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## Electromagnetic safety of remote communication devices-videoconference

### Tytuł

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Abstract: Devices powered by electricity become sources of electromagnetic emissions in the course of their operation. In the case of devices oriented to process information, these emissions can have a character of revealing emissions, i.e., those whose reception and analysis allow for remote reconstruction of related data. The best known example of this phenomenon is the formation of revealing emissions during the operation of imaging devices: monitors, projectors or printers. Increasingly more often, these components are used for communication

in the form of videoconferences with other network users. The article presents the result of tests and analyses of threats related to the use of such solutions (monitors, personal computers, VoIP terminals) for the confidentiality of conversations and the data presented during them. The focus is on video signals; however, the potential possibilities of revealing speech signals were also indicated. Such phenomenon causes a huge threat to data confidentiality because the combination of graphics and sound can undoubtedly contain much more information about the protected data than just graphics or sound separately. The presented results of analyses apply to graphic data, possibilities of non-invasive acquisition of such data, similarity of images and of patterns and reconstructed image and image recognition. The results indicate that there is still a risk of loss of data confidentiality due to a phenomenon of an electromagnetic leakage, and specialized instrumentation is not required for its interception under favorable circumstances. This may particularly apply to audio data that may be accidentally received by home radio receivers. In particular, the presented results of analyses apply to a Special Issue of Symmetry which is characterized by security and privacy in communication systems and networks, signal processing, video and image processing, multimedia communications and electromagnetic compatibility. All these scientific and technical areas have either symmetrical or asymmetrical approaches, and they have to be taken into consideration as a whole in order to choose the best combinations to protect processed information.

Keywords: protection of information, electromagnetic eavesdropping, screen LCD, electromagnetic emission, reveal emission, sensitive emission, valuable emission, VoIP terminal.

## Powiązane publikacje

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