

SUMMARY

Geometrical theory of diffraction is getting more and more attention in the recent years for the solutions of electromagnetic scattering problems. The radiation pattern analysis of reflector antenna is necessary for its successful design and it also falls in the category ^{of} scattering problems so far as the radiation in the far-off-axis region is considered. The geometrical theory of diffraction has the advantage of easy computation but has the drawback of involved formulation for ray tracing. Also the expressions for multiply diffracted and/or reflected rays are not easy and compact.

For an axially symmetric reflector the difficulties have been removed and a more compact form of expression has been derived for a multiply diffracted and/or reflected ray. Paraboloid reflector antenna with shroud falls in the category of such reflectors and radiation pattern analysis of such a shrouded paraboloid reflector antenna has been done and compared with the experimental results. The effect of putting an absorber on the inner surface of the shroud has also been taken into account.

The effects of other shrouds than the more conventional cylindrical one has been studied theoretically. This includes conical, convex and concave shapes.