Wedge Diffraction of Fields with a
Rapid Spatial Variation of the Amplitude

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Scattering and diffraction of acoustic and electromagnetic waves with amplitudes showing a rapid spatial variation in the plane perpendicular to the direction of propagation has received some attention in the past. For instance, in the framework of ray techniques such as the Uniform Geometrical Theory of Diffraction (UTD), suitable slope diffraction coefficients have been proposed [1] – [3].

The approach which is followed here is based on a systematic comparison between the rigorous multipole expansion technique and the UTD. In particular, reference is made to an extended UTD solution, which has been recently applied to the diffraction of a Complex Source Beam (CSB) [4], [5] by a perfect electrically conducting (PEC) wedge. The structure of this extended UTD solution consists of a standard UTD term and a so called "slope-like" term. The main objective of this paper is to analyze the features of these contributions, also providing indications on their importance in different operational conditions.

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