



KOLLOQUIUM

Institut für Elektrotechnik, Elektronik und Informationstechnik

Ultra-Wide-Band Antennen- und Kanalcharakterisierung

Prof. Dr. Werner Wiesbeck

Universität Karlsruhe

Donnerstag, der 06.07.2006, 17¹⁵ Uhr

Cauerstraße 7/9, Hörsaal H5

Diskussionsleitung: Prof. Dr. R. Weigel

Spectrum is presently one of the most valuable goods as the demand is permanently increasing and it can be traded only locally. Since the United States FCC has opened the spectrum from 3.1 GHz to 10.6 GHz, i.e. a bandwidth of 7.5 GHz, for unlicensed use with up -41.25 dBm/MHz EIRP numerous applications in communications and sensor areas are showing up. All these applications have in common that they spread the necessary energy over wide frequency range in this unlicensed band in order to radiate below the limit. The results are ultra wideband systems. These new devices exhibit especially at the air interface, the antenna quite surprising behaviors. This presentation presents an insight into Ultra Wideband (UWB-) antennas as well as into the characteristics of the UWB radio channel as a whole.

Topics are:

- Applications and Regulations overview
- UWB radio channel with special respect to the antenna influence
- UWB antenna basics and principles of wideband radiators,
- UWB antenna quality measures
- UWB antennas: UWB ridged horn antenna, Vivaldi antenna, logarithmic periodic antenna, mono cone antenna, spiral antenna, aperture coupled bowtie antennas,
- UWB-Beam-Forming techniques