IEEE SCC42
(IEEE Standards Coordinating Committee on Transportation)

Overview

5 October 2015

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IEEE Standards for Transportation

Advancing the Technologies for Connected Vehicles through Consensus Building

Transportation Electrification
IEEE 2030 and its related standards are the first all-encompassing standards series providing alternative approaches and best practices for achieving smart grid interoperability.

IEEE 1547 Series
A series of standards for distributed power to maximize the benefits of interconnection.

IEEE P1562
Standard for array and battery sizing.

IEEE 1901 Series
Standards relating to broadband connectivity over electric power lines.

Intelligent Transportation Systems
IEEE 1609
A family of standards defining the architecture, services and standard interfaces for secure vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) wireless communications.

IEEE 1616
Standards for motor vehicle event data recorders.

IEEE 802.11
WLAN to support communication between vehicles and the roadside and between vehicles while operating at speeds up to a maximum of 200 km/h for communication ranges up to 1000 meters.

Traffic Safety
IEEE 1512
Multiple standards for traffic safety, hazardous materials and public safety incident communications.

Cooperative, Autonomous and Automated Driving
IEEE P2040 Series
A series of standards for connected, automated and intelligent vehicles.

Smart Grid

And more...
IEEE Standards Coordinating Committee on Transportation (SCC42) leads the coordination of IEEE standardization activities for technologies related to transportation.

Connectivity
IEEE 802.3
Defining the physical layer and data link layer's media access control of wired Ethernet, in local area networks and wide area network applications.

IEEE 802.15
Wireless personal area networks allows the use of wearable and other short-range wireless devices (such as health monitors).

IEEE 802.20/802.21/802.22 Series
Communications standards for connecting vehicles to 802 systems.
IEEE Standards Coordinating Committees (SCCs)

- Established by the IEEE-SA Standards Board, SCCs provide a valuable mechanism to oversee the development of standards that are beyond the scopes of individual technical committees within IEEE societies.

- Active IEEE SCCs as of October 2015:
  - SCC4 Electrical Insulation
  - SCC14 Quantities, Units and Letter Symbols
  - SCC18 National Fire Protection Association Standards
  - SCC20 Test and Diagnosis for Electronic Systems
  - SCC21 Fuel Cells, Photovoltaics, Dispersed Generation, and Energy Storage
  - SCC22 Power Quality
  - SCC31 Automatic Meter Reading and Energy Management
  - SCC39 International Committee on Electromagnetic Safety
  - SCC40 Earth Observation
  - SCC42 Transportation

- For more information, visit http://standards.ieee.org/about/sasb/scc.html
IEEE SCC42 Transportation
(IEEE Standards Coordinating Committee on Transportation)

On Aug 21, 2014, the IEEE-SA Standards Board established a new standards coordinating committee -- IEEE SCC42 Transportation, supported by over 30 IEEE Societies and Councils.

IEEE SCC42 Scope

Leads the coordination of IEEE standardization activities for technologies related to transportation, especially in the areas of connected vehicles, autonomous/automated vehicles, inter- and intra-vehicle communications, and other types of transportation electrification. These technologies include but are not limited to Mobile Apps, Sensor Networks, and Communications that allow human to vehicle, vehicle to vehicle, vehicle to infrastructure, vehicle to platform, and vehicle to everything exchange of information and data. Where standardization needs exist, the SCC will develop guides, recommended practices, standards, and common definitions of terms.

## IEEE SCC42 Transportation Committee Roster (as of October 2015)

**Report to IEEE-SA Standards Board**

**IEEE SCC42 Transportation**  
(SCC Type 2 -- a Sponsor for standards projects)

### Collaboration with other IEEE Standards Sponsors (802 LMSC, etc.)

- Collaboration with other IEEE units (IEEE TEC, IEEE-USA CTAP, IEEE-USA EPC, etc.)

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### Collaboration with other external SDOs (ISO/TC 204, SAE, etc.)

- Collaboration with other external entities (industry, government, academia)

### Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Role and Designated Representative of Society</th>
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<tbody>
<tr>
<td>Yu Yuan</td>
<td>Chair</td>
</tr>
<tr>
<td>Lee Stogner</td>
<td>Co-Chair &amp; Secretary</td>
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<tr>
<td>Stephen Dukes</td>
<td>Co-Chair &amp; Treasurer</td>
</tr>
<tr>
<td>Paul Nikolich</td>
<td>Designated Representative of IEEE Computer Society</td>
</tr>
<tr>
<td>Alexander Gelman</td>
<td>Designated Representative of IEEE Communications Society</td>
</tr>
<tr>
<td>Thomas Coughlin</td>
<td>Designated Representative of IEEE Consumer Electronics Society</td>
</tr>
<tr>
<td>Carole Carey</td>
<td>Designated Representative of IEEE Engineering in Medicine and Biology Society</td>
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<tr>
<td>Victor Huang</td>
<td>Designated Representative of IEEE Industrial Electronics Society</td>
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<tr>
<td>Christoph Stiller</td>
<td>Designated Representative of IEEE Intelligent Transportation Systems Society</td>
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<tr>
<td>Bill Kirkwood</td>
<td>Designated Representative of IEEE Oceanic Engineering Society</td>
</tr>
<tr>
<td>Otman Basir / Javier Gozalvez</td>
<td>Designated Representative/Alternate of IEEE Vehicular Technology Society</td>
</tr>
<tr>
<td>William Lumpkins</td>
<td>Designated Representative of IEEE Technical Committee on RFID</td>
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<tr>
<td>Bob Heile</td>
<td>Member-At-Large</td>
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<tr>
<td>Gregory Krueger</td>
<td>Member-At-Large</td>
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<td>Joachim Taiber</td>
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<tr>
<td>Kevin Lu</td>
<td>Member-At-Large</td>
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<td>Tom Kurihara</td>
<td>Member-At-Large</td>
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<tr>
<td>Jeffrey Katz</td>
<td>Member-At-Large</td>
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<tr>
<td>Michael Janezic</td>
<td>Member-At-Large &amp; NIST Representative</td>
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<tr>
<td>Michael Schagrin</td>
<td>Member-At-Large</td>
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<tr>
<td>Jim Lansford</td>
<td>IEEE 802 LMSC Representative</td>
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<tr>
<td>Michael Kipness</td>
<td>IEEE-SA Program Manager</td>
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IEEE seeks to provide a unique value in the domain of transportation, based on IEEE’s depth and breadth of technical expertise. We are interested in collaborating with other organizations in this area.

<table>
<thead>
<tr>
<th>Subgroup Code</th>
<th>Subgroup Name</th>
<th>Subgroup Chair</th>
<th>Subgroup Formation Date</th>
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<th>PAR Approval Date</th>
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<tr>
<td>TF1</td>
<td>Cybersecurity in Transportation Task Force</td>
<td>Joachim Taiber</td>
<td>30-Apr-2015</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>TF2</td>
<td>Road Electrification Task Force</td>
<td>Joachim Taiber</td>
<td>30-Apr-2015</td>
<td>N/A</td>
<td>N/A</td>
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<td>TF3</td>
<td>Unmanned Airborne Vehicles in Transportation Task Force</td>
<td>Otman Basir</td>
<td>Pending</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>AG1</td>
<td>Global Policy Advisory Group</td>
<td>Michael Schagrin</td>
<td>30-Apr-2015</td>
<td>N/A</td>
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IEEE P2040 Standards
for Connected, Automated and Intelligent Vehicles

- **IEEE P2040** – Standard for Connected, Automated and Intelligent Vehicles: *Overview and Architecture*
  - This standard defines an architectural framework for connected, automated and intelligent vehicles. This standard leverages existing applicable standards.

- **IEEE P2040.1** – Standard for Connected, Automated and Intelligent Vehicles: *Taxonomy and Definitions*
  - This standard specifies the taxonomy and definitions for connected, automated and intelligent vehicles.

- **IEEE P2040.2** – Standard for Connected, Automated and Intelligent Vehicles: *Testing and Verification*
  - This standard defines an overarching framework of testing and verification of the connectivity, automation and intelligence aspects and their combination for connected, automated and intelligent vehicles. This standard identifies existing applicable standards for testing and verification, and defines the integration of these standards into a consistent testing environment.

- And more...
IEEE SCC42/TF1
Cybersecurity in Transportation Task Force

- Subgroup Scope:
  The subgroup is responsible for assisting the Committee in analyzing cybersecurity risks in transportation with respect to mobile device/wearable to vehicle, vehicle-to-vehicle and vehicle-to-infrastructure communication as well as communication between control systems inside of the vehicle. Furthermore, ongoing or planned standardization activities in the cybersecurity domain will be assessed for relevance for transportation applications.

- Subgroup Duties:
  1. Analyzing IEEE publications but also from other sources with respect to cybersecurity risks in transportation.
  2. Identifying cybersecurity related standardization activities within IEEE
  3. Classification of cybersecurity risks in transportation
  4. Compilation of relevant IEEE standards as well as standards activities for cybersecurity in transportation
IEEE SCC42/TF2
Road Electrification Task Force

- Subgroup Scope:
  The subgroup is responsible for assisting the Committee in understanding the potential of existing or emerging technologies relevant for road electrification in particular in combination with connected vehicle and automated driving technologies. Based on the technology assessment in selected IEEE research publications as well as other scientific sources standardization aspects are identified that could be led by IEEE.

- Subgroup Duties:
  1. Analyzing IEEE publications but also from other sources with respect to road electrification but considering connected vehicle and automated driving aspects
  2. Description of the technology elements relevant for road electrification
  3. Identifying standardization aspects relevant for road electrification
  4. Recommendation of standardization opportunities that could be led by IEEE with respect to road electrification
About the conference
- The world’s most searched connected vehicles conference on Google
- Cosponsored by over 20 organizations including multiple IEEE Societies and Councils, TRB, SAE, ACM, IFAC, etc.
- Enjoy and benefit from the cross-disciplinary community that ICCVE conferences uniquely offer: civil engineers meet with computer scientists, mechanical engineers talk to electronic engineers, ...
- IEEE SCC42’s face-to-face committee and working group meetings will be held in conjunction with the conference

About the Shenzhen city
- The capital of electronics industry in China
- One of the four Tier-1 modern cities in China
  - Modern infrastructure and facilities
  - Convenient transportation to/from all major cities in China
- Authentic dim sum and Cantonese cuisine
- Adjoins Hong Kong and Macau
  - Attendees can visit three famous cities and experience diverse cultures in one trip