

Performance enhancement of UWB power control using ranging and narrowband interference mitigation technique

ABSTRACT

Power control is a critical parameter for the design and evaluation of UWB-based WPAN networks due to its distributed control nature and non-fixed topology. The main issues in UWB PC are the channel gain fluctuations induced by indoor channel fluctuation and interference arising from narrowband systems. In this paper we introduce a joint PHY/MAC technique for DS-UWB power control design by exploiting the high time resolution of the UWB signal for channel gain improvement and mitigate the narrowband interference to reduce transmitted power. The results indicate that the proposed approach achieves better BER and throughput over previous works.

Keyword: Ultra-wideband; Power control; Narrowband interference; NBI; TOA