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THE UK SPACE AGENCY'S ACTIVE DEBRIS REMOVAL PHASE 0/PHASE A STUDIES

Abstract

The United Kingdom Space Agency (UKSA) has commissioned three parallel Phase 0/Phase A studies into future Active Debris Removal (ADR) missions. The studies are the first steps towards a potential UK-led mission with a target launch date in the next four to five years.

Space debris, particularly in the congested LEO zone presents a major risk to current and future space missions. An effective mitigation of this risk is the removal of defunct satellites from orbit, so-called Active Debris Removal (ADR). The capturing and subsequent de-orbiting of such a target, especially one which has not been designed with capture and de-orbit in mind, is challenging.

This paper summarises the scope and aims of these studies, before examining the key design drivers, criteria and methodologies used to down-select the major system elements. Each study's proposed concept is discussed, elaborating on the system design with particular focus on the debris capture method.