

Elektrotechnik-Elektronik-Informationstechnik

EEI KOLLOQUIUM

An Introduction to Software Defined Radio for Microwave Engineers

Jeffrey Pawlan

Pawlan Communications, San Jose CA, USA

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Cauerstraße 9; Raum 4.14, Tietze-Schenk-Saal

Diskussionsleitung: Prof. Dr.-Ing. G. Fischer

This lecture will begin with the definition, history and evolution of Software Defined Radio (SDR). RF/microwave engineers will find it clear and understandable because analogies will be made to conventional classic radio systems and components. The lecture will then introduce the concepts of over-sampling and undersampling as it applies to SDR. There will be an introduction to the details of correctly driving and implementing an A/D converter as this is one of the important areas that the RF/microwave engineer will be asked to do. There will be an introduction and explanation of the firmware and software portions of SDR and a comparison with state-of-the-art conventional analog circuitry will be shown. A live demonstration of SDR will be presented. Software Defined Radio (SDR) is the culmination of advances on several fronts and probably the most significant area of development in radio systems today. The entire worldwide cellular system uses SDR. NASA and the US military communications are now almost exclusively using SDR. Soon new automobile radios will be SDR to accommodate multiple modulation formats. The role of the RF/microwave engineer in this new technology will be shown so that the audience can adapt and feel that their skills are needed in the evolving field of radio communications.