

Abstract

The thesis develops the topic " Research of adaptive antenna systems designed for mobile communication of the 4th generation".

One of the most significant and urgent problems in wireless communication systems is to reduce the level of active interference, i.e. those components of channel noise that are a consequence of the presence of other radio signal sources in the air, for example, neighboring base stations of cellular telephony. Along with this problem of noise reduction, there is the problem of increasing the number of base station users working simultaneously on the same frequency.

The research of existing adaptive filtering algorithms!; a comparative analysis of adaptation algorithms and their parameters were evaluated based on modeling in the MatLAB software environment; an assessment of the improvement of coverage area, spectral efficiency and network capacity when implementing adaptive antenna systems was made; tools for ensuring life safety when implementing adaptive antenna systems were calculated; and an assessment of the economic feasibility of implementing adaptive antenna systems was made.

Methods and results of calculations can be used as an example