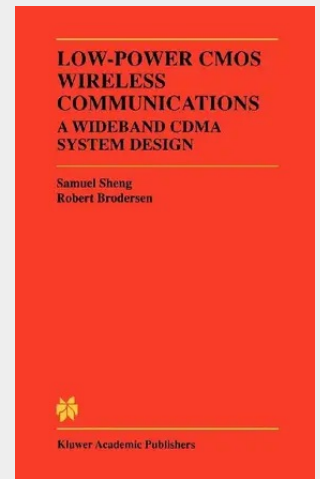


Low-Power CMOS Wireless Communications

A Wideband CDMA System Design

focuses on the issues behind the development of a high-bandwidth, silicon complementary metal-oxide silicon (CMOS) low-power transceiver system for mobile RF wireless data communications. In the design of any RF communications system, three distinct factors must be considered: the propagation environment in question, the multiplexing and modulation of user data streams, and the complexity of hardware required to implement the desired link. None of these can be allowed to dominate. Coupling between system design and implementation is the key to simultaneously achieving high bandwidth and low power and is emphasized throughout the book. The material presented in is the result of broadband wireless systems research done at the University of California, Berkeley. The wireless development was motivated by a much larger collaborative effort known as the Infopad Project, which was centered on developing a mobile information terminal for multimedia content - a wireless 'network computer'. The desire for mobility, combined with the need to support potentially hundreds of users simultaneously accessing full-motion digital video, demanded a wireless solution that was of far lower power and higher data rate than could be provided by existing systems. That solution is the topic of this book: a case study of not only wireless systems designs, but also the implementation of such a link, down to the analog and digital circuit level.

Low-Power CMOS Wireless Communications: A Wideband CDMA System Design focuses on the issues behind the development of a high-bandwidth, silicon complementary metal-oxide silicon (CMOS) low-power transceiver system for mobile RF wireless data communications. In the design of any RF communications system, three distinct factors must be considered: the propagation environment in question, the multiplexing and modulation of user data streams, and the complexity of hardware required to implement the desired link. None of these can be allowed to dominate. Coupling between system design and implementation is the key to simultaneously achieving high bandwidth and low power and is emphasized throughout the book. The material presented in Low-Power CMOS Wireless Communications: A Wideband CDMA System Design is the result of broadband wireless systems research done at the University of California, Berkeley. The wireless development was motivated by a much larger collaborative effort known as the Infopad Project, which was centered on developing a mobile information terminal for multimedia content - a wireless 'network computer'. The desire for mobility, combined with the need to support potentially hundreds of users simultaneously accessing full-motion digital video, demanded a wireless solution that was of far lower power and higher data rate than could be provided by existing systems. That solution is the topic of this book: a case study of not only wireless systems designs, but also the implementation of such a link, down to the analog and digital circuit level.



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