



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

COMPLIANCE TESTING, LLC

1724 S Nevada Way

Mesa, AZ 85204

Phone: 480 926 3100

Michael Schafer (Authorized Representative/President)

Email michaels@compliancetesting.com

URL: <http://www.ComplianceTesting.com>

ELECTRICAL

Valid to: December 31, 2018

Certificate Number: 2152.01

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

| <u>Tests</u> | <u>Standards</u> ¹ |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Emissions</i> | |
| Radiated and Conducted (3m semi-anechoic chamber) | FCC Part 15 Subpart B (using ANSI C63.4:2014); FCC Part 18 (using MP-5:1986); ICES-001; ICES-003; ICES-005; CISPR 11; AS/NZS CISPR 11; EN 55011; IEC 55011; KN 11; CNS 13803; CISPR 13; EN 55013; CNS 13439; CISPR 14-1; EN 55014; EN 50083-1; EN 50083-2; EN 55015; CISPR 15; IEC 55015; CISPR 20; EN 55020; KN 20; CISPR 22; AS/NZS CISPR 22; EN 55022; KN 22; EN 55103-1; EN 55103-2; CNS 13438 (up to 6 GHz); VCCI V-3 (up to 6 GHz) |
| Current Harmonics | EN 61000-3-2; IEC 61000-3-2; KN 61000-3-2 |
| Flicker | EN 61000-3-3; IEC 61000-3-3; KN 61000-3-3 |
| <i>Immunity</i> | |
| Electrostatic Discharge (ESD) | EN 61000-4-2; IEC 61000-4-2; KN 61000-4-2 |
| Radiated Immunity | EN 61000-4-3 (up to 10V/m @ 1GHz, up to 3V/m @ 2.7GHz); IEC 61000-4-3 (up to 10V/m @ 1GHz, up to 3V/m @ 2.7GHz); KN 61000-4-3 |
| EFT/Burst | EN 61000-4-4; IEC 61000-4-4; KN 61000-4-4; IEC 61000-4-4:2004 + Cor 1:2006 + Cor 2:2007 |
| Surge | EN 61000-4-5; IEC 61000-4-5; KN 61000-4-5 |
| Immunity to Conducted Disturbances | EN 61000-4-6; IEC 61000-4-6; KN 61000-4-6 |
| Power Frequency Magnetic Field | EN 61000-4-8; IEC 61000-4-8; KN 61000-4-8 |

| <u>Tests</u> | <u>Standards</u>¹ |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Immunity (cont'd)</i> | |
| Voltage Dips, Short Interruptions and Line Voltage Variations, Unbalance, and Line Frequency Variations | EN 61000-4-11; IEC 61000-4-11; KN 61000-4-11; IEC 61000-4-14; IEC 61000-4-27; IEC 61000-4-28; IEC 61000-4-29; IEC 61000-4-34 |
| Harmonics and Interharmonics | IEC 61000-4-13 |
| <i>Generic, Product Family, and Product Specific Standards</i> | |
| Industrial and Residential | EN 61000-6-1, -2, -3, -4; KN 61000-6-1, -2, -3, -4 |
| ITE | EN 55024; CISPR 24; KN 24 |
| Laboratory | EN 61326; IEC 61326 |
| Maritime | EN 60945:2002 (<i>Only Paragraphs 9 and 10</i>); IEC 60945:2002 (<i>Only Paragraphs 9 and 10</i>) |
| Medical | EN 60601-1-2; IEC 60601-1-2 |
| Household Appliances, Electric Tools and Similar Apparatus | CISPR 14-2 |
| EMC for Radio Equipment | EN 301 489-1 (<i>Excluding Section 9.6</i>); EN 301 489-2, through -37; EN 301 489-50; KN 301 489-01; KN 301 489-02; KN 301 489-03; KN 301 489-05; KN 301 489-06; KN 301 489-07; KN 301 489-09; KN 301 489-13; KN 301 489-17; KN 301 489-18; KN 301 489-20; KN 301 489-24; KN 301 489-26; KN 301 489-27; KN 301 489-32 |
| RF Measurements | ATS (American Traffic Solutions) RR24F-ST3 Tracking Radar Sensor Verification; ATS RR24F-SD2 Radar Sensor Verification (<i>Clause 3</i>) |
| <i>Product Safety</i> | |
| Office Equipment ² | EN 60950-1:2006; IEC 60950-1:2005; AS/NZS 60950.1:2011 (<i>Excluding Clauses Detailed in Table 1 Below</i>) |
| Audio, Video and Similar Electronic Apparatus ² | EN 60065:2011; IEC 60065:2011-02 (<i>Excluding Clauses Detailed in Table 2 Below</i>) |
| Marine | EN 60945:2002; IEC 60945:2002 (<i>Excluding Environmental</i>) |
| Lighting | ANSI/UL 1598; CSA-C22.2 No. 250.0; EN 60958-1; IEC 60958-1; ANSI/UL 1993; CSA-C22.2 No. 1993:2012; IEC 62560; ANSI/UL 8750; CSA-C22.2 No. 250.13:2012; ANSI/UL 2108 |

| <u>Tests</u> | <u>Standards</u> ¹ |
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| Transmitters/Receivers (excluding SAR and HAC) | |
| Intentional and Unintentional Radiators to FCC Regulations (TCB Scopes A1-A4 and B1-B4) | 47 CFR Parts 2 and 11; 47 CFR Part 15 B, C, D, E, F, and G (using ANSI C63.4:2014, ANSI C63.10:2013 and ANSI C63.17:2013); 47 CFR Part 18 (using FCC MP-5:1986); 47 CFR Parts 20, 22 (cellular and non-cellular), 24, 25, 27, 73, 74, 80, 87, 90, 95, 97, and 101 (using Part 2 ANSI/EIA-TIA 603-C) |
| Innovation Science and Economic Development Canada Radio Standards Specifications (RSS in Category I Equipment Standards List) | RSS-102; 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-141; RSS-142; RSS-170; RSS-181; RSS-182; RSS-191; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197; RSS-199; RSS-210; RSS-213; RSS-215; RSS-216; RSS-220; RSS-236; RSS-238; RSS-243; RSS-244; RSS-247; RSS-251; RSS-287; RSS-288; RSS-310; RSS-GEN |
| Europe (<i>RF Sections Only</i>) | ETSI EN 300 086; ETSI EN 300 113; ETSI EN 300 162-1, -2, -3; ETSI EN 300 219-1, -2; ETSI EN 300 220-1, -2; ETSI EN 300 224; ETSI EN 300 296-1, -2; ETSI EN 300 328; ETSI EN 300 330-1, -2; ETSI EN 300 341; ETSI EN 300 373-1, -2; ETSI EN 300 390-1, -2; ETSI EN 300 422-1, -2; ETSI EN 300 440-1, -2; ETSI EN 300 454/A1; ETSI EN 300 454-1, -2; ETSI EN 300 609; ETSI EN 300 720-1, -2; ETSI EN 301 357-1, -2; ETSI EN 301 441; ETSI EN 301 443; ETSI EN 301 444; ETSI EN 301 473; ETSI EN 301 502; ETSI EN 301 511; ETSI EN 301 840-1, -2; ETSI EN 301 843-1, -2, -3, -4, -5, -6; ETSI EN 301 893; ETSI EN 301 908-1 through -20; ETSI EN 302 064-1, -2; ETSI EN 302 066-1, -2; ETSI EN 302 065; ETSI EN 302 194-1, -2; ETSI EN 302 208-1, -2; ETSI EN 302 217-1, -2, -3, -4; ETSI EN 302 291-1, -2; ETSI EN 302 326-1, -2; ETSI EN 302 426; ETSI EN 302 502; ETSI EN 302 571; ETSI EN 302 645; ETSI EN 303 035-1, -2 |
| Hong Kong (HKCA) | HKCA 1001; HKCA 1002; HKCA 1003; HKCA 1004; HKCA 1005; HKCA 1006; HKCA 1007; HKCA 1008; HKCA 1010; HKCA 1016; HKCA 1035; HKCA 1036; HKCA 1037; HKCA 1039; HKCA 1041; HKCA 1042; HKCA 1044; HKCA 1045; HKCA 1046; HKCA 1048; HKCA 1049; HKCA 1051 |
| Australia | |
| Harmonized | AS/NZS 4295; AS/NZS 4365; AS/NZS 4415; AS/NZS 4280; AS/NZS 4583; AS/NZS 4769; AS/NZS 4582; AS/NZS 4768 |
| Non-Harmonized | AS/ACIF S042.1; AS/ACIF S042.3; AS/NZS 4268; AS/NZS 4281; AS/NZS 4355; AS 4367; AS/NZS 4771 |
| Taiwan | LP0002 |
| Singapore | IMDA TS CMT (<i>RF Requirements Only</i>); IMDA TS SRD; IMDA TS WBA; IDA TS EMC; IDA TS RPG |
| Japan | ARIB STD T-33; ARIB STD-T66; ARIB STD-T67; ARIB STD-T75; ARIB STD-T91; ARIB STED T-96; ARIB STD-108 |

| <u>Tests</u> | <u>Standards</u> ¹ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Performance | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.1.1 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.1.1 (ANSI/TIA-102.CAAA-E and ANSI/TIA-102.CAAB-D) |
| Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Performance - FDMA | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.1.2 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.1.2 (ANSI/TIA-102.CAAA-E and ANSI/TIA-102.CAAB-D) |
| Project 25 Phase 2 Common Air Interface Trunked Subscriber Unit Performance - TDMA | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.1.3 (using ANSI/TIA-102.CCAA-A and ANSI/TIA-102.CCAB-A) |
| Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Interoperability – Direct Mode ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.3.1 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.3.1 (TIA-102.CABA) |
| Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Interoperability – Repeat Mode ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.3.2 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.3.2 (TIA-102.CABA) |
| Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Interoperability – FNE Dispatch Monitoring Console – Repeat Mode ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.3.3 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.3.2 (TIA-102.CABA) |
| Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Interoperability – FDMA ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.3.4 and P25-CAB-CAI_TEST_REQ August 2016, section 2.1.3.3 (TIA-102.CABC-C and TIA-102.CABC-B) |
| Project 25 Phase 2 Common Air Interface Trunked Subscriber Unit Interoperability – TDMA ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.1.3.5 (using TIA-102.CABC-C) |
| Project 25 Phase 1 Common Air Interface Conventional Base Station / Repeater Performance | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.1.1 and P25-CAB-CAI_TEST_REQ August 2016, section 2.2.1.1 (ANSI/TIA-102.CAAA-E and ANSI/TIA-102.CAAB-D) |
| Project 25 Phase 1 Common Air Interface Trunked Base Station / Repeater Performance - FDMA | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.1.2 and P25-CAB-CAI_TEST_REQ August 2016, section 2.2.1.2 (ANSI/TIA-102.CAAA-E and ANSI/TIA-102.CAAB-D) |
| Project 25 Phase 2 Common Air Interface Trunked Base Station / Repeater Performance - TDMA | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.1.3 (ANSI/TIA-102.CCAA-A and ANSI/TIA-102.CCAB-A) |
| Project 25 Phase 1 Common Air Interface Conventional Base Station / Repeater Interoperability – Repeat Mode ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.3.1 and P25-CAB-CAI_TEST_REQ August 2016, section 2.2.3.1 (TIA-102.CABA) |
| Project 25 Phase 1 Common Air Interface Conventional Base Station / Repeater Interoperability – FNE Dispatch Monitoring Console - Repeat Mode ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.3.2 and P25-CAB-CAI_TEST_REQ August 2016, section 2.2.3.1 (TIA-102.CABA) |
| Project 25 Phase 1 Common Air Interface Trunked Base Station / Repeater Interoperability – FDMA ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.3.3 and P25-CAB-CAI_TEST_REQ August 2016, section 2.2.3.2 (TIA-102.CABC-C and TIA-102.CABC-B) |
| Project 25 Phase 2 Common Air Interface Trunked Base Station / Repeater Interoperability – TDMA ³ | P25-CAB-CAI_TEST_REQ July 2017, section 2.2.3.4 (using TIA-102.CABC-C) |



¹ When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA R101 - *General Requirements - Accreditation of ISO-IEC 17025 Laboratories*.

² Exclusions Tables

| Exclusions from IEC/EN 60065-1 | |
|---------------------------------------|----------------------------------------------------------|
| Clause | Test |
| 6.1 | IONIZING RADIATION TEST |
| 7.2 | SOFTENING TEMPERATURE OF THERMOPLASTICS |
| 8.22 | NON-SEPARABLE THIN SHEET INSULATION TEST |
| 10.1 | SURGE TEST |
| 12.1.2 | VIBRATION TEST |
| 14.2.5 | CAPACITOR AND RC UNIT PASSIVE FLAMMABILITY TEST |
| 14.4.3 | COMPONENT PART FLAME TEST |
| 14.5.3 | PTC THERMISTOR FLAME TEST |
| 14.6.1 | MAINS SWITCH FLAME TEST |
| 14.12 | VARISTOR FIRE HAZARD |
| 18.2.2 | IMPLOSION TEST, NON-INTRINSICALLY PROTECTED PICTURE TUBE |

| Exclusions from IEC/EN 60950-1 | |
|---------------------------------------|-------------------------------------------------------------------------------|
| Clause | Test |
| 2.10.3.4 | MEASUREMENT OF TRANSIENT LEVELS |
| 4.5.2, 4.5 | BALL PRESSURE TEST |
| 4.7.3.6 | HIGH VOLTAGE (OVER 4 KV) FLAME TEST |
| 5.3 | SURGE TESTS |
| 6.2.2.1 | IMPULSE TEST |
| | SOUND LEVEL |
| 6.3 | PROTECTION OF THE TELECOMMUNICATION WIRING SYSTEM PROTECTION FROM OVERHEATING |
| 6.5 | SHORT DURATION IMPULSE |
| 6.5.3 | ACOUSTIC PRESSURE - ON-HOOK / OFF-HOOK |
| ANNEX A.6 – V-0, V-1, V2 | FLAME TEST |
| ANNEX A.2.7 | NEEDLE FLAME TEST |
| ANNEX A.3, 4.7.3.2 | HIGH CURRENT ARCING IGNITION TEST |
| ANNEX A.4, 4.7.3.2 | ENCLOSURE HOT WIRE IGNITION TEST |
| ANNEX A.5, 4.6.2 | HOT FLAMING OIL TEST |
| ANNEX A.7 - HBF, HF-1, HF-2 | FLAMMABILITY TEST |
| ANNEX H, 4.3.13 | IONIZING RADIATION MEASUREMENT TEST |
| ANNEX K.2, 1.5.3 | 200 CYCLE THERMOSTAT TEST |
| ANNEX K.3, 1.5.3 | 10,000 CYCLE THERMOSTAT ENDURANCE TEST |
| ANNEX K.4, 1.5.3 | 1000 CYCLE TEMPERATURE LIMITER TEST |
| ANNEX K.5, 1.5.3, 4.5.1 | 200 CYCLE THERMAL CUT-OUT TEST |
| 6.4 - ANNEX NAC | OVERVOLTAGE TEST |

³ This laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these tests.



| 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 ⁴ : | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------|
| Rule Subpart/Technology | Test Method | Maximum Frequency |
| Unintentional Radiators | | |
| Part 15B | ANSI C63.4:2014 | 40 GHz |
| Industrial, Scientific, and Medical Equipment | | |
| Part 18 | FCC MP-5 (February 1986) | 40 GHz |
| Intentional Radiators | | |
| Part 15C | ANSI C63.10:2013 | 40 GHz |
| Unlicensed Personal Communication Systems Devices | | |
| Part 15D | ANSI C63.17:2013 | 40 GHz |
| U-NII without DFS Intentional Radiators | | |
| Part 15E | ANSI C63.10:2013 | 40 GHz |
| UWB Intentional Radiators | | |
| Part 15F | ANSI C63.10:2013 | 40 GHz |
| BPL Intentional Radiators | | |
| Part 15G | ANSI C63.10:2013 | 40 GHz |

⁴Accreditation 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

COMPLIANCE TESTING, LLC

Mesa, AZ

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 23rd day of December 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 2152.01
Valid to December 31, 2018
Revised August 30, 2018

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