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Special Issue on

Wideband, Multiband, Tunable, and Smart Antenna Systems for Mobile and UWB Wireless Applications 2014

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Due to exceptionally high data rates attainable with modern wireless communication systems and the app-based use paradigm, wireless connectivity through multiple air interfaces has become a common requirement in the RF architecture of mobile communication devices. Modern wireless handsets frequently incorporate three or more antennas to enable cellular voice and data, Wi-Fi, and GPS connectivity, across multiple bands. Multiple antenna systems are frequently designed to implement diversity or spatial multiplexing schemes, as in the case of WCDMA and LTE, to increase resiliency and capacity of wireless links and to operate multiple voice/data links simultaneously. Carrier aggregation is demanding that multiple cellular band be served simultaneously. Concurrently, ultrawideband (UWB) systems used in short range communications, remote sensing, and through-the-wall radar imaging have introduced a new paradigm in the antenna design where the mitigation of pulse distortion is of the essence, thus requiring a shift in antenna design approach and the introduction of novel radiating systems. As a consequence of these trends, the degree of complexity and difficulty in the design and implementation of wireless device antenna systems and associated RF front-ends has grown dramatically, requiring ever more innovative solutions.

This special issue is intended to reflect current R&D trends and novel approaches in the analysis and synthesis of antenna systems and associated RF front-ends for next generation mobile communication devices, applicable to various device form factors such as smartphones, tablets, and laptop and wearable computers as well as for UWB communication systems and radars. Prospective authors are invited to submit their original research or review papers dealing with advances in mobile antenna technologies, product integration, and performance optimization, as well as related measurements and simulation methods.

Potential topics include, but are not limited to:

- Numerical and analytical techniques for antenna modeling and design
- Antenna performance measurement techniques
- MIMO antenna systems and channel modeling for Wi-Fi and LTE
- Broad- and multibanding techniques
- UWB antenna design and analysis
- Substrates, special materials, and fabrication techniques
- Integration within the host platform
- Tunable antennas and corresponding enabling devices
- Reconfigurable antennas
- Wearable/flexible antennas
- Field propagation in complex environments (rooms, buildings, tunnels, etc.)
- Evaluation of the RF exposure to wireless communication devices and infrastructures

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