

Faulty Sensors Detection in Planar Array Antenna Using Pelican Optimization Algorithm

Authors : Shafqat Ullah Khan, Ammar Nasir

Abstract : Using planar antenna array (PAA) in radars, Broadcasting, satellite antennas, and sonar for the detection of targets, Helps provide instant beam pattern control. High flexibility and Adaptability are achieved by multiple beam steering by using a Planar array and are particularly needed in real-life Sanrio's where the need arises for several high-directivity beams. Faulty sensors in planar arrays generate asymmetry, which leads to service degradation, radiation pattern distortion, and increased levels of sidelobe. The POA, a nature-inspired optimization algorithm, accurately determines faulty sensors within an array, enhancing the reliability and performance of planar array antennas through extensive simulations and experiments. The analysis was done for different types of faults in 7 x 7 and 8 x 8 planar arrays in MATLAB.

Keywords : Planar antenna array,, Pelican optimisation Algorithm,, Faculty sensor, Antenna arrays

Conference Title : ICECECE 2024 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Lisbon, Portugal

Conference Dates : September 19-20, 2024