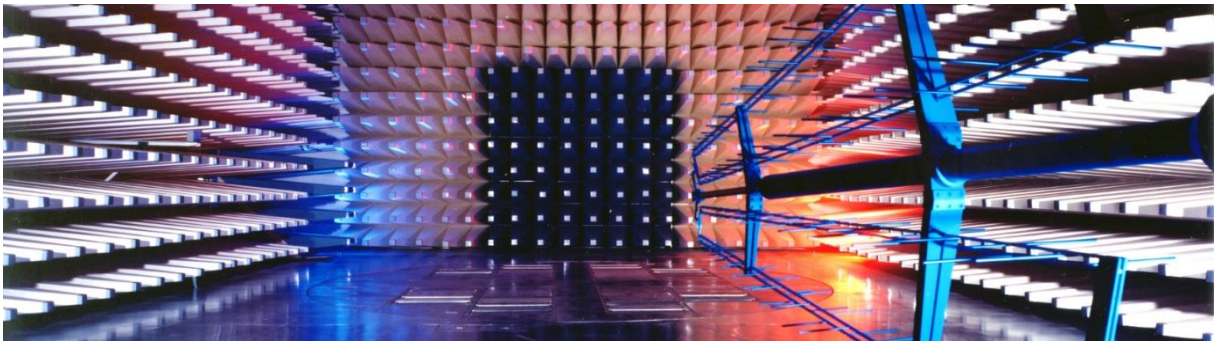


DC Emulator for the EMV test of charging stations

Electric vehicles remain the focus of the mobility strategy. In addition to the vehicles, the charging infrastructure is also of particular importance here. DC charging stations (High Power Charging: HPC) with high performance are mainly required for very fast charging of the vehicle battery. The EMC testing of these charging stations places special demands on the necessary equipment in the test laboratory. According to the current international standard for charging stations (IEC 61851-21-2:2018), the tests are performed in three different operating states: Waiting Mode, 20 % charging power and 80 % charging power. As the performance of DC charging systems continues to increase, it is becoming more and more complex to implement these operating states in the laboratory. In order to simulate realistic operation, an EMC uncritical emulation of a vehicle is required, which absorbs the charging energy and simulates the communication with the charging station

EMC Test NRW GmbH offers an EMC neutral vehicle emulation to test DC charging stations directly with a charging power of up to 230 kW in DC charging mode.

Charging stations with higher capacities can be processed in cooperation with the notified body EMC regarding their conformity to the EMC directive.

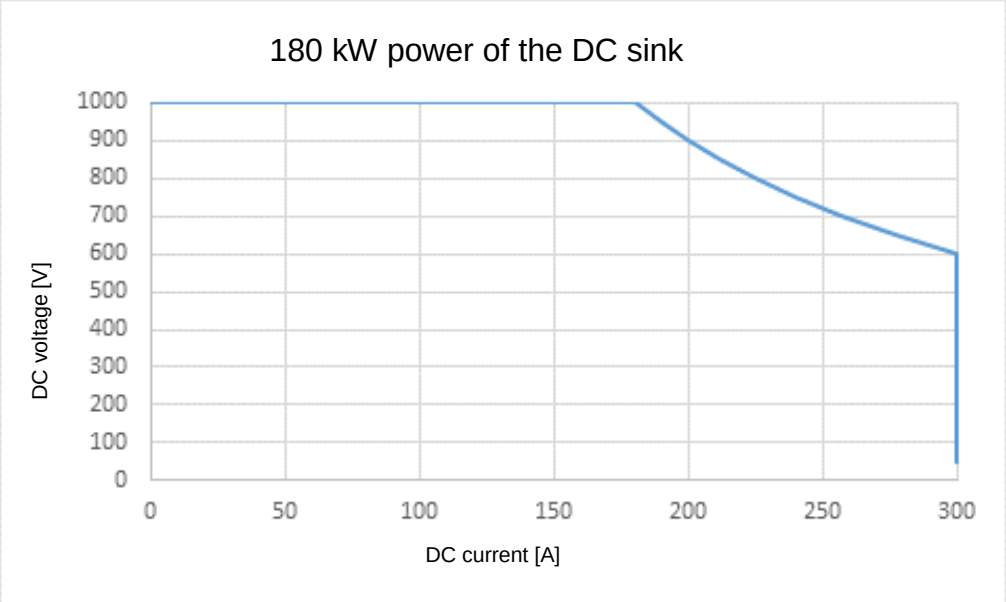
Hybrid test for higher charging power (Megawatt Charging)

Here, a hybrid approach with EMC component tests, subsystem tests and on-site tests is pursued.

The vehicle emulator takes over all relevant functions of a vehicle and the communication unit of the emulator can be set up in the anechoic chamber without influencing the EMC behavior. The sink for absorbing the charging power is located outside the hall and is EMC decoupled by the chamber filter.

The vehicle emulator meets high technical requirements and has many advantages:

- **High charging power:** The vehicle emulation can take up to 180 kW (maximum charging voltage 1000 V, maximum charging current 300 A), in the operating state 80 % charging power, it is therefore suitable for DC charging stations up to 230 kW. At power levels above this range, a limitation can be applied to realize the tests.



- **Various connector configurations:** A charging inlet for the European plug CCS type 2 is available. Furthermore, types such as the Japanese version CHAdeMO and the Chinese version (GB/T) will also be available.
- **Interference-resistant and low-emission:** Since all components of the vehicle emulation are EMC-optimized, there is no risk of falsification of measurement results due to emissions from the emulation, nor is it to be expected that the emulation will be affected by EMC interference
- **Flexible use:** The system can be used at different measuring stations. Thus, the radiated tests can be carried out in our large anechoic chamber, as well as the conducted tests on our test side.

You are a manufacturer of charging infrastructure and need EMC tests to evaluate your products according to the standards IEC 61851-21-2:2018 or IEC 61980-1:2015?

Then get in touch with us. We will be happy to answer your questions and check whether and how we can support you in concrete terms.

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