



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

DEKRA TESTING AND CERTIFICATION, S.A.U.
Parque Tecnológico de Andalucía
C/ Severo Ochoa 2
29590-Campanillas, Málaga, SPAIN
Jose Maria Fernandez Phone: +34 952619100
josemaria.fernandez@dekra.com

ELECTRICAL

Valid To: September 30, 2022

Certificate Number: 3350.01

In recognition of the successful completion of the A2LA evaluation process accreditation is granted to this laboratory for the Bluetooth testing on Information Technology Equipment (ITE), Bluetooth devices, and NFC devices:

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Near Field Communications (NFC)</i>	
NFC Forum Digital Protocol	NFC Forum Test Cases for Digital Protocol
NFC Forum Type 1 Tag Operation	NFC Forum Test Cases for Type 1 Tag Operation
NFC Forum Test Cases for Type 2 Tag and Type 2 Tag Operation	NFC Forum Test Cases for Type 2 Tag and Type 2 Tag Operation
NFC Forum Test Cases for Type 3 Tag and Type 3 Tag Operation	NFC Forum Test Cases for Type 3 Tag and Type 3 Tag Operation
NFC Forum Type 4 Tag and Type 4 Tag Operation	NFC Forum Test Cases for Type 4 Tag and Type 4 Tag Operation
NFC Forum Type 5 Tag and Type 5 Tag Operation	NFC Forum Test Cases for Type 5 Tag and Type 5 Tag Operation
NFC Forum Tag Performance	NFC Forum Test Cases for Tag Performance
NFC Forum Analog	NFC Forum Test Cases for Analog
NFC Forum Simple NDEF Exchange Protocol	NFC Forum Test Cases for Simple NDEF Exchange Protocol

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Near Field Communications (NFC) (cont.)</i>	
NFC Forum Logical Link Control Protocol	NFC Forum Test Cases for Logical Link Control Protocol
UICC based NFC IOP	GSMA TS.27 - NFC Handset Testbook
Bluetooth	
Bluetooth Radio and Protocol Conformance Testing	<p>RF:1: Test Suite RF.TS including receiver and transmitter tests for (a) Bluetooth Basic Rate (BR) and (b) Enhanced Data Rate (EDR), including both EDR2 and EDR3.</p> <p>RF-PHY1: Tests in RF – PHY.TS which includes receiver and transmitter tests for LE 1Mb/s; with (a) fixed 37 bytes packet payload length, and (b) packet length extensions (packet payload length ranges from 37 bytes to 255 bytes)</p> <p>RF-PHY2: Tests in RF – PHY.TS which includes receiver and transmitter tests for (a) 20 dBm Higher Output Power RF - PHY (b) LE 2Mb/s (c) Coded PHY (125 kb/s or 500 kb/s) (d) Stable Modulation Index (e) All required testing capabilities associated with the RF – PHY:1 test scope option</p> <p>RF-PHY3: Tests in RF – PHY.TS which includes receiver and transmitter tests for: (a) AoA/AoD (IQ Samples Coherency AoD/AoA Receiver, IQ Sample Dynamic Range AoD/AoA Receiver) (b) All required testing capabilities associated with the RF – PHY:2 test scope option</p> <p>LE Protocols:1: (a) Tests in LL.TS (b) The LE-only and BR/EDR/LE tests in HCI.TS (including tests in GAP.TS, SM.TS, L2CAP.TS, GATT.TS and ATT.TS)</p> <p>External Protocols:1</p> <p>Traditional Profile:1</p> <p>GATT-Based Profile & Service:1</p>



<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Field Trials and Interoperability ²</i>	
GSM, UMTS, LTE, and 5G	GSM Association Official Document; TS.11 – Device Field and Lab Test Guidelines
	GSM Association Official Document; TS.40 – MIoT Field and Lab Test Cases
	GSM Association Official Document; TS.42: Multi SIM Devices Requirements Test Cases
	MultiFire Alliance; MFA TS MF.501 Interoperability Test Specification
<i>Connected Car</i>	
Conformance Protocol	IEEE Std 802.11; Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
	IEEE Std 1609.2; IEEE Standard for Wireless Access in Vehicular Environments – Security Services for Applications and Management Messages;
	IEEE Std 1609.3; IEEE Standard for Wireless Access in Vehicular Environments (WAVE) – Networking Services;
	IEEE Std 1609.4; IEEE Standard for Wireless Access in Vehicular Environments (WAVE) – Multi-Channel Operation
Conformance Protocol ITS-G5	TS 102 859 Conformance Test Specifications for Transmission of IP Packets over GeoNetworking (GN6)
	TS 102 868 Conformance Test Specification for Co-operative Awareness Messages (CAM)
	TS 102 869 Conformance Test specification for Decentralized Environmental Notification Messages (DENM)
	TS 102 870 Conformance Test Specifications for GeoNetworking Basic Transport Protocol (BTP)

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Connected Car</i> Conformance Protocol ITS-G5 (cont.)	TS 102 871 Conformance Test Specifications for GeoNetworking ITS-G5 (GN)
	TS 103 191 Conformance Test Specifications for Signal Phase and Timing (SPAT) and Map (MAP)
	TS 103 096 Conformance Test Specification for TS 102 867 and TS 102 941 Security Testing
<i>Connected Car</i> RF Testing	ETSI EN 302 571 Intelligent Transport Systems (ITS); Radiocommunications Equipment Operating in the 5 855 MHz to 5 925 MHz Frequency Band; Harmonised Standard covering the Essential Requirements of Article 3.2 of Directive 2014/53/EU
<i>eCall ²</i>	
eCall Conformance Testing (<i>excluding crash test as applicable</i>)	EVS-EN 16454; ETSI TS 103 412; ETSI TS 126 269; Commission Delegated Regulation (EU) 2017/79 (Annex I, II, III, IV, VI, VII, & VIII); GOST 33467; GOST 33470; R144 (ECE-TRANS-WP29-2017-132e); UAE.S 5019_2018
<i>Mobile Communications</i>	
<i>Communication Devices with GSM/GPRS/EDGE Interface:</i>	
RF and Layer 1: Protocol	3GPP TS 51.010-1; ETSI EN 301 511; ETSI TS 151.010-1
<i>Communication Devices with UMTS Interface:</i>	
RF Testing (<i>using the Reference Specification: 3GPP TS 34.108</i>)	3GPP TS 34.121-1; ETSI TS 134 121-1; ETSI EN 301 908-1; ETSI EN 301 908-2
Protocol Testing (<i>using the Reference Specification: 3GPP TS 34.108</i>)	3GPP TS 34.123-1

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Mobile Communications (cont.)</i>	
<i>Communication Devices with LTE Interface:</i>	
RF Testing (using the Reference Specification: 3GPP TS 36.508)	3GPP TS 36.521-1; 3GPP TS 36.521-3; ETSI EN 301 908-13
Protocol Testing (using the Reference Specification: 3GPP TS 36.508)	3GPP TS 36.523-1
<i>Communication Devices with 5G FR1 Interface:</i>	
RF Testing (using the Reference Specification: 3GPP TS 38.508-1)	3GPP TS 38.124, Chapter 8.2.; 3GPP TS 38.521-1; 3GPP TS 38.521-3; 3GPP TS 38.521-4; 3GPP TS 38.533
Protocol Testing (using the Reference Specification: 3GPP TS 38.508-1)	3GPP TS 38.523-1
<i>Communication Devices with UICC Interface:</i>	
RSP Testing	GSM Association - Official Document SGP.23 – RSP Test Specification
<i>Communication Devices with Application Enablers Interface:</i>	
AT-Command Testing	AT-Command. Test Specification Covering RFT 77; 3GPP TS 27.005; 3GPP TS 27.007
Data Throughput Testing	3GPP TR 37.901
<i>Wireless Communications</i>	
<i>Communication Devices with WLAN Interface:</i>	
Interoperability Testing	Wi-Fi Alliance Certification Program According to the ATL Accreditation: https://www.wi-fi.org/AT4-wireless
<i>Thread Testing</i>	
Thread Devices	Thread Certification Test Plan; Thread Specification



<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Cybersecurity Testing</i>	
<i>IoT Devices:</i>	
Cybersecurity Testing for IoT Devices	CTIA Cybersecurity Certification Test Plan for IoT Devices
<i>Zigbee Testing</i>	
<i>Zigbee PRO Compliant Platform:</i>	
IEEE 802.15.4 PHY Testing	ZigBee IEEE 802.15.4 Test Specification
IEEE 802.15.4 MAC Testing	ZigBee IEEE 802.15.4 Test Specification
Zigbee PRO Network Testing	Zigbee PRO Compliant Platform Test Specification
<i>Zigbee 3.0 Devices:</i>	
Base Device Behavior Testing	Base Device Behavior Test Specification
Cluster Testing	Cluster Library Specification
<i>Zigbee PRO Green Power:</i>	
Zigbee PRO Green Power Testing	Zigbee PRO Green Power Feature Test Specification, Basic Functionality Set
<i>Amazon AVS Testing</i>	
AVS Acoustic Testing	Amazon Alexa Acoustic Testing User Guide
AVS Functional Testing	AVS Functional Testing
AVS User Experience Testing	AVS UX Self-Test Checklist
AVS Music Testing	AVS Music Self-Test Checklist

¹ When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - *General Requirements- Accreditation of ISO-IEC 17025 Laboratories*.

² This laboratory meets A2LA R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories for these tests.



Accredited Laboratory

A2LA has accredited

DEKRA TESTING AND CERTIFICATION, S.A.U.

Malága, Spain

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 30th day of December 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3350.01
Valid to September 30, 2022

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