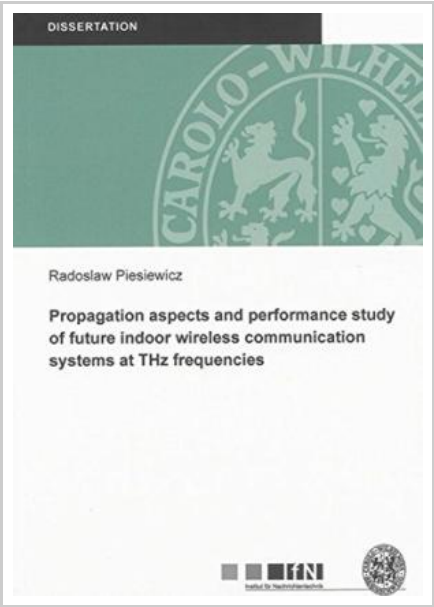

Propagation aspects and performance study of future indoor wireless communication systems at THz frequencies

By Radoslaw Piesiewicz

Shaker Verlag Feb 2009, 2009. Taschenbuch. Book Condition: Neu. 210x151x15 mm. Neuware - The increasing demand for higher data rates in wireless communications is shifting attention towards frequencies above 100 GHz. Future indoor wireless communication systems will have to support data rates of tens of Gbps and will need very large bandwidths. They might be accommodated in the THz range, i.e. between 100 GHz and 1 THz. In this dissertation propagation aspects relevant for future communications at THz frequencies are studied and subsequently, performance study of future indoor wireless communication systems at the frequencies beyond 100 GHz is conducted. Propagation effects, both in bound and unbound media are investigated in the range between 100 GHz and 1000 GHz. They encompass the atmospheric effects as well as the interactions of THz waves with material media. In particular, electrical material parameters of a range of common building materials are characterized. Furthermore, the properties of specular reflections from optically thick smooth materials, multiple reflections from multilayer or optically thin smooth materials and diffuse reflections from optically thick rough materials are investigated. The results of the propagation studies lay ground for the development of the concept of operation of future THz communication systems. It...

Reviews

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