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基于广义似然比检验的差分超宽带信号接收机

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摘要 提出采用广义似然比检验实现对差分超宽带信号的最佳检测．在信道条件未知的情况下，首先完成信道特性的最大似然估计，而后进行差分超宽带信号的统计检测，得到了基于广义似然比检验的差分超宽带信号接收机结构．结果表明，差分超宽带的广义似然比检验接收机是一种相关接收机，其本地模板信号为前一个码元脉冲接收波形的平均．在此基础上，对接收机输出噪声进行高斯近似获得了该接收机的误码性能．

关键词 超宽带 差分 广义似然比检验
分类号 TN973.3

Optimum receiver for the differential UWB signal based on the generalized likehood ratio test

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Abstract

<FONT face=Verdana>The generalized likelihood ratio test (GLRT) is proposed to achieve optimum detection for differential UWB signals. Under unknown channel conditions, maximum likehood estimation of the channel response is implemented, statistical detection of differential UWB signals is performed subsequently, and the receiver architecture based on the generalized likelihood ratio test is obtained. The analytical conclusion shows that the GLRT receiver of differential UWB is a correlation receiver in which the local template waveform is computed as the average of the channel responses to former symbol pulses. Based on the conclusion, the performance of bit error probability is analyzed by using a Gaussian approximation of the noise components at the output of the receiver. The GLRT receiver can serve as a performance benchmark for the conventional differential UWB receivers.
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Key words ultra-wideband differential generalized-likelihood-radio-test

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