



Asymptotic Expansions of Solutions of $(\nabla^2 + K^2)U=0$ (Classic Reprint)

By F G Friedlander

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Asymptotic Expansions of Solutions of $(\nabla^2 + K^2)u=0$ In many of the diffraction problems which arise in electromagnetic theory, acoustics and other fields it is necessary to determine the behavior as $k \rightarrow \infty$ ($k = 2\pi/\lambda$, where λ is the wavelength) of solutions of the reduced wave equation $(\nabla^2 + k^2)u = 0$. This behavior is usually determined by obtaining exact solutions and expanding them asymptotically in k . If it were possible to obtain the asymptotic expansion of a solution directly from (l) and the other conditions of the problem it might be possible to obtain such expansions in problems for which the exact solutions are not known. It might also be easier to proceed in this way even in problems for which the exact solutions are known. A direct method for constructing the first term in the expansion of a periodic electromagnetic field was devised by R. K. Luneburg, and this method was extended by M. Kline to yield further terms in the expansion and also extended to other equations. This expansion...



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