



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

PCTEST ENGINEERING LABORATORY, LLC<sup>1</sup>

382 Piercy Road

San Jose, CA 95138

Randy Ortanez Phone: 410 290 6652

ELECTRICAL

Valid To: May 31, 2022

Certificate Number: 2041.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location listed above, *as well as the satellite laboratory location listed below*, to perform the following EMC, SAR, HAC, RF, Conformance, Protocol, and OTA testing of wireless devices:

**Test Technology:**

**Test Method(s):**

CBRS/Winnforum

CBRSA-TS-9001 CBRS Alliance OnGo Certification Test Plans;  
WINNF-TS-0122 Winnforum CBRS CBSD Test Specification

OTA

CTIA Test Plan for Wireless Device Over-the-Air Performance  
for CDMA, 1xEVDO Rev0/A, GSM, GPRS, EGPRS, UMTS  
(W-CDMA), LTE

OTA (cont'd)

CTIA Test Plan for 2x2 Downlink MIMO and Transmit Diversity  
Over-the-Air Performance;  
PTCRB NAPRD.03; PTCRB PPMd; OTA Carrier Aggregation;  
VZW OTA Radiated Performance for CDMA & LTE Multimode



18855 Adams Court  
Morgan Hill, CA 95037

**Test Technology:**

**Emissions**

Radiated and Conducted

**Test Method(s):**

47 CFR, FCC Parts 15B/C/E/F/G/H (using ANSI C63.4:2014, ANSI C63.10:2013, and/or FCC KDB 905462 D02 (v02)), and 18 (using MP-5:1986); IEC/CISPR 11; EN 55011; KN 11; ANSI C63.10:2020; CISPR 14-1; IEC/EN 55014-1; KN 14-1; IEC/CISPR 22; EN 55022; EN 55032; CISPR 32; KN 32 (*Excluding Radiated Emissions below 1 GHz*); AS/NZS CISPR 32; ICES-001; ICES-003; ICES-Gen; VCCI V-3 (up to 6 GHz); CNS 13803; CNS 13783-1; CNS 13438 (up to 6 GHz) (*excluding Radiated Emissions below 1 GHz*); TCVN 7189 (2009)

Canada Transmitter/Receiver

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 181; RSS 182; RSS 191; RSS 192; RSS 194; RSS 195; RSS 196; RSS 197; RSS 199; RSS 210; RSS 211; RSS 213; RSS 215; RSS 216; RSS 220; RSS 222; RSS 236; RSS 238; RSS 243; RSS 244; RSS-246; RSS 247; RSS 251; RSS 252; RSS 287; RSS 288; RSS 310; RSS Gen

SunSpec Alliance

SunSpec – CSIP (Common Smart Inverter Profile) Conformance Test Procedures;  
SunSpec – Advanced Function Inverter Test Lab Specification;  
SunSpec – UL1741 Supplement SA/Rule 21 Implementation Guide;  
IEEE 2030.5-2018 Smart Energy Profile Application Protocol

Harmonic Current

IEC 61000-3-2; EN 61000-3-2; KN 61000-3-2

Flicker and Fluctuations

IEC 61000-3-3; EN 61000-3-3; KN 61000-3-3

**Immunity**

Electrostatic Discharge (ESD)

EN 61000-4-2; IEC 61000-4-2; KN 61000-4-2

Radiated Immunity

IEC 61000-4-3; EN 61000-4-3; KN 61000-4-3

Electrical Fast Transient/Burst

IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4

Surge Immunity

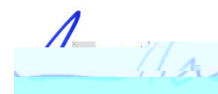
IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5

Conducted Immunity

IEC 61000-4-6; EN 61000-4-6; KN 61000-4-6

Power Frequency Magnetic Field Immunity

IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8

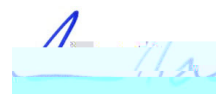


**Test Technology:**

**Test Method(s):**

**Immunity (cont'd)**

Voltage Dips, Short Interrupts,  
and Line Voltage Variations



**Test Technology:**

**RF Exposure / SAR (Specific Absorption Rate)**

**Test Method(s):**

IEEE 1528-2013; RSS 102 (RF Exposure, SAR and NS);  
RSS-102 SPR-001; SPR-004;  
EN 50566-2017; EN 50360-2017; EN 62209-1:2016; EN 62209-3:2019; EN 62209-2:2010; IEC 62209-1:2016; IEC 62209-2:2010; IEC 62209-3:2019; IEC PAS 63083:2017; EN 50401:2017; EN 50385:2017; EN 62311:2020; EN 62232:2017; IEC 62232:2017; EN 62311:2008; IEC 62311:2007; IEC 62311:2020; IEC TR 62630:2010; IEC 62209-2 AMD 1; EN 62479:2010; IEC 62479:2010; EN 50663:2017; IEC/IEEE 62209-1528:2020; AS/NZS 2772.2:2016; Australian Communications Authority Radio Communications (Electromagnetic Radiation – Human Exposure) Standard 2014; ANSI/IEEE C95.1-2005; ANSI/IEEE C95.1-1992; ANSI/IEEE C95.3-2002; ANSI/IEEE C95.3.1-2010; ANSI/IEEE C95.1:2019; ICNIRP (100KHz-300GHz):2020; RSS-102 SPR-002; IEC TR 63170:2018; RRA Public Notification 2018-18, December 7, 2018

**Hearing Aid Compatibility**

ANSI C63.19:2011; ANSI C63.19:2019; CTIA Test Plan for Hearing Aid Compatibility; RSS-HAC

**CBRS/Winnforum**

CBRSA-TS-9001 CBRS Alliance OnGo Certification Test Plan; WINNF-TS-0122 Winnforum CBRS CBSD Test Specification

**Radio**

Licensed Transmitter / Receiver Emissions

47 CFR Parts 2, 11, 20, 21, 22, 24, 25, 27, 30, 73, 74, 80, 87, 90, 95, 96, 97, and 101 (using ANSI/TIA-603-D, ANSI/TIA-603-E, TIA-102.CAAA-E, ANSI C63.26-2015); EN 301 126-1; EN 301 390; EN 301 751; EN 302 217-2-2; EN 302 217-2; EN 302 217-3; EN 302 326-2

Land Mobile

CFR 47 Part 90 (using ANSI/TIA 603-D, ANSI/TIA 603-E); EN 300 224; EN 300 224-2; EN 300 341; EN 300 113; EN 301 166; EN 300 390; EN 300 471-1; EN 300 471-2

Short Range

EN 300 330; EN 300 220-2; EN 300 220-3-1; EN 300 220-3-2; EN 300 220-4; EN 300 440; EN 300 440-2; EN 300 328; EN 302 536-2; EN 302 571; EN 305 550-2; EN 301 893 (Includes on-site DFS); EN 302 502 (Includes on-site DFS); EN 301 559; EN 301 598; EN 302 544-1; EN 302 544-2; EN 301 091-1; EN 301 091-2; EN 302 208; EN 302 291-1; EN 302 291-2; EN 303 204; EN 302 065-1; EN 302 065-2; EN 302 065-3; EN 302 065-4; EN 303 413; EN 303 417; EN 302 567; EN 305 550



**Test Technology:**

**Test Method(s):**

**Radio (cont'd)**

Cellular/PCS

EN 300 433; EN 301 502; EN 301 511; EN 301 908-1;  
EN 301 908-2; EN 301 908-3; EN 301 908-10; EN 301 908-11;  
EN 301 908-12; EN 301 908-13; EN 301 908-14; EN 301 908-15;  
EN 301 908-16; EN 301 908-17; EN 301 908-18; EN 301 908-19;  
EN 301 908-20; EN 301 908-21; EN 301 908-22

***Country Specific Requirements***

***Korea***

Regulations on Radio Equipment

Enforcement Decree of MSIT No. 1, July 26, 2017

Unlicensed Radio Equipment  
Established Without Notice

MSIT Public Notification 2019-105, Dec 23, 2019

Conformity Assessment Procedure of  
Radio Equipment

KS X 3123 Conformity Assessment Test Methods for Radio  
Equipment

Test Methods for Technical  
Requirements of LTE Mobile Radio  
Equipment

KS X 3142

Technical Requirements for  
Measurement of Electromagnetic Field  
Strength

RRA Public Notification 2019-3, Mar 4, 2019

Technical Requirements for Radio  
Equipment for Telecommunication  
Services

RRA Public Notification 2019-9, June 3, 2019

Technical Requirements for  
Telecommunications Terminal  
Equipment

KS X 3074, PRA Public Notification 2019-4, Feb 25, 2019

Technical Requirements for  
Electromagnetic Compatibility

RRA Public Notification 2018-19, Oct 19, 2018

Test Methods for Electromagnetic  
Compatibility

RRA Announce 2018-128, Dec 24, 2018

Technical Requirements for the Human  
Protection Against Electromagnetic  
Waves

MSIT Public Notification 2017-7, Aug 24, 2017

Equipment to be Subject of Test  
Procedure for Electromagnetic Field  
Strength and Specific Absorption Rate

MSIT Public Notification 2017-7, Aug 24, 2017

***Hong Kong***

HKCA 1039; HKCA 1042; HKCA 1049; HKCA 1053;  
HKCA 1054; HKCA 1056; HKCA 1057; HKCA 1061



**Test Technology:**

*Singapore*

*Taiwan*

*Australia*

ACMA Radiocommunications  
(Short range devices) Standard  
2014

*Vietnam*

QCVN 54:2011/BTTTT

QCVN 65:2013/BTTTT

TCVN 7317:2003

TCVN 7189:2009

TCVN 7317:2003

QCVN 14:2010/BTTTT

QCVN 15:2015/BTTTT

QCVN 16:2010/BTTTT

QCVN 18:2014/BTTTT

QCVN 23:2011/BTTTT

QCVN 25:2011/BTTTT

QCVN 41:2011/BTTTT

QCVN 42:2011/BTTTT

QCVN 43:2011/BTTTT

QCVN 44:2011/BTTTT

QCVN 45:2011/BTTTT

QCVN 46:2011/BTTTT

QCVN 48:2011/BTTTT

QCVN 49:2011/BTTTT

QCVN 54:2011/BTTTT

QCVN 65:2013/BTTTT

QCVN 66:2013/BTTTT

QCVN 18:2014/BTTTT

QCVN 55:2011/BTTTT

QCVN 53:2011/BTTTT

QCVN 11:2010/BTTTT

**Test Method(s):**

IMDA TS WBA (October 2016); IMDA TS SRD (Apr 2018);  
IMDA TS LMR (October 2016); IMDA TS CMT (Sep 2020);  
IMDA TS UWB (Oct 2016)

DGT C-IS2031-0; DGT C-IS2034-0; PLMN01; PLMN02;  
PLMN08; PLMN09; DGT LP0001; DGT LP0002;  
CNS 13438 (up to 6 GHz) (*excluding Radiated Emissions below 1 GHz*)

AS/NZS 4268:2017

RF 2.4 GHz Spread Spectrum

National technical regulation on radio access equipment operating  
in the 5 GHz band

TTE Immunity Requirements

Vietnam CISPR 22 Requirements

Radio equipment for fixed or land portable services

RFID Equipment

Point-to-point SDH radio equipment

Mobile Station

**Test Technology:**

**Vietnam (cont'd)**

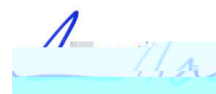
QCVN 73:2013/BTTTT

QCVN 74:2013/BTTTT

**Test Method(s):**

Technical Regulation on Short Range Devices (SRD) - Radio Equipment to be used in the 25 MHz to 1 GHz Frequency Range

Technical Regulation on Short Range Devices (SRD) - Radio Equipment to be used in the



18805 Adams Court  
Morgan Hill, CA 95037

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**Emissions**

Radiated and Conducted

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Canada Transmitter/Receiver

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 181; RSS 182; RSS 191; RSS 192; RSS 194; RSS 195; RSS 196; RSS 197; RSS 199; RSS 210; RSS 211; RSS 213; RSS 215; RSS 216; RSS 220; RSS 222; RSS 236; RSS 238; RSS 243; RSS 244; RSS-246; RSS 247; RSS 251; RSS 252; RSS 287; RSS 288; RSS 310; RSS Gen

SunSpec Alliance

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CFR 47 Part 90 (using ANSI/TIA 603-D, ANSI/TIA 603-E); EN 300 224; EN 300 224-2; EN 300 341; EN 300 113; EN 301 166; EN 300 390; EN 300 471-1; EN 300 471-2

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Cellular/PCS

EN 300 433; EN 301 502; EN 301 511; EN 301 908-1; EN 301 908-2; EN 301 908-3; EN 301 908-10; EN 301 908-11; EN 301 908-12; EN 301 908-13; EN 301 908-14; EN 301 908-15; EN 301 908-16; EN 301 908-17; EN 301 908-18; EN 301 908-19; EN 301 908-20; EN 301 908-21; EN 301 908-22

***Country Specific Requirements  
Korea***

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Conformity Assessment Procedure of Radio Equipment

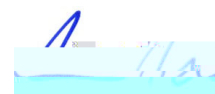
KS X 3123 Conformity Assessment Test Methods for Radio Equipment

Test Methods for Technical Requirements of LTE Mobile Radio Equipment

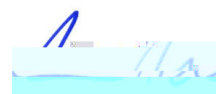
KS X 3142

Technical Requirements for Measurement of Electromagnetic Field Strength

RRA Public Notification 2019-3, Mar 4, 2019



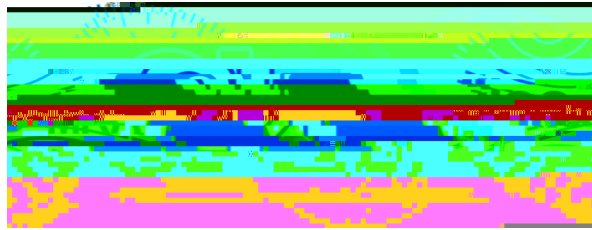
**Test Technology:**





Testing Activities Performed in Support of FCC Cer





# Accredited Laboratory

A2LA Accredited

## PCTEST ENGINEERING LABORATORY, LLC

San Jose, CA

Electrical

### Testing

ISO/IEC 17025:2017

San Jose, CA

ISO/IEC 17025:2017

General requirements for the competence of testing and calibration laboratories

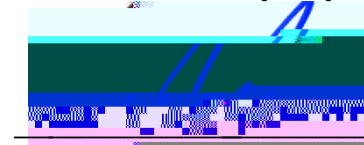
ISO/IEC 17025:2017

Electrical Testing

(refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



ISO/IEC 17025:2017



ISO/IEC 17025:2017

San Jose, CA

ISO/IEC 17025:2017

May 31, 2022

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