

Impact of Adaptive Modulation performance of wideband OFDM communication: Case Study

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Abstract: In this paper we will discuss about the adaptive modulation of wideband communication as the demand of high quality service in next generation wireless communication systems, a high performance of data transmission requires an increase of spectrum efficiency and an improvement of error performance in wireless communication systems. Here firstly we have investigated the OFDM system performance of adaptive modulation. In this to further enhance the system, we employ convolution coding to OFDM system.

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1. Introduction

In last few years, many researchers are research has been carried out in increasing the performance and efficiency of various air interface components like coding or detection. Also new air interface concepts based on either single carrier or multi-carrier transmission have been proposed which show promising performance results.[3] To design the next generation mobile radio systems, a clear understanding of the requirements on these systems is necessary and a comprehensive overview of new air interface technologies is required to really choose between the best available technologies.

In other one of the defining features of the information technology industry is the unrelenting exponential growth of the “bandwidth,” or data rate capacity, sustained by data communication networks and, in particular, the Internet. Likewise, the global demand for wireless “bandwidth” exhibits, now and in the foreseeable future, strong exponential growth. New wired network “bandwidth” is created when new physical resources (cable, fiber, routers, etc.) are added to the network. Wireless communication requires sharing a finite natural resource: the radio frequency spectrum. The radio frequency (RF) bandwidth Allocated by regulatory agencies to cellular wireless services has steadily grown in the last two decades. For example, in the United States, the 40 MHz allocated to first-generation cellular telephony in 1983 grew to 50 MHz with the advent of the second generation at the end of the 1980s, and to 170 MHz in 1995. [2]

2. Multiple-Input Multiple-Output (MIMO) Communications

In this wireless communication is the best technology for our adaptive modulation communication technique. Here wireless communications is a system where multiple an-tennas

are employed at both the transmitter and the receiver is commonly known as a multiple-input multiple-output (MIMO) system. Multiple Input and Multiple Output techniques can be effectively used to increase system throughput over hostile wireless channels. It is a well known fact that given the number of transmit antennas N and number of receive antennas N , the capacity of MIMO systems increases linearly with the minimum of N R. [1]

3. Adaptive Modulation for Frequency-domain energy-efficient transmission

As transmitting with infinite bandwidth will achieve the highest energy efficiency. However, system bandwidth is, in general, limited. Furthermore, different frequency bands usually experience different fadings, which is why orthogonal frequency division multiplexing (OFDM) becomes a key modulation scheme for next generation broadband wireless standards. While extensive research has been conducted to improve throughput, limited work has been done to address energy-efficient communication over frequency-selective channels using OFDM. [4]

4. Time-domain resource management system for OFDM Communication

Most energy-efficient transmission techniques assume that a buffer always has data to transmit. This is not true in general. Due to random and bursty packet arrivals and varying PHY transmission states, buffers may be occupied or emptied, or may even over flow. [4]

Conclusion

In this paper we discussed the all type of study about adaptive modulation performance of wideband ofdm communication. It is calculated that the performance of adaptive modulation is fast rather than the wireless communication technique. Here we

have multiple input and multiple output access point which can throughput the bandwidth and result will display.

References

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