

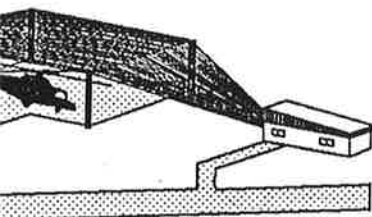
and Characterization of DREMPs

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, construction and preliminary characterization of
Simulator (DREMPs). Figure 1 shows an artist's
s made from two sets of parallel wires to minimize
designed to produce a threat level EMP field of 50
x 20m x 30m. This volume is large enough to
communication van. The facility has been designed
assessment of heavy transportable equipment.
and the simulator have been computed and an
ator regarding health, safety and interference has

th electric and magnetic fields inside and outside
on (TDR) measurements have been made. As a
es were made to the load end taper and the
reflections.

tion, and preliminary electromagnetic field and
ted.



s View of the DREMPs

A THREAT-LEVEL EMP SIMULATOR FOR SHIPS (EMPSIS)

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NEMP assessments on large ships have been carried out with the low-level simulator EMIS-3 in the Netherlands, for many years. Since 1982, the possibility of a full-threat level simulator for naval vessels has been discussed within a cooperation project between the United Kingdom, Norway and the Netherlands. A feasibility study was initiated by the navies of the mentioned countries in 1989. This study resulted in a small-scale experiment (simulator height 10m) with a parallel-plate simulator over sea water and at threat level, in Norway in 1990. The experiments showed that sea water can be used as part of the waveguide structure of the simulator.

In 1991 TNO-FEL got the task to draft the pulser specifications and to make a preliminary design for the transmission line of the simulator. The simulator, that was baptized as EMPSIS (ElectroMagnetic Pulse SIMulator for Ships), must be able to test vessels up to 200m length and 46m height at threat level for both the old and the new exo-atmospheric-NEMP requirements.

Data for the design was gathered from the following experiments performed by TNO-FEL:

- Measurements in a 6m-high parallel-plate simulator connected to a 10kV/0.9ns pulse generator (1989),
- Measurements in a 10m-high parallel-plate simulator over sea water in Norway (1990, with participation of UK and Norway),
- Measurements in 10m-high parallel-plate and conical-plate simulators connected to a 10kV/0.9ns pulse generator (1991).

In this paper is referred to the results of these experiments. The expected rise time, pulse distortion, and the homogeneity of the generated field in the EMPSIS simulator will be highlighted. Some expectations are given about a fast-pulse generator and its ability to drive a transmission line with a rather low impedance.

W. Port

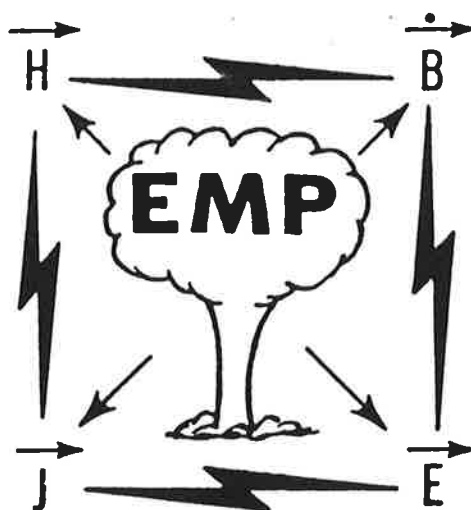
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