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THE REMOVEDEBRIS ADR MISSION: LAUNCH FROM THE ISS, OPERATIONS AND  
EXPERIMENTAL TIMELINES

**Abstract**

The EC FP7 RemoveDEBRIS mission aims to be one of the world's first Active Debris Removal (ADR) missions to demonstrate key technologies in-orbit in a low-cost ambitious manner, including: net capture, harpoon capture, vision-based navigation, dragsail de-orbitation. The mission will utilise two CubeSats as artificial debris targets to demonstrate the technologies. In late 2017, the main 100 kg satellite will launch to the International Space Station (ISS) where it will be deployed via the NanoRacks Kaber system into an orbit of around 400 km. The mission comes to an end in 2018 with all space entities having been de-orbited.

Previous papers have outlined the mission architecture, the experimental design and the test campaign. This paper continues by initially overviewing the pre-flight final configuration of the mission, experiments and platform. The second section will focus on the specifics of the launch via Space X / NanoRacks, and compliance to the NASA safety reviews. As the satellite is being transported to the ISS as cargo, it will require manipulation by astronauts to ready it for deployment. The final section will detail the

planned operational timeline, including the timeframe for the experiments, an overview of the operational sequences to be performed and the desired mission results.

Future mega-satellite constellations are now being proposed, such as OneWeb or SpaceX, where thousands of satellites are being launched into orbit. A coherent strategy, along with technological and platform developments, is needed for de-orbiting, re-orbiting, or servicing of such constellations. The RemoveDEBRIS mission is a vital prerequisite to achieving the ultimate goal of a cleaner Earth orbital environment, and is a core step in the development of active removal vehicles, or on-orbit servicing vehicles of the future.