News story: £1m injection into pioneering new space technology

The ‘wrapped rib’ antenna is lighter, less complex and more cost-competitive than those currently available commercially. The antenna will be exclusively developed in the UK by Oxford Space Systems (OSS). It will make the UK the first European country with the capability of a flight-proven parabolic deployable antenna.

The lighter weight of the ‘wrapped-rib’ antenna means it can be transported to space more efficiently at less expense. This is critical in an industry where launch costs are high. The MOD funding will assist OSS to increase the antenna’s size and its performance to meet the needs of defence.

Defence Secretary Gavin Williamson said:

> I have been clear that we need to accelerate the development of new, innovative capabilities – especially those in the space domain. It is vital that we have homegrown affordable technologies like this pioneering deployable satellite antenna to maintain a commanding military advantage over our adversaries and competitors.

In collaboration with the Defence Science and Technology Laboratory (Dstl) and the Defence Innovation Fund, this is the largest contract placed with a first-time supplier by the Defence and Security Accelerator (DASA).

The new antenna will be used to meet the needs of fine-resolution Low Earth Orbit Synthetic Aperture Radar (SAR) imagery. SAR permits all weather Earth observation, irrespective of time of day or night. This provides unique advantages for both civil and defence applications. The technology will enable the UK to deploy a number of antennas in space, providing more accurate and frequent satellite images.

The technology consists of a specialist carbon-fibre composite and utilises origami engineering techniques to create a unique, compact, deployable antenna. This results in an antenna that is compact and light weight when folded for easy portability and deployability but can unfurl to several metres when in space, just like a large pop-up umbrella.

The ‘wrapped rib’ antenna. OSS copyright.

OSS Senior Commercial Strategist, Shefali Sharma said:

> This contract represents a considerable stamp of endorsement by the UK Government for OSS on the global stage. The funding allows us to create high value employment in the space sector and grow our team of experts at our Harwell base. We can now focus on maturing the

> ‘wrapped rib’ antenna toward on-orbit demonstration. We view our antenna technology as a key enabler for the next-generation of communications and SAR services from orbit. The antenna is highly scalable and tunable and has been specifically designed for volume production, targeting smallsat constellations. As such, it’s suitable for a range of commercial opportunities not only here in the UK, but globally too. Our doors are open to international trade and we are excited about where future partnerships will take us.

Head of DASA, Lucy Mason said:

> Our work with OSS ticks all DASA’s objectives, not only did we provide the initial stimulus to establish this partnership, but it will also open up opportunities for truly cross government collaboration, with the potential to meet the needs of both our defence and security customers. Additionally, the project will contribute to UK prosperity by creating jobs and increasing export opportunities. This is exactly why DASA exists.

The move is just the latest defence involvement in the space sector. The Defence Secretary has announced that he will launch a dedicated Defence Space Strategy, whilst the department is also supporting the UK Space Agency with work on a national alternative to the EU’s Galileo satellite system. The RAF was also involved in the launch and operation of the Carbonite-2 demonstrator satellite; now in orbit, the satellite offers sovereign, full-motion colour video from space for the RAF for the first time.