Abstracts

Ultra-Wideband Radar--Potential and Limitations

R.S. Vickers. "Ultra-Wideband Radar--Potential and Limitations." 1991 MTT-S International Microwave Symposium Digest 91.1 (1991 Vol. I [MWSYM]): 371-374.

There has been a recent awakening of interest in defense applications for ultra-wideband radar (UWB) systems. Work is in progress at a number of laboratories to establish the performance potential and limitations of such systems for target detection and identification. UWB radars differ from more conventional systems in that their bandwidth is a significant fraction of the carrier frequency. This can result in a design that gives the technique potential for identifying targets, reducing the effectiveness of low-observable treatments, and performing detection tasks that are now considered to be difficult. The primary limitation on such systems is the lack of peak output power. Up to now, the pulse sources for these experimental radars have been either transistor impulse generators or spark gaps; both of these sources have severe limitations. With the development of OASS devices, new possibilities for extending the performance of UWB radars become available. In particular, the repeatability and fast rise time of OASS devices, while operating at high power levels, are of extreme importance to this newly emerging radar technology. In this paper, some of the more obvious uses of a UWB radar are discussed, together with some of the problems (arising from limited source capabilities) in implementing adequate designs.

❑ Return to main document.