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THE DUAL-MONOPOLE ANTENNAS PLACEMENT OPTIMIZATION USING EVOLUTIONARY STRATEGY ALGORITHMS FOR THAI SPACE CONSORTIUM-1 SATELLITE (TSC-1)

Abstract

Two monopole antennas will be used in the communications system for the amateur mission link and the tracking, telemetry, and command subsystem (TT&C) due to the mission and space constraints of the Thai Space Consortium-1 Satellite (TSC-1) launch. The available position is considered when installing the dual-monopole antennas on the surface of the TSC-1 satellite. It is crucial to take electromagnetic wave characteristics into account. Several issues, including mutual coupling, individual antenna constraints, multipath, and obstructions, can arise from incorrect antenna co-location. Furthermore, research on the issue of antenna installation location takes a while. The outcomes of using strategy algorithms for antenna placement optimization will be presented in this paper. The objective of this work is to develop a more efficient way to locate these placements that will reduce mutual coupling, improve the omnidirectional radiation pattern, and conserve time.

Keyword: Monopole antenna, Antenna placement, Optimization method