SIMULATION OF A DIGITAL COMMUNICATION SYSTEM (WedPmPO1)

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Abstract :

In this paper, basic components of a digital communication system are simulated by a computer program. The simulation program is modular and flexible to incorporate any future additions and updates. The simulation program allows the user to choose from various channel models, transmitter and receiver antenna systems, modulation and channel coding techniques. A communication system is defined by various parameters including the source, coding, modulation, antenna systems. In order to facilitate the input of these parameters and follow the flow of the simulation, the Graphical User Interface (GUI) is designed for convenience to the user. The input parameters can both be entered from the GUI or from prepared user files. The major contribution of this simulation system to the existing communication simulators is the addition of flexible antenna systems both at the transmitting and receiving ends. With this simulation program, the antenna arrays can be located anywhere on Earth, on any platform and array elements can be placed on the platform by any desired orientation. The simulation program results are compared with both theoretical computations and commercial simulator results and excellent agreement is observed in both cases.

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