CERTIFICATE OF ACCREDITATION

ICR Co., Ltd.

Accreditation No. : KT652

Corporation Registration No. : 110111-2431479

Address of Laboratory : 112, Hwanggeum 3-ro 7beon-gil Yangchon-eup, Gimpo-si, Gyeonggi-do

date of Initial Accreditation : January 16, 2015

Duration : January 16, 2019 ~ January 15, 2023

Scope of Accreditation : Attached Annex

Date of issue : April 28, 2020

This testing laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025 : 2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique).

LEE Seung Woo

Administrator
Korea Laboratory Accreditation Scheme

No. KT652

03 Electric Test

03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
IEC 61010-1:2010+A1:2016	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements <Exception> 10.5.3 Insulating material 2) The Vicat softening test of ISO 306, method A120 11.7 Fluid pressure and leakage 12.3 Optical radiation 12.5.2 Ultrasonic pressure 13.2.3 Implosion of cathode ray tubes	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
KS C IEC 61010-1:2018	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements <Exception> 10.5.3 Insulating material 2) The Vicat softening test of ISO 306, method A120 11.7 Fluid pressure and leakage 12.3 Optical radiation 12.5.2 Ultrasonic pressure 13.2.3 Implosion of cathode ray tubes	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
IEC 61010-2-010:2014	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials <Exception> 5.4.4.101 Cleaning and decontamination	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N

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03 Electric Test

03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
IEC 61010-2-020:2016	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-020: Particular requirements for laboratory centrifuges <Exception> 7.7 Protection against expelled parts or projected parts 13 Protection against liberated gases, explosion and implosion and escape of microbiological materials Annex AA : Dynamic microbiological test method for BIOSEALS	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N
IEC 61010-2-030:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits <Exception> 101.3 Protection against mismatches of inputs and ranges	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
IEC 61010-2-030:2017	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits <Exception> 101.3 Protection against mismatches of inputs and ranges	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N

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03 Electric Test

03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
IEC 61010-031:2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test <Exception> 11.3 Specially protected probe assemblies	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
IEC 61010-2-040:2015	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-040: Particular requirements for sterilizers and washer-disinfectors used to treat medical materials <Exception> 7.105 Pressure-retaining parts of a door 13.1 Poisonous and injurious gases and substances 13.101 Other HAZARDS arising from the use of toxic sterilants	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Pressure: Max. 35 MPa	N

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Test method	Standard designation	Test range	Field testing
IEC 61010-2-051:2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-051: Particular requirements for laboratory equipment for mixing and stirring	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N
IEC 61010-2-081:2015	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N

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03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
IEC 61010-2-091:2012	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-091: Particular requirements for cabinet X-ray systems	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements <Exception> 10.5.3 Insulating material 2) The Vicat softening test of ISO 306, method A120 11.7 Fluid pressure and leakage 12.3 Ultraviolet (UV) radiation 12.5.2 Ultrasonic pressure 13.2.3 Implosion of cathode ray tubes	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N

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03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
EN 61010-2-010:2014	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials <Exception> 5.4.4.101 Cleaning and decontamination	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
EN 61010-2-020:2006	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-020: Particular requirements for laboratory centrifuges <Exception> 7.6 Protection against expelled parts or projected parts 13 Protection against liberated gases, explosion and implosion and escape of microbiological materials Annex AA : Dynamic microbiological test method for BIOSEALS	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N

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Test method	Standard designation	Test range	Field testing
EN 61010-2-020:2017	EN 61010-2-020:2017 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-020: Particular requirements for laboratory centrifuges <Exception> 7.7 Protection against expelled parts or projected parts 13 Protection against liberated gases, explosion and implosion and escape of microbiological materials Annex AA : Dynamic microbiological test method for BIOSEALS	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N
EN 61010-2-030:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits <Exception> 101.3 Protection against mismatches of inputs and ranges	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N
EN 61010-031:2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test <Exception> 11.3 Specially protected probe assemblies	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N

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03 Electric Test

03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
EN 61010-2-040:2015	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-040: Particular requirements for sterilizers and washer-disinfectors used to treat medical materials <Exception> 7.105 Pressure-retaining parts of a door 13.1 Poisonous and injurious gases and substances 13.101 Other HAZARDS arising from the use of toxic sterilants	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Pressure: Max. 35 MPa	N
EN 61010-2-051:2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-051: Particular requirements for laboratory equipment for mixing and stirring	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N

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03 Electric Test

03.005 Measuring instruments performance test

Test method	Standard designation	Test range	Field testing
EN 61010-2-081:2015	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃ Length: Max. 1 500 mm	N
EN 61010-2-091:2012	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-091: Particular requirements for cabinet X-ray systems	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 500 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 ℃	N

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Test method	Standard designation	Test range	Field testing
IEC 60079-0:2011	Explosive atmospheres - Part 0: Equipment - General requirements <Exception> 26.10 Resistance to light	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N
IEC 60079-0:2017	Explosive atmospheres - Part 0: Equipment - General requirements <Exception> 26.10 Resistance to light	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N

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03 Electric Test

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Test method	Standard designation	Test range	Field testing
IEC 60079-2:2014	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p" <Exception> 16.4 Purging test for pressurized enclosures with no internal source of release and filling procedure test for static pressurization 16.5 Purging and dilution tests for a pressurized enclosure with an internal source of release 16.7 Tests for an infallible containment system	Pressure: Max. 3 ㎫ Flow Rate: 1 000 L/min Time: 1/100 s	N
IEC 60079-5:2015	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"	Distance: 1 000 ㎜ Electric Strength: 5 kV, 100 mA Pressure: Max. 3 ㎫ Temperature: 500 ℃ Time: 1/100 s	N
IEC 60079-6:2015	Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o"	Pressure: Max. 3 ㎫ Time: 1/100 s	N

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Test method	Standard designation	Test range	Field testing
IEC 60079-7:2015	Explosive atmospheres – Part 7: Equipment protection by increased safety ''e'' <Exception> 6.2.3 Additional tests for machines 6.3 Luminaires 6.6.3 Mechanical shock test 6.6.4 Test for ventilation of Level of Protection "eb" battery container 6.7.3 Mechanical shock test 6.7.4 Test for ventilation of Level of Protection "ec" battery container Annex G (normative) Test procedure for T5(only 8 W),T8, T10 and T12 lamps	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N
IEC 60079-11:2011	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N

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03 Electric Test

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Test method	Standard designation	Test range	Field testing
IEC 60079-15:2010	Explosive atmospheres – Part 15: Equipment protection by type of protection "n" <Exception> 22.4 Tests for enclosed break devices and non incendive components 22.8 Test for starter holders for luminaires 22.11 Mechanical shock test for batteries 22.13 Additional ignition tests for large or high-voltage machines	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏ Pressure: Max. 3 ㎫	N
IEC 60079-15:2017	Explosive atmospheres – Part 15: Equipment protection by type of protection "n" <Exception> 11.1 Test for non incendive components	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏ Pressure: Max. 3 ㎫	N

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Test method	Standard designation	Test range	Field testing
IEC 60079-18:2014	Explosive atmospheres – Part 18: Equipment protection by encapsulation “"m”"	Distance: 1 000 ㎜ Temperature: 500 ℃ Electric Strength: 5 kV, 100 mA	N
IEC 60079-25:2010	Explosive atmospheres - Part 25: Intrinsically safe electrical systems	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 ㏁ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N

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Test method	Standard designation	Test range	Field testing
IEC 60079-26:2014	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N
IEC 60079-31:2013	Explosive atmospheres– Part 31: Equipment dust ignition protection by enclosure "t"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N

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Test method	Standard designation	Test range	Field testing
IEC 60204-1:2016	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	Electric Strength: 5 kV, 100 mA Earth Continuity: 6 V, 60 A Current: 1 000 A Insulation Resistance: 100 000 MΩ	Y
IEC 61558-1:2005+ A1:2009	Safety of power transformers, power supply units and similar. Part 1: General requirements and tests <Exception> 19.9 Ageing properties of rubber 19.12.3 Insulated winding wires construction 20 Components(Switch, Plugs, Fuse, Capacitor, Socket-outlet) 23 Terminals for external conductors 28 Resistance to rusting	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃	N

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
EN 60079-0:2012+ A11:2013	Explosive atmospheres - Part 0: Equipment - General requirements <Exception> 26.10 Resistance to light	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N
EN 60079-2:2014	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p" <Exception> 16.4 Purging test for pressurized enclosures with no internal source of release and filling procedure test for static pressurization 16.5 Purging and dilution tests for a pressurized enclosure with an internal source of release 16.7 Tests for an infallible containment system	Pressure: Max. 3 ㎫ Flow Rate: 1 000 L/min Time: 1/100 s	N

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Test method	Standard designation	Test range	Field testing
EN 60079-5:2015	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"	Distance: 1 000 ㎜ Electric Strength: 5 kV, 100 mA Pressure: Max. 3 ㎫ Temperature: 500 ℃ Time: 1/100 s	N
EN 60079-6:2015	Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o"	Pressure: Max. 3 ㎫ Time: 1/100 s	N
EN 60079-7:2015	Explosive atmospheres – Part 7: Equipment protection by increased safety ''e'' <Exception> 6.2.3 Additional tests for machines 6.3 Luminaires 6.6.3 Mechanical shock test 6.6.4 Test for ventilation of Level of Protection "eb" battery container 6.7.3 Mechanical shock test 6.7.4 Test for ventilation of Level of Protection "ec" battery container Annex G (normative) Test procedure for T5(only 8 W),T8, T10 and T12 lamps	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 ㏁ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N

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Test method	Standard designation	Test range	Field testing
EN 60079-11:2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N
EN 60079-15:2010	Explosive atmospheres – Part 15: Equipment protection by type of protection "n" <Exception> 22.4 Tests for enclosed break devices and non incendive components 22.8 Test for starter holders for luminaires 22.11 Mechanical shock test for batteries 22.13 Additional ignition tests for large or high-voltage machines	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏ Pressure: Max. 3 ㎫	N

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Test method	Standard designation	Test range	Field testing
EN 60079-18:2015	Explosive atmospheres – Part 18: Equipment protection by encapsulation “"m”"	Distance: 1 000 ㎜ Temperature: 500 ℃ Electric Strength: 5 kV, 100 mA	N
EN 60079-25:2010	Explosive atmospheres - Part 25: Intrinsically safe electrical systems	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N

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Test method	Standard designation	Test range	Field testing
EN 60079-26:2015	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N
EN 60079-31:2014	Explosive atmospheres– Part 31: Equipment dust ignition protection by enclosure "t"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 μF Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏	N

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Test method	Standard designation	Test range	Field testing
EN 60204-1:2006+ A1:2009	Safety of machinery. Electrical equipment of machines. General requirements	Electric Strength: 5 kV, 100 mA Earth Continuity: 6 V, 60 A Current: 1 000 A Insulation Resistance: 100 000 MΩ	Y
EN 61558-1:2005+ A1:2009	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests <Exception> 19.9 Ageing properties of rubber 19.12.3 Insulated winding wires construction 20 Components(Switch, Plugs, Fuse, Capacitor, Socket-outlet) 23 Terminals for external conductors 28 Resistance to rusting	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃	N
EN 1493:2010	Vehicle lifts	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
EN ISO 11202:2010	Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	Y

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Test method	Standard designation	Test range	Field testing
KS C IEC 60204-1:2015	Safety of machinery. Electrical equipment of machines. Part 1: General requirements	Electric Strength: 5 kV, 100 mA Earth Continuity: 6 V, 60 A Current: 1 000 A Insulation Resistance: 100 000 MΩ	Y
KS C IEC 61558-1:2002	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests <Exception> 19.9 Ageing properties of rubber 19.12.3 Insulated winding wires construction 20 Components(Switch, Plugs, Fuse, Capacitor, Socket-outlet) 23 Terminals for external conductors 28 Resistance to rusting	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃	N

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Test method	Standard designation	Test range	Field testing
KS I ISO 11202:2014	Acoustics -- Noise emitted by machinery and equipment -- Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	Y
ISO 80079-36:2016	Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres –Basic method and requirements	Temperature: 500 ℃ Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Time: 1/100 s	N
ISO 80079-37:2016	Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres –Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"	Pressure: Max. 3 ㎫ Time: 1/100 s	N
ISO 11202:2010	Acoustics -- Noise emitted by machinery and equipment -- Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	Y

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Test method	Standard designation	Test range	Field testing
KS C IEC 60079-6:2015	Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o"	Pressure: Max. 3 ㎫ Time: 1/100 s	N
KS C IEC 60079-5:2015	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"	Distance: 1 000 ㎜ Electric Strength: 5 kV, 100 mA Pressure: Max. 3 ㎫ Temperature: 500 ℃ Time: 1/100 s	N
KS C IEC 60079-2:2014	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p" <Exception> 16.4 Purging test for pressurized enclosures with no internal source of release and filling procedure test for static pressurization 16.5 Purging and dilution tests for a pressurized enclosure with an internal source of release 16.7 Tests for an infallible containment system	Pressure: Max. 3 ㎫ Flow Rate: 1 000 L/min Time: 1/100 s	N
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	Electric Strength: 5 kV, 100 mA Earth Continuity: 6 V, 60 A Current: 1 000 A Insulation Resistance: 100 000 ㏁	Y

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
EN IEC 60079-0:2018	Explosive atmospheres - Part 0: Equipment - General requirements <Exception> 26.10 Resistance to light	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 ㎌ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃/0 % ~ 95 % Weight: 150 ㎏	N
EN IEC 60079-15:2019	Explosive atmospheres – Part 15: Equipment protection by type of protection "n“ <Exception> 11.1 Test for non incendive components	Input Voltage: Max. 500 V Input Frequency: (50/60) HzInput Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Time: 1/100 s Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃ /0 % ~ 95 % R.H. Weight: 150 ㎏ Pressure: Max. 3 ㎫	N

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60079-0:2017	Explosive atmospheres - Part 0: Equipment - General requirements <Exception> 26.10 Resistance to light	"Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 ㎌ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃/0 % ~ 95 % Weight: 150 ㎏"	N
KS C IEC 60079-7:2006	Explosive atmospheres – Part 7: Equipment protection by increased safety "e" <Exception> 6.2.3 Additional tests for machines 6.3 Luminaires 6.6.3 Mechanical shock test 6.6.4 Test for ventilation of Level of Protection "ec" battery container Annex H (normative) Test procedure for T5(only 8 W),T8, T10 and T12 lamps	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60079-11:1999	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N
KS C IEC 60079-15:2017	Explosive atmospheres – Part 15: Equipment protection by type of protection "n" <Exception> 11.1 Test for non incendive components	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃/0 % ~ 95 % Weight: 150 ㎏ Pressure: Max. 3 ㎫	N

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60079-18:2014	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"	Distance: 1 000 ㎜ Temperature: 500 ℃ Electric Strength: 5 kV, 100 mA	N
KS C IEC 60079-25:2003	Explosive atmospheres - Part 25: Intrinsically safe electrical systems	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Electric Strength: 5 kV, 100 mA Force: 1 000 N	N
KS C IEC 60079-31:2013	Explosive atmospheres– Part 31: Equipment dust ignition protection by enclosure "t"	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 ㎌ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃/0 % ~ 95 % Weight: 150 ㎏	N

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03 Electric Test

03.006 Industrial electric equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60079-26:2006	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Input Current: Max. 20 A Current: 1 000 A Distance: 1 000 ㎜ Temperature: 500 ℃ Insulation Resistance: 100 000 MΩ Resistance: 100 kΩ Capacitance: 1 ㎌ Torque: 5 N・m ~ 150 N・m Time: 1/100 s Force: 1 000 N Electric Strength: 5 kV, 100 mA Temp. & Humidity: -40 ℃ ~ 150 ℃/0 % ~ 95 % Weight: 150 ㎏	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-1:2010+ A1:2013+A2:2016	Household and similar electrical appliances - Safety - Part 1: General requirements <Exception> 14 Impulse test voltage over 6 000 V 22.16 Test for automatic cord reels 22.32 Oxygen bomb aging test for natural or synthetic rubber 22.48 Test of IEC 61770 24.1.4 Operation cycle test for automatic controls of IEC 60730-1 Annex F. Capacitors Annex H. Switches Annex J. Coated printed circuit boards Annex R. Software evaluation Annex T. UV-C radiayion effect on non-metallic materials	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-9:2008+ A1:2012+A2:2016	Household and similar electrical appliances - Safety - Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

No. KT652

03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-14:2016	Household and similar electrical appliances - Safety - Part 2-14: Particular requirements for kitchen machines <Exception> 25.7 PVC Power cord test cl. 8.1, 8.2 and 8.3 of IEC 60811-1-4	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-15:2012+ A1:2016	Household and similar electrical appliances - Safety - Part 2-15: Particular requirements for appliances for heating liquids	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-16:2002+A1:2008+A2:2011	Household and similar electrical appliances - Safety - Part 2-16: Particular requirements for food waste disposers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-21:2012+A1:2018	Household and similar electrical appliances - Safety - Part 2-21: Particular requirements for storage water heaters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-23:2016	Household and similar electrical appliances - Safety - Part 2-23: Particular requirements for appliances for skin or hair care	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-32:2002+ A1:2008+A2:2013	Household and similar electrical appliances - Safety - Part 2-32: Particular requirements for massage appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-45:2002+ A1:2008+A2:2011	Household and similar electrical appliances - Safety - Part 2-45: Particular requirements for portable heating tools and similar appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-54:2008+ A1:2015	Household and similar electrical appliances - Safety - Part 2-54: Particular requirements for surface-cleaning appliances for household use employing liquids or steam <Exception> 21.101 Crushing test of current-carrying hoses 21.102 Abrasion test of current-carrying hoses 21.103 Flexing test of current-carrying hoses 21.104 Torsion test of current-carrying hoses 21.105 Low temp. test of current-carrying hoses	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-65:2002+ A1:2008+A2:2015	Household and similar electrical appliances - Safety - Part 2-65: Particular requirements for air-cleaning appliances <Exception> 32. Radiation, toxicity and similar hazards	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-80:2015	Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60335-2-84:2002+ A1:2008+A2:2013	Household and similar electrical appliances - Safety - Part 2-84: Particular requirements for toilet appliances <Exception> 30.101 Toilet shall have adequate resistance to cleaners and urine.	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60335-2-98:2002+ A1:2004+A2:2008	Household and similar electrical appliances - Safety - Part 2-98: Particular requirements for humidifiers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 62233:2005	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	EMF: 1 Hz ~ 400 kHz	N
IEC 60065:2014	Audio, video and similar electronic apparatus - Safety requirements <Exception> 7.2 Softening temperature 8.21 Mandrel test 13.3.4 Transient voltages 14.3 Capacitors and RC-units 14.7 Switches 14.13 Surge suppression varistors 15.1 Plugs and sockets 16.3 b) Test of 3.1 of IEC 60227-2:1997 18 Mechanical strength of picture tubes and protection against the effects of implosion Annex C Band-pass filter for wide-band noise measurement Annex H Insulating winding wires Annex K Impulse test for 10/700 μs	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 62040-1:2017	Uninterruptible power systems (UPS) - Part 1: Safety requirements <Exception> 5.1.4, 5.3.2(Measurement of transient levels) (Enclosed and sealed parts) 7.3 Mechanical strength (Cathode ray tube) 6.2.1 General provisions for connection to power (Cord anchorage and strain relief) Annex M.4 Ventilation of battery compartments Annex I.4 Load-induced change of reference potential Annex I.5 Solid-state backfeed protection	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60950-1:2005+ A1:2009+A2:2013	Information technology equipment - Safety - Part 1: General requirements <Exceptions> 2.10.3.9 Measurement of transient levels 2.10.5.4 Partial Discharge Test (on semiconductors) 3.2.5.1 AC Power Supply Cords 4.2.8 Cathode ray tube 4.2.9 High pressure lamps 4.3.12 Flammable liquids 4.3.13.3 Effect of UV radiation on materials 4.3.13.4 Human exposure to UV radiation 4.3.13.5.2 Light emitting diodes (LEDs) 4.6.2 Bottoms of fire enclosure 6.2.2.1 Impulse Test 7.4.3 Impulse test Annex K Thermal controls Annex N Impulse test for 10/700 μs Annex Q Voltage dependent resistors (VDRs) Annex U Insulating winding wires Annex Y Ultraviolet light conditioning test Annex AA Mandrel test Annex CC Evaluation of integrated circuit (IC) current limiters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 60950-21:2002	Information technology equipment - Safety - Part 21: Remote power feeding	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
IEC 60950-23:2005	Information technology equipment - Safety - Part 23: Large data storage equipment	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
IEC 62368-1:2014	Audio/video, information and communication technology equipment - Part 1: Safety requirements <Exception> 5.4.1.11 Vicat test B 50 of ISO 306 5.4.4 Mandrel 5.6.6.4 Determination of the overcurrent protective device and circuit (Annex R) 10 Radiations Annex G.9 Mains supply cords Annex G.21 Tubing and fittings compatility test Annex J Insulated winding wires for use without interleaved insulation Annex M.8 Protection against internal ignition from external spark sources – Spark Test Annex S Distillate fuel oil as described in Annex S.3.2 Annex U Mechanical strength of CRTs and protection against the effects of implosion	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 62368-1:2014 + A11:2017	Audio/video, information and communication technology equipment - Part 1: Safety requirements (IEC 62368-1:2014, modified) <Exception> 5.4.1.10 Vicat test B 50 of ISO 306 5.4.4 Mandrel 5.6.4.1 Determination of the overcurrent protective device and circuit (Annex R) 10 Radiations Annex G.7 Mains supply cords Annex G.15 Tubing and fittings compatibility test Annex J Insulated winding wires for use without interleaved insulation Annex M.8.2 Protection against internal ignition from external spark sources – Spark Test Annex S Distillate fuel oil as described in Annex S.3.2 Annex U Mechanical strength of CRTs and protection against the effects of implosion	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-1:2012+ A11:2014+A13:2017	Household and similar electrical appliances - Safety - Part 1: General requirements <Exception> 14 Impulse test voltage over 6 000 V 22.16 Test for automatic cord reels 22.32 Oxygen bomb aging test for natural or synthetic rubber 22.48 Test of IEC 61770 24.1.4 Operation cycle test for automatic controls of IEC 60730-1 Annex F. Capacitors Annex H. Switches Annex J. Coated printed circuit boards Annex R. Software evaluation	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-9:2003+ A1:2004+A2:2006+ A12:2007+A13:2010	Household and similar electrical appliances - Safety - Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-14:2006+A1:2008+A11:2012+A12:2016	Household and similar electrical appliances - Safety - Part 2-14: Particular requirements for kitchen machines <Exception> 25.7 PVC Power cord test cl. 8.1, 8.2 and 8.3 of IEC 60811-1-4	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-15:2016	Household and similar electrical appliances - Safety - Part 2-15: Particular requirements for appliances for heating liquids	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-16:2003+ A1:2008+A2:2012	Household and similar electrical appliances - Safety - Part 2-16: Particular requirements for food waste disposers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-21:2003+ A1:2005+A2:2008	Household and similar electrical appliances - Safety - Part 2-21: Particular requirements for storage water heaters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-23:2003+ A1:2008+A11:2010+ A2:2015	Household and similar electrical appliances - Safety - Part 2-23: Particular requirements for appliances for skin or hair care	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-32:2003+ A1:2008+A2:2015	Household and similar electrical appliances - Safety - Part 2-32: Particular requirements for massage appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-45:2002+ A1:2008+A2:2012	Household and similar electrical appliances - Safety - Part 2-45: Particular requirements for portable heating tools and similar appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-54:2008+ A11:2012+A1:2015	Household and similar electrical appliances - Safety - Part 2-54: Particular requirements for surface-cleaning appliances for household use employing liquids or steam <Exception> 21.101 Crushing test of current-carrying hoses 21.102 Abrasion test of current-carrying hoses 21.103 Flexing test of current-carrying hoses 21.104 Torsion test of current-carrying hoses 21.105 Low temp. test of current-carrying hoses	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-65:2003+ A1:2008+A11:2012	Household and similar electrical appliances - Safety - Part 2-65: Particular requirements for air-cleaning appliances <Exception> 32. Radiation, toxicity and similar hazards	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-80:2003+ A1:2004+A2:2009	Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60335-2-84:2003+ A1:2008	Household and similar electrical appliances - Safety - Part 2-84: Particular requirements for toilet appliances <Exception> 30.101 Toilet shall have adequate resistance to cleaners and urine.	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60335-2-98:2003+ A1:2005+A2:2008	Household and similar electrical appliances - Safety - Part 2-98: Particular requirements for humidifiers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 62233:2008	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	EMF: 1 Hz ~ 400 kHz	N
EN 60065:2014+A11:2017	Audio, video and similar electronic apparatus - Safety requirements <Exception> 7.2 Softening temperature 8.21 Mandrel test 13.3.4 Transient voltages 14.3 Capacitors and RC-units 14.7 Switches 14.13 Surge suppression varistors 15.1 Plugs and sockets 16.3 b) Test of 3.1 of IEC 60227-2:1997 18 Mechanical strength of picture tubes and protection against the effects of implosion Annex C Band-pass filter for wide-band noise measurement Annex H Insulating winding wires Annex K Impulse test for 10/700 μs	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 62040-1:2008+ A1:2013	Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS <Exception> 5.1.4, 5.3.2(Measurement of transient levels) (Enclosed and sealed parts) 7.3 Mechanical strength (Cathode ray tube) 6.2.1 General provisions for connection to power (Cord anchorage and strain relief) Annex M.4 Ventilation of battery compartments Annex I.4 Load-induced change of reference potential Annex I.5 Solid-state backfeed protection	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60950-1:2006+ A11:2009+A1:2010+ A12:2011+A2:2013	Information technology equipment - Safety - Part 1: General requirements <Exceptions> 2.10.3.9 Measurement of transient levels 2.10.5.4 Partial Discharge Test (on semiconductors) 3.2.5.1 AC Power Supply Cords 4.2.8 Cathode ray tube 4.2.9 High pressure lamps 4.3.12 Flammable liquids 4.3.13.3 Effect of UV radiation on materials 4.3.13.4 Human exposure to UV radiation 4.3.13.5.2 Light emitting diodes (LEDs) 4.6.2 Bottoms of fire enclosure 6.2.2.1 Impulse Test 7.4.3 Impulse test Annex K Thermal controls Annex N Impulse test for 10/700 μs Annex Q Voltage dependent resistors (VDRs) Annex U Insulating winding wires Annex Y Ultraviolet light conditioning test Annex AA Mandrel test Annex CC Evaluation of integrated circuit (IC) current limiters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
EN 60950-21:2003	Information technology equipment - Safety - Part 21: Remote power feeding	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
EN 60950-23:2006	Information technology equipment - Safety - Part 23: Large data storage equipment	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-1:2013	Household and similar electrical appliances - Safety - Part 1: General requirements <Exception> 14 Impulse test voltage over 6 000 V 22.16 Test for automatic cord reels 22.32 Oxygen bomb aging test for natural or synthetic rubber 22.48 Test of IEC 61770 24.1.4 Operation cycle test for automatic controls of IEC 60730-1 Annex F. Capacitors Annex H. Switches Annex J. Coated printed circuit boards Annex R. Software evaluation	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-9:2014	Household and similar electrical appliances - Safety - Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-14:2013	Household and similar electrical appliances - Safety - Part 2-14: Particular requirements for kitchen machines <Exception> 25.7 PVC Power cord test cl. 8.1, 8.2 and 8.3 of KS C IEC 60811-1-4	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-15:2016	Household and similar electrical appliances - Safety - Part 2-15: Particular requirements for appliances for heating liquids	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-16:2014	Household and similar electrical appliances - Safety - Part 2-16: Particular requirements for food waste disposers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-21:2014	Household and similar electrical appliances - Safety - Part 2-21: Particular requirements for storage water heaters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-23:2016	Household and similar electrical appliances - Safety - Part 2-23: Particular requirements for appliances for skin or hair care	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-32:2013	Household and similar electrical appliances - Safety - Part 2-32: Particular requirements for massage appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-45:2013	Household and similar electrical appliances - Safety - Part 2-45: Particular requirements for portable heating tools and similar appliances	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-54:2013	Household and similar electrical appliances - Safety - Part 2-54: Particular requirements for surface-cleaning appliances for household use employing liquids or steam <Exception> 21.101 Crushing test of current-carrying hoses 21.102 Abrasion test of current-carrying hoses 21.103 Flexing test of current-carrying hoses 21.104 Torsion test of current-carrying hoses 21.105 Low temp. test of current-carrying hoses	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-65:2013	Household and similar electrical appliances - Safety - Part 2-65: Particular requirements for air-cleaning appliances <Exception> 32. Radiation, toxicity and similar hazards	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-80:2015	Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KS C IEC 60335-2-84:2013	Household and similar electrical appliances - Safety - Part 2-84: Particular requirements for toilet appliances <Exception> 30.101 Toilet shall have adequate resistance to cleaners and urine.	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 60335-2-98:2013	Household and similar electrical appliances - Safety - Part 2-98: Particular requirements for humidifiers	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
KC 60065:2015	Audio, video and similar electronic apparatus - Safety requirements <Exception> 7.2 Softening temperature 8.22 Mandrel test 14.2 Capacitors and RC-units 14.6 Switches 14.12 Surge suppression varistors 15.1 Plugs and sockets 16.3 b) Test of 3.1 of IEC 60227-2:1997 18 Mechanical strength of picture tubes and protection against the effects of implosion Annex C Band-pass filter for wide-band noise measurement Annex H Insulating winding wires	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N
KS C IEC 62040-1:2014	Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS <Exception> 5.1.4, 5.3.2(Measurement of transient levels) (Enclosed and sealed parts) 7.3 Mechanical strength (Cathode ray tube) 6.2.1 General provisions for connection to power (Cord anchorage and strain relief) Annex M.4 Ventilation of battery compartments Annex I.4 Load-induced change of reference potential Annex I.5 Solid-state backfeed protection	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.007 Household and similar equipment

Test method	Standard designation	Test range	Field testing
K 60950-1:2011	Information technology equipment - Safety - Part 1: General requirements <Exceptions> 2.10.3.9 Measurement of transient levels 2.10.5.4 Partial Discharge Test (on semiconductors) 3.2.5.1 AC Power Supply Cords 4.2.8 Cathode ray tube 4.2.9 High pressure lamps 4.3.12 Flammable liquids 4.3.13.4 Human exposure to UV radiation 4.3.13.5.2 Light emitting diodes (LEDs) 4.6.2 Bottoms of fire enclosure Annex K Thermal controls Annex Q Voltage dependent resistors (VDRs) Annex U Insulating winding wires Annex Y Ultraviolet light conditioning test Annex AA Mandrel test Annex CC Evaluation of integrated circuit (IC) current limiters	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz Leakage Current: Max. 10 mA Temperature: Max. 200 ℃ Earth Continuity: 6 V, 60 A Electric Strength: 10 kV Insulation Resistance: Max. 5 000 MΩ Humidity: Max. 95 % R.H.	N

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03 Electric Test

03.008 Wired/Wireless telecommunication equipment

Test method	Standard designation	Test range	Field testing
ETSI EN 300 328 V2.1.1	Wideband transmission systems; Da transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	Frequency bands : 2 400 MHz to 2 483.5 MHz	N
ETSI EN 301 893 V2.1.1	5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	Frequency bands : 5 150 MHz to 5 350 MHz / 5 470 MHz to 5 725 MHz	N
ETSI EN 300 330 V2.1.1	Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	Frequency bands : 9 kHz to 30 MHz	N
ETSI EN 300 220-1 V3.1.1	Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement	Frequency range : 25 MHz to 1 GHz	N

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03 Electric Test

03.008 Wired/Wireless telecommunication equipment

Test method	Standard designation	Test range	Field testing
ETSI EN 300 220-2 V3.2.1	Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 2: Harmonised Standard for access to radio spectrum for non specific radio equipment	Frequency range : 25 MHz to 1 GHz	N
ETSI EN 300 440 V2.1.1	Short Range Devices (SRD); Radio equipment to be used In the 1 GHz to 40 GHz frequency range; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	Frequency range : 1 GHz to 20 GHz	N
ETSI EN 300 440 V2.2.1	Short Range Devices (SRD); Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Harmonised Standard for access to radio spectrum	Frequency range : 1 GHz to 20 GHz	N
ETSI EN 302 502 V2.1.1	Wireless Access Systems (WAS); 5,8 GHz fixed broadband data transmitting systems, Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU	Frequency bands : 5 725 MHz to 5 875 MHz	N

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03 Electric Test

03.008 Wired/Wireless telecommunication equipment

Test method	Standard designation	Test range	Field testing
BS EN 62311:2008	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)	Frequency bands : 0 Hz - 40 GHz	N
BS EN 62479:2010	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)	Frequency bands : 10 MHz - 40 GHz	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-1 ed3.0: 2005+am1:2012	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance <Exception> 8.8.4.2 Parts of natural latex rubber are aged in an atmosphere of oxygen under pressure. The samples are suspended freely in an oxygen cylinder, the effective capacity of the cylinder is at least 10 times the volume of the sample. The cylinder is filled with commercial oxygen not less than 97 % pure, to a press of 2.1 MPa ± 70 kPa. 9.5.2 Cathode ray tubes 9.7.5 Pressure vessels 11.2.2 ME EQUIPMENT and ME SYSTEMS used in conjunction with OXYGEN RICH ENVIRONMENTS 11.2.3 SINGLE FAULT CONDITIONS related to OXYGEN RICH ENVIRONMENTS in conjunction with ME EQUIPMENT and ME SYSTEMS 11.6.7 Sterilization of ME EQUIPMENT and ME SYSTEMS 15.4.3.4 Lithium batteries Annex A.4 Subclause 10.4 IEC 62471 can be applied to determine the risk group class of an LED or product incorporating one or more LEDs. Annex G Protection against HAZARDS of ignition of flammable anaesthetic mixtures Annex L Insulated winding wires for use without interleaved insulation	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-1-3:2008+ A1:2013	Medical electrical equipment - Part 1-3: General requirements for basic safety and essential performance - Collateral Standard: Radiation protection in diagnostic X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 5.4 mm Al	N
IEC 60601-1-6 ed3.0: 2010	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
IEC 60601-1-6:2010+ A1:2013	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-1-8 ed2.0: 2006+am1:2012	Medical electrical equipment - Part 1-8: General requirements for basic safety and essential performance – Collateral standard : General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems	Noise Level: 94 dB	N
IEC 60601-1-9 ed1.1 Consol. with am1:2013	Medical electrical equipment - Part 1-9: General requirements for basic safety and essential performance-Collateral Standard : Requirements for environmentally conscious design	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
IEC 60601-1-10 ed1.0: 2007+am1:2013	Medical electrical equipment - Part 1-10: General requirements for basic safety and essential performance-Collateral Standard : Requirements for the development of physiologic closed-loop controllers	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-1-11 ed1.0: 2010	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard : Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N
IEC 60601-1-11:2015	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard : Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-1-12:2014	Medical electrical equipment - Part 1-12: General requirements for basic safety and essential performance - Collateral Standard: Requirements for medical electrical equipment and medical electrical systems intended for use in the emergency medical services environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N
IEC 60601-2-2 ed5.0: 2009	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N
IEC 60601-2-2:2017	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-3:2012+A1:2016	Medical electrical equipment - Part 2-3: Particular requirements for the basic safety and essential performance of short-wave therapy equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Output power: Max. 500 W	N
IEC 60601-2-4:2010+A1:2018	Medical electrical equipment - Part 2-4: Particular requirements for the basic safety and essential performance of cardiac defibrillators <Exception> 201.109 External pacing	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Resistive load: (25 ~175) Ω	N
IEC 60601-2-5 ed3.0: 2009	Medical electrical equipment - Part 2-5: Particular requirements for the basic safety and essential performance of ultrasonic physiotherapy equipment <Exception> 201.10.102 Unwanted ultrasound radiation 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-6:2012+ A1:2016	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Unwanted radiation: 10 W/cm^2	N
IEC 60601-2-10:2012+ A1:2016	Medical electrical equipment - Part 2-10: Particular requirements for the basic safety and essential performance of nerve and muscle stimulators	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Output current: 100 mA	N
IEC 60601-2-18 ed3.0: 2009	Medical electrical equipment - Part 2-18: Particular requirements for the basic safety and essential performance of endoscopic equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
IEC 60601-2-22 ed3.0: 2007+am1:2012	Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment	Measuring Distance: 1 500 mm Measuring Laser Power: (1 ~ 300) W Measuring Laser Energy: 2.4 mJ ~ 3.0 J Measuring Laser Wavelength: (266 ~ 2 100) nm Leakage current: Max. 10 mA	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-25:2011	Medical electrical equipment - Part 2-25: Particular requirements for the basic safety and essential performance of electrocardiographs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N
IEC 60601-2-27:2011	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV	N
IEC 60601-2-28:2010	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
IEC 60601-2-28:2017	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 80601-2-30:2009+ A1:2013	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers <Exception> 201.106 Clinical accuracy 202.6.2.101 Electrosurgery interference recovery	Measuring Pressure: (10 ~ 400) mmHg	N
IEC 80601-2-30:2018	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers <Exception> 201.106 Clinical accuracy 202.8.101 Electrosurgery interference recovery	Measuring Pressure: (10 ~ 400) mmHg	N
IEC 60601-2-37 ed2.0: 2007	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment <Exception> 201.11 Protection against excessive temperatures and other HAZARDS 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-37:2007+A1:2015	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment <Exception> 201.11 Protection against excessive temperatures and other HAZARDS 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
IEC 60601-2-43:2010+A1:2017	Medical electrical equipment - Part 2-43: Particular requirements for the basic safety and essential performance of X-ray equipment for interventional procedures	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 45 mm	N
IEC 60601-2-44:2009+A1:2012+A2:2016	Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
IEC 60601-2-45:2011+A1:2015	Medical electrical equipment - Part 2-45: Particular requirements for basic safety and essential performance of mammographic X-ray equipment and mammomagraphic stereotactic devices <Exception> 201.9.2.101.3 Biopsy needle positioning accuracy of MAMMOGRAPHIC STEREOTACTIC DEVICES	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 5.4 mm Al	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-47:2012	Medical electrical equipment - Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N
IEC 60601-2-49 ed2.0: 2011	Medical electrical equipment - Part 2-49: Particular requirements for the basic safety and essential performance of multifunction patient monitoring equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N
IEC 80601-2-49:2018	Medical electrical equipment - Part 2-49: Particular requirements for the basic safety and essential performance of multifunction patient monitors	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-54:2009+A1:2015+A2:2018	Medical electrical equipment - Part 2-54: Particular requirements for the basic safety and essential performance of X-ray equipment for radiography and radioscopy	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Phantom thickness: Max. 20 cm Attenuation aluminium thickness: Max. 45 mm	N
IEC 80601-2-59 ed1.0: 2008	Medical electrical equipment - Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
IEC 80601-2-59:2017	Medical electrical equipment - Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
IEC 80601-2-60 ed1.0: 2012	Medical electrical equipment - Part 2-60: Particular requirements for basic safety and essential performance of dental equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
ISO 80601-2-61:2011	Medical electrical equipment - Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
ISO 80601-2-61:2017	Medical electrical equipment - Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
IEC 60601-2-63:2012+A1:2017	Medical electrical equipment - Part 2-63: Particular requirements for the basic safety and essential performance of dental extra-oral X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 20 mA Attenuation equivalent: Max. 1.2 mm Al	N
IEC 60601-2-65:2012+A1:2017	Medical electrical equipment - Part 2-65: Particular requirements for the basic safety and essential performance of dental intra-oral X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 20 mA Temperature: Max. 200 °C	N
IEC 61010-2-101 ed1.0: 2002	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
IEC 61010-2-101:2015	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
EN 60601-1:2006+ A1:2013	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance <Exception> 8.8.4.2 Parts of natural latex rubber are aged in an atmosphere of oxygen under pressure. The samples are suspended freely in an oxygen cylinder, the effective capacity of the cylinder is at least 10 times the volume of the sample. The cylinder is filled with commercial oxygen not less than 97 % pure, to a press of 2.1 MPa ± 70 kPa. 9.5.2 Cathode ray tubes 9.7.5 Pressure vessels 11.2.2 ME EQUIPMENT and ME SYSTEMS used in conjunction with OXYGEN RICH ENVIRONMENTS 11.2.3 SINGLE FAULT CONDITIONS related to OXYGEN RICH ENVIRONMENTS in conjunction with ME EQUIPMENT and ME SYSTEMS 11.6.7 Sterilization of ME EQUIPMENT and ME SYSTEMS 15.4.3.4 Lithium batteries Annex A.4 Subclause 10.4 IEC 62471 can be applied to determine the risk group class of an LED or product incorporating one or more LEDs. Annex G Protection against HAZARDS of ignition of flammable anaesthetic mixtures Annex L Insulated winding wires for use without interleaved insulation	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-3:2008+ A1:2013	Medical electrical equipment - Part 1-3: General requirements for basic safety and essential performance - Collateral Standard: Radiation protection in diagnostic X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 5.4 mm Al	N
EN 60601-1-6:2010	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral Standard : Usability	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-6:2010+ A1:2015	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral Standard : Usability	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
EN 60601-1-8:2007+ A1:2013	Medical electrical equipment - Part 1-8: General requirements for basic safety and essential performance - Collateral Standard : General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems	Noise Level: 94 dB	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-9:2008+ A1:2013	Medical electrical equipment - Part 1-9: General requirements for basic safety and essential performance - Collateral Standard : Requirements for environmentally conscious design	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
EN 60601-1-10:2008	Medical electrical equipment - Part 1-10: General requirements for basic safety and essential performance - Collateral Standard : Requirements for the development of physiologic closed-loop controllers	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-10:2008+ A1:2015	Medical electrical equipment - Part 1-10: General requirements for basic safety and essential performance - Collateral Standard : Requirements for the development of physiologic closed-loop controllers	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
EN 60601-1-11:2010	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard : Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-11:2010+ A1:2015	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard : Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N
EN 60601-1-12:2015	Medical electrical equipment - Part 1-12: General requirements for basic safety and essential performance - Collateral Standard : Requirements for medical electrical equipment and medical electrical systems intended for use in the emergency medical services environment	Peak acceleration: Max. 100 g Acceleration amplitude: Max. 1.0 $(m/s^2)^2/Hz$ Fall height: Max. 1.8 m	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-2:2009+ A11:2011	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N
EN IEC 60601-2-2:2018	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N
EN 60601-2-3:2015+A1:2016	Medical electrical equipment - Part 2-3: Particular requirements for the basic safety and essential performance of short-wave therapy equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Output power: Max. 500 W	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-4:2011	Medical electrical equipment - Part 2-4: Particular requirements for the basic safety and essential performance of cardiac defibrillators <Exception> 201.109 External pacing (U.S.)	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Resistive load: (25 ~ 175) Ω	N
EN 60601-2-5:2015	Medical electrical equipment - Part 2-5: Particular requirements for the safety of ultrasonic physiotherapy equipment <Exception> 201.10.102 Unwanted ultrasound radiation 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-6:2015+A1:2016	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Unwanted radiation: 10 W/cm^2	N
EN 60601-2-10:2015+A1:2016	Medical electrical equipment - Part 2-10: Particular requirements for the safety of nerve and muscle stimulators	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Output current: 100 mA	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-18:2015	Medical electrical equipment - Part 2-18: Particular requirements for the basic safety and essential performance of endoscopic equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
EN 60601-2-22:2013	Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment	Measuring Distance: 1 500 mm Measuring Laser Power: (1 ~ 300) W Measuring Laser Energy: 2.4 mJ ~ 3.0 J Measuring Laser Wavelength: (266 ~ 2 100) nm Leakage current: Max. 10 mA	N

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03 Electric Test

03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
EN 60601-2-25:2015	Medical electrical equipment - Part 2-25: Particular requirements for the basic safety and essential performance of electrocardiographs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N
EN 60601-2-27:2014	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV	N

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03 Electric Test

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Test method	Standard designation	Test range	Field testing
EN 60601-2-28:2010	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
EN 80601-2-30:2010+ A1:2015	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers <Exception> 201.106 Clinical accuracy 202.6.2.101 Electrosurgery interference recovery	Measuring Pressure: (10 ~ 400) mmHg	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-37:2008+ A11:2011	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment <Exception> 201.11 Protection against excessive temperatures and other HAZARDS 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N
EN 60601-2-37:2008+ A1:2015	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment <Exception> 201.11 Protection against excessive temperatures and other HAZARDS 201.12 Accuracy of controls and instruments and protection against hazardous outputs	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-43:2010	Medical electrical equipment - Part 2-43: Particular requirements for the basic safety and essential performance of X-ray equipment for interventional procedures	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 45 mm	N
EN 60601-2-44:2009+ A1:2012+A2:2016	Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-45:2011+ A1:2015	Medical electrical equipment - Part 2-45: Particular requirements for basic safety and essential performance of mammographic X-ray equipment and mammomagraphic stereotactic devices <Exception> 201.9.2.101.3 Biopsy needle positioning accuracy of MAMMOGRAPHIC STEREOTACTIC DEVICES	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Half-value layer: Max. 5.4 mm Al	N
EN 60601-2-47:2015	Medical electrical equipment - Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-49:2015	Medical electrical equipment - Part 2-49: Particular requirements for the safety of multifunction patient monitoring equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA	N
EN 60601-2-54:2009+ A1:2015	Medical electrical equipment - Part 2-54: Particular requirements for the basic safety and essential performance of X-ray equipment for radiography and radioscopy	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Phantom thickness: Max. 20 cm Attenuation aluminium thickness: Max. 45 mm	N

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03.010 Medical Appliance

Test method	Standard designation	Test range	Field testing
EN 80601-2-59:2009	Medical electrical equipment – Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
EN 80601-2-60:2015	Medical electrical equipment - Part 2-60: Particular requirements for the basic safety and essential performance of dental equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-63:2015	Medical electrical equipment - Part 2-63: Particular requirements for the basic safety and essential performance of dental extra-oral X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 20 mA Attenuation equivalent: Max. 1.2 mm Al	N
EN 60601-2-65:2013	Medical electrical equipment - Part 2-65: Particular requirements for the basic safety and essential performance of dental intra-oral X-ray equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 20 mA Temperature: Max. 200 °C	N

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Test method	Standard designation	Test range	Field testing
EN 61010-2-101:2002	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N
EN 61010-2-101:2017	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment	Input voltage(AC): Max. 500 V Input Frequency: (50/60) Hz Leakage current: Max. 10 mA Dielectric strength test: 10 kV Humidity: Max. 95 % R.H. Earth continuity: 6 V, 60 A Temperature: Max. 200 °C	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60092-504:2016	Electrical installations in ships - Part 504: Automation - Control and instrumentation	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 %	N
IEC 60533:2015	Electrical and electronic installations in ships - Electromagnetic compatibility (EMC) - Ships with a metallic hull	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 3 ㎓ EFT: ±4 ㎸ SURGE: ±4 ㎸ CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % LFCS: 50 ㎐ to 10 ㎑	N
IEC 60571:2012	Railway applications - Electronic equipment used on rolling stock	Over voltage: 0 to 225 V Surge: 0 to 4 ㎸ ESD: 0 to 15 ㎸ Burst: 0 to 4 ㎸ RS: 25 to 6 ㎓	N
IEC 60945:2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results 9. Electromagnetic emission-Methods of testing and required test results 10. Immunity to electromagnetic environment-Methods of testing and required test results	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2 ㎓ 10 V/m EFT: ±2 ㎸, Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % LFCS: 50 ㎐ to 10 ㎑	N

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03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60974-10:2015	Arc weldling equipment - Part 10: Electromagnetic compatibility (EMC) requirements	ripple: 10 ㎑ to 30 ㎒ CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 60601-1:2018	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance 17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS	-	N
IEC 60601-1-2:2014	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
IEC 60601-2-2:2017	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
IEC 60601-2-21:2016	Medical electrical equipment - Part 2-21: Particular requirements for the basic safety and essential performance of infant radiant warmers. 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
IEC 60601-2-46:2016	Medical electrical equipment - Part 2-46: Particular requirements for the basic safety and essential performance of operating tables. 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
IEC 80601-2-58:2016	Medical electrical equipment - Part 2-58: Particular requirements for the basic safety and essential performance of lens removal devices and vitrectomy devices for ophthalmic surgery. 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic disturbances - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N

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03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 61000-3-2:2018	Electromagnetic compatibility (EMC) - Part 3-2: Limits for Harmonic Current Emissions (Equipment Input Current Less Than or Equal to 16A per Phase)	I ≤ 16 A	N
IEC 61000-3-3:2017	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	I ≤ 16 A	N
IEC 61000-3-11:2017	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection	I ≤ 75 A	N
IEC 61000-3-12:2011	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase	16 A < I ≤ 75 A	N
IEC 61000-4-2:2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	ESD: ±30 kV	Y
IEC 61000-4-3:2010	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	RS: 80 MHz to 6 GHz	Y

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Test method	Standard designation	Test range	Field testing
IEC 61000-4-4:2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EFT: ±4 ㎸	Y
IEC 61000-4-5:2014+AMD1: 2017	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	SURGE: ±6 ㎸	Y
IEC 61000-4-6:2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	CS: 150 ㎑ to 230 ㎒	Y
IEC 61000-4-8:2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques-Power frequency magnetic field immunity test	M/F: 100 A/m	N
IEC 61000-4-9:2016	Electromagnetic compatibility (EMC) - Part 4-9: Testing and measurement techniques - Impulse magnetic field immunity test	(10 to 100) A/m(peak)	N
IEC 61000-4-10:2016	Electromagnetic compatibility (EMC) - Part 4-10: Testing and measurement techniques - Damped oscillatory magnetic field immunity test	(10 to 100) A/m(peak·)	N

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03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 61000-4-11:2004+AMD 1:2017	Electromagnetic compatibility (EMC) - Part 4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests	≤ 16 A, 50 ㎐ / 60 ㎐	Y
IEC 61000-4-12:2017	Electromagnetic compatibility (EMC) - Part 4-12: Testing and measurement techniques - Ring wave immunity test	(250 to 6 000) V	N
IEC 61000-4-13:2015	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	16 ㎐ to 1 ㎒	N
IEC 61000-4-16:2015	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 ㎐ to 150 ㎑	0 ㎐ to 150 ㎑	N
IEC 61000-4-19:2014	Electromagnetic compatibility (EMC) - Part 4-19: Testing and measurement techniques - Test for immunity to conducted, differential mode disturbances and signalling in the frequency range 2 ㎑ to 150 ㎑ at a.c. power ports	LFCS: (2 to 150) ㎑, 30 V	N

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Test method	Standard designation	Test range	Field testing
IEC 61000-4-34:2009	Electromagnetic compatibility (EMC) - Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with mains current more than 16 A per phase	3Φ, (0 to 620) V	Y
IEC 61000-6-1:2016	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments	ESD: ±8 kV RS: 80 MHz to 2.7 GHz EFT: ±1 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz M/F: 3 A/m V-DIP: (0 to 100) %	N
IEC 61000-6-2:2016	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	ESD: ±8 kV RS: 80 MHz to 2.7 GHz EFT: ±1 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz M/F: 3 A/m V-DIP: (0 to 100) %	Y
IEC 61000-6-3:2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light - industrial environments	RE: 30 MHz to 6 GHz CE: 150 kHz to 30 MHz	N
IEC 61000-6-4:2018	Electromagnetic compatibility Part 6-4: Generic standard - Emission standard for industrial environments	RE: 30 MHz to 6 GHz CE: 150 kHz to 30 MHz	Y

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Test method	Standard designation	Test range	Field testing
IEC 61000-6-5:2015	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	ESD: ±8 kV RS: 80 ㎒ to 6.0 ㎓ EFT: ±4 kV SURGE: ±2 kV CS: 150 ㎑ to 80 ㎒ M/F: 100 A/m V-DIP: (0 to 100) %	N
IEC 61000-6-7:2014	Electromagnetic compatibility (EMC) - Part 6-7: Generic standards - Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations	ESD: ±8 kV RS: 80 ㎒ to 6.0 ㎓ EFT: ±4 kV SURGE: ±2 kV CS: 150 ㎑ to 80 ㎒ M/F: 100 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
IEC 61326-1:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 61326-2-1:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 61326-2-2:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
IEC 61326-2-3:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 61326-2-4:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 61326-2-5:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 61326-2-6:2012	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-6: Particular requirements. In vitro diagnostic (IVD) medical equipment	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
IEC 61547:2009	Equipment for general lighting purposes - EMC immunity requirements	ESD: ±8 kV RS: 80 MHz to 1 GHz EFT: ±2 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz V-DIP: (0 to 100) % M/F: 1 A/m	N
IEC 62040-2:2016	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements	CE: 150 kHz to 30 MHz RE: 30 MHz to 1 GHz ESD: ±8 kV RS: 80 MHz to 1 GHz EFT: ±2 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz M/F: 30 A/m V-DIP: (0 to 100) % LF: 140 Hz to 360 Hz	N
IEC 62236-3-1:2008	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle	RE: 150 kHz to 1 GHz	Y
IEC 62236-3-1:2018	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle	RE: 150 kHz to 1 GHz	Y
IEC 62236-3-2:2008	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	RE: 30 MHz to 1 GHz CE: 150 kHz to 30 MHz ESD: ±8 kV RS: 80 MHz to 2.5 GHz 20 V/m EFT: ±2 kV Surge: ±2 kV CS: 150 kHz to 80 MHz 10 V	Y
IEC 62236-3-2:2018	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	RE: 30 MHz to 6 GHz CE: 150 kHz to 30 MHz ESD: ±8 kV RS: 80 MHz to 6 GHz 20 V/m EFT: ±2 kV Surge: ±2 kV CS: 150 kHz to 80 MHz 10 V THD 0 %~ 100 %	Y

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Test method	Standard designation	Test range	Field testing
IEC 62236-4:2008	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 1 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±2 kV SURGE: ±2 kV CS: 150 ㎑ to 80 ㎒ M/F: 0 to 300 A/m PMF:0 to 300 A/m V-DIP: (0 to 100) %	N
IEC 62236-4:2018	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 kV RS: 80 ㎒ to 6 ㎓ EFT: ±2 kV SURGE: ±2 kV CS: 150 ㎑ to 80 ㎒ M/F: 0 to 300 A/m PMF:0 to 300 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
IEC 62236-5:2008	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 1 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 3 ㎓ EFT: ±4 ㎸ SURGE: ±4 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
IEC 62236-5:2018	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus	CE: 150 ㎑ to 30 ㎒ RE: 30 ㎒ to 6 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 6 ㎓ EFT: ±4 ㎸ SURGE: ±4 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N
EN ISO 80601-2-12:2011	Medical electrical equipment - Part 2-12: Particular requirements for basic safety and essential performance of critical care ventilators (ISO 80601-2-12:2011) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
EN ISO 80601-2-13:2012	Medical electrical equipment - Part 2-13: Particular requirements for basic safety and essential performance of an anaesthetic workstation (ISO 80601-2-13:2011) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN ISO 80601-2-55:2011	Medical electrical equipment - Part 2-55: Particular requirements for the basic safety and essential performance of respiratory gas monitors (ISO 80601-2-55:2011) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
EN ISO 80601-2-55:2018	Medical electrical equipment - Part 2-55: Particular requirements for the basic safety and essential performance of respiratory gas monitors (ISO 80601-2-55:2011) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
EN ISO 80601-2-56:2017	Medical electrical equipment - Part 2-56: Particular requirements for basic safety and essential performance of clinical thermometers for body temperature measurement 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic disturbances - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN ISO 80601-2-61:2019	Medical electrical equipment - Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Medical electrical equipment - Part 1-2: General requirements for safety - Collateral standard: Electromagnetic compatibility - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN ISO 80601-2-69:2014	Medical electrical equipment - Part 2-69: Particular requirements for basic safety and essential performance of oxygen concentrator equipment (ISO 80601-2-69:2014) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
EN ISO 80601-2-72:2015	Medical electrical equipment - Part 2-72: Particular requirements for basic safety and essential performance of home healthcare environment ventilators for ventilator-dependent patients (ISO 80601-2-72:2015) 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic disturbances - Requirements and tests	CE: 0.009 ㎒ to 30 ㎒ RE: 0.009 ㎒ to 18 ㎓ F/H: ≤ 16 A ESD: 15 ㎸ RS: 10 V/m, 80 ㎒ to 6 ㎓ EFT/B: 2 ㎸ Surge: 2 ㎸ CS: 10 V, 0.15 ㎒ to 80 ㎒ MF: 30 A/m Dips: 0 % to 100 %	N
EN 12015:2014	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Emission	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒ F/H: ≤ 75 A	N
EN 12016:2013	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity	ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
EN 12895:2015	Industrial trucks - Electromagnetic compatibility	RS: 27 ㎒ to 2 700 ㎒ ESD: ±15 ㎸ MF: (30, 1 000) A/m	N
EN 13309:2010	Construction machinery - Electromagnetic compatibility of machines with internal power supply <Exception> 4.7.2 Stripline Test 4.7.2 TEM Cell Test	RE: 30 ㎒ to 1 ㎓ RS: 20 ㎒ to 2 ㎓ ESD: ±8 ㎸ Surge: ±4 ㎸ Burst ±4 ㎸ CS: 150 ㎑ ~ 80 ㎒	N
EN 50121-1:2017	Railway applications - Electromagnetic compatibility - Part 1: General	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.5 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 %	N
EN 50121-2:2017	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world	RE: 150 ㎑ to 1 ㎓	N
EN 50121-3-1:2017	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock. Train and complete vehicle	RE: 150 ㎑ to 1 ㎓ CE: 9 ㎑ to 30 ㎒	N

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Test method	Standard designation	Test range	Field testing
EN 50121-3-2:2016	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 6 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V M/F: 30 A/m	Y
EN 50121-4:2016	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 6 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V M/F: 300 A/m PLUSE M/F: 300 A/m	N
EN 50121-5:2017	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 6 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V M/F: 300 A/m PLUSE M/F: 300 A/m	N
EN 50130-4-2011/ A1:2014	Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems	ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 100 ㎒ V-DIP: (0 to 100) % LFCS: 0 ㎐ ~ 150 ㎑	N

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Test method	Standard designation	Test range	Field testing
EN 50155:2007	Railway applications - Electronic equipment used on rolling stock	ESD: ±8 kV RS: 80 MHz to 2.7 GHz, 10 V/m EFT: ±2 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz, 3 V V-DIP: max 100 % MF : 30 A/m	N
EN 50155:2017	Railway applications - Electronic equipment used on rolling stock	ESD: ±8 kV RS: 80 MHz to 6 GHz, 10 V/m EFT: ±2 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz, 3 V V-DIP: max 100 % MF : 30 A/m	N
EN 50270:2015	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen	RE: 30 MHz to 6 GHz CE 150 kHz to 30 MHz ESD: ±8 kV RS: 80 MHz to 3 GHz EFT: ±4 kV SURGE: ±4 kV CS: 150 kHz to 80 MHz M/F: 30 A/m V-DIP: (0 to 100) %	N
EN 50270:2015 /AC-08:2016	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen	RE: 30 MHz to 6 GHz CE: 150 kHz to 30 MHz ESD: ±8 kV RS: 80 MHz to 3 GHz EFT: ±2 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz M/F: 30 A/m V-DIP: (0 to 100) %	N
EN 50500:2008 /A1:2015	Measurement procedures of magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure	EMF: 0 Hz to 20 kHz	N

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Test method	Standard designation	Test range	Field testing
CISPR 11:2009 /AMD1:2010	Industrial, scientific and medical equipment - radio-frequency disturbance characteristics - Limits and methods of measurement	RE : 9 ㎑ to 18 ㎓ CE : 9 ㎑ to 30 ㎒	Y
EN 55011:2009 /AMD1:2010	Industrial, scientific and medical equipment - radio-frequency disturbance characteristics - Limits and methods of measurement	RE : 9 ㎑ to 18 ㎓ CE : 9 ㎑ to 30 ㎒	Y
EN 55011:2016	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	RE: 9 ㎑ to 18 ㎓ CE: 9 ㎑ to 30 ㎒	Y
EN 55011:2017	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	RE: 9 ㎑ to 18 ㎓ CE: 9 ㎑ to 30 ㎒	Y

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Test method	Standard designation	Test range	Field testing
EN 55012:2007 /A1:2009	Vehicles, boats and internal combustion engines - Radio disturbance characteristics. Limits and methods of measurement for the protection of off-board receivers	RE: 150 ㎑ to 1 ㎓	N
EN 55013:2013 /A1:2016	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement <Exception> 5.9 Clause-Measurement of the local oscillator power at the input terminal of the outdoor unit	RE: 30 ㎒ to 1 ㎓ Disturbance Voltage: 9 ㎑ to 2.15 ㎓ Radiated Power: 0.9 ㎓ to 18 ㎓	N
EN 55014-1:2017	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	RE: 30 ㎒ to 1 ㎓ CE: 9 ㎑ to 30 ㎒ Click: 150 ㎑ to 30 ㎒ DP: 30 ㎒ to 300 ㎒	N
EN 55014-2:2015	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity	ESD: ±8 ㎸ RS: 80 ㎒ to 1 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 230 ㎒ V-DIP: (0 to 100) %	N
EN 55015:2013 /A1:2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	RE: 30 ㎒ to 300 ㎒ CE: 9 ㎑ to 30 ㎒ Loop: 9 ㎑ to 30 ㎒	N

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Test method	Standard designation	Test range	Field testing
EN 55022:2010 /AC:2011	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒	N
EN 55024:2010 /A1:2015	Information technology equipment - Immunity characteristics - Limits and methods of measurement	ESD : 8 ㎸ RS : 3 V/m 80 ㎒ to 1 000 ㎒ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 3 V, 0.15 ㎒ to 80 ㎒ M/F : 3 A/m Dips : 30 % to 100 %	N
EN 55025:2017	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers	RE: 150 ㎑ to 2.5 ㎓ CE (VOLTAGE METHOD): 150 ㎑ to 108 ㎒ CE (CURRENT METHOD): 150 ㎑ to 108 ㎒	N
EN 55032:2015 /AC:2016	Electromagnetic compatibility of multimedia equipment - Emission Requirements	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ Disturbance Voltage: 9 ㎑ to 2.15 ㎓	N
EN 60601-1:2006+ A1:2013	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance 17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS	-	N

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Test method	Standard designation	Test range	Field testing
EN 60601-1-2:2015	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-2:2018	Medical electrical equipment - Part 2-2: Particular requirements for the basic safety and essential performance of high frequency surgical equipment and high frequency surgical accessories	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-3:2015 +A1:2016	Medical electrical equipment - Part 2-3: Particular requirements for the basic safety and essential performance of short-wave therapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-4:2011	Medical electrical equipment - Part 2-4: Particular requirements for the basic safety and essential performance of cardiac defibrillators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-5:2015	Medical electrical equipment - Part 2-5: Particular requirements for the safety of ultrasonic physiotherapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-6:2015 +A1:2016	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-8:2015 +A1:2016	Medical electrical equipment - Part 2-8: Particular requirements for the basic safety and essential performance of therapeutic X-ray equipment operating in the range 10 kV to 1 MV 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 MHz to 30 MHz RE : 0.009 MHz to 18 GHz F/H : ≤ 16 A ESD : 15 kV RS : 10 V/m, 80 MHz to 6 GHz EFT/B : 2 kV Surge : 2 kV CS : 10 V, 0.15 MHz to 80 MHz MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-10:2015 +A1:2016	Medical electrical equipment - Part 2-10: Particular requirements for the safety of nerve and muscle stimulators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 MHz to 30 MHz RE : 0.009 MHz to 18 GHz F/H : ≤ 16 A ESD : 15 kV RS : 10 V/m, 80 MHz to 6 GHz EFT/B : 2 kV Surge : 2 kV CS : 10 V, 0.15 MHz to 80 MHz MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-16:2015	Medical electrical equipment - Part 2-16: Particular requirements for the basic safety and essential performance of haemodialysis, haemodiafiltration and haemofiltration equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 MHz to 30 MHz RE : 0.009 MHz to 18 GHz F/H : ≤ 16 A ESD : 15 kV RS : 10 V/m, 80 MHz to 6 GHz EFT/B : 2 kV Surge : 2 kV CS : 10 V, 0.15 MHz to 80 MHz MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-18:2015	Medical electrical equipment - Part 2-18: Particular requirements for the safety of endoscopic equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-19:2009 +A1:2016	Medical electrical equipment - Part 2-19: Particular requirements for the basic safety and essential performance of infant incubators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-20:2009 +A1:2016	Medical electrical equipment - Part 2-20: Particular requirements for the basic safety and essential performance of infant transport incubators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-22:2013	Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-24:2015	Medical electrical equipment - Part 2-24: Particular requirements for the basic safety and essential performance of infusion pumps and controllers 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-25:2015	Medical electrical equipment - Part 2-25: Particular requirements for the basic safety and essential performance of electrocardiographs 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-26:2015	Medical electrical equipment - Part 2-26: Particular requirements for the basic safety and essential performance of electroencephalographs 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-27:2014	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-28:2010	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-31:2008 +A1:2011	Medical electrical equipment - Part 2-31: Particular requirements for the basic safety and essential performance of external cardiac pacemakers with internal power source 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 2 700 ㎒ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-37:2008 +A1:2015	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-41:2010 +A1:2015	Medical electrical equipment - Part 2-41: Particular requirements for the basic safety and essential performance of surgical luminaires and luminaires for diagnosis 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-43:2010	Medical electrical equipment - Part 2-43: Particular requirements for basic safety and essential performance of X-ray equipment for interventional procedures 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-44:2009 +A1:2012+A2:2016	Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-45:2011 +A1:2015	Medical electrical equipment - Part 2-45: Particular requirements for basic safety and essential performance of mammographic X-ray equipment and mammomagraphic stereotactic devices 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-47:2015	Medical electrical equipment - Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-49:2015	Medical electrical equipment - Part 2-49: Particular requirements for the safety of multifunction patient monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-50:2009 +A1:2016	Medical electrical equipment - Part 2-50: Particular requirements for the basic safety and essential performance of infant phototherapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-52:2010 +A1:2015	Medical electrical equipment - Part 2-52: Particular requirements for the basic safety and essential performance of medical beds 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-54:2009 +A1:2015	Medical electrical equipment - Part 2-54: Particular requirements for the basic safety and essential performance of X-ray equipment for radiography and radioscopy 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-57:2011	Medical electrical equipment - Part 2-57: Particular requirements for the basic safety and essential performance of non-laser light source equipment intended for therapeutic, diagnostic, monitoring and cosmetic/aesthetic use 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-62:2015	Medical electrical equipment - Part 2-62: Particular requirements for the basic safety and essential performance of high intensity therapeutic ultrasound (HITU) equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-63:2015	Medical electrical equipment - Part 2-63: Particular requirements for the basic safety and essential performance of dental extra-oral X-ray equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60601-2-65:2013	Medical electrical equipment - Part 2-65: Particular requirements for the basic safety and essential performance of dental intra-oral X-ray equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 60601-2-66:2015	Medical electrical equipment - Part 2-66: Particular requirements for the basic safety and essential performance of hearing instruments and hearing instrument systems 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 60945:2002	Maritime Navigation and Radiocommunication Equipment and Systems 9. Electromagnetic emission-Methods of testing and required test results 10. Immunity to electromagnetic enviroment-Methods of testing and required test results	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 6 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % LFCS: 50 ㎐ to 10 ㎑	N
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmoniccurrent emissions (equipment input current ≤ 16 A per phase) 3 phase connection equipment	I ≤ 16 A	N
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection equipment	I ≤ 16 A	N

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Test method	Standard designation	Test range	Field testing
EN 61000-3-11:2001	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated voltage current ≤ 75 A and subject to conditional connection	I ≤ 75 A	N
EN 61000-3-12:2011	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase	16 A < I ≤ 75 A	N
EN 61000-4-2:2009	Electromagnetic compatibility (EMC) - Part 4-2 : Testing and measurement techniques - Electrostatic discharge immunity test	ESD: ±30 kV	Y
EN 61000-4-3:2006 /A1:2008/A2:2010	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	RS: 80 MHz to 6 GHz	Y
EN 61000-4-4:2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EFT: ±6.6 kV	Y

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Test method	Standard designation	Test range	Field testing
EN 61000-4-5:2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	SURGE: ±6 kV	Y
EN 61000-4-6:2014 /AC:2015	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	CS: 150 ㎑ to 230 ㎒	Y
EN 61000-4-8:2010	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	M/F: 100 A/m	N
EN 61000-4-9:2016	Electromagnetic compatibility (EMC) - Part 4-9: Testing and measurement techniques - Impulse magnetic field immunity test	(100 to 1 000) A/m(peak)	N
EN 61000-4-10:1993 /A1:2001	Electromagnetic compatibility (EMC) - Part 4-10: Testing and measurement techniques - Damped oscillatory magnetic field immunity test	(10 to 100) A/m(peak)	N

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Test method	Standard designation	Test range	Field testing
EN 61000-4-11: 2004-08	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	≤ 16 A, 50 Hz / 60 Hz	Y
EN 61000-4-13:2002 /A2:2016	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	16 Hz to 1 MHz	N
EN 61000-4-16:2016	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	Conducted susceptibility, low frequency, 15 Hz to 150 kHz	N
EN 61000-4-18:2007 /A1:2010	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	(250 to 2 500) V	N
EN 61000-4-19:2014	Electromagnetic compatibility (EMC) - Part 4-19: Testing and measurement techniques - Test for immunity to conducted, differential mode disturbances and signalling in the frequency range 2 kHz to 150 kHz at a.c. power ports	LFCS: (2 to 150) kHz, 30 V	N

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Test method	Standard designation	Test range	Field testing
EN 61000-4-27:2000 -11/A1:2009	Electromagnetic compatibility (EMC) - Part 4-27: Testing and measurement techniques - Unbalance, immunity test for equipment with input current not exceeding 16 A per phase	3 Phase 500 V, 63 kVA	N
EN 61000-4-28:2000 /A1:2009	Electromagnetic compatibility (EMC) - Part 4-28: Testing and measurement techniques - Variation of power frequency, immunity test for equipment with input current not exceeding 16 A per phase	3 Phase 500 V, 63 kVA	N
EN 61000-4-29:2000	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Testing and measurement techniques. Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests. Voltage dips, short interruptions and voltage variations on d.c.input power ports. Immunity tests	DC 500 V	N
EN 61000-4-34:2007 /A1:2009	Electromagnetic compatibility (EMC) - Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with mains current more than 16 A per phase	3 Phase, (0 to 620) V	Y
EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments	ESD: ±8 kV RS: 80 MHz to 2.7 GHz EFT: ±1 kV SURGE: ±2 kV CS: 150 kHz to 80 MHz M/F: 3 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	현장 시험
EN 61000-6-2:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 3 A/m V-DIP: (0 to 100) %	Y
EN 61000-6-3:2007 /A1:2011/AC:2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒	N
EN 61000-6-4:2007 /A1:2011	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒	Y
EN 61000-6-5:2015	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	ESD: ±8 ㎸ RS: 80 ㎒ to 6.0 ㎓ EFT: ±4 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 100 A/m V-DIP: (0 to 100) % CSLF: 15 ㎐ ~ 150 ㎑, 300 V Damped osc: 2.5 kV Ripple(DC): 10% Un	N
EN 61000-6-5:2015 /AC:2018-01	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment	ESD: ±8 ㎸ RS: 80 ㎒ to 6.0 ㎓ EFT: ±4 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 100 A/m V-DIP: (0 to 100) % CSLF: 15 ㎐ ~ 150 ㎑, 300 V Damped osc: 2.5 kV Ripple(DC): 10% Un	N

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Test method	Standard designation	Test range	Field testing
EN 61000-6-7:2015	Electromagnetic compatibility (EMC) - Part 6-7: Generic standards - Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations	ESD: ±15 kV RS: 80 ㎒ to 6.0 ㎓ EFT: ±4 kV SURGE: ±2 kV CS: 150 ㎑ to 80 ㎒ M/F: 100 A/m V-DIP: (0 to 100) % CSLF: 15 ㎐ ~ 150 ㎑, 300 V	N
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 1: General requirements	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N
EN 61326-2-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N

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Test method	Standard designation	Test range	Field testing
EN 61326-2-2:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N
EN 61326-2-3:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N
EN 61326-2-4:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N
EN 61326-2-5:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N

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Test method	Standard designation	Test range	Field testing
EN 61326-2-6:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements Part 2-6: Particular requirements. In vitro diagnostic (IVD) medical equipment	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 3 ㎓ EFT: ±4 ㎸ SURGE: ±4 ㎸ CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) % H/F: ≤ 16 A	N
EN 61547:2009	Equipment for general lighting purposes - EMC immunity requirements	ESD: ±8 ㎸ RS: 80 ㎒ to 1 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 1 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
EN 62040-2:2006	Uninterruptible power systems (UPS) - Electromagnetic compatibility (EMC) requirements	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 1 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % M/F : 30 A/m	N
EN 62493:2015	Assessment of lighting equipment related to human exposure to electromagnetic fields	20 kHz to 10 MHz	N
EN 80601-2-30:2010 +A1:2015	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 80601-2-35:2010 +A1:2016	Medical electrical equipment - Part 2-35: Particular requirements for the basic safety and essential performance of heating devices using blankets, pads and mattresses and intended for heating in medical use 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
EN 80601-2-59:2009	Medical electrical equipment - Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
EN 80601-2-60:2015	Medical electrical equipment - Part 2-60: Particular requirements for the basic safety and essential performance of dental equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
KS C IEC 60533:2013	Electrical and electronic installations in ships - Electromagnetic compatibility (EMC) - Ships with a metallic hull	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % LFCS: 50 ㎐ to 10 ㎑	N

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Test method	Standard designation	Test range	Field testing
KS C IEC 60571:2002	Railway applications - Electronic equipment used on rolling stock 5.4 Clause 5.5 Clause	O.V : AC/DC 300 V SURGE : 7.4 kV ESD : 8 kV RS : 20 V/m, 80 MHz to 2.5 GHz BURST : 4.4 kV RE : 30 MHz to 1 GHz CE : 9 kHz to 30 MHz CS : 10 V, 0.15 MHz to 80 MHz Voltage Variation :V 40 % Variation (1.5 s), F 10 % Variation (5 s), V 100 % Dip (60 s)	N
KS C IEC 60092-504:2007	Electrical installations in ships - Part 504: Automation, control and instrumentation	RE: 30 MHz to 1 GHz CE: 150 kHz to 30 MHz ESD: ±8 kV RS: 80 MHz to 2.7 GHz 10 V/m EFT: ±2 kV Surge: ±2 kV CS: 150 kHz to 80 MHz 10 V V-DIP: max 100 %	N
KS C IEC 62236-1:2016	Railway applications - Electromagnetic compatibility - Part 1: General	-	N
KS C IEC 62236-2:2016	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world	RE : 9 kHz to 1 GHz	N

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Test method	Standard designation	Test range	Field testing
KS C IEC 62236-3-1:2016	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle	RE : 9 ㎑ to 1 ㎓	N
KS C IEC 62236-3-2:2016	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.5 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V	Y
KS C IEC 62236-4:2016	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus	CE : 150 ㎑ to 30 ㎒ RE : 30 ㎒ to 1 ㎓ ESD : ±8 ㎸ RS : 80 ㎒ to 3 ㎓ EFT : ±2 ㎸ SURGE : ±2 ㎸ CS : 150 ㎑ to 230 ㎒ M/F : 0 to 300 A/m PMF: 0 to 300 A/m V-DIP : (0 to 100) %	N
KS C IEC 62236-5:2016	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus	CE : 150 ㎑ to 30 ㎒ RE : 30 ㎒ to 1 ㎓ ESD: ±8 ㎸ RS: 80 ㎒ to 3 ㎓ EFT: ±4 ㎸ SURGE: ±4 ㎸ CS: 150 ㎑ to 230 ㎒ M/F: 30 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
KS X IEC 60945:2005	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results 9. Electromagnetic emission-Test methods and required test results 10. Electromagnetic immunity-Test methods and required test results	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % LFCS: 50 ㎐ to 10 ㎑	N
ISO 10605:2008	Road vehicles - Test methods for electrical disturbances from electrostatic discharge	ESD: 30 ㎸	N
ISO 11451-2:2015	Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 2: Off-vehicle radiation sources	Frequency band: 0.01 ㎒ to 18 ㎓ Test level: 100 V/m	N
ISO 11451-3:2015	Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 3: On-board transmitter simulation	Frequency band: 1.8 ㎒ to 2.6 ㎓ P : 20 W	N
ISO 11451-4:2013	Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4: Bulk current injection (BCI)	Frequency band: 1.0 ㎒ to 400 ㎒ Test level: 200 mA	N

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Test method	Standard designation	Test range	Field testing
ISO 11452-1:2015	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 1: General principles and terminology	General	N
ISO 11452-2:2004	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 2: Absorber-lined shielded enclosure	80 ㎒ to 3.2 ㎓	N
ISO 11452-4:2011	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4: Harness excitation methods	1 ㎒ to 3 ㎓	N
ISO 11452-9:2012	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 9: Portable transmitters	(26 to 2 500) ㎒	N
ISO 13766:2006	Earth-moving machinery - Electromagnetic compatibility	RE: 30 ㎒ to 1 ㎓	N

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Test method	Standard designation	Test range	Field testing
ISO 14982:1998	Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria	12 V, 24 V System	N
ISO 16750-2:2012	Road vehicles - Environmental conditions and testing for electrical and electronic equipment	12 V, 24 V System	N
ISO 7637-2:2011	Road vehicles - Electrical disturbances from conduction and coupling - Part 2: Electrical transient conduction along supply lines only	12 V, 24 V System	N
ISO 7637-3:2016	Road vehicles - Electrical disturbances from conduction and coupling - Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines	12 V, 24 V, 42 V System	N

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Test method	Standard designation	Test range	Field testing
ISO 80601-2-67:2014	Medical electrical equipment - Part 2-67: Particular requirements for basic safety and essential performance of oxygen conserving equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
ISO 80601-2-74:2017	Medical electrical equipment - Part 2-74: Particular requirements for basic safety and essential performance of respiratory humidifying equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic disturbances - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
CISPR 11:2016	Industrial, scientific and medical equipment - radio-frequency disturbance characteristics - Limits and methods of measurement	RE : 9 ㎑ to 18 ㎓ CE : 9 ㎑ to 30 ㎒	Y
CISPR 12:2009	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers	RE: 150 ㎑ to 1 ㎓	N

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Test method	Standard designation	Test range	Field testing
CISPR 13:2015	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement	RE: 30 ㎒ to 1 ㎓ Disturbance Voltage: 9 ㎑ to 2.15 ㎓ Radiated Power: 0.9 ㎓ to 18 ㎓	N
CISPR 14-1:2016	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	RE: 9 ㎑ to 18 ㎓ CE: 148.5 ㎑ to 30 ㎒ Click: 150 ㎑ to 30 ㎒ DP: 30 ㎒ to 300 ㎒	N
CISPR 14-2:2015	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity	ESD: ±8 ㎸ RS: 80 ㎒ to 1 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 230 ㎒ V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
CISPR 16-1-4:2012	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements	-	Y
CISPR 16-2-1:2014	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements	-	N
CISPR 16-2-3:2016	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements	-	N
CISPR 22:2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒	N
CISPR 24:2015	Information technology equipment - Immunity characteristics - Limits and methods of measurement <Exception> Annex A (normative) Telecommunications terminal equipment 3 Phase equipment	ESD: ±8 ㎸ RS: 80 ㎒ to 1 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS:150 ㎑ to 80 ㎒ M/F: 1 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
CISPR 25:2016	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers. <Exception> 5. Measurement of emissions received by an antenna on the same vehicle 6.5 Radiated emissions from components/modules - TEM cell methods 6.6 Radiated emissions from components/modules - Strip line method	RE: 150 ㎑ to 2.5 ㎓ CE (VOLTAGE METHOD): 150 ㎑ to 108 ㎒ CE (CURRENT METHOD): 150 ㎑ to 108 ㎒	N
CISPR 32:2015	Electromagnetic compatibility of multimedia equipment - Emission Requirements	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ Disturbance Voltage: 9 ㎑ to 2.15 ㎓	N
CISPR 35:2016	Electromagnetic compatibility of multimedia equipment - Immunity requirements	ESD: ±8 ㎸ RS: 80 ㎒ to 5 ㎓ 3 V/m EFT: ±1 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 3 V V-DIP: max 100 % M/F: 1 A/m EFT: ±1 ㎸ Surge: ±2 ㎸	N

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Test method	Standard designation	Test range	Field testing
ECER 10.05:2014	Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility	RE: 30 ㎒ to 1 ㎓ ALSE: 80 ㎒ to 2 ㎓ BCI: 20 ㎒ to 400 ㎒ CTI: Pulse 1, 2a, 2b, 3a, 3b, 4 CTE: 12 V, 24 V System CE(AC, DC Power): (0.15 to 30) ㎒ CE(TEL): (0.15 to 30) ㎒ Harmonic Current Emission: 16 A Voltage Fluctuation and Flicker: 16 A EFT: ±2 ㎸ Surge: ±2 ㎸	N
ES-0000-0002:2014	ES - General Test for Electromagnetic compatibility	ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±1 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 3 A/m V-DIP: (0 to 100) % RE: 9 ㎑ to 18 ㎓ CE: 9 ㎑ to 30 ㎒	N
KR:2016	Guideance on Manufacturing Process and Type Approval Chapter 3 Type Approval Section 23 Automation System 14~21	RE: 30 ㎒ to 6 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2 ㎓ 10 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V V-DIP: max 100 % LFCS: 50 ㎐ to 10 ㎑	N

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Test method	Standard designation	Test range	Field testing
KRS SG 0033-14(R):2014	Insulated Audio Frequency Track Circuit 4.2 Test 4.2.2 Test method 6) EMC Test	CE : 9 ㎑ to 30 ㎒ RE : 9 ㎑ to 18 ㎓ ESD : ±8 kV RS : 80 ㎒ to 3 ㎓ EFT : ±4 kV SURGE : ±4 kV CS : 150 ㎑ to 230 ㎒ M/F : 0 to 300 A/m PMF:0 to 300 A/m V-DIP : (0 to 100) %	N
KRS SG 0036-16(R):2016	Track Circuit Function Monitoring Device 4.2 Test 4.2.2 Test method 1) EMC Test	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒	N
KRS SG 0054-14(R):2014	Single Track Automatic Block Control Device 4.2 Test 4.2.2 Test method 6) EMC Test	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 0 to 300 A/m PMF: 0 to 300 A/m V-DIP: (0 to 100) %	N
KRS SG 0055-14(R):2014	Double Track Automatic Block Control Device 4.2 Test 4.2.2 Test method 6) EMC Test	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 0 to 300 A/m PMF: 0 to 300 A/m V-DIP: (0 to 100) %	N
KRS SG 0067-14:2014	Track-side Subsystem - Test methods : Equipments for Signalling 4.3.4 EMC Test methods	CE: 9 ㎑ to 30 ㎒ RE: 9 ㎑ to 18 ㎓ ESD: ±8 kV RS: 80 ㎒ to 3 ㎓ EFT: ±4 kV SURGE: ±4 kV CS: 150 ㎑ to 230 ㎒ M/F: 0 to 300 A/m PMF: 0 to 300 A/m V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
KRS CS 0003-13:2013	Railway Rolling Stock-Test methods : Train signaling and telecommunications 4.3 Test 8)	RE: 30 ㎒ to 1 ㎓ CE: 150 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.5 ㎓ 20 V/m EFT: ±2 ㎸ Surge: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ 10 V	N
S2-W-5	Common Standard for machinery, apparatus, etc.(Electromagnetic compatibility)	RE: 9 ㎑ to 18 ㎓ CE: 9 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ V-DIP: (0 to 100) %	Y
SEMI F47-0706:2006 (Reapproved 0812)	Specification for Semiconductor Processing Equipment Voltage Sag Immunity	Voltage sag Depth(0, 80) % Duration at 50 ㎐(1, 500) cycle / Depth(0, 80) % Duration at 60 ㎐(1, 600) cycle	N
SEMI E78-0912:2009	Guide for Assess and Control Electrostatic Discharge (ESD) and Electrostatic Attraction (ESA) for Equipment	ESD: ±8 ㎸	N
SEMI S2-1016b:2016	Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment / section 25 Non-Ionizing Radiation and Field	0 ㎐ to 6 ㎓	N

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Test method	Standard designation	Test range	Field testing
SAE J1113/4:2014	Immunity To Radiated Electromagnetic Fields - Bulk Current Injection (BCI) Method	1 ㎒ to 400 ㎒	N
SAE J1113/11:2012	Immunity To Conducted Transients On Power Leads	12 V System: Pulse 1a, 1b, 2a, 2b, 3a, 3b, 4, 5a, 5b 24 V System: Pulse 1c, 2a, 2b, 3a, 3b, 4, 5a, 5b	N
SAE J1113/12:2006	Electrical Interference By Conduction And Coupling~Capacitive And Inductive Coupling Via Lines Other Than Supply Lines	CCC: Pulse A, B DCC: Pulse C, D ICC: Pulse C, D	N
SAE J1113/13:2015	Electromagnetic Compatibility Measurement Procedure for Vehicle Components - Part 13: Immunity To Electrostatic Discharge	(± 4 to ± 25) ㎸	N
SAE J1113/21:2013	Electromagnetic Compatibility Measurement Procedure For Vehicle Components - Part 21: Immunity To Electromagnetic Fields, 30 ㎒ To 18 ㎓, Absorber-Lined Chamber	80 ㎒ to 3.2 ㎓	N
SAE J1113/22:2010	Electromagnetic Compatibility Measurement Procedure For Vehicle Components - Part 22: Immunity To Radiated Magnetic Fields	15 ㎐ to 30 ㎑	N

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Test method	Standard designation	Test range	Field testing
SAE J1113/22:2010	Electromagnetic Compatibility Measurement Procedure For Vehicle Components - Immunity To Radiated Electromagnetic Fields, 10 ㎑ To 200 ㎒, Strip Line Method	10 ㎑ to 200 ㎒, Strip Line Method	N
SAE J1113/41:2006	Limits And Methods Of Measurement Of Radio Disturbance Characteristics Of Components And Modules For The Protection Of Receivers In Board Vehicles	CE(Power Line): 150 ㎑ to 108 ㎒ CE(Signal Line): 150 ㎑ to 108 ㎒ RE: 150 ㎑ to 960 ㎒	N
SAE J1113/42:2010	Electromagnetic Compatibility - Component Test Procedure - Part 42: Conducted Transient Emissions	12 V, 24 V System	N
Ministry of employment and labor notification 2015-24	Dangerous machinery, equipment self-safety check notification	ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ M/F: 30 A/m V-DIP: (0 ~ 100) %	N
Ministry of employment and labor notification 2016-46	Non-safety machinery and equipment, Safety certification regulations for machinery, apparatus, etc.	RE: 9 ㎑ to 18 ㎓ CE: 9 ㎑ to 30 ㎒ ESD: ±8 ㎸ RS: 80 ㎒ to 2.7 ㎓ EFT: ±2 ㎸ SURGE: ±2 ㎸ CS: 150 ㎑ to 80 ㎒ V-DIP: (0 to 100) %	N

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Test method	Standard designation	Test range	Field testing
ISO 11452-8:2015	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 8: Immunity to magnetic fields <Exception> 7.5 Helmholtz coil method	DC and 15 ㎐ ~ 150 ㎑	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
MIL-STD-461E:1999	REQUIREMENTS FOR THE CONTROL OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF SUBSYSTEMS AND EQUIPMENT		N
	5.4 CE101, conducted emissions, power leads.	CE101: 30 Hz ~ 10 kHz.	
	5.5 CE102, conducted emissions, power leads.	CE102: 10 kHz ~ 10 MHz	
	5.6 CE106, conducted emissions, antenna terminal.	CE106: 10 kHz ~ 40 GHz	
	5.7 CS101, conducted susceptibility, power leads.	CS101: 30 Hz ~ 150 kHz	
	5.11 CS109, conducted susceptibility, structure current.	CS109: 60 Hz ~ 100 kHz	
	5.12 CS114, conducted susceptibility, bulk cable injection.	CS114: 10 kHz 200 MHz	
	5.13 CS115, Conducted susceptibility, bulk cable injection.	CS115: Impulse excitation, 5 A	
	5.14 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads.	CS116: 10 kHz ~ 100 MHz	
	5.15 RE101, Radiated emissions, magnetic field.	RE101: 30 Hz ~ 100 kHz	
	5.16 RE102, radiated emissions, electric field.	RE102: 10 kHz ~ 18 GHz	
	5.18 RS101, radiated susceptibility, magnetic field.	RS101: 30 Hz ~ 100 kHz	
	5.19 RS103, radiated susceptibility, electric field. <Exception> 2 ㎒ to 150 ㎒, 200 V/m	RS103: 2 MHz ~ 40 GHz	

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
MIL-STD-461F:2007	REQUIREMENTS FOR THE CONTROL OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF SUBSYSTEMS AND EQUIPMENT		N
	5.4 CE101, conducted emissions, power leads.	CE101: 30 Hz ~ 10 kHz.	
	5.5 CE102, conducted emissions, power leads.	CE102: 10 kHz ~ 10 MHz	
	5.6 CE106, conducted emissions, antenna terminal	CE106: 10 kHz ~ 40 GHz	
	5.7 CS101, conducted susceptibility, power leads.	CS101: 30 Hz ~ 150 kHz	
	5.11 CS106, conducted susceptibility, transients, power leads.	CS106: Transient Pulse	
	5.12 CS109, conducted susceptibility, structure current.	CS109: 60 Hz ~ 100 kHz	
	5.13 CS114, conducted susceptibility, bulk cable injection.	CS114: 10 kHz 200 MHz	
	5.14 CS115, Conducted susceptibility, bulk cable injection.	CS115: Impulse excitation, 5 A	
	5.15 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads.	CS116: 10 kHz ~ 100 MHz	
	5.16 RE101, Radiated emissions, magnetic field.	RE101: 30 Hz ~ 100 kHz	
	5.17 RE102, radiated emissions, electric field.	RE102: 10 kHz ~ 18 GHz	
	5.19 RS101, radiated susceptibility, magnetic field.	RS101: 30 Hz ~ 100 kHz	
	5.20 RS103, radiated susceptibility, electric field. <Exception> 2 ㎒ to 150 ㎒, 200 V/m	RS103: 2 MHz ~ 40 GHz	

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
MIL-STD-461G:2015	REQUIREMENTS FOR THE CONTROL OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF SUBSYSTEMS AND EQUIPMENT		N
	5.4 CE101, conducted emissions, audio frequency currents, power leads	CE101: 30 Hz ~ 10 kHz.	
	5.5 CE102, conducted emissions, radio frequency potential, power leads	CE102: 10 kHz ~ 10 MHz	
	5.6 CE106, conducted emissions, antenna terminal	CE106: 10 kHz ~ 40 GHz	
	5.7 CS101, conducted susceptibility, power leads	CS101: 30 Hz ~ 150 kHz	
	5.11 CS109, conducted susceptibility, structure current	CS109: 60 Hz ~ 100 kHz	
	5.12 CS114, conducted susceptibility, bulk cable injection	CS114: 10 kHz 200 MHz	
	5.13 CS115, conducted susceptibility, bulk cable injection, impulse excitation	CS115: Impulse excitation, 5 A	
	5.14 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads.	CS116: 10 kHz ~ 100 MHz	
	5.16 CS118, personnel borne electrostatic discharge	CS118: (± 2 ~ ± 15) kV	
	5.17 RE101, radiated emissions, magnetic field	RE101: 30 Hz ~ 100 kHz	
	5.18 RE102, radiated emissions, electric field	RE102: 10 kHz ~ 18 GHz	
	5.20 RS101, radiated susceptibility, magnetic field	RS101: 30 Hz ~ 100 kHz	
	5.21 RS103, radiated susceptibility, electric field <Exception> 2 ㎒ to 150 ㎒, 200 V/m	RS103: 2 MHz ~ 40 GHz	

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
EPRI TR-102323 Rev. 0 : 1994	Guidelines for Electromagnetic Interference Testing in Power Plants 7-2. Equipment conducted emissions 7-3. Equipment conducted emissions 7-4. Equipment radiated magnetic field emissions 7-5. Equipment radiated electric field emissons B-9. Continuous Wave, Radiated B-10. Continuous Wave, Conducted B-12. Surge Tests B-13. Fast Transient and impulse Tests B-13. Electrostatic discharge	CE101 : 30 Hz ~ 50 kHz CE102 : 50 kHz ~ 400 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 1 GHz CS101 : 30 Hz ~ 50 kHz CS114 : 50 kHz ~ 400 MHz RS101 : 30 Hz ~ 100 kHz RS103 : 10 kHz ~ 1 GHz Surge : ±3 kV Burst : ±3 kV ESD : Air ±15 kV, Contact ±8 kV	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
EPRI TR-102323 Rev. 1 : 1997	Guidelines for Electromagnetic Interference Testing in Power Plants 7-2. Equipment conducted emissions 7-3. Equipment conducted emissions 7-4. Equipment radiated magnetic field emissions 7-5. Equipment radiated electric field emissons B-10. Continuous Wave, Radiated B-11. Continuous Wave, Conducted B-12. Surge Tests B-14. Fast Transient and impulse Tests B-14. Electrostatic discharge	CE101 : 30 Hz ~ 50 kHz CE102 : 50 kHz ~ 400 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 1 GHz CS101 : 30 Hz ~ 50 kHz CS114 : 50 kHz ~ 400 MHz RS101 : 30 Hz ~ 100 kHz RS103 : 10 kHz ~ 1 GHz Surge : ±3 kV Burst : ±3 kV ESD : Air ±15 kV, Contact ±8 kV	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
EPRI TR-102323 Rev. 2 : 2000	Guidelines for Electromagnetic Interference Testing in Power Plants 5-8. Low-Frequency Conducted Susceptibility 5-10. High-Frequency Conducted Susceptibility 5-12. Low-frequency radiated susceptibility 5-14. High-frequency radiated susceptibility 5-15. Surge 5-16. Electrically-fast Transient/Burst 5-17. Electrostatic discharge 5-18. Low-frequency conducted emissions 5-20. High-frequency conducted emissions 5-22. Low-frequency radiated emissions 5-24. High-frequency radiated emissions	CS101 : 30 Hz ~ 50 kHz CS114 : 10 kHz ~ 200 MHz RS101 : 30 Hz ~ 100 kHz RS103 : 10 kHz ~ 10 GHz Surge : ±4 kV Burst : ±2 kV ESD : Air ±15 kV, Contact ±8 kV CE101 : 30 Hz ~ 10 kHz CE102 : 10 kHz ~ 10 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 10 GHz	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
EPRI TR-102323 Rev. 3 : 2004	Guidelines for Electromagnetic Interference Testing in Power Plants 5-6. Low-Frequency Conducted Susceptibility 5-8. High-Frequency Conducted Susceptibility 5-10. Low-frequency radiated susceptibility 5-12. High-frequency radiated susceptibility 5-13. Surge 5-15. Electrically-fast Transient/Burst 5-17. Electrostatic discharge 5-19. Low-frequency conducted emissions 5-21. High-frequency conducted emissions 5-23. Low-frequency radiated emissions 5-25. High-frequency radiated emissions	CS101 : 30 Hz ~ 150 kHz CS114 : 10 kHz ~ 200 MHz RS101 : 30 Hz ~ 100 kHz RS103 : 10 kHz ~ 10 GHz Surge : ±4 kV CS116 : 10 kHz ~ 100 MHz Burst : ±2 kV CS115 : Impulse : 5 A ESD : Air ±15 kV, Contact ±8 kV CE101 : 30 Hz ~ 10 kHz CE102 : 10 kHz ~ 10 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 10 GHz	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
NRC REGULATORY GUIDE 1.180 : 2000	Guidelines for evaluating electromagnetic and radio-frequency interference in safety-related instrumentation and control systems 4.1 CE101-Conducted emissions, low frequency 4.2 CE102-Conducted emissions, high frequency 4.3 CS101-Conducted susceptibility, low frequency 4.4 CS114-Conducted susceptibility, high frequency 4.5 RE101-Radiated emissions, magnetic field 4.6 RE102-Radiated emissions, electric field 4.7 RS101-Radiated susceptibility, magnetic fields 4.8 RS103-Radiated susceptibility, electric fields 6.1 Ring wave 6.2 Combination wave 6.3 Electrically fast transients	CE101: 30 Hz to 10 kHz CE102: 10 kHz to 10 MHz CS101: 30 kHz to 50 kHz CS114: 10 kHz to 400 MHz RE101: 30 Hz to 100 kHz RE102: 10 kHz to 1 GHz RS101: 30 Hz to 10 kHz RS103: 10 kHz to 1 GHz Surge: Ringwave ±3 kV, Combination ±3 kV Burst: ±3 kV	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
NRC REGULATORY GUIDE 1.180 : 2003	Guidelines for evaluating electromagnetic and radio-frequency interference in safety-related instrumentation and control systems 3.1 CE101-Conducted emissions, low frequency 3.2 CE102-Conducted emissions, high frequency 3.3 RE101-Radiated emissions, magnetic field 3.4 RE102-Radiated emissions, electric field 3.5 IEC Emissions tests 4.1.1 CS101-Conducted susceptibility, low frequency 4.1.2 CS114-Conducted susceptibility, high frequency 4.1.3 IEC Conducted susceptibility tests-power leads 4.2 EMI/RFI Conducted susceptibility testing-signal leads 4.3.1 RS101-Radiated susceptibility, magnetic fields 4.3.2 RS103-Radiated susceptibility, electric fields 4.3.3 IEC Radiated susceptibility tests 5.1 IEEE C62.41 Ring wave and IEC 61000-4-12 5.2 IEEE C62.41 Combination wave and IEC 61000-4-5 5.3 IEEE C62.41 Electrically fast transients and IEC 61000-4-4	CE101: 30 Hz to 10 kHz CE102: 10 kHz to 2 MHz RE101: 30 Hz to 100 kHz RE102: 10 kHz to 10 GHz CS101: 30 kHz to 150 kHz CS114: 10 kHz to 30 MHz CS115: Impulse : 2 A CS116: 10 kHz ~ 100 MHz RS101: 30 Hz to 10 kHz RS103: 30 MHz to 10 GHz Surge: Ringwave ±4 kV, Combination ±4 kV Burst: ±3 kV	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
ETSI EN 301 489-1 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N
ETSI EN 301 489-3 V1.6.1	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N
ETSI EN 301 489-17 V3.3.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU	CE : 9 kHz ~ 30 MHz, RE : 9 kHz ~ 18 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
ETSI EN 301 489-24 V1.5.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 24:Specific conditions for IMT-2000 CDMA Direct Spread (UTRA and E-UTRA) for Mobile and portable (UE) radio and ancillary equipment	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N
KN 301 489-1:2017	Test Method of Common Technical EMC for radio Equipment	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 Kv, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N
KN 301 489-3	Test Method of Common Technical EMC for radio Equipment of short-range	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
KN 301 489-17:2013	Electromagnetic compatibility test method of specific low power radio equipment for wireless data communication system	CE : 150 kHz ~ 30 MHz, RE : 30 kHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100) %	N
KN 301 489-24:2008	Electromagnetic compatibility test method for radio equipment of mobile communication	CE : 150 kHz ~ 30 MHz, RE : 30 MHz ~ 6 GHz, ESD : ±8 kV, RS : 80 MHz ~ 6 GHz, EFT : ±4 kV, SURGE : ±4 kV, CS : 150 kHz ~ 230 MHz, M/F : 30 A/m, V-DIP : (0 ~ 100)	N
EN 55035:2017	Electromagnetic compatibility of multimedia equipment - Immunity requirements	ESD: ±8 kV, RS: 80 MHz ~ 6.0 GHz, EFT: ±1 kV, SURGE: ±2 kV, CS: 150 kHz ~ 80 MHz, M/F: 1 A/m, V-DIP: (0 ~ 100) %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-3:2012	Medical electrical equipment - Part 2-3: Particular requirements for the basic safety and essential performance of short-wave therapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-4:2010	Medical electrical equipment - Part 2-4: Particular requirements for the basic safety and essential performance of cardiac defibrillators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-5:2009	Medical electrical equipment - Part 2-5: Particular requirements for the safety of ultrasonic physiotherapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-6:2012/A1:2016	Medical electrical equipment - Part 2-6: Particular requirements for the basic safety and essential performance of microwave therapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-8:2010	Medical electrical equipment - Part 2-8: Particular requirements for the basic safety and essential performance of therapeutic X-ray equipment operating in the range 10 ㎸ to 1 ㎿ 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-10:2012/A1:2016	Medical electrical equipment - Part 2-10: Particular requirements for the safety of nerve and muscle stimulators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
IEC 60601-2-16:2012	Medical electrical equipment - Part 2-16: Particular requirements for the basic safety and essential performance of haemodialysis, haemodiafiltration and haemofiltration equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-18:2009	Medical electrical equipment - Part 2-18: Particular requirements for the safety of endoscopic equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-19:2009/A1:2016	Medical electrical equipment - Part 2-19: Particular requirements for the basic safety and essential performance of infant incubators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-20:2009/A1:2016	Medical electrical equipment - Part 2-20: Particular requirements for the basic safety and essential performance of infant transport incubators 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-22:2007+A1:2012	Medical electrical equipment - Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-24:2012	Medical electrical equipment - Part 2-24: Particular requirements for the basic safety and essential performance of infusion pumps and controllers 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
IEC 60601-2-25:2011	Medical electrical equipment - Part 2-25: Particular requirements for the basic safety and essential performance of electrocardiographs 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-26:2012	Medical electrical equipment - Part 2-26: Particular requirements for the basic safety and essential performance of electroencephalographs 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-27:2011+corrigendum May 2012	Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
IEC 60601-2-28:2010	Medical electrical equipment - Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-31:2008/A1:2011	Medical electrical equipment - Part 2-31: Particular requirements for the basic safety and essential performance of external cardiac pacemakers with internal power source 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-37:2007/A1:2015	Medical electrical equipment - Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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Test method	Standard designation	Test range	Field testing
IEC 60601-2-41:2009/A1:2013	Medical electrical equipment - Part 2-41: Particular requirements for the basic safety and essential performance of surgical luminaires and luminaires for diagnosis 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-43:2010	Medical electrical equipment - Part 2-43: Particular requirements for basic safety and essential performance of X-ray equipment for interventional procedures 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-44:2009/A2:2016	Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of X-ray equipment for computed tomography 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-45:2011/A1:2015	Medical electrical equipment - Part 2-45: Particular requirements for basic safety and essential performance of mammographic X-ray equipment and mammomagraphic stereotactic devices 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-47:2012	Medical electrical equipment - Part 2-47: Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-49:2011	Medical electrical equipment - Part 2-49: Particular requirements for the safety of multifunction patient monitoring equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-50:2009/A1:2016	Medical electrical equipment - Part 2-50: Particular requirements for the basic safety and essential performance of infant phototherapy equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-52:2009/A1:2015	Medical electrical equipment - Part 2-52: Particular requirements for the basic safety and essential performance of medical beds 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-54:2009+A1:2015	Medical electrical equipment - Part 2-54: Particular requirements for the basic safety and essential performance of X-ray equipment for radiography and radioscopy 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-57:2011	Medical electrical equipment - Part 2-57: Particular requirements for the basic safety and essential performance of non-laser light source equipment intended for therapeutic, diagnostic, monitoring and cosmetic/aesthetic use 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-62:2013	Medical electrical equipment - Part 2-62: Particular requirements for the basic safety and essential performance of high intensity therapeutic ultrasound (HITU) equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirements and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-63:2012	Medical electrical equipment - Part 2-63: Particular requirements for the basic safety and essential performance of dental extra-oral X-ray equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-63:2017	Medical electrical equipment - Part 2-63: Particular requirements for the basic safety and essential performance of dental extra-oral X-ray equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 61000-4-29:2000	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Testing and measurement techniques. Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests. Voltage dips, short interruptions and voltage variations on d.c.input power ports. Immunity tests	DC 500 V	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 60601-2-65:2012	Medical electrical equipment - Part 2-65: Particular requirements for the basic safety and essential performance of dental intra-oral X-ray equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 60601-2-66:2015	Medical electrical equipment - Part 2-66: Particular requirements for the basic safety and essential performance of hearing instruments and hearing instrument systems 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 80601-2-30:2009/A1:2013	Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03 Electric Test

03.011 Electromagnetic compatibility

Test method	Standard designation	Test range	Field testing
IEC 80601-2-35:2009 /A1:2016	Medical electrical equipment - Part 2-35: Particular requirements for the basic safety and essential performance of heating devices using blankets, pads and mattresses and intended for heating in medical use 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 80601-2-59:2008 +corrigendum2009	Medical electrical equipment - Part 2-59: Particular requirements for the basic safety and essential performance of screening thermographs for human febrile temperature screening 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N
IEC 80601-2-60:2012	Medical electrical equipment - Part 2-60: Particular requirements for the basic safety and essential performance of dental equipment 201.17 Electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS 202 Electromagnetic compatibility - Requirement and tests	CE : 0.009 ㎒ to 30 ㎒ RE : 0.009 ㎒ to 18 ㎓ F/H : ≤ 16 A ESD : 15 ㎸ RS : 10 V/m, 80 ㎒ to 6 ㎓ EFT/B : 2 ㎸ Surge : 2 ㎸ CS : 10 V, 0.15 ㎒ to 80 ㎒ MF : 30 A/m Dips : 0 % to 100 %	N

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03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
Ministry of trade, industry and energy notification 2017-91	Regulation for standby power reduction program 1-1. Computer 1-2. Monitor 1-3. Printer 1-4. Facsimile 1-5. Copier 1-6. Scanner 1-7. Multifunction printer 1-8. Automatic controller 1-10. Audio 1-11. DVD player 1-12. Radio cassette 1-13. Microwave 1-15. Doorphone 1-16. Wired or wireless telephones 1-17. Bidet 1-20. Hand dryers 1-21. Server 1-22. Digital converter 1-23. Wired or wireless router	Under 500 W Under 153 cm Under 3 kW Under 3 kW Under 5 kW Under 1 kW Under 5 kW - Under 1 kW Under 150 W Under 1 kW Under 4 kW Under 100 W Under 150 W Under 2 kW Under 3 kW Under 3 kW Under 100 W -	N
Ministry of trade, industry and energy notification 2018-99	Regulation for Efficient Management Products 4-1. Electric refrigerator 4-3. Kimchi refrigerator 4-9. Electric cold and hot water dispensers 4-10 Electric rice cooker 4-12. Electric fan 4-20. Adapter and Battery Chargers 4-22. Commercial electric refrigerator 4-26. A TV set 4-30. Dehumidifier 4-36 Electric range 4-37. Set-top box	Under 1 000 L Under 1 000 L Under 3 000 W Under 20 servings 20 cm - 41 cm Under 150 W 300 L - 2 000 L 47 cm - 216 cm Under 1 000 W 1 kW - 10 kW Under 150 W	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
IEC 62018:2003	Power consumption of information technology equipment - Measurement methods	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-1:2015	Audio, video, and related equipment - Determination of power consumption - Part 1: General	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-2:2015	Audio, video, and related equipment - Determination of power consumption - Part 2: Signals and media	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-3:2015	Audio, video, and related equipment - Determination of power consumption - Part 3: Television sets	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-4:2015	Audio, video, and related equipment - Determination of power consumption - Part 4: Video recording equipment	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-5:2015	Audio, video, and related equipment - Determination of power consumption - Part 5: Set-top-boxes	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62087-6:2015	Audio, video, and related equipment - Determination of power consumption - Part 6: Audio equipment	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
IEC 62301:2011	Household electrical appliances - Measurement of standby power	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
IEC 62552:2007	Household refrigerating appliances – Characteristics and test methods	Input Voltage: Max. 300 V Input Frequency: (50/60) HzMax. 10 kW	N
IEC 62552-1:2015	Household refrigerating appliances - Characteristics and test methods - Part 1: General requirements	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
IEC 62552-2:2015	Household refrigerating appliances - Characteristics and test methods - Part 2: Performance requirements	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
IEC 62552-3:2015	Household refrigerating appliances - Characteristics and test methods - Part 3: Energy consumption and volume	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
IEC 62623:2012	Desktop and notebook computers - Measurement of energy consumption	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
EN 50563:2011+A1:2013	External a.c. - d.c. and a.c. - a.c. power supplies – Determination of no-load power and average efficiency of active modes	Max. 250 W	N
EN 50564:2011	Electrical and electronic household and office equipment - Measurement of low power consumption	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
EN 62018:2003	Power consumption of information technology equipment - Measurement methods	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
EN 62552:2013	Household refrigerating appliances - Characteristics and test methods	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
EN 62623:2013	Desktop and notebook computers - Measurement of energy consumption	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
KS C IEC 62018:2003	Power consumption of information technology equipment - Measurement methods	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
KS C IEC 62087:2002	Power consumption of audio, video and related equipment - Methods of measurement	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
KS C IEC 62301:2011	Household electrical appliances - Measurement of standby power	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
AS/NZS 4474.1:2007 +A1:2008+A2:2011	Performance of household electrical appliances - Refrigerating appliances Part 1 - Energy consumption and performance	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
AS/NZS 4474.2:2009 +A1:2011+A2:2014	Performance of household electrical appliances - Refrigerating appliances Part 2- Energy labelling and minimum energy performance standard requirements	-	N
AS/NZS 4665.1:2005+A1:2009	Performance of external power supplies Part 1: Test method and energy performance mark	Max. 250 W or 250 VA	N
AS/NZS 62087.1:2010	Power consumption of audio, video and related equipment - Methods of measurement	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
AS/NZS 62087.2.2:2011 +A1:2012+A2:2012	Power consumption of audio, video and related equipment - Minimum energy performance standards (MEPS) and energy rating label requirements for television sets	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
AS/NZS IEC 62301:2014	Household electrical appliances - Measurement of standby power	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
AHAM HRF 1:2008	Energy, Performance And Capacity Of Household Refrigerators, Refrigerator-Freezers And Freezers	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
CAN/CSA-C300-15	Energy performance and capacity of household refrigerators, refrigerator- freezers, freezers, and wine chillers	Max. 1 100 L	N
CAN/CSA-C62301:11 (R2016)	Household electrical appliances - Measurement of standby power	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
Code of Conduct on Energy Efficiency of External Power Supplies Version 5	External Power Supplies Code of Conduct – Version 5, 29 October2013	0.3 W to 250 W	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
DOE:EERE-2008-BT-STD-0005	Energy Conservation Program: Energy Conservation Standards for External Power Supplies; Final Rule	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
ENERGY STAR® Program Requirements for Televisions	ENERGY STAR® Program Requirements Product Specification for Televisions Eligibility Criteria Version 7.0 <Exception> On Mode Testing for Products with ABC Enabled by Default	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
ENERGY STAR Program Requirements for Residential Refrigerators and Freezers	ENERGY STAR Program Requirements Product Specification for Residential Refrigerators and Freezers Eligibility Criteria Version 5.0	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N
ENERGY STAR Program Requirements For Commercial Refrigerators and Freezers	ENERGY STAR Program Requirements Product Specification for Commercial Refrigerators and Freezers Eligibility Criteria Version 4.0	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz Max. 10 kW	N

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03 Electric Test

03.013 Energy Efficiency

Test method	Standard designation	Test range	Field testing
ENERGY STAR program requirements for audio/video	ENERGY STAR Program Requirements Product Specification for Audio/Video Eligibility Criteria Version 3.0	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
ENERGY STAR program requirements for imaging equipment	ENERGYSTAR Program Requirements Product Specification for Imaging Equipment Version 2.0	Input Voltage: Max. 300 V Input Frequency: (50/60) Hz	N
ENERGY STAR Program Requirements for Computers	ENERGY STAR Program Requirements Product Specification for Computers Eligibility Criteria Version 6.1	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
ENERGY STAR Program Requirements for Displays	ENERGY STAR Program Requirements Product Specification for Displays Eligibility Criteria Version 7.1 <Exception> On Mode Testing for Products with ABC Enabled by Default	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
ENERGY STAR Program Requirements for Set-top Boxes	ENERGY STAR Product Specification for Set-top Boxes Eligibility Criteria Version 5.0 (for Set-top Box Brand Owners)	Input Voltage: Max. 500 V Input Frequency: (50/60) Hz	N
NRCan: Amendment 13	Energy Efficiency Regulations for External Power Supplies, published on December 28, 2016 in the Canada Gazette, Part II	Max. 250 W	N

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03 Electric Test

03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
IEC 60068-2-1:2007	Environmental testing - Part 2-1: Tests - Test A : Cold	Temperature: (-65 ~ 5) ℃	N
IEC 60068-2-2:2007	Environmental testing - Part 2-2: Tests - Test B : Dry heat	Temperature: (30 ~ 175) ℃	N
IEC 60068-2-6:2007	Environmental testing - Part 2-6: Tests - Test Fc : Vibration (sinusoidal)	Frequency: (5 ~ 2 000) Hz Acceleration: (10 ~ 500) m/s^2	N
IEC 60068-2-11:1981	Basic environmental testing procedures - Part 2-11: Tests - Test Ka : Salt mist	Temperature: 35 ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2)	N
IEC 60068-2-14:2009	Environmental testing - Part 2-14: Tests - Test N : Change of temperature 7 Test Na : Rapid change of temperature with prescribed time of transfer 8 Test Nb : Change of temperature with specified rate of change	Temperature: (-65 ~ 175) ℃	N
IEC 60068-2-27:2008	Environmental testing - Part 2-27: Tests - Test Ea and guidance : Shock	Acceleration: (50 ~ 1 000) m/s^2 Duration: (1 ~ 30) ms	N
IEC 60068-2-30:2005	Environmental testing - Part 2-30: Tests - Test Db : Damp heat, cyclic (12h + 12h cycle)	Temperature: (25 ~ 55) ℃ Humidity: (45 ~ 95) % R.H.	N
IEC 60068-2-38:2009	Environmental testing - Part 2-38: Tests - Test Z/AD : Composite temperature/humidity cyclic test	Temperature: (-10 ~ 55) ℃ Humidity: (20 ~ 95) % R.H.	N

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03 Electric Test

03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
IEC 60068-2-42:2005	Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections	Temperature: 25 ℃ Humidity: (70 ~ 80) % R.H.	N
IEC 60068-2-43:2005	Environmental testing - Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections	Temperature: 25 ℃ Humidity: (70 ~ 80) % R.H.	N
IEC 60068-2-52:1996	Environmental testing - Part 2: Tests - Test Kb : Salt mist, cyclic (sodium chloride solution)	Temperature: (15 ~ 35) ℃ 23 ℃, (40 ~ 55) % R.H. 40 ℃, 93 % R.H. Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2)	N
IEC 60068-2-53:2010	Environmental testing — Part 2: Tests Guidance to tests Z/AFc and Z/BFc: Combined temperature (cold and dry heat) and vibration (sinusoidal) test	Temperature: (-65 ~ 5) ℃ Temperature: (30 ~ 175) ℃ Frequency: (5 ~ 2 000) Hz Acceleration: (1 ~ 500) m/s^2	N
IEC 60068-2-57:2013	Environmental testing - Part 2-57: Tests - Test Ff : Vibration - Time-history and sine-beat method	Frequency: (5 ~ 2 000) Hz	N
IEC 60068-2-60:2015	Environmental Testing - Part 2: Tests - Test Ke: Flowing mixed gas corrosion test	Temperature: (15 ~ 60) ℃ Humidity: (10 ~ 93) % R.H.	N
IEC 60068-2-64:2008	Environmental testing - Part 2-64: Tests - Test Fh : Vibration, broadband random and guidance	Frequency: (5 ~ 2 000) Hz Acceleration: (0.98 ~ 300) m/s^2 r.m.s	N
IEC 60068-2-78:2012	Environmental testing - Part 2-78: Tests - Test Cab : Damp heat, steady state	Temperature /Humidity: 30 ℃, 93 % R.H. 30 ℃, 85 % R.H. 40 ℃, 93 % R.H. 40 ℃, 85 % R.H.	N

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03 Electric Test

03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
IEC 60092-504:2016	Electrical installations in ships - Part 504 : Special features－ Control and instrumentation <Exception> 3. High Voltage test	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2) Frequency: (1 ~ 2 000) ㎐ Acceleration: (9.8 ~ 980) m/s^2 Duration: (1 ~ 30) ms IP1X to IP6X IPX1 to IPX9	N
IEC 60529:2013	Degrees of protection provided by enclosures (IP Code)	IP1X to IP6X IPX1 to IPX9	N
IEC 60571:2012	Railway applications - Electronic equipment used on rolling stock	Temperature: (-40 ~ 850) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N

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03 Electric Test

03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
IEC 60945:2002	Maritime navigation and radio communication equipment and systems. General requirements. Methods if testing and required test results 7.1 Extreme power supply 8.1 General 8.2 Dry heat 8.3 Damp heat 8.4 Low temperature 8.6.1 Drop on hard surface 8.7 Vibration 8.8 Rain and Sprat(exposed equipment) 8.9 Immersion 8.9.3 Portable equipment*temporary immersion) 8.12 Corrosion	High Temp.: (55 ~ 70) ℃ Temp. & Humid.: 40 ℃, 95 %R.H. Low Temp.: (-30 ~ -15) ℃ Frequency: (2 ~ 100) ㎐ Acceleration: Max 7 m/s^2 Slat solution concentration: Temperature: 35 ℃ 5 % NaCl, pH: (6.5 ~ 7.2)	N
IEC 61373:2010	Railway applications - Rolling stock equipment - Shock and vibration tests	Frequency: (2 ~ 500) Hz Acceleration: (0.37 ~ 144) m/s^2 r.m.s Acceleration: (30 ~ 1 000) m/s^2 Duration: (6 ~ 30) ms	N
IEC 62498-3:2010	Railway applications - Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications 4.13 Vibrations and shocks	Vibrations: (5 ~ 2 000) ㎐, (2.3 ~ 280) m/s^2 r.m.s. Shocks: (20 ~ 800) m/s^2, (1 ~ 11) ㎳	N

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Test method	Standard designation	Test range	Field testing
EN 50155:2007	Railway applications - Electronic equipment used on rolling stock 12.2.3 Cooling test 12.2.4 Dry heat test 12.2.5 Damp heat test, cyclic 12.2.10 Salt mist test 12.2.11 Vibration, shock and bump test 12.2.12 Watertightness test 12.2.14 Low temperature storage test	Temperature: (-40 ~ 85) ℃ Humidity: (45 ~ 95) % Slat solution concentration: Temperature: 35 ℃ 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (2 ~ 250) Hz Acceleration: (0.37 ~ 300) m/s^2 r.m.s IPX1, IPX2, IPX3, IPX4, IPX5, IPX6, IPX7, IPX8 Acceleration: (30 ~ 1 000) m/s^2	N
EN 60945:2002	Maritime navigation and radio communication equipment and systems. General requirements. Methods if testing and required test results 7.1 Extreme power supply 8.1 General 8.2 Dry heat 8.3 Damp heat 8.4 Low temperature 8.6.1 Drop on hard surface 8.7 Vibration 8.8 Rain and Sprat(exposed equipment) 8.9 Immersion 8.9.3 Portable equipment*temporary immersion) 8.12 Corrosion	High Temp.: (55 ~ 70) ℃ Temp. & Humid.: 40 ℃, 95 %R.H. Low Temp.: (-30 ~ -15) ℃ Frequency: (2 ~ 100) ㎐ Acceleration: Max 7 m/s^2 Slat solution concentration: Temperature: 35 ℃ 5 % NaCl, pH: (6.5 ~ 7.2)	N

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Test method	Standard designation	Test range	Field testing
EN 61373:2010	Railway applications - Rolling stock equipment - Shock and vibration tests	Frequency: (2 ~ 500) Hz Acceleration: (0.37 ~ 144) m/s^2 r.m.s Acceleration: (30 ~ 1 000) m/s^2 Duration: (6 ~ 30) ms	N
KS C IEC 60068-2-1:2010	Environmental testing - Part 2-1 : Tests - Test A : Cold	Temperature: (-65 ~ 5) ℃	N
KS C IEC 60068-2-2:2014	Environmental testing - Part 2-2 : Tests - Test B : Dry heat	Temperature: (30 ~ 175) ℃	N
KS C IEC 60068-2-6:2015	Environmental testing - Part 2-6 : Tests - Test Fc : Vibration (sinusoidal)	Freqeuncy: (5 ~ 2 000) Hz Acceleration: (1 ~ 500) m/s^2	N
KS C IEC 60068-2-11:2014	Basic environmental testing procedures - Part 2-11 : Tests - Test Ka : Salt mist	Temperature: 35 ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2)	N
KS C IEC 60068-2-14:2014	Environmental testing - Part2 - 14 : Tests - Test N : Change of temperature 7 Test Na : Rapid change of temperature with prescribed time of transfer 8 Test Nb : Change of temperature with specified rate of change	Temperature: (-65 ~ 175) ℃	N
KS C IEC 60068-2-27:2017	Environmental test - Part 2: Test - Test Ea and Instruction: Shock	Acceleration: (50 ~ 1 000) m/s^2 Duration: (1 ~ 30) ms	N
KS C IEC 60068-2-30:2014	Environmental testing - Part 2-30 : Tests - Test Db : Damp heat, cyclic (12h + 12h cycle)	Temperature: (25 ~ 55) ℃ Humidity: (45 ~ 95) % R.H.	N
KS C IEC 60068-2-38:2014	Environmental testing - Part 2-38 : Tests - Test Z/AD : Composite temperature/humidity cyclic test	Temperature: (-10 ~ 55) ℃ Humidity: (20 ~ 95) % R.H.	N

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Test method	Standard designation	Test range	Field testing
KS C IEC 60068-2-42:2005	Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections	Temperature: 25 ℃ Humidity: (70 ~ 80) % R.H.	N
KS C IEC 60068-2-43:2005	Environmental testing - Part 2-43: Tests - Test Kd: Hydrogen sulphide test for contacts and connections	Temperature: 25 ℃ Humidity: 70 ~ 80 % R.H.	N
KS C IEC 60068-2-52:2010	Environmental testing - Part 2 : Tests - Test Kb : Salt mist, cyclic (sodium chloride solution)	Temperature: (15 ~ 35) ℃ 23 ℃, (40 ~ 55) % R.H. 40 ℃, 93 % R.H. Slat solution concentration: 5 % NaCl, pH : (6.5 ~ 7.2)	N
KS C IEC 60068-2-53:2017	Environmental testing — Part 2-53: Tests and guidance: Combined climatic(temperature/humidity) and dynamic (vibration/shock) tests	Temperature: (-65 ~ 5) ℃ Temperature: (30 ~ 175) ℃ Frequency: (5 ~ 2 000) Hz Acceleration: (0.98 ~ 500) m/s^2	N
KS C IEC 60068-2-57:2003	Environmental testing - Part 2-57: Tests - Test Ff : Vibration - Time-history and sine-beat method	Frequency: (5 ~ 2 000) Hz	N
KS C IEC 60068-2-60:2010	Environmental Testing - Part 2: Tests - Test Ke: Flowing mixed gas corrosion test	Temperature: (15 ~ 60) ℃ Humidity: (10 ~ 93) % R.H.	N
KS C IEC 60068-2-64:2014	Environmental testing - Part 2-64: Tests - Test Fh : Vibration, broadband random and guidance	Frequency: (5 ~ 2 000) Hz Acceleration: (0.98 ~ 300) m/s^2 r.m.s	N
KS C IEC 60068-2-78:2002	Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state	Temperature /Humidity: 30 ℃, 93 % R.H. 30 ℃, 85 % R.H. 40 ℃, 93 % R.H. 40 ℃, 85 % R.H.	N

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Test method	Standard designation	Test range	Field testing
KS C IEC 60092-504:2007	Electrical installations in ships - Part 504 : Special features－ Control and instrumentation <Exception> 3. High Voltage test	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2) Frequency: (1 ~ 2 000) ㎐ Acceleration: (9.8 ~ 980) m/s^2 Duration: (1 ~ 30) ms IP1X to IP6X IPX1 to IPX9	N
KS C IEC 60529:2006	Degrees of protection provided by enclosures (IP Code)	IPX1, IPX2, IPX3, IPX4, IPX5, IPX6, IPX7, IPX8 IP1X, IP2X, IP3X, IP4X ,IP5X ,IP6X	N
KS C IEC 60571:2002	Electronic equipment used on rail vehicles	Temperature: (-40 ~ 850) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KS C IEC 61373:2002	Railway applications - Rolling stock equipment - Shock and vibration tests	Frequency: (2 ~ 500) Hz Acceleration: (0.37 ~ 300) m/s^2 r.m.s Acceleration: (30 ~ 1 000) m/s^2 Duration: (1 ~ 30) ms	N

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Test method	Standard designation	Test range	Field testing
KS C 7620:2003	Railway car luminaries for fluorescent lamps <Exception> 7.2 Characteristic test 7.8 Life test 7.11 Light flux ration test 7.13 Intensity of noise test	Temperature: Max. 200 ℃ Insulation Resistance: Max. 5 000 MΩ	N
KS D 9502:2009	Methods Of Neutral Salt Spray Testing(Neutral salt, Acetic acid and Cass test) <Exception> 11.2 Acetic acid salt spray test	Temperature: (15 ~ 35) ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2)	N
KS R 1034:2006	Vibration testing methods for Automobile parts	Frequency: (5 ~ 2 000) Hz Acceleration: (4.9 ~ 490) m/s^2	N
KS R 9144:2014	Test methods for vibration of parts of railway rolling stock	Frequency: (1 ~ 70) Hz Acceleration: (0.1 ~ 490) m/s^2	N
KS R 9146:2002	Railway Rolling stock parts - Test methods for shock	Acceleration: (9.8 ~ 88) m/s^2	N
KS R 9156:2002	General rules for tests of electronic equipment used on railwayrolling stock <Exception> 4.3 Surge test 4.4 Noise Test 4.13 Dust test	Temperature: (- 25 ~ 70) ℃ Humidity: (80 ~ 95) % R.H. Frequency: (1 ~ 70) Hz Acceleration: (0.1 ~ 490) m/s^2	N
KS R 9186:1996	Parts for railway signal - Vibration test methods	Frequency: (10 ~ 1 000) Hz Acceleration: (4.9 ~ 1960) m/s^2	N
KS R 9189:2003	Parts For Railway Signaling — Waterproof Test Methods <Exception> 5.3 Water spray test 5.4 Fountain test	Temperature: (20 ~ 60) ℃ Humidity: Max. 95 % R.H.	N

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Test method	Standard designation	Test range	Field testing
KS R 9191:1996	High and Low temperature testing methods for parts of railway signal	Temperature: (-30 ~ 160) ℃	N
KS R 9192:1996	Change Of Temperature Testing Method For Parts Of Railway Signaling	Temperature: (-33 ~ 62) ℃	N
KS R 9193:1996	Insulation Resistance And Withstand Voltage Testing Methods Of Parts For Railway Signaling	Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KS R 9197:1996	Test Methods For Insulation Resistance And Withstand Voltage Of Railway Rolling Stock	Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KS R 9213:2007	Railway rolling stock - High and low temperature test methods of parts	Temperature: (-35 ~ 105) ℃	N
KS X IEC 60945:2005	Maritime navigation and radio communication equipment and systems. General requirements. Methods if testing and required test results 7.1 Extreme power supply 8.1 General 8.2 Dry heat 8.3 Damp heat 8.4 Low temperature 8.6.1 Drop on hard surface 8.7 Vibration 8.8 Rain and Sprat(exposed equipment) 8.9 Immersion 8.9.3 Portable equipment(temporary immersion) 8.12 Corrosion	High Temp.: (55 ~ 70) ℃ Temp. & Humid.: 40 ℃, 95 %R.H. Low Temp.: (-30 ~ -15) ℃ Frequency: (2 ~ 100) ㎐ Acceleration: Max 7 m/s^2 Slat solution concentration: Temperature: 35 ℃ 5 % NaCl, pH: (6.5 ~ 7.2)	N

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Test method	Standard designation	Test range	Field testing
KR:2016	Standards for Manufacturing Process and Type Approval 2016 Chapter 3 Type Approval Section 23 Automation Systems (Rule 6, Chapter 2 of the Rules) 2304. Type examination <Exception> 5. Change of power source	Temperature: (-25 ~ 70) ℃ Temp. & Humid.: (20 ~ 55) ℃, (80 ~ 95) % Frequency: (2 ~ 100) Hz Acceleration: ± 0.7 g. Slat solution concentration: Temperature: 35 ℃ 5 % NaCl, pH: (6.5 ~ 7.2)	N
KRS CS 0003-13 :2013	Railway Rolling Stock-Test methods : Train signaling and elecommunications	Temperature: (-40 ~ 85) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0014-16 (R):2016	Power Supply for Signal Device	Temperature: (-20 ~ 70) ℃ Humidity: (20 ~ 80) % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0015-14 (R):2014	Electronic Interlocking Device <Exception> 4.9 Operation performance test 4.10 Interlocking test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS CM 0026-16 :2016	The Data Transmission Equipment between Train and Wayside(On-board Equipment)-Test methods	Temperature: (-65 ~ 175) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N

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Test method	Standard designation	Test range	Field testing
KRS SG 0033-14 (R):2014	Insulated Audio Frequency Track Circuit <Exception> 4.2.2 Test of method - 2) Material test - 11) Shockwave test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0036-16 (R):2016	Track Circuit Function Monitoring Device(TLDS)	Temperature: (-30 ~ 60) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0038-16 (R):2016	Non-insulated Audio Frequency Track Circuit <Exception> 4.7 Comprehensive simulation test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0051-14 (R):2014	Railroad Crossing Control Unit(Plug in Type) <Exception> 4.2.1 Test classification - b. Material test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0054-14 (R):2014	Single Track Automatic Block Control Device <Exception> 4.2.2 Test method - 2) Contact Capacity Test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 90 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N

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Test method	Standard designation	Test range	Field testing
KRS SG 0055-14 (R):2014	Double Track Automatic Block Control Device <Exception> 4.2.2 Test method - 2) Contact Capacity Test	Temperature: (-80 ~ 220) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0059-14 (R):2014	Automatic Train Stop Wayside Transmitter <Exception> 4.2.1 Test classification - b. Material test	Temperature: (-40 ~ 70) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRS SG 0067-14 (R):2014	Track-side Subsystem- Test methods : Equipments for Signalling	Temperature: (-40 ~ 70) ℃ Humidity: Max. 90 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRCS C027 03:2011	Signal Floating Rectifier	Temperature: (-20 ~ 60) ℃ Humidity: Max. 90 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N
KRCS C229 03:2016	Electronic Interlocking System	Temperature: (-10 ~ 50) ℃ Humidity: Max. 95 % R.H. Electric Strength: Max. 10 kV Insulation Resistance: Max. 5 000 MΩ	N

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Test method	Standard designation	Test range	Field testing
ISO 16750-3:2012	Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 3 : Mechanical loads 4.1 Vibration <Exception> 4.2 Mechanical Shock 4.3 Free Fall 4.4 Surface strength/scratch and abrasion resistance 4.5 Gravel bombardment	Frequency: (5 ~ 2 000) Hz Temperature: (-65 ~ 175) ℃	N
ISO 16750-4:2010	Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 4 : Climatic loads 5.1 Tests at constant temperature 5.2 Temperature step test 5.3 Temperature cycling tests 5.5 Salt spray tests 5.6 Humid heat, cyclic test 5.7 Damp Heat, steady-state test 5.10 Dust test <Exception> 5.4 Ice water shock test 5.8 Corrosion test with flow of mixed gas 5.9 Solar radiation	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Slat solution concentration: Temperature: 35 ℃ 5 % NaCl, pH: (6.5 ~ 7.2)	N
ISO 20653:2013	Road vehicle - Degrees of protection (IP code) - Protection of electrical equipment against foreign objects, water and access	IPX1, IPX2, IPX3, IPX4, IPX5, IPX6, IPX7, IPX8 IP1X, IP2X, IP3X, IP4X, IP5X, IP6X, IPX4K, PX5K, PX6K, PX9K	N

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Test method	Standard designation	Test range	Field testing
MIL-STD-167-1A :2005	Department of Defense test method standard Mechanical Vibration of shipboard equipment (Type 1 - Environmental)	Frequency: (4 ~ 33) Hz	N
MIL-STD-202G:2013	Department of Defense test method standard electronic and electrical component parts 101E Salt Atmosphere (corrosion) 103B Humidity (Steady state) 106G Moisture Resistance 107G Thermal Shock 201A Vibration 204D Vibration, High frequency 213B Shock (Specified pulse) 214A Random Vibration	Temperature: 35 ℃ Slat solution concentration : 5 % NaCl pH: (6.5 ~ 7.2) Humidity: (20 ~ 95) % R.H. Temperature: (-10 ~ 70) ℃ Humidity: (20 ~ 95) % R.H. Temperature: (-65 ~ 175) ℃ Frequency: (10 ~ 55) Hz Frequency: (5 ~ 2 000) Hz Acceleration: (294 ~ 980) m/s^2 Duration: (6 ~ 11) ms Frequency: (50 ~ 2 000) Hz	N

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03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
MIL-STD-202H:2015	Department of Defense test method standard electronic and electrical component parts 101 Salt Atmosphere (corrosion) 103 Humidity (Steady state) 106 Moisture Resistance 107 Thermal Shock 201 Vibration 204 Vibration, High frequency 213 Shock (Specified pulse) 214 Random Vibration	Temperature: 35 ℃ Slat solution concentration : 5 % NaCl pH: (6.5 ~ 7.2) Humidity: (20 ~ 95) % R.H. Temperature: (-10 ~ 70) ℃ Humidity: (20 ~ 95) % R.H. Temperature: (-65 ~ 175) ℃ Frequency: (10 ~ 55) Hz Frequency: (5 ~ 2 000) Hz Acceleration: (294 ~ 980) m/s^2 Duration: (6 ~ 11) ms Frequency: (50 ~ 2 000) Hz	N
MIL-STD-810C:1975	Military Standard Environmental Test Methods 501.1 High Temperature 502.1 Low Temperature 503.1 Temperature Shock 507.1 Humidity 509.1 Salt Fog 514.2 Vibration 516.2 Shock	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2 000) Hz Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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Test method	Standard designation	Test range	Field testing
MIL-STD-810E :1989	MILITARY STANDARD ENVIRONMENTAL TEST METHODS AND ENGINEERING GUIDELINES 501.3 High Temperature 502.3 Low Temperature 503.3 Temperature Shock 506.3 Rain <Exception> Procedure Ⅱ-Drip Procedure Ⅲ-Watertightness 507.3 Humidity 509.3 Salt Fig 514.4 Vibration <Exception> Procedure Ⅱ-Large assembly transport Procedure Ⅲ-Loose cargo transport 516.4 Shock Procedure Ⅵ Bench handling Procedure Ⅶ-Pyrotechnic shock Procedure Ⅷ-Rail impact Procedure Ⅸ-Catapult launch/arrested landing	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl, pH: (6.5 ~ 7.2) Frequency: (5 ~ 2 000) ㎐ Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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Test method	Standard designation	Test range	Field testing
MIL-STD-810F:2000	Department of Defense test method standard for Test Method Standard for Environmental Engineering Considerations and Laboratory Tests 501.4 High Temperature 502.4 Low Temperature 503.4 Temperature Shock 506.4 Rain <Exception> Procedure Ⅱ-Exaggeraterl Procedure Ⅲ-Drip 507.4 Humidity 509.4 Salt Fog 514.5 Vibration <Exception> Procedure Ⅱ - Loose Cargo Transportation Procedure Ⅲ- Large Assembly Transportation 516.5 Shock <Exception> Procedure Ⅶ-Rail Impact Procedure Ⅷ-Catapult Launch/Arrested Landing	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2 000) Hz Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
MIL-STD-810F:2003	Department of Defense test method standard for Test Method Standard for Environmental Engineering Considerations and Laboratory Tests 501.4 High Temperature 502.4 Low Temperature 503.4 Temperature Shock 506.4 Rain <Exception> Procedure Ⅱ-Exaggeraterl Procedure Ⅲ-Drip 507.4 Humidity 509.4 Salt Fog 514.5 Vibration <Exception> Procedure Ⅱ - Loose Cargo Transportation Procedure Ⅲ- Large Assembly Transportation 516.5 Shock <Exception> Procedure Ⅶ-Rail Impact Procedure Ⅷ-Catapult Launch/Arrested Landing	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2 000) Hz Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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03.014 Environmental and Reliability Test

Test method	Standard designation	Test range	Field testing
MIL-STD-810G:2008	Department of Defense test method standard for Test Method Standard for Environmental Engineering Considerations and Laboratory Tests 501.5 High Temperature 502.5 Low Temperature 503.5 Temperature Shock 506.5 Rain <Exception> Procedure Ⅱ-Exaggeraterl Procedure Ⅲ-Drip 507.5 Humidity 509.5 Salt Fog 514.6 Vibration <Exception> Procedure Ⅱ - Loose Cargo Transportation Procedure Ⅲ- Large Assembly Transportation 516.6 Shock <Exception> Procedure Ⅶ-Pendulum Impact Procedure Ⅷ-Catapult Launch/Arrested Landing 528 Mechanical Vibration of Shipboard Material (Type 1 - Environmental Vibration)	Temperature: (-65 ~ 175) ℃ Humidity : (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2000) Hz Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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Test method	Standard designation	Test range	Field testing
MIL-STD-810G:2014	Department of Defense test method standard for Test Method Standard for Environmental Engineering Considerations and Laboratory Tests 501.6 High Temperature 502.6 Low Temperature 503.6 Temperature Shock 506.6 Rain <Exception> Procedure Ⅱ-Exaggeraterl Procedure Ⅲ-Drip 507.6 Humidity 509.6 Salt Fog 514.7 Vibration <Exception> Procedure Ⅱ - Loose Cargo Transportation Procedure Ⅲ- Large Assembly Transportation Assembly Cargo 516.7 Shock <Exception> Procedure Ⅶ-Pendulum Impact Procedure Ⅷ-Catapult Launch/Arrested Landing 528.1 Mechanical Vibration of Shipboard Material (Type 1 - Environmental Vibration)	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2000) Hz Acceleration: (147 ~ 980) m/s^2 Duration: (6 ~ 11) ms	N

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Test method	Standard designation	Test range	Field testing
RCTA-DO-160G:2010	Environmental Conditions and Test Procedure for Airborne Equipment Section 4.0 Temperature and Altitude <Exception> 4.6.1 Altitude Test 4.6.2 Decompression Test 4.6.3 Overpressure Test Section 5.0 Temperature Variation Section 6.0 Humidity Section 7.0 Operational Shock and Crash Safety <Exception> 7.3.3 Test Procedure 2 (Sustained) Section 8.0 Vibration Section 14.0 Salt Spray	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Slat solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2000) Hz Acceleration: (9.8 ~ 980) m/s^2 Duration: (11 ~ 20) ms	N
GMW 3172:2015	General Specification for Electrical/Electronic Components - Environmental/Durability 9 Design Validation (DV) 9.3 Mechanical 9.3.1 Vibration with Thermal Cycling 9.3.2 Mechanical Shock - Pothole 9.3.3 Mechanical Shock - Collision 9.3.4 Mechanical Shock - Closure Slam 9.4 Climatic 9.4.1 High Temperature Degradation 9.4.2 Thermal Shock Air-To-Air (TS) 9.4.3 Power Temperature Cyclic (PTC) 9.4.5 Humid Heat Cyclic (HHC) 9.4.6 Humid Heat Constant (HHCO) 9.4.7 Salt Mist 9.4.8 Salt Spray	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Frequency: (5 ~ 2 000) Hz Acceleration: (0.98 ~ 1 142) m/s^2 Duration: (1 ~ 30) ms	N

End.