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KEY WORD: DS/CDMA POWER CONTROL / MOBILE STATION / ERROR APPROXIMATION

PISAN WONGVISESKIJ : MOBILE STATION POWER CONTROL IN DS/CDMA CELLULAR MOBILE TELEPHONE SYSTEM BY ERROR APPROXIMATION. THESIS ADVISOR : ASSO. PROF. VATIT BENJAPOLKUL ,Ph.D. 79 pp. ISBN 974-334-017-3.

The objective of this thesis is to propose a Power Control Method for digital cellular mobile telephone system by using Error Approximation Power Control in order to decrease the effect of interference from adjacent mobile stations. This technique can be applied to the present digital cellular mobile telephone system by adding operation control software at base station and at the Mobile Telephone Switching office (MTSO). The proposed method can be used to improve the quality of the signal as well. The simulation study is based on a model of DS/CDMA digital cellular mobile telephone system. By using Power Control Technique to adjust the power of mobile station at an interval time, the effect of interference is decreased. The current technique, Fixed-step method, Fuzzy-step method, and this proposed method, Error-step method, were compared by considering the RMS Tracking Error. Error-step method gives low RMS Tracking Error with an increase of 30-40 percent of compared to that of the fixed-step method and gives low RMS Tracking Error with an increase of 1-2 percent of compared to that of the fuzzy-step method. The obtained outage probability is much smaller than that of the fixed-step method but a little more than that of the fuzzy-step method. But this method is less complexity and use less time per cycle.

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