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NEOSTEL: the telescope detail design program for the ESA optical ground network dedicated to NEO discovery and tracking

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Abstract.

The Fly-Eye architecture applied for a Space Debris and NEO Surveillance and Tracking optical telescope has been originally proposed by CGS and further refined in the framework of the Space Situational Awareness (SSA) Preparatory Program studies. The high level architecture of a Telescope based on the Fly-Eye concept has been defined in the TELAD Study. Following TELAD conceptual design, the activities of NEOSTEL aim now at generating the Detailed Design of a NEO Survey Telescope based on the Fly-Eye concept. All components of the telescope are designed at detailed level to satisfy the specific requirements for the Survey and Follow Up of the Near Earth Objects. The NEO Survey Telescope detailed design generated under this Program will be directly utilized for the manufacturing of the first prototype, planned to be launched by the SSA Program in the second half of 2015. In addition, the result of the Detailed Design will produce the documentation necessary to prepare the future site that will host the NEO Survey Telescope prototype as well as the high level architecture of the data processing SW that will be required at the telescope site. The product of the prototypation activity will then constitute a full Italian key Optical Core Technology, dedicated to the NEO thematic but also extendable to the SST Segment, therefore offering possibility of application both at Civil and at Institutional level. Furthermore the Fly-Eye Telescope Technology can actively collaborate with a dedicated Space Segment, opening the way to a complete and autonomous EU System.