

MUSHROOM SHAPED MONOPOLE ANTENNA WHICH HAS TUNING ON GROUND PLANE WITH SLOT ETCHING TECHNIQUE IS TWO LAYERS OF STAIR FOR APPLYING ULTRA-WIDEBAND (UWB) TECHNOLOGY

Watcharaphon Naktong¹ Apinya Innok¹ Supatinee kornsing¹ and Amnoi Ruengwaree²

¹Department of Telecommunication Engineering, Faculty of Engineering and Architecture, Rajamangala University of Technology Isan (RMUTI), NakhonRatchasima, Thailand E-mail:

² Department of Electronics and Telecommunication Engineering, Faculty of Engineering, Rajamangala University of Technology Thanyaburi (RMUTT), Pathumthani, 12110, Thailand

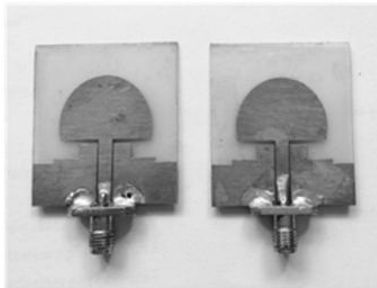
E-mail: apinya_in@hotmail.com

EXTENDED ABSTRACT

This research presents the mushroom shaped monopole antenna with slot etching technique is two layers of stair on both side of the ground plane which have distance between a layer about $\lambda/32$. This technique is designed to increase impedance bandwidth applying UWB as IEEE 802.15.3a which has frequency at 3.1-10.6 GHz. In this research is used the CST Microwave studio to find other parameters of the antenna on FR4 print circuit board. From the result found that both the 1st and 2nd antenna have impedance bandwidth at 89.4% (3.09-12 GHz), the gain average at 3.95 dBi, the group delay has distance 10-30 cm and the insertion loss at ± 1.5 ns.

KEYWORDS

Mushroom Shaped, Monopole antenna, Ultra-Wideband, Tuning, Slot antenna



(a) Mushroom shaped monopole antenna



(b) Network analyzer

Fig 1. Microstrip antennas and Network analyzer.

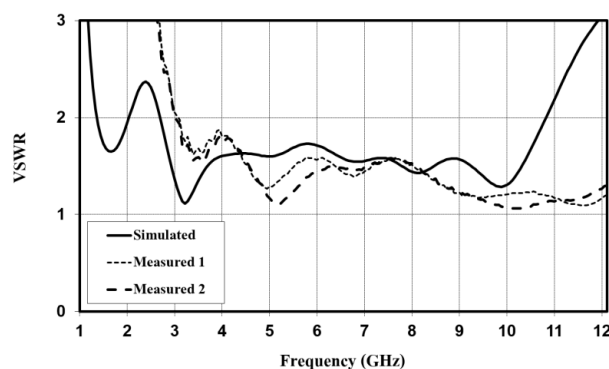


Fig 2. The comparison of simulation and measurement of VSWR of the Prototype antenna.