СЕКЦІЯ 3

БЕЗПЕКА ФУНКЦІОНУВАННЯ ТЕЛЕКОМУНІКАЦІЙНИХ СИСТЕМ ТА МЕРЕЖ

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ANALYSIS AND COMPARISON OF DATA PROTECTION PROTOCOLS OF WI-FI NETWORKS

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Information in the modern world is the most valuable asset both for individuals and for states, corporations and companies in various fields of activity. Wi-Fi networks are one of the most widespread technologies for wireless data transmission. It does not require physical connection to cables: all information is transmitted via radio channels in public access, so the use of this technology places high demands on data protection protocols circulating in Wi-Fi networks.

The purpose of the report is to define and analyze basic and advanced Wi-Fi network protection protocols, which is a basic condition for their safe use for data transmission of various levels of confidentiality.

The report reviews the basic, modern and promising protocols and mechanisms for ensuring secure connection and data transmission in WiFi networks: the basic outdated WEP protocol, its temporary improvement WPA, the most common today WPA2 protocol, as well as the next generation wireless network protection protocol WPA 3.

A comparative analysis of schemes, models, mechanisms, algorithms and key lengths in the specified protocols is carried out. The possibility and risks of using all and any of these protocols under certain predetermined conditions are determined. Conclusions are drawn regarding the further development of data protection protocols in next-generation WiFi networks, namely Wi-Fi 6, which is currently being implemented, and Wi-Fi 7, which is under development.

Thus, in wireless networks, cryptographic means are used to ensure the integrity and confidentiality of information. However, errors in security protocols lead to communications disruption and malicious use of information.

References

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