NEVIC

Nordic Electric Vehicle Interoperability Center

- **Independent test center**
- **Interoperability tests of electric vehicles and EV infrastructure**
- **Interoperability tests according to IEC standards and SAE recommendations**

At NEVIC functional interoperability between electric vehicles and charging posts is tested. It is ensured that any car can be charged at any charging post regardless of design or operator.

NEVIC test center
NEVIC performs interoperability test services for electric vehicles, charging posts, plugs and cables. The equipment is tested to and beyond the limits of the standards and prestandards.

The facilities of the NEVIC test center give wide flexibility to test whether equipment will interact properly with equipment from other vendors or service operators. Tests are performed both under normal and extraordinary conditions imposed by the power system.

Who can use NEVIC
Producers of electric vehicles, charging posts or EV service operators will benefit from the testing. In this way they can assure their customers that their equipment is compatible with other equipment on the market.

Vendor specific implementation of the standards
The different EV service operators and producers of EV equipment may have different ways of implementing the standards. This might lead to problems with interoperability. The various testing methods at NEVIC provide the basis for an in depth analysis and understanding of the origin of problems.

Service
NEVIC performs interoperability testing according to IEC and SAE standards. A test report including the measurements is delivered to the customer when the test is completed.

By using the know-how from various related research projects NEVIC can also offer a more in depth analysis and suggest solutions to any potential problems.

Technical specifications

Standards	IEC 61851: Electric vehicle conductive charging system IEC 62196: Plugs, socket-outlets, vehicle connectors and inlets IEC 15118: Vehicle to grid communications SAE 1772: Surface vehicle recommended practice
# Charging posts	8 existing positions
Charging post 1	Siemens prototype, 1phase, 1 Mennekes output, operator: DTU
Charging post 2	3x230V32A 22 kW, upgradable to 3x230Vx63A 43 kW
Charging post 3	Siemens CP700 – 1phase, 1 Mennekes output, operator: Clever
Charging post 4	BetterPlace, 1phase, 2 Mennekes outputs, operator: BetterPlace
Charging post 5	Edison, 1phase, 2 Mennekes outputs, operator: DTU
Charging post 6	WallBox – 22 kW, upgradable to 3x230Vx63A 43 kW
Charging post 7	WallBox – 22 kW, upgradable to 3x230Vx63A 43 kW
Charging post 8	RWE eSTATION SMART, 3ph Mennecke, operator: CleanCharge
DC charging	Access to 630kVA – DC charging done with 375V200A
Simulators for testing	EV simulator Cable simulator EVSE simulator Loads: 3x10A, 3x32A, 3x63A
System voltage	3 phase 400 V +/- 100%
System frequency	50 Hz +/- 100%
Roaming Protokol	Blade server facillites DIN 91286 or others
V2G	IEC15118 – in progress
Interoperability test of equipment	Electric Vehicles (EV) Cables and plugs EVSE equipment
NEVIC test categories	Lock and unlock of cable assembly Cable connection sequence and protection system EVSE connection Optional functions PWM signal and control pilot function Timing acc. to IEC61851 and SAE J1772
Infrastructure	Independent test facility connected to Powerlab. Live micro grid with controllable power sources such as PV´s, wind turbines, generators, vanadium battery, back-to-back converters and transformer stations. Integration in an environment for intelligent, active and distributed power.

Technical University of Denmark
Department of
Electrical Engineering

Frederiksborgvej 399
Building 776
4000 Roskilde, Denmark
Tel +45 45 25 25 25

Contact person
Project Manager
Marianne Bruntt Jensen
Tel +45 51 82 19 59
Email mbrj@elektro.dtu.dk

www.nevic.eu
www.powerlab.dk

2012.09