

MEASUREMENT OF INTERFERENCE TO TELEVISION RECEPTION  
CAUSED BY AN ARRAY OF LARGE WIND TURBINES

Dipak L. Sengupta and Joseph E. Ferris  
Radiation Laboratory  
Department of Electrical and Computer Engineering  
The University of Michigan  
Ann Arbor, Michigan 48109

Electromagnetic interference to television reception caused by an array of three MOD-2 wind turbines (WTs) at Goodnoe Hills, WA, has been studied by carrying out detailed measurements at a number of sites in the vicinity of the WT array. The commercial TV signals available in the region were used as the RF sources during the measurements. At each site, the total received signals (i.e., direct plus scattered off the rotating blades of the WTs) were recorded on a strip chart recorder and the interference effects were observed on the screen of a TV receiver, and, as appropriate, recorded on a video tape.

It has been found that when the blades of different machines do not rotate in synchronism, each WT produces television interference (TVI) effects individually. When the blades rotate in synchronism, they tend to increase the amplitude of the interference pulses thereby producing enhanced TVI effects. The measurement procedure, selected results and their implications will be discussed.

This work was supported by the Wind Systems Branch, Division of Solar Technology, Department of Energy, under Contract SERI-XE-1246-1.