

Miniaturized Reflector Antenna



THE UNIVERSITY OF
ALABAMA

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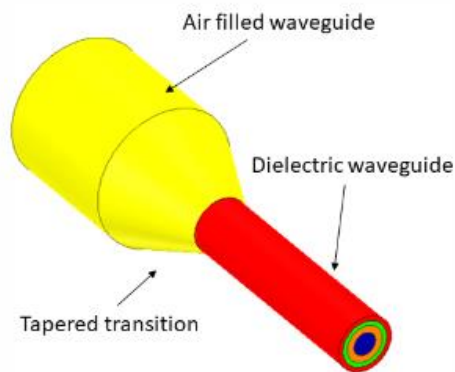
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The Problem:

Reflector antennas have applications in radio and microwave communications, astronomy, and the radar industry. Today, microwave point to point transmission dominates mobile backhaul, where it connects about 60% of macro base stations around the world. Current methods used to feed the reflector antenna include horn antenna, dipole array, spiral antenna, and open-end waveguide, but these fail to incorporate a number of beneficial features, are expensive, and difficult to maintain.

The Solution:

Researchers at the University of Alabama have developed a multi-core dielectric-filled circular waveguide that significantly reduces the size of a commonly used reflector antenna for all frequency bands in areas of commercial, industrial, military, and space applications. The different dielectric material fillers reduce the overall size of the feeder and reflector beam. The reduced size allows for ease of maintenance and reduced expenses versus the existing bulky designs.



Benefits:

- Significant size reduction while maintaining the similar radiation performance
- Wide band coverage with a single feed
- Easy to fabricate through 3D printing
- Reduced expense
- Light weight design
- Easy to mount on an existing reflector antenna
- Environmentally friendly

INVENTORS



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Dr. Jeong received his Ph.D. from Purdue University in 2010. His research interests include 5G millimeter-wave antenna and system, adaptive RF front-ends, electromagnetics, RFIC (Radio Frequency Integrated Circuit), system-on-package, high-speed interconnects, wireless power transfer and biomedical electronics.



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