

论文

平流层艇载CDMA系统的嵌入式多波束天线方案

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摘要

该文改进了原先提出的微/宏波束天线覆盖方案, 采用更为复杂但更贴近实际的模型, 尤其是改进了艇载天线波束方向图和信道干扰的计算方法。该方案应用于平流层通信CDMA系统, 通过在宏波束覆盖范围中嵌入微波束, 解决平流层通信系统中由于用户分布失衡而引起的热点问题。针对不同的用户分布和热点位置, 文中给出了调整微波束实现系统容量最大化的优化方法。仿真结果表明在用户分布失衡、热点位置变化等情况下使用本文的嵌入式波束覆盖方案仍然可以保持高而稳定的系统容量。

关键词 [CDMA系统](#) [平流层通信](#) [多波束天线](#) [嵌入式波束](#) [热点](#)

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An Embedded Multibeam Configuration for CDMA Communication Systems on HAPS

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Abstract

An improvement of the micro/macro beam configuration used in HAPS (High Altitude Platform System) CDMA systems is proposed, in which the model employed for the optimization of the system is complex but more practical, especially in the improvement of the array pattern and the calculation of channel interferences. The configuration is expected to satisfy the requirement of CDMA systems on HAPS, and the relief of traffic burden in hot spot areas can be achieved by embedding micro-beams in the macro-beams at the hot spot locations. The optimization is realized by the adjustment of the micro-beam for different user distributions and different hot spot locations. The numerical results show that the hot spot problem can be relieved efficiently with the presented structure, and a higher and more stable system capacity is expectable despite the variation of the user distribution.

Key words [CDMA systems](#) [HAPS](#) [Multi-beam array antenna](#) [Embedded beam](#) [Hot spot](#)

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