SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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ELECTRICAL (EMC)

Valid to: August 31, 2025 Certificate Number: 2343.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with A2LA's EPA ENERGY STAR® Accreditation Program[1] requirements), accreditation is granted to the main laboratory location listed above, and the three satellite laboratory locations listed below, to perform the following tests:

Test Technology:	**Test Method(s):**
Automotive EMC Tests	
Electrostatic Discharge (ESD)	SAE J1113-13; ISO 10605; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015)
Conducted Transient Emissions	ISO 7637-2; SAE J1113-42; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019)

Test Technology:	**Test Method(s):**
Conducted Transient Emissions *(cont'd.)*	Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015); ECE R10.06
RF Conducted Emissions	CISPR 25; GB/T 18655 (2018); Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015)

Test Technology:	**Test Method(s):**
RF Radiated Emissions	CISPR 25; GB/T 18655 (2018); Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015); ECE R10.06
Bulk Current Injection (BCI) – *Substitution Method*	ISO 11452-4; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015); ECE R10.06
Bulk Current Injection (BCI) – *Closed Loop*	ISO 11452-4; BMW GS 95002 (2004/2010/2013); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]
Transverse Electromagnetic (TEM) Cell (*200 V/m up to 400 MHz*)	ISO 11452-3; SAE J1113-24; ECE R10.06

Test Technology:	**Test Method(s):**
Absorber-Lined Shielded Enclosure (*80 MHz to 4.2 GHz, up to 200 V/meter*) *Substitution Method & Metallic Table Top*	ISO 11452-2; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015); ECE R10.06
Conducted Immunity on Power lines Supply Voltage transients	ISO 7637-2; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015); ECE R10.06
Conducted Immunity on Signal Lines	ISO 7637-3; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); DaimlerChrysler DC-10614 (2005); DaimlerChrysler DC-11224 (2007); Chrysler CS-11979 (2010)

Test Technology:	Test Method(s):
Conducted Immunity on Signal Lines *(cont'd.)*	FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; Honda 7794Z_S3V_0000; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015)
Immunity to Voltage Fluctuations, Disturbances Of The Supply Voltage Lines (Dropouts, Dips, Cranking, Ramp Up/Down)	ISO 16750-2; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); Fiat 9.90110 01 (2007/2010/2012); FCA CS.00054 (2018); JLR-EMC-CS v1.0; PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; MES PW 67602C/D
Over/Under, Reverse, Jump Start, Defective Regulator Voltages, electrical stress	ISO 16750-2; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); Fiat 9.90110 01 (2007/2010/2012); FCA CS.00054 (2018); LR-EMC-CS v1.0; PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; MES PW 67602C/D
Hand Portable Transmitter Immunity Exposure	ISO 11452-9; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; MES PW 67602C/D; Hyundai/Kia ES 96200-00 (2015)
Magnetic Field Emissions	MIL-STD-461; GMW 3097 (2004/2006/2012/2015/2019); DaimlerChrysler DC-10614 (2005); VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F

Test Technology:	Test Method(s):
Magnetic Field Emissions *(cont'd.)*	Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015)
Stripline	ISO 11452-5; BMW GS 95002 (2004/2010/2013); VW TL 81000 (2013/2014/2016/2018)
Immunity to magnetic fields	ISO 11452-8; Ford EMC-CS-2009.1; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Fiat 9.90110 01 (2007/2010/2012); Chrysler CS-11979 (2010); FCA CS.00054 (2018); Daimler MBN 10284-2 (2008/2011/2015/2019); BMW GS 95002 (2004/2010/2013); EMC-CS-2010JLR V1.2; JLR-EMC-CS v1.0; VW TL 81000 (2013/2014/2016/2018); PSA B21 7110-E/F; Renault 36-00-808 (2016); Nissan 28401NDS02 [5/6/7/8]; MES PW 67602C/D; Mitsubishi ES-X82114_D; Hyundai/Kia ES 96200-00 (2015)
Human exposure restrictions for electromagnetic fields	IEC 62311; Ford FMC1278 (2018/2021); GMW 3097 (2019); Daimler MBN 10284-2 (2019); MES PW 67602D
Reverberation	ISO 11452-11; Ford FMC1278 (2015/2016/2018/2021); GMW 3097 (2004/2006/2012/2015/2019); Daimler MBN 10284-2 (2008/2011/2015/2019); EMC-CS-2010JLR V1.2; MES PW 67602C/D
Emissions	
Radiated and Conducted	CFR 47 FCC Part 15B (using ANSI C63.4:2014; ANSI C63.4), and Part 18 (using MP-5:1986); CISPR 11; EN 55011; AS CISPR 11; BS EN 55011; CISPR 14-1; EN 55014-1; AS/NZS CISPR 14-1; BS EN 55014-1; CISPR 15; EN 55015; AS/NZS CISPR 15; BS EN 55015; CISPR 22; EN 55022; AS/NZS CISPR 22; CISPR 32; EN 55032; AS/NZS CISPR 32

Test Technology:	Test Method(s):
Radiated and Conducted *(cont'd.)*	BS EN 55032; VCCI CISPR 32; GB/T 9254; ICES-001; ICES-002; ICES-003; ICES-005; BETS-7; GR-1089-CORE, Issue 4, Section 3.2
Current Harmonics	EN IEC 61000-3-2; IEC 61000-3-2; BS EN IEC 61000-3-2; EN 61000-3-12; IEC 61000-3-12; BS EN 61000-3-12
Voltage Fluctuation and Flicker	EN 61000-3-3; IEC 61000-3-3; BS EN 61000-3-3; EN 61000-3-11; IEC 61000-3-11; BS EN 61000-3-11
Immunity	
Electrostatic Discharge (ESD)	EN 61000-4-2; IEC 61000-4-2; BS EN 61000-4-2
Radiated Immunity (*10 V/m up to 6.0GHz*)	EN 61000-4-3; IEC 61000-4-3; BS EN 61000-4-3
Electrical Fast Transient/Burst	EN 61000-4-4; IEC 61000-4-4; BS EN 61000-4-4
Surge Immunity	EN 61000-4-5; IEC 61000-4-5; BS EN 61000-4-5 IEEE STD C62.45
Conducted Immunity	EN 61000-4-6; IEC 61000-4-6; BS EN 61000-4-6
Power Frequency Magnetic Field Immunity	EN 61000-4-8; IEC 61000-4-8; BS EN 61000-4-8
Voltage Dips, Short Interruptions, and Line Voltage Variations	EN 61000-4-11; IEC 61000-4-11; EN 61000-4-29; IEC 61000-4-29; EN 61000-4-34; IEC 61000-4-34
Telecommunications	ETSI EN 300 386
Radio	CFR 47 FCC Part 15C/E (using ANSI C63.10:2013); ANSI C63.10; KDB 558074; KDB 789033; KDB 905462 D02 (v02); KDB 987594; RSS-210; RSS-247; RSS-216; RSS-GEN; RSS-310; RSS-102 measurement (RF exposure evaluation); EN 300 328; EN 301 893; EN 300 220-1/-2; EN 300 220-3-1/-2; EN 300 220-4; EN 300 330; EN 300 440 ; EN 303 413; EN 303 417; AS/NZS 4268; ARIB STD-T66; ARIB STD-T71; EN 50385; EN 62479; EN 62311; EN 50663; EN 50665; EN 303340; EN 303372-2; EN 301 511; EN 301 908-1; EN 302 065-1; EN 302 065-2; EN 302 065-3; EN 303 687
RF Radiated Emission WWAN	47 CFR, FCC Part 22 (cellular); 47 CFR, FCC Part 24; 47 CFR,FCC Part 25 (below 3 GHz); 47 CFR,FCC Part 27 (using ANSI C63.26-2015)

Test Technology:	**Test Method(s):**
RF Radiated Emission WWAN *(cont'd.)*	47 CFR,FCC KDB Publication 971168; 47 CFR,FCC Part 90 (below 3 GHz); 47 CFR,FCC Part 95; 47 CFR, Part 97 (below 3 GHz); 47 CFR, Part 96(using ANSI C63.26-2015); FCC KDB Publication 447498; IEEE Std 1528-2013; ANSI C63.26:2015; ANSI/TIA-603-E; RSS-130; RSS-132; RSS-133; RSS-139; RSS-192; RSS-195; RSS-197; RSS-199
RF Radiated Emission WLAN	KDB 987594; RSS-248; EN 303 687
Generic and Product Specific Standards	EN 301 489-3; EN 301 489-7; EN 301 489-17; EN 301 489-3; EN 301 489-7; EN 301 489-17; EN 301 489-1; EN 301 489-19; EN 301 489-50; EN 301 489-34; EN 301 489-33; ETSI EN 301 489-52 ; EN 12015; EN 12016; EN 50121-1; EN 50121-2; EN 50121-3-1; EN 50121-3-2; EN 50121-4; EN 50121-5; EN 50130-4; EN 50155; EN 50293; EN 60255-26; EN 60974-10; EN 60601-1-2; BS EN 60601-1-2; EN 60669-2-1; IEC 60669-2-1; EN 60730-1; IEC 60730-1; EN 60730-2-7; IEC 60730-2-7; EN 60730-2-9; IEC 60730-2-9; EN 61058-1; IEC 61058-1; EN IEC 61000-6-1; EN IEC 61000-6-2; EN IEC 61000-6-3; EN IEC 61000-6-4; AS/NZS 61000.6.3; AS/NZS 61000.6.4; EN 62493; IEC 62493; EN 61131-2; EN 61204-3; EN 61326-1; EN 61326-2-1; EN 61326-2-2; EN 61326-2-3; EN 61326-2-4; EN 61326-2-5; EN 61543; EN 61547; EN 61800-3; EN 62040-2; IEC 60092-504; IEC 60255-26; IEC 60533; IEC 60601-1-2; IEC 60669-2-1; IEC 60974-10; IEC 61000-6-1; IEC 61000-6-2; IEC 61000-6-3; IEC 61000-6-4; IEC 61000-6-5; BS EN IEC 61000-6-1; BS EN IEC 61000-6-2; BS EN IEC 61000-6-3; BS EN IEC 61000-6-4; IEC 61131-2; IEC 61204-3; IEC 61326-1; IEC 61326-2-1; IEC 61326-2-2; IEC 61326-2-3; IEC 61326-2-4; IEC 61326-2-5

Test Technology:	Test Method(s):
Generic and Product Specific Standards (cont'd.)	IEC 61543; IEC 61547; BS EN 61547; IEC 61800-3; IEC 62040-2; BS EN 62040-2; CISPR 14-2; EN 55014-2; BS EN 55014-2; CISPR 24; EN 55024; GB/T 17618; CISPR 35; EN 55035; BS EN 55035; EN 61000-4-13; IEC 61000-4-13; EN 17128 (Clause 9); BS EN 17128 (Clause 9); EN 15194 (Clause 4.2.15); IEC 61851-21-2; EN IEC 61851-21-2; IEC 62920; EN 62920; BS EN 15194 (Clause 4.2.15)

[1] A2LA provides accreditation to the U.S. EPA's *Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR Program* by verifying an organization's compliance to A2LA document *R222 - Specific Requirements - EPA ENERGY STAR Accreditation Program* and to the related test methods listed on this laboratory's scope.

Accreditation by A2LA does not infer Recognition by the EPA for ENERGY STAR testing. Please verify this organization's recognition status by using the EPA's searchable database, located at http://www.energystar.gov/index.cfm?fuseaction=recognized_bodies_list.show_RCB_search_form

Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 [2]:

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Unintentional Radiators Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment Part 18	FCC MP-5 (February 1986)	40000
Intentional Radiators Part 15C	ANSI C63.10:2013	40000
U-NII without DFS Intentional Radiators Part 15E	ANSI C63.10:2013	40000
U-NII with DFS Intentional Radiators Part 15E	FCC KDB 905462 D02 (v02)	40000
Commercial Mobile Services (FCC Licensed Radio Service Equipment) Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E, ANSI/TIA-102.CAAA-E, ANSI C63.26:2015	40000

Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1 [2]:

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
General Mobile Radio Services (FCC Licensed Radio Service Equipment)		
Parts 22 (non-cellular), 90 (below 3 GHz), 95 (below 3 GHz), 97 (below 3 GHz), and 101 (below 3 GHz)	ANSI/TIA-603-E, ANSI/TIA-102.CAAA-E, ANSI C63.26:2015	40000

[2] Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approval laboratories.

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Test Technology:	Test Method(s):
Battery test	IEC 62619; IEC 62620; IEC 62660-1; IEC 62660-2; IEC 62660-3; IEC 60086-1; IEC 60086-2; IEC 60086-3; IEC 60086-4; IEC 60086-5; IEC 62133-1; IEC 62133-2; UL 1642; UL 2054
Personal eMobility Devices	UL 2849; UL 2272; EN 17128
EPA ENERGY STAR Testing	
Electronics and Office Equipment	
Televisions	ENERGY STAR Program Requirements for Televisions; ENERGY STAR Test Method for Televisions
Displays	ENERGY STAR Program Requirements for Displays; ENERGY STAR Test Method for Determining Displays Energy Use V6.0
Lighting Products	
Lamps (Light Bulbs)	ENERGY STAR Program Requirements for Lamps;
Luminaires (Light Fixtures)	ENERGY STAR Program Requirements for Luminaires (Light Fixtures)
• Directional	IES LM-66; 10 CFR Part 429 and Part 430 Appendix W to Subpart B; IES LM-79; IES LM-54; ENERGY STAR Elevated Temperature Light Output Ratio CIE 15; CIE Pub No 13.3

Test Technology:	Test Method(s):
Lighting Products *(cont'd.)*	
• Directional *(cont'd.)*	ENERGY STAR Elevated Temperature Life Test; ENERGY STAR Ambient Temperature Life Test; IES LM-65; ANSI C82.2; ANSI C82.77; ENERGY STAR Start Time Test; ENERGY STAR Run Up Time Test; ANSI/IEEE C62.41.2
• Omnidirectional	IES LM-66; 10 CFR Part 429 and Part 430 Appendix W to Subpart B; IES LM-79; IES LM-54; CIE 15; CIE Pub No 13.3; ENERGY STAR Elevated Temperature Life Test; ENERGY STAR Ambient Temperature Life Test; IES LM-65; ANSI C82.2-2002; ANSI C82.77; ENERGY STAR Start Time Test; ENERGY STAR Run Up Time Test; ANSI/IEEE C62.41.2
• Decorative	IES LM-66; 10 CFR Part 429 and Part 430 Appendix W to Subpart B; IES LM-79; IES LM-54; CIE 15; CIE Pub No 13.3; ENERGY STAR Elevated Temperature Life Test; ENERGY STAR Ambient Temperature Life Test; IES LM-65; ANSI C82.2; ANSI C82.77; ENERGY STAR Start Time Test; ENERGY STAR Run Up Time Test; ANSI/IEEE C62.41.2
ENERGY STAR Testing	
Computers	ENERGY STAR Program Requirements Product Specification for Computers
Battery Chargers	Appendix Y1 to Subpart B, Part 430 of Title 10 to the United States Code of Federal Regulations, entitled Uniform Test Method for Measuring the Energy Consumption of Battery Chargers
Imaging Equipment	ENERGY STAR Imaging Equipment
Audio/Video	ENERGY STAR Program Requirements Product Specification for Audio/Video
General Lighting Tests	
Electrical and Photometric Measurements of Solid-State Lighting Products	IES LM-79
Measuring Lumen Maintenance of LED Light Sources	IES LM-80

Test Technology:	Test Method(s):
Photometric Testing of Reflector-Type Lamps	IES LM-20
Guide to Lamp Seasoning	IES LM-54
Life Testing of Single-Based Fluorescent Lamps	IES LM-65
Electrical and Photometric Measurements of Single-Based Fluorescent Lamps	IES LM-66
Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaires	IES TM-28
Measuring Luminous Flux and Color Maintenance of LED lamps, Light Engines, and Luminaires	IES LM-84
Household electrical appliances – Measurement of standby power	IEC 62301; CAN/CSA-C62301
Approved method for life testing of incandescent filament lamps	IES LM-49
Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature	IES LM-82
Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria	NEMA 77
Uniform Test Method for Measuring the Input Power, Lumen Output, Lamp Efficacy, Correlated Color Temperature (CCT), Color Rendering Index (CRI), Power Factor, Time to Failure, and Standby Mode Power of Integrated Light-Emitting Diode (LED) Lamps	10 CFR Part 430 Appendix BB to Subpart B
Uniform Test Method for Measuring the Energy Consumption and Energy Efficiency of General Service Lamps That Are Not General Service Incandescent Lamps, Compact Fluorescent Lamps, or Integrated LED Lamps	10 CFR Part 430, Appendix DD to Subpart B

Test Technology:	Test Method(s):
Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts	10 CFR Part 430, Appendix Q to Subpart B
Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), and Correlated Color Temperature (CCT) of Electric Lamps	10 CFR Part 430, Appendix R to Subpart B
Approved Method: Total Luminous Flux Measurement of Lamps Using an Integrating Sphere Photometer	IES LM-78
Technical Memorandum: Projecting Long Term Lumen, Photon and Radiant Flux Maintenance of LED Light Sources	IES TM-21
Test Method for Measuring Flicker of Lighting Systems and Reporting Requirements	CEC-400-2015-038-CMF, Appendix JA10; CEC-400-2018-021-CMF, Appendix JA10
Electrical and Photometric Measurements of Solid-State Lighting Products	IES LM-79
Measuring Lumen Maintenance of LED Light Sources	IES LM-80
Photometric Testing of Reflector-Type Lamps	IES LM-20
Guide to Lamp Seasoning	IES LM-54
Life Testing of Single-Based Fluorescent Lamps	IES LM-65
Electrical and Photometric Measurements of Single-Based Fluorescent Lamps	IES LM-66
Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaires	IES TM-28
Measuring Luminous Flux and Color Maintenance of LED lamps, Light Engines, and Luminaires	IES LM-84
Household electrical appliances – Measurement of standby power	IEC 62301; CAN/CSA-C62301
Approved method for life testing of incandescent filament lamps	IES LM-49

Test Technology:	Test Method(s):
Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature	IES LM-82
Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria	NEMA 77
Uniform Test Method for Measuring the Input Power, Lumen Output, Lamp Efficacy, Correlated Color Temperature (CCT), Color Rendering Index (CRI), Power Factor, Time to Failure, and Standby Mode Power of Integrated Light-Emitting Diode (LED) Lamps	10 CFR Part 430 Appendix BB to Subpart B
Uniform Test Method for Measuring the Energy Consumption and Energy Efficiency of General Service Lamps That Are Not General Service Incandescent Lamps, Compact Fluorescent Lamps, or Integrated LED Lamps	10 CFR Part 430, Appendix DD to Subpart B
Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts	10 CFR Part 430, Appendix Q to Subpart B
Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), and Correlated Color Temperature (CCT) of Electric Lamps	10 CFR Part 430, Appendix R to Subpart B
Approved Method: Total Luminous Flux Measurement of Lamps Using an Integrating Sphere Photometer	IES LM-78
Technical Memorandum: Projecting Long Term Lumen, Photon and Radiant Flux Maintenance of LED Light Sources	IES TM-21
Test Method for Measuring Flicker of Lighting Systems and Reporting Requirements	CEC-400-2015-038-CMF, Appendix JA10; CEC-400-2018-021-CMF, Appendix JA10
Electrical and Photometric Measurements of Solid-State Lighting Products	IES LM-79

Test Technology:	Test Method(s):
Measuring Lumen Maintenance of LED Light Sources	IES LM-80
Photometric Testing of Reflector-Type Lamps	IES LM-20
Guide to Lamp Seasoning	IES LM-54
Life Testing of Single-Based Fluorescent Lamps	IES LM-65
Electrical and Photometric Measurements of Single-Based Fluorescent Lamps	IES LM-66
Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaires	IES TM-28
Measuring Luminous Flux and Color Maintenance of LED lamps, Light Engines, and Luminaires	IES LM-84
Household electrical appliances – Measurement of standby power	IEC 62301; CAN/CSA-C62301
Approved method for life testing of incandescent filament lamps	IES LM-49
Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature	IES LM-82
Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria	NEMA 77
Uniform Test Method for Measuring the Input Power, Lumen Output, Lamp Efficacy, Correlated Color Temperature (CCT), Color Rendering Index (CRI), Power Factor, Time to Failure, and Standby Mode Power of Integrated Light-Emitting Diode (LED) Lamps	10 CFR Part 430 Appendix BB to Subpart B
Uniform Test Method for Measuring the Energy Consumption and Energy Efficiency of General Service Lamps That Are Not General Service Incandescent Lamps, Compact Fluorescent Lamps, or Integrated LED Lamps	10 CFR Part 430, Appendix DD to Subpart B

Test Technology:	Test Method(s):
Uniform Test Method for Measuring the Energy Consumption of Fluorescent Lamp Ballasts	10 CFR Part 430, Appendix Q to Subpart B
Uniform Test Method for Measuring Average Lamp Efficacy (LE), Color Rendering Index (CRI), and Correlated Color Temperature (CCT) of Electric Lamps	10 CFR Part 430, Appendix R to Subpart B
Approved Method: Total Luminous Flux Measurement of Lamps Using an Integrating Sphere Photometer	IES LM-78
Technical Memorandum: Projecting Long Term Lumen, Photon and Radiant Flux Maintenance of LED Light Sources	IES TM-21
Test Method for Measuring Flicker of Lighting Systems and Reporting Requirements	CEC-400-2015-038-CMF, Appendix JA10; CEC-400-2018-021-CMF, Appendix JA10
General Efficiency Test	
Test Method for Calculating the Energy Efficiency of Single-voltage External AC-DC and AC-AC Power Supplies	CAN/CSA C381.1
Uniform Test Method for Measuring the Power consumption of Television	Appendix H to Subpart B, Part 430-Uniform Test Method for Measuring the power consumption of Television Sets
Test Method for Measuring the Energy Consumption of Battery Chargers	CAN/CSA C381.2 Appendix Y to Subpart B, Part 430 of Title 10 to the United States Code of Federal Regulations, entitled Uniform Test Method for Measuring the Energy Consumption of Battery Chargers
Energy performance of televisions and displays	CAN/CSA C382
Uniform Test Method for Measuring the Energy Consumption of External Power Supplies	Appendix Z to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of External Power Supplies
South African national standard-Energy efficiency of electrical and electronic apparatus	SANS 941
Lighting safety	
Luminaires: General Requirements and Tests	AS/NZS 60598.1

Test Technology:	**Test Method(s):**
Luminaires: part 2: particular requirements Section one: Fixed general purpose luminaires	AS/NZS 60598.2.1
Luminaires: part 2: particular requirements Section 2: Recessed Luminaries	AS/NZS 60598.2.2
Luminaires - Part 2: Particular requirements - Section 3: Particular requirements - Luminaires for road and street lighting	IEC 60598-2-3; EN 60598-2-3
Luminaires Part 2.4 Particular requirements— Portable general purpose luminaires	AS/NZS 60598.2.4
Luminaires Part 2.5: Particular requirements— Floodlights	AS/NZS 60598.2.5
Self-ballasted LED-lamps for general lighting services by voltage > 50 V - Safety specifications	AS/NZS 62560
LED Self-ballasted LED-lamps for general lighting services by voltage > 50 V – Performance requirements	IEC 62612
LED - Binning - Part 1: General requirements and white grid	SASO IEC/PAS 62707-1
LED modules for general lighting – Performance requirements	SASO IEC/PAS 62717
LED modules for general lighting – Performance requirements	IEC 62717
Light and lighting - Light and lighting - Measurement and	SASO EN 13032-4
Light and lighting - Light and lighting - Measurement and	EN 13032-4
The basis of physical photometry	CIE 18.2
The measurement of Luminous flux	CIE 84
The Spectroradiometric Measurement of Light Sources	CIE 63
Cone luminous flux	L2(AP)005

Test Technology:	**Test Method(s):**
Energy efficiency, functionality and labelling requirements for lighting products part 2	SASO 2902
Electrical and Photometric Measurements of Solid-State Lighting Products	IES LM-79
The basis of physical photometry	CIE 18.2
LED modules for general lighting – Performance requirements	IEC 62717
Luminaire performance – Part 1 : General Requirements	IEC 62722-1
Luminaire performance – Part 2-1 : Particular requirements for LED luminaires	IEC 62722-2-1
Measuring Luminous Flux and Color Maintenance of Led Lamps	IES LM84
Light Engines, and Luminaires	IES TM28
American National Standard for Electric Lamps - Specifications for The Chromaticity of Solid State Lighting (Ssl) Products	ANSI C78.377
In-SITU Temperature Measurement Testing (ISTMT)	ISTMT
Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules	IES LM80
Projecting Long Term Lumen Maintenance for LED Light Sources	IES TM21
E line safety	
Electric Vehicle Conductive Charging System –Part 1: General requirements	CE / EN IEC 61851-1
Electric vehicle conductive charging system- Part 22: AC electric vehicle charging station	CE / EN IEC 61851-22
Electric vehicle conductive charging system- Part 23: DC electric vehicle charging station	CE / EN IEC 61851-23
Lamp Holder	
Edison screw lamp holders	IEC/EN IEC 60238

Test Technology:	Test Method(s):
Box	
Boxes and enclosures for electrical accessories for household and similar fixed electrical installations	IEC/EN IEC 60670-1
Boxes and enclosures for electrical accessories for household and similar fixed electrical installations -- Part 22: Particular requirements for connecting boxes and enclosures	IEC/EN 60670-22
Auto Controller	
Automatic electrical controls - Part 1: General requirements	IEC/EN 60730-1
Automatic electrical controls for household and similar use -- Part 2-9: Particular requirements for temperature sensing controls	IEC/EN IEC 60730-2-9
SPD	
Low-voltage surge protective devices - Surge protective devices connected to low-voltage power systems - Requirements and test methods	IEC/EN 61643-11
TOOL	
Household and similar electrical appliances - Safety - Part 2-91: Particular requirements for walk-behind and hand-held lawn trimmers and lawn edge trimmers	EN 50636-2-91 (excluding noise and vibration test)
Household and similar electrical appliances - Safety - Part 2-92: Particular requirements for pedestrian-controlled	EN 50636-2-92 (excluding noise and vibration test)
Household and similar electrical appliances - Safety - Part 2-92: Particular requirements for pedestrian-controlled	EN 50636-2-94 (excluding noise and vibration test)
Household and similar electrical appliances - Safety - Part 2-100: Particular requirements for hand-held mains-operated garden blowers, vacuums and blower vacuums	EN 50636-2-100 (excluding noise and vibration test)
Hand-held motor-operated electric tools - Safety - Part 2-12: Particular requirements for concrete vibrators	IEC/EN 60745-2-12 (excluding noise and vibration test)
Hand-held motor-operated electric tools - Safety - Part 2-22: Particular requirements for cut-off machines	IEC/ EN 60745-2-22; AS/NZS 60745.2.22

Test Technology:	Test Method(s):
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-8: Particular requirements for hand-held shears and nibblers	IEC/EN 62841-2-8; UL 62841-2-8 (excluding noise and vibration test)
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-8: Particular requirements for hand-held shears and nibblers	CAN/CSA-C22.2 NO. 62841-2-8 (excluding noise and vibration test)
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-9: Particular requirements for hand-held tappers and threaders	IEC/EN 62841-2-9; UL 62841-2-9
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-9: Particular requirements for hand-held tappers and threaders	CAN/CSA-C22.2 NO. 62841-2-9
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 3-6: Particular requirements for transportable diamond drills with liquid system	IEC/EN 62841-3-6; UL 62841-3-6; CAN/CSA-C22.2 NO. 62841-3-6 (excluding noise and vibration test)
Arc welding equipment — Part 1: Welding power sources	IEC 60974-1; EN 60974-1
Arc welding equipment - Part 6: Limited duty equipment	EN 60974-6
Hand-held motor-operated electric tools - Safety - Part 2-11: Particular requirements for reciprocating saws	EN 709
Machinery for forestry - Safety requirements and testing for pole mounted powered pruners - Part 1: Machines fitted with an integral combustion engine	EN ISO 11680-1
Powered hand-held hedge trimmers-Safety	EN ISO 10517
Agricultural and forestry machinery - Safety requirements and testing for portable, hand- held, powered brush-cutters and grass-trimmers - Part 1: Machines fitted with an integral combustion engine	EN ISO 11806-1

Test Technology:	Test Method(s):
Machinery for forestry - Portable chain-saw safety requirements and testing - Part 1: Chain-saws for forest service	EN ISO 11681-1
Agricultural and forestry machinery - Safety of log splitters - Part 1: Wedge splitters	EN 609-1
Compressors and vacuum pumps - Safety requirements - Part 1: Air compressors	EN 1012-1
Safety of household and similar appliances - Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers	EN 50636-2-107
Safety of machinery - Electrical equipment of machines - Part 1: General requirements	EN 60204-1
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 1: General requirements	IEC/EN 62841-1; UL 62841-1; CAN/CSA-C22.2 NO. 62841-1
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-1: Particular requirements for drills and impact drills	IEC/EN 62841-2-1; UL 62841-2-1; CAN/CSA-C22.2 NO. 62841-2-1
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-2: Particular requirements for hand-held screwdrivers and impact wrenches	IEC/EN 62841-2-2; UL 62841-2-2; CAN/CSA-C22.2 NO. 62841-2-2
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-3: Particular requirements for hand-held grinders, disc-type polishers and disc-type sanders	IEC/EN 62841-2-3; UL 62841-2-3; CSA C22.2 NO. 62841-2-3
Electric motor-operated hand-held tools,transportable tools and lawn and garden machinery – Safety – Part 2-4: Particular requirements for hand-held sanders and polishers other than disc type	IEC/EN 62841-2-4; UL 62841-2-4; CAN/CSA-C22.2 NO. 62841-2-4
Electric motor-operated hand-held tools,transportable tools and lawn and garden machinery – Safety – Part 2-5: Particular requirements for hand-held circular saws	IEC/EN 62841-2-5; UL 62841-2-5; CAN/CSA-C22.2 NO. 62841-2-5

Test Technology:	Test Method(s):
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-6: Particular requirements for hand-held hammers	IEC/EN 62841-2-6; UL 62841-2-6; CSA C22.2 NO. 62841-2-6
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 2-10: Particular requirements for hand-held mixers	IEC/EN 62841-2-10; UL 62841-2-10; CAN/CSA-C22.2 NO. 62841-2-10
Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery - Safety - Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws	IEC/EN 62841-2-11; UL 62841-2-11; CAN/CSA-C22.2 NO. 62841-2-11
Electric motor-operated hand-held tools,transportable tools and lawn and garden machinery - Safety - Part 2-14: Particular requirements for hand-held planers	IEC/EN 62841-2-14; UL 62841-2-14; CAN/CSA-C22.2 NO. 62841-2-14
Electric motor-operated hand-held tools,transportable tools and lawn and garden machinery - Safety - Part 2-17: Particular requirements for routers and trimmers	IEC/EN 62841-2-17; UL 62841-2-17; CAN/CSA-C22.2 NO. 62841-2-17
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 4-5: Particular requirements for grass shears	IEC/EN 62841-4-5; UL 62841-4-5
Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 4-7: Particular requirements for pedestrian controlled walk-behind lawn scarifiers and aerators	IEC/EN 62841-4-7; UL 62841-4-7
Battery Standard for safety ANSI/CAN/UL/ ULC, Battery for Use In Light Electric Vehicle (LEV) Applications	UL2271 (excluding crush test)
Motor Rotating electrical machines – Part 30-1: Efficiency classes of line operated AC Motors (IE Code)	IEC/ EN 60034-30-1
Rotating electrical machines – Part 2-1: Standard methods for determining losses and efficiency from tests	IEC/ EN 60034-2-1 (excluding machines for traction vehicles)

Test Technology:	Test Method(s):
Truck	
Industrial trucks — Safety requirements and verification — Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks	EN ISO 3691-1
Industrial trucks — Safety requirements and verification — Part 3: Additional requirements for trucks with elevating operator position and trucks specifically designed to travel with elevated loads	ISO 3691-3
Industrial trucks — Safety requirements and verification — Part 5: Pedestrian-propelled trucks	ISO 3691-5
Industrial trucks — Safety requirements and verification — Part 6: Burden and personnel carriers	ISO 3691-6
Industrial trucks - Safety requirements and verification - Part 4: Driverless industrial trucks and their systems	EN ISO 3691-4
Safety of industrial trucks - Electrical/electronic requirements	EN 1175
Personal Light Electric Vehicles	
STANDARD FOR SAFETY Electrical Systems for eBikes	UL 2849
Cycles - Electrically power assisted cycles - EPAC Bicycles	EN 15194
Roller sports equipment - Kick scooters - Safety requirements and test methods	EN 14619
Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type approval for on-road use - Personal light electric vehicles (PLEV) - Requirements and test methods	EN 17128
SRP/CS	
Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1
Safety of machinery - Safety-related parts of control systems - Part 2: Validation	EN ISO 13849-2

Test Technology:	Test Method(s):
PV inverter	
Safety of Power Converter for use in Photovoltaic Power Systems Part 1: General requirements	IEC/EN 62109-1; BS EN 62109-1
Safety of Power Converter for use in Photovoltaic Power Systems Part 2: Particular requirements for inverters	IEC/EN 62109-2; BS EN 62109-2
Utility-interconnected photovoltaic inverters – Test procedure of islanding prevention measures	IEC/EN 62116
Photovoltaic (PV) systems Characteristics of the utility interface	IEC/EN 61727
Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019	Engineering Recommendation G99
Requirements for the connection of Fully Type Tested Micro-generators (up to and including 16 A per phase) in parallel with public Low Voltage Distribution Networks on or after 27 April 2019	Engineering Recommendation G98
Generators connected to the low-voltage distribution network – Technical requirements for the connection to and parallel operation with low-voltage distribution networks	VDE-AR-N 4105
Photovoltaic systems –Power conditioners –Procedure for measuring efficiency	IEC/EN 61683
Grid interconnection of embedded generation Part 2: Small-scale embedded generation Section 1: Utility interface	NRS 097-2-1
Amendment 1 - Safety requirements for power electronic converter systems and equipment - Part 1: General	IEC/EN 62477-1
Photovoltaic Systems (PV) – Characteristics of the connection interface with the distribution grid	ABNT NBR 16149
Photovoltaic systems (PV) – Characteristics of the connection interface with the distribution grid – Conformity test procedure	ABNT NBR 16150

Test Technology:	Test Method(s):
Annex III - Part 1 - Inverters photovoltaic systems independent	
Approves the Technical Regulation on Quality and the Conformity. Assessment Requirements for Equipment for Generation, Conditioning and Storage of Electric Energy in Photovoltaic Systems - Consolidated.	Ordinance INMETRO no 140
Uninterruptible Power Systems (UPS) - Part 1: General and safety requirements for UPS	IEC/EN/AS 62040-1
Grid connection of energy systems via inverters Part 2: Inverter requirements	SI 4777.2
Tests for systems intended to avoid the energy transmission to the distribution network	UNE 217001
Inverters for connection to the distribution network Testing of current injection requirements continuous to the grid, generation of over voltages and island operation detection system	UNE 217002
The technical requirements for network connection required for implementing connection network codes were specified	TED749
The aspects required for the implementation of certain power facility connection network specifications were standardized	RD647
Small-scale Embedded Generators (Up to 16A per Phase) in Parallel with Low-Voltage Distribution Systems	DIN V VDE V 0124-100
Automatic disconnection device between a generator and the public low voltage grid; Amendment 1 Pre standard	DIN V VDE V 0126-1-1
Photovoltaic installations connected to the public distribution network	UTE-C15-712-2
Photovoltaic installations with energy storage and connected to a public distribution network	XP C15-712-3

Test Technology:	Test Method(s):
Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network -Generating plants up to and including Type B	EN 50549-1
Requirements for generating plants to be connected in parallel with distribution networks - Connection to a MV distribution network- Generating plants up to and including Type B	EN 50549-2
Maximum power point tracking efficiency of grid connected photovoltaic inverters	DIN/ IEC 62891
Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations	CEA
Grid-connected Inverter regulation — Metropolitan Electricity Authority	MEA
Grid-connected Inverter regulation — Provincial Electricity Authority	PEA
Standards for distributed renewable resources generators connected to the distribution network	DEWA
Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks	OVE-directive R25
Connection and parallel operation of type A, B, C, D and miniature power plants	TOR Erzeuger
SPECIFIC TECHNICAL PRESCRIPTIONS REGARDING POWER-GENERATING PLANTS OPERATING IN PARALLEL TO THE DISTRIBUTION NETWORK	C10/11
Overall efficiency of grid connected photovoltaic inverters	EN 50530
Reference technical rules for the connection of active and passive consumers to the HV and MV electrical networks of distribution Company	CEI 0-16
Reference technical rules for the connection of active and passive users to the LV electrical Utilities	CEI 0-21

Test Technology:	Test Method(s):
Environment testing for electric and electronic products Part2: Test methods Test A: Cold	IEC 60068-2-1
Environment testing for electric and electronic products Part2: Test methods Test B: Dry heat	IEC 60068-2-2
Environmental testing for electric and electronic products—Part 2: Test methods--Test N: Change of temperature	IEC 60068-2-14
Environmental testing for electric and electronic products Test Db: Damp heat, cyclic（12h+12h cycle）	IEC 60068-2-30
Environmental testing for electric and electronic products--Part 2: Test methods--Test and guidance: Shock	IEC 60068-2-27
Environmental testing for electric and electronic products Part 2: Test methods Test Fh: Vibration, broad-band random (digital control) and guidance	IEC 60068-2-64
Photovoltaic (PV) systems Characteristics of the utility interface	IEC 61727
Degrees of Protection Provided By Enclosures	IEC 60529
Technical standards for monitoring compliance of power generation modules according to EU Regulation 2016/631	NTS 631
USB performance Universal Serial Bus interfaces for data and power Part 1-1: Universal Serial Bus interfaces - Common components - USB Battery Charging Specification, Revision 1.2 (TA 14)	IEC 62680-1-1; EN 62680-1-1; BS EN 62680-1-1
Household Refrigerating Appliances Household Refrigerating Appliance-Characteristics and test methods part 1 General Requirements	IS 17550 Part 1 (excluding clauses 11, 13, 14, 15)
Household Refrigerating Appliance-Characteristics and test methods part 2 Performance requirements	IS 17550 Part 2 (excluding clauses 7, 9 and Annex D)

Test Technology:	**Test Method(s):**
Household Refrigerating Appliance-Characteristics and test methods part 3 Energy consumption and volume	IS 17550 Part 3

[1] A2LA provides accreditation to the U.S. EPA's *Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR Program* by verifying an organization's compliance to A2LA document *R222 - Specific Requirements - EPA ENERGY STAR Accreditation Program* and to the related test methods listed on this laboratory's scope.

Accreditation by A2LA does not infer Recognition by the EPA for ENERGY STAR testing. Please verify this organization's recognition status by using the EPA's searchable database, located at http://www.energystar.gov/index.cfm?fuseaction=recognized_bodies_list.show_RCB_search_form

Accredited Laboratory

A2LA has accredited

BUREAU VERITAS ADT (SHANGHAI) CORPORATION

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

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

Presented this 11th day of December 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2343.01
Valid to August 31, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.