SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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ELECTRICAL (EMC)

Valid to: March 31, 2019 Certificate Number: 0803.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Emissions, Immunity, Wireless, and Military tests for electrical equipment:

STANDARD	DESCRIPTION OF STANDARD
AUSTRALIA / NEW ZEALAND	
AS/NZS 61000-6-1	Electromagnetic Compatibility (EMC) Generic standard - Immunity for residential, commercial and light-industrial environments
AS/NZS 61000-6-2	Electromagnetic Compatibility (EMC) Generic standards immunity for industrial environments
AS/NZS 61000-6-3: 2012	Electromagnetic Compatibility (EMC) Emission standard for residential, commercial and light-industrial environments
AS/NZS 61000-6-4: 2012	Electromagnetic Compatibility (EMC) Emission standard for industrial environments
	AMCA Radiocommunications (Short Range Devices) Standard: 2014
AS/NZS 4268	Radio equipment and systems - Short range devices - Limits and methods of measurement
AS/NZS 4768.1	Digital radio equipment operating in land mobile and fixed services bands in the frequency range 29.7 MHz to 1 GHz
AS/NZS CISPR 11: 2011	Industrial, Scientific and Medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
AS/NZS CISPR 14.1: 2013	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Emission [*excluding clicks*]
AS/NZS CISPR 14.2	Electromagnetic compatibility - Requirements for household appliances electric tools, and similar apparatus - Immunity
AS/NZS CISPR 22: 2009 + A1	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
CISPR 24	Information technology equipment - Immunity characteristics - Limits and methods of measurement
AS/NZS CISPR 32: 2015	Electromagnetic compatibility of multimedia equipment – Emission Requirements

STANDARD	DESCRIPTION OF STANDARD
CANADA	
BETS-1	Technical standards and requirements for low power announce transmitters in the frequency bands (525 to 1,705) KHz and (88 to 107.5) MHz
BETS-4	Technical standards and requirements for television broadcasting transmitters
BETS-5	Technical standards and requirements for AM broadcasting transmitters
BETS-6	Technical standards and requirements for FM broadcasting transmitters
BETS-7	Technical standards and requirements for radio apparatus capable of receiving broadcasting
BETS-8	Technical standards and requirements for FM transmitters operating in small remote communities
BETS-9	Technical standards and requirements for television transmitters operating in small remote communities
ICES 001	Industrial, Scientific and Medical (ISM) radio frequency generators
ICES 003	Information Technology Equipment (ITE) - Limits and methods of measurement
ICES 004	Alternating current high voltage power systems
ICES 005	Radio frequency lighting devices
ICES 006	AC Wire Carrier Current Devices (Unintentional Radiators)
RSS-102	Evaluation procedure for mobile and portable radio transmitters with respect to health Canada's safety code 6 for exposure of humans to radio frequency fields [*except SAR*]
RSS-111	Broadband public safety equipment operating in the band (4940 to 4990) MHz
RSS-112	Land mobile and fixed equipment operating in the band (1670 to 1675) MHz
RSS-117	Land and coast station transmitters using A1, A2, A3, A2H, or A3H emissions operating in the (200 to 535) KHz band
RSS-119	Land mobile and fixed radio transmitters and receivers (27.41 to 960) MHz
RSS-123	Low power licensed radio communication devices
RSS-125	Land mobile and fixed radio transmitters and receivers, (1.705 to 50.0) MHz, primarily amplitude modulated
RSS-127	Air-Ground equipment operating in the bands (849 to 851) MHz and (894 to 896) MHz
RSS-130	Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands (698 to 756) MHz and (777 to 787) MHz
RSS-131	Zone enhancers for the land mobile service
RSS-132	800 MHz Cellular telephones employing new technologies
RSS-133	2 GHz Personal communication services
RSS-134	900 MHz Narrowband personal communications services
RSS-135	Digital scanner receivers
RSS-137	Location and monitoring service (902 to 928) MHz
RSS-139	Advanced wireless services equipment operating in the bands (1710 to 1755) MHz and (2110 to 2155) MHz
RSS-140	Equipment operating in the public safety broadband frequency bands (758 to 768) MHz and (788 to 798) MHz
RSS-141	Aeronautical radio communication equipment in the frequency band (117.975 to 137) MHz
RSS-142	Narrowband multipoint communication systems in the (1427 to 1430) MHz and (1493.5 to 1496.5) MHz bands
RSS-170	Satellite mobile earth stations

STANDARD	DESCRIPTION OF STANDARD
CANADA (cont.)	
RSS-181	Coast and ship station single sideband radiotelephone transmitters and receivers operating in the (1,605 to 28,000) KHz band
RSS-182	Maritime radio transmitters and receivers in the band (156 to 162.5) MHz
RSS-191	Local multipoint communication systems in the 28 GHz band, point-to-point and point-to-multipoint broadband communication systems in the 24 GHz and 38 GHz bands
RSS-192	Fixed wireless access equipment operating in the band (3450 to 3650) MHz
RSS-194	Fixed wireless access equipment operating in the band (953 to 960) MHz
RSS-195	Wireless communications service equipment operating in the bands (2305 to 2320) MHz and (2345 to 2360) MHz
RSS-196	Point-to-Multipoint Broadband Equipment Operating in the Bands (512 to 608) MHz and (614 to 698) MHz for Rural Remote Broadband Systems (RRBS) (TV Channels 21 to 51)
RSS-197	Wireless broadband access equipment operating in the band (3650 to 3700) MHz
RSS-199	Broadband radio service (BRS) equipment operating in the band (2500 to 2690) MHz
RSS-210	Low power license exempt radio communication devices (All frequency bands)
RSS-211	Level Probing Radar Equipment
RSS-213	2 GHz License exempt personal communications service devices (PCS)
RSS-215	Analogue scanner receivers
RSS-216	Wireless Power Transfer Devices (Wireless Chargers)
RSS-220	Devices using ultra-wideband (UWB) technology
RSS-222	White Spaces Devices (WSDs)
RSS-236	General radio service equipment operating in the band (26.960 to 27.410) MHz
RSS-238	Shipborne Radar in the 2,900 to 3,100 MHz and 9,225 to 9,500 MHz Bands
RSS-243	Active medical implant communications system devices in the (402 to 405) MHz band
RSS-244	Medical Devices Operating in the Band 413-457 MHz
RSS-247	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs), and License-Exempt Local Area Network (LE-LAN) Devices (excluding DFS)
RSS-251	Field Disturbance Sensors in the Bands 46.7-46.9 GHz and 76-77 GHz
RSS-252	Intelligent transportation systems – dedicated short range communications (DSRC) – on-board unit (OBU)
RSS-287	Emergency position indicating radio beacons (EPIRB), emergency locator transmitters (ELT), personal locator beacons (PLB), and maritime survivor locator devices (MSLD)
RSS-288	Global maritime distress and safety system (GMDSS)
RSS-310	Low-power license exempt radio communication devices (All frequency bands) category II equipment
RSS-GEN	General requirements and information for the certification of radio communication equipment

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION	
EN 12015	Electromagnetic compatibility - Product family standard for lifts, escalators and passenger conveyors – Emission
EN 12016	Electromagnetic compatibility - Product family standard for lifts, escalators and passenger conveyors - Immunity
EN 12184	Electrically powered wheelchairs, scooters and their chargers - Requirements and test methods [Section 9.8 Only]
EN 13763-26	Explosives for civil uses – Detonators and relays – Part 26
EN 50065-1	Specification for signaling on low-voltage electrical installations in the frequency range (3 to 148.5) kHz - Part 1 General requirements, frequency bands and electromagnetic disturbances
EN 50065-2-1, 2, 3	Specification for signaling on low-voltage electrical installations in the frequency range (3 to 148.5) kHz - Part 2 Immunity requirements for mains communications equipment and systems operating in the range of frequencies (95 to 1485) kHz
EN 50083-2	Cable networks for television signals, sound signals and interactive services - Part 2 Electromagnetic compatibility for equipment
EN 50121-1	Railway applications - Electromagnetic compatibility - Part 1 General
EN 50121-3-2	Railway applications - Electromagnetic compatibility - Part 3-2 Rolling stock - Apparatus
EN 50121-4	Railway applications - Electromagnetic compatibility - Part 4 Emission and immunity of the signalling and telecommunications apparatus
EN 50130-4	Alarm systems - Part 4 Electromagnetic compatibility - Product family standard - Immunity requirements for components of fire, intruder and social alarm systems
EN 50204	Radiated electromagnetic field from digital radio telephones - immunity test (900 MHz, 5 MHz keyed carrier)
EN 50270	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
EN 50370-1	Electromagnetic Compatibility (EMC) - Product family standard for machine tools - Part 1 Emissions.
EN 50370-2	Electromagnetic Compatibility (EMC) - Product family standard for machine tools - Part 2 Immunity
EN 55011	Industrial, Scientific and Medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement
EN 55012	Vehicles, boats and internal combustion engines. Radio disturbance characteristics. Limits and methods of measurement for the protection of off-board receivers
EN 55013	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
EN 55014-1	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1 Emission [*excluding clicks*]
EN 55014-2	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2 Immunity - Product family standard
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION (cont.)	
EN 55020	Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement [*excluding section 5.8*]
EN 55022	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement [table top equipment only for testing above 1 GHz]
EN 55024	Information technology equipment - Immunity characteristics - Limits and methods of measurement
EN 55032	Electromagnetic compatibility of multimedia equipment – Emission requirements
EN 55035	Electromagnetic compatibility of multimedia equipment - Immunity requirements
EN 55103-1	Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Emission
EN 55103-2	Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Immunity
EN 60601-1-2	Medical electrical equipment - Part 1-2 General requirements for safety - Collateral standard - Electromagnetic compatibility - requirements and tests
EN 60601-2-2	Medical electrical equipment – Part 2-2 Particular requirements for the safety of high frequency surgical equipment
EN 60601-2-4	Medical electrical equipment - Part 2-4 Particular requirements for the safety of cardiac defibrillators [EMC sections only]
EN 60601-2-10	Medical electrical equipment - Part 2.10 Particular requirements for the safety of nerve and muscle stimulators [EMC sections only]
EN 60601-2-12	Medical electrical equipment - Part 2-12 Particular requirements for the safety of lung ventilators - Critical care ventilators [EMC sections only]
EN 60601-2-22	Medical electrical equipment - Part 2 Particular requirements for the safety of diagnostic and therapeutic laser equipment [EMC sections only]
EN 60601-2-24	Medical electrical equipment - Part 2-24 Particular requirements for the safety of infusion pumps and controllers [EMC sections only]
EN 60601-2-26	Medical electrical equipment – Part 2-26: Particular requirements for the basic safety and essential performance of electroencephalographs
EN 60601-2-34	Medical electrical equipment - Part 2-34 Particular requirements for the safety, including essential performance, of invasive blood pressure monitoring equipment [EMC sections only]
EN 60601-2-37	Medical electrical equipment - Part 2-37 Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment [EMC sections only]
EN 60601-2-47	Medical electrical equipment - Part 2-47 Particular requirements for the basic safety and essential performance of ambulatory electrocardiographic systems
EN 60601-2-62	Medical electrical equipment - Part 2-62 Particular requirements for the basic safety and essential performance of high intensity therapeutic ultrasound (HITU) equipment
EN 60730-1	Automatic electrical controls for household and similar use - Part 1 General requirements [EMC Sections Only]
EN 60730-2-5 thru 9, 11, 13, 14, 18	Automatic electrical controls for household and similar use - Part 2 Particular requirements

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION (cont.)	
EN 60945	Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results
EN 60974-10	Arc welding equipment - Part 10 Electromagnetic compatibility (EMC) requirements
EN 61000-3-2	Electromagnetic Compatibility (EMC) - Part 3 Limits - Section 2 Limits for harmonic current emissions (equipment input current ≤16 A per phase)
EN 61000-3-3	Electromagnetic Compatibility (EMC) - Part 3 Limits - Section 3 - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A
EN 61000-4-2	Electromagnetic compatibility (EMC) - Part 4-2 Testing and measurement techniques - Electrostatic discharge immunity test
EN 61000-4-3	Electromagnetic compatibility (EMC) - Part 4-3 Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4	Electromagnetic compatibility (EMC) - Part 4-4 Testing and measurement techniques - Electrical fast transient/burst immunity test
EN 61000-4-5	Electromagnetic compatibility (EMC) - Part 4-5 Testing and measurement techniques - Surge immunity test
EN 61000-4-6	Electromagnetic compatibility (EMC) - Part 4-6 Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-8	Electromagnetic compatibility (EMC) - Part 4 Testing and measurement techniques - Section 8 Power frequency magnetic field immunity test basic EMC publication
EN 61000-4-11	Electromagnetic compatibility (EMC) - Part 4 Testing and measuring techniques - Section 11 Voltage dips, short interruptions and voltage variations immunity tests
EN 61000-4-13	Electromagnetic compatibility (EMC) - Part 4 Testing and measuring techniques - Section 13 Harmonics and interharmonics including mains signaling at a.c. power port, low frequency immunity tests
EN 61000-6-1	Electromagnetic Compatibility (EMC) Generic standards - Immunity for residential, commercial and light-industrial environments
EN 61000-6-2	Electromagnetic Compatibility (EMC) Generic standards immunity for industrial environments
EN 61000-6-3	Electromagnetic Compatibility (EMC) Emission standard for residential, commercial and light-industrial environments
EN 61000-6-4	Electromagnetic Compatibility (EMC) Emission standard for industrial environments
EN 61131-2	Programmable controllers, Equipment requirements and tests [EMC sections only]
EN 61204-3	Low voltage power supplies, DC output - Part 3 Electromagnetic Compatibility (EMC)
EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1 General requirements

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION (cont.)	
EN 61326-2-1 thru 6	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1 Particular requirements - Test configurations, operational conditions and performance criteria
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 62040-2	Uninterruptible power systems (UPS) - Part 2 Electromagnetic compatibility (EMC) requirements
EN 62061	Safety of machinery – functional safety of safety related electrical, electronic & programmable control systems [section 6.4.3, ref Annex E]
EN 62233	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure.
EN 62311	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0Hz-300GHz)
EN 62479	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)
EN 300 086	Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech
EN 300 086-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Land mobile service - Radio equipment with an internal or external RF connector intended primarily for analogue speech
EN 300 113-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Land mobile service - Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector
EN 300 219-2	Electromagnetic compatibility and radio spectrum matters (ERM) - Land mobile service - Radio equipment transmitting signals to initiate a specific response in the receiver
EN 300 220-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Short Range Devices (SRD) - Radio equipment to be used in the (25 to 1000) MHz frequency range with power levels ranging up to 500 mW
EN 300 224-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - On-site paging service
EN 300 328	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Wideband transmission systems - Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques
EN 300 330-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - 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
EN 300 386	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Telecommunication network equipment - Electromagnetic Compatibility (EMC) requirements
EN 300 422-1	Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Class A Receivers
EN 300 422-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Wireless microphones in the 25 MHz to 3 GHz frequency range

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION (cont.)	
EN 300 433-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Land mobile service - Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated citizen's band radio equipment
EN 300 440-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Short range devices - Radio equipment to be used in the (1 to 40) GHz frequency range
EN 300 454-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Wide band audio links
EN 301 357-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Cordless audio devices in the range (25 to 2,000) MHz - Consumer radio microphones and in-ear monitoring systems operating in the CEPT harmonized band (863 to 865) MHz
EN 301 489-1	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 1 Common technical requirements
EN 301 489-2 thru 35, 50	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - ElectroMagnetic Compatibility (EMC) standard for radio equipment and services Parts 2-34, specific conditions
EN 301 502	Harmonized EN for Global System for Mobile communications (GSM) - Base station and repeater equipment
EN 301 840-2	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Digital wireless microphones operating in the CEPT harmonized band (1785 to 1,800) MHz
EN 301 893	Broadband Radio Access Networks (BRAN) - 5 GHz high performance RLAN (except DFS testing)
EN 301 908-1 thru 22	Electromagnetic Compatibility and Radio Spectrum Matters (ERM) - Base Stations (BS) and Repeaters for IMT-2000 Third-Generation cellular networks [-1, -3, -5, -7, -9, -11, -12, -14, -15, -17, -18, -20 & -22]
EN 302 064-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Wireless Video Links (WVL) operating in the (1.3 to 50) GHz frequency band
EN 302 065	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Ultra WideBand (UWB) technologies for communication purposes
EN 302 066-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM); Ground- and Wall- Probing Radar applications (GPR/WPR) imaging systems
EN 302 195	Short Range Devices (SRD); Ultra Low Power Active Medical Implants (ULP-AMI) and accessories (ULP-AMI-P) operating in the frequency range 9 kHz to 315 kHz
EN 302 195-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Radio equipment in the frequency range 9 kHz to 315 kHz for Ultra Low Power Active Medical Implants (ULP-AMI) and accessories
EN 302 208-2	Electromagnetic compatibility and Radio Spectrum Matters (ERM) - Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W
EN 302 291-2	Electromagnetic compatibility and radio spectrum Matters (ERM) - Short range devices (SRD) - Close range inductive data communication equipment operating at 13.56 MHz

STANDARD	DESCRIPTION OF STANDARD
EUROPEAN UNION (cont.)	
EN 302 326-2	Fixed Radio Systems; Multipoint equipment and antennas; Part 2: digital multipoint radio equipment
EN 302 326-3	Fixed Radio Systems; Multipoint equipment and antennas; Part 3: multipoint radio antennas
EN 302 500-2	Electromagnetic compatibility and radio spectrum matters (ERM) - Short range devices (SRD) using ultra-wideband (UWB) technology - location tracking equipment operating in the frequency range from (6 to 8.5) GHz
EN 302 502	Broadband Radio Access Networks (BRAN) – 5.8 GHz fixed broadband data transmitting systems
EN 302 645	Electromagnetic compatibility and radio spectrum matters (ERM); Short range devices; Global navigation satellite systems (GNSS) repeaters
IMDA SINGAPORE	
IMDA TS CT-CTS	Technical specification for cordless telephone and cordless telecommunication systems [*excluding dect and phs*]
IMDA TS SRD	Technical specification for short range devices
IMDA TS AR	Technical specification for amateur radio equipment
IMDA TS WBA	Technical specification for wireless broadband access (WBA) equipment
IMDA TS LMR	Technical specification for land mobile radio equipment
IMDA TS CBS	Technical specification for cellular base station and repeater system
IMDA TS UWB	Technical specification for ultra-wideband (UWB) devices
IMDA TS GMPCS	Technical specification for global mobile personal communication by satellite (GMPCS) terminals
INTERNATIONAL	
CISPR 11	Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
CISPR 12	Vehicles, boats, and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers
CISPR 13	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
CISPR 14-1	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1 Emission [*excluding clicks*]
CISPR 14-2	Electromagnetic compatibility - Requirements for household appliances, electric tools, and similar apparatus - Part 2 Immunity - Product family standard
CISPR 15	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
CISPR 20	Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement [*excluding section 5.8*]
CISPR 22	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement [table top equipment only for testing above 1 GHz]
CISPR 32	Electromagnetic compatibility of multimedia equipment - Emission Requirements

STANDARD	DESCRIPTION OF STANDARD
INTERNATIONAL (cont.)	
CISPR 35	Electromagnetic compatibility of multimedia equipment - Immunity requirements
IEC 60601-1-2	Medical electrical equipment - Part 1 General requirements for safety 2 - Collateral standard - Electromagnetic compatibility - Requirements and tests
IEC 60601-2-2	Medical electrical equipment - Part 2-2 Particular requirements for the safety of high frequency surgical equipment
IEC 60601-2-10	Medical electrical equipment - Part 2.10 Particular requirements for the safety of nerve and muscle stimulators [EMC sections only]
IEC 60601-2-24	Medical electrical equipment - Part 2-24 Particular requirements for the safety of infusion pumps and controllers [EMC sections only]
IEC 60601-2-26	Medical electrical equipment – Part 2-26: Particular requirements for the basic safety and essential performance of electroencephalographs
IEC 60601-2-34	Medical electrical equipment – Part 2-34: Particular requirements for the basic safety and essential performance of invasive blood pressure monitoring equipment
IEC 60601-2-37	Medical electrical equipment - Part 2-37 Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment
IEC 60601-2-47	Medical electrical equipment - Part 2-47 2 Particular requirements for the safety, including essential performance, of ambulatory electrocardiographic systems.
IEC 60601-2-62	Medical electrical equipment - Part 2-62 Particular requirements for the basic safety and essential performance of high intensity therapeutic ultrasound (HITU) equipment
IEC 60533	Electromagnetic compatibility of electrical and electronic installations in ships
IEC 60945	Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results
IEC 60974-10	Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements
IEC 61000-3-2	Electromagnetic Compatibility (EMC) - Part 3 Limits - Section 2 Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
IEC 61000-3-3	Electromagnetic Compatibility (EMC) - Part 3 Limits - Section 3 - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A
IEC 61000-4-2	Electromagnetic compatibility (EMC) - Part 4-2 Testing and measurement techniques - Electrostatic discharge immunity test
IEC 61000-4-3	Electromagnetic compatibility (EMC) - Part 4-3 Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4	Electromagnetic compatibility (EMC) - Part 4-4 Testing and measurement techniques - Electrical fast transient/burst immunity test
IEC 61000-4-5	Electromagnetic compatibility (EMC) - Part 4-5 Testing and measurement techniques - Surge immunity test
IEC 61000-4-6	Electromagnetic compatibility (EMC) - Part 4-6 Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
IEC 61000-4-8	Electromagnetic compatibility (EMC) - Part 4 Testing and measurement techniques - Section 8 Power frequency magnetic field immunity test basic EMC publication

STANDARD	DESCRIPTION OF STANDARD
INTERNATIONAL (cont.)	
IEC 61000-4-11	Electromagnetic compatibility (EMC) - Part 4 Testing and measuring techniques - Section 11 Voltage dips, short interruptions and voltage variations immunity tests
IEC 61000-4-13	Electromagnetic compatibility (EMC) - Part 4-13 Testing and measurement techniques - Harmonics and interharmonics including mains signaling at a.c. power port, low frequency immunity tests
IEC 61000-6-1	Electromagnetic capability (EMC) - Part 6-1 Generic Standards - Immunity for residential, commercial, and light-industrial environments
IEC 61000-6-2	Electromagnetic Capability (EMC) - Part 6-2 Generic Standards - Immunity for industrial environments
IEC 61000-6-3	Electromagnetic Capability (EMC) - Part 6-3 Generic Standards - Emissions standard for residential, commercial, and light-industrial environments
IEC 61000-6-4	Electromagnetic Capability (EMC) - Part 6-4 Generic Standards - Immunity for residential, commercial, and light-industrial environments
IEC 61131-2	Programmable controllers - Part 2 Equipment requirements and tests [EMC sections only]
IEC 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1 General requirements
IEC 61326-2-1 thru 6	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1 Particular requirements - Test configurations, operational conditions and performance criteria
IEC 61326-3-1, 2	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1 Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety)
IEC 61547	Equipment for general lighting purposes - EMC immunity requirements
IEC 62061	Safety of machinery - functional safety of safety related electrical, electronic & programmable control systems *(note: only capable of performing EMC testing for section 6.4.3, ref Annex E)*
IEC 62233	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure.
IEC 62311	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0Hz-300GHz)
IEC 62479	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)
ISO	
ISO 11452-4 ISO 11452-4: 2011	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4 Harness excitation methods *(BCI method only)*
ISO 11452-4: 2005 ISO 11452-4: 2001	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4 Bulk current injection (BCI)
ISO 11452-8 ISO 11452-8: 2015 ISO 11452-8: 2007	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 8 Immunity to magnetic fields

STANDARD	DESCRIPTION OF STANDARD
ISO (cont.)	
ISO 11452-10	Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 10 Immunity to conducted disturbances in the extended audio frequency range
JAPAN	
VCCI V-3 (*up to 6 GHz*)	Technical Requirements
VCCI-CISPR 32	Electromagnetic compatibility of multimedia equipment - Emission Requirements
KOREA, REPUBLIC OF	
KN 11	CISPR 11: 2015
KN 13	CISPR 13: 2006
KN 14-1	CISPR 14-1: 2008
KN 14-2	CISPR 14-2: 2008
KN 15	CISPR 15: 2013
KN 17	Test Methods of radio disturbance for residential wireless power-transmission equipments [*excluding clicks*]
KN 20	CISPR 20: 2006
KN 22	CISPR 22: 2006
KN 24	CISPR 24: 2010
KN 32	CISPR 32: 2012
KN 35	CISPR/I/412/CDV (2012) +Korea interpretations list
KN 12015	EN 12015: 2004
KN 12016	EN 12016: 2013
KN 301 489-01	EN 301 489-01 v1.8.1
KN 301 489-02	EN 301 489-02 v1.3.1
KN 301 489-03	EN 301 489-03 v1.4.1
KN 301 489-05	EN 301 489-05 v1.3.1
KN 301 489-06	EN 301 489-06 v1.3.1
KN 301 489-07	EN 301 489-07 v1.2.1
KN 301 489-09	EN 301 489-09 v1.4.1
KN 301 489-13	EN 301 489-13 v1.2.1
KN 301 489-15	EN 301 489-15 v1.2.1
KN 301 489-17	EN 301 489-17 v2.1.1
KN 301 489-18	EN 301 489-18 v1.3.1
KN 301 489-20	EN 301 489-20 v1.2.1
KN 301 489-24	EN 301 489-24 v1.3.1
KN 301 489-26	EN 301 489-26 v2.3.2
KN 301 489-27	EN 301 489-27 v1.1.1
KN 301 489-32	EN 301 489-32 v1.1.1
KN 60601-1-2	IEC 60601-1-2: 2004
KN 60945/60533	IEC 60945: 2002; IEC 60533: 1999
KN 60974-10	IEC 60974-10: 2011
KN 61000-3-2	IEC 61000-3-2: 2009-04

STANDARD	DESCRIPTION OF STANDARD
KOREA, REPUBLIC OF (cont.)	
KN 61000-3-3	IEC 61000-3-3: 2008-06
KN 61000-6-1	IEC 61000-6-1: 2011
KN 61000-6-2	IEC 61000-6-2: 2011
KN 61000-6-3	IEC 61000-6-3: 2011
KN 61000-6-4	IEC 61000-6-4: 2011
KN 61547	IEC 61547: 2009
KN 62040-2	IEC 62040-2: 2005
Enforcement Decree of MSIP NO. 78, Aug 12, 2016	Regulations on Radio Equipment [*excluding DFS and SAR*]
MSIP Public Notification 2016-127, Dec 6, 2016)	Unlicensed Radio Equipment Established without Notice [*excluding DFS and SAR*]
RRA Public Notification 2016-20, Sep 27, 2016	Technical Requirements of Radio Wave Application
RRA Announce 2015-135; KS X 3123	Conformity Assessment Procedure of Radio Equipment
SAE	
SAE J551-1	Performance levels and methods of measurement of electromagnetic compatibility of vehicles, boats (up to 15 m), and machines 16.6 Hz to 18 GHz
SAE J551-2	Test limits and methods of measurement of radio disturbance characteristics of vehicles, motorboats, and spark-ignited engine-driven devices
SAE J551-5	Performance levels and methods of measurement of magnetic and electric field strength from electric vehicles, broadband, 9 kHz to 30 MHz
SAE J551-11	Vehicle electromagnetic immunity - off-vehicle source
SAE J551-12	Vehicle electromagnetic immunity - on-board transmitter simulation
SAE J551-13	(R) vehicle electromagnetic immunity - bulk current injection
SAE J551-15	Performance level and methods of measurement of electromagnetic compatibility of vehicles, boats (*up to 15 m*), and machines 50 Hz to 15 GHz Part 15 vehicle electromagnetic immunity - electrostatic discharge (ESD)
SAE J551-17	(R) vehicle electromagnetic immunity - power line magnetic fields
SAE J1113-2	Electromagnetic compatibility measurement procedures and limits for vehicle components (except aircraft) - conducted immunity, 15 Hz to 250 kHz - all leads
SAE J1113- 22	Electromagnetic compatibility measurement procedure for vehicle components - Part 22 - immunity to radiated magnetic fields
SAE J1455	Joint SAE/TMC recommended environmental practices for electronic equipment design (heavy-duty trucks) [Sections: 4.13.1, 4.13.2, and 4.13.3]
SAE J1752-2	Measurement of radiated emissions from integrated circuits - surface scan method (loop probe method) 10 MHz to 3 GHz
SAE J1752-3	(R) measurement of radiated emissions from integrated circuits - tem/wideband tem (GTEM) cell method; tem cell 150 kHz to 1 GHz, wideband tem cell 150 kHz to 8GHz (up to 1.2GHz)

STANDARD	DESCRIPTION OF STANDARD
TAIWAN / CHINESE TAIPEI	
CNS 13306	Specification for radio disturbance and immunity measuring apparatus and methods Part 1 - Radio disturbance and immunity measuring apparatus
CNS 13438 (*up to 6 GHz*)	Limits and methods of measurement of radio interference characteristics of information technology equipment (ITE) [table top equipment only for testing above 1 GHz]
CNS 13439	Limits and methods of measurement of radio interference characteristics of sound and television broadcast receiver and associated equipment
CNS 13803	Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment
LP0002	Low-power Radio-frequency Devices Technical Regulations [*excluding DFS and SAR*]
UNITED STATES	
47 CFR PART 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
47 CFR PART 11	Emergency alert system (EAS)
ANSI C63.26	Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
47 CFR PART 15	Radio frequency devices [*excluding DFS*]
47 CFR PART 18	Industrial, scientific and medical equipment
47 CFR PART 20; FCC KDB 935210 D03 (v04); FCC KDB 935210 D04 (v02); FCC KDB 935210 D05 (v01r01)	Commercial mobile services
47 CFR PART 22	Public mobile services
47 CFR PART 24	Personal communications services
47 CFR PART 25	Satellite communications
47 CFR PART 27	Miscellaneous wireless communication services
47 CFR PART 73	Radio broadcast services
47 CFR PART 74	Experimental radio, auxiliary, and special broadcast and other program distributional services
47 CFR PART 80	Stations in the maritime services
47 CFR PART 87	Aviation services
47 CFR PART 90	Private land mobile radio services
47 CFR PART 95	Personal radio services
47 CFR PART 96	Citizens broadband radio services
47 CFR PART 97	Amateur radio services
47 CFR PART 101	Fixed microwave services
ANSI RESNA WC VOL.2	Electrically powered wheelchairs, scooters and their chargers - requirements and test methods [Section 21 only]
DO 160 A/B/C/D/E/F/G	Environmental conditions and test procedures of airborne equipment. [Sections: 15-21 & 25]

STANDARD	DESCRIPTION OF STANDARD
UNITED STATES (cont.)	
MIL-STD-461A/B/C, MIL-STD-462	Electromagnetic emission and susceptibility requirements for the control of electromagnetic interference: [Emissions tests sections : CE01-07, RE01-03] [Susceptibility tests CS01-12, RS01-03, RS06]
MIL-STD-461D/E/F	Electromagnetic emission and susceptibility requirements for the control of electromagnetic interference: [Emissions tests sections: CE101, CE102, CE106, RE101-103] [Susceptibility tests CS101, CS103, CS104, CS105, CS109, CS114, CS115, CS116, RS101, RS103]
MIL-STD-461G	Electromagnetic emission and susceptibility requirements for the control of electromagnetic interference: [Emissions tests: CE101, CE102, CE106, RE101-103] [Susceptibility tests CS101, CS103, CS104, CS105, CS109, CS114, CS115, CS116, CS118, RS101, RS103]
ANSI C63.4:2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10:2013	American national standard for testing unlicensed wireless devices
ANSI C63.17:2013	American national standard for methods of measurement of the electromagnetic and operational compatibility of unlicensed personal communications services (UPCS) Devices
FCC MP-5 (1986)	Methods of measurements of radio noise emissions from industrial, scientific and medical equipment
ANSI/TIA 603D; TIA-102.CAAA-D	Land mobile FM or PM communications equipment measurement and performance standards
VIETNAM	
TCVN 7189	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
TCVN 7317	Information technology equipment - Immunity characteristics - Limits and methods of measurement

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:		
Rule Subpart/Technology	**Test Method**	**Maximum Frequency**
Unintentional Radiators		
Part 15B	ANSI C63.4:2014	220 GHz
Industrial, Scientific, and Medical Equipment		
Part 18	FCC MP-5 (February 1986)	220 GHz
Intentional Radiators		
Part 15C	ANSI C63.10:2013	220 GHz
Unlicensed Personal Communication Systems Devices		
Part 15D	ANSI C63.17:2013	220 GHz
U-NIII without DFS Intentional Radiators		
Part 15E	ANSI C63.10:2013	220 GHz
UWB Intentional Radiators		
Part 15F	ANSI C63.10:2013	220 GHz
BPL Intentional Radiators		
Part 15G	ANSI C63.10:2013	220 GHz
White Space Device Intentional Radiators		
Part 15H	ANSI C63.10:2013	220 GHz
Commercial Mobile Services (FCC Licensed Radio Service Equipment)		
Parts 22 (cellular), 24, 25 (non-microwave), and 27	ANSI/TIA-603-D; TIA-102.CAAA-D	220 GHz
General Mobile Radio Services (FCC Licensed Radio Service Equipment)		
Parts 22 (non-cellular), 90 (non-microwave), 95, 97, and 101 (non-microwave)	ANSI/TIA-603-D; TIA-102.CAAA-D	220 GHz
Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)		
Part 96	ANSI/TIA-603-D; TIA-102.CAAA-D	220 GHz
Maritime and Aviation Radio Services		
Parts 80 and 87	ANSI/TIA-603-D	220 GHz
Microwave and Millimeter Bands Radio Services		
Parts 25, 74, 90 (90Y, 90Z, DSRC), and 101	ANSI/TIA-603-D; TIA-102.CAAA-D	220 GHz
Broadcast Radio Services		
Parts 73 and 74 (non-microwave)	ANSI/TIA-603-D; TIA-102.CAAA-D	220 GHz
Signal Boosters		
Part 20 (Wideband Consumer Signal Boosters, Provider-specific signal boosters, and Industrial Signal Boosters)	FCC KDB 935210 D03 (v04); FCC KDB 935210 D04 (v02); FCC KDB 935210 D05 (v01r01)	220 GHz

Notes:

1. Limitations for listed standards are indicated by square brackets.
2. Scope excludes protocol sections of applicable standards.
3. Scope includes references to basic standards or test methods specified within the governing standard; consequently, the basic standard references need not be identified on this scope document.
4. Excluding SAR, HAC and DFS where applicable.

Accredited Laboratory

A2LA has accredited

CKC LABORATORIES, INC.

Mariposa, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009*).

Presented this 28th day of March 2017.

President and CEO
For the Accreditation Council
Certificate Number 0803.01
Valid to March 31, 2019

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