

Detection Characteristics of the Random and Deterministic Signals in Antenna Arrays

Authors : Olesya Bolkhovskaya, Alexey Davydov, Alexander Maltsev

Abstract : In this paper approach to incoherent signal detection in multi-element antenna array are researched and modeled. Two types of useful signals with unknown wavefront were considered. First one is deterministic (Barker code), the second one is random (Gaussian distribution). The derivation of the sufficient statistics took into account the linearity of the antenna array. The performance characteristics and detecting curves are modeled and compared for different useful signals parameters and for different number of elements of the antenna array. Results of researches in case of some additional conditions can be applied to a digital communications systems.

Keywords : antenna array, detection curves, performance characteristics, quadrature processing, signal detection

Conference Title : ICECECE 2015 : International Conference on Electrical, Computer, Electronics and Communication Engineering

Conference Location : Sydney, Australia

Conference Dates : December 10-11, 2015