

## **A Wideband Textile Antenna With A Ring-Slotted AMC Plane**

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### **ABSTRACT**

A wideband microstrip-based textile planar antenna with artificial magnetic conductor (AMC) plane is presented. The antenna is initially designed using the combination of two rectangular microstrip antennas operating at 1.5 and 2.5 GHz before being further optimized for wideband operation using various broadbanding techniques. This optimized radiator is then placed over an array of unit elements forming an AMC plane. Each unit element is formed using a square patch slotted using a circular ring and is designed to resonate at 2 GHz. To validate the contribution of the AMC plane in reducing backward radiation toward the human user, the performance of the proposed antenna is compared to a similar antenna without the AMC plane. This investigation indicated that the proposed antenna is capable of reducing backlobe while simultaneously increasing gain to 3.38 dB and improving bandwidth up to 52%.

**Keywords:** wideband; (AMC) plane; antenna

**doi:** [10.1007/s00339-016-0627-1](https://doi.org/10.1007/s00339-016-0627-1)