Abstract

This paper considers the ECMA-368 standard based on Multiband Orthogonal Frequency Division Multiplexing (MB-OFDM) as an Ultra Wideband (UWB) system in the presence of interference from an IEEE 802.16 WiMAX systems operating at 3.5 GHz. Simulations are conducted following the standards and adopting the IEEE 802.15.3a channel model CM1. This paper shows that the system fails because of the WiMAX interference, in the absence of an interference avoidance or cancellation scheme. This paper exploits the channel information and the flexibility of non-contiguous Orthogonal Frequency Division Multiplexing (NC-OFDM) based cognitive radios to avoid coexistence interference between UWB and WiMAX systems. The proposed cognitive UWB system results in a significant gain and is compatible with minimum changes to the current system specifications.

References

- ECMA, "Standard ECMA-368: High Rate Ultra Wideband PHY and MAC
Avoiding WIMAX Interference on Ultra Wide Band MB-OFDM System by Cognitive Radio

Index Terms

Computer Science

Wireless Communications

Keywords
Coexistence interference  MB-OFDM  UWB  WiMAX