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Sommario/riassunto

This resource provides a comprehensive treatment of the methods, analysis, and practice of impulse and ultrawideband (UWB) systems. Sources, antennas, propagation, electromagnetic theory, and actual practical systems are explored. This book provides novel perspective on impulse and short-pulse wireless engineering along with practical guidance on how to build antennas and radio hardware for high-power impulse signals. Theoretical and experimental results in the time-frequency domain are presented.n nThe book explains and discusses the scattering of UWB electromagnetic pulses by conducting and dielectric objects. Impulse responses of objects and propagation channels are explored with details of signal models and their spectral characteristics and uses of regularization of a Kramers-Kroning type relation for estimating transfer functions. Readers gain insight into the

development of high-power sources of UWB radiation with megavolt effective potential on the base of combined antenna arrays excited with bipolar voltage pulses. This in-depth volume includes chapters on receiving antennas, transmitting antennas, and antenna arrays along with details on high-power UWB radiation sources as well as problem sets.