

Analysis of Ways and Methods of Increasing the Availability of Information in Distributed Information Systems

Astapenya, V.^a, Sokolov, V.^a, Skladannyi, P.^a, Zhyltsov, O.^a

^aBorys Grinchenko Kyiv University, Kyiv, Ukraine

Abstract

The paper analyzes possible methods for ensuring the availability of information in wireless access systems for remote subscribers. The prerequisites and positive aspects, as well as the limiting factors of using phased antenna arrays for this purpose, are considered. Relatively simple methods of increasing the signal level at the receiving point are proposed based on: accelerating metal-plate lens (MPL); ring directors; the location of the vibrator emitters of the router combined in terms of polarization. The results of several experimental studies on the use of MPL to increase the signal level in the direction of a remote subscriber of the Wi-Fi system, carried out by the authors using the developed software and hardware, are presented. The data on the influence of MPL on the data transfer rate, the spatial distribution of the router field in the azimuthal and elevation planes, and polarization, as well as on the frequency spectrum of the received signal are presented. The angular parameters of the shading regions are estimated, where the reception conditions deteriorate when the lens is located near the access point. © 2021 IEEE.

Author keywords

Accelerating lens; Access point; Antenna; Antenna array; Metal-plate lens; MIMO; Polarization; Ring antenna director; Router; Wireless network

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