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(54) Title: METHOD AND APPARATUS FOR SIMULATING USER INTERFERENCE IN A SPREAD SPECTRUM COMMUNICATIONS SYSTEM**(57) Abstract**

A method and apparatus for simulating signal interference within a communication system, such wireless or cellular communication systems. The communication system is preferably of a type in which code division multiple access (CDMA) spread spectrum communication signals are used. The method for simulating signal interference power received by a base station receiver includes estimating a first composite signal power (100, 110) corresponding to the sum of signal power transmitted by a first set of simulated users located in a first cell. An estimate is also made of a first normalized data rate (410) for transmission of the composite signal. A first interference signal is then generated (114, 126, 128, 130) at a power level determined on the basis of the first composite signal power and normalized data rate. In a preferred implementation, the first interference signal power is adjusted in accordance with an average power fluctuation (420) arising as a consequence of closed loop power control (715). Further, a second composite signal power is determined by estimating the sum of signal power transmitted by a second set of simulated users located outside of the first cell. A similar estimate is made of a second normalized data rate at which this signal power is transmitted by the second set of simulated users. This allows the generation of a second interference signal based on the second composite signal power and normalized data rate. Generation of the first interference signal will typically involve synthesis of electrical noise (160) over a predetermined frequency band. The power of the electrical noise is then adjusted (170) in accordance with the product of the first composite signal power and the first normalized data rate. Furthermore, a random variable sequence may be used (400, 460, 530) to model variations in the first composite signal power.

