

Federal Department of Economic Affairs, Education and Research EAER **State Secretariat for Economic Affairs SECO** Swiss Accreditation Service SAS

Swiss Confederation

Based on the Accreditation and Designation Ordinance dated 17 June 1996 and on the advice of the Federal Accreditation Commission, the Swiss Accreditation Service (SAS) grants to

Empa
Zentrum für Elektronik &
Zuverlässigkeit
Überlandstrasse 129
8600 Dübendorf



Period of accreditation: 01.12.2019 until 30.11.2024

(1st accreditation: 22.04.1994)

the accreditation as

Testing laboratory for physical qualification, reliability investigations, nondestructive testing and analysis of materials, components and systems

International standard:

ISO/IEC 17025:2017

Swiss standard:

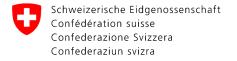
SN EN ISO/IEC 17025:2018

3003 Berne, 10.12.2019

Swiss Accreditation Service SAS

Head of SAS Konrad Flück

SAS is a signatory of the multilateral agreements of the European co-operation for Accreditation (EA) for the fields of testing, calibration, inspection and certification of management systems, certification of personnel and certification of products, processes and services, of the International Accreditation Forum (IAF) for the fields of certification of management systems and certification of products, processes and services and of the International Laboratory Accreditation Cooperation (ILAC) for the fields of testing and calibration.



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### STS Directory

**Accreditation number: STS 0059** 

International standard: ISO/IEC 17025:2017

Swiss standard: SN EN ISO/IEC 17025:2018

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Center for
Electropies & Balish

Electronics & Reliability Überlandstrasse 129 8600 Dübendorf Head: Marcel Held

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Initial accreditation: 22.04.1994

Current accreditation: 01.12.2019 to 30.11.2024

Scope of accreditation see:

www.sas.admin.ch (Accredited bodies)

### Scope of accreditation as of 17.10.2023

# Testing laboratory for physical qualification, reliability and non-destructive testing as well as analysis of materials, components and systems

Group of products or materials, field of activity	Principle of measurement <sup>3)</sup> (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
Temperature of solid, liquid and gaseous media, on devices and equipment	Thermocouple and Resistance Thermometry	SOP 2560
	Measuring range: -200°C to +660°C	
	Smallest measurement uncertainty: ±0.05 °C (k =2)	
	Thermography	SOP 4125 Based on VDI/VDE 3511
	Measuring range: -10°C to +1200°C	
	Smallest measurement uncertainty: ±2 °C or 2% (k =2)	

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<sup>1)</sup> Scope of accreditation type A (fix)

<sup>2)</sup> Scope of accreditation type B (flexible)

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# **STS Directory**

# **Accreditation number: STS 0059**

Group of products or materials, field of activity	Principle of measurement <sup>3)</sup> (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
Qualification (reliability, failure, availability) of components, devices and systems	Environmental and reliability testing, individually or combined	Based on IEC 60'068
	Constant thermal load	SOP 5151
	Thermal cycling	SOP 5152
	Climatic test, steady state	SOP 5153
	Climatic test, cyclic	SOP 5154
	Mechanical load (static, dynamic)	SOP 3980
	Vibration, mechanical shock	SOP 3983
Qualification (reliability, failure, availability) of components, devices and systems	Failure Analysis	SOP 3976
	Detection of failure	
	Non-destructive analysis	
	Semi-destructive analysis	
	Destructive analysis	
	Investigation of failure mechanisms	
Qualification (reliability, failure, availability) of components, devices and systems	Reliability and availability analyses	Based on IEC 60'300 IEC 60'605 IEC 60'812 IEC 60'863 IEC 61'025 IEC 61'778
	1. Failure rate analysis	
	- Evaluation of the predicted failure rate	SOP 3984
	- Evaluation of predicted relia- bility	SOP 3985
	Statistical quality control, reli- ability tests and goodness-of- fit tests	SOP 3986
	2. Risk analyses of technical systems: FMEA / FMECA, FTA, ETA	SOP 3987

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<sup>1)</sup> Scope of accreditation type A (fix)

<sup>2)</sup> Scope of accreditation type B (flexible)

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## **STS Directory**

#### **Accreditation number: STS 0059**

Group of products or materials, field of activity	Principle of measurement <sup>3)</sup> (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
Electrical components, devices and systems	Conductivity and resistance measurement	SOP 2853
	Measuring range 40 μ $\Omega$ to 10 P $\Omega$ (4*10 <sup>-5</sup> - 10 <sup>16</sup> $\Omega$ )	
Electrical components, devices and systems	Measurement of R-, C-, L-, f-characteristics (tracking generator)	SOP 2854
	U, I, Q, P (S, cos φ), U-I-characteristics	SOP 2855
Electrical components, devices and systems	Testing of electrical energy storage	SOP 5081
Electrical energy storage systems	Batteries - Failure analysis - Electrical characterisation - Altitude simulation - Temperature - Vibration - Shock - External short circuit - Impact / Crushing - Overcharging - Forced discharge - Overdischarging - Drop test - Immersion in water - Fire exposure - Failure of temperature control - Internal short circuit - Propagation	Empa-SOP 5081 and other Empa-SOPs used therein  UN 38.3; ECE R100; ISO 12405-1,2,3; DIN EN 15194; DIN EN 50604-1; DIN EN 61960; IEC/DIN EN 62133-2; IEC/DIN EN 62281; IEC/DIN EN 62619; IEC/DIN EN 62660-1,2,3

The testing laboratory maintains a list with detailed information on the activities within the scope of accreditation. It is available upon request at the laboratory.

In case of contradictions in the language versions of the directories, the German version shall apply.

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<sup>1)</sup> Scope of accreditation type A (fix)

<sup>2)</sup> Scope of accreditation type B (flexible)