# Press Release

## FEV supports automakers with charging compatibility analysis

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**Aachen, February 2021 - Manufacturers need to identify and address potential issues with public charging units before releasing vehicles to the market. FEV, a globally leading service provider of vehicle and powertrain development for hardware and software, supports this work scope by analyzing the operational effectiveness of BEVs at the entire variety of AC and DC charging stations.**

As the race to win the Battery Electric Vehicle (BEV) market continues to surge, and each year more OEMs bring new BEVs in the market, the importance of infrastructure to support these vehicles on the road increases. Where and how do consumers charge these vehicles in their daily life? Can they reliably charge them without issues? OEMs need to address and be able to answer these questions for their customers to facilitate wide-spread adoption of BEVs.

With its Mobile Charging Analyzer, FEV can provide in-depth charging communication and power evaluation as part of vehicle level benchmark capabilities. The analyzer allows for flexible testing at various locations, and real-time measurement of all signal parameters via Control Pilot and PLC (power line communication), which records the communication between the charging station and the vehicle.

Examples for measurement capabilities with the Mobile Charging Analyzer include:

- Measurement of AC and DC voltages and current
- Recording of the on-board charger (OBC) in the same log file for further analysis
- High resolution wave form analysis via oscilloscope

“The vehicle charging benchmark from FEV can support different levels of detail with the right equipment for every use case,” said Andreas Sehr, Director Electronics & Electrification at FEV. “In-depth fault analysis of electrical and communication signals by FEV charging experts provides the status of vehicle compatibility with different charging stations, which is extremely beneficial to increase consumer confidence before market entry of a vehicle.”

A complete charger compatibility campaign includes elements such as:

- Efficient route planning
- Test planning for charging events based on standards or FEV templates tailored to customer needs
- Support vehicle instrumentation to supplement charging analyzer measurements
- Various levels of measurement equipment from break-out box to advanced setups with the Mobile Charging Analyzer
- Engineering support for root cause analysis and solution finding in case of compatibility issues

FEV’s Mobile Charging Analyzer has broad technical specifications for AC and DC voltage, and control pilot requirements. It acts as the “man in the middle” between the vehicle and public charging stations, synchronizing logging of vehicle CAN messages for comparison and providing oscilloscopic waveform data for analysis of grid and CP waveforms. Supported standards include ISO 15118, IEC 61851, DIN 70121, SAE J1772 for testing in Europe, Oceania and North America. GB/T and CHAdeMO standards for Asia can also be

supported. Together with FEV's in-depth experience in developing charging components and software, the complete range of measuring, identifying and solving of charging compatibility issues can be provided.

In its most recent charging analysis project, FEV completed compatibility testing on a wide variety of charging stations from 26 different charging manufacturers. Even with standardization requirements of charging stations, the communication of those units was shown to be quite different, which is why field testing is needed. End-users want reliability and peace of mind, not only at the time of their BEV purchase. Safety, effectiveness, usability and availability of public charging stations is of great importance while assessing the lifetime value of the vehicle.

Continued simulation and real-life testing of various climate situations, charge times, and hardware is key to bridge the gap between current BEV technology for consumers and general wide-spread adoption. This is where the FEV benchmarking team and its charging experts provide great value.


The importance of charging infrastructure for BEVs increases. FEV supports automakers by analyzing the operational effectiveness of battery electric vehicles at the entire variety of AC and DC charging stations.
Source: FEV Group

**About FEV**

FEV is a leading independent international service provider of vehicle and powertrain development for hardware and software. The range of competencies includes the development and testing of innovative solutions up to series production and all related consulting services. The range of services for vehicle development includes the design of body and chassis, including the fine tuning of overall vehicle attributes such as driving behavior and NVH. FEV also develops innovative lighting systems and solutions for autonomous driving and connectivity. The electrification activities of powertrains cover powerful battery systems, e-machines and inverters. Additionally, FEV develops highly efficient gasoline and diesel engines, transmissions, EDUs as well as fuel cell systems and facilitates their integration into vehicles suitable for homologation. Alternative fuels are a further area of development.

The service portfolio is completed by tailor-made test benches and measurement technology, as well as software solutions that allow efficient transfer of the essential development steps of the above-mentioned developments, from the road to the test bench or simulation.

The FEV Group is growing continuously and currently employs 6700 highly qualified specialists in customer-oriented development centers at more than 40 locations on five continents.