

Special Issue on
**Wireless Communications in
Transportation Systems**

CALL FOR PAPERS

Wireless technologies have been widely developed in the last years and now are ready to meet the increasing demand of communications services of smart transportations systems. Existing radio technologies include Wi-Fi (IEEE 802.11xx), WiMAX (IEEE 802.16), 4G-LTE, wireless sensor networks, wireless ad hoc networks, and particularly future 5G technology that will highly focus on the development of intelligent transportation system for terrestrial and aerial vehicles. These emerging technologies can significantly improve the operation, efficiency, reliability, and passenger's experience of transportation systems, but nevertheless they must be designed and configured to meet the special requirements of each transportation system. The main functions of communications in transportation systems can be divided into parts: critical communications between vehicles and infrastructure to increase efficiency, safety, and reliability; wideband communications for payload or passengers services.

On each case, it is necessary to accurately model and design the communications network, considering node architecture, handover schemas, relay configuration, MIMO, and diversity. Then it is necessary to accurately design the physical interface for each special environment, vehicle dynamic, and passengers or payload requirements. This includes propagation modeling, waveform selection, and antenna design for current communications bands (1-6 GHz) and for future mmW bands (30-110 GHz).

Finally, wireless sensors and ad hoc networks used for security and monitoring are now being used to provide supplementary services to vehicles, and the use of millimeter waves and THz will be relevant in the future to provide vehicle-to-vehicle communications, radar sensors, and onboard communications for different vehicle applications.

We invite authors to contribute original research articles as well as review articles that will stimulate the continuing efforts in realizing advanced wireless communications for terrestrial public transportation and autonomous vehicles.

Potential topics include but are not limited to the following:

- ▶ Network design for critical communications in public transportation
- ▶ Network design for high speed data communications for passengers and payload
- ▶ Propagation measurements and modelling in high mobility scenarios
- ▶ Waveform selection and handover schema for both critical communications and wideband communications for passengers and payload
- ▶ Antenna design for high mobility terrestrial and ground-to-air communications
- ▶ Sensor and onboard networks for connected vehicles
- ▶ Millimeter wave and THz terrestrial and satellite communications enabling smart public transportation

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Manuscript Due

Friday, 26 May 2017

First Round of Reviews

Friday, 18 August 2017

Publication Date

Friday, 13 October 2017