

Microwave Luneburg Lens

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Applied Optics Vol. 7, Issue 5, 804 pp. 801- (1968) • <https://doi.org/10.1364/AO.7.000801>



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Abstract

This article describes a two-dimensional Luneburg lens, fabricated from steps of foam glass of different refractive index as an approximation to a continuous index gradient. This is an improvement over lenses fabricated by assembly of machined parts, which unavoidably contain some air gaps, resulting in different path lengths through the lens. The foam glass lens is superior to a plastic lens since it is able to withstand higher temperatures and hence higher powers, in addition to having superior aging characteristics. Measurements have been made throughout the microwave band, and the results clearly establish the feasibility of this fabrication technique for the construction of a microwave Luneburg lens.

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