

Simulation of Long-Term Evolution (LTE) Communication Systems

Researches have been done on development of signal processing algorithms for Long Term Evolution (LTE), which requires a realistic, flexible, and standard-compliant simulation environment. To facilitate comparisons with work of other research groups such a simulation environment which should ideally be publicly available. LTE is the evolution of the UMTS which will make possible to deliver next generation high quality multimedia services according to the users' expectations. Since the LTE performance, evaluation needs link and system level simulations, a software tool to simulate the LTE Downlink based on OFDM technology with MIMO antenna processing is presented in this book. This simulator contains the MIMO algorithms, the spatial channel models and modulation and coding schemes for LTE. The result of this simulator serves to evaluate the OFDM-MIMO LTE Link Level performance in different environments and create link level look-up tables to be used as an input for a future LTE system level simulator. All of this with further discussions enables the reader to have a clear image for LTE- physical layer and technique that used in LTE communication system.