Tutorial A1: 13:20-15:00, Nov. 20 (Sunday)
Room: F6010, ECE Building, NSYSU

Planar Antennas for Wireless Communications

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Abstract

Planar antennas, including microstrip and printed antennas, metal-plate antennas, ceramic chip and dielectric resonator antennas, are generally flat in appearance and have a low profile. Such planar antennas have recently found great applications in mobile systems (such as 900/1800 MHz bands), wireless local area networks (WLANs, such as 2.4/5.2/5.8 GHz bands), and ultra-wideband (UWB, such as 3.1 ~ 10.6 GHz band) communications. Many innovative planar antenna designs for related applications such as in the internal mobile phone antennas, base-station antennas, WLAN mobile-unit (laptop, PDA, etc.) and access-point antennas, UWB antennas, and the like have been reported recently. These recent developments in planar antennas for wireless communication applications will be addressed, and their design techniques for achieving high antenna performances will be introduced.

Tutorial A2: 15:20-17:00, Nov. 20 (Sunday)
Room: F6010, ECE Building, NSYSU

Modulated Frequency Synthesizer

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Abstract

In recent years, more and more wireless technologies are being developed in order to eliminate the wire-link between commercial products such as computers, digital cameras, video cameras and digital TVs. For these applications, low power consumption, high integration, high efficiency as well as a high system throughput are always the main design considerations. Various transmitter architectures are exploited to meet these goals. Although quadrature modulation-based transmitters are the most widely used today, there are some more attractive transmitter architectures for the purpose of constant envelope modulation. Since constant envelope modulations such as GFSK and GMSK contain information in the frequency or phase of the carrier signal, a frequency synthesizer can be utilized to modulate the signal directly without using mixers. Such transmitter architectures are generally called as modulated frequency synthesizers.

This tutorial mainly presents the state-of-the-art modulated frequency synthesizers for wireless transmitter applications. At the beginning of this tutorial, an overview of the modern RF transmitter architectures will be given. Then, several kinds of modulated frequency synthesizers with great application potential in wireless personal area network will be introduced. Especially, a modulated frequency synthesizer using two-point delta-sigma modulation (TPDSM) will be emphasized for its wideband characteristics.