

论文

一种新的GPS接收机宽带干扰抑制方法

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摘要

该文针对GPS扩频接收机空时自适应处理结构, 提出了一种新的极大抑制干扰的波束形成算法。通过估计空时二维功率谱得到各干扰信号的导向矢量矩阵, 并求解出该矩阵的一组最接近期望信号导向矢量的正交基, 作为空时二维最优权值。仿真结果表明, 该算法增强了空时自适应结构方向图的零陷深度, 比传统宽带多线性约束LCMV算法更有效地进行干扰抑制, 明显提高了信号干扰噪声比。

关键词 [空时自适应](#) [波束形成](#) [导向矢量](#) [GPS](#) [干扰抑制](#)

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A Novel Wideband Interference Cancellation Method for GPS Receiver

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Abstract

A new beamforming algorithm used in GPS receiver, which can greatly depress the wideband interference, is proposed. The algorithm is based on space-time adaptive processing. Firstly, the steering vectors matrix of interference signals can be estimated by space-time 2-dimension power spectrum. Secondly, with in the null space of the steering vectors matrix of interference signals, the space-time 2-dimension weight vector can be obtained with least square method through the linear combination of orthogonal basis. And the weight vector is closest to the steering vector of the expected signal and deeply depresses the interference signals simultaneously. Finally, compared with the constrained least mean-squares algorithm, the proposed algorithm is more efficient to depress wideband interference. The experimental results show the effectiveness and stability of the method.

Key words [Space-time adaptive processing](#) [Beamforming](#) [Steering vector](#) [GPS](#) [Interference depression](#)

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