



# CONFORMAL PATCH ARRAY LUNEBURG LENS ANTENNA SYSTEM

## INTRODUCTION

A Luneburg lens is used in conjunction with a patch antenna array. The patch antenna array is conformed or adapted to cover a portion or backside of the Luneburg lens's surface with the backplane of the conformed antenna array defining a field of regard (FOR) in which objects are detected and tracked. A processor is connected to a receiver/exciter module which connects to transmit/receive modules which are connected to the individual patch antennas through a network of MEMS switches. In a receive mode, selected subarrays of the conformed patch antenna array are scanned during selected time intervals with the sum and delta beams being formed coherently in amplitude and phase to realize amplitude monopulse sensing and angle tracking of an object.

## CONCEPT

The invention is a system for object detection and radar tracking.

- Lower cost on target detection and tracking.
- U.S. Patent Number: 8,854,257
- Application Number: 20140139370
- Date of Patent: 7 Oct 2014

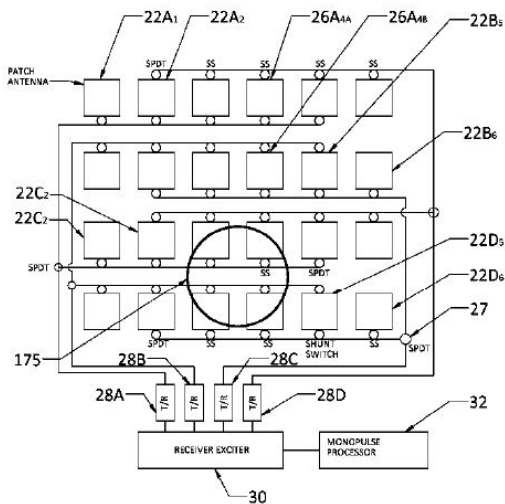
## POTENTIAL MARKET

- Security industries

## DOING BUSINESS WITH CCDC AVIATION & MISSILE CENTER

CCDC Aviation & Missile Center is a leader in partnering with domestic firms. Successfully developed and implemented innovative tools to ease the technology transfer process such as:

- Patent License Agreements
- Cooperative Research and Development Agreements
- Test Services Agreements



## INVENTION OVERVIEW

The antenna technology developed is a conformal patch antenna array in conjunction with a Luneburg Lens. Allows antenna to be selectively addressed individually during transmitting and receiving modes

- Allows for monopulse target tracking.

## FOR FURTHER INFORMATION:

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT  
COMMAND AVIATION & MISSILE CENTER:

ATTN: FCDD-AMG-CST  
Office of Research and Technology Applications  
5400 Fowler Road  
Redstone Arsenal, AL 35898

Phone: 256-876-8473 or 256-313-0895  
Email: [usarmy.redstone.ccdc-avmc.mbx.orta@mail.mil](mailto:usarmy.redstone.ccdc-avmc.mbx.orta@mail.mil)