Standards published by IEC/ TC 85			
Sl No.	**Reference**	**Title**	**Description**
1	IEC 60051-1:2016	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 1: Definitions and general requirements common to all parts	IEC 60051-1:2016 specifies definitions and general requirements for direct acting indicating analogue electrical measuring instruments and their accessories. This sixth edition cancels and replaces the fifth edition published in 1997. This edition constitutes a technical revision.
2	IEC 60051-2:2018	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 2: Special requirements for ammeters and voltmeters	IEC 60051-2:2018 applies to direct acting indicating ammeters and voltmeters having an analogue display. It also applies to: • direct acting indicating ammeters and voltmeters whose scale marks do not correspond directly to their electrical input quantity, provided that the relationship between them is known; • direct acting indicating ammeters and voltmeters and accessories having electronic devices in their measuring and/or auxiliary circuits. This document does not apply to: • special purpose instruments which are covered by their own IEC standards; • special purpose devices which are covered by their own IEC standards when they are used as accessories. IEC 60051-2:2018 cancels and replaces the fourth edition published in 1984. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test item. This International Standard is to be used in conjunction with IEC 60051-1:2016.
3	IEC 60051-3:2018	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 3: Special requirements for wattmeters and varmeters	IEC 60051-3:2018 applies to direct acting indicating wattmeters and varmeters having an analogue display. IEC 60051-3:2018 also applies to: • non-interchangeable accessories (as defined in 3.1.23 of IEC 60051-1:2016) used with wattmeters and varmeters; • a combination of the instruments and the accessories provided that the adjustments have been made for the combination; • direct acting indicating electrical measuring instruments whose scale marks do not correspond directly to their electrical input quantity,

			provided that the relationship between them is known; • instruments and accessories having electronic devices in their measuring and/or auxiliary circuits. IEC 60051-3:2018 does not apply to: • special purpose instruments which are covered by their own IEC standards; • special purpose devices which are covered by their own IEC standards when they are used as accessories. IEC 60051-3:2018 cancels and replaces the fourth edition published in 1984 and Amendment 1:1994. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items. IEC 60051-3:2018 is to be used in conjunction with IEC 60051-1:2016.
4	IEC 60051-4:2018	Direct acting indicating analogue electrical measuring instruments and their accessories title - Part 4: Special requirements for frequency meters	IEC 60051-4:2018 applies to direct acting indicating analogue frequency meters of the following types: • pointer-type frequency meters (as defined in 3.2.11 of IEC 60051-1:2016); • vibrating-reed frequency meters (as defined in 3.2.12 of IEC 60051-1:2016). IEC 60051-4:2018 also applies to non-interchangeable accessories (as defined in 3.1.23 of IEC 60051-1:2016) used with frequency meters. IEC 60051-4:2018 cancels and replaces the fourth edition published in 1984. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items. IEC 60051-4:2018 is to be used in conjunction with IEC 60051-1:2016.
5	IEC 60051-5:2017	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 5: Special requirements for phase meters, power factor meters and synchroscopes	IEC 60051-5:2017 applies to direct acting indicating phase meters, power factor meters and synchroscopes having an analogue display. This document also applies to non-interchangeable accessories (as defined in 3.1.23 of IEC 60051-1:2016) used with phase meters, power factor meters and synchroscopes. This document also applies to a phase meter or power factor meter whose scale marks do not correspond directly to its electrical input quantity, provided that the relationship between them is known. This fifth edition cancels and replaces the fourth edition published in 1985. This edition constitutes a technical revision. This edition includes the following significant technical changes

			with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items.
6	IEC 60051-6:2017	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 6: Special requirements for ohmmeters (impedance meters) and conductance meters	IEC 60051-6:2017 applies to direct acting indicating analogue electrical measuring ohmmeters (impedance meters) and conductance meters. This document also applies to some non-interchangeable accessories of ohmmeters (impedance meters) and conductance meters. This fifth edition cancels and replaces the fourth edition published in 1984. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items.
7	IEC 60051-7:2017	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 7: Special requirements for multi-function instruments	IEC 60051-7:2017 applies to multi-function analogue instruments. This document also applies to non-interchangeable accessories (as defined in 3.1.23 of IEC 60051-1:2016) used with multi-function analogue instruments. This fifth edition cancels and replaces the fourth edition published in 1984. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating of content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items.
8	IEC 60051-8:2017	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 8: Special requirements for accessories	IEC 60051-8:2017 applies to accessories as defined in 3.1.20 of IEC 60051-1:2016. This fifth edition cancels and replaces the fourth edition published in 1984. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating content in line with new editions of IEC 60051-1 and IEC 60051-9; b) addition of Annex A to specify the nonconformity classification of test items.

9	IEC 60051-9:2019	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 9: Recommended test methods	IEC 60051-9:2019 applies to direct acting indicating analogue electrical measuring instruments and their accessories and gives guidance for applicable test methods and for the performance of test equipment. This document does not apply to: – special purpose instruments that are covered by their own IEC International Standards; – special purpose devices that are covered by their own IEC International Standards when they are used as accessories. IEC 60051-9:2018 cancels and replaces the fourth edition published in 1988, Amendment 1:1994 and Amendment 2:1995. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) adding performance requirements for test equipment; b) updating the references to the applicable standards for test methods.
10	IEC 60258:1968	Direct acting recording electrical measuring instruments and their accessories	Applies to direct recording electrical measuring instruments which are used for recording the instantaneous, effective or mean value of one or more measured quantities as a function of time.
11	IEC 60258:1968/AMD1:1976	Amendment 1 - Direct acting recording electrical measuring instruments and their accessories	Contains the amended title and scope, and several clauses to bring this publication in line with IEC 60051.
12	IEC 60359:2001	Electrical and electronic measurement equipment - Expression of performance	Applies to the specification of performance, with primary reference to industrial applications, of the following kinds of electrical and electronic equipment: - indicating and recording instruments which measure electrical quantities; - material measures which supply electrical quantities; - instruments which measure non-electrical quantities using electrical means, for all parts of the measuring chain which present electrical output signals. It is based on the methods expounded in GUM for expressing and evaluating the uncertainty of measurement, and refers to GUM for the statistical procedures to be used in determining the intervals assigned to represent uncertainty (including the way to

			account for non-negligible uncertainties in the traceability chain). The object is to provide methods for ensuring uniformity in the specification and determination of uncertainties of equipment within its scope. All other necessary requirements have been reserved for dependent IEC product standards pertaining to particular types of equipment which fall within the scope of this standard.
13	IEC 60428:1973	Standard cells	Applies to two kinds of standard cells used as electromotive force references, namely saturated and unsaturated standard cells, and deals with test conditions relating to certification and requirements for their electrical and mechanical characteristics.
14	IEC 60469:2013	Transitions, pulses and related waveforms - Terms, definitions and algorithms	IEC 60469:2013 provides definitions of terms pertaining to transitions, pulses, and related waveforms and provides definitions and descriptions of techniques and procedures for measuring their parameters. The waveforms considered in this standard are those that make a number of transitions and that remain relatively constant in the time intervals between transitions. Signals and their waveforms for which this standard apply include but are not limited to those used in: - digital communications, data communications, and computing; - studies of transient biological, cosmological, and physical events; - and electrical, chemical, and thermal pulses encountered and used in a variety of industrial, commercial, and consumer applications. This standard does not apply to sinusoidally-varying or other continuously-varying signals and their waveforms. The object of this standard is to facilitate accurate and precise communication concerning parameters of transitions, pulses, and related waveforms and the techniques and procedures for measuring them. IEC 60469:2013 combine the contents of IEC 60469-1 and IEC 60469-2. IEC 60469-1 dealt with terms and definitions for describing waveform parameters and IEC 60469-2 described the waveform measurement process. Other technical revisions include updating of terminology, errors correction, algorithms addition for computing values of pulse parameters, and addition of a newly-developed method for computing state levels. Changes to the definitions include adding new terms and definitions, deleting

			unused terms and definitions, expanding the list of deprecated terms, and updating and modifying existing definitions.
15	IEC 60477-1:2022	Laboratory resistors - Part 1: Laboratory DC resistors	IEC 60477-1:2022 applies to resistors intended for use as laboratory DC resistors (hereinafter referred to as "resistors") comprising standard resistors, single or multiple resistors of accuracy Classes 0,000 05 to 10 and single or multi-dial resistors of accuracy Classes 0,000 5 to 10. This document does not apply to: 1) resistors which are intended for use solely as permanently mounted circuit components, 2) resistors used on alternating current or on pulsed current, 3) active resistors, 4) series resistors and shunts which are considered as accessories of electrical measuring instruments in the relevant IEC document (examples of these are as follows). IEC 60477-1:2022 cancels and replaces the first edition of IEC 60477 published in 1974, and its Amendment 1:1997. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) extended the resistor accuracy classes; b) deleted the resistor accuracy class expression in parts per million (ppm); c) excluded the active resistor from the scope of this document; d) updated the terms and definitions according to new IEC 60050 series; e) changed the term "resistance decade" to "resistance dial" to cover the multi-dial resistors with other resistance step values; f) updated the intrinsic error to intrinsic uncertainty according to IEC 60359; g) added the limits of relative stability for resistors of classes 0,000 05 to 0,01; h) added the requirements of high voltage resistors; i) updated the safety symbols and requirements according to the new IEC 61010 series; j) updated the insulation resistance requirements of resistors; k) added the requirements of temperature coefficient; l) updated the temperature requirements for transport and storage of resistors.

16	IEC 60477-2:2022	Laboratory resistors - Part 2: Laboratory AC resistors	IEC 60477-2:2022 applies to resistors intended as laboratory AC resistors for use over a range of frequencies from DC up to a stated frequency which is not in excess of 1 MHz. Such resistors are hereinafter referred to as "AC resistors". In addition to satisfying the requirements of IEC 60477-1, resistors satisfying the requirements of this document are designed to have a small variation of resistance and a small phase displacement over the stated frequency range. IEC 60477-2:2022 cancels and replaces the first edition published in 1979, and Amendment 1:1997. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) extended the AC resistor frequency range to 1 MHz; b) updated the terms and definitions according to IEC 60050 series; c) added the definition of AC/DC difference of an AC resistor; d) added the resistor classification according to the AC resistance or AC/DC difference index; e) updated the classification according to the AC resistor construction; f) updated the safety symbols and requirements according to IEC 60477-1; g) added the three-element equivalent circuits of an AC resistor in Annex C; h) added the annex on constructions of AC resistors.
17	IEC 60523:1975	Direct-current potentiometers	Applicable to d.c. potentiometers assembled from resistors and switches and operating entirely on direct current, having accuracy classes of 0.0005 ... 0.1, as well as to auxiliary equipment which is a built-in part of the potentiometer. Classification system. Permissible errors for each accuracy class. Conditions for determination of errors. Markings. Information by the manufacturer.
18	IEC 60523:1975/AMD1:1979	Amendment 1 - Direct-current potentiometers	The contents of the corrigendum of December 1980 have been included in this copy.

19	IEC 60524:1975+AMD1:1981 CSV	Direct-current resistive volt ratio boxes	IEC 60524:1975+AMD1:1981 CSV is applicable to d.c. resistive volt ratio boxes with fixed ratios having a ratio input voltage up to 1.5 kV and a class index of 0.1 or better, as well as to all equipment which is built-in or supplied by the manufacturer (or responsible supplier) as an essential part of the volt ratio box. Classification system. Permissible errors for each accuracy class. Conditions for determination of errors. Markings. Information supplied by the manufacturer. This consolidated version consists of the first edition (1975) and its amendment 1 (1981). Therefore, no need to order amendment in addition to this publication.
20	IEC 60524:1975	Direct-current resistive volt ratio boxes	Applicable to d.c. resistive volt ratio boxes with fixed ratios having a ratio input voltage up to 1.5 kV and a class index of 0.1 or better, as well as to all equipment which is built-in or supplied by the manufacturer (or responsible supplier) as an essential part of the volt ratio box. Classification system. Permissible errors for each accuracy class. Conditions for determination of errors. Markings. Information supplied by the manufacturer.
21	IEC 60564:1977+AMD1:1981 CSV	D.C. bridges for measuring resistance	Classification. Class index system. Permissible errors for each class. Conditions for testing. Conditions for use. Methods of testing. Markings. Information to be supplied by the manufacturer
22	IEC 60564:1977	D.C. bridges for measuring resistance	Classification. Class index system. Permissible errors for each class. Conditions for testing. Conditions for use. Methods of testing. Markings. Information to be supplied by the manufacturer.
23	IEC 60564:1977/AMD1:1981	Amendment 1 - D.C. bridges for measuring resistance	-

24	IEC 60564:1977/AMD2:1997	Amendment 2 - D.C. bridges for measuring resistance	-
25	IEC 60615:1978	Terminology for microwave apparatus	This standard applies to microwave measuring apparatus and microwave measuring techniques.
26	IEC 60618:1978+AMD1:1981 CSV	Inductive voltage dividers	IEC 60618:1978+AMD1:1981 CSV covers 'precision autotransformers', 'decade transformer dividers', 'inductive dividers', 'ratio transformers', etc. Classification, limits of intrinsic error, conditions for the determination of intrinsic errors, permissible variations, additional electrical and mechanical requirements, documentation, markings and symbols. For measuring transformers intended to supply a burden, see IEC 60186. This consolidated version consists of the first edition (1978) and its amendment 1 (1981). Therefore, no need to order amendment in addition to this publication.
27	IEC 60618:1978	Inductive voltage dividers	Covers 'precision autotransformers', 'decade transformer dividers', 'inductive dividers', 'ratio transformers', etc. Classification, limits of intrinsic error, conditions for the determination of intrinsic errors, permissible variations, additional electrical and mechanical requirements, documentation, markings and symbols. For measuring transformers intended to supply a burden, see IEC 60186.
28	IEC 60618:1978/AMD1:1981	Amendment 1 - Inductive voltage dividers	

29	IEC 60618:1978/AMD2:1997	Amendment 2 - Inductive voltage dividers	
30	IEC 60624:1978	Expression of the performance of pulse generators	Primarily intended for the manufacturer. Not applicable to generators with pulsed sinusoidal outputs, television pattern generators, complex function generators, and generators for insulation resistance testing. Lays down a standard list of performance characteristics to be used for describing the performance of pulse generators. Defines which characteristics should be specified and standard test conditions.
31	IEC 60688:2021	Electrical measuring transducers for converting AC and DC electrical quantities to analogue or digital signals	<!-- NEW! -->IEC 60688:2021 is available as IEC 60688:2021 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition. IEC 60688:2021 applies to transducers with electrical inputs and outputs for making measurements of AC or DC electrical quantities. The output signal can be in the form of an analogue direct current, an analog direct voltage or in digital form. This document applies to measuring transducers used for converting electrical quantities such as – current, – voltage, – active power, – reactive power, – power factor, – phase angle, – frequency, – harmonics or total harmonic distortion, and – apparent power to an output signal. This document is not applicable for – instrument transformers that complies with IEC 61869 (all parts), – transmitters for use in industrial process application that complies with IEC 60770 (all parts), and – performance measuring and monitoring devices (PMD) that comply with IEC 61557 12:2018. Within the measuring range, the output signal is a function of the measurand. An auxiliary supply can be needed. This document applies a) if the nominal frequency of the input(s) lies between 0 Hz and 1 500 Hz, b) to the electrical measuring transducer if it is part of a system for the measurement of a non-electrical quantity, and if it otherwise falls within the scope of this document, and c) to

			transducers for use in a variety of applications such as telemetry and process control and in one of a number of defined environments. This document is intended: – to specify the terminology and definitions relating to transducers whose main application is in industry, – to unify the test methods used in evaluating transducer performance, and – to specify accuracy limits and output values for transducers. IEC 60688:2021 cancels and replaces the third edition published in 2012. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating normative references; b) additional requirements for specific transducers used for LV monitoring applications; c) creation of interface coding to ease selection by the end-user.
32	IEC 60688:2021 RLV	Electrical measuring transducers for converting AC and DC electrical quantities to analogue or digital signals	IEC 60688:2021 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 60688:2021 applies to transducers with electrical inputs and outputs for making measurements of AC or DC electrical quantities. The output signal can be in the form of an analogue direct current, an analog direct voltage or in digital form. This document applies to measuring transducers used for converting electrical quantities such as – current, – voltage, – active power, – reactive power, – power factor, – phase angle, – frequency, – harmonics or total harmonic distortion, and – apparent power to an output signal. This document is not applicable for – instrument transformers that complies with IEC 61869 (all parts), – transmitters for use in industrial process application that complies with IEC 60770 (all parts), and – performance measuring and monitoring devices (PMD) that comply with IEC 61557 12:2018. Within the measuring range, the output signal is a function of the measurand. An auxiliary supply can be needed. This document applies a) if the nominal frequency of the input(s) lies between 0 Hz and 1 500 Hz, b) to the electrical measuring transducer if it is part of a system for the measurement of a non-electrical quantity, and if it otherwise falls within the scope of this document, and c) to transducers for use in a variety of applications

			such as telemetry and process control and in one of a number of defined environments. This document is intended: – to specify the terminology and definitions relating to transducers whose main application is in industry, – to unify the test methods used in evaluating transducer performance, and – to specify accuracy limits and output values for transducers. IEC 60688:2021 cancels and replaces the third edition published in 2012. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) updating normative references; b) additional requirements for specific transducers used for LV monitoring applications; c) creation of interface coding to ease selection by the end-user.
33	IEC 61028:1990	Electrical measuring instruments - X-Y recorders	Applies to X-Y recorders used for recording analogue electrical signals of another electrical quantity or a non-electrical quantity. Applies also to accessories which are not covered by a separate standard. Safety requirements are part of IEC 61010.
34	IEC 61028:1990/AMD1:1995	Amendment 1 - Electrical measuring instruments - X-Y recorders	-
35	IEC 61028:1990/AMD2:1997	Amendment 2 - Electrical measuring instruments - X-Y recorders	-

36	IEC 61143-1:1992+AMD1:1997 CSV	Electrical measuring instruments - X-t recorders - Part 1: Definitions and requirements	Applies to X-t recorders used for the measurement of voltage and current which measure and record analogue electrical quantities as a function of time. Also applies to non-interchangeable accessories and accessories of limited interchangeability (e.g. shunts, impedance-elements) if they are used with the recorder and the adjustments have been made for the combination. IEC 61143-1 and IEC 61143-2 cancel and replace IEC 60484 (1974). This consolidated version consists of the first edition (1992) and its amendment 1 (1997). Therefore, no need to order amendment in addition to this publication.
37	IEC 61143-1:1992	Electrical measuring instruments - X-t recorders - Part 1: Definitions and requirements	Applies to X-t recorders used for the measurement of voltage and current which measure and record analogue electrical quantities as a function of time. Also applies to non-interchangeable accessories and accessories of limited interchangeability (e.g. shunts, impedance-elements) if they are used with the recorder and the adjustments have been made for the combination. IEC 61143-1 and IEC 61143-2 cancel and replace IEC 60484 (1974).
38	IEC 61143-1:1992/AMD1:1997	Amendment 1 - Electrical measuring instruments - X-t recorders - Part 1: Definitions and requirements	-
39	IEC 61143-2:1992	Electrical measuring instruments - X-t recorders - Part 2: Recommended additional test methods	Specifies particular requirements for X-t recorders. Should be read in conjunction with IEC 61143-1 and IEC 60051-9. IEC 61143-1 and IEC 61143-2 cancel and replace IEC 60484 (1974).
40	IEC 61187:1993	Electrical and electronic measuring equipment - Documentation	Applies to the technical documentaion to be supplied with electrical and electronic measuring equipment for use in laboratories and for testing and servicing. Replaces IEC 60278 and IEC 60278A.

41	IEC 61554:1999	Panel mounted equipment - Electrical measuring instruments - Dimensions for panel mounting	Applies to electrical and electrically operated indicating, recording and control instruments. Establishes dimensional interchangeability between instruments made by different manufacturers. To fulfil this requirement, a defined set of dimensions has been chosen. Using these dimensions, it should be easy to combine instruments of different sizes on the same panel making good use of the available panel space and to produce a satisfactory layout.
42	IEC 61557-1:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 1: General requirements	<!-- NEW! -->IEC 61557-1:2019 is available as IEC 61557-1:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition. IEC 61557-1:2019 specifies the general requirements applicable to measuring and monitoring equipment for testing the electrical safety in low-voltage distribution systems with nominal voltages up to 1 000 V AC and 1 500 V DC. When measuring equipment or measuring installations involve measurement tasks of various measuring equipment covered by this series of standards, then the part of this series relevant to each of the measurement tasks is applicable. Other parts of IEC 61557 can specify additional requirements or deviations. This document does not cover functional safety or cybersecurity. IEC 61557-1:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This third edition includes the following significant technical changes with respect to the previous edition: a) terms aligned with IEC 60050; b) measurement of uncertainty revised according to the equations in 4.2 of ISO/IEC Guide 98-3:2008 (GUM); c) updated references for safety and EMC requirements; d) updated references for marking and operating instructions; e) updated references for testing safety and EMC; f) Annex A contains an explanation of GUM; g) Annex B addresses environmental aspects.
43	IEC 61557-1:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 1: General requirements	IEC 61557-1:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-1:2019 specifies the general requirements applicable to measuring and monitoring equipment for testing the electrical safety in low-voltage distribution systems with nominal

			voltages up to 1 000 V AC and 1 500 V DC. When measuring equipment or measuring installations involve measurement tasks of various measuring equipment covered by this series of standards, then the part of this series relevant to each of the measurement tasks is applicable. Other parts of IEC 61557 can specify additional requirements or deviations. This document does not cover functional safety or cybersecurity. IEC 61557-1:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This third edition includes the following significant technical changes with respect to the previous edition: a) terms aligned with IEC 60050; b) measurement of uncertainty revised according to the equations in 4.2 of ISO/IEC Guide 98-3:2008 (GUM); c) updated references for safety and EMC requirements; d) updated references for marking and operating instructions; e) updated references for testing safety and EMC; f) Annex A contains an explanation of GUM; g) Annex B addresses environmental aspects.
44	IEC 61557-2:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 2: Insulation resistance	<!-- NEW! -->IEC 61557-2:2019 is available as IEC 61557-2:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-2:2019 specifies the requirements applicable to equipment for measuring the insulation resistance of equipment and installations in the de-energized state IEC 61557-2:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of requirements as regards measurement category; b) addition of new requirements for operating instructions; c) alignment of the structure with that of the the whole IEC 61557 series.
45	IEC 61557-2:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 2: Insulation resistance	IEC 61557-2:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-2:2019 specifies the requirements applicable to equipment for measuring the insulation resistance of equipment and installations in the de-energized state IEC 61557-2:2019 cancels

			and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of requirements as regards measurement category; b) addition of new requirements for operating instructions; c) alignment of the structure with that of the the whole IEC 61557 series.
46	IEC 61557-3:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 3: Loop impedance	IEC 61557-3:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-3:2019 specifies the requirements applicable to equipment for measuring the loop impedance between a line conductor and protective conductor; between a line conductor and neutral; or between two line conductors by using the voltage drop when the circuit under test is loaded. IEC 61557-3:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of equirements as regards the measurement category; b) addition of new requirements for operating instructions; c) alignment of the structure with that of the whole IEC 61557 series.
47	IEC 61557-3:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 3: Loop impedance	<!-- NEW! -->IEC 61557-3:2019 is available as IEC 61557-3:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-3:2019 specifies the requirements applicable to equipment for measuring the loop impedance between a line conductor and protective conductor; between a line conductor and neutral; or between two line conductors by using the voltage drop when the circuit under test is loaded. IEC 61557-3:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of equirements as regards the measurement category; b) addition of new requirements for operating instructions; c) alignment of the structure with that of the whole IEC 61557 series.

48	IEC 61557-4:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 4: Resistance of earth connection and equipotential bonding	<!-- NEW! -->IEC 61557-4:2019 is available as IEC 61557-4:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-4:2019 specifies the requirements applicable to equipment for measuring the resistance of earth conductors, protective earth conductors and conductors for equipotential bonding, including their connections and terminals, with an indication of the measured value or an indication of the limits. IEC 61557-4:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) complement to the measurement category in Clause 4; b) correction of the equation for operating uncertainty; c) complement to the requirements for measuring with DC; d) alignment of the structure with that of the whole IEC 61557 series.
49	IEC 61557-4:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 4: Resistance of earth connection and equipotential bonding	IEC 61557-4:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-4:2019 specifies the requirements applicable to equipment for measuring the resistance of earth conductors, protective earth conductors and conductors for equipotential bonding, including their connections and terminals, with an indication of the measured value or an indication of the limits. IEC 61557-4:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) complement to the measurement category in Clause 4; b) correction of the equation for operating uncertainty; c) complement to the requirements for measuring with DC; d) alignment of the structure with that of the whole IEC 61557 series.

50	IEC 61557-5:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 5: Resistance to earth	<!-- NEW! -->IEC 61557-5:2019 is available as IEC 61557-5:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-5:2019 specifies the requirements applicable to measuring equipment for measuring the resistance to earth using an AC voltage. IEC 61557-5:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) definitions and symbols in Clause 3 modified; b) subclauses in Clause 4 restructured and aligned with other parts of the series; c) limits for reduced voltages 25 V RMS or 35 V peak removed from 4.5; d) requirements for clamps added; e) marking for rated voltages to earth and measurement category added to Clause 5; f) warning about absence of hazardous voltage added in Clause 5; g) the term "percentage operating uncertainty" replaced by "operating uncertainty" in Clause 6; h) equation for uncertainty corrected in Table 1; i) new Annex A on test measurements with loop clamps added.
51	IEC 61557-5:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 5: Resistance to earth	IEC 61557-5:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-5:2019 specifies the requirements applicable to measuring equipment for measuring the resistance to earth using an AC voltage. IEC 61557-5:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) definitions and symbols in Clause 3 modified; b) subclauses in Clause 4 restructured and aligned with other parts of the series; c) limits for reduced voltages 25 V RMS or 35 V peak removed from 4.5; d) requirements for clamps added; e) marking for rated voltages to earth and measurement category added to Clause 5; f) warning about absence of hazardous voltage added in Clause 5; g) the term "percentage operating uncertainty" replaced by "operating uncertainty" in Clause 6; h) equation

			for uncertainty corrected in Table 1; i) new Annex A on test measurements with loop clamps added.
52	IEC 61557-6:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems	IEC 61557-6:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-6:2019 specifies the requirements applicable to measuring equipment for testing the effectiveness of protective measures of residual current devices (RCD) installed in TT, TN and IT systems. It is not the purpose of this document to verify the RCD according to their product standards. IEC 61557-6:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of requirements for testing a new type of RCD; b) addition of requirements for type B RCDs (former Annex B); c) addition of new Annex B on recommended tripping times; d) alignment of the structure with that of the whole IEC 61557 series.
53	IEC 61557-6:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems	<!-- NEW! -->IEC 61557-6:2019 is available as IEC 61557-6:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-6:2019 specifies the requirements applicable to measuring equipment for testing the effectiveness of protective measures of residual current devices (RCD) installed in TT, TN and IT systems. It is not the purpose of this document to verify the RCD according to their product standards. IEC 61557-6:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) addition of requirements for testing a new type of RCD; b) addition of requirements for type B RCDs (former Annex

			B); c) addition of new Annex B on recommended tripping times; d) alignment of the structure with that of the whole IEC 61557 series.
54	IEC 61557-7:2019+AMD1:2023 CSV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	IEC 61557-7:2019+AMD1:2023 specifies the requirements applicable to measuring equipment for testing the phase sequence in three-phase distribution systems. Indication of the phase sequence can be mechanical, visual and/or audible. This document does not apply to additional measurements for other quantities. It does not apply to monitoring relays. IEC 61557-7:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following changes with respect to the previous edition: a) alignment of the structure with that of the whole IEC 61557 series; b) updated requirements in 4.3 in accordance with new editions of IEC 61010-1 and IEC 61010-031; c) the information on markings was extended; d) the information on the operating instructions was extended; e) complement to the information on the testing of leads; f) test leads for insulated conductors were introduced; g) Annex B was added with information on phase sequence tests and indications.
55	IEC 61557-7:2019	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	<!-- NEW! -->IEC 61557-7:2019 is available as IEC 61557-7:2019 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition.</br></br>IEC 61557-7:2019 specifies the requirements applicable to measuring equipment for testing the phase sequence in three-phase distribution systems. Indication of the phase sequence can be mechanical, visual and/or audible. This document does not apply to additional measurements for other quantities. It does not apply to monitoring relays. IEC 61557-7:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following changes with respect to the previous edition: a) alignment of the structure with that of the whole IEC 61557 series; b) updated requirements in 4.3 in accordance with new editions of IEC 61010-1 and

			IEC 61010-031; c) the information on markings was extended; d) the information on the operating instructions was extended; e) complement to the information on the testing of leads; f) test leads for insulated conductors were introduced; g) Annex B was added with information on phase sequence tests and indications.
56	IEC 61557-7:2019 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	IEC 61557-7:2019 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-7:2019 specifies the requirements applicable to measuring equipment for testing the phase sequence in three-phase distribution systems. Indication of the phase sequence can be mechanical, visual and/or audible. This document does not apply to additional measurements for other quantities. It does not apply to monitoring relays. IEC 61557-7:2019 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following changes with respect to the previous edition: a) alignment of the structure with that of the whole IEC 61557 series; b) updated requirements in 4.3 in accordance with new editions of IEC 61010-1 and IEC 61010-031; c) the information on markings was extended; d) the information on the operating instructions was extended; e) complement to the information on the testing of leads; f) test leads for insulated conductors were introduced; g) Annex B was added with information on phase sequence tests and indications.
57	IEC 61557-7:2019/AMD1:2023	Amendment 1 - Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	-

58	IEC 61557-8:2014	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 8: Insulation monitoring devices for IT systems	IEC 61557-8:2014 specifies the requirements for insulation monitoring devices (IMD) which permanently monitor the insulation resistance RF to earth of unearthed a.c. IT systems, of a.c. IT systems with galvanically connected d.c. circuits having nominal voltages up to 1 000 V a.c., as well as of unearthed d.c. IT systems with voltages up to 1 500 V d.c. independent from the method of measuring. IT systems are described in IEC 60364-4-41 amongst other literature. Additional data for the selection of devices in other standards should be noted. IMDs according to this part of IEC 61557 can also be used for de-energized TT, TN and IT systems or appliances. This third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision which includes the following significant technical changes with respect to the previous edition: - terms and definitions have been complemented; - abbreviations are listed and explained; - requirements have been revised; - mandatory and optional functions and their terminology have been adapted from IEC 61557-15; - mechanical requirements have been added; - information on operating instructions has been added; - type tests and routine tests have been complemented; - an Annex C: 'Insulation monitoring devices for photovoltaic systems (PV-IMD)' has been added; and - an Annex D: 'Insulation monitoring function of a photovoltaic inverter (PV-IMF) or in a charge controller' has been added. This publication is to be read in conjunction with IEC 61557-1:2007. The contents of the corrigendum of May 2016 have been included in this copy.
59	IEC 61557-8:2014/COR1:2016	Corrigendum 1 - Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 8: Insulation monitoring devices for IT systems	-

60	IEC 61557-9:2023	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 9: Equipment for insulation fault location in IT systems	IEC 61557-9:2023 specifies the requirements for the insulation fault location system (IFLS) that localizes insulation faults in any part of the system in unearthed IT AC systems and unearthed IT AC systems with galvanically connected DC circuits having nominal voltages up to 1 000 V AC, as well as in unearthed IT DC systems with voltages up to 1 500 V DC, independent of the measuring principle. IEC 61557-9:2023 cancels and replaces the third edition published in 2014. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) new terms and definitions on maximum admissible locating AC and DC currents and voltages; b) the requirements on locating current and locating voltage have been revised; c) performance requirements have been added; d) the test requirements for locating current and locating voltage have been revised; e) the structure of this document has been adapted to that of IEC 61557-1:2019; f) the limit values under Clause A.2 were adapted to fit the changed test methods in 6.2.3.
61	IEC 61557-9:2023 CMV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 9: Equipment for insulation fault location in IT systems	IEC 61557-9:2023 CMV contains both the official standard and its commented version. The commented version provides you with a quick and easy way to compare all the changes between IEC 61557-9:2023 edition 4.0 and the previous IEC 61557-9:2014 edition 3.0. Furthermore, comments from IEC TC 85 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content. IEC 61557-9:2023 specifies the requirements for the insulation fault location system (IFLS) that localizes insulation faults in any part of the system in unearthed IT AC systems and unearthed IT AC systems with galvanically connected DC circuits having nominal voltages up to 1 000 V AC, as well as in unearthed IT DC systems with voltages up to 1 500 V DC, independent of the measuring principle. IEC 61557-9:2023 cancels and replaces the third edition published in 2014. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) new terms and definitions on maximum admissible locating AC and DC currents and voltages; b) the requirements on locating current and locating voltage have been revised; c) performance requirements have been added; d) the test requirements for locating current and locating voltage have been revised; e) the structure of this document

			has been adapted to that of IEC 61557-1:2019; f) the limit values under Clause A.2 were adapted to fit the changed test methods in 6.2.3.
62	IEC 61557-10:2013	Electrical safety in low voltage distribution systems up to 1 000 v a.c. and 1 500 v d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 10: Combined measuring equipment for testing, measuring and monitoring of protective measures	IEC 61557-10:2013 specifies the requirements for combined measuring equipment which combines into one piece of apparatus, several measuring functions or methods of testing, measuring or monitoring according to the respective parts of IEC 61557. This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision. (electrical safety, combined measuring equipment for testing, measuring or monitoring of protective measures) This publication is to be read in conjunction with IEC 61557-1:2007.
63	IEC 61557-11:2020	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 11: Effectiveness of residual current monitors (RCM) in TT, TN and IT systems	<!-- NEW! -->IEC 61557-11:2020 is available as IEC 61557-11:2020 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition. IEC 61557-11:2020 specifies the requirements for test equipment applied to the testing of the effectiveness of residual current monitors (RCM) that are already installed in distribution systems. This test equipment can be used in any kind of network, such as a TN, TT or IT system. The test equipment can also be used for testing directionally discriminating residual current monitors (RCM) in IT systems. It is not the purpose of this document to verify the residual current monitors (RCM) according to their product standards. IEC 61557-11:2020 cancels and replaces the first edition published in 2009. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) document title modified to include all types of RCM; b) terms aligned with IEC 60050; c) addition of requirements for testing new types of RCM; d) moving of requirements for

			RCM Type B from former Annex A to main body text; e) alignment of the structure with that of the whole IEC 61557 series.
64	IEC 61557-11:2020 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 11: Effectiveness of residual current monitors (RCM) in TT, TN and IT systems	IEC 61557-11:2020 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-11:2020 specifies the requirements for test equipment applied to the testing of the effectiveness of residual current monitors (RCM) that are already installed in distribution systems. This test equipment can be used in any kind of network, such as a TN, TT or IT system. The test equipment can also be used for testing directionally discriminating residual current monitors (RCM) in IT systems. It is not the purpose of this document to verify the residual current monitors (RCM) according to their product standards. IEC 61557-11:2020 cancels and replaces the first edition published in 2009. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) document title modified to include all types of RCM; b) terms aligned with IEC 60050; c) addition of requirements for testing new types of RCM; d) moving of requirements for RCM Type B from former Annex A to main body text; e) alignment of the structure with that of the whole IEC 61557 series.
65	IEC 61557-12:2018+AMD1:2021 CSV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	IEC 61557-12:2018+A1:2021 specifies requirements for power metering and monitoring devices (PMD) that measure and monitor the electrical quantities within electrical distribution systems, and optionally other external signals. These requirements also define the performance in single- and three-phase AC or DC systems having rated voltages up to 1 000 V AC or up to 1 500 V DC. These devices are fixed or portable. They are intended to be used indoors and/or outdoors. Power metering and monitoring devices (PMD), as defined in this document, give additional safety information, which aids the verification of the installation and enhances the performance of the distribution systems. The power

			metering and monitoring devices (PMD) for electrical parameters described in this document are used for general industrial and commercial applications. This document does not address functional safety and cyber security aspects. This document is not applicable for: - electricity metering equipment that complies with IEC 62053-21, IEC 62053-22, IEC 62053-23 and IEC 62053-24. Nevertheless, uncertainties defined in this document for active and reactive energy measurement are derived from those defined in IEC 62053 (all parts); - the measurement and monitoring of electrical parameters defined in IEC 61557-2 to IEC 61557-9 and IEC 61557-13 or in IEC 62020; - power quality instrument (PQI) according IEC 62586 (all parts); - devices covered by IEC 60051 (all parts) (direct acting analogue electrical measuring instrument). IEC 61557-12:2018 cancels and replaces the first edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) PMD-A has been withdrawn due the fact these devices are now mainly covered by the IEC 62586 series of standards. b) Three categories of PMD have been created with a list of minimum required functions for each category. c) Added a new Annex A explaining the different applications linked to the relevant standards and devices, and another new Annex C about the power factor conventions. The contents of the corrigendum 1 (2022-09) have been included in this copy. The contents of the corrigendum 1 of Amendment 1 (2022-09) have been included in this copy.
66	IEC 61557-12:2018	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	<!-- NEW! -->IEC 61557-12:2018 is available as IEC 61557-12:2018 RLV which contains the International Standard and its Redline version, showing all changes of the technical content compared to the previous edition. IEC 61557-12:2018 specifies requirements for power metering and monitoring devices (PMD) that measure and monitor the electrical quantities within electrical distribution systems, and optionally other external signals. These requirements also define the performance in single- and three-phase AC or DC systems having rated voltages up to 1 000 V AC or up to 1 500 V DC. These devices are fixed or portable. They are intended to be used indoors and/or outdoors. Power metering and monitoring devices (PMD), as defined in this document, give additional safety

			information, which aids the verification of the installation and enhances the performance of the distribution systems. The power metering and monitoring devices (PMD) for electrical parameters described in this document are used for general industrial and commercial applications. This document does not address functional safety and cyber security aspects. This document is not applicable for: – electricity metering equipment that complies with IEC 62053-21, IEC 62053-22, IEC 62053-23 and IEC 62053-24. Nevertheless, uncertainties defined in this document for active and reactive energy measurement are derived from those defined in IEC 62053 (all parts); – the measurement and monitoring of electrical parameters defined in IEC 61557-2 to IEC 61557-9 and IEC 61557-13 or in IEC 62020; – power quality instrument (PQI) according IEC 62586 (all parts); – devices covered by IEC 60051 (all parts) (direct acting analogue electrical measuring instrument). IEC 61557-12:2018 cancels and replaces the first edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) PMD-A has been withdrawn due the fact these devices are now mainly covered by the IEC 62586 series of standards. b) Three categories of PMD have been created with a list of minimum required functions for each category. c) Added a new Annex A explaining the different applications linked to the relevant standards and devices, and another new Annex C about the power factor conventions. The contents of the corrigendum 1 (2022-09) have been included in this copy.
67	IEC 61557-12:2018 RLV	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	IEC 61557-12:2018 RLV contains both the official IEC International Standard and its Redline version. The Redline version is available in English only and provides you with a quick and easy way to compare all the changes between the official IEC Standard and its previous edition. IEC 61557-12:2018 specifies requirements for power metering and monitoring devices (PMD) that measure and monitor the electrical quantities within electrical distribution systems, and optionally other external signals. These requirements also define the performance in single- and three-phase AC or DC systems having rated voltages up to 1 000 V AC or up to 1 500 V DC. These devices are fixed or portable. They are intended to be used indoors and/or outdoors. Power metering and monitoring devices (PMD), as defined in this document, give additional safety information,

			which aids the verification of the installation and enhances the performance of the distribution systems. The power metering and monitoring devices (PMD) for electrical parameters described in this document are used for general industrial and commercial applications. This document does not address functional safety and cyber security aspects. This document is not applicable for: – electricity metering equipment that complies with IEC 62053-21, IEC 62053-22, IEC 62053-23 and IEC 62053-24. Nevertheless, uncertainties defined in this document for active and reactive energy measurement are derived from those defined in IEC 62053 (all parts); – the measurement and monitoring of electrical parameters defined in IEC 61557-2 to IEC 61557-9 and IEC 61557-13 or in IEC 62020; – power quality instrument (PQI) according IEC 62586 (all parts); – devices covered by IEC 60051 (all parts) (direct acting analogue electrical measuring instrument). IEC 61557-12:2018 cancels and replaces the first edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) PMD-A has been withdrawn due the fact these devices are now mainly covered by the IEC 62586 series of standards. b) Three categories of PMD have been created with a list of minimum required functions for each category. c) Added a new Annex A explaining the different applications linked to the relevant standards and devices, and another new Annex C about the power factor conventions. The contents of the corrigendum 1 (2022-09) have been included in this copy.
68	IEC 61557-12:2018/COR1:2022	Corrigendum 1 - Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	-

69	IEC 61557-12:2018/AMD1:2021	Amendment 1 - Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	The contents of the corrigendum 1 (2022-09) have been included in this copy.
70	IEC 61557-12:2018/AMD1:2021/COR1:2022	Corrigendum 1 - Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 12: Power metering and monitoring devices (PMD)	-
71	IEC 61557-13:2023	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 13: Hand-held and hand-manipulated current clamps and sensors for measurement of leakage currents in electrical distribution systems	IEC 61557-13:2023 defines special performance requirements for hand-held and hand manipulated current clamps and sensors for measurement of leakage currents in electrical distribution systems up to 1 000 V AC and 1 500 V DC taking into account the influence of high external low-frequency magnetic fields and other influencing quantities. See Annex A for examples of measurement applications. This document does not apply to current clamps or sensors that are used in combination with devices for insulation fault location in accordance with IEC 61557-9, unless it is specified by the manufacturer. IEC 61557-13:2023 cancels and replaces the first edition published in 2011. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) the term "fixing device" has been removed; b) the measuring range was changed to a display range, the indication of DC or peak values has been added in 4.1; c) the frequency for the test of sensitivity for low-frequency magnetic fields has been defined in 4.2; d) the specified measuring range is now defined as the range of indicated values based on the operating uncertainty in 4.3; e) alignment of the structure with that of the whole IEC 61557 series; f) the variation E12 (maximum load current), may be specified according to the manufacturer’s specification.

72	IEC 61557-14:2023	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 14: Equipment for testing the safety of electrical equipment of machinery	IEC 61557-14:2023 defines special requirements for test and measurement equipment used to determine the electrical safety of electrical equipment of machinery in accordance with IEC 60204-1. This International Standard is to be used in conjunction with IEC 61557-1:2019. IEC 61557-14:2023 cancels and replaces the first edition published in 2013. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) clarifying the introduction; b) replaced "dielectric strength" by "voltage test"; c) requirement for maximum output current has been added in 4.2.6.1; d) tripping time at electrical switching activated by two-hand operation has been added in 4.2.6.1; e) additional time limiting capability for the protection against electric shock for test persons and bystanders in 4.2.6.2; f) updated references for safety testing; g) alignment of the structure with that of the whole IEC 61557 series.
73	IEC 61557-15:2014	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 15: Functional safety requirements for insulation monitoring devices in IT systems and equipment for insulation fault location in IT systems	IEC 61557-15:2014 specifies requirements related to functional safety and is based on the IEC 61508 standard series for the realization of Insulation Monitoring Devices (IMD) as specified in IEC 61557-8 and for Insulation Fault Location Systems (IFLS) according to IEC 61557-9, according to phase 10 of the IEC 61508-1 lifecycle. These devices provide safety related functions for IT systems. This part of IEC 61557 is - concerned only with functional safety requirements intended to reduce the functional risk during the use of IMDs and IFLSs; - restricted to risks arising directly from the device itself or from several IMDs or IFLSs working together in a system; and - intended to define the basic safety functions provided by the devices. This part of IEC 61557 does not - deal with electrical safety according to IEC 61010-1 and the requirements of IEC 61557-8 and IEC 61557-9; - cover the hazard and risk analysis of a particular use of the IMD or IFLS; - identify all the safety functions for the application in which the IMD or IFLS is used; and - cover the IMD or IFLS manufacturing process. Functional safety requirements depend on the application and should be considered as part of the overall risk assessment of the specific application. The supplier of IMDs and IFLSs is not responsible for the application. The application designer is responsible for the risk assessment and for specifying the overall functional safety requirements of the complete IT system

			and he should select the functional safety level (SIL) of the IMD and/or IFLS when their safety function is part of the functional safety assessment in the IT system. This publication is to be read in conjunction with IEC 61557-8:2007 and IEC 61557-9:2009
74	IEC 61557-16:2023	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 16: Equipment for testing the effectiveness of the protective measures of electrical equipment and/or medical electrical equipment	IEC 61557-16:2023 specifies the requirements applicable to the performance for test and measurement equipment in order to determine the effectiveness of the protective measures for electrical equipment and/or medical electrical equipment described in IEC 62353. This International Standard is to be used in conjunction with IEC 61557-1:2019. IEC 61557-16:2023 cancels and replaces the first edition published in 2014. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) splitting of uncertainty requirements for medical and non-medical electrical equipment in 4.2.1; b) addition of a definition of ranges with defined uncertainty in 4.2.1 to 4.2.7; c) addition of an optional measuring device (MD) for non-medical devices in 4.2.1; d) addition of a limitation of the maximum intrinsic uncertainty for medical applications at leakage current in 4.2.1; e) change of 4.2.3 from test sockets to sockets for service purposes; f) addition of a warning in the operating instructions; g) integration of former 6.3 into 6.2; h) update of Table 1; i) alignment of the structure with that of the whole IEC 61557 series.
75	IEC 61557-17:2021	Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC - Equipment for testing, measuring or monitoring of protective measures - Part 17: Non-contact AC voltage indicators	IEC 61557-17:2021 defines minimum performance requirements for non-contact AC voltage indicators to reduce the risk of electric shock for the testing person and bystanders caused by the wrong interpretation of the indication. Products designed and manufactured in accordance with this document are for use by (electrically) skilled persons only. Non-contact AC voltage indicators are not designed for testing the absence of the operating voltage. This International Standard is to be used in conjunction with IEC 61557-1:2019.

76	IEC 62008:2005	Performance characteristics and calibration methods for digital data acquisition systems and relevant software	Specifies performance characteristics and calibration methods for digital data acquisition systems and relevant software to ensure that all measurement systems relying on DAQ devices meet a common standard. This standard covers: - the minimum specifications that the DAQ device manufacturer must provide to describe the performance of the analogue-to-digital module (ADM) of the DAQ device; - standard test strategies to verify the minimum set of specifications; - the minimum calibration information required by the ADM that is stored on the DAQ device; - the minimum calibration software requirements for external and self-calibration of the ADM of the DAQ device. This standard deals with low frequency signal conversion, e.g. applications such as plant control, vibration measurement, vibro-diagnostics, acoustics, ultrasonic measurements, temperature measurements, pressure measurements, measurement in power electronics, etc.
77	IEC 62586-1:2017	Power quality measurement in power supply systems - Part 1: Power quality instruments (PQI)	IEC 62586-1:2017 specifies product and performance requirements for instruments whose functions include measuring, recording and possibly monitoring power quality parameters in power supply systems, and whose measuring methods (class A or class S) are defined in IEC 61000-4-30. These requirements are applicable in single, dual- (split phase) and 3-phase AC power supply systems at 50 Hz or 60 Hz. This edition includes the following significant technical changes with respect to the previous edition: a) integration of the new measurement functions of IEC 61000-4-30:2015 (e.g. RVC and current functions); b) integration of the new requirements of IEC/TS 61000-6-5:2015, update of definitions of environment G and H, update of applicable EMC performance criteria; c) correction of minor mistakes, improvement in specification. It has the status of a basic EMC publication in accordance with IEC Guide 107.
78	IEC 62586-2:2017+AMD1:2021 CSV	Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements	IEC 62586-2:2017+A1:2021 specifies functional tests and uncertainty requirements for instruments whose functions include measuring, recording, and possibly monitoring power quality parameters in power supply systems, and whose measuring methods (class A or class S) are defined in IEC 61000-4-30. This document applies to power quality instruments complying with IEC 62586-1. This document can also be referred to by other product standards (e.g. digital fault recorders, revenue meters, MV or HV protection relays) specifying devices embedding class A or class S power quality functions

			according to IEC 61000-4-30. These requirements are applicable in single-, dual- (split phase) and 3-phase AC power supply systems at 50 Hz or 60 Hz. This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: - test procedures for RVC and current have been added; - mistakes have been fixed. The contents of the corrigendum of June 2018 have been included in this copy.
79	IEC 62586-2:2017	Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements	IEC 62586-2:2017 specifies functional tests and uncertainty requirements for instruments whose functions include measuring, recording, and possibly monitoring power quality parameters in power supply systems, and whose measuring methods (class A or class S) are defined in IEC 61000-4-30. This document applies to power quality instruments complying with IEC 62586-1. This document can also be referred to by other product standards (e.g. digital fault recorders, revenue meters, MV or HV protection relays) specifying devices embedding class A or class S power quality functions according to IEC 61000-4-30. These requirements are applicable in single-, dual- (split phase) and 3-phase AC power supply systems at 50 Hz or 60 Hz. This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: - test procedures for RVC and current have been added; - mistakes have been fixed. The contents of the corrigendum of June 2018 have been included in this copy.
80	IEC 62586-2:2017/COR1:2018	Corrigendum 1 - Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements	-

81	IEC 62586-2:2017/AMD1:2021	Amendment 1 - Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements	-
82	IEC 62754:2017	Computation of waveform parameter uncertainties	IEC 62754:2017 This document specifies methods for the computation of the temporal and amplitude parameters and their associated uncertainty for step-like and impulse-like waveforms. This document is applicable to any and all industries that generate, transmit, detect, receive, measure, and/or analyse these types of pulses.
83	IEC 62792:2015	Measurement method for the output of electroshock weapons	IEC 62792:2015 specifies a method for measuring the electrical outputs, current and voltage, from electroshock weapons (ESWs) that deliver an electrical stimulus to humans. Manufacturers, medical researchers, policy makers, users, and other interested parties involved with different aspects of ESWs use a variety of different measurement methods, different terminologies, and different parameters to measure and describe the performance of an ESW. These differences generate confusion and misunderstanding within this stakeholder community, and this impacts the ability to perform accurate, reliable, and reproducible measurement comparisons. By developing a generally-accepted terminology, set of performance parameters, and test methods, this standard will facilitate accurate and precise communication for the parameters that describe the electrical output, current and high voltage, of ESWs. This improved communication will aid this stakeholder community in collectively developing uniform methods for describing the ESW output and its effect on human physiology consistently and accurately, thereby enabling the development of safe use performance standards/regulations by the appropriate standardization body.

84	IEC 62974-1:2017	Monitoring and measuring systems used for data collection, gathering and analysis - Part 1: Device requirements	IEC 62974-1:2017 specifies product and performance requirements for devices that fall under the heading of “monitoring and measuring systems used for data collection, gathering and analysis”, for industrial, commercial and similar use rated below or equal to 1 kV AC and 1,5 kV DC. These devices are fixed and are intended to be used indoors as panel-mounted devices, or as modular devices fixed on a DIN rail, or as housing devices fixed on a DIN rail, or as devices fixed by other means inside a cabinet. These devices are used to upload or download information (energy measured on loads, power metering and monitoring data, temperature information…), mainly for energy efficiency purposes. These devices are known as energy servers, energy data loggers, data gateways and I/O data concentrators.
85	IEC TS 63191:2023	Demand-side power quality management	IEC TS 63191:2023 specifies recommendations about power quality measurement and assessment within installations. This document outlines the various phases needed for the establishment of a demand-side power quality measurement plan for buildings and industry installations. Such a power quality measurement plan will enable the optimization of the energy availability and efficiency, improve the assets lifetime and facilitate the resolutions of power quality problems. A power quality measurement plan encompasses the following phases: • definition of the context, objectives and constraints; • assessment of the initial power quality situation; • definition of an action plan for the improvement of the power quality situation; • implementation of the power quality measuring system; • exploitation of the measurement system for the improvement of the power quality situation; • maintenance of the measurement system. This document will also help facility managers tailor their measurement plan to the specific needs of the electrical system under their control. It addresses all the disturbances present in such networks, but does not cover the disturbances present in public electrical distribution networks (supply side) as they are governed by specific documents such as EN 50160 and IEC TS 62749. IEC TS 63191:2023 cancels and replaces IEC TR 63191, published in 2018. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition: a) a new informative Annex A describing a tool to report the ability to assess the power quality of an electrical installation.

86	IEC TR 63213:2019	Power measurement applications within electrical distribution networks and electrical installations	IEC TR 63213:2019 intends to provide state-of-the-art information on the various electricity measurement applications made in the grid (supply side) or in electrical installation (demand side), and on the related standards covering these applications. This Technical Report does not address measurements made for specific purposes such as protection, control, automation or indication.
87	IEC TS 63297:2021	Sensing devices for non-intrusive load monitoring (NILM) systems	IEC TS 63297:2021 is an attempt to provide classification of NILM sensing devices for use in NILM systems, according to the state of the art of NILM technologies. The classification of NILM analytics and NILM systems, as well as performance indicators for NILM systems, can be considered in the future. NILM systems produce estimated disaggregation into energy usages. When accurate measurement and analysis of energy consumption and/or other electrical parameters is needed (e.g. for monitoring the electrical installation), systems based on standardized measuring devices (e.g. PMD, PQI or meters) are used.
88	IEC TS 63383:2022	Cybersecurity aspects of devices used for power metering and monitoring, power quality monitoring, data collection and analysis	IEC TS 63383:2022 deals with cybersecurity related to measuring devices (PMD according to IEC 61557-12 and PQI according to IEC 62586-1) and devices for data collection (devices according to IEC 62974-1) that are intended to be installed in restricted access areas. This document deals with cybersecurity aspects (e.g. device hardening or device resilience) of device(s) used for power metering and monitoring, power quality monitoring, data collection and analysis, but does not cover requirements for organisational cybersecurity (e.g. end-user security policy). This document is a first attempt to develop awareness by manufacturers and other relevant stakeholders about cybersecurity aspects and provide basic guidance for achieving the appropriate security mitigation against vulnerabilities to security threats: – in coherence with device/system approaches described in relevant standards such as IEC 62443 (all parts) and ISO/IEC 27001, – based on generic system use-cases. This document does not cover billing meters covered by the IEC 62053-2x set of standards.