

1.1 Over-temperature Protection

1.1.1 Rationale

Verify the functionality that prevents the operation at over-temperatures inside the RESS

1.1.2 Requirement

When the maximum working temperature of the RESS, specified by the manufacturer, is exceeded, the RESS high voltage buses shall be opened [or the battery cannot be operated] at the latest [5 min] after this temperature is reached.

After the test, the components shall be functional.

3.9.2.1 Conditions

The RESS shall be at any state of charge, which allows the normal operation of the power train as recommended by the manufacturer.

The [RESS] shall be placed in a convective oven or climatic chamber (hereby called over-temperature room). The over-temperature room temperature shall be increased at a rate of $5\text{ }^{\circ}\text{C}/\text{min} \pm 2\text{ }^{\circ}\text{C}/\text{min}$ until it reaches the maximum working temperature of the RESS, specified by the manufacturer $+ 20^{\circ}\text{C}$. The RESS temperature shall be monitored by the measurement devices which are integrated inside the [RESS] by the manufacturer. The manufacturer shall provide the technical service with the relevant technical information dossier of the measurement device. The content of this information dossier shall be provided by the technical service.

The test shall be interrupted when the requirement is satisfied or when the RESS reaches or exceeds the maximum working temperature specified by the manufacturer for more than 5 min without satisfying the requirement.

3.9.2.2 Acceptance criteria

The [RESS] complies with the requirement when the signal related to the physical opening sent by the BMS is detected.

1.1.3 Verification

The internal temperature and the signal related to the opening of the high voltage buses of the RESS are monitored. In order to verify the functionality of the components, the [RESS] shall rest until it reaches the ambient temperature ($25^{\circ}\text{C} \pm 5^{\circ}\text{C}$). A charge/discharge cycle shall be applied to the RESS. The charge and discharge shall be functional.