

# Ultra-Wideband 시스템을 위한 Clover-Shaped 안테나 설계 및 제작

\*최선호, \*\*이화춘, \*\*\*곽경섭  
\*인하대학교, \*\*초당대학교, \*\*\*인하대학교  
\*sunrf@daum.net, \*\*urut@chodang.ac.kr, \*\*\*kskwakt@inha.ac.kr

## Clover-Shaped Antenna for Ultra-Wideband Communications

\*Sun-Ho Choi, \*\*Hwa-Choon Lee, \*\*\*Kyung-Sup Kwak  
\*Inha Univ., \*\*Chodang Univ., \*\*\*Inha Univ.

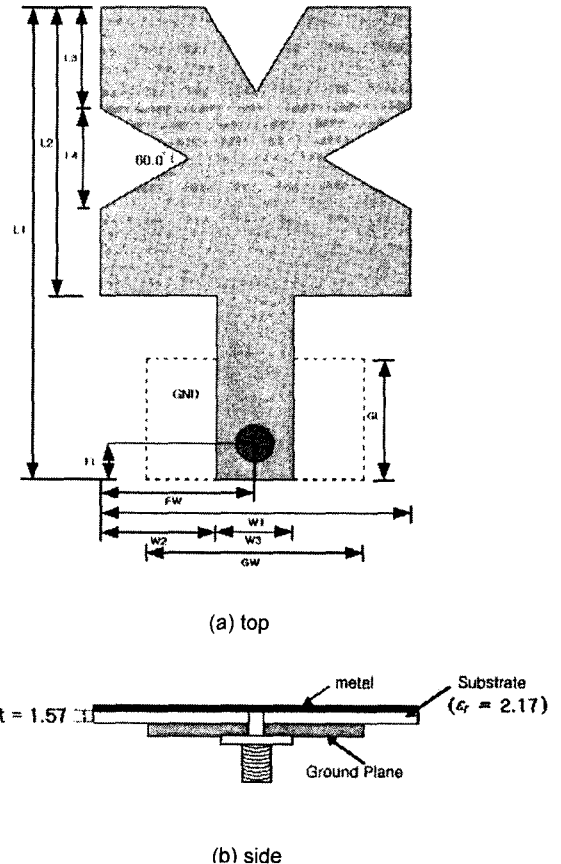
### 요 약

In this paper, a clover-shaped microstrip patch antenna for application under an Ultra-Wide Band (3.1-10.6 GHz), is designed and fabricated. In order to obtain sufficient bandwidth when the Return Loss < -10dB, a partial ground plane and coaxial probe source is used. The measured bandwidth of the fabricated antenna is 8.25GHz when VSWR < 2. Referenced to the center frequency, the gain is 3.20-4.00 dBi. The experimental 3-dB beam width (HPBW) in the azimuth and elevation are  $55.35^\circ$  and  $62.27^\circ$ , respectively.

### 1. Introduction

On February 14, 2002, the Federal Communications Commission (FCC) allocated the unlicensed 3.1-10.6GHz band for commercial applications of UWB technology [1]. The ultra-wideband technique has become one of the most fascinating technologies in the indoor communications arena. It has the advantages of high speed transmission, low power consumption and simple hardware configuration, over conventional wireless communication systems [2]. Therefore, many laboratories and firms have developed UWB antennas satisfying such specifications.

Microstrip patch antennas have been shown to be promising candidates for many microwave applications, because of their low cost, light weight, and easy fabrication. Several single-feed planar microstrip antennas (Circular-shaped flat type antennas [3]-[4], bow-tie type antennas [5]-[6], variable slot type antennas [7]-[9], and partial ground type antennas [10]-[13]) have been proposed, providing attractive solutions that can be readily incorporated under an UWB system.



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Fig. 1. Configuration of the Clover-shaped patch antenna.