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Space Debris: comparison of measures and possible scenarios

Institutional and commercial actors in the spatial industry sector have put the problem of space debris at the top of their agenda. New possible solutions and preventive measures are proposed and attempted in order to face this threat and to ensure safer conditions for daily space activities. Among them, the strategic agreement between the industrial American giant Lockheed Martin and the Australian Company Electro Optic Systems (EOS) is surely commendable. The focus of such an agreement is the creation of an advanced tracking system for space debris in order to increase control levels (+25%).

The system, equipped with lasers and sensitive optical systems, will be realized in Australia and it will become operational in early 2016. It will provide satellite operators with a detailed picture of space debris, giving precise information about orbital crowding and about the potential threats due to collision of uncontrolled junk objects of any size. In this way it will be possible to limit expensive damages due to liability issues.

Sector specialists, such as Luca Rossetini, CEO of D-Orbit, approve and welcome the initiative: "Space debris more and more recognized as the space problem of our days. Praiseworthy initiative by LM & Security to strengthen monitoring of space junk. It would also be very commendable that all space players take active actions to write-off once for all the possibility of spacecraft left in orbit out-of-fuel or out-of-control"

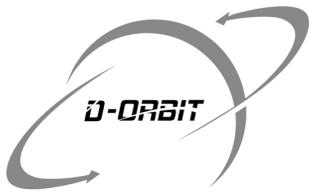
D-Orbit has actually developed a new technology which aims at reducing the increasing problem of space debris. The decommissioning device created by the Italian company has to be installed on a satellite prior to launch in order to allow its safe and controlled disposal at the end of its lifetime. In particular, the device can simplify deorbiting maneuvers, ensuring the removal of the satellite from the orbital slot and, above all, it will continue to work even in case of failure of one of the satellite's critical systems.

Such a device deserves commendation and consideration if we think to the satellites Doresa and Milena. Despite the forecasted precise GPS navigation, after the launch of the last 22nd August from Kourou, the two Galileo satellites fell out of orbit, neither reaching the right altitude nor occupying the scheduled orbit.

Scientists are now at work to study the impact this new situation will have on the mission as well as the possibility to correct the satellites' trajectory to bring them back to the right orbit. This is however a cost in terms of fuel, mission time and profits.

In these cases, the D-Orbit decommissioning device could be used to optimize mission time or to guarantee the correct orbit position, still ensuring the possibility of disposing the satellite at the end of its

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lifetime. D-Orbit has recently brought its new technology to the attention of the European Commission, responsible for the Galileo constellation. The idea is to provide the new generation of satellites with the possibility of being dismissed at the end of their lifetime in a fast and safe way, avoiding situations which can threaten the constellation or any other satellite occupying the same area.

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