdom, n.offord@sstl.co.uk

Mrs. Sophie Bywater
Surrey Satellite Technology Ltd (SSTL), United Kingdom, s.bywater@sstl.co.uk
Mr. Charles Cranstoun
Surrey Satellite Technology Ltd (SSTL), United Kingdom, c.cranstoun@sstl.co.uk
Mr. Jonathan Friend
Surrey Satellite Technology Ltd (SSTL), United Kingdom, j.friend@sstl.co.uk
Mr. Gary Lay
Surrey Satellite Technology Ltd (SSTL), United Kingdom, g.lay@sstl.co.uk
Mr. Paul Stevens
Surrey Satellite Technology Ltd (SSTL), United Kingdom, p.stevens@sstl.co.uk
Mr. Benjamin Schwarz
Surrey Satellite Technology Ltd (SSTL), United Kingdom, b.schwarz@sstl.co.uk
Mr. Matthew Cosby
Goonhilly Earth Station Ltd, United Kingdom, matt.cosby@goonhilly.org
Mr. Chris Saunders
Goonhilly Earth Station Ltd, United Kingdom, chris.saunders@goonhilly.org
Mr. Bernhard Hufenbach
European Space Agency (ESA), The Netherlands, Bernhard.Hufenbach@esa.int
Mr. Francesco Liucci
European Space Agency (ESA), The Netherlands, francesco.liucci@esa.int
Prof.Dr. Sir Martin Sweeting
Surrey Space Centre, University of Surrey, United Kingdom, m.sweeting@sstl.co.uk

LUNAR COMMUNICATION AS A COMMERCIAL SERVICE TO ALL LUNAR MISSIONS - 1ST GENERATION RELAY-SATELLITE OPERATIONAL IN 2024

Abstract

Following a successful ESA Ministerial in November 2019, Surrey Satellites Technology Ltd (SSTL), in partnership with ESA, has kicked off the first implementation phase of the Lunar communication programme. Expected to be in orbit and fully commissioned by Q1-2024, Lunar Pathfinder will be ready to relay scientific and TTC data between lunar assets and Earth.

This follows a successful feasibility study, realised in partnership with Goonhilly Earth Station (GES) and ESA, to offer low-cost, high performance relay communication and navigation services to scientific Lunar missions.

The Lunar Pathfinder mission, in addition to demonstrating technology, will test and validate an innovative business model, by which industry provides affordable services to support Lunar Exploration, and institutions contribute to mitigate the market risks, thus stimulating scientific research in a win-win scenario. Due to launch in Q4-2023, the Lunar Pathfinder spacecraft will be available for companies and institutions to buy communication services packages, designed to accommodate a wide range of users,

to relay data between lunar assets and dedicated Earth ground stations. The proximity of the relay to lunar assets will enable polar and far-side missions with limited, or no direct line of sight to Earth. Lunar orbiters, CubeSats and surface near-side assets will benefit from better availability, improved data-rates and cheaper alternative to direct to Earth solutions, while relieving pressure on institutional deep space ground stations. When used as a main communication node, it will also allow lunar assets to simplify their communication modules, focusing mass and resource to their scientific payloads instead.

In parallel, the partnership is growing into a large industrial consortium, with established Service Operators, Ground Station providers and satellite integrators, to work on the follow-on to Lunar Pathfinder: a constellation of data-relay orbiters capable of offering extended communication services and PNT capabilities, from end 2020s onwards.

The constellation will be developed with interoperability in mind, following international communication standards and protocols, and be part of a fully integrated and interoperable network with space and ground assets.

As Lunar exploration develops and lunar transportation solutions make lunar mission accessible to a wider range of budgets, Communication and Navigation infrastructure provide communication services as an essential commodity to Lunar Users. This could be the key to your future lunar mission need, please get in touch.