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LEGAL AND SECURITY CONSIDERATIONS FOR ACTIVE DEBRIS REMOVAL MISSIONS IN THE
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Abstract

This discussion will provide a consolidated examination of the legal and security considerations for a hypothetical Active Debris Removal (ADR) mission to Low Earth Orbit (LEO) launched and financed from within the UK. As opposed to considering individual companies, this paper will consider the involvement of a broad consortium of actors and with support from international ground stations. This is the most likely configuration of such a mission from the UK and a model envisaged by the recently promulgated Space Industry Act 2018. The discussion examines the specific technical requirements of the mission which impact the nature of the licence issued by the UK regulator, the Civil Aviation Authority (CAA).

The inquiry will start with an assessment of international obligations which are binding on the UK and its non-governmental entities. This will then lead into consideration of non-binding agreements that are also relevant. This will include the Space Debris Mitigation Guidelines (SDMG). The next area of inquiry will examine the appropriate technical standards from the International Organization for Standardization (ISO) and the European Cooperation for Space Standardization (ECSS). As with all space operations, there will also need to be consideration of the appropriate licensing requirements for space objects and the related spectrum filing. As ADR missions utilise the radio frequency spectrum, for satellites and ground stations, this paper will also discuss international radio law as well as UK radio regulations and licensing requirements. There will be voluntary guidelines and best practises from organisations such as the Space Safety Coalition (SSC) and the Consortium for Execution of Rendezvous and Servicing Operations (CONFERS) under consideration as these represent non-binding instruments from the industry perspective, which complement international instruments. In conclusion, there will be consideration of the security dimension applicable to space, radio, and cyber elements of ADR missions. It will be highlighted that there is significant cause for concern over both security threats to satellites and ground stations as well as concerns over the need for transparent ADR operations in LEO. Moreover, this discussion will illustrate the difficulty of ensuring a high standard of regulatory compliance whilst also empowering commercial entities to fully explore solutions for cleaning up space.