

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-17601-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 11.07.2018 to 10.07.2023

Date of issue: 11.07.2018

Holder of certificate:

H+H High Voltage Technology GmbH
Im Kurzen Busch 15, 58640 Iserlohn

Head:

Volker Henker

Deputy head:

Frank Petri

Matthias Häbel

Accredited as calibration laboratory since: 19.07.2013

Calibration in the fields:

Electrical quantities

DC and low frequency quantities

- **DC voltage** *)
- **AC voltage** *)
- **High voltage quantities** *)
- **High voltage impulse quantities** *)
- **Charge**

High frequency and radiation quantities

High frequency quantities

- **Rise time**
- **Waveform quantities**

*) also on site calibrations

Within the scope of accreditation marked with **), the calibration laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use calibration standards or equivalent calibration procedures listed here with different issue dates.

The calibration laboratory maintains a current list of all calibration standards / equivalent calibration procedures within the flexible scope of accreditation.

Annex to the accreditation certificate D-K-17601-01-00

Permanent Laboratory

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability ¹⁾	Remarks
DC voltage	-1 kV to -100 kV 1 kV to 100 kV		0.7 % 0.7 %	
AC voltage	1 kV to 100 kV 50 kV to 300 kV	50 Hz 50 Hz	0.4 % 0.8 %	
Burst voltage (<i>L</i>) Amplitude	-10 kV to -500 kV 10 kV to 500 kV		0.8 % 0.8 %	<i>L</i> = full burst voltage
Time parameter <i>T</i> ₁ <i>T</i> ₂	0.8 μs to 1.6 μs 40 μs to 60 μs		2.2 % 2.2 %	<i>T</i> ₁ = Front slope time <i>T</i> ₂ = Back slope- Half lifetime
Impulse charge ^{**)}	1 pC to 100 nC	DIN EN 60270-2:2011-10	0.03 · <i>q</i> + 0.5 pC	<i>q</i> : charge quantity
Rise time <i>t</i> _r	3 ns to 1,0 μs		4,1 %	
Electrostatic discharge (ESD) ^{**)} Current pulse <i>I</i> _p	1 A to 35 A	DIN EN 61000-4-2:2009-12	3.1 %	<i>I</i> _p = first burst current peak
Basic values Current pulse <i>I</i> ₃₀	1 A to 35 A		1.9 %	<i>I</i> ₃₀ = current at 30 ns
Current pulse <i>I</i> ₆₀	1 A to 35 A		1.9 %	<i>I</i> ₆₀ = current at 60 ns
Rise time <i>t</i> _r	0.6 ns to 1 ns		3.9 %	<i>U</i> _L = free state-voltage
DC voltage <i>U</i> _L	1 kV to 100 kV		0.7 %	
EFT/B Burst ^{**)} Voltage pulse	100 V to 2200 V 100 V to 4400 V	DIN EN 61000-4-4:2013-04	1.7 % 2.1 %	<i>R</i> _L = load resistor
Rise time and Impulse width	3 ns to 1 μs		4.1 %	on <i>R</i> _L = 50 Ω on <i>R</i> _L = 1000 Ω
Burst duration and burst periode	100 ns to 1 s		2.0 %	
Surge ^{**)} DC-amplitude	500 V to 12 kV	DIN EN 61000-4-5:2015-03	1.9 %	
Current amplitude	1 A to 120 kA		3.0 %	
Rise time and Impulse width	0.8 μs to 1.0 ms		1.0 %	
Dips ^{**)} Voltage amplitude	1 V to 700 V	DIN EN 61000-4-11:2005-02 16 ⅔ Hz ; 50 Hz ; 60 Hz	1.3 %	
Time interval	100 ns to 1 s		0.6 %	

¹⁾ The best measurement capabilities are stated according to EA-4/02. These are expanded uncertainties of measurement with a coverage probability of 95% and have a coverage factor of *k* = 2 unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.

On-site Calibration

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability ¹⁾	Remarks
DC voltage	-1 kV to -100 kV		0.7 %	
	1 kV to 100 kV		0.7 %	
AC voltage	1 kV to 100 kV	50 Hz	0.4 %	
	50 kV to 300 kV	50 Hz	0.8 %	
Surge voltage (<i>L</i>)				<i>L</i> = full burst voltage
Amplitude	-10 kV to -500 kV		0.8 %	<i>T</i> ₁ = Front slope time <i>T</i> ₂ = Back slope-half lifetime
	10 kV to 500 kV		0.8 %	
Time parameter				
<i>T</i> ₁	0.8 μs to 1.6 μs		2.2 %	
<i>T</i> ₂	40 μs to 60 μs		2.2 %	

¹⁾ The best measurement capabilities are stated according to EA-4/02. These are expanded uncertainties of measurement with a coverage probability of 95% and have a coverage factor of k = 2 unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.