



Diffraction by a Wide Slit (Classic Reprint)

By Samuel N Karp

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Diffraction by a Wide Slit Since there already exist numerous investigations of the diffraction of scalar waves by a slit, the addition of another item to the literature requires some explanation. The purpose of the present note is to give an elementary and intuitive account of the diffraction by an infinite conducting plane with a slit. We consider specifically the case of electromagnetic waves whose electric field possesses only a single component, namely a component in the direction parallel to the edges of the slit. The results are also applicable to the acoustic problem, for soft screens. It is found that the results for large slit widths can be expressed approximately in terms of simple well-known functions and that these approximations are more accurate than those conveniently obtainable by previous procedures. The procedures that have hitherto been proposed and applied to this problem fall into three categories. First, there is the exact theory based upon separation of variables in elliptic coordinates. This procedure is useful only when the ratio of slit width to wavelength is...



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