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Sommario/riassunto

This unique first-of-its-kind resource provides practical coverage of the design and implementation of frequency measurement receivers, which aid in identifying unknown signals. The technologies used in frequency measurement interferometry-based on-delay lines and filters are explored in this book. Practitioners also find concrete examples of microwave photonics implementations. The designs and concepts that cover conventional photonic instantaneous frequency measurement (IFM) circuits are explained. This book provides details on new designs for microwave photonic circuits and reconfigurable frequency measurement (RFM) circuits using diodes and MicroElectroMechanical Systems (MEMS). This book explains the many diverse applications of frequency measurement that are used in defense, radar, and communications. The instrumentation used to perform frequency measurements is explained, including the use of block analysis for network and spectrum analyzers and calibration techniques. Readers learn the advantages of using frequency measurement based on microwave/RF techniques, including immunity to electromagnetic interference, low loss, compatibility with fiber signal distribution, and parallel processing signals. Moreover, readers gain insight into the future of frequency measurement receivers. The book examines both the underpinnings and the implementation of frequency measurement receivers using many diverse technological platforms.