ABSTRACT

SIGNAL ACQUISITION IN A WIRELESS COMMUNICATION SYSTEM

Each base station transmits a TDM pilot 1 having multiple instances of a pilot-1 sequence generated with a PN1 sequence and a TDM pilot 2 having at least one instance of a pilot-2 sequence generated with a PN2 sequence. Each base station is assigned a specific PN2 sequence that uniquely identifies that base station. A terminal uses TDM pilot 1 to detect for the presence of a signal and uses TDM pilot 2 to identify base stations and obtain accurate timing. For signal detection, the terminal performs delayed correlation on received samples and determines whether a signal is present. If a signal is detected, the terminal performs direct correlation on the received samples with PN1 sequences for K1 different time offsets and identifies K2 strongest TDM pilot 1 instances. For time synchronization, the terminal performs direct correlation on the received samples with PN2 sequences to detect for TDM pilot 2.

Figure 4