

Reverse link CDMA system capacity evaluation for stratospheric platform mobile communications

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=119124&lokasi=lokal>

Abstrak

We propose an analysis of reverse link CDMA multispot beam stratospheric platforms (SPF) in this paper. The SPF is currently proposed as a novel wireless technology for the development of the next generation fixed and mobile communications. The geometry of this technology is different from that of the terrestrial but rather similar to the satellite based cellular system. However, evaluation on the CDMA system capacity of this technology has not been much reported. This paper addresses all possible multiple access interference analyses including the effects of channel fading and shadowing in order to evaluate the system capacity. Single SPF and multiple SPF model are evaluated under perfect power control and imperfect power control. The results indicate that in SPF systems the reverse link CDMA capacity is significantly reduced because of the power control imperfections. Moreover, in multiple SPF model the interference caused by the users in overlapped region is not trivial. We found that because of this problem the capacity is reduced for both speech and real-time data applications compared with the single SPF model even though the assumption of perfect power control can be made. In order to improve the system capacity we proposed two methods, first is to increase the minimum elevation angle definition for each platform and the second is to employ an adaptive antenna.