A technical insight into UNPLUGGED

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Positioning/Alignment
Communication
Power Transfer
Interoperability

- Positioning
- Communication
- Power Transfer

Commercial vehicles

Passenger cars
Positioning/Alignment

› Needs to support
  – Stationary
  – Static en-route
  – Dynamic en-route

› Should provide solutions for
  – Guiding
  – Assisted Positioning
  – Automated Positioning

› Is based on
  – Camera
  – RFID Technology
  – Field Measurements

Interoperability fully supported
Communication

› Needs to provide information exchange between vehicle and infrastructure during
  - Positioning
  - Charging
› Is based on and extends ISO/IEC 15118
  - Reuse of solutions from conductive charging
› Uses Wifi as communication link

Interoperability fully supported
## Power Transfer

<table>
<thead>
<tr>
<th></th>
<th>Passenger Car System @ 3.7kW</th>
<th>Commercial Vehicle System @ 50kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery voltage min/max</td>
<td>220V / 370V</td>
<td>259V / 380V</td>
</tr>
<tr>
<td>Battery current max</td>
<td>10A</td>
<td>160A</td>
</tr>
<tr>
<td>Primary coil size</td>
<td>490mm x 690mm</td>
<td>850mm x 400mm</td>
</tr>
<tr>
<td>Frequency nom.</td>
<td>140kHz</td>
<td>25kHz</td>
</tr>
<tr>
<td>Secondary coil size</td>
<td>265mm x 310mm</td>
<td>850mm x 400mm</td>
</tr>
<tr>
<td>Air gap min/max</td>
<td>100mm / 170mm</td>
<td>180mm / 234mm</td>
</tr>
<tr>
<td>Misalignment min/max</td>
<td>±100mm</td>
<td>±130mm</td>
</tr>
</tbody>
</table>

Interoperability limited
Power Transfer

30kW

Battery

Secondary Rectifier

Secondary Coil + Compensation

Secondary Coil + Compensation

Grid

Primary Inverter

Primary Coil + Compensation

Primary Coil + Compensation
Passenger Car System @ 3.7kW

Vehicle Pickup  Primary coil
Commercial Vehicle System (@) 50kW
Thank you