Abstract

In this paper, an aperture distribution for the synthesis of a specified radiation pattern is designed and it is applied to a linear array of discrete sources. The cosecant pattern is achieved by an optical antenna system with Luneburg lens. These patterns are produced using Fourier transform method. Computed cosecant patterns for different beamwidths are presented. These patterns are used in ground-mapping airborne radars and ground-based search radars applications.

References

- Tse-Tong Chia and Wai-Yean Lim, "Design of low profile cylindrical Luneburg lens"
Antenna\textsuperscript{\textquotedblright}, IEEE Trans. Antennas Propagat. vol. 12, No. 6, Sec. 2009.
- B. Sadasiva Rao and G. S. N. Raju, \textquotedblright;shaped beams from thick arrays\textquotedblright;, International Journal of Electronics and Communication Engineering, Volume 4, No. 5 pp. 577-592, ISSN - 2011.
- G. R. L. V. N. Srinivas Raju et al., \textquotedblright;Generation of shaped beam radiation patterns from a line source using Iterative sampling method\textquotedblright;, IJEST, Vol. 5, NO. 08 August 2013.
- J. A. Rodriguez et al., \textquotedblright;Extension of the Orchard-Elliott Synthesis Method to Pure-Real Non Symmetrical Shaped Patterns\textquotedblright;, IEEE Transactions on Antennas and Propagation, Vol. 45, No. 8, August 1997.

\textbf{Index Terms}

\begin{itemize}
\item Computer Science
\item Information Sciences
\end{itemize}

\textbf{Keywords}

Luneburg lens antenna  cosecant beam  ripples  sidelobes  Fourier Transform method.