Performance Evaluation of Refinement Method for Wideband Two-Beams Formation

Authors : C. Bunsanit

Abstract : This paper presents the refinement method for two beams formation of wideband smart antenna. The refinement method for weighting coefficients is based on Fully Spatial Signal Processing by taking Inverse Discrete Fourier Transform (IDFT), and its simulation results are presented using MATLAB. The radiation pattern is created by multiplying the incoming signal with real weights and then summing them together. These real weighting coefficients are computed by IDFT method; however, the range of weight values is relatively wide. Therefore, for reducing this range, the refinement method is used. The radiation pattern concerns with five input parameters to control. These parameters are maximum weighting coefficient, wideband signal, direction of mainbeam, beamwidth, and maximum of minor lobe level. Comparison of the obtained simulation results between using refinement method and taking only IDFT shows that the refinement method works well for wideband two beams formation.

Keywords : fully spatial signal processing, beam forming, refinement method, smart antenna, weighting coefficient, wideband

Conference Title : ICEEICT 2017 : International Conference on Electrical Engineering, Information and Communication Technology

Conference Location : Paris, France

Conference Dates : January 23-24, 2017