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Author: Dr. Mohammed El Amine Cheriet
Agence Spatiale Algérienne (ASAL), Algeria

OPTIMIZING STAR TRACKER PLACEMENT ON AGILE SATELLITES: MITIGATING GLARE FOR ENHANCED PERFORMANCE

Abstract

This paper explores the optimal placement of star trackers on agile satellites to maximize their performance while dealing with sunlight and Earth's glare. Star trackers are vital for precise attitude determination in satellite missions. We propose an approach considering various attitude control modes and employing an angle exclusion algorithm to identify the best installation area, minimizing glare risk while ensuring star tracker functionality. Results indicate mode-dependent optimal placement, emphasizing the need to consider different modes alongside the satellite's orbit. These insights are valuable for engineers and mission planners aiming to optimize star tracker performance on agile satellites.