Abstracts

A monostatic radio-acoustic sounding system

M. Weiss and R. Knoechel. "A monostatic radio-acoustic sounding system." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1871-1874 vol.4.

Practical radar-acoustic sounding systems (RASS) generally employ a bistatic scheme with the radar source and receiver placed symmetrically beside the acoustic radiator. This paper presents a novel method to combine the acoustic and the electromagnetic waves. A wire grid redirects the electromagnetic wave into the direction of the ultrasound propagation. The acoustic wave travels through the grid undisturbed. The monostatic RASS needs only one HF-antenna and therefore no dead zone exists in front of the system. Measurements show that a maximum distance of 30 m can be reached. The temperature profile in that range was determined with an accuracy of /spl plusmn/0.5 K.

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