SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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ELECTRICAL

Valid to: May 31, 2013 Certificate Number: 0839.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility, radio, telecom, product safety tests:

Test Technology	**Test Method**
Radio tests	
Radio frequency device	CFR 47:10 Part 15 Subparts C/E/F (using ANSI C63.4:03; ANSI C63.4:09; ANSI C63.10:09); CFR 47:10 Parts 21, 22, 24, 27, 95, 101
Private land mobile radio services	CFR 47:10 Part 90 using, TIA/EIA 603-C:04
Low power license-exempt radio communication devices (all frequency bands)	RSS-210:07 Issue 7; RSS-210:10 Issue 8; RSS Gen Issue 3:10
Land mobile and fixed radio transmitters and receivers, 27.41 MHz to 960.0 MHz	RSS-119 Issue 10:10
Canada Radio Standards Specification	RSS-102 Issue 3:09 (*Excluding SAR*); RSS-102 Issue 4:10 (*Excluding SAR*); RSS-111 Issue 3:09; RSS-118 Issue 2:90; RSS-119 Issue 10:10; RSS-123 Issue 2:11; RSS-125 Issue 2:00; RSS-129 Issue 2:99; RSS-131 Issue 2:03; RSS-132 Issue 2:05; RSS-133 Issue 5:09; RSS-134 Issue 1 Rev 1:00; RSS-137 Issue 2:09; RSS-139 Issue 2:09; RSS-142 Issue 4:10; RSS-191 Issue 3:08; RSS-192 Issue 3:08; RSS-193 Issue 1:03; RSS-194 Issue 1:07; RSS-195 Issue 1:04; RSS-197 Issue 1:10; RSS-199 Issue 1:10; RSS-243 Issue 3:10; RSS-310 Issue 3:10
Radio equipment and systems - Short range devices	AS/NZS 4268:08
Analogue speech (angle modulated) equipment operating in land mobile and fixed services bands in the frequency range 29.7 MHz to 1 GHz	AS/NZS 4295:04 + A1:06
Data transmission equipment operating in the 900 MHz, 2.4 GHz and 5.8 GHz bands and using spread spectrum modulation techniques	AS/NZS 4771:00 + A1:03

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Test Technology	**Test Method**
Digital radio equipment operating in land mobile and fixed services bands in the frequency range 29.7 MHz to 1 GHz, Part 1	AS/NZS 4768.1:06; AS/NZS 4768.1:10; AS/NZS 4768.2:03
Radio equipment to be used in the 25 MHz to 1,000 MHz frequency range with power levels ranging up to 500 mW	EN 300 220-1 V2.1.1:06; EN 300 220-1 V2.3.1:10; EN 300 220-2 V2.1.2:07; EN 300 220-2 V2.3.1:10
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 300 330-1 V1. 5.1:06; EN 300 330-1 V1.7.1:10; EN 300 330-2 V1.3.1:06; EN 300 330-2 V1.5.1:10
Radio equipment to be used in the 1 GHz to 40 GHz frequency range	EN 300 440-1 V1.5.1:09; EN 300 440-1 V1.6.1:10; EN 300 440-2 V1.3.1:09; EN 300 440-2 V1.4.1:10
Land mobile service; Radio equipment with an internal or external RF connector intended primarily for analogue speech	EN 300 086-1 V1.3.1:08; EN 300 086-1 V1.4.1:10; EN 300 086-2 V1.2.1:08; EN 300 086-2 V1.3.1:10
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 300 113-1 V1.6.1:07; EN 300 113-1 V1.6.2:09; EN 300 113-2 V1.4.1:07; EN 300 113-2 V1.4.2:09
Electromagnetic compatibility and radio spectrum matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and speech) and using an integral antenna	EN 300 390-1 V1.2.1:00; EN 300 390-2 V1.1.1:00
WB transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques	EN 300 328 V1.7.1:06
Fixed radio systems; Point-to-point equipment	EN 301 126-1 V1.1.2:99
Fixed radio systems; Conformance testing	EN 301 126-2-1 V.1.1.1:00
Point-to-Multipoint equipment - FDMA equipment	EN 301 126-2-2 V.1.1.1:00
Point-to-Multipoint equipment - Test procedures for TDMA equipment	EN 301 126-2-3 V.1.2.1:04
Point-to-Multipoint equipment - Test procedures for FH-CDMA equipment	EN 301 126-2-4 V.1.1.1:00
Point-to-Multipoint equipment - Test procedures for DS-CDMA equipment	EN 301 126-2-5 V.1.1.1:00
Point-to-Multipoint equipment - Test procedures for MC-TDMA equipment	EN 301 126-2-6 V.1.1.1:02
Fixed radio systems; Point-to-Multipoint systems; Spurious emissions and receiver immunity limits at equipment/antenna port of digital fixed radio systems	EN 301 390 V1.2.1:03
Point-to-multipoint equipment and antennas	EN 302 326-2 V1.2.2:07
Fixed radio systems; Characteristics and requirements for point to point equipment/antennas	EN 302 217-2-2 V1.3.1:09; EN 302 217-2-2 V1.4.1:10; EN 302 217-3 V1.3.1:09
Broadband radio access networks (BRAN); 5 GHz high performance RLAN	EN 301 893 V1.4.1:07; EN 301 893 V1.5.1:08
Global system for mobile communications (GSM); Harmonized EN for mobile stations in the GSM 900 and GSM 1800 bands covering essential requirements under article 3.2 of the R&TTE directive	EN 301 511 V9.0.2:03; (Spurious Emissions)

Test Technology	**Test Method**
Broadband radio access networks (BRAN); 5.8 GHz fixed broadband data transmitting systems	EN 302 502 V1.2.1:08
Electromagnetic compatibility and radio spectrum matters (ERM); Radio frequency identification equipment operation in the band 865 MHz to 868 MHz with power level up to 2 W	EN 302 208-1 V1.3.1:10; EN 302 208-2 V1.3.1:10
Electromagnetic compatibility and radio spectrum matters (ERM); Short range devices (SRD); Ultra low power active medical implants (ULP-AMI) and peripherals (ULP-AMI-P) operating in the frequency range 402 MHz to 405 MHz;	EN 301 839-1 V1.3.1:09; EN 301 839-2 V1.3.1:09
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 302 195-1 V1.1.1:04; EN 302 195-2 V1.1.1:04
Electromagnetic compatibility and radio spectrum matters (ERM); Short range devices (SRD); Ultra low power medical data service systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE directive	EN 302 537-2 V1.1.2:07
Electromagnetic compatibility and radio spectrum matters (ERM); Short range devices (SRD); Close range inductive data communication equipment operating at 13.56 MHz; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive	EN 302 291-2 V1.1.1:05
Electromagnetic compatibility and radio spectrum matters (ERM); Base stations (BS), repeaters and user equipment (UE) for IMT-2000 third-generation cellular networks; Part 11: Harmonized EN for IMT-2000, CDMA direct spread (UTRA FDD) (repeaters) covering essential requirements of article 3.2 of the R&TTE Directive	EN 301 908-11 V2.3.1:04; EN 301 908-11 V4.2.1:10
Product standard to demonstrate the compliances of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz to 40 GHz) - General public	EN 50385:02 (*Excluding SAR*)
Broadband data transmission systems operating in the 2,500 MHz to 2,690 MHz frequency band	EN 302 544-1 V1.1.2:10; EN 302 544-2 V1.1.1:09
Broadband Radio Access Networks (BRAN); 60 GHz Multiple-Gigabit WAS/RLAN Systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive	EN 302 567 V1.1.1:09
Emissions	
Radiated and Conducted Emissions	EN 55011:98 + A1:99 + A2:02; EN 55011:07 + A2:07; EN 55011:09 + A1:10; CISPR 11:03 + A1:04 + A2:06;

Test Technology	**Test Method**
Radiated and Conducted Emissions (cont.)	CISPR 11:09 + A1:10; AS/NZS CISPR 11:04; AS/NZS CISPR 11:11; CFR 47:10 Part 18 (using MP-5); ICES-001:06; EN 55014-1:00 + A1:01 + A2:02; EN 55014-1:06 + A1:09; CISPR 14-1:05 + A1:08 + A2:11; AS/NZS CISPR 14.1:03; AS/NZS CISPR 14.1:10; EN 55014-2:97 + A1:01 + A2:08 CISPR 14-2: 97 + A1:01 + A2:08; AS/NZS CISPR 14.2:03; EN 55015:00 + A1:01 + A2:02; EN 55015:06 + A1:07 + A2:09; CISPR 15:05 + A1:06 + A2:08; AS/NZS CISPR 15:02; AS/NZS CISPR 15:06; EN 55022:98 + A1:00 + A2:03; EN 55022:06 + A1:07 + A2:10; EN 55022:10; CISPR 22:05 + A1:05 + A2:06; CISPR 22:08; AS/NZS CISPR 22:06; AS/NZS CISPR 22:09 + A1:10; ICES-003:04; CAN/CSA-CEI/IEC CISPR 22:02; CFR 47:10 Part 15, Subpart B (using ANSI 63.4:03; ANSI C63.4:09); VCCI V-3 (up to 6 GHz); EN 300 132-1:96; EN 300 132-2 V2.2.2:07; EN 300 132-3 V1.2.1:03
Disturbances power	EN 55014-1:00 + A1:01 + A2:02; EN 55014-1:06 + A1:09; CISPR 14-1:05 + A1:08 + A2:11; AS/NZS CISPR 14.1:03; AS/NZS CISPR 14.1:10
Harmonic current emissions	EN 61000-3-2:00 + A2:05; EN 61000-3-2:06 + A1:09 + A2:09; IEC 61000-3-2:05 + A1:08 + A2:09; EN 61000-3-12:05; IEC 61000-3-12:04
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3:95 + A1:01 + A2:05; EN 61000-3-3:08; IEC 61000-3-3:08; EN 61000-3-11:00; IEC 61000-3-11:00
Immunity	
Electrostatic discharge	EN 61000-4-2:95 + A1:98 + A2:01; EN 61000-4-2:09; IEC 61000-4-2:95 + A1:98 + A2:00; IEC 61000-4-2:08; IEEE Std C62.38-1994; IEEE Std 1613-2009 (clause 8)

Test Technology	**Test Method**
Radiated, radio-frequency, electromagnetic field	EN 61000-4-3:06 + A1:08+ A2:10; IEC 61000-4-3:06 + A1:07 + A2:10; IEEE Std 1613-2009 (clause 7)
Electrical fast transient/burst immunity test	EN 61000-4-4:04 + A1:10; IEC 61000-4-4:04 + A1:10
Surge immunity test	EN 61000-4-5:06; IEC 61000-4-5:05; IEEE Std C62.41-1991 (Combination Wave); IEEE Std 1613-2009 (clause 6)
Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6:96 + A1:01; EN 61000-4-6:07; EN 61000-4-6:09; IEC 61000-4-6:03 + A1:04 + A2:06; IEC 61000-4-6:08
Power frequency magnetic field immunity test	EN 61000-4-8:93 + A1:01; EN 61000-4-8:10; IEC 61000-4-8:93 + A1:00; IEC 61000-4-8:09
Pulse magnetic field immunity test	EN 61000-4-9:93 + A1:01; IEC 61000-4-9:93 + A1:00
Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11:04; IEC 61000-4-11:04
Voltage sag immunity	SEMI F42-0999; SEMI F47-0200; SEMI F47-0706
Power supply interface	ETS 300 132-1:96; EN 300 132-2 V2.2.2:07; EN 300 132-3 V1.2.1:03
Immunity requirements for components of fire, intruder and social alarm systems	EN 50130-4:95 + A1:98 + A2:03; EN 50130-4:11
Alarm systems - Intrusion and hold-up systems - Part 1: System requirements	EN 50131-1:06 + A1:09
Alarm systems - Intrusion systems – Part 2-2: Requirements for passive infrared detectors	EN 50131-2-2:08
Alarm systems - Intrusion systems – Part 2-4: Requirements for combined passive infrared and microwave detectors	EN 50131-2-4:08
Alarm systems - Intrusion systems – Part 2-6: Requirements for opening contacts (magnetic)	EN 50131-2-6:08; CLC/TS 50131-2-6:04
Alarm systems - Intrusion systems – Part 5-3: Requirements for interconnections equipment using radio frequency technique	EN 50131-5-3:05 + A1:08
Alarm systems - Intrusion systems - Part 6: Power supplies	EN 50131-6:08
Resistibility of telecommunication equipment	ITU-T Rec. K.20:08; ITU-T Rec. K.21:08; ITU-T Rec. K.41:98; ITU-T Rec. K.44:03; ITU-T Rec. K.44:08; ITU-T Rec. K.45:08

Test Technology	**Test Method**
Radio disturbance and immunity	CISPR 16-2-1:03 + A1:05; CISPR 16-2-1:08 + A1:10; CISPR 16-2-2:05; CISPR 16-2-2:10; CISPR 16-2-3:06; CISPR 16-2-3:10
Generic and Product Specific EMC Standards	
Industrial environments	EN 50081-2:93; EN 61000-6-4:07; IEC 61000-6-4:06 + A1:10; EN 50082-2:95; EN 61000-6-2:05; IEC 61000-6-2:05; IS 961 Part 6.1; IS 961 Part 6.2
Residential, commercial and light-industrial environments	EN 50082-1:97; EN 61000-6-1:07; IEC 61000-6-1:05; EN 50081-1:92; EN 61000-6-3:07; IEC 61000-6-3:06 + A1:10
Information technology equipment	EN 55022:98 + A1:00 + A2:03; EN 55022:06 + A1:07 + A2:10; EN 55022:10; CISPR 22:97 +A1:00 + A2:02; CISPR 22:05 + A1:05 + A2:06; CISPR 22:08; AS/NZS CISPR 22:06; AS/NZS CISPR 22:09 + A1:10; ICES-003:04; CAN/CSA-CEI/IEC CISPR 22:02 CFR 47:10 Part 15, Subpart B (using ANSI C63.4:03; ANSI C63.4:09); VCCI V-3 (up to 6 GHz); IS 961 Part 6.1; IS 961 Part 6.2; EN 55024:98 + A1:01 + A2:03; EN 55024:10; CISPR 24:97 + A1:01 + A2:02; CISPR 24:10; AS/NZS CISPR 24:02
Household appliances, electric tools and similar apparatus	EN 55014-1:00 + A1:01 + A2:02; EN 55014-1:06 + A1:09; CISPR 14-1:05 + A1:08 + A2:11; AS/NZS CISPR 14.1:03; AS/NZS CISPR 14.1:10; EN 55014-2:97 + A1:01 + A2:08; CISPR 14-2:97 + A1:01 + A2:08; AS/NZS CISPR 14.2:03
Industrial, scientific and medical equipment	EN 55011:98 + A1:99 + A2:02; EN 55011:07 + A2:07; EN 55011:09 + A1:10; CISPR 11:97 + A1:99 + A2:02; CISPR 11:03 + A1:04 + A2:06; CISPR 11:09 + A1:10; AS/NZS CISPR 11:2004; AS/NZS CISPR 11:11;

Test Technology	**Test Method**
Industrial, scientific and medical equipment (cont.)	CFR 47:10 Part 18; ICES-001:06
Electrical lighting and similar equipment	EN 55015:00 + A1:01 + A2:02; EN 55015:06 + A1:07 + A2:09; CISPR 15:05 + A1:06 + A2:08; AS/NZS CISPR 15:02; AS/NZS CISPR 15:06; EN 61547:95 + A1:00
Equipment for measurement control and laboratory use	EN 61326:97 + A1:98 + A2:01 + A3:03; EN 61326-1:06; IEC 61326-1:05
Adjustable speed electrical power drive systems	EN 61800-3:04; IEC 61800-3:04
Railway applications - Electromagnetic compatibility - Rolling stock - Apparatus	EN 50121-3-2:06
Railway applications - Electronic equipment used on rolling stock	EN 50155:07
Railway applications - Signaling and telecommunications apparatus	EN 50121-1:06
Railway applications - Electromagnetic compatibility - Part 4: Emissions and immunity of the telecommunications apparatus	EN 50121-4:00; EN 50121-4:06
Specification for semiconductor manufacturing facility electromagnetic compatibility	SEMI E33-94
Medical electrical equipment	EN 60601-1-2:93; EN 60601-1-2:01 + A1:06; EN 60601-1-2:07; IEC 60601-1-2:01 + A1:04; IEC 60601-1-2:07; CAN/CSA-C22.2 NO.60601-1-2-03 + A1:06; CAN/CSA C22.2 NO. 60601-1-2-08
Telecommunication equipment	EN 300 386 V1.3.2:03; EN 300 386 V1.3.3:05; EN 300 386 V1.4.1:08; 1TR9:01 rev. 05; 1TR9:08; GR-1089-CORE:06
Audio, video, audio-visual and entertainment lighting control apparatus for professional use	EN 55103-1:96; EN 55103-1:09; EN 55103-2:96; EN 55103-2:09
Sound and television broadcast receivers and associated equipment	EN 55013:01 + A1:03 + A2:06
Uninterruptible power supply	EN 50091-2:95
Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen	EN 50270:06
Radio equipment and services	EN 301 489-1 V1.5.1:04; EN 301 489-1 V1.6.1:05; EN 301 489-1 V1.8.1:08
Short-range devices (SRD) operating on frequencies between 9 kHz and 40 GHz	EN 301 489-3 V1.4.1:02
Fixed radio links and ancillary equipment and services	EN 301 489-4 V1.3.1:02

Test Technology	**Test Method**
Private land mobile radio (PMR) and ancillary equipment (speech and non-speech)	EN 301 489-5 V1.3.1:02
Digital enhanced cordless telecommunications (DECT) equipment	EN 301 489-6 V1.3.1:08
Mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)	EN 301 489-7 V1.3.1:05
GSM base stations	EN 301 489-8 V1.2.1:02
Analogue cellular radio communications equipment, mobile and portable	EN 301 489-16 V1.2.1:02
2.4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment	EN 301 489-17 V1.3.2:08
Terrestrial trunked radio (TETRA) equipment	EN 301 489-18 V1.3.1:02
EMC Tests - Automotive/Vehicle	
Automotive/vehicle, vehicles, motorboats and spark-ignited engine-driven devices	EN 55012:07 + A1:09; CISPR 12:97; CISPR 12:07 + A1:09; AS/NZS CISPR 12:09
Limits and methods of measurement of radio disturbance characteristics for the protection of receivers used on board vehicle	EN 55025:08; CISPR 25:08; AS/NZS CISPR 25:10
Road vehicles	ISO 7637-1:02 + A1:08; ISO 7637-2:04 + A1:08; ISO 7637-3:95; ISO 7637-3:07; ISO 11452-1:05; ISO 11452-2:04; ISO 11452-4:05
Vehicles, boats (up to 15 m), and machines (*except aircraft*), vehicle components, receivers used on board vehicles	SAE J1113-1:06; SAE J1113-2:04; SAE J1113-4:04; SAE J1113-11:07; SAE J1113-12:06; SAE J1113-13:04; SAE J1113-21:05; SAE J1113-22:03; SAE J1113-41:06; SAE J1113-42:06
Other EMC Tests	
Military and airborne equipment	MIL-STD 461 A/B/C: RE01, RE02, CE01, CE03, CE06, CE07, RS01, RS02, RS03, CS01, CS02, CS03, CS04, CS05, CS06, CS07, CS09; MIL-STD 461 D/E/F: RE101, RE102, RE103,CE101, CE102, CE106, CS101,CS103, CS104, CS105, CS106, CS109, CS114, CS115, CS116, RS101, RS103; MIL-STD 462; MIL-STD 462D; MIL-STD 704 A/B/C/D/E/F; MIL-STD 1275 A/B/C/D; MIL-STD 285; RTCA/DO-160D:97 + change 1:00 + change 2:01 + change 3:02; RTCA/DO-160E:04; RTCA/DO-160F:07; RTCA DO-160G:10
Telecommunication Tests	
Specification of terminal equipment interconnected to the analog public telephone network requirements for type approval	Israeli MoC Spec. 23/96

Test Technology	**Test Method**
Analogue interworking and non-interference requirements for customer equipment for connection to the public switched telephone network	AS/ACIF S002:05; AS/CA S002:2010
Specification PTC 200 requirements for analogue telecommunications equipment	PTC 200:2006
Requirement for private voice networks connected to the PSTN/ISDN (New Zealand)	PTC 220:2008
Access and terminals (AT); Harmonized basic attachment requirements for terminals for connection to analogue interfaces of the telephone networks; Update of the technical contents of TBR 021, EN 301 437, TBR 015, TBR 017; Part 1: General aspects Part 2: Basic transmission and protection of the network from harm Part 3: Basic interworking with the public telephone networks	 ETSI ES 203 021-1:05; ETSI ES 203 021-2:06; ETSI ES 203 021-3:06
Speech and multimedia transmission quality (STQ); Requirements and tests methods for terminal equipment incorporating a handset when connected to the analogue interface of the PSTN	ETSI ES 203 038 V1.1.1 (2009-04)
Terminal equipment (TE); Attachment requirements for Pan-European approval for connection to the analogue public switched telephone networks (PSTNs) of TE (*excluding TE supporting the voice telephony service*) in which network addressing, if provided, is by means of dual tone multi frequency (DTMF) signaling	TBR21:98 (History)
A guide to the application of TBR 21	ETSI EG 201 121 V 1.1.3:00
Technical specification for terminal equipment connected to the public switched telephone network (PSTN) (Singapore)	IDA TS PSTN Issue 1, Rev 1, Mar 2007
Network connection specification for connection of customer premises equipment (CPE) to direct exchange lines (DEL) of the public switched telephone network (PSTN) in Hong Kong	HKTA 2011:09
Technical specifications for terminal equipment for connection to public switched telephone network in Taiwan	PSTN01:03
Standards specification for telecommunication-line terminal equipment for connection to the public switched telecommunication network (South Africa)	DPT -TE-001, Issue 5 (November 2006)
Connection of Terminal Equipment to the Telephone Network	47 CFR Part 68:10
Hearing aid compatibility: Magnetic field intensity criteria for telephone compatibility with hearing aids: technical requirements.	FCC 68.316 HAC
Hearing aid compatibility volume control: technical standards	FCC 68.317 HAC volume control

Test Technology	**Test Method**
Registered terminal equipment with automatic dialing capability	FCC 68.318 automatic dialing
Technical requirements for connection of terminal equipment to the telephone network	ANSI/TIA-968-A:02; ANSI/TIA-968-A -1:03; ANSI/TIA-968-A -2:04; ANSI/TIA-968-A -3:04; ANSI/TIA-968-A -4:06; ANSI/TIA-968-A -5:07
Telecommunications telephone terminal equipment technical requirements for connection of terminal equipment to the telephone network	ANSI/TIA-968-B:09
Requirements for terminal equipment (TE) and related access arrangements intended for direct connection to analogue wireline facilities	CS-03 Part I, Issue 9, Amendment 4, December 2010
Requirements for terminal equipment intended for connection to 1.544 Mbps (DS-1) digital facilities	CS-03 Part II, Issue 9, November 2004
Requirements and test methods for magnetic output from handset telephones for hearing aid coupling and for receive volume control	CS-03 Part V, Issue 9, Amendment 1, January 2009
Requirements for ISDN terminal equipment	CS-03, Part VI, Issue 9, November 2004
Requirements and tests methods for digital subscriber line (xDSL) terminal equipment	CS-03, Part VIII, Issue 9, Amendment 4, May 2009
Customer switching, multiplexing and ancillary equipment for connection to a telecommunications network	AS/ACIF S003:08
Requirements for customer access equipment for connection to telecommunications network - Part 1: General Part 2: Analogue and TDM based technologies Part 3: Packet and cell based technology	 AS/CA S003.1:10; AS/CA S003.2:10; AS/CA S003.3:10
Voice frequency performance requirements for customer equipment	AS/ACIF S004:08
General requirements for customer equipment connected to hierarchical digital interfaces	AS/ACIF S016:01
Requirements for ISDN Primary Rate Access Interface. Australian Standard	AS/ACIF S038:2001
Requirements for customer equipment for use with the standard telephone service — Features for special needs of persons with disabilities	AS/ACIF S040:01
Requirements for DSL customer equipment for connection to the public switched telephone network, Part 1: General	AS/ACIF S041.1:09
Requirements for DSL customer equipment for connection to the public switched telephone network, Part 2: Modems for use in connection with all DSL services	AS/ACIF S041.2:09
Requirements for customer equipment for connection to a metallic local loop interface of a telecommunications network, Part 1: General	AS/ACIF S043.1:03
Requirements for customer equipment for connection to a metallic local loop interface of a telecommunications network – Broadband	AS/ACIF S043.2:05; AS/ACIF S043.2:08

Test Technology	**Test Method**
Terminal equipment (TE); Attachment requirements for Pan-European approval for connection to the analogue public switched telephone networks (PSTNs) of TE supporting the voice telephony service in which network addressing, if provided, is by means of dual tone multi frequency (DTMF) signaling	ETSI EN 301 437 V1.1.1:99
Integrated services digital network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary rate access	TBR 004 edition 1:95 + A1:97
Digital enhanced cordless telecommunication (DECT); General terminal attachment requirements; Telephony applications	TBR 10:1999
Business telecommunications (BT); Open network provision (ONP) technical requirements; 2048 kbit/s digital unstructured leased line (D2048U); Attachment requirements for terminal equipment interface	TBR 012 edition 1:93 + A1:96
Business telecommunications (BTC); 2048 kbit/s digital structured leased lines (D2048S); Attachment requirements for terminal equipment interface	TBR 013 edition 1:96
Business telecommunications (BTC); Ordinary and special quality voice bandwidth 2-wire analogue leased lines (A2O and A2S); Attachment requirements for terminal equipment interface	TBR 15:97
Business telecommunications (BTC); Ordinary and special quality voice bandwidth 4-wire analogue leased lines (A4O and A4S); Attachment requirements for terminal equipment interface	TBR 17:97
Public switched telephone network (PSTN); Attachment requirements for a terminal equipment incorporating an analogue handset function capable of supporting the justified case service when connected to the analogue interface of the PSTN in Europe	TBR 38 edition 1:98
Transmission and multiplexing (TM); Access transmission systems on metallic access cables; Very high speed digital subscriber line (VDSL); Part 1: Functional requirements	ETSI TS 101 270-1 V1.4.1:05
Telecommunications and internet protocol harmonization over networks (TIPHON) technology compliance specification; Draft IETF SIP RFC 3261; Part 2: Abstract test suite (ATS) and partial protocol implementation extra information for testing (PIXIT) performance specification	ETSI TS 102 027 V2.1.1:03;
Transmission and multiplexing (TM); Access transmission system on metallic access cables; Asymmetric digital subscriber line (ADSL) - European specific requirements	ETSI TS 101 388 V1.4.1:07

Test Technology	**Test Method**
Access and terminals (AT); Short message service (SMS) for PSTN/ISDN; Short message communication between a fixed network short message terminal equipment and a short message service centre	ETSI ES 201 912:02
Technical specification for asymmetric digital subscriber line modems	IDA TS ADSL Issue 1, Rev 1, April 2006
Blue Book and Green Book (Analog and Digital)	JATE
Network connection specification for connection of customer premises equipment (CPE) to the public telecommunications networks (PTN) in Hong Kong over digital trunk at 1544 kbit/s at using DTMF signaling	HKTA 2017:03
Access and terminal (AT); Analogue access to the public switched telephone network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 1: On-hook data transmission	ETSI EN 300 659-1 V1.3.1 (2001-01) (CID)
Asymmetric digital subscriber line terminal equipment and POTS splitter technical specifications (Taiwan)	ADSL01 (Sep 24, 2004)
Official Mexican standard project PROY-NOM-152-SCT1-1999, Digital Interface to Public Networks (Digital interface at 2048 kbit/s).	PROY-NOM -152-SCT1-1999
Telecommunication industry standard of PRC (China)	YDT 514-1:98
The specifications of automatic telephone set (China)	GB/T 15279-2002
Digital terminal equipments - General Physical/electrical characteristics of hierarchical digital interfaces	ITU-T G.703:01
Digital networks - The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy	ITU-T G.823:00
Transmission characteristics for cordless and mobile digital terminals	ITU-T P 313:99
Transmission characteristics and speech quality parameters of hands-free terminals	ITU-T P 340:00
Telecommunications telephone terminal equipment transmission requirements for narrowband voice-over IP and voice-over PCM digital wireline telephones	ANSI/TIA/EIA-810-A:2000
Telecommunications telephone terminal equipment transmission requirements for narrowband digital telephones	ANSI/TIA-810-B:06
Telecommunications telephone terminal equipment handset acoustic performance requirements for analog telephones	ANSI/TIA-470.110-C:07
Telecommunications telephone terminal equipment hands-free acoustic performance requirements working meeting document	ANSI/TIA-470.120-C (11.2004)

Test Technology	**Test Method**
Telecommunications telephone terminal equipment transmission requirements for wideband digital wireline telephones	TIA-920:2002
Series G: Transmission systems and media, digital systems and networks	ITU-T G.991.2 (09/2005); ITU-T G.992.1 (03/2003); ITU-T G.992.3 (06/2008); ITU-T G992.5 (06/2008); ITU-T G.993.1 (06-2004); ITU-T G.993.2 (02-2006)
Technical requirements for telephone terminal equipment	CNC-St2-44.01 V02.1.1:2003
Minimum requirements for certification of terminal equipment with analog interfacing form the public telephone network	NET 001/92 (Analog TE, Brazil, Dir. 322)
User interface-network, and public switched telephone service terminal regulation	Attachment to Resolution No. 392, February 17, 2005
Electro-acoustic recommended minimum performance specification for cdma2000 mobile stations	3GPP2 C.S0056-0 v1.0:05
Digital cellular telecommunications system (Phase 2+): Transmission planning aspects of the speech service in the GSM public land mobile network (PLMN) system (GSM 03.50, version 8.1.1, release 1999)	ETSI EN 300 903 V8.1.1:00
Universal mobile telecommunications system (UMTS); LTE; Terminal acoustic characteristics for telephony; Requirements (3GPP TS 26.131, version 9.3.0, release 9)	ETSI TS 126 131 V9.3.0 (2010-04)
Digital cellular telecommunications system (Phase 2+); Mobile station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1, version 8.1.0, release 8)	ETSI TS 151 010-1 V8.1.0 (2009-05) (Section 30 only, e*xcluding 30.19*)
Electro-acoustic recommended minimum performance specification for cdma2000 mobile station	TIA-1042:05
Series P: Telephone transmission quality, Telephone installation, Local line networks. Transmission characteristics for telephone band (300-3,400 Hz) digital loudspeaking and hands-free telephony terminals	ITU-T P.342:00
Telecommunications telephone terminal equipment transmission requirements for wideband digital wireline telephones. Approved: December 2002, Considering SP-3-4705-RV1 (to become ANSI/TIA-920-A) Feb. 2008	ANSI/TIA-920-A
Series T: Terminals for telematic services; Procedures for document facsimile transmission in the general switched telephone network Facsimile - Group 3 protocols procedures for real-time Group 3 facsimile communication over IP networks	ITU-T T.30 (09/2005) ITU-T T.38 (04/2007)

Test Technology	**Test Method**
Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids. December 1994	ETSI ETS 300 381 (1994-12)
Series P: Coupling hearing aids to telephone sets	ITU-T P.370 (08/1996)
Series P: Telephone transmission quality, Telephone installations, Local line networks; Methods for objective and subjective assessment of quality perceptual evaluation of speech quality (PESQ): An objective method for end-to-end speech quality assessment of narrow-band telephone networks and speech codecs mapping function for transforming P.862 raw result scores to MOS-LQO	ITU-T P.862 (02/2001), P.862.1 (11/2003)
Series Q: Switching and Signaling; Transmission characteristics at 2-wire analogue interfaces of digital exchanges	ITU-T Q.552 (2001, 2-wire analog interface of dig. exch.)
Technical Requirements for Telecommunication Terminal Equipment. (Korea)	MIC Notification No. 2004-15
NTC Philippines Type Approval Specification For Corded Telephone, Corded Phone with Caller ID and Corded Phone with Short Message Service (SMS) For Connection to Public Switched Telephone Network. (Philippines)	NTC TES 1:2004
NTC Philippines Type Approval Specification For Facsimile and Answering Machines For Connection to Public Switched Telephone Network. (Philippines)	NTC TES 4:2004
Technical specification for terminal equipment connecting to the public switched telephone network (pstn). (Malaysia)	SKMM FTS PSTN, Rev. 1.01:2007
Group 3 Fax Machine/Card Interface Requirements No. IR/FAX-01/04.SEP.2002. (India)	IR/FAX-01/04:2002
Regulation For Interface User – Network And Terminals Of Switched Fixed Telephone Service. (Brazil)	Resolution No.473:2007
Product Safety Tests	
Information technology equipment	EN 60950:00; IEC 60950:99; UL 60950: 3rd edition; CAN/CSA-C22.2 No.60950-03; AS/NZS 60950:00 + A1:03; IS 1121:98; EN 60950-1:01 + A11:04; IEC 60950-1:01; EN 60950-1:06 + A11:09 + A1:10 + A12:11; IEC 60950-1:05+A1:09; UL 60950-1: 2nd edition; CAN/CSA-C22.2 No. 60950-1:07; AS/NZS 60950.1:03 + A1:06 + A2:08 + A3:08; IS 60950 Part 1:03; EN 60950-21:03; IEC 60950-21:02; UL 60950-21: 1st edition;

Test Technology	**Test Method**
Information technology equipment (cont.)	EN 60950-22:06 + A11:08; IEC 60950-22:05; UL 60950-22: 1st edition; UL 50: 12th edition
Equipment to be connected to telecommunication network	EN 41003:99
Audio, video and similar electronic apparatus	EN 60065:02 + A1:06 + A11:08 + A2:10; IEC 60065:01 + A1:05 + A2:10; UL 60065: 7th edition; AS/NZS 60065:03 + A1:08
Household and similar electrical appliances	EN 60335-1:02 + A1:04 + A11:04 + A12:06 + A2:06+A13:08 +A14:10 + A15:11; IEC 60335-1: 01 + A1:04 + A2:06; AS/NZS 60335.1:02 + A1:04 + A2:07 + A3:07; UL 60335-1: 4th edition; IEC 62301:05; SI 900:94; SI 900 Part 1:05; SI 900 2.23:09; SI 900 2.08:01; EN 60335-2-2:2003 + A1:04 + A2:06; IEC 60335-2-2:2002 + A1 :04 + A2:06; EN 60335-2-6:2003 + A1:05; IEC 60335-2-6:2002 + A1:04; EN 60335-2-17:2002 + A1:06; IEC 60335-2-17:2002 + A1:06; EN 60335-2-23:2003; IEC 60335-2-23:2003; EN 60335-2-24:2002 + A11:04 + A1:05 + A2:07; IEC 60335-2-24:2002 + A1:05 + A2:07; EN 60335-2-36:2002 + A1:04 + A2:08; IEC 60335-2-36:2002 +A1:04 + A2:08; EN 60335-2-41:2003 + A1:04; IEC 60335-2-41:2002 + A1:04; EN 60335-2-60:2003 + A1:05; IEC 60335-2-60:2002 + A1:04; EN 60335-2-75:2004 + A1:05 + A2:08; IEC 60335-2-75:2002 + A1:04 + A11:06 + A2:08; EN 60335-2-96:2002 + A1:04; IEC 60335-2-96:2002 + A1:03
Electrical equipment for measurement, control, and laboratory use	EN 61010-1:01; IEC 61010-1:01 + Corr1:02 + Corr2:03; UL 61010-1: 2nd edition; EN 61010-1:10; IEC 61010-1:10; UL 61010A-1: 1st edition; UL 61010B-1: 1st edition; UL 61010C-1; CAN/CSA-C22.2 No. 61010-1:04; AS 61010.1:03; IS 61010 Part 1:02; UL 61010-031: 1st edition;

Test Technology	**Test Method**
In-Vitro diagnostic (IVD) medical equipment	UL 61010A-2-041: 1st edition: EN 61010-2-010:03; IEC 61010-2-010:03; EN 61010-2-030:10; IEC 61010-2-030:10; EN 61010-2-040:05; IEC 61010-2-040:05; EN 61010-2-101:02; IEC 61010-2-101:02
Automatic electrical controls for household and similar use	EN 60730-1:00 + A1:04 + A12:03 + A13:04 + A14:05 + A15:07; UL 60730-1A:02; EN 60730-2-8:95 + A1:97 + A2:97; EN 60730-2-9 + A1:96 + A11:97 + A2:97
Laser products	EN 60825-1:94 + A1:02 + A2:01; IEC 60825-1:93 + A1:97 + A2:01; EN 60825-1:07 ; IEC 60825-1:07; EN 60825-2:04 + A1:07; IEC 60825-2:04 + A1:06; 21 CFR 1040
Sealing, wrapping, and marking equipment power units	UL 963: 2nd edition
Swimming pool pumps, filters, and chlorinators	UL 1081: 6th edition (*excluding clauses 38 and 44*)
Power units other than Class 2	UL 1012: 7th edition
Burglar-alarm systems, household burglar-alarm system units	UL 365: 4th edition; UL 603: 5th edition; UL 609: 11th edition; UL1023: 6th edition; UL 1076: 5th edition; UL 1610: 3rd edition; UL 1637: 4th edition
Alarm units and systems	UL 636: 10th edition; UL 985: 5th edition; UL 1635: 3rd edition
Intrusion-detection units	UL 639: 8th edition
Antitheft alarms and devices	UL 1037: 5th edition
Luminaries - Part 1: General requirements and tests	EN 60598-1:00 + A11:00 + A12:02; IEC 60598-1:99; EN 60598-1:04 + A1:06; IEC 60598-1:03 + A1:06;
Luminaires - Part 2: Fixed general purpose luminaires	EN 60598-2-1:89; IEC 60598-2-1:79 + A1:87

Test Technology	**Test Method**
Medical electrical equipment	EN 60601-1:90 + A1:93 + A11:93 + A12:93 + A2:95 + A13:96; IEC 60601-1:88 + A1:91 + A2:95; UL 60601-1: 1st edition; EN 60601-1:06; IEC 60601-1:05; EN 60601-1-1:01; IEC 60601-1-1:00; EN 60601-1-3:94; IEC 60601-1-3:94; EN 60601-1-4:96 + A1:99; IEC 60601-1-4:96 + A1:99; IEC 60601-1-8:06;
Selected clauses	EN 60601-2-2:07 (selected clauses);
Selected clauses (19.1, 19.2, 20.3, 20.4, 42, 43, 44, 52.201, 57.10)	IEC 60601-2-2 (2nd edition, 3rd edition); IEC 60601-2-2:06 (selected clauses); EN 60601-2-10:00 + A1:01; IEC 60601-2-10:87 + A1:01; EN 60601-2-12:06; IEC 60601-2-12:01; EN 60601-2-18:96 + A1:00; IEC 60601-2-18:96 + A1:00; EN 60601-2-19:96 + A1:96; IEC 60601-2-19:90 + A1:96; EN 60601-2-22:96; IEC 60601-2-22:95; EN 60601-2-23:00; IEC 60601-2-23:99; EN 60601-2-24:98; IEC 60601-2-24:98; EN 60601-2-25:95 + A1:99; IEC 60601-2-25:93 + A1:99; EN 60601-2-27:94; EN 60601-2-27:06; IEC 60601-2-27:94; IEC 60601-2-27:05; EN 60601-2-30:00; IEC 60601-2-30:99; EN 60601-2-32:94; IEC 60601-2-32:94; EN 60601-2-34:00; IEC 60601-2-34:00; EN 60601-2-35:96; IEC 60601-2-35:96;
(evaluation of the customer protocols) (evaluation of the customer protocols) (evaluation of the customer protocols)	EN 60601-2-37:01 + A1:05 + A2:05; EN 60601-2-37:08; IEC 60601-2-37:07; EN 60601-2-38:96 + A1:00; IEC 60601-2-38:96 + A1:99

Test Technology	**Test Method**
Lung ventilators, pulse oximeters	EN 794-1:97 + A2:09; EN 865:97; ISO 10651-1:93; ISO 10651-2:04; ISO 10651-3:97; IEC 60601-2-12:01; EN 60601-2-12:06; EN/ISO 9919:05; EN/ISO 9919:09; ASTM F1415:00
Electrical apparatus for potentially explosive atmospheres	EN 60079-0:04; EN 50020:02
Safety of machinery	EN 60204-1:98; EN 60204-1:06 +A1:09; IEC 60204-1:05 +A1:08; EN ISO 12100-1:03+A1:09; EN ISO 12100-2:03+A1:09; EN 1037:95 + A1:08; EN 1088:95 + A1:07; EN 1837:99; EN ISO 13857:08; EN ISO 7731:05; EN 547-1:96; EN 547-2:96; EN 547-3:96; EN 563:94 + A1:99; EN 61310-1:95; EN 61310-2:95; EN 61310-3:99; EN 614-1:06 + A1:09; EN 614-2:00; EN 842:96; EN 894-1:97; EN 894-2:97; EN 983:96+A1:08, EN 4414:10; EN 999:98; EN ISO 7250:98; EN 953:97; EN 981:96; EN 982:96+A1:08; EN 4413:10
Electronic equipment for use in power installations	EN 50178:97
Semiconductor manufacturing equipment	SEMI S2-0200E; SEMI S2-0706; SEMI S8-0701; SEMI S9-1101; SEMI S14; SEMI S10; SEMI S22; SEMI S23-0705
Alarm System Performance Testing	
Alarm systems - Part 5: Environmental test methods	EN 50130-5:98 EN 50130-5:11
Alarm systems - Intrusion and hold-up systems - Part 1: System requirements	EN 50131-1:06+A1:09
Alarm systems - Intrusion systems - Part 2-2: Requirements for passive infrared detectors	EN 50131-2-2:08; CLC/TS 50131-2-2:08
Alarm systems - Intrusion systems - Part 2-3: Requirements for microwave detectors	EN 50131-2-3:08; CLC/TS 50131-2-3:04
Alarm systems - Intrusion systems - Part 2-4: Requirements for combined passive infrared and microwave detectors	EN 50131-2-4:08; CLC/TS 50131-2-4:04
Alarm systems - Intrusion systems - Part 2-5: Requirements for combined passive infrared and ultrasonic detectors	EN 50131-2-5:08; CLC/TS 50131-2-5:04
Alarm systems - Intrusion systems - Part 2-6: Requirements for opening contacts (magnetic)	EN 50131-2-6:08; CLC/TS 50131-2-6:04
Alarm systems - Intrusion systems - Part 3: Control and indicating equipment	EN 50131-3:09; CLC/TS 50131-3:2003

Test Technology	**Test Method**
Alarm systems - Intrusion systems - Part 4: Warning devices	EN 50131-4:09; CLC/TS 50131-4:06
Alarm systems - Intrusion systems - Part 5-3: Requirements for interconnections equipment using radio frequency techniques	EN 50131-5-3:05 + A1:08
Alarm systems - Intrusion systems - Part 6: Power supplies	EN 50131-6:98; EN 50131-6:08
Alarm systems - Intrusion systems - Part 7: Application guidelines	CLC/TS 50131-7:03; CLC/TS 50131-7:08
Alarm systems - Alarm transmission systems and equipment	EN 50136-1-1:98 + A1:01 + A2:08; EN 50136-2-1:98 + A1:01; EN 50136-2-3:98; EN 50136-2-4:98
Alarm systems - Social alarm systems - Part 2: Trigger devices	EN 50134-2:99
Alarm systems - Social alarm systems - Part 3: Local unit and controller	EN 50134-3:01
On-Site testing* (Customer Facility)	IEEE STD 299:97; IEEE STD 299:06; MIL-STD 285; ANSI/IEEE C95.1-1991; IEEE Std C95.1-2005; SS 436 14 90; ENV 50166-1; ENV 50166-2; EN 50364:01; EN 50371:02; EN 50131-2-2:08, para. 6.4; EN 50131-2-4:08, para. 6.4; EN 50131-2-5:08, para. 6.4; SEMI S2-0200E; SEMI S8-0701; SEMI S9-1101; SEMI S10; SEMI S14; SEMI S22; IEC/EN/UL 60950-1 (*except 2.9.2, 4.6.5 clauses*); IEC/EN 60335-1 (*except 15.3 clause*); IEC/EN 60601-1 (*except 44.5 clause*); IEC/EN 61010-1 (*except 6.8.2 clause*); IEC/EN 60204 (*except 4.4.4 clause*)

* This laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these tests.

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Electrical Testing

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Presented this 20th day of June 2011.

President & CEO
For the Accreditation Council
Certificate Number 0839.01
Valid to May 31, 2013

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