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The diaphanous wedge


Abstract

Complete solutions for the diaphanous wedge, by which is meant a wedge with identical wavenumbers inside and outside the wedge, are presented. The results are obtained from an integral equation for the fields on the wedge, which is solved by the Mellin and Kantorovich-Lebedev transforms in the static and dynamic cases, respectively. Pertinent formulations of Gegenbauer’s addition theorems play an important part in the derivation of the results, which are presented in closed form.