

## **Mini Double Ridge Horn Antenna for Free Space Measurement**

### **Abstract**

This paper presents the design of a double ridge horn antenna (DRHA) with an operating frequency of 2.4 GHz to 9.8 GHz for free space measurement. The DRHA is designed using CST Studio Suite. The DRHA is built with metallic grid sidewalls, ridges, the shield of coax, cavity back, and bell section. Furthermore, the DRHA exhibits improved radiation patterns with a maximum E-plane beamwidth of 102 degrees and H-plane beamwidth of 92 degrees, and maximum gain up to 16.3 dBi. The simulated results were analyzed and discussed in this paper. This double ridge horn antenna exhibits improved radiation patterns and gains. This shows that the double ridge horn antenna can fulfill the higher demands in antenna applications and in free space material measurement. The antenna presents desirable results throughout the operating frequency. © 2023 American Institute of Physics Inc.. All rights reserved.

### **Keywords**

Free space measurement, Double ridge horn antenna