EV Charging Interface and Communication Protocol Standards

Improve the safety and compatibility of electric vehicle charging facilities

I. AC Charging Part:

Stop adopting the way of connecting straight through cable with common household plug.

Charging mode when the current is more than 16 Amps: installing electronic lock and temperature sensor in vehicle socket and power supply.
When the current is more than 32A, three-phase AC charging does not allow the use of movable cable.

For the vehicle without charging working signal switch S2, its charging current is no more than 8 Amps.

Install parallel resistance in vehicle plug connector in order to judge the semi collection state of head socket.

A type or B type leakage protection device capable of detecting DC component must be installed in AC charging pile.

<table>
<thead>
<tr>
<th>Rated voltage/V</th>
<th>Rated current/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>10/16/32</td>
</tr>
<tr>
<td>440</td>
<td>16/32/63</td>
</tr>
</tbody>
</table>

The Rated Values of AC Charging Interface

The Modification and Optimization of the Size of the AC Charging Interface

- The angle of the mechanical lock: From 30-60° to 60-70°
- The position and size of the mechanical lock
- The length of the CC, CP latch: From 23.0.5-0.5mm to 22.70.5mm
- The depth and the size of the lock: From 170.5-0.5mm to 15.50.5mm
- The width and the size of the lock: From ≥5mm to ≥8mm
II. DC charging part:

DC charging gun is required to install electronic lock and keep the mechanical structure of vehicle socket installed with electronic lock.

Vehicles and facilities are required to have the function of detection and alarm.

In order to prevent leakage accident, chargers and vehicles are required to have the function of monitor insulation and electric energy release.

Specify the classification of charging voltage.

Define the logic and exact time of the charging time sequence.
### The Rated Values of DC Charging Interface

<table>
<thead>
<tr>
<th>Rated voltage/V</th>
<th>Rated current/A</th>
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<tbody>
<tr>
<td>750/1000</td>
<td>80</td>
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<tr>
<td></td>
<td>125</td>
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<td></td>
<td>200</td>
</tr>
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<td></td>
<td>250</td>
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</tbody>
</table>

### The Modification and Optimization of the Size of the DC Charging Interface

- **The angle of the mechanical lock:** From 30-60° to 60-70°
- **The position and size of the mechanical lock:**
- **The length of the CC1 latch:** From 31.80.5mm to 31.40.5mm
- **The depth and the size of the lock:** From 29.50.5mm to 26.50.5mm
- **The width and the size of the lock:**
  - From ≥5mm to ≥7mm
  - Add the request on mechanical lock (switch S shall be disconnected before the lock raised to 1.5mm)

The 5 newly revised standards have comprehensively improved safety and compatibility of electric vehicle charging facilities.