# CTIA Certification™

# Policies and Procedures for Authorized Test Labs

Version 1.19

January 2026

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## Section 1    Overview

This document defines the:

- requirements and process for a test lab to become a CTIA Certification Authorized Test Lab (ATL)

- ongoing compliance requirements for ATLs

- procedures ATLs shall follow when using CTIA Certification Test Plans

## Section 2    Laboratory Authorization Process

### 2.1    Overview

ATL authorization consists of the following steps:

- Being a CTIA member company

- Meeting any program-specific requirements, as defined in Section 3 of this document

- Receiving accreditation under ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories", with the scopes of accreditation matching the scopes of certification testing the ATL is authorized to conduct

- Undergoing either an on-site audit by a CTIA Certification-appointed Subject Matter Expert (SME) or an off-site audit by a CTIA Certification-appointed ATL Review Committee.  The option depends on the scope of authorization.

  The following scopes require on-site audits by a SME:

  o CTIA Certification Device Hardware Reliability Test Plan

  o CTIA Certification Test Plan for Wireless Device Over–the-Air Performance

  o CTIA Certification/Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices

  o PTCRB Permanent Reference Document NAPRD03 (Full Test Laboratory)

  The following scopes require off-site audits by a CTIA Certification-appointed ATL Review Committee:

  o CTIA Certification Battery Life Test Plan

  o CTIA Certification Requirements for Battery System Compliance to IEEE 1725

  o CTIA Certification Requirements for Battery System Compliance to IEEE 1625

  o CTIA Cybersecurity Certification Test Plan for IoT Devices

  o CTIA Certification Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance

  o CTIA Certification Speech Performance Test Plan

  o CTIA Certification Device Hardware Reliability Test Plan

  o PTCRB Permanent Reference Document NAPRD03 (Associate Test Laboratory)

  o CTIA Certification Utility IoT Device Test Plan

- Signing the ATL License and Service Agreement

- Paying the annual ATL license fee

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### 2.2    ISO/IEC 17025 Accreditation

The ISO/IEC 17025 accreditation must be granted by an International Laboratory Accreditation Cooperation (ILAC) member accreditation body. The purpose of this accreditation is: (1) to ensure labs have a quality system and are technically competent to perform certification testing, and (2) to ensure ongoing lab compliance with certification program requirements and industry standards.

The ISO/IEC 17025 accreditation program scopes parallel the CTIA Certification test plans and shall be identified on the accreditation certificate as:

- CTIA Certification Battery Life Test Plan

- CTIA Certification Requirements for Battery System Compliance to IEEE 1725

- CTIA Certification Requirements for Battery System Compliance to IEEE 1625

- CTIA Cybersecurity Certification Test Plan for IoT Devices

- CTIA Certification Device Hardware Reliability Test Plan

- CTIA Certification Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance

- CTIA Certification Test Plan for Wireless Device Over-the-Air Performance

- CTIA Certification /Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices

- CTIA Certification Speech Performance Test Plan

- Test specifications referenced in PTCRB Permanent Reference Document NAPRD03

- CTIA Certification Utility IoT Device Test Plan

These scopes will not reference the revisions or publication dates of the test plans.  CTIA Certification will depend on ISO/IEC-17025 §5.4.2 to ensure labs always use the latest revision of the test plans.

The lab must be able to perform all tests in each test plan for the scopes to which it is accredited. If approved by CTIA Certification, any tests the lab is unable to perform itself may be sub-contracted per ISO/IEC 17025 §4.5 guidelines.  CTIA Certification may reject a lab's application if in its view the amount of testing being outsourced is excessive.  Proof of such subcontracting agreement shall be provided to CTIA Certification.

### 2.3    Assessment Process

See the appendices of this document for the assessment process specific to each CTIA Certification test plan scope. Laboratories shall contact CTIA Certification at application@ctiacertification.org to begin the process.  CTIA Certification will provide instructions for submitting the application package.

### 2.4    ATL Authorization Decision

CTIA Certification, along with the SME or ATL Review Committee, will review the findings of the audit and/or the lab's response (i.e., the corrective actions) to any deficiencies found.  ATL authorization will be granted after all deficiencies have been addressed and the lab has received accreditation to CTIA Certification's test plan(s) by the accreditation body.

## 2.5      ATL License and Service Agreement

The ATL License and Service Agreement is the legal agreement between CTIA Certification and the ATL. Upon ATL authorization, the ATL shall sign a digital version of ATL License and Service Agreement on the CTIA Certification database.

## 2.6      ATL Logo

The CTIA Certification Authorized Test Lab logo identifies a lab as authorized by CTIA Certification to conduct certification testing:



Laboratories licensed by CTIA Certification as ATLs are issued an ATL logo with a unique laboratory identifier code.  Digital files for reproduction of the logo may be downloaded from the CTIA Certification database.  Usage of the logo shall follow the guidelines in the ATL Brand Guidelines document found at https://ctiacertification.org/test-labs/.

## 2.7      Annual License Fee

An annual license fee of $3,000 is assessed to each ATL for each authorized location.  CTIA Certification will invoice the lab for the fee.

# Section 3    Program-Specific Requirements

## 3.1    Battery Compliance Certification Program

Laboratories will be authorized to conduct evaluations to either the CTIA Certification Requirements for Battery System Compliance to IEEE 1725 and/or the CTIA Certification Requirements for Battery System Compliance to IEEE 1625. Personnel shall include one or more auditors who, either individually or as a team, have the following qualifications:

- Relevant technical degree, or equivalent, with at least 3 years relevant professional work experience and related product knowledge;

- Professional auditor certification (e.g., American Society for Quality or equivalent) or completion of a certified Quality Management System (QMS) Auditor course from a recognized source (e.g., RABQSA or equivalent) and 2 years auditing experience; or 10 years of relevant auditing experience;

- Being free from any internal and external commercial, financial, or other pressures and influences that may adversely affect the quality of his/her work;

- Experience managing confidential information;

- Experience in auditing Cell and Battery Pack manufacturing sites or equivalent processes;

- Proficiency in reading and writing English language documentation;

- Comprehensive understanding of the CTIA Certification Requirements for Battery System Compliance to IEEE 1725 and/or CTIA Certification Requirements for Battery System Compliance to IEEE 1625, CTIA Battery Compliance Certification Program requirements, IEEE 1725 and/or IEEE 1625 specifications

ATLs shall attend all meetings of the CTIA Certification Battery Compliance Working Group.  Should an ATL fail to meet this requirement, their ATL status shall be revoked for a 12-month period. If after 12 months the ATL has attended ALL meetings, and completed a 3-day CTIA-administered training session, their ATL status shall be reinstated.  Should the ATL fail to meet this requirement a second time, their ATL status shall be revoked and they may re-apply for ATL authorization.

## 3.2    Battery Life Certification Program

ATLs shall attend all face-to-face meetings of the CTIA Certification Battery Life Working Group. Should an ATL fail to meet this requirement, their ATL status shall be revoked for a 12-month period[1]. If after 12 months the ATL has attended ALL meetings, their ATL status shall be reinstated.  Should the ATL fail to meet this requirement a second time, their ATL status shall be revoked and they may re-apply for ATL authorization.

## 3.3    IoT Cybersecurity Certification Program

Laboratories authorized for IoT Cybersecurity Certification testing shall:

- Attend all face-to-face meetings of the CTIA Cybersecurity Certification Working Group and participate in 4 out of the last 5 working group conference calls.  Should an ATL fail to meet this

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[1] The ATL Review Committee will consider any extenuating circumstances, brought to its attention by the ATL, causing the failure to meet this requirement and has the sole discretion to impose or waive this penalty.

requirement, their ATL status shall be revoked for a 6-month period.  If after 6 months, the ATL has attended ALL conference calls and face-to-face meetings, their ATL status shall be reinstated.  Should the ATL fail to meet this requirement a second time, their ATL status shall be revoked and they may re-apply for ATL authorization.

- Active participation during working group conference calls/meetings is expected.  ATLs shall actively contribute to the continued development and maintenance of the test plan by equally sharing in the work requested of ATLs by the working group.

- Conduct at least one Cybersecurity Certification test per year, as evidenced by a certification request in the CTIA Certification database.

## 3.4    Device Hardware Reliability Certification Program

Laboratories authorized for Device Hardware Reliability Certification testing shall:

- Attend all face-to-face meetings of the CTIA Certification Device Hardware Reliability Working Group and, on a rolling basis, participate in 3 out of the last 5 working group conference calls. Should an ATL fail to meet this requirement, their ATL status shall be revoked for a 6-month period[2]. If after 6 months the ATL has attended ALL conference calls and face-to-face meetings, their ATL status shall be reinstated.  Should the ATL fail to meet this requirement a second time, their ATL status shall be revoked and they may re-apply for ATL authorization.
- Active participation during working group conference calls is expected. Should an ATL fail to respond to an inquiry of them during the call, the meeting summary attendee roster will show the ATL as not attending the call.

## 3.5    PTCRB Certification Program

### 3.5.1    Full Test Laboratory

Laboratories authorized as Full Test Laboratories for the PTCRB certification program shall:

- Use approved test platforms listed on the PTCRB TC Database
- Attend all PTCRB Validation Group (PVG) and PTCRB Plenary meetings (a conference call or face- to-face counts equally as a "meeting"). Laboratories with multiple locations shall send a minimum of one delegate to attend each meeting. Should a laboratory be unable to attend a meeting due to extenuating circumstances, the laboratory shall notify CTIA Certification prior to the meeting along with the reason for being unable to attend.  Acceptance of the reason for non-attendance will be at CTIA Certification's sole discretion.
- Contribute to the development and acceptance of new test cases into standard development organizations (SDOs) such as 3GPP RAN WG5 by attending meetings and (co-)sourcing contributions to address new test cases or critical fixes for existing test cases important to the PTCRB Working Group. The efforts can be completed by collaborating with other industry partners. Each Full Test Lab company shall author at least eight contributions annually. For companies with multiple Full Test Labs, that company shall author at least four additional contributions per additional location. SDO contributions shall be based on the need of PTCRB Working Group as stipulated by submitted Request for Tests (RFTs). An acceptable contribution shall be as described by Category A, B, C, or F in 3GPP TR 21.900 Table 4A. Note: Non-3GPP contributions shall be evaluated against this criterion by OSG and CTIA Certification.

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[2] The ATL Review Committee will consider any extenuating circumstances, brought to its attention by the ATL, causing the failure to meet this requirement and has the sole discretion to impose or waive this penalty.

- Attend CTIA Certification Program Working Groups and other recognized test standardization forums. Contributions shall be based on the needs of the PTCRB Working Group as stipulated by submitted Request for Tests (RFTs).
- Actively participate in all PVG activities, such as:
  - Serving as rapporteur for RFTs
  - Supporting PRD maintenance
  - Supporting inter-laboratory comparison testing
  - Supporting conformance & performance test validation and verification
  - Co-host or sponsor PTCRB quarterly (Super Week) meetings in the U.S. or Canada.

- Employ test managers who have a minimum of 3-year experience in certification testing (at least two years in E-UTRA, NR, or AE testing)
- Employ test engineers who have a minimum of 1-year experience in certification testing. Alternatively, test managers may document that their test engineers are competent to perform their tasks and supply this documentation to CTIA Certification.
- Be capable of executing tests in the PTCRB bands identified in PVG.11.
- Meet the minimum capability requirements described in Table 1.1 for each band (including network independent, bearer agnostic, etc.) at all times
- When adding additional test capability, an authorization application per Appendix F shall be submitted

Table 3.5-1 Table Minimum Capability Requirements

| GERAN Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| GERAN RSE (Deleted) | | |
| GERAN RF  (Deleted) | | |
| GERAN Protocol  (Deleted) | | |
| GERAN SIM (Deleted) | | |
| GERAN SATK (Deleted) | | |
| GERAN Acoustics (Deleted) | | |
| GERAN TTY (Deleted) | | |
| GERAN A-GNSS (Deleted) | | |

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| UTRA Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **UTRA RSE** (Deleted) | | |
| **UTRA RF** | 50 | |
| **UTRA RRM** | 50 | |
| **UTRA Protocol** | 50 | |
| **UTRA UICC / USIM** (Deleted) | | |
| **UTRA USAT** (Deleted) | | |
| **UTRA Acoustics** (Deleted) | | |
| **UTRA TTY** (Deleted) | | |
| **UTRA A-GNSS RF** (Deleted) | | |
| **UTRA A-GNSS Protocol** (Deleted) | | |

| E-UTRA Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **E-UTRA RSE** | 100 | |
| **E-UTRA RF** | 50 | |
| **E-UTRA RRM** | 50 | |
| **E-UTRA Protocol** | 50 | |
| **E-UTRA UICC** | 50 | |
| **E-UTRA USAT** | 50 | |
| **E-UTRA Acoustics** | 100 | |
| **E-UTRA TDD RF** (Deleted) | | |
| **E-UTRA TDD RRM** (Deleted) | | |
| **E-UTRA TDD Protocol** (Deleted) | | |
| **E-UTRA CA RF** | 50 | |
| **E-UTRA CA RRM** | 50 | |
| **E-UTRA CA Protocol** | 50 | |
| **E-UTRA Positioning RF** | 100 | |
| **E-UTRA Positioning Protocol** | 100 | |
| **E-UTRA Data Throughput** | 100 | |

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| 5G NR Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| NR FR1 RF | 80 | (Not including nXX_RedCap Bands) |
| EN-DC FR1 RF | 80 | |
| NR CA FR1 RF | 80 | |
| EN-DC CA FR1 RF | 80 | |
| NR FR1 RRM | 80 | (Not including nXX_RedCap Bands) |
| EN-DC FR1 RRM | 80 | |
| 5G Performance FR1 | 80 | (Not including nXX_RedCap Bands) |
| EN-DC FR1 Performance | 80 | |
| NR AS Protocol FR1 | 80 | |
| 5G AS Protocol FR1 | 80 | |
| EN-DC AS Protocol FR1 | 80 | |
| NR NAS Protocol FR1 | 80 | |
| EN-DC NAS Protocol FR1 | 80 | |
| NR CA Protocol FR1 | 80 | |
| EN-DC CA Protocol FR1 | 80 | |
| EN-DC FR2 RF | 80 | |
| NR CA FR2 RF | 80 | |
| EN-DC CA FR2 RF | 80 | |
| EN-DC FR2 RRM | 80 | |
| 5G Performance FR2 | 80 | |
| EN-DC FR2 Performance | 80 | |
| NR AS Protocol FR2 | 80 | |
| 5G AS Protocol FR2 | 80 | |
| EN-DC AS Protocol FR2 | 80 | |
| NR NAS Protocol FR2 | 80 | |
| EN-DC NAS Protocol FR2 | 80 | |
| NR CA Protocol FR2 | 80 | |
| EN-DC CA Protocol FR2 | 80 | |
| NR IMS Protocol | 80 | |
| 5G Positioning | 80 | |
| NR UICC | 80 | |
| NR USAT | 80 | |

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| | | |
|---|---|---|
| **NR-EUTRA InterRAT** | 80 | |
| **5G FR1 RSE** | 100 | |
| **NR FR1 RF RedCap Bands** | 80 | |
| **NR FR1 RRM RedCap Bands** | 80 | |
| **5G FR1 Performance RedCap Bands** | 80 | |
| **NR AS Protocol RedCap Bands** | 80 | |
| **5G AS Protocol RedCap Bands** | 80 | |
| **NR NAS Protocol RedCap Bands** | 80 | |
| **NR RedCap UICC** | 80 | |
| **NR RedCap USAT** | 80 | |

| Category M Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **Category M RF** | 90 | |
| **Category M RRM** | 90 | |
| **Category M Protocol** | 90 | |
| **Category M IMS** (Deleted) | | |

| NB-IoT Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **NB-IoT RF** | 90 | |
| **NB-IoT RRM** | 90 | |
| **NB-IoT Protocol** | 90 | (not including NB-IoT NTN bands) |
| **NB-IoT UICC** | 70 | |

| NB-IoT NTN Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **NB-IoT NTN RF** | TBC | |
| **NB-IoT NTN RRM** | TBC | |
| **NB-IoT NTN Protocol** | TBC | |
| **NB-IoT Protocol NB-IoT NTN bands** | TBC | |

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| UICC Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| UICC Based NFC SWP / HCI | 100 | |
| UICC Based NFC NFC Test Book IOP (Deleted) | | |
| UICC Based NFC SIM Alliance and GP Conformance | 100 | |
| UICC Based NFC SWP / HCI | 100 | |

| Mission Critical Services | Minimum Capability (%) | Note |
|---|---|---|
| MC-PTT-IPCAN | 100 | |
| MC-PTT-EUTRA | 100 | |

| Network Independent Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| UICC/USIM | 100 | |
| USAT | 100 | |

| Remote SIM Provisioning Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| Remote SIM Provisioning (SGP.23) | 100 | |
| Remote SIM Provisioning (SGP.23-2) | TBC | |
| Remote SIM Provisioning (SGP.33-2) | TBC | |

| Miscellaneous Technology Area | Minimum Capability (%) | Note |
|---|---|---|
| **MMS** (Deleted) | | |
| **OMA DM** (Deleted) | | |
| **SUPL** | 100 | |
| **Remote SIM Provisioning (Deleted)** | | **Moved to Remote SIM Provisioning Technology Area** |
| **Lightweight M2M** (Deleted) | | |
| **AT Commands** (Deleted) | | |
| **OMA FUMO** (Deleted) | | |
| **IMS** | 100 | |
| **Connection Efficiency** | 100 | |
| **OMA LPPe** | 100 | |
| **eLPP** (Deleted) | | |

Note: Minimum capability is the requirement across all validated bands/band combinations

If the laboratory is applying to be a PTCRB Full Test Laboratory with full accreditation in UTRA, the laboratory must be technology qualified in:

- UTRA RF
- UTRA RRM
- UTRA Protocol
- NI-UICC UICC/USIM
- NI-UICC USAT

If the laboratory is applying to be a PTCRB Full Test Laboratory with full accreditation in E-UTRA, the laboratory must be technology qualified in:

- E-UTRA RF
- E-UTRA RRM
- E-UTRA Protocol
- E-UTRA Data Throughput
- E-UTRA CA RF
- E-UTRA CA RRM
- E-UTRA CA Protocol
- NI-UICC UICC/USIM
- NI-UICC USAT
- E-UTRA USIM (Only BI Bands)E-UTRA USAT (Only BI Bands)

If the laboratory is applying to be a PTCRB Full Test Laboratory with full accreditation in 5G FR1, the laboratory must be technology qualified in:

- NR FR1 RF (Not including nXX_RedCap Bands)
- EN-DC FR1 RF
- NR FR1 RRM (Not including nXX_RedCap Bands)
- EN-DC FR1 RRM
- 5G FR1 Performance (Not including nXX_RedCap Bands)
- EN-DC FR1 Performance
- NR NAS Protocol (Not including nXX_RedCap Bands)
- EN-DC NAS Protocol
- 5G AS Protocol (Not including nXX_RedCap Bands)
- NR AS Protocol (Not including nXX_RedCap Bands)
- EN-DC AS Protocol
- NI-UICC UICC/USIM
- NI-UICC USAT
- NR USIM (Not including RedCap Bands)
- NR USAT (Not including RedCap Bands)

If the laboratory is applying to be a PTCRB Full Test Laboratory with full accreditation in 5G FR2, the laboratory must be technology qualified in:

- EN-DC FR2 RF
- EN-DC FR2 RRM
- 5G FR2 Performance
- EN-DC FR2 Performance
- EN-DC NAS Protocol
- 5G AS Protocol
- EN-DC AS Protocol
- NI-UICC UICC/USIM
- NI-UICC USAT
- NR USIM (Not including RedCap Bands)
- NR USAT (Not including RedCap Bands)
- 

If the laboratory is applying to be a PTCRB Full Test Laboratory with full accreditation in 5G RedCap, the laboratory must be technology qualified in:
- NR FR1 RF (nXX_RedCap Bands)
- NR FR1 RRM (nXX_RedCap Bands)
- 5G FR1 Performance (nXX_RedCap Bands)
- NR NAS Protocol (nXX_RedCap Bands)
- 5G AS Protocol (nXX_RedCap Bands)
- NR AS Protocol (nXX_RedCap Bands)
- NR USIM (only RedCap Bands)
- NR USAT (only RedCap Bands)

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in Category M, the lab must be an E-UTRA Primary Laboratory and technology qualified in:

- Category M RF
- Category M RRM
- Category M Protocol
- Connection Efficiency
- Category M USIM (only BI-M Bands)
- Category M USAT (only BI-M Bands)

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in NB-IoT , the lab must be an E-UTRA Primary Laboratory and technology qualified in:

- NB-IoT RF
- NB-IoT RRM
- NB-IoT Protocol
- NB-IoT UICC
- NB-IoT USAT
- Connection Efficiency

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in NB-IoT NTN , the lab must be an E- UTRA Primary Laboratory and technology qualified in:

- NB-IoT NTN RF
- NB-IoT NTN RRM
- NB-IoT NTN Protocol
- NB-IoT Protocol (Only in cases corresponding to the NB-IoT NTN bands)
- Connection Efficiency

If the lab is applying to be a PTCRB Full Test Laboratory with accreditation in UICC Based NFC testing, the laboratory must be technology qualified in:
- SWP / HCI
- SIM Alliance and GP Conformance
- NFC Test Book Conformance

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in Secure User Plane Location testing, the lab must be technology qualified in:

- SUPL

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in Remote SIM Provisioning testing, the lab must be technology qualified in:

- Remote SIM Provisioning (SGP.23)
- Remote SIM Provisioning (SGP.23-2)
- Remote SIM Provisioning (SGP.33-2)

If the laboratory is applying to be a PTCRB Full Test Laboratory with accreditation in Mission Critical Services testing, the lab must be qualified in one of technology areas:

- MC-PTT-IPCAN
- MC-PTT-EUTRA

### 3.5.2 Associate Test Laboratory

Laboratories authorized as Associate Test Laboratories for the PTCRB certification program shall:

- Be sponsored by a PTCRB Full Test Laboratory in good standing and qualified in the technology to be tested by the PTCRB Associate Test Laboratory.  Only the PTCRB Full Test Laboratory sponsoring the PTCRB Associate Test Laboratory shall act as the Primary Laboratory for testing performed by the PTCRB Associate Test Laboratory.
- Attend all PTCRB Validation Group (PVG) and PTCRB Plenary meetings (a conference call or face- to-face counts equally as a "meeting"). Laboratories with multiple locations shall send a minimum of one delegate to attend each meeting.
  - Should a laboratory be unable to attend a meeting due to extenuating circumstances, the laboratory shall notify CTIA Certification prior to the meeting along with the reason for being unable to attend.  Acceptance of the reason will be at CTIA Certification's sole discretion.
  - PTCRB Associate Test Laboratories may be represented by a delegate from the PTCRB Full Test Laboratory, sponsoring the PTCRB Associate Test Laboratory, at the PVG and PTCRB Plenary meetings, provided sufficient documentation demonstrating how information is shared with the PTCRB Associate Test Laboratory is provided.  PTCRB Associate Test Laboratories that are not part of the same corporation as the PTCRB Full Test Laboratory sponsoring the PTCRB Associate Test Laboratory are required to attend two PVG and two PTCRB Plenary meetings per year.
- Use approved test platforms listed on the PTCRB TC Database
- Employ test managers who have a minimum of 3-year experience in certification testing (at least two years in E-UTRA, NR, or AE testing)
- Employ test engineers who have a minimum of 1-year experience.  Alternatively, test managers may document that their test engineers are competent to perform their tasks and supply this documentation to CTIA.
- Be capable of executing tests in the PTCRB bands identified in PVG.11.
- When adding additional test capability, an authorization application per Appendix F shall be submitted. The application shall include the sponsor Full Test Laboratory capability requirements described in Table 1.1.

### 3.5.3 Probation

A laboratory failing to fulfill the requirements of this document will be placed on probation. The issues to be resolved will be communicated to the laboratory by CTIA Certification.  The laboratory shall respond with its root cause analysis and corrective actions.  The laboratory may be subject to auditing of its location at the laboratory's expense. Subject to CTA Certification's approval, the laboratory may continue to accept certification test requests from OEMs.

The laboratory will be removed from probation when the identified issues are resolved to CTIA Certification's satisfaction.

### 3.5.4 Annual Laboratory Authorization Renewal

Continuous support of testing capability is a requirement for PTCRB Authorized Test Laboratories therefore it is necessary for all PTCRB authorized test laboratories to submit a documentation package annually to CTIA Certification to declare current test case capability for assessment and reauthorization.

Loan or temporary rental test equipment or test packages shall not be counted towards lab capability.

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Reauthorization documentation packages shall include the following items from Appendix F - Assessment Process for PTCRB Permanent Reference Document NAPRD03:

1a, 1c, 1e, 1g, 1h, 1i, 1k and 1l

PTCRB Full Test Laboratories shall additionally provide evidence of participation and contribution to PVG and recognized test standardization forums e.g. 3GPP Working Groups and CTIA Working Groups.

The documentation of participation and contribution shall include a summary of the participation and contributions and also copies of any contributions listed.

Where there are multiple Full Test Laboratories within a laboratory group a single documentation package detailing participation and contribution to PVG and the recognized test standardization forums shall be submitted. The documentation package shall clearly state the names and addresses of the laboratories within the laboratory group for which the evidence is being submitted.

Documentation detailing laboratory capability, participation and contribution to PVG and recognized test standardization forums shall be submitted to CTIA Certification no later than November 1 of each year according to instructions provided by CTIA Certification. Documentation packages received after 23:59 on November 1 (Eastern Standard Time) shall be considered late.

CTIA Certification reserves the right to conduct lab audits at its discretion.

### 3.6 IoT Network Certified Certification Program

A laboratory authorized as a Full Test Laboratory for the PTCRB certification program will also be recognized as an ATL for the IoT Network Certified certification program.

### 3.7 Over-the-Air Performance Testing

#### 3.7.1 Annual OTA Test

Laboratories authorized for Over-the-Air Performance testing shall conduct at least one OTA test per year, as evidenced by a certification request in the CTIA Certification database.  See Section 5.4 of this document).

- This requirement is applicable for each calendar year and to each authorized location. For newly authorized ATLs, this requirement is applicable for the calendar year following authorization.

- Should an ATL fail to meet this requirement, their ATL status shall be revoked. The ATL may request re-authorization by contacting CTIA Certification and providing a timeframe (of no greater than 6 months) for when a test report will be uploaded to the CTIA Certification database.  The re- authorization may require an assessment per Appendix K of this document if new revisions to the test plan have been published during the inactivity period. Should the ATL fail to meet this requirement a second time, their ATL status shall be permanently revoked.

#### 3.7.2 Phantom Maintenance

Phantoms are considered lab equipment and shall be maintained within the specification outlined in the CTIA Certification test plan per ISO/IEC 17025. Labs are advised of the following:

- Proper handling increases the life of the phantoms.  Using dust-free latex or similar gloves when handling the phantoms keeps oils and dust from contaminating the phantoms.  Contamination and physical wear are the primary causes of phantom degradation.  Contributors include dust, contact with oils from human hands or other sources, or rubbing against hard surfaces.  Properly handled phantoms may be used for multiple years even under heavy usage.
- When phantoms are dusty, they can be cleaned with compressed air.  When required, they may be cleaned

with distilled water and a non-abrasive cloth. Alcohol and other detergents should be avoided.

- Labs are required to maintain the compliance of their phantoms. It is recommended that labs test the compliance of all phantoms on a regular basis, based on usage. Methods of demonstrating compliance may include one or more of the following:
  - o Sending the phantoms back to the manufacturer or an accredited lab to measure the dielectric properties on the surface at the 10 reference points.
  - o Measuring a known device in the phantom hand to confirm phantom performance.
  - o Using a reference (golden) phantom sample to validate other lab phantoms using a common reference device.
- It is recommended that labs track the usage of flexible phantoms including handling of these phantoms in order to track degradation over time.

Failure to maintain phantoms effectively may result in non-compliant phantoms and erroneous data requiring corrective actions as mandated in ISO/IEC 17025.

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# Section 4    On-Going Compliance Requirements

### 4.1    ISO/IEC 17025 Accreditation

ATLs shall maintain their ISO/IEC 17025 accreditation to the CTIA Certification test plan scopes to which they are accredited.

### 4.2    Program-Specific Compliance Requirements

ATLs shall maintain compliance with the requirements in Section 3 of this document, as applicable.

### 4.3    ATL License and Service Agreement

The *ATL License and Service Agreement* is renewed on January 1 of each year.  ATLs shall accept the digital version of the Agreement on the CTIA Certification database.

### 4.4    Annual License Fee

Along with the renewal of the *ATL License and Service Agreement*, CTIA will invoice the ATL for the annual license fee of $2,000 for each authorized location.  The ATL shall pay this fee.

### 4.5    Notification of Personnel Changes

ATLs shall inform CTIA Certification of any changes in key personnel involved with the certification program (e.g., project/test manager, lead auditor for battery compliance certification scope).  These changes will be reviewed by CTIA Certification and, as applicable, the ATL Review Committee.

### 4.6    Inter-Laboratory Comparison Testing

On a periodic basis, CTIA Certification may conduct inter-laboratory comparison testing within a given testing scope.  Samples will be circulated among labs, and measurements will be taken and submitted to CTIA Certification for analysis. Data outliers will be investigated and addressed.  Investigations may require re-testing by the lab, updating of the lab's test procedures, or, if the lab is found to be in non- compliance of the ATL requirements, suspension or revocation of the lab's ATL status.

## Section 5     Use of CTIA Certification Test Plans

### 5.1     General

As noted in the copyright statement on each of the CTIA Certification test plans, the test plans may not be modified or altered in any way.  Nor may any derivative works be created from the test plans.

Only ATLs are permitted to use the test plans for commercial testing purposes.  No other test labs are permitted to use these test plans.  The test plans are solely for use within the CTIA Certification Program. Any other use of a test plan must be authorized by CTIA Certification in writing.

ATLs shall refer to the ATL License and Service Agreement for the terms and conditions under which the certification test plans may be used.

For CTIA/PTCRB certification, the test plans must be run in their entirety.  No tests shall be omitted.  The only exception to this rule is in cases where no testing is required, but the vendor requests the ATL to run portions of a test plan; in this case, the ATL shall prominently place an explanation on the cover of the test report.

### 5.2     Applicable Version

Unless otherwise specified in the applicable certification requirements document, the latest revision of the test plan, at the time the request is submitted via the certification database, shall be used.

### 5.3     Pre-Certification Testing

Use of CTIA Certification test plans for pre-certification testing is permitted under the following conditions. The ATL shall inform CTIA Certification of the vendor name and model name/number of the device to be tested by sending an email to support@ctiacertification.org. The ATL shall prominently label on the cover of the test report:  "Pre-Certification Test Report. For [vendor name] internal use only."  There is no CTIA Certification fee for pre-certification testing.  Within a reasonable period of time, the vendor is expected to submit a certification request following the procedures in the appropriate certification requirements document.

### 5.4     Test Request

Testing to CTIA Certification test plans, with the exception of pre-certification testing, may only proceed once a test request, sent from the CTIA or PTCRB certification database, has been received and accepted by the ATL. Once testing is complete, the test report(s) shall be uploaded to the certification database.

# Section 6    PTCRB Certification Program Test Case Validation Qualification

Laboratories authorized as Validation Laboratories for the PTCRB certification program shall:

- Already be a PTCRB laboratory with scope for one or more PTCRB required Radio Access Technologies.

- Maintain a selection of test equipment listed in the PTCRB TC Database according to the following requirements:

    o Laboratories applying for the scope of UTRA validation shall comply with the following requirements:

        - Maintain FDD II, and FDD V as well as HSPA test capabilities as a minimum.
        - The applicant is required to operate protocol and RF test equipment.
        - The applicant has ISO/IEC 17025 accreditation for the scope of UTRA.

    o Laboratories applying for the scope of E-UTRA validation shall comply with the following requirements:

        - The applicant needs to operate E-UTRA protocol and RF test equipment as accepted by PVG.
        - The applicant must be able to maintain and support 50% of the PTCRB E-UTRA frequency bands.
        - The applicant has ISO/IEC 17025 accreditation for the scope of E-UTRA.

    o Laboratories applying for the scope of 5G F1 validation shall comply with the following requirements:

        - The applicant needs to operate 5G NR FR1 protocol and RF test equipment as accepted by PVG.
        - The applicant must be able to maintain and support 50% of the PTCRB 5G NR FR1 frequency bands in SA and EN-DC configurations.
        - The applicant has ISO/IEC 17025 accreditation for the scope of 5G NR for FR1 test cases.

    o Laboratories applying for the validation scope of 5G NR FR2 validation shall comply with the following requirements:

        - The applicant needs to operate 5G NR FR2 protocol and RF test equipment as accepted by PVG.
        - The applicant must be able to maintain and support 50% of the PTCRB 5G NR FR2 frequency bands in EN-DC configurations.
        - The applicant has ISO/IEC 17025 accreditation for the scope of 5G NR for FR2 test cases.

- Laboratories applying for the validation scope of Application Enabler validation shall comply with the following requirements:

  - The applicant needs to operate Application Enabler test equipment as accepted by PVG.
  - The applicant has ISO/IEC 17025 accreditation applicable for the scope of Application Enabler being requested.

- Laboratories applying for the validation scope of UICC Based NFC validation shall comply with the following requirements:

  - The applicant needs to operate UICC Based NFC test equipment as accepted by PVG.
  - The applicant has ISO/IEC 17025 accreditation applicable for the scope of UICC Based NFC being requested.

- Attend the PVG meetings.

  - Validation Laboratories shall send a competent person who will be able to report on the validation activities of the respective company.

  - The attendee will have the power to commit his company to specified work as directed by PVG Chairman and Members collectively.

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## Appendix A  Assessment Process for CTIA Certification Battery Life Test Plan

1)  The lab shall submit an application package to CTIA Certification consisting of:

   a)  Details demonstrating that the lab meets the ATL requirements defined in this document

   b)  Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body (for other testing scopes), the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the CTIA Certification Battery Life Test Plan.

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   c)  Written test procedures providing specific and detailed hardware, software, laboratory techniques, test methodology, and criteria used during the product evaluation. The test procedures shall include detailed information about the test equipment hardware and software and a step-by-step test execution procedure.

   d)  A set of sample test reports

   e)  An organizational chart

   f)  Acknowledgement of attending four sequential face-to-face meetings of the CTIA Battery Life Working Group

   g)  A list of the validated test systems used by the lab

2)  After reviewing the application package for completeness, CTIA Certification will forward the package to the ATL Review Committee

3)  The ATL Review Committee will review the procedures for:

   - Completeness – all required testing for the certification testing scope is covered in detail

   - Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

4)  At the end of the review, the ATL Review Committee will document any deficiencies and identify what the lab must do to resolve each deficiency.  CTIA Certification will forward the deficiencies list to the lab.

5)  The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee

## Appendix B   Content Removed

Content for this appendix has been removed.

## Appendix C  Assessment Process for CTIA Certification Requirements for Battery System Compliance to IEEE 1625/1725

1) The lab shall submit an application package to CTIA Certification consisting of:

   a) Details demonstrating that the lab meets the ATL Requirements defined in this document

   b) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

      • If the lab is already accredited by this accreditation body (for other testing scopes), the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the CTIA Certification Requirements for Battery System Compliance to IEEE 1625 and/or CTIA Certification Requirements for Battery System Compliance to IEEE 1725

      • If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   c) Written test procedures providing specific and detailed hardware, software, laboratory techniques, test methodology, and criteria used during the product evaluation. The test procedures shall include detailed information about the test equipment hardware and software and a step-by-step test execution procedure.

   d) A full set of test reports covering all components of a System of the laboratory's choice

   e) An organizational chart

   f) Acknowledgement of attending two sequential meetings of the CTIA Certification Battery Compliance Working Group

2) After reviewing the application package for completeness, CTIA Certification will forward the package to the ATL Review Committee. There are two operator representatives, two system vendor representatives, one pack vendor representative and one cell vendor representative on the committee.

3) The ATL Review Committee, which meets during the CTIA Certification Battery Compliance Working Group Meetings, will review the procedures for:

   • Completeness – all required testing is covered in detail

   • Adequacy – the procedures appear to be correct for carrying out the testing required

4) At the end of the review, the ATL Review Committee will document any deficiencies and identify what the lab must do to resolve each deficiency.  CTIA Certification will forward the deficiencies list to the lab.

5) The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee

6) Lab personnel responsible for testing shall attend a 3-day CTIA-administered training session. A training fee will apply.

## Appendix D  Assessment Process for CTIA Cybersecurity Certification Test Plan for IoT Devices

1) The lab shall submit an application package to CTIA Certification consisting of:

   a) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA Cybersecurity Certification Test Plan for IoT Devices*

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   b) Detailed written test procedures for conducting testing to the CTIA Certification test plan

   c) Test data of a reference device using the CTIA Certification-provided test report template

   d) CVs/resumes of personnel who will be involved with the testing, identifying their qualifications, and experience

   e) Acknowledgement of attending the most recent face-to-face meeting and 4 out of the last 5 conference calls of the CTIA Cybersecurity Certification Working Group

2) The ATL Review Committee will review the test procedures for:

   - Completeness – all required testing for the certification testing scope is covered in detail

   - Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

3) At the end of the review, the ATL Review Committee will document any deficiencies and identify what the lab must do to resolve each deficiency.  CTIA Certification will forward the deficiencies list to the lab.

4) The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee

## Appendix E    Content Removed

Content for this appendix has been removed.

## Appendix F   Assessment Process for PTCRB Permanent Reference Document NAPRD03

1) The lab shall submit an application package to CTIA Certification consisting of:

   a) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the test specifications referenced in *PTCRB Permanent Reference Document NAPRD03*

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   b) High-level written test procedures in English for conducting testing to the *PTCRB Permanent Reference Document NAPRD03*.  These procedures will be reviewed by CTIA Certification for:

   - Completeness – all required testing for the certification testing scope is covered

   - Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

   c) A completed PTCRB Laboratory Authorization Application Form and PTCRB Laboratory Test Capability Form

   d) A test report template (Full Test Laboratory authorization only)

   e) A list of test platforms available for use in the lab facility requesting authorization

   f) Evidence of contributions to the development and acceptance of new test cases into 3GPP RAN WG5, CTIA Certification Program Working Groups, OMA IOP or other organizations developing requirements used by the PTCRB certification program (Full Test Laboratory authorization only)

   g) CVs/resumes of personnel who will be involved with the testing, identifying their qualifications, and experience

   h) A completed Laboratory Capability Spreadsheet, which can be downloaded from the TC Database, indicating percentage support for test cases that can be performed within the lab facility requesting authorization

     - For PTCRB Associate Test Laboratories, a list of any test cases that will be outsourced to a PTCRB Full Test Laboratory shall be provided

   i) An organizational chart

   j) Acknowledgement of attending all PTCRB Plenary and PVG meetings in the last two quarters.

   k) A sponsorship statement from the sponsoring PTCRB Full Test Laboratory (Associate Test Laboratory authorization only)

   l) Details of the test plan generation tool. A brief description of the tools source (e.g. supplier name or if it is a self-developed solution).

2) The ATL Review Committee will review the above documentation

3)  For a Full Test Laboratory application, CTIA Certification will work with the lab to schedule the on-site audit <u>after</u> the documentation review is complete

4)  A CTIA Certification staff member will conduct the on-site audit (Full Test Laboratory only)

- The lab shall pay the travel expenses for one individual, including business class airfare for flights in excess of 7 hours

- CTIA Certification will invoice the lab for the estimated travel expenses. The lab shall pay these expenses prior to the on-site audit.

- CTIA Certification will reimburse the lab for any unused travel expenses after completion of the audit

5)  At the end of the audit, the CTIA Certification staff member will document any deficiencies identified during the audit, including deficiencies corrected during the audit. This document will also identify what the lab must do to resolve each deficiency.  The lab shall sign the document, indicating its agreement.

6)  The lab shall resolve any deficiencies and provide evidence to CTIA Certification for verification.

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## Appendix G  Assessment Process for CTIA Certification Device Hardware Reliability Test Plan

1)  The lab shall submit an application package to CTIA Certification consisting of:

   a)  Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the CTIA Certification Device Hardware Reliability Test Plan.

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment.

   **b)**  Details demonstrating that the lab meets the ATL Requirements defined in this document

   **c)**  CVs/resumes of personnel who will be involved with the testing, identifying their qualifications and experience

   **d)**  Very detailed work instructions/procedures demonstrating proficiency in testing to the CTIA Certification test plan

   **e)**  Acknowledgement of attending the most recent face-to-face meeting and 3 out of the last 5 conference calls of the CTIA Certification Program Working Group/Device Hardware Reliability Working Group

**2)**  The ATL Review Committee will review the application package.

3)  CTIA Certification will document any deficiencies found during the review and provide the deficiency list to the lab.  The turnaround time from receipt of the application will be approximately two weeks.

4)  The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee.

## Appendix H   Content Removed

Content for this appendix has been removed.

## Appendix I    Assessment Process for CTIA Certification Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance

1)  The lab shall submit an application package to CTIA Certification consisting of:

    a)  Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

        •  If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA Certification Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance*

        •  If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

    b)  Detailed written test procedures for conducting testing to the CTIA Certification test plan.  These procedures will be reviewed by the SME for:

        •  Completeness – all required testing for the certification testing scope is covered in detail

        •  Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

    c)  A test report template

    d)  CTIA Certification Measurement Uncertainty Spreadsheet fully populated and ripple test procedures/results

    e)  Documents as required by the *Laboratory Assessment and Validation Requirements Document for CTIA Certification Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance*

2)  CTIA Certification will assign a SME to review the above documentation

3)  The SME will document any deficiencies identified during the off-site audit. This document will also identify what the lab must do to resolve each deficiency.

4)  The lab shall resolve any deficiencies identified during the audit and provide evidence to the SME for verification

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## Appendix J   Content Removed

Content for this appendix has been removed.

## Appendix K   Assessment Process for CTIA Certification Test Plan for Wireless Device Over-the- Air Performance

1)   The lab shall submit an application package to CTIA Certification consisting of:

    a)   Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

- If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA* Certification *Test Plan for Wireless Device Over-the- Air Performance*

- If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

    b)   Detailed written test procedures for conducting testing to the CTIA Certification test plan.  These procedures will be reviewed by the SME for:

- Completeness – all required testing for the certification testing scope is covered in detail

- Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

    c)   A test report template

    d)   CTIA Certification Measurement Uncertainty Spreadsheet fully populated and ripple test procedures/results

2)   CTIA Certification will assign a SME to review the above documentation and to conduct the on-site audit

3)   CTIA Certification will work with the lab to schedule the on-site audit <u>after</u> the documentation review is complete

4)   The SME and a CTIA Certification staff member will conduct the on-site audit

- The lab shall pay the travel expenses for these two individuals, including business class airfare for flights in excess of 7 hours

- CTIA Certification will invoice the lab for the estimated travel expenses plus SME audit fee. The lab shall pay these expenses prior to the on-site audit.

- CTIA Certification will reimburse the lab for any unused travel expenses after completion of the audit

5)   At the end of the audit, the SME will document any deficiencies identified during the audit, including deficiencies corrected during the audit. This document will also identify what the lab must do to resolve each deficiency.  The lab shall sign the document, indicating its agreement.

6)   The lab shall resolve any deficiencies identified during the audit and provide evidence to the SME for verification

## Appendix L   Assessment Process for CTIA Certification /Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices

1) The lab shall have already completed an on-site audit for testing to the CTIA Certification Test Plan for Wireless Device Over-the-Air Performance. If desired, the lab may request a single on-site audit for both the *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance* and the *CTIA Certification/Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices*.

2) The lab shall submit an application package to CTIA Certification consisting of:

   a) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA Certification/Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices*. Include a copy of the certificate showing the *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance* and the *CTIA Certification/Wi-Fi Alliance Test Plan for RF Performance Evaluation of Wi-Fi Mobile Converged Devices*, if available.

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   b) Detailed written test procedures for conducting testing to the test plan.  These procedures will be reviewed by the SME for:

   - Completeness – all required testing for the certification testing scope is covered in detail

   - Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

   c) A full test report on a device of the laboratory's choice.  The test report will be reviewed for completeness per the test report requirements in the test plan. Please make this report generic. Do not include device specifics in the report (provide a redacted report)

   d) CTIA Certification Measurement Uncertainty Spreadsheet fully populated and ripple test procedures/results

   e) Very detailed equipment specifications

   f) Very detailed software descriptions

3) CTIA Certification will assign a SME to review the above documentation and to conduct the on-site audit.

4) CTIA Certification will work with the lab to schedule the on-site audit <u>after</u> the documentation review is complete

5) The SME will conduct the on-site SME audit.

   - The lab shall pay the travel expenses for the SME, including business class airfare for flights in excess of 7 hours

- • CTIA Certification will invoice the lab for the estimated travel expenses plus SME audit fee. The lab shall pay these expenses prior to the on-site audit.

- • CTIA Certification will reimburse the lab for any unused travel expenses after completion of the audit

6) At the end of the audit, the SME will document any deficiencies identified during the audit, including deficiencies corrected during the audit. This document will also identify what the lab must do to resolve each deficiency.  The lab shall sign the document, indicating its agreement.

7) The lab shall resolve any deficiencies identified during the audit and provide evidence to the SME for verification

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## Appendix M   Assessment Process for CTIA Certification Speech Performance Test Plan

1)  The lab shall submit an application package to CTIA Certification consisting of:

 a)  Details demonstrating that the lab meets the ATL requirements defined in this document

 b)  Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

 • If the lab is already accredited by this accreditation body (for other testing scopes), the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA Certification Speech Performance Test Plan.*

 • If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

 c)  Written test procedures providing specific and detailed hardware, software, laboratory techniques, test methodology, and criteria used during the product evaluation. The test procedures shall include detailed information about the test equipment hardware and software and a step-by-step test execution procedure.

 d)  Test report template

 e)  CTIA Certification Measurement Uncertainty Spreadsheet fully populated

 f)  A list of the validated test systems used by the lab

 g)  An organizational chart

2)  After reviewing the application package for completeness, CTIA Certification will forward the package to the ATL Review Committee

3)  The ATL Review Committee will review the procedures for:

 • Completeness – all required testing for the certification testing scope is covered in detail

 • Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

4)  At the end of the review, the ATL Review Committee will document any deficiencies and identify what the lab must do to resolve each deficiency.  CTIA Certification will forward the deficiencies list to the lab.

5)  The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee

## Appendix N  Assessment of Qualification for PTCRB Certification Program Test Case Validation

The lab shall submit an application package to CTIA Certification consisting of:

1) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

2) If the lab is already accredited by this accreditation body for other testing scopes, the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the test specifications referenced in PTCRB Permanent Reference Document NAPRD03

3) High-level written test procedures in English for validation of test cases as per Section 3.8 and 3.9 of PVG.02. These procedures will be reviewed by CTIA Certification for:

   a. Completeness – all required steps for the test case validation is covered

   b. Adequacy – the procedures appear to be correct for validation of PTCRB required test cases.

4) A tabulated list of test platforms available for use in the lab facility requesting authorization.

5) Detailed configuration and calibration data of test platforms available for use in the lab facility requesting authorization

6) Document detailing any current Validation qualifications as per the PTCRB Lab List and the qualification to be added.

7) CVs/resumes/contact information of personnel who will be involved with the Validation, identifying their qualifications, and experience

8) Acknowledgement of attending all PTCRB Plenary and PVG meetings in the last two quarters.

The ATL Review Committee will review the above documentation.

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## Appendix O   Assessment Process for CTIA Certification Utility IoT Device Test Plan

1) The lab shall submit an application package to CTIA Certification consisting of:

   a) Details demonstrating that the lab meets the ATL requirements defined in this document

   b) Identification of the accreditation body to be used for ISO/IEC 17025 accreditation

   - If the lab is already accredited by this accreditation body (for other testing scopes), the lab shall inform CTIA Certification of that accreditation body's procedure for expanding the lab's accreditation scope to include the *CTIA Certification Speech Performance Test Plan.*

   - If the lab is not already accredited by this accreditation body, the lab shall inform CTIA Certification of the scheduled date of the ISO/IEC 17025 assessment

   c) Test report template

   d) An organizational chart

2) After reviewing the application package for completeness, CTIA Certification will forward the package to the ATL Review Committee

3) The ATL Review Committee will review the procedures for:

   - Completeness – all required testing for the certification testing scope is covered in detail

   - Adequacy – the procedures appear to be correct for carrying out the testing required in the certification testing scope

4) At the end of the review, the ATL Review Committee will document any deficiencies and identify what the lab must do to resolve each deficiency.  CTIA Certification will forward the deficiencies list to the lab.

5) The lab shall resolve all deficiencies to the satisfaction of the ATL Review Committee

## Appendix P   Change History

| Date | Version | Description of Changes |
|---|---|---|
| January 2012 | 1.0 | • First Release |
| June 2012 | 1.1 | • Updated program-specific requirements for Battery Certification Program to include meeting attendance requirements<br>• Updated assessment process for CTIA *Bluetooth* Compatibility Test Plan to include meeting attendance requirements |
| November 2013 | 1.2 | • Added program-specific requirements for CTIA Test Plan for Wireless Device Over-the-Air Performance |
| December 2014 | 1.3 | • Added requirements for CTIA Speech Performance Test Plan<br>• Updated name of CTIA CDMA Wireless Device Test Plan<br>• Updated program-specific requirements for Battery Certification Program<br>• Updated program-specific requirements for *Bluetooth* Compatibility Certification Program<br>• Clarified that the annual CATL administrative fee applies to each authorized location<br>• Updated Use of CTIA Test Plans section<br>• Updated Assessment Process for CTIA Certification Requirements for Battery System Compliance to IEEE 1625/1725 |
| August 2015 | 1.4 | • Added requirements for Conformance Test Plan for LTE Wireless Devices<br>• Updated name of Conformance Test Plan for CDMA Wireless Devices<br>• Updated name of Interoperability Test Plan for LTE Wireless Devices<br>• Updated Use of CTIA Test Plans section - Certification Testing |
| November 2015 | 1.5 | • Added requirements for Device Hardware Reliability Test Plan<br>• Clarified that subcontracting of tests applies only to the Battery Certification Program and to the Test Plan for Wireless Device Over-the-Air Performance. |
| July 2016 | 1.6 | • Added program-specific requirements for Battery Life Test Plan<br>• Added assessment process for Test Plan for 2x2 Downlink MIMO and Transmit Diversity Over-the-Air Performance<br>• Added assessment process for Battery Life Test Plan<br>• Added assessment process for Test Plan for LTE Carrier Aggregation Interoperability<br>• Added accreditation body identification requirement to all assessment processes<br>• Updated CTIA logo and CATL logo |
| June 2018 | 1.7 | • Added program-specific requirements for Cybersecurity Program for IoT Devices<br>• Added assessment process for CTIA Cybersecurity Certification Test Plan for IoT Devices<br>• Removed CTIA Speech Performance Test Plan<br>• Removed assessment process for CTIA *Bluetooth* Compatibility Test Plan<br>• Updated the CATL License and Service Agreement process and the Annual administrative fee |
| February 2019 | 1.8 | • Updated CATL Requirements |
| January 2020 | 1.9 | • Added program-specific requirements for PTCRB Certification Program |

| Date | Version | Description of Changes |
|---|---|---|
| | | • Added assessment process for PTCRB Certification Program<br>• Removed Conformance Test Plan for LTE Wireless Devices<br>• Updated Use of CTIA Test Plans section<br>• Removed assessment processes for CTIA Conformance Test Plan for CDMA Wireless Devices, CTIA Conformance Test Plan for LTE Wireless Devices, and CTIA Device Hardware Reliability Test Plan |
| December 2020 | 1.10 | • Changed organization name, and associated documents, from CTIA to CTIA Certification<br>• Added requirements for CTIA Certification Speech Performance Test Plan<br>• Removed *Bluetooth* Compatibility Test Plan and Hearing Aid Compatibility Test Plan<br>• Updated PTCRB Certification Program requirements |
| May 2021 | 1.11 | • Added FR1 RSE scopes for PTCRB Certification Program<br>• Added PTCRB Full Test Laboratory baseline requirements<br>• Added requirements for Device Hardware Reliability Test Plan |
| November 2021 | 1.12 | • Updated PTCRB Full Test Laboratory requirements for 5G NR<br>• Added program-specific requirements for IoT Network Certified certification program<br>• Added PTCRB Certification Program Test Case Validation Qualification<br>• Added Assessment of Qualification for PTCRB Certification Program Test Case Validation<br>• Removed Interoperability Test Plans |
| June 2022 | 1.13 | • Updated the annual submission requirements for the PTCRB Full Test Laboratory contributing in the industry activities.<br>• Updated Section 6 PTCRB Certification Program Test Case Validation Qualification |
| February 2023 | 1.14 | • Updated Over-the-Air Performance Testing requirements |
| December 2023 | 1.15 | • Added Utility IoT Device Test Plan<br>• Updated Battery Compliance Certification Program requirements<br>• Updated annual license fee |
| May 2024 | 1.16 | • Deleted some technology areas of GERAN, UTRA, and E-UTRA in Section 3.5<br>• Clarified requirement of attending meeting in Appendix F and N |
| November 2024 | 1.17 | • Added the table "Network Independent Technology Area" and requirements that labs shall be qualified for NI-UCC UICC/USIM and NI-UICC USAT for all devices independent of the supported technologies in Section 3.5 |
| August 2025 | 1.18 | • Updated the Minimum Capability in PTCRB 5G NR Technology Area to 80%<br>• Create a sperate PTCRB authorization scope for 5G RedCap |
| January 2026 | 1.19 | • Removed GERAN and added additional requirements to PTCRB Lab section<br>• Added Mission Critical Services authorization scope to PTCRB Certification Program<br>• Added NB-IoT NTN authorization scope to PTCRB Certification Program<br>• SDO participation requirements |

CTIA Certification

| | | <ul><li>Added the missing RAT dependent USIM/USAT related qualification under PTCRB Full Test Lab Accreditation in E-UTRA, Category M, 5G and RedCap.</li><li>Included SGP.23-2 and SGP.33-2 in Remote SIM Provisioning requirements</li><li>Created a separate technology area for Remote SIM Provisioning</li><li>Set the lab minimum capability for NR RedCap USAT as 80%</li></ul> |
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