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DUAL-POLARIZED SAR ANTENNA ARRAY MOUNTED ON A SMALL SATELLITE

Abstract

Synthetic aperture radar (SAR) imaging that utilizing polarimetric information is been used in remote sensing applications as a standard. However, using small satellites significantly required low profile, lightweight, and low-cost of SAR antennas. The lighter weight SAR antenna is advantageous for easier platform launch and longer SAR life-span. This paper presents a novel C-band (5.41 GHz) dual-polarized SAR antenna designed for small satellites that will be launched by Egyptian Space Agency (EgSA). The SAR antenna is based on connecting multiple patches using a series feeding network on the top layer and the feeding are attached back to back in the bottom layer to provide signal feeding to the upper layer using vias that keep the antenna configuration as simple as possible. Simulation agrees well with the measured results that verify the proposed design.