



ASSURED: High-Power charging Systems and Interoperability

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MOBILITY, LOGISTICS &
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RESEARCH CENTRE



Horizon 2020
Programme



Open Issues after ELIPTIC

1. Interoperability (charging systems & vehicles)

- A. Charging system with different vehicles
- B. Vehicle with different charging systems/brands



2. Grid quality and stability

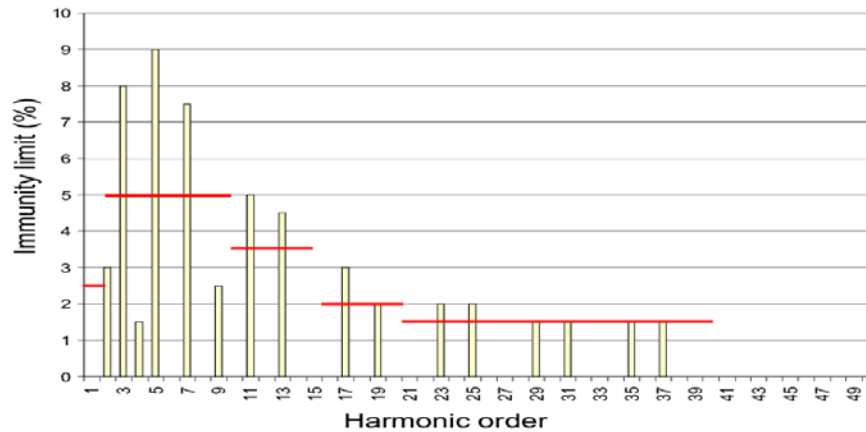
- Harmonics
- Power factor (\sim unity)
- Stability
- Efficiency
- Charging management
- Cost optimization



THD%

3. Standardization of charging system

- 1) **Communication standards**
- 2) **Safety standards**
- 3) **Interfaces**
- 4) **EMC standards and regulations**
- 5) **---**

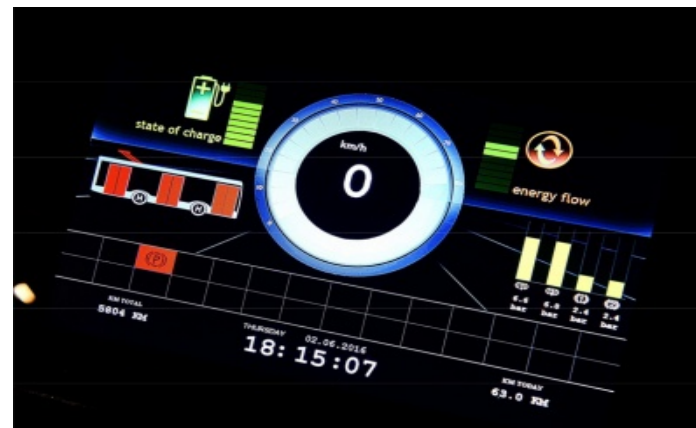


i.e. IEC 61000



4. Battery Aging <--> Fast charging

- 1) *Battery degradation due to fast charging*
- 2) *Thermal management & Preconditioning*





ASSURED

*faSt and Smart charging solutions for full size **Urban hEavy Duty** applications*

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- Project will develop **innovative** heavy-duty and medium-duty **vehicle solutions** with **interoperable charging infrastructure** concepts, enhancing performances, comfort and safety while reducing the TCO and contributing to a competitive and sustainable mobility

Period: October 2017 - September 2021 (4 years)

Project total cost: EUR 23,648,132.51/ EU contribution: EUR 18,657,433.06

Partners: 39 partners from 12 countries representing industry, research centres and local governments



ASSURED Objectives



- **Development of**
 - ✓ **next generation modular high-power charging solutions (*up to 600kW*)**
 - ✓ **interoperable and scalable high-power charging solutions**
 - ✓ **innovative charging management strategies**
 - ✓ **standardised conformance and interoperability test protocol**
 - ✓ **efficient wireless charging solutions**
- **Demonstration of**
 - ✓ **efficient wireless charging solutions (*up to 100kW*)**
 - ✓ **ASSURED solutions (6 public buses and 1 truck at TRL 7) in EU cities**
- Evaluation and improvement of the cost, energy efficiency, impact of grid
- **Support to the standardisation bodies (*i.e. CEN-CENELEC, ISO, IEC*)**

Technological impact

Interoperability solutions for
super-fast charging

Charging energy management
strategies

Improved grid stabilisation

*Eco-driving
Eco-charging
Eco-comfort*

Contribution in standardisation
for super-fast charging

Energy efficient powertrain

Improved quality during fleet
charging

Better understanding of
battery

*Lifetime,
Sizing, Safety
Grid-reliability*

Thank you for your attention

<https://assured-project.eu/>



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