Thales Alenia Space UK Ltd; MicroLaunch

Project Summary

MicroLaunch is a potentially game changing development for access to space for nano and pico satellites (1 to 50kg) which today are being used in ever greater numbers by universities, domestic space agencies, military research, and commercial providers (Skybox Imaging, Planet Labs).

These satellites are poorly served by today's launch market, generally having to 'piggy back' as secondary payloads on large launchers where commercial prices can reach up to £75,000/kg, the number of launch opportunities is unpredictable, the range of possible orbits are limited and the schedule is set by the primary payload (for example; problems with the primary payload delayed UKube-1's launch by two years). Dedicated launches can be purchased to overcome some of these issues, but at a greatly increased total cost.

MicroLaunch represents novel developments in the field of microwave beamed launchers; a type of orbital launch system which generates thrust from wireless energy transmitted to it from a specialised ground station. By removing the need to store energy in the propellant, inert fuels and thruster fuel efficiencies several times greater than conventional chemical rockets can be achieved, greatly reducing the mass and complexity of the launcher.

The proposed design can offer dedicated launches for payloads up to 50kg, very short turnaround times (<1 week) and significantly lower cost access to polar orbits (targeting <£10,000/kg). All elements of the MicroLaunch system are highly suited to development, build and launch in the UK and could provide a significant boost to the UK's fast growing small satellite capabilities.