

TERRAIN ANALYSIS FOR COMMUNICATION PURPOSES

Y. Doytsher & B.Shmutter
Technion I.I.T. , Haifa , Israel

Summary

Terrain analysis embraces various problems, one of these being the demarcation of areas regarded as dead ground with respect to certain stations. This problem is frequently encountered when analysing the topography in the course of planning a communication network. A solution to that problem is presented in the paper. It comprises the following steps:

- Determination of dead ground in relation to a single station.
- Determination of dead ground with respect to several stations.
- Superposition of dead ground regions.
- Definition of dead ground with respect to a moving station.

The above problems are solved on the basis of a DTM consisting of two layers of information - a grid of elevations and a layer of topographic features, break lines and salient points. When defining the boundaries of the dead ground various factors, such as the nature of the transmitting device expressing itself in the refraction of the propagating waves and the assumed accuracy of the DTM, are taken into account.

The procedure can be executed either off line, the stations being selected on existing maps, or interactively on a graphical station. In the latter case a topographic map is produced from the DTM and displayed on the CRT. In both cases, the established boundaries of the dead ground are displayed on the background of the topographic map.

Examples of dead ground determinations illustrate the discussed procedure.