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RESEARCH ARTICLE

UWB MAC Design Constraints and Considerations

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Abstract— In this paper, we consider the possibility of developing an optimal medium access control (MAC) layer for high data rate ultra-wideband (UWB) transmission systems that transmit minimal power. MAC in UWB wireless networks is required to coordinate channel access among competing devices. The unique UWB characteristics offer great challenges and opportunities in effective UWB MAC design. We first study the background of UWB and available MAC protocols that have been used in UWB. Secondly, we explore the constraints on UWB MAC design. Finally we present the considerations that need to be made in designing an optimal UWB MAC protocol.

Keywords— Ultra-wideband (UWB); Medium access control (MAC); Low-power consumption

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