



Direct Conversion Receivers in Wide-Band Systems

By Aarno Pärssinen

Springer. Hardcover. Book Condition: New. Hardcover. 230 pages. Dimensions: 9.7in. x 6.4in. x 0.6in. Wide-band systems will be the next significant generation in wireless communications. Those include both wireless local area networks and cellular systems with a large coverage area. They will provide a higher data rate and access to internet and video services, for example. Although most of the data processing is performed digitally, also the requirements and possibilities to implement the analog part of the radio receiver will be different compared to the second-generation narrow-band receivers. Direct conversion architecture is a distinct candidate for wide-band systems because some non-idealities involved in baseband signal processing are significantly relaxed. The requirements and feasibility of direct conversion in wide-band systems are analyzed in this work. The main emphasis is on cellular systems based on direct sequence code division multiple access, but the same principles are generally valid in all receivers for different applications. The basic principles and design methods involved in receiver design are overviewed as well as the most common radio architectures. In a detailed analysis, the fundamental limitations of the direct conversion architecture are analyzed in wide-band signal processing. Especially, the effect of envelope distortion is characterized both with respect...



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