Minimum blind area model for auxiliary array optimization in interference cancellation

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Abstract

The auxiliary array optimization is the key to performance of interference cancellation, especially for the wide operating frequency of radio communication and unknown direction of interference. The blind area rule is established and the minimum blind area model is proposed for auxiliary array optimization. After deriving and simplifying the analytical solutions of weights and signal-to-interference-noise ratio after cancellation, the proposed rule inherits communicable index of radio and requirements of anti-jamming, greatly reducing complexity. The proposed algorithm focuses on minimizing blind area after cancellation in view of this rule. Hence, it leads to a remarkable improvement of optimization efficiency with different direction of arrival of interference and wide-band operating frequency. Experiments based on communication radio demonstrate that the minimum blind area model is much efficient and promising for auxiliary array optimization of anti-interference.

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