Surrey Satellite Technology Ltd; Development of an integrated Ka-Band dish antenna and feed for the SSTL Antenna Pointing Mechanism

Project Summary

SSTL is currently evolving its successful X-Band Antenna Pointing Mechanism (APM) product into a LEO Ka-band APM to exploit the wider 25.5-27GHz Ka-Band bandwidth. It will provide a significant step-change in data throughout rates, to support more challenging payload data rates. With more than 19 flight mechanisms built and tested so far, the existing agile bi-axis steerable mechanism constitutes a reliable and versatile baseline which can be adapted to integrate the Ka-Band waveguide system and antenna.

SSTL has already addressed the development of specific key components of the Ka-Band technology and now wishes to undertake the design of the Ka-Band antenna and feed to further progress the system design.

This project will address the antenna and RF feed design with the aim of achieving download performances of 2Gbps to suit the future SSTL mission requirements such as the next generation of high resolution Earth Observation satellites and the future iterations of the NovaSAR platform.

SSTL will trade several antenna configurations and technologies and run simulations for the most promising baselines. The design performances will then be optimised looking at the mechanical support and antenna material. In particular, the suitability of a novel and lightweight carbon fibre antenna will be assessed.