Abstracts

Performance of thinned antenna arrays using nonlinear processing in DBF radar applications

C. Metz, L.C. Stange, A.F. Jacob and E. Lissel. "Performance of thinned antenna arrays using nonlinear processing in DBF radar applications." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 275-278 vol.1.

Efficient thinning techniques based on nonlinear multiplicative processing of antenna arrays are evaluated for high-resolution digital beamforming (DBF) radar. Operating mechanisms of such thinned arrays are introduced briefly together with a review of the scarce literature on this subject. Measurements implemented at 77 GHz with a synthetic aperture (SA) antenna setup are consulted to compare conventional and thinned array configurations with respect to imaging performance. Nonlinear processing systems show very attractive features allowing thinning rates on the order of 80% with minor degradations in image quality.

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