



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY FREMONT NEWARK

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ELECTRICAL

Valid to: September 30, 2025

Certificate Number: 214.26

In recognition of the successful completion of the A2LA evaluation process accreditation is granted to this laboratory listed above, *as well as the 2 satellite laboratories listed below*, to perform the following electromagnetic compatibility, NEBS, radio, wireless, telecom and energy producing/measuring devices, and product safety tests:

Test:

Test Method(s):

Emissions

Radiated & Conducted
(3, 5 & 10 meter Semi-anechoic
chambers)

Code of Federal Regulation (CFR) 47, FCC Part 15B
(using ANSI C63.4:2014);
FCC Part 18 (using FCC MP-5:1986);
EN 55011; KS C 9811; CISPR 11;
AS/NZS CISPR 11; BS EN 55011;
ICES-001; KS C 9832 (*excluding Annex H*);
EN 55032 (*excluding Annex H*);
CISPR 32 (*excluding Annex H*);
AS/NZS CISPR 32 (*excluding Annex H*);
BS EN 55032 (*excluding Annex H*);
ICES-003; CNS 13438 (*up to 6 GHz*);
CNS 15936:2016 (*excluding Annex H*);
VCCI-CISPR 32:2016 (*excluding Annex H*);
ICES-005; ICES-006;
SI 961 Part 32; IFT-008-2015;
QCVN 118:2018/BTTTT

Current Harmonics

EN IEC 61000-3-2; IEC 61000-3-2;
KS C 9610-3-2; AS/NZS 61000-3-2; BS EN 61000-3-3

Voltage Fluctuations

EN 61000-3-3; IEC 61000-3-3;
KS C 9610-3-3; AS/NZS 61000-3-3; BS EN 61000-3-3

Immunity

Electrostatic Discharge (ESD)

EN 61000-4-2; IEC 61000-4-2; KS C 9610-4-2

Radiated Immunity

EN 61000-4-3; IEC 61000-4-3; KS C 9610-4-3

Electrical Fast Transient/Burst

EN 61000-4-4; IEC 61000-4-4; KS C 9610-4-4

Surge Immunity

EN 61000-4-5; IEC 61000-4-5; KS C 9610-4-5

Test:**Test Method(s):*****Immunity (continued)***

Conducted Immunity

EN 61000-4-6; IEC 61000-4-6; KS C 9610-4-6

Power Frequency Magnetic Field Immunity

EN 61000-4-8; IEC 61000-4-8; KS C 9610-4-8

Pulse Magnetic Field Immunity

EN 61000-4-9; IEC 61000-4-9

Voltage Dips, Short Interruptions, and Line Voltage Variations

EN 61000-4-11; IEC 61000-4-11;
KS C 9610-4-11

Radiated fields in close proximity - Immunity test 9 kHz to 26 MHz.

EN IEC 61000-4-39; IEC 61000-4-39

Generic and Product Family Standards

IEEE 1613; IEEE 1613a; IEC 60533; IEC 61850-3;
BS EN 61850-3;
IEEE 37.90.1; IEC 60092-504 (*Section 5: Table 1, Items 4a, 4b, 5, 11a & 11b only*);
EN 61000-6-1; IEC 61000-6-1; BS EN 61000-6-1;
KS C 9610-6-1; EN 61000-6-2; IEC 61000-6-2;
BS EN 61000-6-2; KS C 9610-6-2;
EN 61000-6-3; IEC 61000-6-3; BS EN 61000-6-3;
KS C 9610-6-3; AS/NZS 61000.6.3;
EN 61000-6-4; IEC 61000-6-4; BS EN 61000-6-4;
KS C 9610-6-4; AS/NZS 61000.6.4; IEC 61000-6-5;
EN 61000-6-5;
EN 50121-1; BS EN 50121-1; EN 50121-3-2;
BS EN 50121-3-2; EN 50121-4; BS EN 50121-4;
IEC 62236-4;
EN 50155; EN 55013; KN 13;
EN 55020 (*only for audio/video equipment without tuner*);
KN 20 (*only for audio/video equipment without tuner*);
EN 50130-4; EN 55014-1 (*excluding click measurement*);
CISPR 14-1 (*excluding click measurement*);
KS C 9814-1 (*excluding click measurement*);
CISPR 14-2; KS C 9814-2; EN 55014-2; EN 55103-1;
EN 55103-2;
CISPR 35 (*excluding Annex A, D, F.4, G*);
KS C 9835 (*excluding Annex A, D, F.4, G*);
EN 55035(*excluding Annex A, D, F.4, G*);
BS EN 55035(*excluding Annex A, D, F.4, G*);
SI 961 Part 35 (*excluding Annex A, D, F.4, G*); EN 61326-1;
IEC 61326-1;
EN IEC 61326-1; BS EN 61326-1;
BS EN IEC 61326-1; IEC 61326-2-1; EN 61326-2-1;
EN IEC 61326-2-1; BS EN 61326-2-1; BS EN IEC 61326-2-1;
IEC 61326-2-3; EN 61326-2.3; EN IEC 61326-2-1;
BS EN 61326-2-3; BS EN IEC 61326-2-3; EN 61326-2-6;
BS EN IEC 61326-2-6; IEC 61326-3-1; EN 61326-3-1;
BS EN 61326-3-1

Test:

Generic and Product Family
Standards (*cont.*)

Technical Regulations for the
Republic of Korea

Network Equipment Building
Systems (NEBS)

Network Equipment and Power
Grounding, Environmental, and
Physical Design Requirements

Automotive EMC

Radiated & Conducted Emissions

Radiated Immunity (ALSE)

Bulk current injection (BCI)

Direct RF Power Injection

Immunity to Magnetic Fields

Portable Transmitter

Immunity to Conducted
Disturbances in the Extended Audio
Frequency Range

Test Method(s):

IEC 60601-1-2; EN 60601-1-2; KS C IEC 60601-1-2;
IEC TR 60601-4-2;
EN 60601-2-2 (*Section 202 only*);
EN 60601-2-10 (*Section 202 only*);
EN 60601-2-18 (*Section 202 only*);
EN 60601-2-22 (*Section 201.17 only*);
EN 60601-2-24 (*Section 202 only*);
AS/NZS 3200.1.2; ISO 15197 (*Section 6.4 only*);
EN 301 437; EN 300 386; BS EN 300 386; EN 301 449
(4.2.2.2.2, 4.2.2.2.3, 4.2.3, 4.2.4, 4.2.5, 4.2.6, and 4.2.7 only);
ETSI EN 300 132-2; ETSI EN 300 132-3;
EU-ITU-T: K.20 (*except 2.1.5, 2.1.6, 2.2 above 600V, 4.2
above 600V, 5.1.2 & 5.2.2 above 600V*), K.21 (*except 2.1.5,
2.1.6, 2.2 above 600V, 4.1.5, 4.2 above 600V, and 5.1.2 &
5.2.2 above 600V*);
British Telecommunications Standard GS7;
Deutsche Telekom EMC Specification 1 TR 9;
ANATEL Resolution 442;
Enforcement Decree of MSIT NO. 1, July 26, 2017;

KS X 3123; KS X 3143

Telcordia GR-1089-CORE, (*Sections 1, 2, 3, 4 (excluding
4.6.1.3.2 and 4.6.2.1.2.2A), 7, 9, and 10 only*);
ATIS-0600315.01

AT&T ATT-TP-76200 (*excluding Section 2.7*)

CISPR 25 (*sections 6.3, 6.4, 6.5 only*)

ISO 11452-2; ISO 13766-1;
ISO 13766-2;
ISO 14982

ISO 11452-4 (*excluding TWC method*); ISO 13766-1;
ISO 13766-2

ISO 11452-7

ISO 11452-8

ISO 11452-9

ISO 11452-10

Test:

Test Method(s):

Automotive EMC (cont.)

ESD

ISO 10605 (*excluding clause 10 vehicle test method*);
ISO 13766-1;
ISO 13766-2;
ISO 14982

Conducted Transient Immunity
Broadband & Narrowband
Emissions

ISO 7637-2; ISO 7637-3; ISO 13766-1; ISO 13766-2;
ISO 14982

Wireless (*Excluding HAC & SAR*)

ANSI/TIA 603-E; EN 300-113; EN 300 220-1; EN 300 220-2;
EN 300 220-3; EN 300 220-4; EN 300 328; EN 300 330;
EN 300 440; EN 300 761-1; EN 300 761-2; EN 301-357;
EN 301 839; EN 301 893; EN 301 489-1 to -6; EN 301 489-9;
EN 301 489-12; EN 301 489-13; EN 301 489-15;
EN 301 489-17; EN 301 489-19; EN 301 489-20;
EN 301 489-22; EN 301 489-27 to -29; EN 301 489-31;
EN 301 489-33 to -35; EN 301 489-50; EN 301 489-51;
EN 301 489-52; EN 301 489-53; EN 301 511; EN 301 908-1;
EN 301 908-5; EN 303 413; ETSI ES 201 468; ES 203 021;
BS 301 489-1; BS EN 301 489-34; KS X 3124; KS X 3125;
KN 301 489-7; KS X 3126; KN 301 489-24; KS X 3134;
EN 302 208; EN 302 291; EN 302 502;
AS/NZS 4268; NOM-121-SCTI-2009;
LP0002 Low-power Radio-frequency Devices Technical
Regulations Issue July, 2020;
QCVN 18:2014/BTTTT;
QCVN 47:2015/BTTTT; QCVN 55:2023/BTTTT;
QCVN 73:2013/BTTTT; QCVN 74:2020/BTTTT;
QCVN 88:2015/BTTTT; QCVN 94:2015/BTTTT;
QCVN 95:2015/BTTTT; QCVN 96:2015/BTTTT;
QCVN 54:2020/BTTTT; QCVN 65:2021/BTTTT;
TCN 68.242:2006; ANATEL Resolution 506

Industry Canada Radio Standards
Specifications (RSS) in Category I
Equipment Standards List (*Excluding
HAC & SAR*)

RSS-GEN; RSS-102 measurement (RF Exp);
RSS-111; RSS-112; RSS-117; RSS-119; RSS-123; RSS-125;
RSS-127; RSS-130; RSS-131; RSS-132; RSS-133; RSS-134;
RSS-135; RSS-137; RSS-139; RSS-140; RSS-141; RSS-142;
RSS-170; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197;
RSS-198; RSS-199; RSS-210; RSS-215; RSS-216; RSS-236;
RSS-243; RSS-244; RSS-246; RSS-247; RSS-248; RSS-310

Intentional and Unintentional
Radiators to FCC Regulations,
up to 200 GHz (*Excluding HAC &
SAR*)

47 CFR (FCC Rules) Parts 2 and 11;
47 CFR (FCC Rules) Part 15B (using ANSI C63.4:2014);
47 CFR (FCC Rules) Part 15C (using ANSI C63.10:2013);
47 CFR (FCC Rules) Part 15D (using ANSI C63.17:2013);
47 CFR (FCC Rules) Part 15E (using ANSI C63.10:2013);
FCC KDB 789033, FCC KDB 905462 D01 (v01));
47 CFR (FCC Rules) Part 15F (using ANSI C63.10:2013)

Test:

Intentional and Unintentional Radiators to FCC Regulations, up to 200 GHz (*Excluding HAC & SAR*) (*cont.*)

Test Method(s):

47 CFR (FCC Rules) Part 15G (using ANSI C63.10:2013);
47 CFR (FCC Rules) Part 15H (using ANSI C63.10:2013);
47 CFR (FCC Rules) Part 18 (using FCC MP-5:1986);
47 CFR (FCC Rules) Part 20 (signal boosters) (using ANSI C63.26:2015);
47 CFR (FCC Rules) Parts 22 (cellular and non-cellular), 24, 25, 27, 73, 74, 80, 87, 90, 95, 96, 97 and 101 (using ANSI/TIA 603-E, TIA-102.CAAA-E, and ANSI C63.26:2015)

38995 Cherry Street
Newark, CA 94560

Test:

Energy Efficiency Tests

Energy Efficiency for Transport and Optical Access

Test Method(s):

ATIS-0600015.2018 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting General Requirements;
ATIS-0600015.02.2016 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting –Transport & Optical Access Requirements;
ATIS-0600015.03.2016 Energy Efficiency for Telecommunication Equipment Methodology for Measurement and Reporting for Router and Ethernet Switch Products;
ATIS-0600015.01.2014 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting – Server Requirements;
ATIS-0600015.11.2016 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting DC/DC Converter Requirements;
ECR Draft 3.0.1, December 2010

324 N. Mary Avenue
Sunnyvale, CA 94086

Test:

Test Method(s):

Emissions

Radiated and Conducted
(5 meter Semi-anechoic chambers)

Code of Federal Regulation (CFR) 47, FCC Part 15B
(using ANSI C63.4:2014);
EN 55011; BS EN 55011; KS C 9811; CISPR 11;
AS/NZS CISPR 11;
ICES-001; ICES-003; ICES-005; ICES-006;
VCCI V-3 (*up to 6 GHz*); VCCI-CISPR 32;
QCVN 118:2018/BTTTT;
CNS 15936 (2016) (Excluding Annex H);
EN 55032 (*excluding Annex H*); CISPR 32 (*excluding Annex H*);
AS/NZS CISPR 32(*excluding Annex H*);
BS EN 55032 (*excluding Annex H*);
KS C 9832 (*Excluding Radiated Emissions below 1 GHz*)

Current Harmonics

EN IEC 61000-3-2; IEC 61000-3-2; KS C 9610-3-2;
BS EN IEC 61000-3-2; IEC 61000-3-11; EN 61000-3-11;
KS C 9610-3-11

Voltage Fluctuations

EN 61000-3-3; IEC 61000-3-3; KS C 9610-3-3;
BS EN IEC 61000-3-3; IEC 61000-3-12; EN 61000-3-12;
KS C 9610-3-12

Immunity

Electrostatic Discharge (ESD)

EN 61000-4-2; IEC 61000-4-2; KS C 9610-4-2

Radiated Immunity

EN 61000-4-3; IEC 61000-4-3; KS C 9610-4-3

Electrical Fast Transient/Burst

EN 61000-4-4; IEC 61000-4-4; KS C 9610-4-4

Surge Immunity

EN 61000-4-5; IEC 61000-4-5; KS C 9610-4-5

Conducted Immunity

EN 61000-4-6; IEC 61000-4-6; KS C 9610-4-6

Voltage Dips and Interrupts

EN 61000-4-11; IEC 61000-4-11; KS C 9610-4-11

Generic and Product Family
Standards

CISPR 35 (*excluding all Annexes but Annex F.1 – F.3*);
KS C 9835 (*excluding all Annexes but Annex F.1 – F.3*);
BS EN 55035 (*excluding all Annexes but Annex F.1 – F.3*);
EN 300 386; BS EN 300 386;
CISPR 24; EN 55024; BS EN 55024; TCVN 7317;
EN 61000-6-1; KS C 9610-6-1;
AS/NZS 61000-6-1; BS EN IEC 61000-6-1;
EN 61000-6-2; KS C 9610-6-2;
AS/NZS 61000-6-2; BS EN IEC 61000-6-2;
EN 61000-6-3; KS C 9610-6-3 (*Excluding 30-1000 MHz*);
AS/NZS 61000-6-3; BS EN IEC 61000-6-3;
EN 61000-6-4; KS C 9610-6-4 (*Excluding 30-1000 MHz*);
AS/NZS 61000-6-4; BS EN 61000-6-4;
IEC 61000-6-5; EN 61000-6-5; BS EN 61000-6-5

Test:**Test Method(s):*****Network Equipment Building Systems (NEBS)***

Telcordia GR-1089-CORE, Sections 1, 2, 3, 4.1 to 4.3, 4.5, 4.6, 4.7 (*Excluding AC Power Fault*), 7, 9, and 10

Generic and Product Family Standards

British Telecommunications Standard GS7;
Deutsche Telekom EMC Specification 1 TR 9;
EN 50121-1; BS EN 50121-1; EN 50121-4; BS EN 50121-4;
IEEE 1613; IEEE 1613.a; IEC 62236-4;
IEC 61850-3 (*excluding magnetic immunity*)

Energy Efficiency Tests

Telecommunication Equipment
Router and Ethernet Switch Products

ATIS 0600015: 2018 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting General Requirements

Small Network Equipment
Transport and Optical Access

ATIS 0600015.03.2016 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting for Router and Ethernet Switch Products;

ATIS-0600015.02.2016 Energy Efficiency for Telecommunication Equipment: Methodology for Measurement and Reporting –Transport & Optical Access Requirements;

ECR Draft 3.0.1, December 2010

On the following types of equipment:

Telecommunications Terminal Equipment (TTE); Network Equipment; Information Technology Equipment (ITE); Medical Electrical Equipment; Industrial, Commercial, and Medical Test Equipment; Professional Audio and Video Equipment; Radio Equipment; Electronic (Digital) Products; Industrial and Scientific Instruments; Cabled Distribution Systems, Automotive.

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

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u>		
Part 15B	ANSI C63.4:2014	40000
<u>Industrial, Scientific, and Medical Equipment</u>		
Part 18	FCC MP-5 (February 1986)	40000
<u>Intentional Radiators</u>		
Part 15C	ANSI C63.10:2013	200000
<u>Unlicensed Personal Communication Systems Devices</u>		
Part 15D	ANSI C63.17:2013	40000

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

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	40000
<u>U-NII with DFS Intentional Radiators</u> Part 15E	FCC KDB 905462 D02 (v02)	40000
<u>UWB Intentional Radiators</u> Part 15F	ANSI C63.10:2013	200000
<u>BPL Intentional Radiators</u> Part 15G	ANSI C63.10:2013	200000
<u>White Space Device Intentional Radiators</u> Part 15H	ANSI C63.10:2013	200000
<u>Commercial Mobile Services (FCC Licensed Radio Service Equipment)</u> Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>General Mobile Radio Services (FCC Licensed Radio Service Equipment)</u> Parts 22 (non-cellular), 90 (below 3 GHz), 95, 97 (below 3 GHz), and 101 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)</u> Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	200000
<u>Maritime and Aviation Radio Services</u> Parts 80 and 87	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	200000
<u>Microwave and Millimeter Bands Radio Services</u> Parts 25, 74, 90 (above 3 GHz), 95 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	200000
<u>Broadcast Radio Services</u> Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000

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

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Signal Boosters (Part 20)</u>		
Wideband Consumer Signal Boosters	ANSI C63.26:2015	200000
Provider-specific Signal Boosters		
Industrial Signal Boosters		
Signal Boosters (Section 90.219)		

¹ 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 approved laboratories.



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY FREMONT NEWARK

Fremont, CA

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 January 2024.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 214.26
Valid to September 30, 2025

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