

# OPTIMISATION OF A LUNEBURG LENS FED BY A CORRUGATED HORN ANTENNA

Nasiha Nikolic<sup>(1)</sup>, John S. Kot<sup>(2)</sup>

<sup>(1)</sup> *CSIRO ICT Centre, Radiophysics Laboratory, PO Box 76, Epping, NSW 1710, AUSTRALIA*

*E-mail: [Nasiha.Nikolic@csiro.au](mailto:Nasiha.Nikolic@csiro.au)*

<sup>(2)</sup> *As above, but E-mail: [John.Kot@csiro.au](mailto:John.Kot@csiro.au)*

## ABSTRACT

Low profile Luneburg lenses (LL) fed by a horn antenna have been recently used for a variety of airborne applications. To achieve the required gain for some specific applications, usually an array of the hemispherical lenses is used. The hemispherical lenses, mounted on a conducting ground plane, are fed by the horn sources which can be pivoted about the lenses. The combination of the rotating ground plane and the pivoting sources provides a substantial 3-D coverage that can be used to track the position of the targeted communications satellite. So far, the standard circular horns were used to feed the lens [1]. In this paper, we describe a theoretical method which may be used for optimisation of the lens-horn system.