

Annex to declaration of accreditation (scope of accreditation)  
Normative document: EN ISO/IEC 17025:2005  
Registration number: **L 218**

of **DNV GL Netherlands B.V.**  
**KEMA Laboratories - High-Voltage Laboratory**

This annex is valid from: **24-05-2018** to **30-11-2020**

Replaces annex dated: **20-03-2017**

**Location(s) where activities are performed under accreditation**

**Head Office**

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

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

<b>No.</b>	<b>Material or product</b>	<b>Type of activity<sup>1</sup></b>	<b>Internal reference number</b>	<b>Location</b>
1	Coils and / or windings of rotating electrical machines	AC voltage test Lightning impulse voltage test	IEC 60034	ARN

<sup>1</sup> If there is a referral to a code starting with NAW, NAP, EA of IAF, this constitutes a scheme for which RvA-BR010 applies. The accepted version is mentioned on the list of schemes for which accreditation can be granted by the RvA.

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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No.	Material or product	Type of activity <sup>1</sup>	Internal reference number	Location
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 18.2 EN 50541-1 IEEE Std. C57.12.00 IEEE Std. C57.12.90 IEEE Std. C57.12.91	ARN
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 IEC 62271-202 IEEE C37.20.2 IEEE C37.21 ANSI C37.54 ANSI C37.55 IEC 60529	ARN
4	AC Solid 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	ARN

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No.	Material or product	Type of activity <sup>1</sup>	Internal reference number	Location
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 IEEE Std C37.122	ARN
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	IEC 62271-100 IEEE Std C37.09 IEEE Std C37.013 EN 50152-1	ARN
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 IEEE Std C37.34 IEEE Std C37.41	ARN
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	IEC 62271-103 IEC 62271-104 IEEE Std C37.74	ARN
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	IEC 62271-106	ARN

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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	ARN
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	ARN
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 IEC 60282-1 IEC 60282-2	ARN
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 IEC 62730 ANSI C29.1, -6, -7, -12 ANSI/NEMA C29.2, -13 CAN/CSA C411.1	ARN

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No.	Material or product	Type of activity <sup>1</sup>	Internal reference number	Location
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 HD 620 HD 632 NEN 3619 BS 6622 BS 7835 BS 7870 BS 7912 BS 7970	ARN
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 HD 632 IEEE Std 48 IEEE Std 404	ARN
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	IEC 60044-8 IEC 61869-2 IEC 61869-1	ARN

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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	ARN
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	ARN
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	ARN
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	ARN

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No.	Material or product	Type of activity <sup>1</sup>	Internal reference number	Location
21	Compression and mechanical connectors	Temperature-rise test Temperature measurement DC resistance measurement Mechanical tests	IEC 61238-1	ARN
22	Protection relays & substation automation equipment	Functional requirements	IEC 60255-1 IEC 60255-149 IEC 60255-12 IEC 60255-13 IEC 60255-121 IEC 60255-127 IEC 60255-151 IEEE C37.112	ARN
		Product safety requirements	IEC 60255-1 IEC 60255-27	
		EMC requirements <sup>1)</sup>	IEC 60255-1 IEEE C37.90	
		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	Metrological Characteristics and Functionalities  Accuracy Tests for disturbances of long duration Tests for electrical requirements Insulation tests EMC requirements <sup>1)</sup> Overload test Climate tests Mechanical tests	In accordance with Directive 2014/32/EU annex I, annex III MI-003  IEC 62052-11, IEC 62053-11/21/22/23 and EN 50470-1/2/3	ARN

**Remark**

“in accordance with” is applicable for all standards.

1) The EMC tests needed for this scheme that are covered by the accreditation are specified below.

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***This part of the scope contains the new approach for the specification of EMC tests based on a source scope.***

The tests needed for the above mentioned schemes 22) and 23) are specified below.

No.	Material or product	Type of activity <sup>2</sup>	Internal reference number	Location
EMC.I		EMC Immunity tests		
EMC.I.21	As specified in the scheme 22 and 23	Electrostatic discharge immunity (ESD) Contact discharge up to 30 kV Air discharge up to 30 kV	IEC 60255-26 IEC 62052-11 EN 50470-1 IEEE C37.90.3 IEC 61000-4-2	ARN
EMC.I.22		Electrical fast transient / burst immunity (EFT) 1 and 3 phase 0,25 – 4 kV up to 1 MHz	IEC 60255-26 IEC 62052-11 EN 501470-1 IEEE C37.90.1 IEC 61000-4-4	ARN
EMC.I.23		Surge immunity 1 and 3 phase 0,25 – 8 kV	IEC 60255-26 IEC 62052-11 EN 50470-1 IEC 61000-4-5	ARN
EMC.I.07		Immunity to conducted disturbances, induced by radio-frequency fields 150 kHz – 80 MHz 3 V, 10 V	IEC 60255-26 IEC 62052-11 IEC 61000-4-6	ARN
EMC.I.09		Power frequency magnetic field immunity, 50/60 Hz up to 100 A/m (continuous) up to 1000 A/m (3 s)	IEC 60255-26 EN 50470-1 IEC 61000-4-8	ARN
EMC.I.26		AC Voltage dips, short interruptions immunity 1 and 3 phase Dips; up to 280 Vac/16 A, 50/60 Hz Variations; up to 280 Vac/5 A, 50/60 Hz	IEC 60255-26 EN 50470-1 IEC 61000-4-11	ARN

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EMC.I.06	As specified in the scheme 22 and 23	Immunity to conducted common mode disturbances, DC, 16 2/3, 50 and 60 Hz 1 – 30 V (continues) 10 – 300 V (short duration)  15 Hz to 150 Hz 0,1 – 30 V	IEC 60255-26 IEC 61000-4-16	ARN
EMC.I.30		DC voltage ripple Immunity 0 – 20%, 100/120 Hz 0 – 300 Vdc	IEC 60255-26 IEC 61000-4-17	ARN
EMC.I.33		Damped oscillatory wave 100 kHz, 1 MHz; 0,25 – 2,5 kV  3 MHz, 10 MHz, 30 MHz; 0,5 kV – 4,0 kV	IEC 60255-26 IEEE C37.90.1 IEC 61000-4-18	ARN
EMC.I.30		DC Voltage dips, short interruptions, and voltage variations immunity 20 – 300 Vdc Up to 10 A	IEC 60255-26 IEC 61000-4-29	ARN
EMC.I.25		Pulsed magnetic field immunity 100 – 1000 A/m	IEC 61000-4-9	ARN
EMC.I.33		Damped oscillatory magnetic field immunity 10 – 100 A/m (100 kHz) 10 – 100 A/m (1 MHz)	IEC 61000-4-10	ARN