Enhanced Imaging Capabilities for Helix, ArianeGroup's Space Situational Awareness Network

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Optical sensors are now widely used as a cost-effective solution for space objects surveillance and tracking. ArianeGroup Helix network has been continuously providing optical data to its customers for more than 10 years. Initially focused on high-orbits surveillance (GEO), the system now covers all orbital regimes from LEO to GEO and beyond, and optimizes overall performance by combining the benefits of high precision and large field of view sensors. As network expansion goes, coverage and revisit time increase and innovative sensors operating in daytime allow to further increase surveillance and tracking performance.

Helix is now developing characterization sensors aiming to provide information not only on the object's' position or orbit but also on its state and capabilities. An HFI (High Frequency Imaging) sensor prototype has been successfully developed and successfully tested, producing resolved images of LEO (Low-Earth Orbit) satellites using lucky imaging techniques. In addition, CIAO the "on-telescope" adaptive optics solution by Imagine Optic was successfully tested on a Helix sensor demonstrating the potential of optimized Adaptive Optics solutions for small telescopes for object's characterization.