About 180 Million Electric Vehicles in China
Safety requirements for AC charging
prevention of hot disconnect on socket outlet (infrastructure)

IEC: electromechanical locking system is mandatory, no proxy switch needed

SAE: fixed cable connection is mandatory, no coupler on Infrastructure side allowed

GB: Electro-mechanical locking system is optional, mechanical Latch without proxy switch
### Charging Standardization Timeline China

**Standardization Timeline (charging only) in correlation with GB-Combo approach**

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#### GB/T 20234.1,2,3: -2011 (new -2013)
(ref IEC 62196-1,-2,-3) charging couplers
_Drafter = CATARC_

- **Hand over:** Open comments
- **Conform draft:** Implementation of new connector design could be started/initialized after CD has been published (impact to Wallbox and Mode 2/3 cables, inlet and car is not affected)

**FYI:** Issue of half inserted connector has been solved, now same working sequence as type 1 coupler. Parallel Resistor to S3 should be integrated into 18487 to avoid charging door detection. A longer CC would be counterproductive due to the fact that a half inserted connector will be sensed as fully connected → charging possible with half inserted connector.

Dr. Meng: It will be submitted to the government (SAC) later this month. (March 2014) We hope it could be issued in April or May.

#### GB/T 18487.1: 2011 (new -2013)
(IEC 61851-1) charging system Topology and PWM duty cycle definition
_Drafter SGCC_

- **Open:** 1st draft for comments has been delayed several times. Now it is announced for end of Q2 2024
- **Conform draft:** Prepare and handover comments

**FYI:** Comments should include all issues we commented for 20234 and which were moved to 18487 (industrial Connector, length HH to ICCB, parallel Resistor to S3, etc.) A longer CC would be counterproductive due to the fact that a half inserted connector will be sensed as fully connected → charging possible with half inserted connector!

Comment all changes to pave the road for GB-Combo

#### GB/T 27930 DC-CAN)
_IEC 61851-24 (CAN-Part) ???ISO/IEC 15118 (PLC)??_

- **Conform draft:** Comments: e.g. incl. PLC

**FYI:** Ni Feng: will be started after finish 18487. At least one year for the revision..not before End of 2015

#### GB-Combo
connector = 62196-3, 20234-3
Toplogy: 61851-1; 18487-1
PLC Communication: 15118; 27930

- **Pre-development done**
- **Series development**

_Tbd: Hardware implementation who, when, how (Car/Infra) Standardization and Lobbying roadmap (GB and intl.) Display and exhibition…e.g. Shanghai auto show Apr. 2015 Implementation in China, Homologation etc._
Overview Standardization IEC, SAE and GB

Relevant IEC/SAE and GB Standards for charging systems

The charging system is covered by a set of standards.

*Black = international Standards,  red = Chinese Standards
Combination AC & DC Charging in USA and Europe

Applied DC charging in reference to AC Connector

- If the **type 1** has been selected for AC charging, **Combo 1** should be the DC charging solution.
- If the **type 2** has been selected for AC charging, **Combo 2** should be the DC charging solution.

BMW’s Taiwan Solution