



Contribution ID: 85

Type: **not specified**

## Factory acceptance test results of ITER EU ECPS

*Monday, 17 September 2018 11:00 (2 hours)*

The power supply set for the EU EC Heating system (ECPS) of ITER provides up to 6 MVA electrical power to two 170GHz/1MW Gyrotrons. The required electrical power for the gyrotrons is both very high and has to comply also with highest quality requirements. These performance indicators were proven with full voltage modulation at rates up to 5kHz.

Ampegon's newly developed power supply topology is optimized to cope with these stringent requirements. Two different topologies are combined. On one hand, the PSM topology for the Main High Voltage Power Supply (MHVPS) and on the other hand the enhanced PSM topology for the two Body Power Supplies (BPS). The enhanced PSM topology demonstrates an improved accuracy and very low ripple values. Furthermore, this topology is designed to supply capacitive loads. Besides the demanding dynamic requirements and ripple performance, the power supplies must protect the Gyrotron in case of an arc. Therefore, the energy into the arc is also an important figure for the qualification of the power supply.

To test the power supply set (one MHVPS and two BPS) in its various operating modes, four different dummy loads have been designed and are part of the Ampegon scope of supply. The complete set, including the relevant control interfaces, has been installed and tested in Ampegon's test laboratory.

The test setup and the factory acceptance test results for the ECPS Heating System are presented.

The work leading to this publication has been funded by Fusion for Energy under the Contract F4E-OPE-454 for ITER. This publication reflects the views only of the author, and Fusion for Energy and ITER Organization cannot be held responsible for any use which may be made of the information contained therein.

**Co-authors:** Dr SPICHIGER, André (Ampegon AG); Dr ALBAJAR, Ferran (European Joint Undertaking for ITER and the Development of Fusion Energy); Dr SANCHEZ ARCOS, Francisco (Fusion for Energy); Dr HUART, Michel (Fusion for Energy); Dr FASEL, Damien (École Polytechnique Fédérale de Lausanne); Dr SIRAVO, Ugo (École Polytechnique Fédérale de Lausanne); Dr PARMAR, Darshankumar (ITER Organization); Dr GASSMANN, Thibault (ITER Organization); Dr HOERNER, Daniel (Ampegon AG); Dr WIEDMER, Sandro (Ampegon AG); Dr FREI, Marcel (Ampegon AG); Dr ZELLWEGGER, Roman (Ampegon AG,)

**Presenter:** Dr SPICHIGER, André (Ampegon AG)

**Session Classification:** P1

**Track Classification:** Plasma Heating and Current Drive