

ABSTRACT

The text part of the bachelor's thesis: 59 pages., 24 pictures., 5 tables and 13 sources.

This thesis is devoted to the development of using of drones as a base station of a cellular ground system.

Currently, the use of drone small cell (DSC) technology is becoming an effective technique for providing wireless subscriber access services. Such a drone acts as a wireless base station, installed on flying objects such as unmanned aerial vehicles (UAVs). The efficient deployment of such DSCs while optimizing the covered area is one of the key design. In this paper, considering the low altitude platform (LAP), the advancements and discuss the challenges associated with their operation and management.

The optimal DSC altitude which leads to a maximum ground coverage and minimum required transmit power for a single DSC is derived. A study was conducted to solve the problem of ensuring maximum coverage for a specific geographical area for two scenarios: interference free and full interference between DSCs. The impact of the distance between DSCs on the coverage area is studied and the optimal distance between DSCs resulting in maximum coverage is derived.

Key words: cellular communications using unmanned aerial vehicles, drone cell, coverage area.