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Impact of IT Devices Production Quality on the Level of Protection of Processed Information against the Electromagnetic Infiltration Process

Tytuł

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Abstract: Due to the variety and multiplicity of electronic devices, the issue of electromagnetic environment protection is becoming more and more important. We often hear about how necessary it is for electronic devices to meet appropriate requirements. Meeting these requirements determines whether a device can be marketed. Unfortunately, the electrical parameters of electronic components have a very wide range of tolerances. For this reason, measured values of electromagnetic disturbances generated by devices of the same type are not always identical. Differences between those values may reach up to several dB. This problem also concerns electromagnetic emissions correlated with the processed information, which are very sensitive to electromagnetic infiltration process. Issues related to the problem of protection of electromagnetic environment are shown on the basis of research results obtained for several devices of the same type. Mentioned level differences of electromagnetic emissions can decide about a classification of device from viewpoint of protection of information against electromagnetic penetration process. These differences may be a treat to information security. Higher levels of valuable emissions force an application of additional methods limiting an effectiveness of electromagnetic penetration process. This particularly applies to IT devices with a wide range of applications, e.g., laptops and desktop computers. In this paper, this phenomenon was presented on the basis of tests of several devices of the same type. Also, there were carried out analyses of influence of increase levels of valuable emissions on a security zone radius.

Keywords: electromagnetic compatibility, protection of information, electromagnetic emissions, computers and information processing, data acquisition, image recognition

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