

WINDMILL INTERFERENCE TO TELEVISION RECEPTION

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Since 1976 the Radiation Laboratory, under sponsorship from DOE, has been investigating the effects of windmills on the performances of various electromagnetic systems. In particular, electromagnetic effects to television (TV) reception produced by large horizontal axis windmills have been identified and quantified by comprehensive theoretical and experimental (laboratory and on-site) studies.

The present paper describes the significant results obtained from some on-site measurements carried out by receiving commercial TV signals at selected test sites in the vicinity of an operational windmill. At each test site, the total received signal (i.e., direct plus scattered off the rotating blades) were recorded on a strip chart recorder and interference effects were observed on the screen of a TV receiver, and as appropriate, recorded on a video tape.

It has been found that the rotating blades of a windmill can produce pulse amplitude modulation of the total signal received, and that for a receiving antenna so located and oriented as to pick up the specular or forward scattering off the rotating blades, this extraneous modulation can distort the video portion of a TV signal reproduction in the vicinity of the windmill. The measurement procedure, selected results and their implication with regard to proper siting of a windmill having minimal impact on TV reception will be discussed.