SPECIAL SESSION SP-05 ON 5G WIRELESS TECHNOLOGIES FOR V2X COMMUNICATIONS

SCOPE
The automotive industries, which have been undergoing dramatic technological transformations, are the potential use cases of the 5G networks. More and more vehicles will be connected to the Internet and with each other using wireless technologies. Toward this end, many standardization activities to support these use cases are underway including the fifth-generation automotive association (5GAA) where its objective is to address the society’s connected mobility needs and applications, such as autonomous driving, ubiquitous access to services, and integration into the smart city and intelligent transportation system. Wireless technologies to support the connected vehicles must deal with the extremely dynamic propagation environment. Furthermore, as connected vehicles are likely utilized for emergency and mission critical applications, they require extremely low latency. For these reasons, several challenges must be addressed to realize the well-integrated, secured and cost-effective vehicular communication systems. The situation is even be more challenging for V2X systems, which embraces V2V, V2I, VANET etc., as the nodes of these systems require tight collaboration with one another and they can be highly mobile.

Future 5G wireless systems, which utilize both microwave and millimeter wave (mmWave), are anticipated to achieve a 1000X capacity gain compared to current wireless radios. And it is expected that 5G wireless technologies will enable cost-effective V2X systems. The goal of this special session is to gather researchers, academia, industry and regulators to present and discuss their research findings highlighting the opportunities, challenges, and potentials of 5G wireless systems for enabling future connected vehicles.

TOPICS
The topics of interest for V2X, V2I, V2V, and VANET networks, include but are not limited to:

- Channel prediction, estimation, modeling, and characterization
- Cooperative/opportunistic communication and shared (dynamic) spectrum access techniques and architectures
- Edge and cloud computing and caching techniques
- Experimental, link-, and system-level simulations and field-trial and prototype results
- Millimeter wave and massive MIMO systems for V2X communications
- Resource allocation, beamforming (precoding), power (interference) control, and management
- Secure and low-latency waveform and protocol designs
- Security enhancement and privacy preservation techniques
- Standardization aspects of V2X systems

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IMPORTANT DATES
Review paper submission: 04 August 2017
Notification of acceptance: 18 August 2017
Camera-ready submission: 25 August 2017

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