

RAAD VOOR ACCREDITATIE

Dutch Accreditation Council RvA  
PO Box 2768 NL-3500 GT Utrecht



The Dutch Accreditation Council RvA, by law appointed as the national accreditation body for The Netherlands, hereby declares that accreditation has been granted to:

**KEMA Nederland B.V.  
High-Power Laboratory  
Arnhem**

The organisation has demonstrated to be able to generate technical valid results in a competent way and work according to a management system.

This accreditation is based on an assessment against the requirements as laid down in ISO/IEC 17025:2005.

The accreditation covers the activities as specified in the authorized annex bearing the registration number.

The accreditation is valid provided that the organisation continues to meet the requirements.

The accreditation with registration number:

**L 020**

is granted on 26 March 2014

This declaration is valid until

**1 April 2018**

The accreditation has been granted for the first time on

**30 October 1990**

The Chief Executive

Ir. J.C. van der Poel

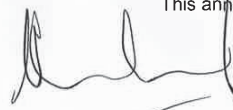
of **KEMA Nederland B.V.**  
**High-Power Laboratory**  
**Arnhem**

This annex is valid from: **26-03-2014** to **01-04-2018**

Replaces annex dated: **26-10-2012**

No.	Material or product	Type of activity	Internal reference number
<b>Transformers, Reactors, Line traps</b>			
1	Power transformers	Short-circuit tests	IEC 60076-5 IEC 60076-11 STL Guide to IEC 60076 EN 60076-5 EN 50464-1 NEN-EN 50541-1 IEEE Std C57.12.90
2	Current transformers	Short-time current tests Transient instantaneous error measurement	IEC 60044-1 IEC 60044 -6 STL Guide to IEC 60044-1 STL Guide to IEC 60044-6 IEEE Std C57.13
3	Reactors	Short-time current tests	IEC 60076-6 IEEE Std C57.21
4	Line traps for A.C. power systems	Short-time current tests	IEC 60353
<b>Switchgear</b>			
5	Metal-enclosed A.C. switchgear 1 - 52 kV resp. > 1 kV and prefabricated substations	Short-time current tests Verification of making and breaking capacities Mechanical operation tests Arcing due to internal fault	IEC 62271-200 IEC 62271-202 STL Guide to IEC 62271-200 IEEE Std C37.20.2 IEEE C37.21 ANSI C37.54 ANSI C37.55
6	Metal-enclosed A.C. switchgear $\geq 72,5$ kV resp. $\geq 52$ kV	Short-time current tests Verification of making and breaking capacities Mechanical operation tests Arcing due to internal fault	IEC 62271-203 STL Guide to IEC 60517 IEEE Std C37.122

This annex has been approved by:



Ir. J.C. van der Poel  
Chief Executive

of **KEMA Nederland B.V.**  
**High-Power Laboratory**  
**Arnhem**

This annex is valid from: **26-03-2014** to **01-04-2018**

Replaces annex dated: **26-10-2012**

No.	Material or product	Type of activity	Internal reference number
7	Low-voltage A.C. switchgear and control gear assemblies	Short-time current tests	IEC 61439-1 IEC 61439-2 IEC 60439-2 EN 61439-1 EN 61439-2 EN 60439-2 ANSI C37.20.2
8	Insulation-enclosed A.C. switchgear 1 - 52 kV	Short-time current tests Verification of making and breaking capacities Mechanical operation test Arcing due to internal fault	IEC 62271-201
9	High-voltage AC circuit breakers	Short-time current tests Making and breaking tests Switching tests Mechanical and environmental tests	NEN-EN-IEC 62271-100 IEC 62271-110 IEC 62271-101 STL Guide to IEC 62271-100 STL Guide to IEC 62271-101 ANSI/IEEE C37.09 ANSI/IEEE C37.081 IEEE Std C37.013 NEN-EN 50152-1
10	High-voltage A.C. switches	Short-time current tests Making and breaking tests Mechanical endurance tests Operation under severe ice conditions	NEN-EN-IEC 62271-103 IEC 62271-104 STL Guide to IEC 60265-1 IEEE Std C37.74
11	High-voltage A.C. disconnectors and earthing switches	Short-time current tests Switching tests Short-circuit making performance Operating and mechanical endurance tests Operation under severe ice conditions Operation at the temperature limits Contact zone tests	IEC 62271-102 STL Guide to IEC 62271-102 IEEE Std C37.34 IEEE Std C37.41
12	High-voltage A.C. contactors and motor starters	Making and breaking capacities Coordination with short-circuit protective device	NEN-EN-IEC 62271-106
13	Automatic circuit reclosers and fault interrupters	Interruption tests Operating duty tests	IEC 62271-111 / IEEE Std C37.60

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No.	Material or product	Type of activity	Internal reference number
<b>Arresters</b>			
14	Surge arresters	Pressure-relief tests	IEC 60099-1 IEC 60099-4 IEEE Std C62.11
<b>Fuses</b>			
15	High-voltage A.C. switch-fuse combinations	Making and breaking tests Tests on the mechanism	IEC 62271-105 IEEE Std C37.41 IEEE Std C37.74
16	High-voltage A.C. fuses	Breaking tests	NEN-EN-IEC 60282-1 IEC 60282-2 IEC 60549 NEN-EN-IEC 60644 STL Guide to IEC 60282-1 STL Guide to IEC 60282-2 IEEE Std C37.41 ANSI C37.44
<b>Cables/Networks</b>			
17	Equipment for networks for transmission and distribution of electrical power	Test as mentioned above (1-16)	In accordance with or equivalent to the reference methods as mentioned above (1-16).

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continues to meet the requirements.

The accreditation with registration number:

**L 218**

is granted on 26 March 2014

This declaration is valid until

**1 April 2018**

The accreditation has been granted for the first time on

**17 November 1994**

The Chief Executive

Ir. J.C. van der Poel


of **KEMA Nederland B.V.  
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This annex is valid from: **26-03-2014** to **01-04-2018**

Replaces annex dated: **26-10-2011**

No.	Material or product	Type of activity	Internal reference number
1	Coils and/or windings of rotating electrical machines	AC voltage test Lightning impulse voltage test	IEC 60034
2	Power transformers	AC voltage test Lightning impulse voltage test Temperature-rise test Capacitance and tan $\delta$ measurement Power measurement DC resistance measurement Temperature measurement Sound level measurement R.I.V. measurement Partial discharge measurement SFRA measurement Verification of voltage ratio and phase displacement Low ambient test on dry-type transformer Thermal shock test on dry type transformer Condensation test on dry-type transformer Humidity penetration test on dry-type transformer Inspection of the active part	IEC 60076-1, -2, -3, -10, -11, -13, -15, -16, -18 CISPR 16 STL Guide to IEC 60076 NEN-EN 50464-1 NEN-EN 50541-1 IEEE Std. C57.12.00 IEEE Std. C57.12.90 IEEE Std. C57.12.91
3	AC Metal-enclosed switchgear and controlgear above 1 kV and $\leq$ 52 kV and prefabricated substations	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection R.I.V. measurement	IEC 62271-200 STL Guide to IEC 62271-200 IEC 62271-202 STL Guide to IEC 62271-202 IEEE C37.20.2 IEEE C37.21 ANSI C37.54 ANSI C37.55 IEC 60529

This annex has been approved by:



Ir. J.C. van der Poel  
Chief Executive

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This annex is valid from: **26-03-2014** to **01-04-2018**

Replaces annex dated: **26-10-2011**

No.	Material or product	Type of activity	Internal reference number
4	AC Insulation-enclosed switchgear and controlgear above 1 kV and $\leq$ 52 kV	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection R.I.V. measurement	IEC 62271-201 IEC 60529
5	Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	AC voltage test Lightning impulse voltage test Switching impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement R.I.V. measurement	IEC 62271-203 STL Guide to IEC 60517 IEEE Std C37.122
6	High-voltage AC circuit breakers	AC voltage test Lightning impulse voltage test Switching impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement R.I.V. measurement Test under wet conditions	NEN-EN-IEC 62271-100 STL Guide to IEC 62271-100 IEEE Std C37.09 IEEE Std C37.013 NEN-EN 50152-1
7	High-voltage AC disconnectors and earthing switches	AC voltage test Lightning impulse voltage test Switching impulse voltage test Temperature-rise test Partial discharge measurement DC resistance measurement R.I.V. measurement Test under wet conditions Temperature measurement	IEC 62271-102 STL Guide to IEC 62271-102 IEEE Std C37.34 IEEE Std C37.41
8	High-voltage AC switches	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection	NEN-EN-IEC 62271-103 STL Guide to IEC 60265-1 NEN-EN-IEC 62271-104 IEEE Std C37.74

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No.	Material or product	Type of activity	Internal reference number
9	High-voltage AC contactors	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection	NEN-EN-IEC 62271-106
10	Automatic circuit reclosers and fault interrupters	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection	IEC 62271-111/ IEEE Std C37.60
11	Busducts	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection	IEEE Std C37.23
12	High-voltage AC switch-fuse combinations and high-voltage AC fuses	AC voltage test Lightning impulse voltage test Partial discharge measurement Temperature-rise test Temperature measurement DC resistance measurement Verification of degree of protection	IEC 62271-105 IEEE Std C37.41 IEEE Std C37.74 NEN-EN-IEC 60282-1 IEC 60282-2 STL Guide to IEC 60282-1 STL Guide to IEC 60282-2



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No.	Material or product	Type of activity	Internal reference number
13	Insulators and insulated bushings	AC voltage test Lightning impulse voltage test Partial discharge measurement Test under wet conditions Thermal-mechanical performance test Electro-mechanical failing load test R.I.V. measurement Pollution tests Temperature measurement Visible corona test Steep front wave flashover test Porosity test Visual and dimensional test Galvanizing test Thermal shock test Thermal cycle test Water absorption test Impact test Test of housing: tracking and erosion tests	IEC 60137 IEEE Std C57.19.00 IEEE Std C57.19.01 IEC 60168 IEC 60383 IEC 60507 IEC 60660 IEC 61109 IEC 62217 ANSI C29.1, -2, -6, -7, -12, -13 CAN/CSA C411.1
14	Cables	AC voltage test DC voltage test Lightning impulse test Heat cycle voltage test Capacitance and tan $\delta$ measurement Partial discharge measurement Insulation resistance measurement DC resistance measurement Temperature measurement Condition test of XLPE cable Water penetration test Bending test	IEC 60055 IEC 60141 IEC 60502 IEC 60840 IEC 62067 NEN-HD 620 NEN-HD 632 NEN 3619 BS 6622 BS 7835 BS 7870 BS 7912 BS 7970
15	Cable accessories	AC voltage test DC voltage test Lightning impulse voltage test Heat cycle voltage test Temperature measurement Partial discharge measurement Insulation resistance measurement Test under wet conditions Pollution tests R.I.V. measurement Water penetration test Impact test	IEC 60502-4 IEC 60055 IEC 60840 IEC 62067 HD 629-1 HD 629-2 NEN-HD 632 IEEE Std 48 IEEE Std 404

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No.	Material or product	Type of activity	Internal reference number
16	Current transformers	AC voltage test Lightning impulse voltage test Switching impulse voltage test Temperature-rise test Capacitance and tan $\delta$ measurement Partial discharge measurement Accuracy test Test under wet conditions Temperature measurement Inspection of active part	NEN-EN-IEC 60044-1 NEN-EN-IEC 60044-6 IEC 60044-8
17	Voltage transformers	AC voltage test Lightning impulse voltage test Switching impulse voltage test Temperature-rise test Capacitance and tan $\delta$ measurement Partial discharge measurement Temperature measurement Accuracy test Test under wet conditions Leakage test Inspection of active part	IEC 61869-1 IEC 61869-3 IEC 61869-5 IEC 60044-7
18	Capacitors	AC voltage test Lightning impulse voltage test Capacitance and tan $\delta$ measurement Temperature measurement Test under wet conditions Thermal stability test Short-circuit discharge test Endurance test Sealing test Self-healing test Destruction test Ageing test	IEC 60358 IEC 60831 IEC 60871
19	Surge arresters	AC voltage test Lightning impulse voltage test Switching impulse voltage test Current impulse test Pollution tests Partial discharge measurement Temperature measurement Ageing test R.I.V. measurement	IEC 60099 IEEE Std C62.11

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No.	Material or product	Type of activity	Internal reference number
20	Reactors	AC voltage test Lightning impulse voltage test Switching impulse voltage test Temperature-rise test Impedance measurement AC resistance measurement Power measurement DC resistance measurement Temperature measurement Acoustic sound level measurement Verification of voltage ratio and phase displacement check	IEC 60076-6 IEEE Std C57.21
21	Compression and mechanical connectors	Temperature-rise test Temperature measurement DC resistance measurement Mechanical tests	IEC 61238-1
22	Protection relays & substation automation equipment	Functional requirements	IEC 60255-1 IEC 60255-8 IEC 60255-12 IEC 60255-13 IEC 60255-16 IEC 60255-127 IEC 60255-151 IEEE C37.112
		Product safety requirements	IEC 60255-1 IEC 60255-27
		EMC requirements	IEC 60255-1 IEC 60255-26 IEC 60255-22 series IEC 60255-11 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-8 IEC 61000-4-9 IEC 61000-4-10 IEC 61000-4-11 IEC 61000-4-16 (only 50 Hz) IEC 61000-4-17 IEC 61000-4-18 IEC 61000-4-29 IEEE C37.90 IEEE C37.90.1 IEEE C37.90.2 IEEE C37.90.3

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No.	Material or product	Type of activity	Internal reference number
	Protection relays & substation automation equipment	Energizing quantities	IEC 60255-1
		Climatic environmental tests	IEC 60255-1 IEC 60068-2-2 tests Bd, Bb IEC 60068-2-1 tests Ad, Ab IEC 60068-2-14 test Nb IEC 60068-2-78 test Cab IEC 60068-2-30 test Db
		Mechanical environmental tests	IEC 60255-1 IEC 60255-21 series
23	Electrical Energy Meters	Tests of <ul style="list-style-type: none"> <li>- insulation properties,</li> <li>- accuracy requirements,</li> <li>- disturbances of long duration,</li> <li>- electrical requirements,</li> <li>- electromagnetic compatibility,</li> <li>- the effect of climatic environments,</li> <li>- mechanical requirements.</li> </ul>	IEC 62052-11 and IEC 62053-11/21/22/23 EN 50470-1/2/3  - Directive 2004/22/EC, annex I, B, F and MI-003

Remark  
"in accordance with" is applicable for all standards.