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Feasibility analysis and development of on-road charging solutions for future electric vehicles

IEVC

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Wireless charging: Related Standards and needs

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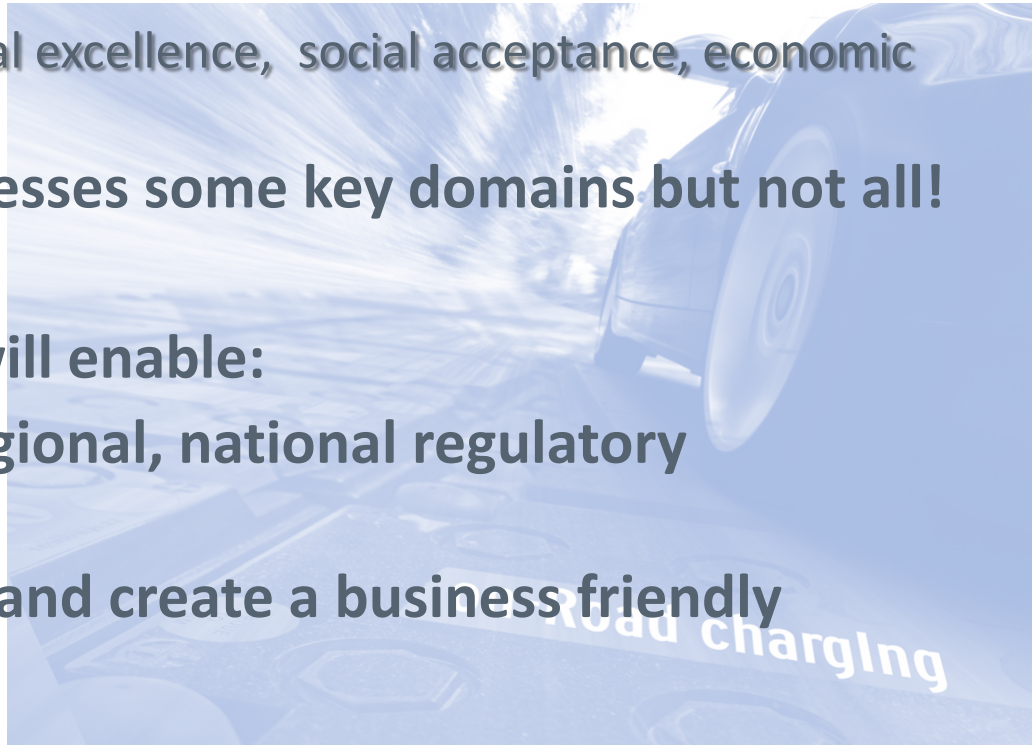
Paving the way to standardized wireless charging

- **Wireless charging is coming out of the research lab**
  - First commercial solutions available;
  - Interoperability of charging systems is a highly rated prerequisite of market penetration;
  - …in addition to technical excellence, social acceptance, economic sustainability…
- **Standardization addresses some key domains but not all!**
- **Standards maturity will enable:**
  - **Development of regional, national regulatory frameworks;**
  - **Boost investments and create a business friendly environment;**



Workshop objectives

- Presentation of current international standardization bodies activities in Wireless Power Transfer.
- Insight of key WPT aspects.
- Identify convergence of technical aspects.
- Domains requiring new standards.
- Exchange valuable experiences and thoughts on Wireless Power Transfer.
- Collect requirements for existing and future standardization activities.

Workshop presentations

Building a testbed for EV wireless charging solutions-experiences and thoughts for standardization aspects	CLEMSON UNIVERSITY
• First experiences in the development of a generic EV wireless charging testbed • Suggestions w.r.t standardization of in-motion wireless charging and road electrification	Joachim G. Taiber
Magnetic solutions towards interoperability for stationary, semi-dynamic and dynamic charging	QUALCOMM
• Potential magnetic design targeting at a universal solution supporting various WPT use cases and vehicle types	Grzegorz Ombach
Standardization Questions	BOMBARDIER the evolution of mobility
• Adressing issues of readiness to standardize the WPT now or wait & involve parties from a broader circle before issue the first draft.	Konrad Koronowicz

Workshop presentations

An Overview of WiTricity Corporation's Involvement in International Standards Development	WiTricity
• WITricity Corporation's perspective on international standards with emphasis on • Coil types, z-height tolerances, operating frequencies and safety compliance	Jeff Muhs

Wireless power transfer ecosystem	TOYOTA
• Importance of the involvement of multiple stakeholders in the WPT project ecosystem for social acceptance	Jae Seung Lee

Workshop presentations

An overview of work in progress to develop SAE J2954 Wireless Charging Standard	
• Overview of industrial/govermental collaborative effort for the development of SAE J2954	Keith Wilson

CUNA: Commissione Tecnica di Unificazione nell' Autoveicolo	
• Part of the European Green Cars Initiative. • Definition of Europe-wide electromobility standards. • Demonstrations all over Europe	Gian Maurizio Rodella

Workshop presentations

ISO19363-Standardization of the vehicle part of inductive charging systems	
• Experiences in the definition of requirements for interoperable and safe charging systems • Insight of related technical challenges	Michael Scholz
Overview of IEC TC 69 standardization activities	
• Presentation of the current status of standardization related to IEC TC 69 • Future activities and key issues to WPT standardization	Peter Van den Bossche

Workshop agenda

- Opening presentation by Prof. Joachim G. Taiber (Clemson University) - ***"Building a testbed for EV wireless charging solutions-experiences and thoughts for standardization aspects":*** 10'
- **OEM prospective** (developed technology and future needs): Jae Seung Lee (Toyota Research Institute of North American): 10' min
- **Supplier perspective** (offer of technology): Grzegorz Ombach (Qualcomm), Konrad Woronowicz (Bombardier), Jeff Muhs (WiTricity): 30' min
- **Standardization bodies perspective** (feasibility and standards): Gian Maurizio Rodella (CUNA), Peter Van den Bossche (Secretary of IEC TC69), Michael Scholz (Project Leader of the ISO JPT 19363), Keith Wilson (SAE): 40' min
- **Dialogue session**: 50' min

Workshop agenda – Dialogue session

- Harmonization of international electro mobility standards;
- Extension of existing ICT data models for stationary and dynamic charging ;
- Assessment of the impact of standardization on R&D cost reduction;
- Identification of domains for standardization;
- Deployment issues considering
  - Impact of novel to be deployed technologies such as automated driving
  - new business models
  - existing technologies and knowhow that can be transferred from other sectors (train industry etc…)

Proposal for a common definition of charging modes

1. Static
   - Vehicle is idle.
   - Takes place out of traffic flows.
   - Prolonged charging duration.
2. Stationary
   - Vehicle is idle.
   - Exploits occasional traffic pauses.
   - Shorter charging duration.
3. Dynamic
   - Vehicle is on the move
   - Takes place within traffic flows.

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Thank you!

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