



## **ACEA position and recommendations for the standardization of the charging of electrically chargeable vehicles**

Brussels, 2 March 2011

Following the commitments made and building on the ACEA position from 14 June 2010 ([http://www.acea.be/index.php/news/news\\_detail/auto\\_manufacturers\\_agree\\_on\\_specifications\\_to\\_connect\\_electrically\\_chargeab/](http://www.acea.be/index.php/news/news_detail/auto_manufacturers_agree_on_specifications_to_connect_electrically_chargeab/)), ACEA members are continuing to contribute to the on-going debate within EU institutions on standards for electrically chargeable vehicles.

Based on the progress made during last months, ACEA members present further part of their agreement and joint recommendation on interface between cars and relevant infrastructure.

ACEA members express their urgent need to finalize global agreement for standard AC charging and present vision for common agreement on quick charging. The positive effects should be namely seen in enormous increase of comfort for the consumers (having unique EU wide, and if possible global, solution, cost reduction for all stakeholders and fulfilling all safety requirements). Quick progress for standard charging is a pre-requisite for quicker market uptake of electric vehicles and higher investment into quick charging network.

However, it is important to note, that the current joint position and recommendation is based on today's best knowledge of the current situation and state of technical development. Certain technical solutions may still need to be validated in detail, as the technical specifications have not yet been finalized in the different International Standardization Groups.

This agreement provides the firm willingness of automotive manufacturers to come ultimately to one global standardized solution for the charging of electric vehicles. It provides from today's perspective long-term guidance, with a firm short-term objective to harmonize EU standards for charging as quickly as possible. The learnings and outcomes of demonstration projects and testings could eventually result in a set of different recommendations.

ACEA members call upon the European Commission, relevant standardization bodies and other stakeholders to support this recommendation and use it as a basis for the development of common European standards.

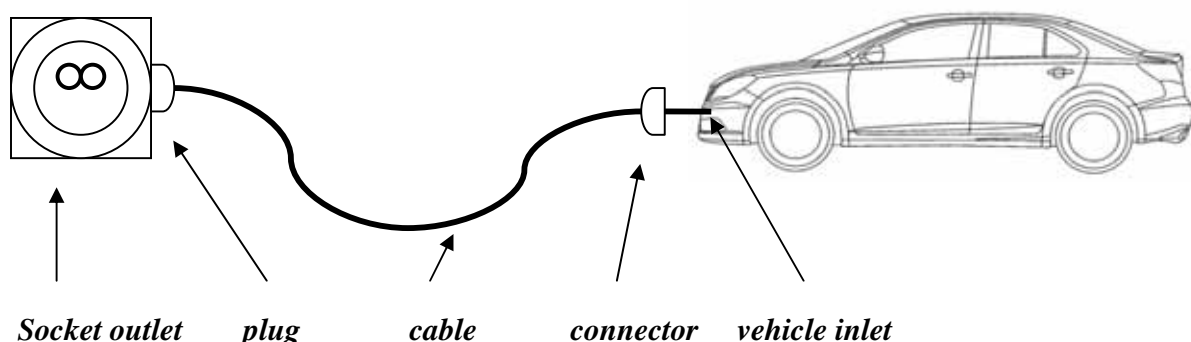
ACEA is strongly supporting the IEC standardization process for a global solution where one vehicle inlet could support single phase AC, three phase AC and DC charging, including safety requirements as well and ACEA members will fully respect agreed global solution if found in the future. Therefore ACEA members are calling for international standardization authorities to come up with possible global solution for DC charging as quickly as possible (by the end of August 2011).

**Annex No. 1: ACEA position and recommendations on connector types (IEC 62196) and charge modes (IEC 61851) for the charging of electrically chargeable vehicles (passenger cars and light-commercial vehicles)**

**Executive summary:**

- ACEA continues and stresses the need to divide the timeframe into two fundamental phases - Ongoing period till approval of relevant standards (Phase 1) and approval of relevant standards with sufficient lead-time for implementation (Phase 2).
- Current agreement covers Phase 1 and partially phase 2 for passenger and light-commercial vehicles only, further recommendations will follow as well as for long term, DC charging, charging electrically chargeable heavy duty vehicles.
- Phase 1 reflects current situation and should be seen as a preparatory step for a broader introduction of electrically chargeable vehicles in the EU. Public authorities are welcomed to consider the voluntary agreement made by the industry and pilot projects in urban areas should be streamlined on the infrastructure side accordingly. It is recommended that no cables are permanently attached to the public infrastructure. Cables are provided with car if respecting the bellow mentioned recommendations.
- Phase 2 suggests, on the one hand, uniform EU and if possible global solution that reduces the variety of solutions in the market, and on the other hand, maximum flexibility for consumers and predictability for producers.
- Harmonized rules for phase 2 will apply for new vehicle types starting 2017, so to provide the industry with enough lead time to implement these new solutions in their vehicle development programs and to make necessary adaptation in the infrastructure.
- In line with the joint EU-US TEC discussions ACEA asks for a globally compatible solution at least for the vehicle inlet side to reduce costs for EV customers due to economy o scales. Definition of global vehicle inlet “envelope” is a first step for global solution (see annex No. 2).

To ensure clear communication, ACEA stressing the use of common language with following terminology:



**A. Basic charging**  
(covers “basic AC charging” up to 3,7kW)

**Phase 1:**

**ACEA agreement for the vehicle inlet:**

No restrictions on type of vehicle inlet as vehicles with different types are already on the market or in a late development phase. Manufacturers will provide at least one cable with Type 2 plug (Mode 3) or standard domestic plug (Mode 2) to connect to infrastructure.

**ACEA recommendation for public charging (infrastructure side):**

Type 2 (Mode 3)

*Remark 1: Industrial sockets (IEC 60309-2 – Mode 2) should be allowed for this transitional period.*

*Remark 2: As vehicles from Phase 1 product launches will be equipped with different kinds of vehicle inlets, it is important that all public charge spots which use attached cables have an additional Type 2 infrastructure socket outlet. If the vehicle inlet is of a different type than the connector on the fixed cable, the customer must be able to use its own cable delivered with the vehicle. (Any adaptors on the vehicle side are forbidden by IEC 61851 due to safety concerns).*

**ACEA recommendation for home charging (infrastructure side):**

Type 2 (Mode 3), standard home socket outlet (Mode 2) or industrial socket (IEC 60309-2 - Mode 2).

*Remark: Standard home sockets are widely available and well known to customers making them easy to use; therefore they should remain a valid solution for the market uptake. However, a third party certification of the household electricity grid should be conducted before the electrically chargeable vehicle is first charged.*

**Phase 2:**

**As for harmonized solution, ACEA strongly recommends to unify national regulations concerning socket outlet Types without shutter. Proposed solutions should fit to the global solution ensuring different ways of charging (single and three phase AC). Harmonized rules for phase 2 will apply for new vehicle types starting 2017.**

**ACEA agreement for the vehicle inlet and connector:**

Type 1 or Type 2 (both Mode 3) uniform EU solution, in global “envelope” if opted by manufacturer. Manufacturers should provide at least one cable with Type 2 plug (Mode 3) to connect to infrastructure.

**ACEA recommendation for public charging (infrastructure side):**

Type 2 (Mode 3) uniform EU solution

*Note: In case of charging spots with fixed cable with Type2 vehicle connector only, ACEA recommends that those charging points are for transitional period also equipped with standard Type2/Type3 socket outlet - if national differences remain. Standard home charging should be still allowed as in phase 1.*

## **B. Fast charging**

*(including and “fast AC charging” above 3,7kW up to 43kW, “fast DC charging” up to 43kW and “ultra fast DC charging” above 43kW)*

**General recommendation: ACEA strongly recommends those infrastructure/charging points to be equipped with fixed attached cable in line with existing standards. ACEA also see this network as a charging “safety net”.**

**Following recommendation should be changed according to the global DC charging solution if agreed and accepted in the future and of course subjected to the technical development in the future, notably in line with the requested progress in international standardization authorities with a deadline by end of August 2011.**

### **ACEA recommendation for vehicle inlet:**

Type 2 or Combo2 in global “envelope”

### **ACEA recommendation for public and fleet charging:**

Charging points equipped by fixed cables with Type 2 or Combo2 connector.

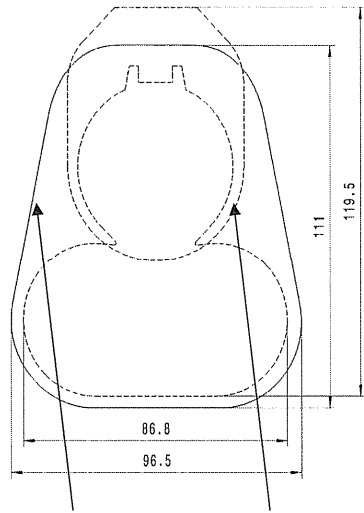
### **ACEA recommendation for home charging:**

Charging points equipped by fixed cables with Type 2 or Combo2 connector.

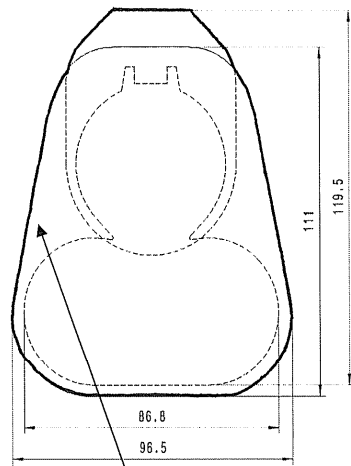
## **C. Communication protocols for fast AC/DC charging**

ACEA suggests to focus on reaching agreement on charging standards first, leaving detailed communication protocol specification to latter stage. Of course, ACEA will present its position in due time.

**Annex No. 2**  
**Global technical specification on “envelope” – vehicle inlet – for global solution**



Combo 2 inlet      Combo 1 inlet



Required globally harmonized inlet contour