

Special Issue on Testbeds for Future Wireless Networks

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In the last years, the growth of wireless traffic has been enormous. For instance, according to the latest CISCO forecast, the number of mobile devices will grow from 8 billion in 2016 to 11.6 billion in 2021, including 3.3 billion M2M connections. Similarly, other wireless technologies such as Wi-Fi—with 541 million public hotspots by 2021—and LPWAN—accounting for 31% of M2M devices by 2021—will also experience a massive increase.

The literature about future wireless networks is abundant, but it usually focuses on formal concepts, theoretical architectures, and analytical or simulation-based performance evaluations. Although such works are required for the advance on knowledge and innovation, testbeds and prototypes become essential to demonstrate the correct operation and performance of these technologies. For this reason, this special issue wants to give an overview of current testbeds and prototypes for relevant wireless and mobile technologies, including both radio and architecture aspects. Field trials and experimentations performed by researchers and practitioners involved in national and transnational research projects are welcome. Review articles that describe current initiatives for such testbeds are also welcome.

Potential topics include but are not limited to the following:

- ▶ The design and evaluation of testbeds, frameworks, and prototyping platforms for
 - ▶ New physical layer and prototyping developments (e.g., 5G New Radio)
 - ▶ Architecture and operation of 5G networks, including network slicing, usage of SDN and NFV paradigms, Edge Computing integration, and network synchronization
 - ▶ Prototyping and novel fixed access networks in the 5G scenarios
 - ▶ Emerging PHY implemented on software defined radio (SDR)
 - ▶ Prototyping in IoT cellular technologies such as LTE-M and NB-IoT
 - ▶ Testbeds in IoT LPWAN technologies such as LoRaWAN, SigFox, and RPMA
 - ▶ Testbeds in UAV communications, UAVs acting as flying base stations, and multirobot and vehicular networks
 - ▶ Prototyping in wearable and PAN networking
 - ▶ Testbeds in underwater/underground networks
 - ▶ Testbeds in large-scale and heterogeneous wireless networks
 - ▶ Prototyping in white-space networks, interference, and spectrum usage measurements
 - ▶ Testbeds targeted to measure and model QoE and QoS
 - ▶ Standardization of testbeds and replicability issues

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