Annex to declaration of accreditation (scope of accreditation)
Normative document: EN ISO/IEC 17025:2005
Registration number: **K 009**

of **KEMA B.V.**
High-Voltage Laboratory

This annex is valid from: **18-12-2018** to **30-11-2020** Replaces annex dated: **24-05-2018**

Location(s) where activities are performed under accreditation

Head Office

Utrechtseweg 310, Building no. R11
6812 AR
Arnhem
The Netherlands

Location	Abbreviation/ location code
Utrechtseweg 310, Building no. R11 6812 AR Arnhem The Netherlands	ARN

HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 0 0	DC/LF ELECTRICITY				
LF 1 0	Direct Voltage				
LF 1 3	Direct High Voltage				ARN
	(5 – 200) kV		$3.5 \cdot 10^{-3} \cdot U$	[1])	

If there is no reference to a code and no date or version number is mentioned for a normative document, the accreditation concerns the most current version of the document.
[1] Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "*Evaluation* of the Uncertainty of Measurement in Calibration".

This annex has been approved by the Board of the Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas
Director of Operations

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
	Lightning Impulse			full wave	
	(15 – 500) kV		$8 \cdot 10^{-3} \cdot U_t$ $4 \cdot 10^{-2} \cdot T_1$ $2 \cdot 10^{-2} \cdot T_2$	[1]);T_1/T_2: 0.84/60 µs	
	(15 – 500) kV		$8 \cdot 10^{-3} \cdot U_t$ $4 \cdot 10^{-2} \cdot T_1$ $2 \cdot 10^{-2} \cdot T_2$	[1]);T_1/T_2: 5/60 µs	
	Lightning Impulse			chopped wave	
	(15 – 500) kV		$1.2 \cdot 10^{-2} \cdot U_t$ $5 \cdot 10^{-2} \cdot T_c$ $5 \cdot 10^{-2} \cdot T_1$	[1]); T_c = 2.5 µs T_1= 1.2 µs	
LF 3 0	Alternating Voltage				
LF 3 2	Alternating Voltage Ratio			Voltage Transformers	ARN
	Primary: (2 – 48) kV	50 Hz	$3.0 \cdot 10^{-4} \cdot U_i / U_u$ 0.4 mrad	[1]	
	Secondary: (100 or 110) V	60 Hz	$3.0 \cdot 10^{-4} \cdot U_i / U_u$ 0.36 mrad	[1]	
	Primary: (12 – 277) kV	50 Hz	$4.0 \cdot 10^{-4} \cdot U_i / U_u$ 0.4 mrad		
	Secondary: (100 / √3) V	60 Hz	$6.0 \cdot 10^{-4} \cdot U_i / U_u$ 0.5 mrad		
LF 3 3	Alternating High Voltage			RMS and Û/√2	ARN
	(12 – 277) kV	50 Hz 60 Hz	$1.2 \cdot 10^{-3} \cdot U$ $1.2 \cdot 10^{-3} \cdot U$		
	(2 – 48) kV	50 Hz 60 Hz	$2.0 \cdot 10^{-3} \cdot U$ $2.0 \cdot 10^{-3} \cdot U$	[1] [1])	
	(5 – 100) kV	25 – 500 Hz	$0.8 \cdot 10^{-2} \cdot U$	[1])	
	(20 – 260) kV	20 – 300 Hz	$0.8 \cdot 10^{-2} \cdot U$	[1])	

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HCS code	Measured quantity, Range	Frequency	CMC[1]	Remarks	Location
LF 4 0	Alternating Current				
LF 4 3	Alternating High Current			RMS	ARN
	(0.25 – 60) kA	50 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	
	(0.25 – 60) kA	60 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	
	(0.05 – 12) kA	50 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	
LF 4 2	Alternating Current Ratio			Current Transformers	ARN
	Primary:(0.05 – 12) kA Secondary: 1 A or 5 A	50 Hz	$1.3 \cdot 10^{-4} \cdot I_i / I_u$ 0.24 mrad	[1]) [2])	
	Primary: (0.25 – 60) kA Secondary: 1 A or 5 A	50 Hz 60 Hz	$1.5 \cdot 10^{-4} \cdot I_i / I_u$ 0.22 mrad $1.5 \cdot 10^{-4} \cdot I_i / I_u$ 0.22 mrad	[1]) [2]) [1]) [2])	
	Primary: (0.05 – 3) kA Secondary: 1 A or 5 A	50 Hz 60 Hz	$1.6 \cdot 10^{-4} \cdot I_i / I_u$ 0.28 mrad $1.6 \cdot 10^{-4} \cdot I_i / I_u$ 0.30 mrad	[1]) [2]) [1]) [2])	
LF 4 3	Alternating High Current			Voltage Transformers	ARN
	(0.25 – 60) kA	50 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	
	(0.25 – 60) kA	60 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	
	(0.05 – 12) kA	50 Hz	$2.0 \cdot 10^{-3} \cdot I$	[1])	

Remarks:

The nominal ambient temperature during calibration is (20 ± 5) °C.
Calibrations are performed inside the laboratory, unless specified otherwise.
[1]) Calibrations are also performed on-site.
[2]) At I/I_n < 20% an additional contribution to the CMC might be applicable (possible poor signal-to-noise ratio)