

Absolute polar duty cycle division multiplexing (APDCDM); technique for wireless communications

ABSTRACT

A new multiplexing and demultiplexing technique for wireless communications which is called Absolute Polar Duty Cycle Division Multiplexing (APDCDM) is presented in this paper. APDCDM can become an alternative multiplexing technique in wireless communications. The new technique allows for better error detection, correction, clock recovery and more efficient use of time slots as well as spectrum. The principle of the APDCDM technique has been discussed in this paper based on theoretical analysis as well as simulation studies. The performance comparison is made against time division multiplexing technique (TDM). The simulation has been set for wireless transmission, based on free space propagation model with adaptive white Gaussian noise (AWGN); QAM is used as modulation scheme to evaluate this technique against data rate and number of users. The simulation result correspond with the theoretical study show that APDCDM has better performance than TDM for supporting higher number of multiplexing users and bit rate.

Keyword: Multiplexing techniques; Duty cycle