MISSION LIFETIME OPTIMISATION WITH SELF OR ASSISTED DISPOSAL.

Abstract

Operation to failure was the modus operandi of most satellite operators prior to the awareness of the impact on the space debris environment. While compliance to space debris mitigation guidelines, standards and regulations is clearly a priority, there remains a business advantage in extracting the maximum lifetime out of any in-orbit asset. For certain types of strategic assets, which provide unique societal benefits through their missions and are typically irreplaceable, due to their complexity, cost and public funding sources, it becomes imperative to ensure extraction of maximum mission value while fully respecting the need for a sustainable orbital environment. With reference to mission examples in EUMETSAT, this paper highlights: the techniques which have already been used to ensure compliant end-of-life strategies while extending mission lifetimes on satellites not designed to support disposal; the approaches made on new generation satellites to achieve compliance with the debris mitigation standards, highlighting what this brings, but also risks remaining for debris mitigation and lifetime value optimisation; how an Active Debris Removal service in LEO positively impacts the lifetime extension / debris mitigation risk trade-off, describing the potential business case for such services on high value, strategic assets.