

**SAE INTERNATIONAL**

## **SAE J2954 OVERVIEW AND SCOPE PRESENTATION (12-2014)**

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PROJECT MANAGER, TECHNICAL PROGRAMS  
GLOBAL GROUND VEHICLE STANDARDS

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TASKFORCE CHAIR J2954  
WIRELESS POWER TRANSFER



# OVERVIEW: SAE J2954

- **SAE Hybrid / EV Committee Structure & J2954 Task Force Structure**
- **Standardization Philosophy: Technical Information Report / Standard**
- **SAE J2954 Scope**
- **SAE J2954 Content**
  - **Safety Limits**
  - **Performance Targets**
  - **Testing**
  - **Interoperability**
- **Goals**

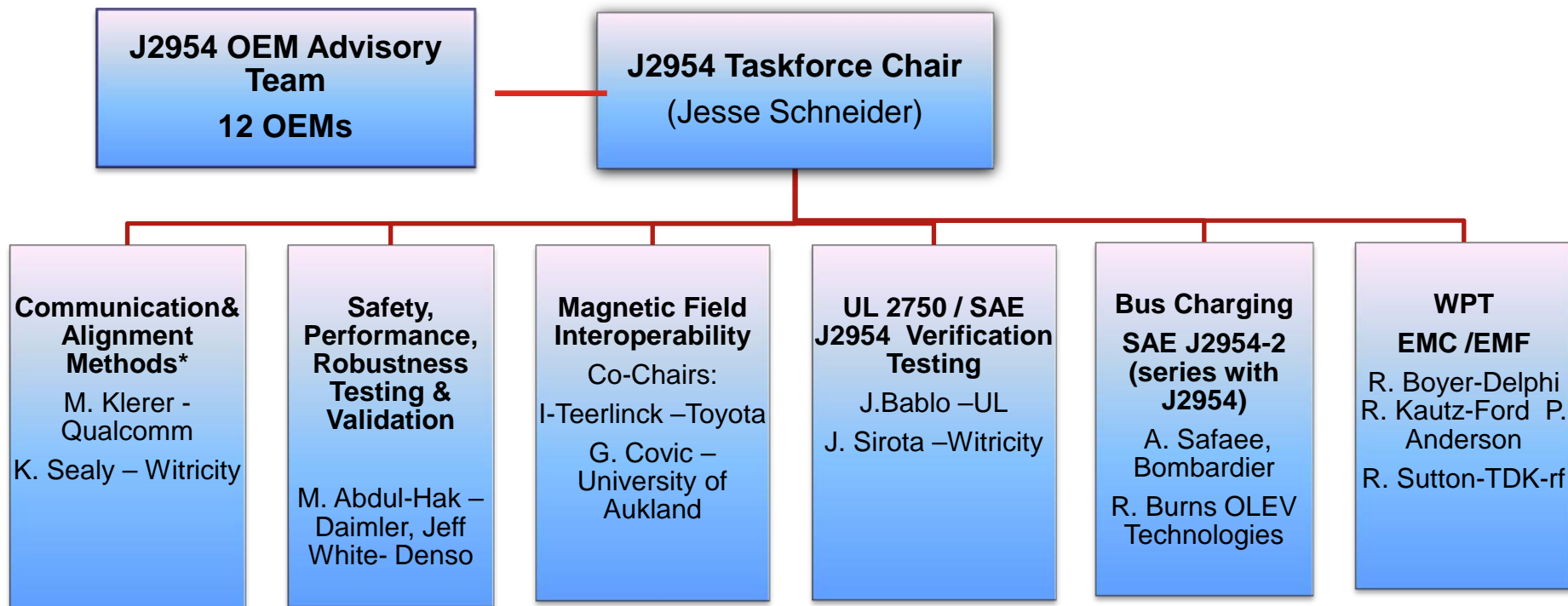
# SAE EV, Hybrid & Fuel Cell Vehicle Standards Development

## SAE EV / Hybrid Vehicle Steering Committee

- **Started – 2005**
- **Current Committee Membership**
  - **>1100 Individual Participants**
  - **>500 Companies**
    - OEM's**
    - Suppliers**
    - Government**
    - Academia**
- **12 EV / Hybrid Vehicle Subcommittees**
- **7 Fuel Cell Standards Subcommittees**



# SAE J2954 Taskforce Structure



## Liaisons:

ISO/IEC : Jon Sirota (Witricity)/ Ivo Teerlinck (Toyota)

SAE EMC Committee: Richard Kautz (Ford)

CISPR 11: Rich Boyer (Delphi)

ANSI: Kautz (Ford) / Sutton

\* In Coordination with SAE Hybrid Communications & DSRC Committees

**An overview of an industry/government collaborative effort for the development of SAE J2954 which will establish minimum performance, interoperability and safety criteria for wireless charging of EVs / PHEVs.**

**The document scope includes residential and parking garage (A), parking lot (B) and roadway charging (C) locations and Wireless Power Transfer (WPT) charging levels 1,2 & 3.**

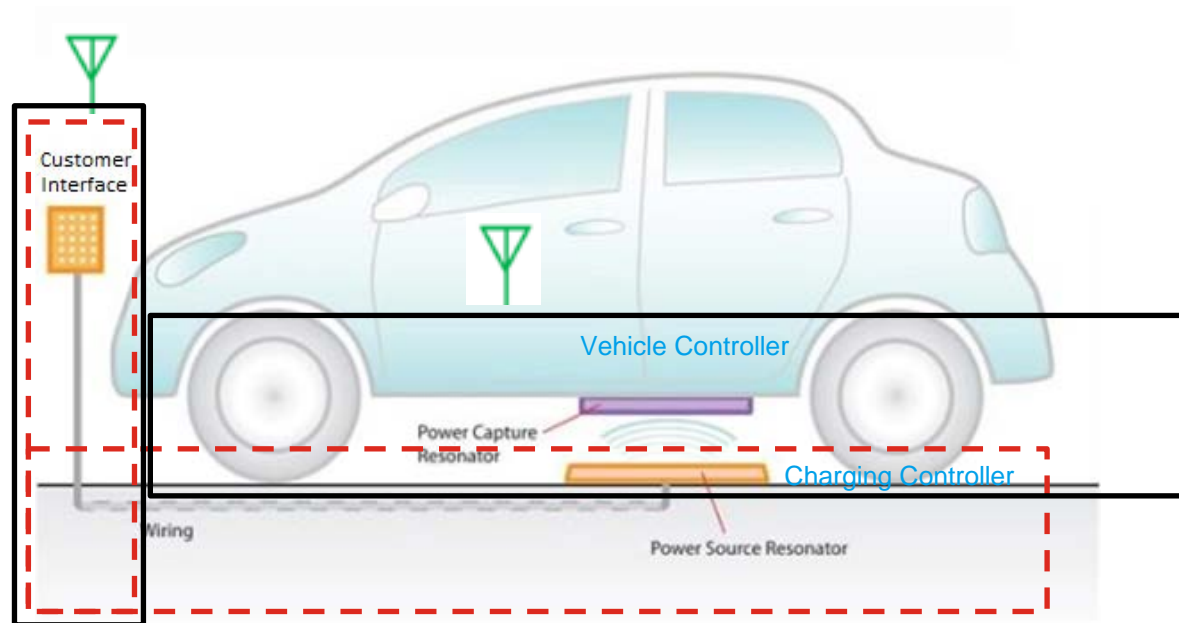
# Vehicle Wireless Charging Standards Overview

## Overlap SAE J2954, SAE J2836/6 UL 2750

SAE J2836/6: Use Cases and Communications

SAE J2847/6: WPT Communication PHEV and the Utility Grid

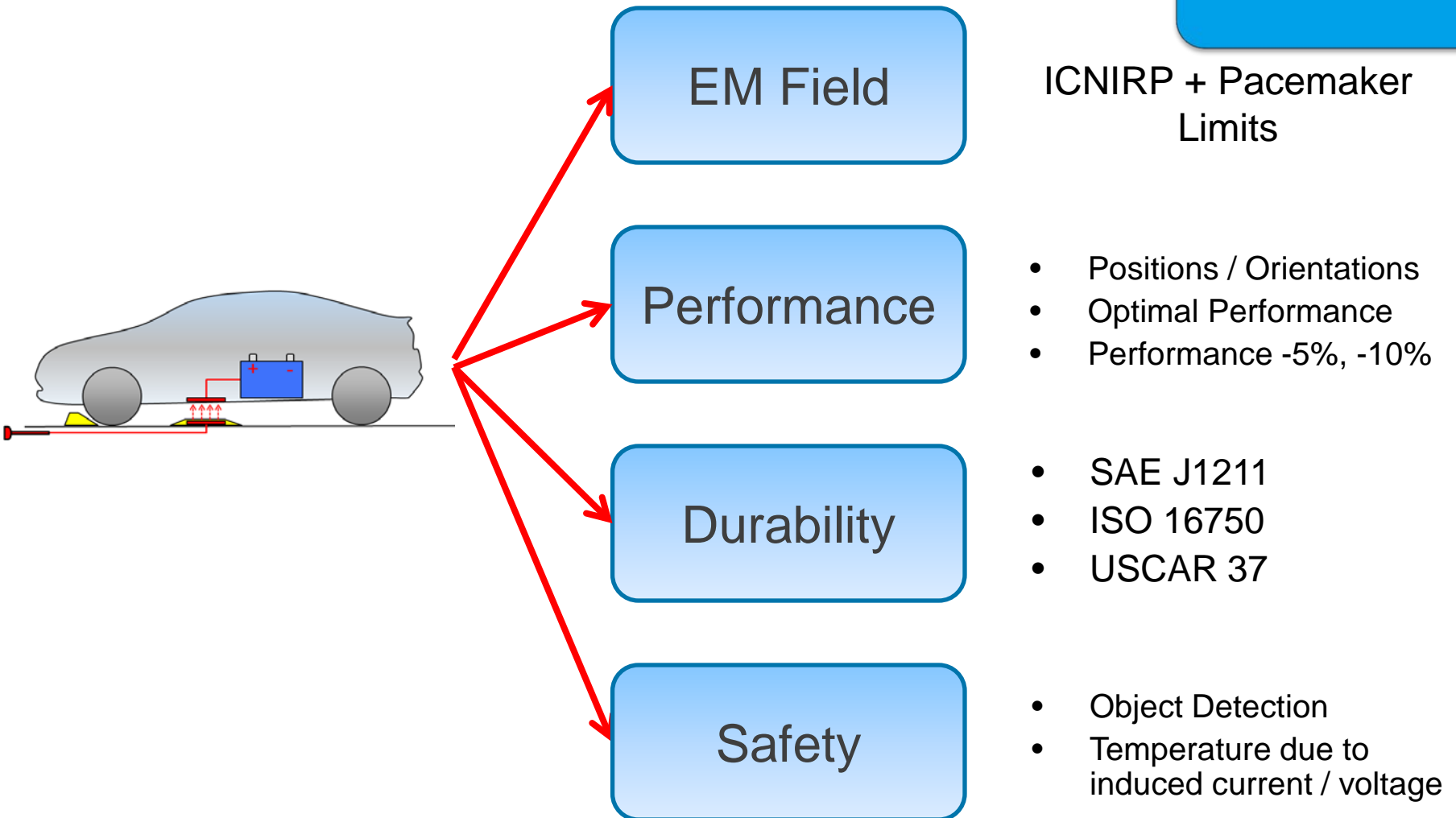
SAE J2931/6: Digital Communication for WPT for PHEV



UL 2750: Verification of  
Wireless Charging Base Safety

MOU  
Between  
SAE and UL

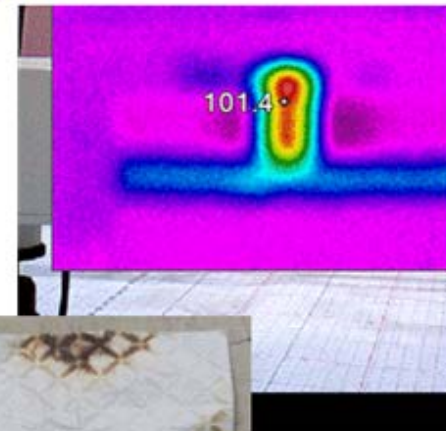
SAE J2954: Wireless  
Charging and Alignment



### TOPICS FOR J2954

#### Safety

- Obstacle Detection (Organic, Inorganic)
- Magnetic Field ICNIRP
- Communication of Charging Battery SOC Levels, Issues with Temperature, Charging Rate
- Temperature Development Test
- Electric Shock





# Effects on Other Objects

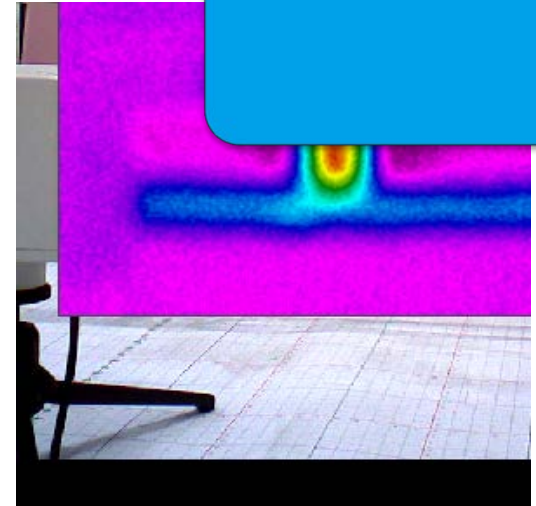
Safety Limits



Foil Paper



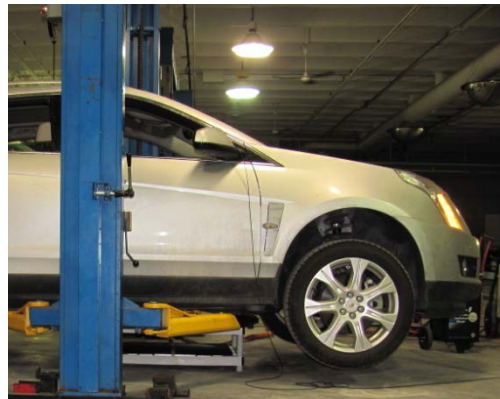
Debris, Water, Pie Plate



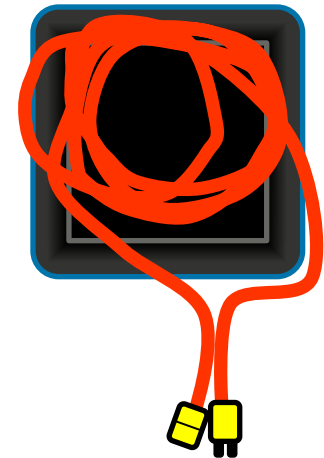
Pop Can



Other  
Electronics



PEPS, AM Radio



Extension Cord

# SAE J2954 Taskforce WPT Power Classes

Interoperability:  
Power Class

Classification	WPT Power Class		
	WPT1 L.D.	WPT2 L.D. Fast Charge	WPT3
Maximum WPT Power	3.7 kW	7.7 kW	22 kW
Efficiency Rating Target* (80-90%*)	>90%	>90%	>90%

\* Under Team Review

Performance  
Targets

# WPT Frequency Determination SAE J2954 Decision for Light Duty

Interoperability:  
Frequency

“85kHz” Frequency Band Decision for SAE J2954 :

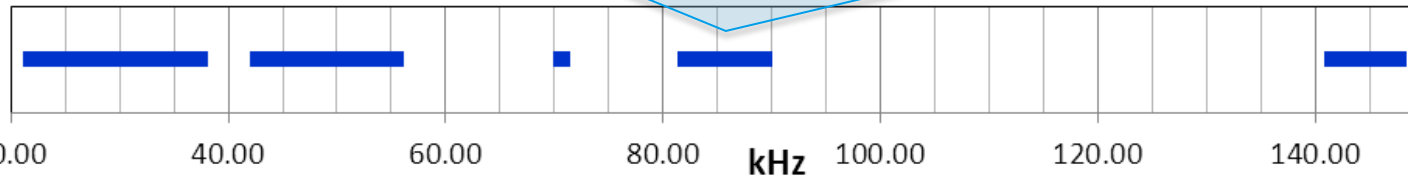
**Start of Band (kHz)**      **End of Band (kHz)**

**Light Duty  
Vehicles**

81.38

90.00

**Potential Frequencies for WCS**



— Potentially Available

# SAE J2954 Goals in 2015

- **Publish TIR J2954 LD (Technical Information Report) Guideline for purposes of first phase of small volume vehicle testing**
  - Determine baseline performance, safety and interoperability specification.
  - Collect data from across the industry and from the Team, National Labs, and International Standards groups
- **Bring FCC, FDA, AAMI, & DOE together with industry to standardize WPT**
- **Setup a Plan and Start Harmonization with Worldwide Standardization**
- **Start H.D. Charging TIR J2954-2**

**THANK YOU**

**QUESTIONS?:**

**J2954 LIGHT DUTY WPT**  
**[JESSE.SCHNEIDER@WEB.DE](mailto:JESSE.SCHNEIDER@WEB.DE)**

**J2954/2 HEAVY DUTY WPT**  
**[ROGERVBX@GMAIL.COM](mailto:ROGERVBX@GMAIL.COM)**