PTCRB™

Industry Certified, Network Ready.

Process Overview of PTCRB Certification Program and IMEI Control

Version 3.11

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Section 1 Introduction

1.1 Purpose

The purpose of this PTCRB Program Management Document (PPMD) is to provide the framework within which GERAN, UTRA, E-UTRA, and NR device certification can take place. This PPMD includes both PTCRB and IoT Network Certified™ certification.

PTCRB certification is a process by which devices are technically evaluated to meet the minimum requirements for registration on the networks of operators that utilize the PTCRB certification program to evaluate device compliance to wireless industry requirements.

IoT Network Certified certification applies to IoT Devices integrating a PTCRB certified Module or an IoT Network Certified Embedded Modem.

This process is recommended for all manufacturers developing devices that are expected to operate on these networks. Any device manufacturer may submit devices for certification by following the processes outlined in this document. Membership in CTIA Certification is not required to submit a device for certification.

1.2 Acronyms and Terms

Acronym/Term	Definition
AE	Application Enabler
Certified Chipset	A Chipset that meets the certification requirements defined in this document. A Certified Chipset shall: • contain all the functional blocks outlined for Chipset • support 3GPP based technologies Test results from the Certified Chipset may be leveraged when the Certified Chipset is (1) Being integrated in a LTE-M or NB-IoT Module or (2) Part of an End Device that's an IoT device supporting NB-IoT or LTE-M. Test results from a Certified Chipset cannot be leveraged for any other type of device (e.g., Certified Chipsets are not applicable for use in a Smartphone, Feature Phone, Notebook, Tablet, or any LTE Cat-1 or higher Integrated Device).
Child Device	A Notebook or Tablet platform utilizing an embedded Module, which is derived from a PTCRB-certified Parent Notebook or Tablet platform. A Child Device is unique in that the only allowable changes relative to its Parent device are those applicable to the Notebook or Tablet platform itself.

Acronym/Term	Definition
Chipset	A collection of chips/functional blocks providing WWAN radio functionality intended to be designed and integrated into either: (1) An LTE-M or NB-IoT Module or (2) An End Device that is an IoT Device. A Chipset may be made up of single or multiple interconnected chips and/or IC packages. A Chipset shall include, at a minimum, the following functional blocks: • Baseband • RF Transceiver • RF Front End • Power Management IC A Chipset is not a finished product or enclosed in a housing.
C-TIS	Combined Total Integrated Sensitivity. This metric quantifies the DUT's downlink radiated performance in terms of a non-directional (e.g. spherical) antenna pattern across all antenna branches supported by the DUT. If the DUT has only one receive antenna, Total Isotropic Sensitivity (i.e. TIS) is measured instead of C-TIS.
DUT	Device Under Test
ECO	Engineering Change Order. An ECO is defined as a request to recertify a previously certified device after: • hardware update • software update • addition of a Subset to a Superset Device
Embedded Modem	A device which provides WWAN radio functionality as a component intended to be integrated into a host device. An Embedded Modem shall be submitted as an IoT Device and will be certified utilizing the IoT Network Certified program.
End Product	A device that provides WWAN radio functionality as a finished product used as sold. An End Product is not intended for integration or design into another End Product for use in normal operation.
Family	A Family is defined as a set of Notebook or a set of Tablet platforms which use a certified Module and are related (as Child Devices) to a PTCRB-certified Parent platform. A family is a set of Notebooks or Tablets, not a combination of both.
Feature Phone	According to GSMA TS.06, "A device supporting basic personal communication services, e.g., voice call and SMS."

Acronym/Term	Definition
FOTA	Firmware Over the Air, which is the process of sending firmware updates over-the-air to devices configured to accept them.
GCF Bands	Radio frequency bands identified by GCF for their certification program, which have not been identified as PTCRB Bands.
GNSS	Global Navigation Satellite System. This is a term used to denote any satellite-based navigation system. GPS, GLONASS, Beidou and Galileo all represent examples of GNSS. A-GNSS denotes that assistance (provided through any number of delivery services) is available to improve location fix accuracy and time-to-first-fix of one or more satellite-based location systems.
IoT Device	A device whose main function is to allow objects to be accessed, sensed and/or controlled remotely across existing mobile network infrastructures. An IoT Device may incorporate and leverage the certification from a certified Module, certified Embedded Modem, or Certified Chipset but is not required to use these paths to be considered an IoT Device. To be eligible for IoT Network Certified certification, the IoT device must use either a PTCRB certified Module or an IoT Network Certified Embedded Modem.
Integrated Device	Any device type that embeds a PTCRB-certified Module to create an End Product. To be considered an Integrated Device, the PTCRB-certified Module must be embedded in full accordance with the Module's Initial PTCRB certification.
Integrated Device Variant	An Integrated Device that is a Variant of an already certified Integrated Device. More than one Integrated Device Variant can be derived from a single Parent, but no devices of any type may be derived from a Variant. Reference Section 11.10.9 of this document for the process and details of the changes to the Parent that may be considered for the Integrated Device Variant certification.
Initial Certification	The first PTCRB certification for a device of any type. This term is used to denote the certification from which a timeline for subsequent ECO testing will be determined.
Internet of Things	The Internet of Things (IoT) describes the coordination of multiple machines, devices and appliances connected to the Internet through multiple networks. These include everyday objects such as Tablets and consumer electronics, and other machines such as vehicles, monitors and sensors equipped with machine-to-machine (M2M) communications that allow them to send and receive data.
ISM	Industrial, Scientific and Medical band. Radio bands reserved internationally for the use of radio frequency (RF) energy for industrial, scientific and medical purposes other than telecommunications.
Lifetime Waiver	Waiver that has been approved for the lifetime of the device for which it was requested, including subsequent ECOs.

Acronym/Term	Definition
LTE-M	LTE Category M1 technology, part of the Low Power Wide Area network solutions
M2M	Machine-to-Machine (M2M) is an integral part of the Internet of Things (IoT) and describes the use of applications that are enabled by the communication between two or more machines. M2M technology connects machines, devices and appliances together wirelessly via a variety of communications channels, including IP and SMS, to deliver services with limited direct human intervention. M2M devices may be referred to in 3GPP as the User Equipment of Machine Type Communication (MTC). In PTCRB, M2M devices are called IoT Devices.
M2M UICC	UICC with specific properties for use in M2M environments, this includes existing form factors according to ETSI TS 102 221 and the MFF specified in ETSI TS 102 671
MFF	M2M Form Factor specified in ETSI TS 102 671.
MMI	Man-Machine Interface (MMI) is the hardware and/or software which allows the user to control and monitor the device function, as opposed to the hardware and/or software that contains the logic by which machine operation is controlled.
Module	Modules are finished WWAN radio devices that do not directly connect to a host via a standardized external interface such as USB, PCMCIA, Compact Flash, MMC, RS-232, or IEEE-1394. A Module may or may not include an integral antenna system or SIM/USIM interface. Modules shall use interfaces such as PCIe, M.2 or Surface Mount Technology (SMT) such as LGA, BGA or LCC. OEM custom interfaces can also be classified as a Module. *Modules supporting FR2 are not finished WWAN radio devices from the FR2 perspective and therefore RRM and RF testing cannot be completed at the module level and must be performed as part of the Integrated Device certification.
NAA	Network Access Application, an application that gains access to a network e.g., SIM, USIM, CSIM, ISIM.
NB-IoT	LTE Narrow Band IoT technology, part of the Low Power Wide Area network solutions, also referred to as Category NB1 or NB2
NHPIS	Near-Horizon Partial Isotropic Sensitivity. This metric assesses the DUT's downlink radiated performance based on power received from a source at or near the horizon. NHPIS performance is quantified in terms of the DUT's ability to receive a signal source that's within +/- 30 degrees and +/- 45 degrees of the horizon. Typically, NHPIS applies only to devices with an antenna whose orientation is fixed relative to the horizon.

Acronym/Term	Definition
NHPRP	Near-Horizon Partial Radiated Power. This metric assesses the DUT's uplink radiated performance based on power radiated towards or near the horizon. NHPRP performance is quantified in terms of the DUT's radiated power within +/- 30 degrees and +/- 45 degrees of the horizon. Typically, NHPRP applies only to devices with an antenna whose orientation is fixed relative to the horizon.
Non-PTCRB Public Safety Applications	Those public safety applications that are not based on open standards or that are based on standards that are outside the scope of the PTCRB certification program, such as Land Mobile Radio (LMR).
Notebook	A portable personal computer combining the computer, keyboard and display in one form factor. Typically, the keyboard is built into the base and the display is hinged along the back edge of the base. A convertible Notebook is a form factor that enables configuration as a Notebook or as a Tablet. Devices which support computing functionality but are designed to be held to the ear (in the same fashion as a conventional UE), devices which support circuit-switched voice and/or devices which support VoLTE do not qualify as a Notebook platform for the purpose of PTCRB certification. All references to Notebook in this document refer to devices that have implemented WWAN connectivity utilizing a Module. Notebook devices utilizing a chipset-based WWAN connectivity implementation are currently outside the scope of this definition.
Off-Site Test Laboratory	A laboratory which is not authorized to conduct PTCRB certification testing, but which operates valid test platform(s) according to the most current version of PPMD and NAPRD03. An Off-Site Test Laboratory may be utilized by a PTCRB Full Test Laboratory for PTCRB certification testing according to the procedures laid down in Section 11.5 of this document.
Off-Site Testing	Process of PTCRB certification testing in an Off-Site Test Laboratory which is executed on valid test platform(s) by a PTCRB Full Test Laboratory's own personnel.
Parent	A PTCRB-certified device (of any type) from which Variant or Child Devices can be derived.
Permanent RF Connector	Permanent RF connectors are mounted to the DUT's production circuit board(s) and are an integral part of the DUT's hardware design. Permanent RF connectors are typically installed during the manufacturing process. When permanent RF connectors are present in production devices, access to these connectors may be limited.
PTCRB Associate Test Laboratory	A laboratory authorized to conduct PTCRB certification testing with limited capabilities to test in a specific technology area (GERAN, UTRA, E-UTRA, NR, etc.).
PTCRB Full Test Laboratory	A laboratory authorized to conduct PTCRB certification testing, having met the full qualification requirements, in a specific technology area (GERAN, UTRA, E-UTRA, NR, etc.).

Acronym/Term	Definition
PTCRB Primary Test Laboratory	The PTCRB Primary Test Laboratory is the lab selected as the primary laboratory by the manufacturer and is responsible for ensuring that the device has met all certification requirements as defined by PTCRB.
PTCRB Bands	Radio frequency bands identified for the PTCRB certification program. These are defined in NAPRD03 Section 2.8.
Public Safety Device	A device capable of supporting public safety users on the basis that it supports mission-critical features through application-layer functionality. Public Safety Devices shall support 3GPP Band 14 and be FCC certified under 47 C.F.R. Part 90 Subpart R for Public Safety Broadband (PS BB) service. Devices which are also FCC certified under 47 C.F.R Part 90 Subpart R for Public Safety Narrowband (PS NB) are not covered by this definition.
Public Safety Device with Integrated LMR	A device whose main purpose is to support public safety users on the basis that it supports mission-critical features and supports an integrated narrow-band Land Mobile Radio (LMR). Public Safety Devices with Integrated LMR shall support 3GPP Band 14 and be FCC certified under both 47 C.F.R. Part 90 Subpart R for Public Safety Broadband (PS BB) service and 47 C.F.R Part 90 Subpart R for Public Safety Narrowband (PS NB) service.
RAT	Radio Access Technology
RFT	Request For Test
RSE	Radiated Spurious Emissions. This measurement quantifies the power level of undesired (i.e., spurious) emissions radiated by a DUT while it's in an idle state and/or an active (transmitting) state.
Smartphone	According to GSMA TS 06, "A device with large display, predominantly with touch screen technology, fast processor and memory in the GB range. A fully-featured OS/platform that provides voice and data communications capabilities, enables personalization of the device by the user and in addition supports installation and maintenance of mobile applications (e.g., downloadable from an Application store)"
Standard Device	Any device category not explicitly categorized within the PTCRB certification process.
Subset	A partial set of features / bands of a device's Superset.
Superset	The complete capability set of features / bands of a device.

Acronym/Term	Definition
Superset Device	A device which is certified indicating its Superset, with testing completed for all Subsets. A Superset Device must maintain its Hardware, electrical characteristics, and Superset. A Superset Device must identify all Subsets during the certification via the certification database. New Subsets will require an ECO to the Superset device. Adding a feature to the Superset will require a Variant certification to the Superset device. The Superset Device shall only switch between subsets by changing of the operator SIM or operator configuration file. Changes made by modifying software do not qualify the device as a Superset Device and must be handled by the Variant process. Modules are currently being evaluated for future inclusion.
Tablet	A portable personal computer combining the computer and display in a single form factor resembling a writing slate. User input is typically accomplished via a touchscreen or stylus pen. A portable personal computer which supports circuit-switched voice and/or VoLTE does not qualify as a Tablet. All references to Tablet in this document refer to products that have implemented WWAN connectivity utilizing a Module. Tablet products utilizing a chipset-based WWAN connectivity implementation are currently outside the scope of this definition.
Temporary RF Connector	Temporary RF connectors added to the DUT to facilitate conducted testing. Temporary RF connectors are not an integral part of the device's production hardware design and therefore are not installed during the manufacturing process. Temporary RF connectors shall never be found in production devices.
Testing Project	Set of GSM, UTRA, E-UTRA, or AE test cases from PTCRB categories "A", "B" or "E" to be performed with one single device type.
TIS	Total Isotropic Sensitivity. This metric quantifies the DUT's downlink radiated performance in terms of a non-directional (e.g. spherical) antenna pattern. TIS is measured for each of the DUT's individual antenna branches, so it's typically used for DUTs with only one receive antenna. If the DUT has more than one receive antenna, Combined Total Isotropic Sensitivity (i.e. C-TIS) is typically measured instead of TIS.
TRP	Total Radiated Power. This metric quantifies the DUT's uplink radiated performance in terms of a non-directional (e.g. spherical) antenna pattern. If the DUT utilizes more than one transmit antenna, TRP will be measured for each one.
UE	User Equipment
UICC	Host platform for NAA.

Acronym/Term	Definition
Variant	A device (other than a Notebook platform or Integrated Device) derived from a PTCRB-certified Parent. More than one Variant can be derived from a single Parent, but no devices of any type may be derived from a Variant. Notebook platforms derived from a PTCRB-certified Parent are defined as Child Devices and not Variants. Enabling any technology (i.e., 2G (GSM/GPRS/EGPRS), 3G (UTRA), 4G (E-UTRA), CDMA 2000, etc.) does not qualify as a Variant certification. These changes are considered a new platform and must be certified via Initial Certification. Disabling (removal) of any technology may only be performed if the HW of the device remains the same. A Variant should be of the same device type as the Parent, with the following exceptions: Feature Phones, Smartphones and Tablets (not incorporating a certified module). All these device types could be Variants of each other if assessed and approved by the PTCRB Primary Test Laboratory.
Variant Family	A set of Modules or devices whose lineage can be traced in the certification database to a single Parent device certification. A family can contain a Parent and a Variant or a Parent with multiple variants. All Variants to that Parent will be considered part of a family.
Wearable	A device in a form factor that is intended to be worn on the body by the user. Could take any number of form factors, i.e. wristwatch, glasses, body camera etc. The device may include a display. If user input is implemented, it may be accomplished but not limited to a touchscreen, crown, external buttons or connected input devices. All references to wearable in this document refer to products that may or may not include a module to implement WWAN connectivity.
WWAN	Wireless Wide Area Network. In this document, WWAN currently refers to devices supporting GSM, UTRA, E-UTRA or NR RATs.

Section 2 Certification and IMEI Administration

2.1 Certification Administrator

CTIA Certification is the administrator for the PTCRB certification program. Responsibilities include:

- Maintenance of certification database
- Maintenance of TC database
- Maintenance of PTCRB website
- Collecting, reviewing and storing all certification data
- Awarding certifications

2.2 IMEI Administrator

CTIA Certification is the IMEI Administrator for the PTCRB certification program. Responsibilities include:

- Receive and review IMEI TAC requests
- Issue IMEI TACs
- Maintain database of allocated TACs
- Provide allocated TACs to GSMA
- Serve as a GSMA Reporting Body for TAC allocations

Section 3 PTCRB Working Group

The PTCRB certification program is managed by the PTCRB Working Group within CTIA Certification. Membership in either CTIA or the CTIA Certification Program Working Group is required to participate in this working group.

- To join CTIA, go to https://www.ctia.org/about/become-a-member. Any membership category allows for participation in the working group.
- To join the CTIA Certification Program Working Group only, contact programs@ctiacertification.org.

The structure of the working group is described in this section.

3.1 PTCRB Plenary

3.1.1 Responsibilities

The PTCRB Plenary is responsible for defining and maintaining the requirements for PTCRB certification and for providing oversight of the various PTCRB Working Groups and task forces.

3.1.2 Representatives

The Plenary is composed of PTCRB Working Group member company representatives including, for example, network operators, device manufacturers, test labs and test solution providers.

Any company within the wireless industry may join the Plenary for a period of 6 months, without having membership as described above, in order to observe the group and determine interest in ongoing participation.

To join the Plenary, go to https://cpwg.ctiacertifiation.org/, select New User Registration, and select PTCRB Plenary on the next page.

3.1.3 Leadership

The Plenary is run by a Chair, Vice Chair and Secretary. These positions are held by working group participants elected to 2-year terms.

3.1.3.1 Chair

The role of the PTCRB Plenary Chair is to:

- Run the PTCRB Plenary meetings according to the posted agenda
- Ensure Plenary focus and progress
- Ensure all parties have an opportunity to express their views
- Facilitate conflict resolution
- Lead the group to reach consensus on decisions and contributions

3.1.3.2 Vice Chair

The role of the PTCRB Plenary Vice Chair is to:

- Assist the PTCRB Plenary Chair in running the meetings
- Step in to serve as Chair when the PTCRB Plenary Chair is temporarily unavailable

3.1.3.3 Secretary

The role of the PTCRB Plenary Secretary is to:

- Develop meeting agendas and meeting summaries
- Post agendas and summaries to the CPWG website

3.1.4 Meeting Schedule

The PTCRB Plenary meets quarterly face-to-face. Meeting invitations are sent to the Plenary email list.

3.1.5 Contribution Process

All work is contribution-driven. Contributions are submitted using the CTIA Certification Program Contribution Form found on the working group website at https://cpwg.ctiacertification.org/ under the “Templates/Contribution Template” folder. The contribution process is described in the “PTCRB WG Contribution Policy” document located in the “Polices” folder on the working group website.

3.2 PTCRB Working Groups and Task Forces

3.2.1 Responsibilities

Individual working groups and task forces are defined as needed to focus on specific areas of interest.

3.2.2 Representatives

These working groups and task forces are composed of PTCRB Working Group member company representatives including, for example, network operators, device manufacturers, test labs and test solution providers.

Any company within the wireless industry may join for a period of 6 months, without having membership as described above, in order to observe the group/task force and determine interest for ongoing participation.

To join, go to https://cpwg.ctiacertification.org/, select Register, and select the appropriate working groups and task forces on the next page.

3.2.3 Leadership

Each working group and task force is run by a Chair, Vice Chair and Secretary. These positions are held by working group participants elected to 2-year terms. See Sections 3.1.3.1 through 3.1.3.3 of this document for leadership roles.

3.2.4 Meeting Schedule

Each working group and task force determines its own meeting schedule. Meeting invitations are sent to the working group email list.

3.3 PTCRB Validation Group (PVG)

The PTCRB Validation Group (PVG) is the technical consultation body of the PTCRB Working Group. PVG is a conformance test management group which serves a consulting role to the PTCRB Plenary and holds separate quarterly face-to-face meetings. The PVG responsibilities include, but are not limited to:

- Management of PTCRB RFTs (Requests for Tests)
- Management of test case validation activities and qualifying of test equipment
- Management of PTCRB TC (Test Case) database technical content
- Consultation with the PTCRB Plenary concerning any technical issues
- Liaising with other bodies (SDOs and other technical groups)
- PVG administration (membership, PVG PRDs, meetings
- Progress reporting during PTCRB Operator Steering Group, PTCRB Leadership Council and PTCRB Working Group meetings on an as-needed basis

3.4 PTCRB Operator Steering Group

The Operator Steering Group (OSG) is composed of PTCRB Working Group network operators that utilize the PTCRB certification program to evaluate device compliance to wireless industry requirements. Operators interested in joining the OSG shall complete and submit a membership application found in Appendix E of his document, indicating their anticipated level of participation in the group:

- Active (plan to participate in all meetings), or
- Passive (do not plan to participate in all meetings)

PTCRB OSG membership is approved by consensus of the current OSG members. In order to maintain Active status, operators shall attend 50% of PTCRB OSG and PTCRB Plenary meetings (a teleconference or face-to-face counts equally as a “meeting”), and shall not miss more than two consecutive meetings.

When decisions are being made, a quorum consisting of at least 50% of the Active PTCRB OSG members is necessary. Votes will be based on a simple majority of operators present. For circulation votes, at least 50% of the OSG members must respond. Of the operators responding, a simple majority must approve.

The PTCRB OSG is responsible for:

- Establishing priorities and providing strategic direction to the PTCRB Working Group
- Conflict resolution in cases where consensus is unable to be reached within the PTCRB Working Group
- Acting as a “sounding board” for issues working group members may not be comfortable taking to the Plenary, PIC, PVG or working groups
- Reviewing and responding to waiver requests (Active operators may vote to approve or reject waiver requests)
- Reviewing 1UE validations for potential approval

3.5 PTCRB Industry Council

The PTCRB Industry Council (PIC) is composed of the OSG, the leadership of the PVG, the leaders of the PTCRB Working Groups, and the elected representatives from each of the following five wireless industry segments:

a) chipset vendors

b) module vendors

c) phone vendors

d) test equipment vendors

e) PTCRB Primary Test Laboratories

The PIC is intended to gather a diverse range of input and experience from the members of the PTCRB Working Groups, therefore delegates from companies that could be eligible for multiple segments will be judged for eligibility based on the core business of the member company, as judged by CTIA Certification. For example:

- A chipset vendor, module vendor or phone vendor with a PTCRB Authorized Test Laboratory(s) under the same corporate umbrella will only be eligible for the chipset vendor, module vendor or phone vendor segment.
- A PTCRB Primary Test Laboratory with a test equipment vendor division under the same corporate umbrella will only be eligible for the PTCRB Primary Test Laboratory segment.

Delegates from companies holding PTCRB and/or Working Group leadership positions (PTCRB Plenary, PVG and PTCRB IoT WG) will not be eligible for election as a representative of the PTCRB Industry segment for which their company is eligible. This rule may be waived in the event there is no other eligible or willing delegate for an Industry Segment and with the agreed consensus of the industry segment as confirmed by CTIA Certification.

In the event that more than one delegate from within a member corporate umbrella is nominated for an industry segment only, one delegate will be allowed to accept the nomination.

Any companies uncertain of eligibility for industry segments should contact CTIA Certification in advance of an election to discuss potential eligibility for an industry segment.

The PIC is responsible for:

- Coordinating activities among the working groups and task forces
- Approving the formation of new working groups and task forces
- Reviewing and determining next steps for contributions submitted to the PTCRB Working Group

The PIC meets quarterly face-to-face and via teleconference as-needed. PIC representatives shall attend all meetings of the PIC.

3.6 Election Process for Designated Positions

a) All elected designated positions shall be held for 24 months.

b) Elections for all PTCRB Plenary, PVG and PTCRB Working Group leadership positions will be held during odd-numbered years.

c) Elections for PTCRB Industry Council (PIC) positions will be held during even-numbered years.

d) Results for the PTCRB Plenary, PVG, PIC and PTCRB Working Group leadership positions will be announced during the second quarter PVG and PTCRB Plenary meetings of the appropriate election year. The elected individual's role shall commence immediately following the conclusion of the election year's third quarter PVG or PTCRB Plenary meeting.

e) CTIA Certification will administrate the elections using an online tool to collect nominations and voting submissions.

f) The table below describes the timeline and steps that will be followed in the election process.

-5 Week	CTIA Certification will call for PTCRB Plenary, PVG, PIC and working group leadership position nominees five weeks before the second quarter PTCRB Plenary or PVG meeting during the appropriate election year, nomination submission deadline which shall be specified by CTIA Certification.
-4 Weeks	
-3 Weeks	CTIA Certification will confirm each nominee's willingness and eligibility to participate in the election three weeks before the second quarter PTCRB Plenary, or PVG meeting of the election year.
-2 Weeks	CTIA Certification will notify the PTCRB Plenary and PVG membership of the upcoming election and will provide instructions as to how member ballots shall be cast in the appropriate election year. The deadline for ballot submission shall be 22:00 UTC on the last day of the ballot submission period.
-1 Week	CTIA Certification will check votes for eligibility and tally the results.
Q2 meeting	Election result announced

g) Nominees for a Working Group leadership position must:

- Have been present for and participated in at least four of the last six full meetings of the PTCRB Working Group to which they have been nominated.
- Have the support from their company to take on the role.
- Agree to impartially support all the requisite responsibilities of their leadership position.

h) Nominees for a PIC industry segment representative position must:

- Have been present for and participated in at least four of the last six full meetings of the PTCRB Plenary. CTIA Certification will verify this based on the PTCRB Attendance list.
- The support from their company to take on the role.
- Agree to impartially support all the requisite responsibilities of their PIC representative position.

i) Delegates of member companies may only vote in the groups in which they participate.

j) Votes for PVG leadership positions shall only be cast by delegates of member companies recorded in PVG.02 at the time of the vote.

k) Each member company has one vote for each group in which they are a member.

l) In the event that multiple votes are received from the same member company, only the first submission will be counted. Subsequent votes will be ignored regardless of the submitter.

m) Votes cannot be rescinded or changed once submitted.

n) If an individual is no longer able to continue in their elected position mid-way through their elected term, CTIA Certification will initiate an election process for that position as soon as written confirmation of the need to do so is received from the individual.

o) Leadership and PIC industry segment representative positions cannot be transferred within a company (it is the delegate who is elected, not the company).

p) The process to fill a vacated leadership or PIC industry segment representative position outside the specified election cycle shall be the same as for scheduled elections (e.g., two weeks for nomination submissions, one week for candidate confirmation and one week within which to cast votes).

q) In the event that an elected PTCRB Working Group leader changes their employment to another working group member company, the individual may continue in that role provided that the individual does not have a break in-between employers of more than four weeks (the minimum time for an election process to be followed).

r) In the event that a PIC industry segment representative changes their employment to another working group member company in the same wireless industry segment, the representative may continue in that role provided they do not have a break in-between employers of more than four weeks (the minimum time for an election process to be followed). If the PIC wireless industry segment representative moves to another working group member company in a different wireless industry segment, the PIC representative's position shall be vacated and an election process for that position shall be initiated by CTIA Certification.

Section 4 Section Content Removed

Beginning with Version 3.0 of this document, the content of this section has been moved to Section 1.2.

Section 5 Policies

5.1 Overview of PTCRB Certification Documentation

The PTCRB certification program maintains two documents which describe, in detail, the test requirements and test processes associated with PTCRB device certification. The PTCRB certification program documentation will be modified to reflect the most recent test coverage and procedural agreements accepted by the PTCRB Working Group as described in Sections 5.2 through 5.6 of this document.

5.2 PTCRB Permanent Reference Document NAPRD03

5.2.1 Release Schedule

The PTCRB NAPRD03 contains the technical certification test and assessment requirements. These requirements are separated from the program management requirements in PPMD.

NAPRD03 will be released four times per year according to the PTCRB Working Group meeting schedule.

5.2.2 Applicability of NAPRD03 Version

Devices submitted for certification are required to complete the execution of all applicable tests approved and published in one of the two most recent versions of NAPRD03 as of the date the device is to complete certification.

Example:

- NAPRD03 version 1.0 is released on January 1
- NAPRD03 version 1.1 is released on April 1

According to the example release dates above, a DUT may be certified to the test requirements described in either NAPRD03 version 1.0 or NAPRD03 version 1.1 until NAPRD03 version 1.2 is released on July 1. Once NAPRD03 version 1.2 is released, the DUT must be certified against either NAPRD03 version 1.1 or version 1.2.

5.3 PTCRB Program Management Document (PPMD)

5.3.1 Release Schedule

The PPMD may be released at any time. A five working-day comment period will apply from the date the updated draft document is placed on the CPWG website in the Program Management Documents folder and an email notifying the PTCRB Working Group is sent to the working group distribution list.

5.3.2 Applicability of PPMD Version

Upon release of a new PPMD version, the new version supersedes all previous versions. All new requirements/rules go into effect upon the release of the PPMD unless otherwise stated.

5.4 NAPRD03 and PPMD Version Number

The NAPRD03 and PPMD version numbers are in the format x.yy.z.

Each time the document is fully approved, the characters will be incremented as appropriate. NAPRD03 can only be approved during a PTCRB meeting with a quorum of working group

members present. A five working-day comment period will apply from the date the draft document is placed on the CPWG website and an email notifying PTCRB Working Group members is sent to the distribution list.

5.5 Test Specifications

5.5.1 Basis for Test Specifications

The PTCRB certification technical requirements will be based on standards developed by Standards Development Organizations (SDOs) such as 3GPP and OMA (Open Mobile Alliance) as well as test plans developed by CTIA Certification. In some cases, PTCRB certification requirements may accommodate North American standards and/or additional requirements from the FCC, ISED, or any other government agency that may have jurisdiction and/or competence in the matter.

Additions to the PTCRB requirements will be managed by the PTCRB Working Group.

5.5.2 Harmonization with Other Industry Fora

The PTCRB will attempt to harmonize PTCRB certification with the GCF (Global Certification Forum) certification program and other industry fora when opportunities to do so arise.

5.5.3 Inclusion of Recently-Validated Tests

When new tests are recommended by the PVG prior to a PTCRB meeting, all recommended tests will be released as Category E and shall remain in this category until a minimum of 90 days have passed.

For a test to be moved from Category E into Category A, it must be:

- Approved by the PTCRB Working Group
- Validated and commercially available for at least 30 days
- Available in at least one PTCRB Full Test Laboratory

5.6 Issue Resolution

Details of a certification issue may be sent to CTIA Certification at support@ctiacertification.org. Reviews will take place according to the following process:

- CTIA Certification will immediately notify the Operator Steering Group
- Upon notification either a teleconference or email discussion will be scheduled within five working days
- CTIA Certification will issue a response within two working days after all appropriate discussions have taken place. Whenever possible, the Operator Steering Group will complete the review of certification issue within 10 working days.
- Issues requiring additional time will be addressed on a case-by-case basis
- The resolution will be provided to the requestor according to an agreed-upon schedule

Section 6 PTCRB Authorized Test Laboratories

6.1 PTCRB Primary Test Laboratory

The PTCRB Primary Test Laboratory is selected by the device manufacturer to take primary responsibility for ensuring the DUT has met all PTCRB certification requirements. The selected PTCRB Primary Test Laboratory must be a PTCRB Full Test Laboratory qualified in E-UTRA and/or NR depending upon the DUT's RAT capability.

To be selected as the PTCRB Primary Test Laboratory for an LTE-M Module or device, the laboratory must be a PTCRB Full Test Laboratory qualified in E-UTRA and LTE-M.

To be selected as the PTCRB Primary Test Lab for an NB-IoT Module or device, the laboratory must be a PTCRB Full Test Laboratory qualified in E-UTRA and NB-IoT.

LTE-M or NB-IoT Integrated Devices which utilize a PTCRB-certified Module shall select a Primary Test Laboratory that is qualified in E-UTRA.

6.2 PTCRB Full Test Laboratory Requirements

A PTCRB Full Test Laboratory is a test laboratory that meets the requirements of a PTCRB Full Test Laboratory as defined in the CTIA Certification Policies and Procedures for Authorized Test Labs found here: https://ctiacertification.org/test-labs/.

6.3 PTCRB Associate Test Laboratory

A PTCRB Associate Laboratory is a test laboratory that is sponsored by a PTCRB Full Test Laboratory and meets the requirements of a PTCRB Associate Laboratory as defined in the CTIA Certification Policies and Procedures for Authorized Test Laboratories found here https://ctiacertification.org/test-labs/.

6.4 Disclosure of DUT Test Results

DUT test results will be uploaded to the PTCRB certification database by the PTCRB Primary Test Laboratory. CTIA Certification staff and members of the Operator Steering Group will have access to the test results.

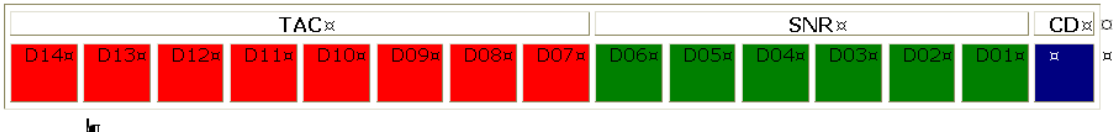
Section 7 Section Content Removed

The content of this section was removed in Version 3.0 of this document.

Section 8 IMEI Methods & Procedures

8.1 IMEI (International Mobile Equipment Identity) Overview

The IMEI (International Mobile Equipment Identity) is a unique 15-digit code used to identify an individual GSM, UTRA or E-UTRA device to a mobile network. The numerical format of the IMEI is:



TAC: Type Allocation Code

SNR: Serial Number Range

CD: Check Digit

D14 - D13: Reporting Body Identifier (35 = BABT, 01 = PTCRB for Reserved/Certified IMEIs)

D12 - D07: Type Identifier issued by Reporting Body. Limits production to 1,000,000 units per TAC

D06 - D01: Allocated by Reporting Body, but assigned to individual units by the Manufacturer

There are two types of IMEIs:

- Test IMEI - used for testing pre-production products. Issued in blocks of 1,000. Each Manufacturer has its own TAC for Test IMEIs. So, when a new Test IMEI is assigned, the next block of 1,000 numbers within the manufacturer's TAC is assigned.

  D14 - D13 = 00

- Production IMEI - used for products that will be submitted for certification. Issued in blocks of 1M. A block of 1,000,000 is a TAC. So, when a new IMEI is assigned, the next available TAC is assigned.

  D14 - D13 = 01 for PTCRB IMEIs

8.1.1 IMEI SVN

"IMEI SVN" is a term used to refer to the combination of the IMEI and the Software Version Number (SVN).

An IMEI Software Version Number (SVN, provided by the manufacturer) is used to identify each approved and commercially available software version.

Networks may request the IMEISV from any Phase 2 or later device. The IMEISV shall contain the first 14 digits of the IMEI plus a Software version number (SVN). The SVN shall be incremented when the device software is modified. Allocation of the 2-digit SVN is under the control of the Reporting Body. SVN "99" is reserved for future use (See 3GPP TS 23.003).

The structure of the IMEISV is as follows:

TAC	Serial No	SVN
NNXXXXXX	ZZZZZZ	SS

Where:

NN=Reporting Body Identifier

XXXXXX=Device Type Identifier defined by Reporting Body

ZZZZZZ=Allocated by Reporting Body but assigned per device by the manufacturer

SS=Software Version Number 00 - 98. SVN 99 is reserved for future use. (See 3GPP TS 23.003)

8.2 Policies Governing IMEIs

This section outlines the methods and procedures to be used by operators and manufacturers to reserve, obtain, record and distribute IMEI (SV)s.

TACs for IMEIs are assigned to specific SVNs within a Manufacturer/Model#. There may be more than one TAC for a given Manufacturer/Model# (i.e., if the manufacturer builds more than 1,000,000 units of a device).

A Manufacturer cannot share a TAC across multiple model numbers.

Under extenuating circumstances operators may allow the same TAC to be used across multiple models, marketed as a single model. In this case the SVN must be used to differentiate between the different models. The same SVN shall not be used on multiple models with different feature sets when the TAC is shared across these multiple models.

8.2.1 Software Version Number

The SVN (part of the IMEI SV) is required to be updated when the radio / protocol layer software changes or has been recompiled for any reason. If the applications and protocol modules are integrated into a single build, with one version number visible to the user, then the SVN must be incremented. For products that have separate SW “modules” for radio / protocol SW, OS and Application SW, with version numbers for the modules and an overall bundle version number, the SVN wouldn’t have to incremented for application changes unless the protocol software was changing or recompiled as well. A new hardware version shall be used if the hardware has been modified.

The SVN shall be unique and shall be revised in ascending, sequential numeric order. PTCRB Primary Test Labs shall always verify that the SVN is correct by running at least one of following test cases with the release version of the software. This will minimize the risk that SVN 00 or any non-sequential SVN is being released to the market.

- 3GPP TS 51.010-1, test case 26.7.3.1 for a GSM Device
- 3GPP TS 34.123-1, test case 9.3.1 for a UTRA Device
- 3GPP TS 36.523-1, test case 9.1.4.2 for a E-UTRA Device
- 3GPP TS 38.523-1, test cases 9.1.3.1 for a NR Device

SVNs are a limited resource. In order to conserve SVNs individual operators may excuse the manufacturer from the requirement to use a unique SVN for a model sharing a TAC and marketed as a single model if the model meets all of the following criteria:

- The manufacturer demonstrates an acceptable method for pushing settings/configurations to the device by a means which ensures that only the target operator's devices will be altered. This may include triggering by SIM card. The manufacturer must confirm that the update mechanism is acceptable to all operators for which the device is distributed or sold.
- The new device settings/configuration has been approved by the operator for which the change was intended
- The new settings/configuration must result in the features, and band support matching that of a PTCRB certified model with which the TAC is shared, or the device is a Superset Device in which the new settings/configuration is a Subset of the Superset Device.
- The manufacturer must provide a method of identifying the new configuration

8.2.2 IMEI Assignment for Integrated Devices and Variants

Unless noted otherwise in this section all devices are required to obtain a unique TAC per unique model number. This applies to Variants of already approved devices.

8.2.2.1 IMEI Assignment for Integrated Devices based on a Module

An Integrated Device manufacturer may utilize the TAC of the PTCRB-certified embedded Module only if the expected production of the Integrated Device is not expected to exceed 100,000 over the life of the Integrated Device.

If the production of the Integrated Device is expected to exceed 100,000 devices, then the Integrated Device manufacturer shall obtain a unique TAC range for the specific Integrated Device.

Note Notebooks and Tablets using a PTCRB-certified embedded Module may not use the Module's TAC and shall follow the rules specific to those devices. The Integrated Device manufacturer may request a unique TAC for use across multiple devices that are certified using the Integrated Device Variant process AND contain exactly the same Module. The unique TAC cannot be shared with Integrated Devices that are not linked as Parent or Integrated Device Variant in the PTCRB database.

The integrator must maintain a complete model number to IMEI mapping, which must be made available to network operators upon request.

The Module manufacturer must maintain a complete IMEI mapping indicating the manufacturer or distributor each IMEI was shipped to which must be made available to network operators upon request.

If the device is intended for use only on a specific network operator, the manufacturer should consult with the network operator to determine whether or not a unique TAC is required.

8.2.2.2 IMEI Assignment for Notebooks and Tablets with a Certified Module

For Notebook platforms, which incorporate a certified Module, the integrator must obtain either a unique TAC for a Family of Notebooks or a unique TAC for a specific Notebook model. A family consists of Notebooks integrating the same wireless Module.

For Tablet platforms, which incorporate a certified Module, the integrator must obtain a unique TAC for a Family of Tablets or a unique TAC for a specific Tablet model. A family consists of Tablets integrating the same wireless Module.

A Notebook and a Tablet are not permitted to use the same IMEI TAC allocation.

8.2.3 IMEISV Updates

The SVN portion of the IMEI SV shall be updated when:

- Protocol-layer software changes have been made or the software/firmware has been recompiled for any reason. This applies if the applications and protocol modules are integrated into a single build (with one version number visible to the user),
- In the case of devices that employ separate modules which comprise a protocol "bundle" or "package", (with version numbers for the components and an overall bundle version number), the SVN may be incremented at the manufacturer's discretion
- Devices which include changes only to the application layer are not required to increment the SVN unless the protocol-related software was changed or recompiled

In all cases, a new hardware version shall be issued if the hardware has been modified.

8.2.4 Ensuring IMEI SVN integrity

After an upgrade of commercially available software by any recognized method (and after raising an ECO), a request shall be made to the responsible PTCRB Primary Test Lab to confirm that the IMEI SV has been incremented. The PTCRB Primary Test Lab must ensure that the IMEI SV update has occurred and the IMEI has not been altered. No formal report is required. Confirmation of the correct IMEI and IMEISV may be accomplished by performing test cases listed in Section 8.2.1 of this document. For a Device supporting GSM, UTRA, E-UTRA and NR, execution in either technology is sufficient, and the execution of this test will require analysis of the Identity Response message. These tests must be executed with the production TAC and final IMEISV information. The new IMEI SVN shall then be entered onto the PTCRB certification database by the PTCRB Primary Laboratory as confirmation that the SVN has been correctly incremented.

8.2.5 IMEI Issuance

Devices that have completed PTCRB certification will be issued an IMEI on the Certified list. Service will not be denied to a device on the Certified list due to equipment type. Service could still be denied for subscription reasons (no roaming agreements, invalid SIM, etc.) Terminals that are stolen or for other reasons need to be denied service will be placed on the Block list.

8.2.6 IMEIs Issued Prior to PTCRB Testing

All UEs that were issued an IMEI prior to the availability of Type Certification testing (June 1, 1997) will be placed on an "Uncertified List". Manufactures must declare that the mobile equipment will pass the device approved certification tests. Operators are not required to support phones on this list and do so at their own risk.

8.2.7 Denial of Service

Operators, at their discretion, could deny service to an "Uncertified Listed" device.

8.2.8 IMEI Policy for Multiband or Multimode Devices

Multi-band/multi-mode devices shall contain only one IMEI. TACs issued by regulatory bodies may be used by the PTCRB in a multi-band/multi-mode device and placed on the PTCRB Certified list after the multi-band/multi-mode device conforms to the certification requirements listed in this document.

8.2.9 Reserved / Production IMEIs Used for Testing

The DUT may be loaded with the Reserved/Production IMEI for testing purposes provided this is done with the final / production hardware.

8.2.10 Miscellaneous

The GSM Association IMEI PRD TS.06 will apply to any areas not addressed in this document. The issues of IMEI for more than 1 million devices produced may be solved by using an additional TAC.

8.3 Obtaining a Test (Non-Commercial) IMEI

8.3.1 Test IMEI Format

In accordance with the GSM Association document TS.06, the format of the test IMEI shall be 001MMM/00/NNNyyy/zz, where:

- **MMM** - Represents a number issued by the IMEI Administrator and is unique to each manufacturer
- **00** - Represents the FAC code of the DUT
- **NNN** - Represents a number assigned by the IMEI Administrator
- **yyy** - Represents the serial number of the DUT
- **zz** - Represents the software version (SV) number

Note: SV 00 is reserved for non-approved software versions

8.3.2 Use of Test IMEI

- A test IMEI will be issued for prototype testing only. This IMEI could be blacklisted after testing.
- A test IMEI cannot be used for final PTCRB certification
- The SV 00 is reserved for non-approved software versions under development
- A non-commercial IMEI can be issued for diagnostic devices. The NNN section of the IMEI will be in the 900 range.

8.4 Recording an IMEI (SV)

- The IMEI (SV) will be placed on the Certified, Uncertified, or Block list of the North American CEIR
- The IMEI (SV) will be sent by the IMEI Administrator to the GSM Association in Dublin

8.5 Distribution of the IMEI

- The most recent IMEI lists will be available in the operator-only area of the PTCRB web site
- The manufacturer will receive notification from CTIA Certification when the device has been certified

8.6 Obtaining an IMEI (SV)

To obtain an IMEI (SV), the device certification administrator or manufacturer shall submit an IMEI TAC request via PTCRB certification database at https://certify.ptcrb.com/. Questions can be directed to the IMEI Administrator may be contacted at imei@ctiacertification.org.

Note: There are GSMA fees for TAC allocation. Please see https://imeidb.gsma.com/imei/tacallocation-termsandconditions for details.

The IMEI TAC will be reserved for 120 days. If, at the end of 120 days, the device has not been certified, the TAC will be revoked.

Multi-band devices shall have only one IMEI. TACs issued by regulatory bodies may be used in a multi-band device and placed on the PTCRB Certified list after the multi-band device conforms to the certification requirements listed in this document. The format for a "TEST" IMEI shall comply with GSM Association PRD TS.06.

Any changes to information provided on the IMEI TAC Request, or any major feature and/or function change would constitute a Variant and would require a unique IMEI, as well as any operator requests for a unique IMEI.

8.7 IMEI (SV)s for Integrated Devices

- For an Integrated Device, the SV number must be the same as the Modules SVN. Integrated Devices utilizing PTCRB Certified Modules which have been tested in accordance Section 11.10 of this document and the SVN has not changed; then verification of the SVN is not required by the integrator.

Section 9 PTCRB Certification Database

9.1 Overview

All PTCRB certified and IoT Network Certified devices are available for view via the PTCRB certification database at https://certify.ptcrb.com/. Please note that:

- Members of the Operator Steering Group can view all certified devices and all information associated with these devices in the database
- Manufacturers may view only the certification requests they have submitted
- Test labs may view only the certification requests which manufacturers have assigned to them for certification testing

9.2 Requesting PTCRB Certification Database Access

To access the PTCRB certification database go to https://certify.ptcrb.com/ and select “New User Registration”. Complete the User Registration Request page. The registration name shall be for a specific individual and the email domain name shall match the company name on the page. Read and agree to the database terms and conditions; then click Submit. The Certification Database Administrator will respond to your request.

If this is the company’s first PTCRB certification database access request, the individual applying for database access will be appointed as the primary point of contact.

Should a certification database account be inactive for 180 days (e.g., no logins to the PTCRB certification database within the last 180 days), the account will be disabled. To re-enable an account, contact the Certification Database Administrator at support@ctiacertification.org.

Section 10 Certification Violations

If a suspected certification violation is identified by an operator, the identifying party shall report the suspected violation to CTIA Certification at support@ctiacertification.org. The identifying party shall provide fully documented details of the suspected certification violation and the effects that this violation may cause or has caused. The OSG shall review the documentation.

If the OSG determines there are reasonable grounds to believe a certification violation has taken place CTIA Certification shall contact the offending party and attempt to resolve the case. If it is determined that a certification violation has occurred, the OSG will then discuss whether the violation warrants placing the offending party on probation for a set period of time (typically 1 year).

The offending party shall not be held responsible for violations caused by errors or omissions by the PTCRB Primary Test Laboratory or by the Certification Administrator.

10.1 Certification Violations-DUT Manufacturer Responsibilities

Any noncompliance with the requirements in this document constitutes a certification violation. CTIA Certification may revoke the certification of a noncompliant device.

Certification Violation examples include:

- The DUT Manufacturer knowingly makes changes to a PTCRB or IoT Network Certified certified device that:
    - Affect the device's PTCRB or IoT Network Certified certification requirements, and/or
    - Affect network performance and the manufacturer has failed to re-certify the device
- Manufacturer distributes an uncertified device which the manufacturer claims to be certified

10.2 Certification Violations-Test Laboratory Responsibilities

Any noncompliance with the CTIA Certification Authorized Test Lab license and service agreement constitutes a certification violation. As noted in the license and service agreement, CTIA Certification may revoke the license of a test laboratory that fails to meet the requirements of the agreement.

10.3 Manufacturer Probation

A Manufacturer placed on probation may be subject to auditing of production samples at the manufacturer's expense. This will include funding of the audit testing conducted by a PTCRB laboratory of the OSG' choice. Failure to comply with this requirement or failure to pass the audit testing could result in the manufacturer being barred from receiving a certification for a set period of time.

10.4 Resolving Certification Violations

A manufacturer found to be in violation shall immediately stop shipment of the offending device and correct the infraction (e.g., software revision, ECO certification, etc.).

Section 11 Device Assessment Requirements

11.1 Initial Certification

An Initial Certification is the first PTCRB certification for a device of any type.

The Initial Certification of a Parent device (i.e., new device) requires that a complete set of test cases be executed. Test results from other devices can be leveraged, if:

1. The test results were obtained from an alternative device of the same manufacturer, and
2. The applicability of leveraging test results from an alternative device has been confirmed by the PTCRB Primary Test Laboratory responsible for the Initial certification.

Spot-checking of leveraged test results may be allowed at the discretion of the PTCRB Primary Test Laboratory responsible for testing the Initial Certification.

11.2 Applicability of Device Assessment Requirements

Table 11.2-1 summarizes the applicability of device assessment requirements by device type.

Notes:

D= covers default requirement for all devices

I = covers requirements for Initial Certifications

E = covers requirements for ECO

P = Parent

V = Variant

C = Child Device

NA = Not Applicable

TABLE 11.2-1 DEVICE ASSESSMENT REQUIREMENTS BY DEVICE TYPE

PPMD Section	Device Type				
	Smartphone, Feature Phone, Other	Notebook, Tablet (incorporating a certified module)	Integrated Device	Module	Certified Chipset
11.1	D	D	D	D	D
11.3	D	D	D	D	D
11.4	D	D	D	D	D
11.5	D	D	D	D	D
11.6	E	E	E	E	E
11.7	D	D	D	D	D
11.8	D	D	D	D	D
11.9	NA	NA	NA	I, E, V	I, E
11.10	NA	NA	I, E	NA	NA
11.10.9	NA	NA	V	NA	NA
11.11	NA	I, E	NA	NA	NA
11.12	V	V	NA	V	V
11.13	D	D	D	D	D
11.14	D	D	D	D	D
11.15	NA	NA	NA	NA	I, E
11.16	I, E	NA	NA	I, E	NA

11.3 Requirements for Manufacturer Certification Submissions

Device manufacturers and PTCRB test laboratories must comply with the following submission procedures for PTCRB certification. All certification documentation shall be submitted in English.

11.3.1 Manufacturer Procedures to Obtain PTCRB Certification

11.3.1.1 Certification Request Submission

The manufacturer shall submit a certification request via the PTCRB certification database at https://certify.ptcrb.com/. Information for obtaining a PTCRB Certification Database user name and password can be found in Section 9.2 of this document.

11.3.1.2 Certification Request Categories

There are three categories of certification requests:

- Initial
- Variant
- ECO

The manufacturer shall select the request type and identify the device type.

The manufacturer shall indicate if the DUT represents a Superset Device. A Superset Device may only be created as an Initial or Variant certification. A Superset Device may not be created via an ECO certification. A Superset Device may, however, be re-certified via an ECO Certification.

11.3.1.3 Information Fields

The manufacturer shall enter the following information into the PTCRB certification database:

- Valid production model name/number. See Section 11.3.1.5 of this document.
- Identify if the DUT is an IoT Device
    - If the DUT is an IoT Device and Integrated Device is chosen as the device type, the device will be submitted for IoT Network Certified certification.
- Supported technologies and frequencies
- Regulatory approval ID:
    - FCC ID if the DUT is intended for use within the U.S.
    - ISED ID if the DUT is intended for use within Canada
    - Other national regulatory ID and country of destination
- Current HW and SW (including SV) versions. If the DUT is an Integrated Device the integrator must specify the HW and SW version associated with the DUT. It is not acceptable for the DUT to use the Module's HW and SW versions. If the Integrated Device does not have integration level software, indicate a software version of "0".
- Supported features (If a feature is missing from the feature list for which testing is required, notify CTIA Certification via email that your DUT supports this feature.) If the DUT is a Superset Device, all feature Subsets must be identified.
- IMEI TAC
- Main point of contact and billing point of contact

11.3.1.4 Valid Production Model Name/Number

The model name/number shall consist of alphanumeric values which represent the actual model name/model number of the DUT; variables or wild-card digits shall not be used.

Only a single model name/model number shall be used; multiple model names/model numbers may only be used when the alternate name/number is used as an alternative means of marketing the same DUT. There can be no changes in hardware, firmware or software between the alternatively named DUTs.

A declaration that the DUTs are the same must be provided to the PTCRB Primary Test Laboratory, and the laboratory may require the inspection of sample products and/or supporting documentation as evidence of compliance to this requirement.

Additional marketing names under which the device is placed on the market may be listed in the optional marketing name field. All multiple marketing names shall reference back to the same model name/model number. Additional marketing names may only be added to a certified device by contacting CTIA Certification at support@ctiacertification.org and providing a declaration that the devices are identical and only differ in how they are marketed.

11.3.1.5 Selection of PTCRB Primary Test Lab

The manufacturer shall select a Full Test Laboratory as the PTCRB Primary Test Laboratory.

The PTCRB Primary Test Laboratory will be responsible for management of 100% of the test cases executed for any certification request. The PTCRB Primary Test Laboratory will be responsible for ensuring that 100% of the test cases required for certification have been executed by authorized test labs. This includes ensuring that all identified Subsets have been tested in the case of a Superset Device. Subcontracting may be requested by the PTCRB Primary Test Laboratory only.

Off-Site Testing still applies and must follow the rules defined in Section 11.5 of this document.

11.3.1.6 Declarations

The device manufacturer shall review and accept the following declarations in the PTCRB certification database.

- Declaration of Air Interface Compliance
- Declaration of IMEI Security
- Declaration of AE Compliance -This declaration is required if the device supports Application Enablers applicable for PTCRB certification

Note: The information listed above is not required for Integrated Devices (such devices will leverage the module information) or Certified Chipsets (this information will be required by the Module or End Product integrating the Certified Chipset).

The following declarations apply to all device types:

- Declaration of Multiple marketing Names – In the case of multiple marketing names used to market the same device under different names, a declaration shall be made that the devices are exactly the same and only differ in the way they are marketed. Note that the laboratory may require samples and/or supporting documentation of each model number as part of the review.
- Declaration of Accuracy and Completeness – This declaration confirms that all documentation submitted by the device manufacturer to obtain PTCRB certification of the device is true, accurate and complete.

11.3.1.7 Documents

The manufacturer shall upload the following documents into the PTCRB certification database:

- PICS/PIXIT – Not required for Integrated Devices. A document indicating the DUT's supported features according to the following 3GPP specifications (As applicable):
    - 3GPP TS 51.010-2
    - 3GPP TS 34.121-2 and 34.123-2
    - 3GPP TS 36.521-2 and 36.523-2
    - 3GPP TS 36.579-4
    - 3GPP TS 37.571-3
    - 3GPP TS 38.508-2
- Product Description - A product description shall be provided (a draft version is acceptable). This may be any document, such as a product brochure, describing the device and referencing the manufacturer name and model name/number of the device.
- Options Table/ICS/Test Case Mapping document - This document is required if the DUT supports Application Enablers that are applicable for PTCRB certification.
- HW/SW Change Release Notes – Required for all Integrated Device ECOs that do not require lab review.

11.3.1.8 Regulatory Approval

Manufacturers shall obtain regulatory approval from the regulatory body(ies) of the country/countries in which the DUT is intended to be sold or distributed.

Manufacturers shall ensure devices comply with all applicable regulations for the jurisdiction in which the device is intended to be sold or distributed.

- If a DUT is intended to be sold or distributed in the United States and the DUT is subject to FCC (Federal Communications Commission) equipment authorization, manufacturers shall obtain an FCC Grant of Equipment Authorization in accordance with all applicable rule parts (i.e. Parts 22H, 24E, 27, 90, 30, etc.) covering all technologies (i.e. GERAN, UTRA, E-UTRA, NR, etc.) and frequency bands supported by the device. The manufacturer shall enter the associated FCC identification number (FCC ID) in the PTCRB submission prior to receiving PTCRB certification.
    - To expedite the certification process, the submitting manufacturer may upload a copy of the FCC Grant of Equipment Authorization to the Supporting Documentation section of the PTCRB certification database.
- If a DUT is intended to be sold or distributed in Canada and the DUT is subject to ISED (Innovation, Science and Economic Development Canada), manufacturers shall obtain an ISED Technical Acceptance Certificate in accordance with all applicable rule parts (i.e. RSS-132, RSS-133, RSS-139 etc.) covering all technologies (i.e. GERAN, UTRA, E-UTRA, etc.) and frequency bands supported by the device. The manufacturer shall enter the associated ISED certification identification number in the PTCRB submission prior to receiving PTCRB certification.
    - To expedite the certification process, the submitting manufacturer may upload a copy of the ISED Technical Acceptance Certificate to the Supporting Documentation section of the PTCRB certification database.

- If the DUT is intended to be sold or distributed in a jurisdiction other than the USA or Canada, manufacturers shall comply with the applicable regulations in that jurisdiction and upload the evidence of such compliance to the Supporting Documentation section of the PTCRB certification database.

11.3.1.9 Certification License Agreement

The manufacturer shall review and agree to the terms and conditions of the certification license agreement.

11.3.1.10 Submission of Required Items

The device manufacturer shall review the items identified in Appendix A of this document and submit all items requested by the PTCRB Primary laboratory. The device manufacturer shall also provide all required (P)ICS/(P)IXIT declarations listed in Section 11.3.1.7 of PPMD V 3.9 (or later).

11.3.1.11 Certification Fees

CTIA Certification will invoice the manufacturer a certification fee (USD) of:

- $12,500 for an Initial Certification request ($15,000 if incorporating Wi-Fi and undergoing Converged Device Testing)
    - $7,500 if a Module or End Product using a Certified Chipset; $10,000 if incorporating Wi-Fi and undergoing Converged Device Testing
    - $1,500 if an Integrated Device, Embedded Modem, Notebook, or Tablet incorporating a certified Module; $2,125 if incorporating Wi-Fi and undergoing Converged Device Testing
- $3,125 for a Variant certification request ($3,750 if incorporating Wi-Fi and undergoing Converged Device Testing)
    - $1,000 for an Integrated Device Variant certification request ($1,625 if incorporating Wi-Fi and undergoing Converged Device Testing)
- $3,125 for rebranding of a previously-certified device. If the device is an Integrated Device, the fee is $1,000.

The fee is the same regardless of whether the Device incorporates Wi-Fi. See Section 11.13 of this document for the definition of and processes for rebranding.

- $3,125 for each Subset beyond the first Subset

Manufacturers shall inform CTIA Certification of any specific invoicing and payment requirements. Should the manufacturer require a PO number on the invoice, the manufacturer shall enter the PO number (or a placeholder for the PO number) in the certification database Purchase Order # field, and/or upload the purchase order to the Supporting Documentation section of the certification request.

Note: Payment of the certification fee is required prior to issuance of certification.

11.3.1.12 Public Listing of Certified Device

All PTCRB-certified devices are listed on the public portion of the PTCRB website. All IoT Network Certified devices are listed on the public portion of the IoT Network Certified website.

When submitting the certification request, the manufacturer is given the following options for when and how the device is listed:

Select when the device is published:

- Publish when certified
- Publish x days after certification, where x is a number between 1 – 365

For PTCRB certification, select the amount of information to publish:

- Basic: Manufacturer, Model Name/Number, Device Type, Cellular Technologies (i.e., 2G, 3G, 4G, 5G)
- Detailed: Manufacturer, Model Name/Number, Device Type, Cellular Technologies (i.e., 2G, 3G, 4G, 5G), Supported Frequency Bands, HW Version, SW Version, Certification Date

  After the device is certified, the manufacturer may change whether Basic or Detailed information is shown by logging into the PTCRB certification database, selecting View Certified Devices, and clicking on the device's model name/number.

11.3.1.13 Operator View of Pending Certification Request

As noted in Section 8 of this document, all PTCRB certified and IoT Network Certified devices are available for view via the PTCRB certification database. Should the manufacturer wish to allow one or more operators to view a pending certification request, they may select those operators during the certification request submission.

11.3.2 FOTA (Firmware-Over-the-Air)

Software patches loaded into devices via FOTA shall bit-match certified software that was manually loaded into the device.

All software, whether downloaded via FOTA or through manual methods, must be certified. Therefore, software resulting from a FOTA patch must be certified if not bit-matched to the certified software version.

11.3.3 GPRS Ciphering Algorithm Disablement

Beginning with NAPRD03 V6.12, devices requesting PTCRB certification shall not support encryption algorithm GEA1 regardless of the device's declared 3GPP GERAN release. Conformance to this requirement will be established through execution of 3GPP TS 51.010-1, TC 44.2.5.2.5.

Beginning with NAPRD03 V6.13, devices requesting PTCRB certification shall not support encryption algorithm GEA2 regardless of the device's declared 3GPP GERAN release.

11.3.4 Award of Certification

Once all items have been received from the manufacturer and PTCRB Primary Test Lab, and once CTIA Certification has approved the test results, the certification request status shall be updated to "Under Review by CTIA Certification" in the PTCRB certification database. After a final review of all

certification requirements, the device will be certified. The manufacturer will receive an email notification.

11.4 Requirements for PTCRB Laboratory Submissions

11.4.1 Laboratory Certification Testing Request Notification

The PTCRB Primary Test Laboratory will receive a certification testing request via the PTCRB certification database at https://certify.ptcrb.com/. An e-mail notification will be sent to the laboratory's designated point(s) of contact when such a request has been submitted.

11.4.2 Laboratory Acceptance of Certification Testing Request

The laboratory shall log into the PTCRB certification database to review and accept/reject the certification testing request.

11.4.3 Laboratory Certification Test Report Content

Upon completion of the device's evaluation, the PTCRB Primary laboratory shall log into the PTCRB certification database and input or verify the following device information:

1. Final HW Version
2. Final SW Version (including SV)
3. Features
4. NAPRD03 Version
5. GCF-CC Version (If the device's supported frequencies include those included in the GCF certification scheme)
6. IMEI TAC, in the format of 8-digit TAC + yyyyyy
7. Versions of the applicable testing standards as identified in the PTCRB TC database
8. Versions of the standards used to identify the applicability of test cases
9. Versions of any standards identify the test environment
10. Actual test start and end dates
11. Indicate if No Testing was Required (ensure supporting explanatory documents are uploaded)
12. Indicate if there were Category E failures
13. Verify device categorization
14. Indicate if the device meets the definition of an IoT Device

Note: Do not zip the above as a single-file document.

The laboratory shall also upload the final test report. The final test report should be uploaded within five business days after completing the evaluation. At a minimum, the test report shall provide details in the following areas (additional information may be provided at the laboratory's discretion):

11.4.3.1 Laboratory Information

- Company name and address
- Facility where testing was performed
- Personnel involved in the testing

11.4.3.2 Test Equipment Detail

A detailed list of the test equipment employed for the DUT's certification, including:

- Manufacturer and model
- Software and hardware versions
- Calibration date for all relevant test equipment

11.4.3.3 Laboratory Conformance

A laboratory declaration asserting conformance in conducting device evaluation in accordance with the test procedures and test specifications defined in NAPRD03.

11.4.3.4 DUT Description

All required device description and related information shall be provided in accordance with the (P)ICS/(P)IXIT requirements in Section 11.3.1.7.

11.4.3.5 Specialized Test Configuration

If applicable, the laboratory shall provide a detailed explanation of any specialized/unique test set-ups required to perform the testing.

11.4.3.6 Tests Executed

A list of the tests performed using NAPRD03. This shall include the test category as identified in the applicable NAPRD03 version.

11.4.3.7 Test Results

Identification of Pass, Fail, Not Applicable (N/A), or Pass with Declaration (Declared) for the appropriate tests. Test cases which have been granted a waiver shall also be identified in the test report.

Test case failures will indicate whether the failure was caused by the DUT or an issue with the test implementation.

If the failure is caused by the DUT, a description of the cause of the failure shall be included in the report.

If the failure is caused by an issue with the test implementation, the PTCRB Full Test Laboratory shall immediately work with the test equipment vendor to confirm the issue and either add an exception to, or downgrade, the test case.

See the guidelines of PVG.12 for the process on how to deal with test case failures during certification.

11.4.3.8 Identification of Hardware/Software Revisions

The PTCRB Primary Test Laboratory shall identify the DUT's final software and hardware versions that successfully passed the evaluation (this must match the Final HW/SW Version entered into the PTCRB certification database). Final hardware used for certification must have a production IMEI. It is highly recommended that this information be located on the first page of the report.

11.4.3.9 Software Version Information:

When the DUT is a Smartphone or a device which utilizes separate software components that may affect conformance to the recognized specifications, all relevant software version information

relating to the certified device configuration must be recorded and stated in the equipment build status (e.g., a protocol stack version with SVN and a MMI version).

11.4.3.10 Final Build Declaration

For certification requests which utilize multiple PTCRB laboratories to perform testing on one DUT, and where the DUT may utilize HW and/or SW during the certification process that differs from the final build being PTCRB certified, a final build declaration for the DUT shall be uploaded by the PTCRB Primary Test Laboratory to the PTCRB certification database. The final build declaration shall be uploaded along with the final test reports, and will list the DUT's tested HW and SW. This information shall appear in each of the subset of laboratory reports (refer to Appendix C of this document).

The DUT's supported features (PICS/PIXIT/Options table/Test Case Mapping Document, etc.) shall be in accordance with 3GPP TS 51.010-2, TS 34.121-2, TS 34.123-2, TS 36.521-2, TS 36.523-2, TS 36.579-4, TS 37.571-3, TS 38.508-2 or appropriate document.

When multiple marketing names are declared by the manufacturer, the final build declaration shall include an acknowledgement that the DUTs are the same and only differ in how they are marketed.

11.4.3.11 Conformance Declaration

A laboratory declaration asserting the DUT's successful completion of the evaluation and compliance to the PTCRB certification requirements.

11.4.3.12 ITU Region 1, 2 or 3 Band Support

Test results for all bands supported by the DUT are required.

11.4.3.13 Test Report Contents

For Initial certifications, the test reports shall include the test results for all applicable test cases. For Variants that require testing, the test reports shall include the test results for all applicable test cases. If no testing is required, a document shall be uploaded providing justification for this decision. The justification shall be specific for each test required (i.e., specific for the GSM, UTRA, E-UTRA, AE test and/or specific for the RF Performance Test). This justification document shall also include the certification request number, hardware version, software version, SVN, and date of letter. If a Variant is leveraging test results from another PTCRB-certified device (e.g., a device not directly linked to the specific certification request) the test results for the leveraged device shall be uploaded to the PTCRB certification database.

For Superset Devices, the test reports shall include the test results for all applicable test cases, including all Subsets identified in the certification request.

For IoT devices, the test reports shall include test results for the CTIA IoT Cybersecurity Certification Test Plan, if testing was performed.

11.4.3.14 ECO Test Reports

For ECO certifications, the test report shall include all the applicable test cases that have been executed due to the ECO.

HW/SW Change Release Notes shall be uploaded to the certification database.

If a Variant is leveraging test results from a Parent device the test results for that Parent device shall be uploaded to the PTCRB certification database.

If no testing is required, a document shall be uploaded providing justification for this decision. The justification shall be specific for each test required (i.e., specific for the GSM, UTRA, E-UTRA, AE test, RF Performance Test). This justification document shall also include the certification request number, hardware version, software version, SVN, and date of letter.

11.4.3.15 Regulatory IDs

The PTCRB Primary Test Laboratory shall make a best effort to verify the content of the grants associated with regulatory IDs entered into the PTCRB certification database. These grants shall be reviewed to ensure they accurately reflect the bands, technologies, and operating bandwidths supported by the DUT.

11.4.3.16 DUT's Manufacturer's Objection to Laboratory Review

The need to conduct full or partial testing against a DUT undergoing certification will be determined by the PTCRB Primary Test Laboratory. The PTCRB Primary Test Laboratory's decision concerning required testing of the DUT shall be based on objective and defensible criteria. If the DUT's manufacturer disagrees with the PTCRB Primary Test Laboratory's decision, they may submit a waiver request. (See Section 11.8.) In this instance, a PTCRB Primary Laboratory waiver endorsement document would not be required for upload to the waiver request.

11.5 Requirements for Off-Site Testing by a PTCRB Laboratory

11.5.1 "Off-Site" Test Scope

Certification testing in PTCRB test laboratories ensures a high degree of confidence in the functionality of a DUT. This is achieved by establishing and maintaining a high quality level in PTCRB laboratories, which is also supported by ISO 17025 accreditations and fulfillment of the requirements of PPMD and NAPRD03.

However, special situations might occur where Testing Projects could be unfairly delayed because of insufficient testing capacities, defective test equipment or lack of appropriate test equipment in PTCRB test laboratories.

In such situations Off-Site Testing under the control of a PTCRB Primary Test Laboratory, may be employed to prevent further delays in the certification testing process. However, Off-Site Testing shall not be considered a replacement for certification testing in PTCRB test laboratories and shall be considered an exception.

11.5.2 "Off-Site" Test Applicability and Restrictions

Off-Site Testing shall be restricted to a maximum of 20% of all test cases within each overall Testing Project. Consequently, at least 80% of all test cases within each Testing Project shall be performed in PTCRB test laboratories. In this calculation only test cases from PTCRB categories "A", "B" and "E" shall be counted. Test cases performed in both 850 MHz and 1900 MHz frequency bands are counted twice. Previous Off-Site Testing shall be used along with new Off-Site testing when calculating the percentage for ECOs.

In unusual cases when a given test or group of tests is available in less than three PTCRB test laboratories, the 80% rule described in the previous paragraph does not apply. Tests executed off-site in accordance with this paragraph shall be marked as such in the test report.

11.5.3 Procedure

For any single Testing Project which uses Off-Site Testing, the following procedure shall apply:

1. The PTCRB Full Test Laboratory conducting testing of the DUT shall send the completed and signed application form (see Appendix D of this document) to CTIA Certification at support@ctiacertification.org. With this application both laboratories (e.g., the PTCRB Primary Test Laboratory and the PTCRB Full Test Laboratory conducting the testing) affirm that they fully comply with the Off-Site Testing procedures described in this document.
2. CTIA Certification shall provide an e-mail response within five (5) calendar days after having received the application form. This email response shall be sent to both the PTCRB Primary Test Laboratory and the PTCRB Full Test Laboratory conducting the testing. Approval for Off-Site Testing shall be granted if all requested information is completed on the application form and if the test laboratory managers of both laboratories have signed the document.

However, CTIA Certification reserves the right to:

- Decline requests to utilize the Off-Site Testing process at any time
- Revoke either PTCRB test laboratory's authorization, should it be found non-compliant to the declaration
- Revoke all Off-Site Testing activities of either PTCRB test laboratory and prohibit any further activities for a future period of up to three years should either lab be found non-compliant to the declaration

11.5.4 "Off-Site" Laboratory Requirements and Obligations

11.5.4.1 "Off-Site" Test Laboratory Attributes

Before beginning an Off-Site Testing Project, the PTCRB Full Test Laboratory conducting the testing has an obligation to examine and spot-check the following attributes of the off-site laboratory:

- Laboratory environment, such as shielding, temperature, humidity, etc.
- Laboratory equipment such as vibration table, climatic chamber, multimeter, power supplies, etc.
- Calibration records of all equipment to be used for off-site testing
- Test platforms such as hardware, hardware versions, software versions, message files, parameter settings, calibration parameters, etc.
- Documentation from the installation/compilation of the test systems and system software as well as documents pertaining to daily system checks and calibrations

At its conclusion, the PTCRB Full Test Laboratory shall compare the outcome of this examination against previously agreed quality rules. The results of the examination shall be documented in quality records, which shall be available to the PTCRB upon request.

11.5.4.2 "Off-Site" Test Personnel Qualifications

Each individual (engineer, test system operator) from the PTCRB Full Test Laboratory performing testing in the off-site Test Laboratory shall fulfill the requirements for "Testers" given in the CTIA Certification Policies and Procedures for Authorized Test Labs document. This includes the obligation that all testing personnel involved are fully aware of the current PTCRB testing procedures, requirements and special situations.

11.5.4.3 PTCRB Accredited Laboratory Personnel Presence During “Off-Site” Testing

Each individual (engineer, test system operator) from the PTCRB Full Test Laboratory performing Off-Site Testing shall be present during test case execution to avoid any possible influence on test results by individuals not employed or authorized by the PTCRB Full Test Laboratory. Furthermore, the PTCRB Full Test Laboratory shall ensure that all test results from Off-Site Testing are secured, with access restricted to the PTCRB Full Test Laboratory's responsible personnel.

11.5.4.4 Documentation of Off-Site Test results

Each test case performed in an Off-Site Test Laboratory shall be unambiguously marked in the PTCRB Full Test Laboratory's test report for the corresponding Testing Project. Furthermore, if the percentage of allowed off-site tests (as defined in Section 11.5.2 of this document) is exceeded because of test cases which fall under the exception(s) described in this section, then all exceptional “off-site” test cases shall be marked separately in the test report to distinguish them from all other test cases executed against the DUT.

11.5.4.5 Off-Site Quality Management Procedures

The PTCRB Full Test Laboratory shall have internal quality management procedures in place for the entire Off-Site Testing process. Prior to performing any Off-Site Testing, these procedures shall have been successfully audited under ISO 17025. These procedures shall therefore become part of the “off-site” laboratory’s accreditation scope.

11.5.4.6 Adherence to PTCRB “Off-Site” Testing Procedures

The PTCRB Full Test Laboratory agrees that lack of adherence to any “off-site” test procedures described in this section will result in termination as a PTCRB Full Test Laboratory.

11.6 ECO Process Requirements to Maintain PTCRB Certification

11.6.1 ECO Certification Applicability

Any PTCRB-certified device undergoing Engineering Change Orders (ECOs) shall be reassessed for continual compliance. DUT changes applicable to this requirement include (but are not limited to):

1. Any change to the DUT’s hardware/hardware version shall result in an ECO certification
2. Any change of the DUT’s radio/protocol stack resulting in a change to the software version/SVN shall result in an ECO certification
3. Any recompiling of the DUT’s radio/protocol stack shall result in an ECO certification

Implementation Examples:

Example 1: If the DUT’s operating system/applications software and the radio/protocol stack are integrated into a single software, with one version number visible to the user, then an ECO certification would be required.

Example 2: If:

1. The DUT’s operating system/applications software and the radio/protocol stack are in separate software modules (with individual version numbers for the separate modules and an overall bundle version number,) and
2. The DUT’s radio/protocol module has not changed or been recompiled

Then an ECO certification would NOT be required.

Example 3: If the DUT's software component(s) which contain the radio/protocol stack has changed only with security related patches, then a unique SVN would NOT be required.

Example 4: If DUT's MMI version is updated only with changes which do not affect radio/protocol function, then a unique SVN would NOT be required.

11.6.2 Submission of ECO Certification Request

Upon revision of a device's hardware and/or software, the manufacturer shall submit an ECO certification request for the DUT via the PTCRB certification database at https://certify.ptcrb.com/.

For Integrated Device ECOs, where only the Integrated Device's software version has changed, the "*Check this box if only the Integrated Device's software is changing and the changes do not require testing as outlined in PPMD. Testing shall not be required.*" checkbox shall be selected.

11.6.3 Section Content Deleted

The content in this section has been deleted.

11.6.4 ECO Certification Laboratory Review

The need to conduct full or partial testing against a DUT undergoing an ECO certification will be determined by the PTCRB Primary Test Laboratory. The PTCRB Primary Test Laboratory's decision concerning required regression testing of the DUT shall be based on objective and defensible criteria.

The PTCRB Primary Test Laboratory shall ensure that all certification requirements are met. This includes ensuring that any tests identified as missing from the Initial or previous ECO certifications are executed against the DUT prior to approval of the current ECO certification request.

In the case of DUT antenna changes, the PTCRB Primary Test Laboratory is responsible for determining whether TRP, C-TIS, TIS, RSE, NHPRP or NHPIS OTA testing, as applicable, is required. The lab shall also determine whether full OTA testing of the DUT is required or if OTA spot-checks would be sufficient.

11.6.4.1 Module ECO Review

For Module ECO reviews, the PTCRB Primary Test Laboratory shall prepare an assessment of whether or not Integrated Devices using previous versions of the Module require testing to utilize the ECO'ed Module.

11.6.4.2 Integrated Device ECO Review

For Integrated Device ECOs, where the Module's software and/or hardware has changed and the assessment, noted in Section 11.6.4.1.of this document, has determined that no testing is required for Integrated Devices, no laboratory review of the associated Integrated Devices utilizing the Module is required. A laboratory review will always be required under any of the following conditions:

- If any Module revision after the one used in the Parent and up to, and including, the one used in the ECO indicates that testing is required
- If the Module used in the ECO is an earlier revision than the one used in the Parent
- If the antenna used in the ECO has changed in any way from the antenna used in the Parent

For Integrated Device ECOs, where only the Integrated Device's software version has changed and the changes do not impact any test requirements defined in Section 11.10.3 of this document, no laboratory review is required. The manufacturer shall submit a request in the PTCRB certification database and indicate that only the Integrated Device's SW version is changing.

If the laboratory determines that radiated performance testing of the ECO is required, the ECO's TRP shall be no more than 2 dB less than the Parent-device's TRP, and the ECO's TIS (or C-TIS, as applicable) shall be no more than 2 dB above the Parent device's TIS/C-TIS. This 2 dB rule shall also apply if NHPRP and NHPIS are applicable to the Integrated Device's use case in place of TRP/TIS.

11.6.4.3 Variant ECO Review

For Variant Device ECOs the laboratory's review shall include an assessment of whether the Variant Device's software and/or hardware changes are common with the Parent device. If they are common with the Parent device, then test results for common features and functions may be leveraged from the Parent Device to Variant Device.

11.6.5 Submission of Test Results

Upon completion of the evaluation, the PTCRB Primary Test Laboratory shall log into the PTCRB certification database and upload the final test report. The report will contain the information identified in Section 11.4.3 of this document.

11.6.5.1 Module ECO Results

Module ECO result submittals shall include an appropriate response to the "Check this box if an Integrated Device ECO using this Module will require testing" checkbox to reflect the results of the assessment noted in Section 11.6.4.1 of this document.

11.6.5.2 Integrated Device ECO Results

Integrated Device ECOs for which Section 11.6.4.2 of this document applies are not required to submit results.

11.6.6 Section Content Deleted

The content in this section has been deleted.

11.6.7 Section Content Deleted

The content in this section has been deleted.

11.6.8 NAPRD03 Version Applicability for MMI and OS Security changes in End Products

11.6.8.1 NAPRD03 Applicability

11.6.8.1.1. MMI ECO Requirements

This section is applicable to DUTs which have submitted an ECO for PTCRB certification in which an NAPRD03 version change has:

1. Resulted in delta test cases; and
2. The only software changes are related to the Man Machine Interface (MMI)

If the changes affect the DUT's bearer technology or Application Enabler (AE) in any way, or if the PTCRB Primary Test Laboratory determines that additional testing is required, the DUT will be required to execute all applicable delta test cases.

11.6.8.1.2. OS Security ECO Requirements

This section is applicable to devices which have submitted an ECO for PTCRB certification in which the NAPRD03 version change has:

1. Resulted in delta test cases; and,
2. The only software changes are related to OS Security Changes

If the changes affect the DUT's bearer technology or Application Enabler (AE) in any way, or if the PTCRB Primary Test Laboratory determines additional testing is required, the device will be required to execute the applicable delta test cases.

11.6.8.1.3. Public Safety Application Changes

This section is applicable to devices defined as Public Safety Devices or Public Safety Devices with Integrated LMR, either of which have:

1. Submitted an ECO for PTCRB certification in which an NAPRD03 version change has resulted in delta test cases; and,
2. The only software changes are related to non-PTCRB Public Safety applications

DUTs which qualify for this section will not be required to execute the delta test cases. If the changes affect the Commercial Mobile Radio Service (CMRS) bearer technology or Application Enabler (AE) in any way, or if the PTCRB Primary Test Laboratory determines that additional testing is required, the DUT will be required to execute the delta test cases.

11.6.8.1.4. GEA1/GEA2 GPRS Ciphering Algorithm Disablement

Manufacturers may submit an ECO to disable GEA1 and/or GEA2 on a previously certified device supporting GSM. The NAPRD.03 version of the certification would not be required to be incremented to any subsequent releases for this.

11.6.8.2 Procedure

DUTs meeting the criteria in Section 11.6.8.1 of this document will be allowed to re-certify against the NAPRD03 version to which the DUT was most recently certified.

11.6.9 IMEI SVN Verification by Manufacturer

11.6.9.1 Applicability of SVN Verification

This process applies only if the following conditions are met:

1. The DUT's software version and SVN has changed in all models identified in Appendix C
2. The DUT's software changes are the same across all models identified
3. No testing of the DUT is required except for execution of an SVN check

11.6.9.2 Manufacturer Submission of SVN Verification

The manufacturer will identify and declare the DUT models that meet the above criteria. The manufacturer shall submit an ECO certification request per the normal database process for each DUT model. The manufacturer shall select one PTCRB Primary Test Laboratory for all the identified DUT models. The manufacturer shall execute the SVN check on all models identified with their own PTCRB-validated test platform. The manufacturer will provide a declaration of compliance for the DUT models identified to the PTCRB Primary Test Laboratory. See Appendix C.

11.6.9.3 Laboratory Review of SVN Verification

The PTCRB Primary Test Laboratory will review the changes to the DUT models and confirm that no testing is required with the exception of the SVN check. The PTCRB Primary Test Laboratory will conduct the SVN check on the number of DUT models indicated in Table 11.6-2.

TABLE 11.6-1 NUMBER OF DUT MODELS VS. NUMBER OF TEST SAMPLES

Number of DUT Models Identified	Number of DUT Models to be Tested
1 – 5	1
6 – 10	2
11 – 15	3
16 – 20	4
21 – 25	5
26 – 30	6

If any failures / contradictions are found by the PTCRB Primary Test Laboratory during the testing of the DUT models, the process identified in Section 11.6.9 of this document is no longer applicable and the PTCRB Primary Test Laboratory will conduct the SVN check on all DUT models identified. Upon completion of the evaluation, the PTCRB Primary Test Laboratory will log into the PTCRB certification database and upload the final test report and the declaration of compliance provided by the manufacturer. The report will indicate which DUT models were tested by the manufacturer and which were tested by the PTCRB Primary Test Laboratory. CTIA Certification will mediate any disputes identified in this process.

11.6.10 Band and Feature Changes

The device may add or remove bands and/or features (except VoLTE) through the ECO process only if the band or feature change(s) can be enabled through a SW update.

Any ECO with band or feature changes must be accompanied by an updated device SVN to differentiate the various versions of the device on the network. The updated band/feature set shall then be utilized in all future ECOs of the device.

If a band or feature change implemented in SW requires a corresponding HW change, then the combination HW and SW change shall be made through the Variant process, with a new model name/number.

Enabling any technology (i.e., 2G (GSM/GPRS/EGPRS), 3G (UTRA), 4G (E-UTRA), 5G, CDMA 2000, etc.) does not qualify as a Variant certification. These changes are considered a new platform and must be certified as an Initial Certification. Disabling any technology shall be handled using the Variant process if the device meets the criteria for a Variant certification.

This process shall not to be utilized to enable multiple SKU management through a single Initial or Variant certification.

This section does not apply to Integrated Devices. Integrated Device band and feature change requirements may be found in Sections 11.10.5 and 11.10.6 of this document.

11.7 Validity of NAPRD03 Versions during Testing

Certification of a DUT shall be based on the most recently released version of NAPRD03 as of the date the test reports are uploaded to the certification database. Alternatively, one version prior to the most recently-released version of NAPRD03 may be used as the basis of certification.

Example:

- NAPRD03 version 1.0 is released on January 1
- NAPRD03 version 1.1 is released on April 1

According to the example NAPRD03 versions above, a DUT may use either NAPRD03 version 1.0 or version 1.1 until NAPRD03 version 1.2 is released on July 1. Once version 1.2 is released the DUT must be certified against either NAPRD03 version 1.1 or version 1.2.

Testing and submission of FR2 results was not mandatory for Device Certification to NAPRD.03 Version 6.9 or earlier.

Any Variant, ECO Certification based on an Initial Certification using NAPRD.03 Version 6.9 or earlier that triggers a change to a NAPRD.03 Version 6.10 or higher the testing and submission of FR2 results shall be exempt. Where FR2 testing has been assessed by the PTCRB Primary Laboratory as being exempt based on the Initial Certification NAPRD version, a declaration of no testing being required shall be uploaded to the PTCRB Certification Database.

PTCRB Primary Laboratories shall be responsible for the assessment of the integrated device to determine the required testing.

11.8 Requirements for Waiver Requests

11.8.1 Waiver Applicability

DUTs which cannot meet the requirements of PTCRB certification may have the opportunity to request a waiver against the issue preventing certification.

11.8.2 Waiver Process

The manufacturer of a DUT applying for any type of waiver shall submit their request via the waiver request function within the PTCRB certification database. Each waiver submission shall be prepared in accordance with the rules described in Section 11.8.2.1 through 11.8.2.3 below:

11.8.2.1 A single waiver submission shall include one or more test case(s) and/or certification requirement(s) for which waivers are requested.

11.8.2.2 Each waiver submission shall separate the test cases and/or certification requirements requested for a waiver according to the two waiver request groups described in Section 11.8.2.2.1 and 11.8.2.2.2 below.

11.8.2.2.1 SDO Waiver Requests: Waiver requests which apply to test cases developed and maintained by Standards Development Organizations (SDOs) such as:

- 3GPP TR and/or TS test specifications
- GSMA TS test specifications

This category shall also be selected in cases where no PTCRB Laboratory is available to execute any required test case(s) prepared by an SDO.

11.8.2.2.2 Certification Body Waiver Requests: Waiver requests which apply to certification tests or certification requirements developed and maintained by certification bodies such as:

- PTCRB (e.g., NAPRD03 and/or PPMD certification requirements)
- CTIA Certification (e.g., Audio Performance and/or Cybersecurity certification test requirements)
- CTIA Certification OTA (All Working Groups and Sub-Working Groups) test requirements

This category shall also be selected in cases where no PTCRB Laboratory is available to execute any required test case(s) prepared by a certification body.

11.8.2.3 Waiver submissions prepared in accordance with Section 11.8.2.2.1 and/or 11.8.2.2.2 shall list all test cases/certification requirements requested for waiver in ascending numerical order.

Prior to acceptance of a waiver submission, the DUT vendor must verify that the Primary Test Laboratory responsible for their DUT has reviewed and will support the waiver request. A waiver endorsement document with the lab manager's signature shall be uploaded to the Supporting Document section of the waiver request. \The DUT vendor's waiver request will not be accepted until the Primary Test Laboratory waiver endorsement document is uploaded.

Lab managers are required to ensure that all reasonable actions to verify the root cause(s) of the waiver have been addressed before submitting the waiver endorsement.

The Primary Test Laboratory's waiver endorsement document shall include the information described in Section 11.8.2.3, presented in tabular format with an explanation why each test and/or certification requirement waiver request is justified. This explanation must be prepared in the PTCRB Primary Laboratory's own words and must not be transcribed from the waiver request explanation provided in the DUT vendor's waiver submission.

Waiver request submissions must also embed copies of any email communications (as per PVG.12 Section 4) seeking to:

a) Subcontract the execution of test cases not supported in the Primary Test Laboratory

b) Any response(s) to (a) above from supporting labs or the validated Test System vendor and

c) If certain test cases cannot be executed in other labs as noted in (a) and (b) above, an explanation of the reason(s) why the limited availability of the test cases could not be resolved.

Following submission of the waiver request form, CTIA Certification will review the waiver request for completeness and content.

Once the waiver request form has been approved, CTIA Certification will coordinate its review with the PTCRB OSG and attempt to complete the review within 7 (seven) calendar days.

If the waiver request is deemed complete, the PTCRB OSG will be notified of the request, at which point the 7-day approval timeline begins.

Active PTCRB OSG members may respond to the waiver request in any one of five ways:

1. No response,
2. Select “Approve” in the database,
3. Select “Abstain” in the database,
4. Select “Reject” in the database, or
5. Add a comment and/or request for additional information in the database

If no Active PTCRB OSG members respond by selecting [5] (i.e., request that the DUT vendor provide comments or additional information), or respond by selecting [4] (i.e., “Reject”), the waiver request is deemed approved upon expiration of the 7-day approval timeline.

If one or more Active PTCRB OSG member responds by selecting [5] (i.e., request for the DUT vendor to provide comments or requesting additional information), CTIA Certification will notify the requesting manufacturer by email. The 7-day approval timeline will begin again when the manufacturer provides a response and the PTCRB OSG is provided notice.

If any Active PTCRB OSG member indicates “Reject” in the database, the waiver is deemed rejected unless at least one Active PTCRB OSG member indicates “Approve”, in which case the waiver is deemed granted and the waived test cases will be designated Category E. Please note that:

- Waiver requests/approvals are certification-request specific
- Lifetime Waiver approvals are carried over from the certification in which it was applied (Initial/Variant/ECO) to the subsequent ECOs.
- Waiver requests/approvals are device-specific. They do not carry over to Variants.
- Waiver requests must not reference any operator name

Waived test cases shall be handled as Category E unless specifically approved in the waiver request to be handled as Category N.

11.9 Requirements for Modules

11.9.1 Modules Supporting Up to and Including 5G NR FR1 Radio Access Technologies (RAT)

Modules shall be certified under the same processes and requirements as all other PTCRB-certified devices

- A Module shall be certified as an Initial Certification or a Variant of another Module
- A Module cannot be a Variant of any other type device (i.e., PC card, smartphone, etc.)
- A complete set of tests must be executed against the Module applying for Initial Certification

The Module’s PICS/PIXIT and test results shall be made available to the PTCRB Primary Test Laboratory conducting the evaluation of an Integrated Device containing that Module.

11.9.2 Modules Supporting NR FR2

In addition to the requirements for Modules supporting up to and including NR FR1; FR2 capable Modules are required to execute FR2 protocol test cases. FR2 capable Modules are not subject to FR2 Radio Frequency (RF), Performance or Radio Resource Management (RRM) test cases. Test requirements for FR2 capable Modules are detailed in Table 11.9-1.

TABLE 11.9-1 TEST REQUIREMENTS - NSA FR2 CAPABLE MODULE

Type of Testing	Test Standards	Test Cases
Protocol	3GPP TS 38.523-1	Testing Required
Radio Frequency (RF)	3GPP TS 38.521-3	Testing Not required
Performance	3GPP TS 38.521-4	Testing Not required
Radio Resource Management (RRM)	3GPP TS 38.533	Testing Not required

Refer to Table 11.10-7 for FR2 testing to be executed on the host device as part of the final integration.

11.10 Requirements for PTCRB Integrated Devices and IoT Network Certified Devices

11.10.1 Applicability

This subsection applies to any device type which integrates a PTCRB-certified module, including IoT Devices submitted for IoT Network Certified certification.

Integrated Devices shall be certified as either an End Product or Embedded Modem.

11.10.1.1 Requirements

To be considered an End Product an Integrated Device must meet the following criteria:

- Serve its final intended use without any further hardware and software modifications. If an interface connection to a host is required for operation of the device, that connection can only be made through one of these physical control interfaces:
  - USB, PCMCIA, Compact Flash, MMC, RS-232 (DE9), IEEE-1394, RJ45 or OBD2.
  - No other physical control interfaces are acceptable.
- Shall obtain power through the standardized physical control interface or have a provisioned power source (i.e. dedicated battery, or a dedicated power connector).
- Shall have a UICC Interface-either a fully self-contained UICC slot or embedded UICC.
- Shall utilize a self-contained antenna or provide an external antenna connector (e.g. SMA, FAKRA, TNC).
- Radio Access Technologies - Covers at least one (1) comprehensive radio technology as specified by 3GPP for GERAN, UTRA, E-UTRA or NR.
- Be consistent with the terms of its FCC/Industry Canada type acceptance (e.g., type of antenna, distance from user). In all cases, the End Product shall not alter its antenna system in any way from that allowed by the associated type acceptance or other regulatory approval.

When connected to a host device (PC, PDA, etc.), through one of the above authorized interfaces no certification of the host device is required.

Devices that require connection to the host device through PCIe, M.2 connectors, Surface Mount Technology or other non-standard or custom interfaces shall be treated as either an Embedded Modem or a Module.

11.10.2 NAPRD03 Version Applicability

An Integrated Device will be subject to testing against the same version of NAPRD03 as that used to certify the Module itself. The validity period of the NAPRD03 version used for certification of the Module is three years provided that the Module used in the Integrated Device employs the same software version as that used to obtain PTCRB certification.

The three-year validity period begins on the date of the last certification applicable to the Module.

In order to use the Module for new Integrated Devices, after three years the Module must re-certify to the latest NAPRD03 version. All new Integrated Devices of the certified Module will be required to certify against this new NAPRD03 version.

If the Module is being re-certified due to expiration of the three-year NAPRD03 validity period and the Module has not changed, any “delta” test cases (e.g., test cases added since the previous certification) may be reported as Category E test cases even if they are Category A in the current version of NAPRD03.

Alternatively, an integrator certifying a new Integrated Device with a Module which has exceeded the three-year validity period may perform the delta test cases against the Integrated Device and submit them as Category E test cases even if they are Category A in the current version of NAPRD03.

ECOs on the Integrated Device due to changes in Module SW or HW are subject to the regular ECO requirements.

The results from an uncertified Module do not carry over to an Integrated Device.

11.10.3 Guidelines for Testing Integrated Devices

The PTCRB Primary Test Laboratory will determine which DUT interfaces, if any, have been affected by the integration of a PTCRB-certified Module. This analysis will be used to determine which specific test cases shall be executed against the Integrated Device.

11.10.3.1 Integrated Device Audio Interface Testing

Audio testing is necessary when the Integrated Device utilizes a new housing with acoustic characteristics which differ from those of the Initial Certification request. If Modules are integrated in other DUTs that support speech, audio testing will always apply. See Table 11.10-1 for the applicable test cases.

TABLE 11.10-1 AUDIO INTERFACE TEST REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
UTRA-FDD	3GPP TS 26.132	Sections: 7.x 8.x as applicable
E-UTRA-FDD	3GPP TS 26.132	Sections: 8.x as applicable

Retesting of the DUT's emergency call functionality is required whenever the DUT includes an audio interface (acoustic or electrical) intended for supporting calls to and from the PSTN, regardless of the DUT's form factor. See Table 11.10-2 for the applicable test cases.

TABLE 11.10-2 EMERGENCY CALL RETESTING REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
UTRA-FDD	3GPP TS 34.123-1	Sections: 6.1.2.6 13.x as applicable
E-UTRA-FDD	3GPP TS 36.523-1	Sections: 11.2.x as applicable

11.10.3.2 Integrated Device Power Interface Testing

If the voltage supplied to the integrated Module is different than that used during initial Module certification testing, then all test cases related to voltage extremes shall be re-executed. See Table 11.10-3 for the applicable test cases.

TABLE 11.10-3 POWER INTERFACE TEST REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
GERAN	3GPP TS 51.010-1	Sections: 12.x 13.x 14.x as applicable where extreme testing is specified
UTRA-FDD	3GPP TS 34.121-1	Sections: 5.x 6.x 8.x as applicable where extreme testing is specified
E-UTRA-FDD	3GPP TS 36.521-1 3GPP TS 36.521-3	Sections: 6.x 7.x Sections: 6.x 9.x as applicable where extreme testing is specified
5G NR SA FR1	3GPP TS 38.521-1 3GPP TS 38.533	Sections: 6.x 7.x Sections: 6.x as applicable where extreme testing is specified
5G NR NSA FR1	3GPP TS 38.521-3 3GPP TS 38.533	Sections: 6.x 7.x Sections: 4.x as applicable where extreme testing is specified

11.10.3.3 Integrated Device SIM Interface Testing

If full UICC/SIM/USIM testing was successfully performed on a PTCRB certified Module, the following scenario shall be taken into consideration for Integrated Devices based on this Module:

- If the Integrated Device's UICC-UE interface configuration (including electrical connectors, wires, wire lengths, PCB material, PCB layout, etc.) as well as all relevant interface power supply parameters are identical to that of the PTCRB-certified Module, then electrical UICC-UE interface retesting will not be required for the Integrated Device.

- In all other cases, regression tests (at least all electrical tests) shall be performed for the UICC-UE interface, unless the manufacturer of the Integrated Device provides evidence of test data which unambiguously proves compliance of the modified interface configuration and/or modified power supply parameters to the PTCRB test laboratory.

See Table 11.10-4 for the applicable test cases.

Note: Integrated Devices using an MFF2 UICC on the Integrated Device shall not be required to perform SIM Electrical testing. An example of SIM Interface test data would be measurement results (for the PTCRB-certified Parent Module, performed by a PTCRB laboratory) from electrical UICC-UE interface testing for different external (minimum/maximum) wire lengths that might be used to ensure compliance.

TABLE 11.10-4 SIM INTERFACE TEST REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
UTRA-FDD	ETSI TS 102 230	Sections: 5.x as applicable
E-UTRA-FDD	ETSI TS 102 230	Sections: 5.x as applicable

11.10.3.4 Integrated Device RF Interface Testing

If integration of the Module will not result in any changes to the RF layout, components, or RF shielding characteristics of the Module, then retesting of the RF conducted part is not required. However, in all cases a spot check of the RF radiated part shall be performed. All RSE spot checks shall remain within the current specification/test plan limits.

The RSE spot check plan shall consist of:

- An RSE test of all harmonics of the carrier for each band supported by the device
- An idle-mode RSE sweep performed in a single PTCRB band

Testing shall be performed in the highest order RAT for each band supported by the device, as per NAPRD03 Section 2.9.7.

The frequency bands to be tested are defined in NAPRD03 Section 2.8. See Table 11.10-5 for the applicable test cases.

TABLE 11.10-5 RF INTERFACE TEST REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
GERAN	3GPP TS 51.010-1	Sections: 12.2.x as applicable
UTRA-FDD	3GPP TS34.124	Sections: 8.2 as applicable
E-UTRA-FDD	3GPP TS36.124	Sections:

Technology	Test Standards	Test Cases
		8.2 as applicable
5G NR FR1	3GPP TS 38.124	Sections: 8.2 as applicable

11.10.3.5 Integrated Device MMI Testing

In cases where the integrator provides an MMI for the Module, all MMI-related test cases within Supplementary Services, SIM Toolkit, Emergency Call and SMS shall be re-tested. See Table 11.10-6 for the applicable test cases.

TABLE 11.10-6 MMI TEST REQUIREMENTS FOR INTEGRATED DEVICES

Technology	Test Standards	Test Cases
UTRA-FDD	3GPP TS 34.123-13GPP 31.124	Sections: 6.1.2.6 13.x 16.x Sections: 27.22.x as applicable
E-UTRA-FDD	3GPP TS 36.523-1 3GPP 31.124	Sections: 11.x Sections: 27.22.x
5G NR FR1	3GPP TS 31.124	Sections: 27.22.x as applicable

11.10.3.6 Integrated Device Application Enabler Testing

Where the integrator has added or modified any Application Enablers, then application enabler conformance tests must be executed.

11.10.3.7 Other Integrated Device Test Aspects

In all instances it is the responsibility of the PTCRB Primary Test Laboratory to advise the integrator as to any additional testing requirements.

The Integrated Device will be subject to testing against the same version of NAPRD03 as that utilized to certify the Module. For RF Performance Evaluation per Section 2.9 of NAPRD03 and NAPRD03 Section 4 (Miscellaneous Certification Requirements), the latest version of NAPRD03 must be applied to the Integrated Device's certification.

The Module manufacturer is required to provide all PTCRB test reports and PICS documentation associated with the certification of the Module used by the Integrated Device as requested by the Integrated Device manufacturer and/or the associated PTCRB Primary Test Laboratory.

The Integrated Device shall complete any tests of features supported by the Module which were not completed for the Module's certification (e.g., tests requiring availability of an MMI).

The integrator must specify the hardware and software version associated with the Integrated Device, and it is not acceptable to use the Module's hardware and software versions. If the Integrated Device does not have integration-level software, the device shall indicate a software version of "0".

11.10.3.8 Use of External Antennas with Integrated Devices

The following definition for external antennas is generic and is meant to apply to DUTs without integrated antennas (i.e., Modules and/or Integrated Devices with no fixed antenna, but FCC or ISED-certified to support a defined antenna system). The following shall also address situations where a DUT is certified as an End Product but is supplied with no specific antenna or antenna system.

Antenna systems shall comply with all regulatory requirements as defined by the governing bodies relevant to the device and shall include (but shall not be limited to) the following criteria:

- The antenna system, as used in this section, refers to antennas that have similar in-band and out-of-band radiation characteristics as that which was used for the Initial Certification
- A DUT may be operated only with the antenna or antenna system with which it is authorized by the DUT's relevant governing bodies. If an antenna is marketed with the DUT, it shall be of a type which has been authorized with that DUT. In some cases, the DUT may be authorized with multiple antenna systems.
- Manufacturers shall supply a list of acceptable antenna systems to the integrator

11.10.3.9 Integrated Devices with an NSA FR2 Capable Module

An Integrated Device with an FR2 Module shall be required to perform the type of testing listed in Table 11.10-7 as part of the final integration.

TABLE 11.10-7 INTEGRATED DEVICES WITH NSA FR2 SUPPORTED MODULE

Type of Testing	Test Standards	Test Cases
Radio Frequency (RF)	3GPP TS 38.521-3	NSA FR2 test cases
Performance	3GPP TS 38.521-4	NSA FR2 test cases
Radio Resource Management (RRM)	3GPP TS 38.533	NSA FR2 test cases

If an Integrated Device utilizes an NSA FR2-capable Module which has previously executed the NSA FR2 protocol tests specified by 3GPP TS 38.523-1 in Section 11.9.2, Table 11.9-1, the module's FR2 protocol test results shall be provided to the PTCRB Primary Lab responsible for certifying the Integrated Device and these test results shall be considered valid by the Primary PTCRB Lab for certification of the Integrated Device.

If an Integrated Device utilizes an NSA FR2-capable Module which has not executed the NSA FR2 protocol tests specified by 3GPP TS 38.523-1, the Integrated Device shall be required to execute NSA FR2 protocol testing specified by 3GPP TS 38.523-1 in addition to RF, RRM and Performance testing as listed in in Table 11.10-7. The PTCRB Primary Lab responsible for certifying the Integrated Device shall be allowed to execute the required 3GPP TS 38.523-1 protocol tests as an ECO certification during an FR2 conformance test phase-in period applicable to NSA FR2-capable Modules which shall begin with the release of NAPRD03 V 6.10 and end with the release of NAPRD03 V3.14.

11.10.4 Regulatory Approval for Integrated Devices

The manufacturer shall enter into the PTCRB certification database the Regulatory approval ID(s) of the WWAN radio subsystem(s) of the Integrated Device.

11.10.5 Technologies and Frequency Bands for Integrated Devices

It is recommended that the Integrated Device support all the PTCRB Bands supported by the integrated Module.

The Integrated Device may declare support for a subset of PTCRB Bands supported by the Module. The Integrated Device shall be required to test the PTCRB Bands declared as supported, bands not utilized by the Integrated Device shall be disabled.

The Integrated Device manufacturer shall check with their target operator to ensure bands and technologies selected meet the target deployment.

The Integrated Device manufacturer shall use the Integrated Device Variant process to certify additional subsets of band support required to support different operator or country requirements.

It's recommended that the Integrated Device support the same set of radio access technologies as the integrated Module. The Integrated Device shall be permitted to disable radio access technologies that are not required for the application. When disabling a radio access technology, the Integrated Device shall be required to obtain a unique TAC and will not be permitted to share a Module TAC. Disabling 5G either all FR1 bands or all FR2 bands of a module that supports both frequency ranges will also be required to obtain a unique TAC.

The Integrated Device shall not enable any frequency band or radio technology that was not originally approved on the integrated Module.

11.10.6 Feature Set for Integrated Devices

The Integrated Device's feature set must accurately reflect its capabilities and not just the Module's capabilities.

The feature list of the Integrated Device shall match the cellular radio Module integrated in the device with the possible exception of the following:

- A-GNSS/GNSS
- AMR-NB
- AMR-WB
- Circuit Switch Voice
- Bluetooth
- FUMO
- HAC
- IMPS
- ISM
- MMS Release
- Multi-SIM Support
- OMA Browsing
- OMA DM
- OMA POC
- OMA SUPL
- Remote SIM Provisioning
- SCOMO
- TTY
- UICC Based NFC
- VoLTE – Requires Integrated Device to obtain a unique TAC and not reuse the Module TAC
    - **Note:** A *PTCRB Authorized Test Laboratory shall verify that VoLTE is disabled in the device.*
- WAP Version
- Wi-Fi

11.10.7 Certification Request Category

An Integrated Device shall be entered as an Initial Certification request. In some cases, an Integrated Device can be entered as a Variant of another Integrated Device, if the device(s) meet the conditions defined in Section 11.10.9 of this document.

11.10.7.1 Guidelines for Devices with Multiple Modules

Devices integrating multiple Modules shall check the box in the database request indicating “Device Contains Multiple Modules”. In addition, the integrator shall upload a declaration to the PTCRB certification database indicating:

1. The number of Modules used in the DUT
2. The make, models and SW version(s) of each Module used in the DUT
3. Indicate whether the DUT utilizes a dedicated antenna per Module of if multiple Modules share one or more antennas
4. Indicate whether any of the DUT’s Modules can transmit simultaneously, and if so, which Modules can do so and under what conditions

11.10.8 Email Notification to Module Manufacturer

Once the certification request is submitted, an email notification will be sent to the manufacturer of the integrated Module. The email will be sent to the Module manufacturer’s primary point of contact on record with CTIA Certification.

To: Module manufacturer primary point of contact

Subj: [Module Manufacturer] [Module Model Name/Number] Selected for PTCRB Integrated Device Certification

Body: This is a notification that a PTCRB certification request, which includes the [Module Manufacturer] [Module Model Name/Number] module, has just been submitted.

Request #: _____
Manufacturer: _____
Model Name/Number: _____
Point of Contact (POC): _____
POC E-mail: _____
POC Phone: _____

Module: [Module Manufacturer] [Module Model Name/Number]
Module Hardware Version: _____
Module Software Version: _____
Module Request #: _____

11.10.9 Certification of Variants of Integrated Devices

11.10.9.1 Applicability

This section applies to Integrated Device Variant certification.

11.10.9.2 NAPRD03 Version Applicability

An Integrated Device Variant will be subject to testing against the same version of NAPRD03 as that used to certify the Module contained within the proposed Integrated Device Variant.

11.10.9.3 Categories of Variant Devices and Assessment Criteria

The degree of testing required for an Integrated Device Variant shall be assessed by the PTCRB Primary Test Laboratory as defined in this section. The Integrated Device Variant shall be categorized into one of two possible designations:

1. No Testing Required
2. Spot Check Testing Required

Devices that do not meet the criteria defined in these sections shall be treated as an Initial Certification of an Integrated Device; see Section 11.10.9.4 of this document. The frequency bands to be tested are defined in NAPRD03 Section 2.8.

11.10.9.3.1. No Testing Required

The following types of changes between DUTs qualify for a declaration-only certification. The PTCRB Primary Test Laboratory shall upload a justification for this decision.

- Cosmetic and/or case change and/or paint change that does not have electrical impact to the performance of compliance of the DUT (including paint properties)
- A new device that is hardware identical to an existing PTCRB certified device, with software-only changes at the Integrated Device, which do not impact the bands or features of the device as declared in the PTCRB certification database. No Module changes are permitted. This is a new model name/number, not an ECO to an existing device.

11.10.9.3.2. Spot Check Testing Required

The following types of changes between products qualify for a spot check. The PTCRB Primary Test Laboratory shall upload a justification for this decision.

Modification to the DUT in areas not directly related to cellular components such as:

- Addition or removal of non-cellular board components (Ethernet, USB, Video, Audio, GPS, Wi-Fi, Bluetooth, etc.)

  Note: Addition of some features may cause the Integrated Device to be tested for that feature.
- Addition or removal of a feature from the Parent device in the Integrated Device, from the allowed list of features in Section 11.10.6 of this document
- Change of power cable and/or battery type/capacity – no change to power characteristics (input Voltage, current draw, power conditioning, power rating, etc.)
- Cosmetic and/or case change and/or paint change that has an electrical impact on the DUT
- Module change only, to a Module from within the same Variant Family as the certified Module used in the Parent Integrated Device. No other HW changes are allowed in the DUT

11.10.9.4 Changes Not Eligible as an Integrated Device Variant

Any change that is not covered by 11.10.9.3.1 or 11.10.9.3.2 does not qualify for the Integrated Device Variant process and must be certified as an Initial Certification. The following are examples of types of changes that do not qualify:

1. Change of device board layout and/or placement of any hardware components in the DUT's cellular circuit
2. Changes to the DUT's power circuitry beyond cabling and battery (input voltage, current draw, power conditioning circuitry, etc.)
3. Module change between Modules that were not approved as a Variant Family of Module in the Parent
4. Module change between Modules where the form factor of the Module has changed thus requiring modifications to accommodate the new Module

11.10.9.5 Spot Check

The verification spot check method is utilized to establish on-going device compliance, generally when the laboratory has some engineering confidence that the device still meets the specification requirements.

The PTCRB Primary Test Laboratory shall reference the original formal compliance test results/report to determine whether the Integrated Device being evaluated as an Integrated Device Variant meets the requirements defined by the spot check criteria.

Where a different PTCRB laboratory is used for the Variant assessment from that used for the Parent assessment, the laboratory is permitted to perform the spot checks on the Parent Integrated Device to use for this comparison.

Where the delta between the Integrated Device measurements and the Parent measurements are outside the limits defined by the spot check rules then the Integrated Device does not qualify as a Variant of the Parent device and shall be treated as an Initial Certification.

11.10.9.5.1. RF OTA Spot Check

The laboratory shall perform a subset of OTA tests and reference back to the original verification results. The delta for OTA TRP and TIS shall be no worse than 2dB from the Parent while still remaining within the current specification/test plan limits.

For any band where the DUT's TRP or TIS delta is greater than 2 dB from the Parent, the standard TRP/TIS testing (or TRP/C-TIS, as applicable) shall be performed for that band.

The OTA spot check shall consist of the following test requirements:

- TRP for mid channel
- C-TIS or TIS (as applicable) for mid channel
- Intermediate channel across the subset of the band from the mid channel

C-TIS/TIS (as applicable) measurement point.

Testing shall be performed for each PTCRB band supported by the DUT in the two-highest RATs supported on each band.

11.10.9.5.2. RSE Spot Check

The PTCRB lab shall perform a subset of RSE tests.

The RSE spot check plan shall consist of:

- RSE test of carrier harmonics for each band supported by the DUT
- RSE Idle mode sweep in a single PTCRB band

RSE testing shall be performed in the highest-order RAT for each band supported by the device, as per NAPRD03 Section 2.9.7.

11.10.9.6 Declaration of Parent/Variant Relationship

The manufacturer shall submit a Variant declaration (see Appendix G of this document) to the PTCRB Primary Test Laboratory defining the Variant DUT's relationship to the Parent device. This declaration will become an integral part of the approval documentation for the Integrated Device Variant. The PTCRB Primary Test Laboratory will validate the relationship and assess the testing required as described in Section 11.10.9.3 of this document.

11.10.10 Embedded Modem Certification

11.10.10.1 Applicability

This subsection applies to the certification of Integrated Devices intended to serve as Embedded Modems. It also applies to End Products using an Embedded Modem.

11.10.10.2 Requirements

11.10.10.3 Embedded Modems

- An Embedded Modem is a device which provides WWAN radio functionality as a component intended to be integrated into a host device.
- An Embedded Modem does not need to be finished or enclosed in a housing.
- An Embedded Modem shall contain a UICC or a UICC Connector.
- An Embedded Modem shall incorporate an antenna or an antenna connector. Internal or external antennas and antenna connectors are permissible (e.g., MCX, MMCX, SMA).
- An Embedded Modem may contain voltage leveling on-board or may receive a dedicated fixed input voltage from host device or external power source.

11.10.10.4 Devices using an Embedded Modem

Devices using an Embedded Modem will be subject to the End Product definition requirements from 11.10.1.1.

11.10.10.5 Version Applicability

11.10.10.5.1. Embedded Modems

Embedded Modems shall be subject to testing against the same version of NAPRD03 as that used by the module itself. Reference Section 11.10.2 of this document for further details.

11.10.10.5.2. Devices using an Embedded Modem

Due to the limited scope of testing required, End Products using an Embedded Modem shall be subject to the latest version of NAPRD03.

11.10.10.6 RAT, Frequency bands and Feature Set

11.10.10.6.1. Embedded Modems

Devices classified as Embedded Modems shall follow the Technology and Frequency Bands for Integrated Devices (Section 11.10.5 of this document) and Feature Set for Integrated Devices (Section 11.10.6 of this document).

11.10.10.6.2. Devices using an Embedded Modem

Devices using an Embedded Modem shall be required to support the same Radio Access Technologies, Frequency Bands and Feature Set as for the certified Embedded Modem.

11.10.10.7 Requirements

11.10.10.7.1. Embedded Modems

Devices classified as Embedded Modem's shall obtain a unique TAC and are not permitted to share the TAC of the module integrated.

It shall be permitted for Embedded Modems that are linked through the Integration Variant process to leverage the same unique TAC range across those variants.

An Embedded Modem device shall be submitted as an IoT Device and will be certified utilizing the IoT Network Certified program.

11.10.10.7.2. Devices using an Embedded Modem

Devices using an Embedded Modem may share the TAC range of the Embedded Modem.

Devices using an Embedded Modem will be classified as an IoT Device and will be certified utilizing the IoT Network Certified program.

11.10.10.8 Scope of Testing

11.10.10.8.1. Embedded Modems

Devices meeting the Embedded Modem classification will be certified in accordance with the Integrated Device requirements defined in Sections 11.10.2 through 11.10.9 of this document.

11.10.10.8.2. Devices using an Embedded Modem

Certification of devices using an Embedded Modem is recommended and maybe required by some Operators.

The review and assessment of Integrated Devices using an Embedded Modem will be limited to RF OTA Performance:

1. Integrated Devices using a different antenna than that certified with the Embedded Modem, or if the Embedded Modem was not certified with an antenna, shall be required to perform standard RF OTA Performance testing.
2. Integrated Devices using the same antenna as certified with the Embedded Modem, but where the antenna is installed in a housing with a significant dielectric constant change, shall be required to perform the RF OTA Spot Check procedure. Examples of such change could be associated with installation in or on a metallic structure or housing that is metallic, silicon, coated with metallic paint etc.
3. Integrated Devices using the same antenna as that certified with the Embedded Modem and without any housing or installation changes (see number 2 above), shall not be required to perform further OTA testing.

11.11 Certification of Notebook and Tablet Platforms with an Integrated Radio Module

11.11.1 Applicability

This section applies to any Notebook and Tablet platform which integrates a PTCRB-certified Module.

11.11.2 NAPRD03 Version Applicability

A Notebook and Tablet platform will be subject to testing against the same version of NAPRD03 as that used to certify the Module itself. The validity period of the NAPRD03 version used for certification of the Module is three years provided that the Module used in the Notebook and Tablet platform employs the same software version as that used to obtain PTCRB certification.

The three-year validity period begins on the certification date of the last certification which required testing to certify the Module.

In order to use the Module for new Integrated Devices, after three years the Module must re-certify to the latest NAPRD03 version. All new Integrated Devices of the certified Module will be required to certify against this new NAPRD03 version.

If the Module is being re-certified due to expiration of the three-year NAPRD03 validity period and the Module has not changed, any “delta” test cases (e.g., test cases added since the previous certification) may be reported as Category E test cases even if they are Category A in the current version of NAPRD03.

Alternatively, an integrator certifying a new Notebook and Tablet platform with a Module which has exceeded the three-year validity period may perform the delta test cases against the Integrated Device and submit them as Category E test cases even if they are Category A in the current version of NAPRD03.

Currently-certified Integrated Devices are not required to submit an ECO if no changes have occurred in the Module or the Integrated Device.

ECOs on the Integrated Device due to changes in Module SW or HW are subject to the regular ECO requirements.

The results from an uncertified Module do not carry over to a Notebook.

11.11.3 Introduction

Notebook and Tablet platforms typically take on multiple configurations which can vary according to target market, price point, use case, etc. Because the number of Notebook and Tablet platforms with similar WWAN radio subsystems can be large, the testing of each platform is impractical and unnecessary. As a result, an approach which leverages the “Family” concept described earlier in this document is provided. In this approach, the PTCRB certification process allows a defined Parent Device platform to serve as a certification test reference for a set of Child Notebook and Tablet platforms. This will result in the reduction or in some cases the elimination of testing, thereby enabling lower cost, improved time to market and rapid deployment.

Parent and Child Notebook and Tablet platforms will be submitted through the PTCRB certification database for PTCRB Approval. The manufacturer shall select the Notebook or Tablet device type to indicate the submission is a Notebook or Tablet. The unique aspects of this method are described in the subsections that follow.

11.11.4 Device Submitted for Test

During product development the manufacturer is expected to determine what represents the most popular configuration of components and to use that configuration for PTCRB submission or receiver performance assessment. Once the most popular version of a Parent has been identified, all Child Devices will be assessed against only that specific version of the Parent. This will hold true even if that particular version of the Parent does not remain the most popular over time.

11.11.4.1 Switchable Graphics

When a device contains switchable graphics technology (e.g., switch between two graphics solutions, discrete and UMA) the manufacturer is expected to perform an assessment for each graphics mode to determine which creates the greatest increase in noise floor or poorest C-TIS or TIS (as applicable) on all supported WWAN bands. The manufacturer will use that configuration for PTCRB submission or receiver performance tests.

Once this mode has been identified for a Parent, all Child Devices will be assessed against only that specific graphics mode of the Parent.

11.11.5 Parent/Child Definition

The Parent/Child concept is built on the premise that Child Device computing platforms are simply product variations of a Parent computing platform (e.g., platform sizes or commodities may change but the WWAN radio subsystem remains similar). Since techniques are available to confirm the WWAN radio performance between Parent and Child Devices, there is the opportunity to streamline testing and certification. However, the Parent/Child concept applies only to Child Device computing platforms operating in WWAN bands below 7.1 GHz (i.e., FR1). The Parent/Child concept does not apply to the FR2 portion of Child Device computing platforms which support FR2 NSA operation.

Parent devices are subject to testing of the following interfaces as determined by the PTCRB Primary Test Laboratory

- SIM
- RF (includes RSE and TRP/TIS measurements); the frequency bands to be tested are defined in NAPRD03 Section 2.8
- MMI
- Audio
- Power

Once a Parent platform becomes certified, any platforms identified by the manufacturer as being "related" to the Parent as a Child Device may require a certain level of regression testing, the extent of which depends upon the nature of any differences between the Parent and the Child Device. A definition of the Parent/Child relationship as well as the extent to which a Child Device platform must be tested is described in the subsections that follow.

11.11.6 Declaration of Parent/Child Relationship

Manufacturers may declare any fully tested Notebook and Tablet platform a Parent device. A fully tested platform is one which has been evaluated in terms of TRP/TIS performance, SIM electrical interface performance, radiated spurious emissions and any other applicable PTCRB and/or 3GPP tests as described in Section 11.11.10 of this document. From this fully tested Parent platform, the manufacturer can identify Child Devices which are related to the Parent. The "lineage" of Child Devices must be documented and specifically indicate which children are associated with which Parent device. This lineage, once established, cannot be changed.

While a Child Device platform's lineage to the Parent cannot be changed, it is possible for a Child Device to become a Parent and for a Parent to have new children. For example, if a Child Device adds a Module that wasn't included in its associated Parent platform, the manufacturer must fully certify the new Module in the Child Device. In this case, the Child Device remains a Child Device to its original Parent but is also now a Parent to its children that use the new Module. Only one "generation" is allowed under this provision.

The manufacturer will submit a Parent/Child declaration to the PTCRB certification database. This declaration will become an integral part of the approval documentation for the Parent and any children associated with it. Refer to Appendix F of this document.

11.11.7 Parent/Child Antenna Subsystem Considerations

The antenna subsystem in a Child Device must be similar in design and performance to that of its Parent (e.g., the antenna itself may be provided by a manufacturer which differs from that used in the Parent or the transmission line type/length may differ, but the antenna subsystem must be based on the same design specification).

11.11.8 Section Content Deleted

11.11.9 Assessment of Parent/Child Receiver Performance

Manufacturers may choose the specific approach to assess Parent/Child receiver performance. The following four receiver performance assessment methodologies are considered acceptable:

- Full C-TIS or TIS (as applicable)
- Single-point EIS
- Noise signature (spectrum analyzer method)
- Noise signature (in-situ measurements using Module-based "noise profiling" tools)

Manufacturers can perform the receiver performance assessment during product development so long as the results are representative of the final product.

11.11.9.1 Full TIS and Single-Point EIS Receiver Performance Assessment

Child Device platforms will be considered similar to their Parent if either of the following criteria are met:

Full C-TIS or TIS: The results of a full C-TIS or TIS measurement indicate that C-TIS or TIS is equal to or better than that of the Parent. If Child Device performance is worse than the Parent, the measured C-TIS or TIS value must be within 1.5db of its Parent (plus the laboratory's measurement uncertainty). The measurement shall be executed in accordance with the methodology described in *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance*, Appendix G.

During execution of a full C-TIS or TIS measurement, the Notebook or Tablet platform shall be configured to comply with the operating parameters called for in *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance*, Appendix G, Sections G.4 through G.6 as applicable.

Single-Point EIS: Single-point EIS measurement indicates that the radiated performance of the Child Device platform is equal to or better than that of the Parent. If Child Device performance is worse than the Parent, the measured EIS value must be within 1.5 db of that of its Parent plus the lab's measurement uncertainty. The TIS measurement used to determine the single measurement point for this test shall be conducted in accordance with the methodology described in *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance*, Appendix G and the single-point EIS intermediate channel measurement procedure described in Section 6.14.1 of this same document.

During execution of the Single-Point TIS measurement, the Notebook or Tablet platform shall be configured to comply with the operating parameters called for in *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance*, Appendix G, Sections G.4 through G.6 as applicable.

Manufacturers who choose either the Full C-TIS/TIS or Single-Point EIS methods of assessing Child Device receiver performance are not required to execute TRP equivalency testing.

11.11.9.2 Noise-Signature Receiver Performance Assessment

Manufacturers who choose either of the "noise signature" receiver performance assessment methods listed above must be aware that TRP equivalence between the Parent and Child Device platforms is a prerequisite. TRP provides a very accurate measurement of antenna efficiency, and it is important that antenna efficiency be maintained between Parent and Child Device platforms to ensure that the noise signature test method provides valid results.

When employing noise signature receiver performance test methodologies, the antenna subsystem in a Child Device is considered to be equivalent to its Parent if the following guideline can be met:

- The TRP of a platform the vendor considers a Child Device must be the same as or greater than the TRP of its Parent or the TRP must not be more than 1.5 dB below its Parent on all bands the Child Device has in common with the Parent, plus the lab's TRP measurement uncertainty.

  If this guideline does not apply to any given Child Device platform, then the two noise signature Parent/Child equivalence test processes do not apply and either Full C-TIS/TIS or Single-Point C-TIS/TIS results are required.

  The TRP equivalency test may be executed as part of the Child Device platform final development process in order to simplify execution.

  During execution of noise signature tests, the Notebook or Tablet platform shall be configured to comply with the operating parameters called for in *CTIA Certification Test Plan for Wireless Device Over-the-Air Performance*, Appendix G, Sections G.4 through G.6 as applicable.

  Child Devices using the noise signature approach must meet the following criteria:

- Wideband noise averaged over each downlink radio band supported by the platform is the same as or lower than that of the Parent plus the laboratory's measurement uncertainty
- The average power of all deterministic signals must be the same as or lower than that of the Parent plus the laboratory's measurement uncertainty

A conformance test suite has been developed to ensure comparable in-situ noise signature test results from a variety of Module implementations. The Module manufacturer is responsible for executing this test suite and declaring that their implementation meets the pass/fail criteria included in Appendix F of this document.

11.11.10 Interface Tests Required for Notebook and Tablet Platforms

The PTCRB Primary Test Laboratory will determine which interfaces, if any, have been affected by the integration of a PTCRB-certified Module. This analysis will be used to determine which specific test cases shall be executed against the Notebook and Tablet platform.

11.11.10.1 Audio Interface

Audio interface testing is required for Notebook and Tablet platforms that support speech via the integrated PTCRB-certified Module.

Applicable Test Specifications/Test Sections: 3GPP TS 26.132 Section 7.x and Section 8.x as applicable.

Emergency call retesting is required whenever the DUT includes an audio interface (acoustic or electrical) intended for supporting calls to and from the PSTN, regardless of the device's form factor.

Applicable Test Specifications/Test Sections: 3GPP TS 34.123-1 Section 6.1.2.6 and Section 13.x as applicable.

11.11.10.2 Power Interface

If the voltage supplied to the integrated Module is different than that used during initial Module certification testing, then all test cases related to voltage extremes shall be re-executed.

Applicable Test Specifications/Test Sections: Test cases from 3GPP TS 51.010-1 Section 12.x, Section 13.x, Section 14.x,, 3GPP TS 34.121-1 Section 5.x, 6.x, 8.x and 3GPP TS 36.521-1 Section 6.x, 7.x and 3GPP TS 36.521-3 Section 6.x, 9.x and 3GPP TS38.521-1 Section 6.x, 7.x and 3GPP TS 38.521-3 Section 6.x, 7.x and 3GPP TS 38.533 Section 4.x, 6.x as applicable where extreme testing is specified.

11.11.10.3 UICC/SIM/USIM Interface

Because the successful execution of full UICC/SIM/USIM testing is a prerequisite for a Module to become PTCRB certified, the following scenario shall be taken into consideration for Notebook and Tablet platforms based on this Module:

- If the UICC-UE interface configuration used by the Notebook or Tablet (including electrical connectors, wires, wire lengths, PCB material, PCB layout, etc.) as well as all relevant interface power supply parameters are identical to that of the PTCRB-certified Module, then electrical UICC-UE interface retesting will not be required.
- In all other cases regression tests (at least all electrical tests) shall be performed for the UICC-UE interface, unless the manufacturer of the Notebook or Tablet platform provides the

test laboratory with evidence of test data which unambiguously proves compliance of the modified interface configuration and/or modified power supply parameters.

An example of such test data would be measurement results (for the PTCRB-certified Parent Module, performed by a PTCRB laboratory) from electrical UICC-UE interface testing for different external (minimum/maximum) wire lengths that might be used to ensure compliance.

Applicable Test Specifications/Test Sections: Test cases out of ETSI TS 102 230.

11.11.10.4 RF Interface

If integration of the Module will not result in any changes to the RF layout, components, or RF shielding characteristics, then retesting of the RF conducted part is not required. However, in all cases the RF radiated part must be retested.

Applicable Test Specifications/Test Sections: Test cases out of 3GPP TS 51.010-1 Section 12.2.x, 3GPP TS 34.124 Section 8.2 and 3GPP TS 36.124 Section 8.2 and 3GPP TS38.124 Section 8.2 as applicable.

- Radiated spurious emissions measured while the certified Module is transmitting comply with the spectral mask requirements described in 3GPP TS 51.010, Section 12.2.1, 3GPP TS 34.124, Section 8.2 and 3GPP TS 36.124 Section 8.2 and 3GPP TS38.124 Section 8.2 as applicable
- Notebook and Tablet platforms which utilize a PTCRB-certified Module are exempt from the measurement of idle-mode radiated spurious emissions specified in 3GPP TS 51.010, Section 12.2.2

Parent platform RF Performance Evaluation measurements (e.g., TRP/TIS) must be supplied per normal process to provide data on radiated power and receive sensitivity.

Parent and Child Device platforms previously certified with a specific PTCRB-certified Module are allowed to change to the use of a different PTCRB-certified Module provided:

1. No changes of any type are made to the host Parent or Child Device platform
2. The new Module does not add or remove any functionality previously claimed in the Parent or Child Device's original PTCRB certification database feature declaration
3. Parent Notebook Module changes require full TRP and TIS testing of the Parent with the new Module installed
4. Child Device Module changes may be made only if the same Module change was made to the associated Parent platform and the Parent platform has gone through full TRP/TIS testing
5. Module changes to a Child Device when the Parent's Module remains unchanged are not allowed unless the Child Device is fully tested as a Parent

11.11.10.5 Man-Machine Interface

In cases where the Notebook or Tablet platform provides an MMI for the Module, all MMI-related test cases within Supplementary Services, SIM Toolkit, Emergency Call (if speech is supported) and SMS must be re-tested.

For example, if:

a. The notebook is a data-only product declaring no support for voice or network-based messaging as the product ships from the factory and/or

b. The OEM does not provide an MMI implemented in SW which can be downloaded by the end user (e.g. excluding any third-party apps that might be downloaded by the end user)

then the platform does not provide an MMI as described in this section and no MMI testing is required.

Applicable Test Specification/Test Sections: 3GPP TS 34.123-1 Section 6.1.2.6, 13.x and 16.x, 3GPP 31.124 Section 27.22.x and 3GPP TS 36.523-1 Sections 11.x as applicable.

11.11.11 Technologies and Frequency Bands for Notebook and Tablet Platforms

See Section 11.10.5 of this document.

11.11.12 Feature Set for Notebook and Tablet Platforms

See Section 11.10.6 of this document.

11.11.13 Information Required for Notebook and Tablet Certification

11.11.13.1 Certification Request Type

A Notebook or Tablet platform shall be entered as an Initial certification request. It is not possible to enter a Notebook or Tablet platform as a Variant certification request.

The Notebook or Tablet device type shall be selected.

If the Notebook is a Child Device, its Parent can be selected from those Notebooks eligible to be a Parent (See Section 11.10.6 of this document).

If the Notebook is not a Child Device, the embedded Module(s) shall be selected from the drop-down list. This list will show all PTCRB certified Modules. If the Notebook is a Child Device, the embedded Modules may be selected only from those Modules embedded in its Parent.

11.11.13.2 Required Information Fields

The manufacturer will be required to enter the following information into the PTCRB certification database:

- Valid production model name/number
- Integrated Module(s)
- If the Notebook is intended for sale in the U.S., the FCC ID for the Notebook platform
- If the Notebook is intended for sale in Canada, the ISED ID for the Notebook platform
- If the Notebook is intended for sale in any other country, the regulatory approval information for a country of destination
- Current HW and SW (including SV) product versions
- IMEI TAC
- Main point of contact and billing point of contact

11.11.13.3 Documentation

The manufacturer will be required to upload the following documents into the PTCRB certification database:

- Declaration of Parent/Child Relationship – (Child Devices only) A document indicating the Parent/Child relationship being established, listing which category is being used. The manufacturer is responsible for archiving the assessment data associated with each Parent/Child declaration.
- Product Description - A product description shall be provided (a draft version is acceptable). This may be any document, such as a product brochure, describing the device and referencing the manufacturer name and model name/number of the device.

11.11.14 Information Required for Notebook and Tablet Certification with Certified Module supporting FR2

A Notebook or Tablet platform with certified Module supporting FR2 bands will be required to perform the type of testing listed in Section 11.10.3.9, Table 11.10-7 for all the applicable test cases.

11.12 Requirements for Variant Certifications

11.12.1 Applicability

This subsection applies to any device which, per the definitions in Section 1.2, represents a Variant.

A Variant shall not be created from a Variant.

11.12.2 NAPRD03 Version Applicability & Multiple Variants

An initial Variant certification and any subsequent ECO certifications of the Variant may leverage results from the certified Parent device. However, the Variant shall certify against one of the two most recent versions of NAPRD03 as of the date the DUT is to complete certification and submit the relevant delta test cases, in addition to the certified Parent test results. The NAPRD03 version used to test the Variant DUT can never be an earlier version than that used for the certified Parent device.

Multiple Variants shall comply to the following rules:

- Applicable test results from a similar certified Variant (#1) may be used for the Variant DUT (#2) targeted for approval
- The certification report from certified Variant #1 must be submitted as a precondition for certifying Variant DUT (#2)
- The PTCRB Primary Test Laboratory responsible for Variant DUT #2 will make the determination whether any given test results can be carried over from certified Variant DUT #1 or if these test results should be re-executed against Variant DUT #2. Either way, the PTCRB Primary Test Laboratory is charged with ensuring that Variant DUT #2 is compliant to the requirements of all applicable cases.
- The NAPRD03 version associated with certified Variant #1 is not applicable to Variant DUT (#2). The NAPRD03 version of Variant DUT (#2) will be determined based on the date the DUT is to complete certification.

11.12.3 Variant TAC and SVN

Variants which are marketed under the same name as the Parent device and share a TAC with the Parent must provide a unique SVN to identify the device as the Variant.

For example, the Parent device could be identified as SVN 01, therefore the Variant could be identified as SVN 02. This would also be applicable to Parent products which are upgraded to the

Variant's capabilities. See Section 8.1.1 of this document for additional requirements and exceptions related to use and management of the TAC and SVN device identifiers.

11.12.4 Guidelines for Testing Variant Devices

Appendix H of this document shall be used by the PTCRB Primary Test Laboratory to determine which areas of the Variant, if any, have been impacted by development from the Parent and thus which specific test cases can be leveraged from the Parent.

11.13 Requirements on Rebranding PTCRB Certified Devices

Rebranding is defined as a manufacturer #1 obtaining an original certified device from manufacturer #2, and putting manufacturer #1's name and model name/number on the to be listed in the PTCRB certification database.

11.13.1 Applicability

Rebranding can occur when:

- The original device is PTCRB certified
- No changes between the original PTCRB-certified device and the rebranded device have occurred, except the manufacturer name and model name/number, resulting in only packaging and/or marketing of the rebrander's device

The rebranded device must be submitted as an Initial Certification.

Rebranded Integrated Devices will apply the same rules for NAPRD03 version applicability as applied to the original certified Integrated Device. See Section 11.10.2 of this document.

11.13.2 Process

The process for a manufacturer to rebrand another manufacturer's certified device is as follows:

- The rebranding manufacturer enters the device in the PTCRB certification database as an Initial Certification of the same Device Type and enters the device's model name/number
- The rebranding manufacturer uploads the required documentation as defined in PPMD
- The rebranding manufacturer chooses a PTCRB Primary Test Laboratory
- The PTCRB Primary Test Laboratory will upload the original certified device's test report to the PTCRB certification database along with two additional documents:
  - A Product Equality Letter from the rebranding manufacturer, and
  - An "Authorization of Use Letter" from the Original Equipment Manufacturer
- The Product Equality Letter shall be submitted to the PTCRB Primary Test Laboratory, by the rebranding manufacturer and shall state: The original certified device by manufacturer name and model name/number (as it appears in the PTCRB certification database) is exactly the same as the rebranded device known as manufacturer name and model name/number and no changes have been made other than the manufacturer's name and model name/number. Date and signature required.
- The Authorization of Use Letter shall be submitted to the PTCRB Primary Test Lab, by the OEM and shall state: OEM name allows the PTCRB Primary Test Laboratory to use the test reports from their originally certified device for the rebranded device certification. Date and Signature required.

- The rebranding manufacturer shall obtain a unique IMEI TAC for the rebranded device by submitting an IMEI TAC request via the PTCRB certification database at https://certify.ptcrb.com/. Note: devices based on Modules shall follow the IMEI rules defined in this document.
- The rebranding manufacturer shall contact CTIA Certification at support@ctiacertification.org informing the Certification Administrator the device is a rebrand of an existing device
- The rebranding manufacturer is recommended to apply for a unique regulatory ID for their rebranded device

11.13.3 ECOs for Rebranded Devices

After the initial rebranding of a device, all subsequent ECO certifications are the responsibility of the rebranding manufacturer. Any testing associated with the ECO must be performed on the rebranded device.

11.14 Requirements for Devices Using a Non-Removable (Soldered) UICC

11.14.1 Introduction

The UICC and the Network Access Application (NAA) is the main token to identify a device and the user/publisher behind an application/device. As some devices are located in environments which make it necessary to ensure the interface between the UICC and the terminal is robust against extreme physical conditions. For example, a device installed in a dashboard of a car needs to be designed in a way that ensures it will operate under temperature extremes and vibration. Because 'Plug In' UICCs do not satisfy such requirements, ETSI specified an M2M UICC that meets enhanced requirements regarding vibration, temperature and humidity.

The main difference between the M2M UICC and the 'Plug-In' UICC is that the M2M version can be soldered. In practice this means that the Device – UICC interface is no longer accessible.

Therefore, new test methods have been established to verify the behavior of devices using this interface.

11.14.2 Applicability

This subsection applies to any DUT which is intended to use a UICC that is soldered.

11.14.3 Guidelines for Testing the UICC-UE interface for DUTs with Soldered UICCs

The device manufacturer shall provide a DUT without a soldered UICC in a way that the UICC interface is physically accessible.

11.14.3.1 Connecting the DUT with Soldered UICCs to the Test Equipment

The DUT shall be connected using a flex print adapter adapting the UICC interface to the test equipment interface.

- The flex adapter shall be compliant to ETSI TS 102 221
- The flex adapter shall be soldered to the DUT in a similar way as the UICC is soldered in the production process. It is recommended that the DUT manufacturer solder the flex print onto the DUT.

The presence of a properly functioning flex adapter shall be verified by the PTCRB authorized test laboratory.

11.14.3.2 Assessment Procedure for DUTs with Soldered UICCs

The laboratory shall determine the applicability of device assessment requirements per the DUT's category and type.

The DUT is tested via the soldered flex adapter using either appropriate Test UICCs (UICC holder connected to flex adapter) or an UICC simulator. This guarantees test execution in the same way as for devices using removable "Plug in" UICCs.

11.15 Requirements for Certified Chipsets

11.15.1 Applicability

Unless explicitly stated in this section, a Chipset shall be certified according to the processes and requirements referenced from Table 11.2-1.

- A Chipset shall be certified as an Initial Certification
- A Chipset cannot be created as a Variant of any other type of device (i.e., PC card, smartphone, module etc.)
- A complete set of applicable tests shall be executed against the Chipset applying for Initial Certification
- Conformance tests shall be conducted by a PTCRB Authorized Test Laboratory.

The Certified Chipset's bands and feature information shall be made available to all PTCRB Test Laboratories.

The Certified Chipset's PICS/ PIXIT and test results shall be made available to the PTCRB Primary Test Laboratory conducting the evaluation of the Module or End Product Integrating the Certified Chipset.

11.15.2 TAC Assignment

Certified Chipsets shall not be assigned a TAC for commercial purposes. Note: A TAC shall only be assigned at the Module or End Product level.

For certification testing the Certified Chipset shall obtain and utilize a test IMEI allocation.

11.15.3 NAPRD03 Version Applicability

Certified Chipsets shall be subject to standard NAPRD03 version applicability requirements per Section 11.7 of this document.

11.15.4 Regulatory Approval Requirements

Certified Chipsets are not required to submit a regulatory ID. Note: The regulatory ID is required at the Module or End Product level.

11.15.5 Certification Request Categories

A Certified Chipset shall be entered into the PTCRB Certification Database as an Initial Certification request and shall indicate it is a Certified Chipset. Variant Certification requests may be submitted for Certified Chipsets, following the requirements listed in Section 11.12 of this document.

11.15.6 ECO Handling

A Certified Chipset may submit ECOs for SW and/or HW changes to the Certified Chipset and shall follow the requirements per 11.6 when performing an ECO.

A Certified Chipset is not required to submit an ECO in order for a Module or End Product to utilize an update SW and/or HW release. A Module or End Product utilizing the Certified Chipset shall be assessed on the changes independently from the Certified Chipset.

11.15.7 Application Enabler Testing

Certified Chipsets shall be required to complete all applicable testing for any Application Enabler declared as supported by the Chipset

11.15.8 Chipset Configuration Declaration

Certified Chipsets shall declare in the PTCRB database the manufacturer names, model numbers and versions of the mandatory components needed to meet the functional block requirements for a Chipset (Baseband, RFIC, RFFE, PMIC) that are required for the Certified Chipset package.

11.16 Requirements for Modules and End Products using a Certified Chipset

11.16.1 Applicability

This subsection applies to any NB-IoT or LTE-M Module or End Product which integrates a PTCRB Certified Chipset.

If not explicitly stated within this section, then the Module or End Product incorporating a Certified Chipset shall be certified according to the processes and requirements referenced from Table 11.2-1.

11.16.2 NAPRD03 Version Applicability

Modules or End Products using a Certified Chipsets shall be subject to standard NAPRD03 version applicability requirements per Section 11.7

11.16.3 Guidelines for Testing

The PTCRB Primary Test Laboratory shall

- Create a test plan containing all test cases applicable to a Module or an End Product based on feature set supported by the Module or End Product based on a valid NAPRD03 release.
- Leverage results from the Certified Chipset towards the Module or End Product.
- Execute test cases detailed in the Confidence Test Case List (see PVG.13 and/or TC Database) against the Module or End Product.
- Execute remainder of test cases that were identified in the test plan and not leveraged from the Certified Chipset

The purpose of the Confidence Test Case List is to ensure that the integration of a Certified Chipset has not affected compliance.

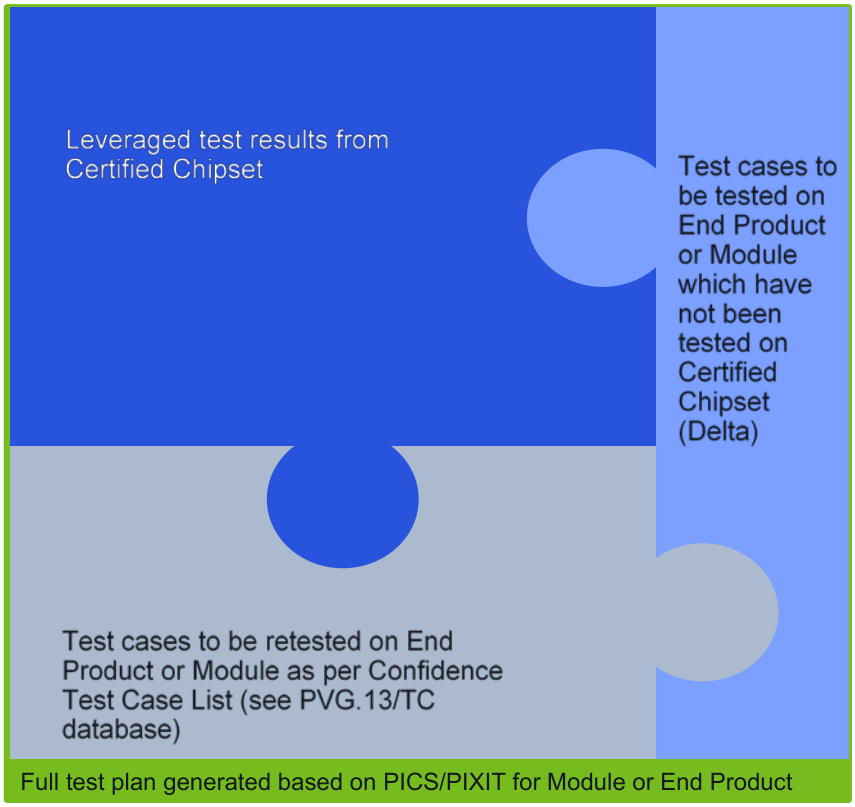


FIGURE 11.16-1 FULL TEST PLAN GENERATED BASED ON PICS/PIXIT FOR MODULE OR END PRODUCT

11.16.4 Exclusions from Leveraging

Test results from an uncertified Chipset shall not be eligible to be leveraged over to any module or End Product.

A Module or End Product shall not leverage test results from a different Certified Chipset than that contained in the Module or End Product seeking certification.

A Module or End Product shall not leverage any test results for any untested band or feature on a Certified Chipset and shall be required to perform testing in full for associated band or feature.

11.16.5 Regulatory Approval

The manufacturer shall enter the Regulatory approval ID(s) into the PTCRB certification database of the WWAN radio subsystem(s) of the Module or End Product.

11.16.6 Radio Access Technologies and Frequency Bands

The Module or End Product shall be required to test all PTCRB Bands declared as supported, including bands not certified by the Chipset. Bands not utilized by the Module or End Product shall be disabled.

The Module or End Product may declare support for a subset of PTCRB Bands certified by the Chipset.

The Module or End Product may declare support for additional PTCRB Bands beyond those certified by the Chipset and shall be responsible to test those bands in full.

The Module or End Product shall be permitted to disable Radio Access Technologies that are not required and shall not be responsible for testing a Radio Access Technology that is disabled.

11.16.7 Feature Set

The Module or End Product shall not be restricted to the feature set of the Certified Chipset. Any feature added that was not tested as part of the Certified Chipset shall be tested in full on the Module or End Product.

11.16.8 Certification Request Categories

A Module or End Product which is based on a Certified Chipset shall be entered into the PTCRB Certification Database as an Initial Certification request. Variant Certification requests may be submitted for Modules or End Products based on a Certified Chipset, following the requirements listed in Section 11.12 of this document.

11.16.9 Certified Chipset Configuration

The manufacturer shall provide information to the PTCRB Lab to confirm the Functional Blocks of the Certified Chipset being used in the DUT match those authorized as part of the Certified Chipset record.

11.16.10 ECO Handling

ECOs for Modules and End Products using a Certified Chipset shall follow the standard ECO requirements per Section 11.6 and shall not inherit any new test results generated in any possible Chipset ECO.

It shall not be required for an ECO to be performed on a Certified Chipset in order for that change to be used in a Module or End Products using Certified Chipset.

11.16.11 Application Enabler Testing

Where the Module or End Product manufacturer has added or modified any Application Enablers, then Application Enabler conformance tests must be executed.

11.16.12 Other Test Aspects

In all instances it is the responsibility of the PTCRB Primary Test Laboratory to advise the module or End Product manufacturer as to any additional testing requirements.

The Module or End Product using a Certified Chipset shall be required to submit a PICS/PIXIT document for the device to be tested to the Primary PTCRB Test Laboratory responsible for the certification.

The Chipset manufacturer is required to provide all PTCRB test reports and PICS/PIXIT documentation associated with the certification of the Certified Chipset used by the Module or End Product to the PTCRB Primary Test Laboratory selected for the certification of the Module or End Product. This is for the purposes of test plan generation and assessment.

The Module or End Product manufacturer must specify the hardware and software version associated with the Module or End Product, and it is not acceptable to use the Certified Chipset's hardware and software versions.

Appendix A—Informative Checklist for Submission of Test Samples to Laboratory

The following checklist is an example and will vary based on the type of device and the test laboratory's requirements.

Units shall be submitted directly to the test laboratory. Additional items may be required from the test laboratory; contact the test laboratory directly for a complete list.

A.1 Hardware

A.1.1 At least three samples of the unit to be tested complete with the necessary accessory items (cables, batteries, charger, etc.). One unit shall be configured to perform SIM/ME interface testing, and the other two shall be unmodified.

A.1.2 Test Interface Adapters - to allow direct access to RF (antenna), transmit and receive audio test points, and SIM interface. If the unit requires computer control, a test bed shall be provided.

A.2 Technical Documentation

A.2.1 Name, address, and technical point of contact

A.2.2 Operator/user manuals

A.2.3 An in-depth description of the device's features and capabilities

A.2.4 Description of the device's hardware:

A.2.4.1 Hardware version

A.2.4.2 Parts list

A.2.4.3 Hardware block diagrams

A.2.4.4 Circuit diagrams

A.2.4.5 Mounting drawings

A.2.4.6 Photographs of the DUT

A.2.4.7 Installation guide/explanation of component interconnection and identification of power lead colors and functions

A.2.4.8 List of supported accessories

A.2.4.9 Declaration of Equivalence Across Multiple Marketing Names (Moved to 11.3.1.6)

A.3 Device Information

A.3.1 FCC or ISED ID of DUT (if available)

A.3.2 Regulatory approval information for the other country(ies) of destination (if available)

A.3.3 Series or family name (if available)

A.3.4 Sales model names/numbers (if available)

A.3.5 Assigned IMEI number (if available)

A.3.6 Software and hardware revision number

A.3.7 Technical/engineering contact for technical assistance to lab testing personnel (Name, address, and phone number)

A.3.8 PICS/PIXIT in accordance with the document list provided in Section 11.3.1.7 of PPMD V 3.9 (or later)

Appendix B—IMEI SVN Verification Declaration of Compliance

Manufacturer Information	
Manufacturer Name	
Contact	
Date of Submission	

Model	Certification Request Number	Hardware Version	Software Version	SVN

We, the representatives of the above-mentioned Manufacturer, declare that the only PTCRB certification impact of the SW update, for the models listed above, is the verification of the IMEI SVN. Therefore, the IMEISV number has been confirmed as listed in this declaration of compliance.

Date (yyyy-mm-dd)	Signature (Manufacturer Representative)

Appendix C—Declaration of Hardware and Software Differences in Tested Devices

DUT Information	
Manufacturer	
Model Name/Number	
IMEI	
FCC ID Number	
ISED ID Number	
Certification Request Number	

Primary PTCRB Test Laboratory	
Primary Laboratory Name:	
* Primary Laboratory Contact	

Final Hardware / Software build * i.e., HW/SW in the PTCRB Certification Database	
HW Version:	
SW Version:	

Indicate labs, testing conducted at each, and final HW/SW tested in each:

* We, the representatives of the above-mentioned Primary PTCRB Authorized Test Laboratory declare that the differences in Software and Hardware in the test reports listed in this document, and the final HW/SW being reported in the PTCRB certification database will not affect measurement data.

Appendix D—Application Form for Off-Site Testing

PTCRB Primary Test Laboratory	
Name/ Address	Click or tap here to enter text.
Test Lab Manager	Click or tap here to enter text.
Phone	Click or tap here to enter text.
Email	Click or tap here to enter text.

PTCRB Test Laboratory Conducting Off-Site Testing	
Name/ Address	Click or tap here to enter text.
Test Lab Manager	Click or tap here to enter text.
Phone	Click or tap here to enter text.
Email	Click or tap here to enter text.

Testing Project: UE Details	
Brand Name	Click or tap here to enter text.
Type Name	Click or tap here to enter text.
Marketing Name	Click or tap here to enter text.
HW version(s) used for this Off-Site Testing	Click or tap here to enter text.
SW version(s) used for this Off-Site Testing	Click or tap here to enter text.

Testing Project: Additional Information	
Expected start of this Off-Site Testing (yyyy-mm-dd)	Click or tap here to enter text.
Expected end of this Off-Site Testing (yyyy-mm-dd)	Click or tap here to enter text.
Location of Testing	Click or tap here to enter text.
NAPRD.03 version utilized for this Testing Project	Click or tap here to enter text.
Identify the testing being executed off-site	Click or tap here to enter text.
Name(s) of the person(s) performing this Off-Site Testing	Click or tap here to enter text.

We, the representatives of the above-mentioned PTCRB Authorized Test Laboratories, hereby affirm that we will fulfill all requirements and all our obligations for Off-Site Testing as defined in the latest valid version of the PTCRB Program Management Document (PPMD) for the Testing Project defined above.

We are aware of the fact that violation of the rules therein might result in a disqualification of our laboratories from PTCRB Authorized Test Laboratory status.

Date (yyyy-mm-dd)	Signature (Test Lab Manager "PTCRB Primary Laboratory")	Date (yyyy-mm-dd)	Signature (Test Lab Manager "PTCRB Laboratory Conducting Tests")

☐ Off-Site Testing granted by CTIA Certification

☐ Off-Site Testing refused by CTIA Certification

Date (yyyy-mm-dd)	Signature (CTIA Certification)

Appendix E—PTCRB Operator Steering Group Application

Complete and send to cpwg@ctiacertification.org

Operator Name:

Representative:

Email Address:

Telephone:

Website Address:

CTIA Member: ☐ Yes ☐ No

GSM Association Member: ☐ Yes ☐ No

Radio Technology supported by Operator:

☐ GSM ☐ UTRA ☐ E-UTRA ☐ NB-IoT

☐ NR FR1 with supported RAN-CN Interface Options: (i.e. Option 2, Option 3)

☐ NR FR2 with supported RAN-CN Interface Options: (i.e. Option 3)

Explain how your company utilizes the PTCRB certification program to evaluate device compliance to wireless industry requirements:

Level of Membership Requested:

☐ Active

The Operator plans to participate in all OSG meetings and will be counted to determine a Quorum. The company logo will be displayed under PARTICIPATING OPERATORS at https://www.ptcrb.com/about/ and https://iotnetworkcertified.com/about/.

☐ Passive

The Operator does not plan to participate in all OSG meetings and will not be counted to determine a Quorum. The company logo will be displayed under PARTICIPATING OPERATORS at https://www.ptcrb.com/about/ and https://iotnetworkcertified.com/about/.

Appendix F—Parent/Child Notebook and Tablet Platform Declaration

Please complete the declaration for each Parent-Child pair and upload to the Child Device PTCRB certification request in the Supporting Documentation area.

Device Details		
Company name		
Parent model name/number		
PTCRB Parent request #		
Child Device model name(s)/number(s)		
PTCRB Child Device request #		
	FCC ID	ISED ID
Embedded Module ID		
Parent Device ID		
Child Device ID		
Child Device Classification Details		
Platform Equivalence	Meets TRP Equivalence to Parent ☐	
Compliance Testing		
Select assessment method: (Must use same method for Parent and Child Device)	Full TIS ☐ Single-Point TIS ☐ Noise Signature ☐ Module NPT ☐	
Technical Comments (Optional)		
Parent Device:		
Child Device:		

Compliance Declaration	
DECLARATION (signature)	
Date of Declaration	
Contact Name	
Email Address	

Appendix G—Integrated Device Variant Declaration

Please complete the declaration for each Parent-Variant pair and upload it to the PTCRB certification request in the Supporting Documentation area.

Device Details	
Company name	
Parent device name/model	
PTCRB Parent request #	
Parent Module manufacturer, model name/number	
Parent Module PTCRB request #	
Integrated Device Variant model name/model	
PTCRB Integrated Device Variant request #	
Integrated Device Variant Module manufacturer, model name/number	
Integrated Device Variant Module PTCRB request #	
Description of change from Parent to Integrated Device Variant	
Compliance Declaration	
DECLARATION (signature)	
Date of Declaration	
Contact Name	
Email Address	

Appendix H— Guidelines for Testing Variant Devices

The PTCRB Primary Test Laboratory will determine which areas of the Variant, if any, have been impacted by development from the Parent. This impact analysis will be used to determine which specific test cases shall be executed against the Variant and which can be leveraged from the Parent. The full Initial Certification testing requirement applies until this analysis is complete.

The impact analysis shall be based on documentation provided by the manufacturer to the PTCRB Primary Test Laboratory that details differences between the Parent and Variant. This documentation shall include a Parent-to-Variant functional comparison summary as well as a PICS comparison.

The following areas shall as a minimum be considered when performing the impact analysis.

H.1 Hardware Analysis

H.1.1 RF / Baseband / Electrical / SIM components:

- Is the same chipset family used?
- Have RF components, RAT or band support changed?
- Have touch panels changed size or resolution?
- Have power supply arrangements changed?
- Have SIM arrangements or quantity changed?

H.1.2 PCB Layout & Layers:

- Has a ‘ring-fenced’ design approach been taken or has the layout changed?
- Has the number of PCB layers been changed?
- Have the PCB Ground Plane layers been changed?

H.1.3 Antennas:

- Has the antenna been re-designed or re-tuned?
- Has the antenna position changed or other large components around it such as touch panels changed?

H.1.4 Audio:

- Have the transducer parts changed or the originals re-tuned?
- Have the transducer parts position changed relative to the mechanical design?

H.1.5 Mechanical & Casings:

- Has the internal physical layout changed e.g. to accommodate new touch panel, antennas or audio transducers?
- Have case or chassis materials changed?
- Have external coatings changed e.g. metallic content?

H.2 Software Analysis

H.2.1 OS Version and UI:

- Has the major OS version changed?
- Have default apps changed e.g. dialer, messaging?

H.2.2 3GPP Functionality & Features:

- Have releases or other PICS controlled functions/features changed e.g. bands, UL/DL categories, CA combos, USAT, voice codecs, AGNSS?

H.2.3 Application Enablers:

- Have AEs been added e.g. MMS?

Appendix I—Revision History

Date	Version	Description
1997 - 2019	1.0 – 2.40	
April 2020	3.0	a) Document restructured
November 2020	3.1	a) Updated ECO and Variant definitions b) Updated PTCRB Industry Council section c) Added Election Process for Designated Positions section d) Updated Device Assessment Requirements to clarify ability of Variant to leverage test results of its Parent
March 2021	3.2	a) Correction to GSMA TS.06 in Section 1.2 Definition of Feature Phone b) Addition of NR in Section 1.2 Definition of WWAN c) Updated alignment of Election Dates in Section 3.6 d) Updated test report requirements for integrated devices in Section 11.4.3.13 e) Updated PICS information in Section 11.3.1.6, 11.4.3.10, and Appendix A f) Updated Public Listing Information in Section 11.3.1.11 g) Updated Section 11.6.1 to Minimize the Potential for SVN Exhaustion h) Updated TAC requirements for 5G integrated devices in Section 11.10.5 i) Updated Man Machine Interface in Section 11.11.10.5 j) Included the 5G NR requirements to Integrated Device with PTCRB Certified Module k) Updated definitions of End Product and Module
September 2021	3.3	a) Added Embedded Modem and Certified Chipset processes b) Updated End Product, IoT Device and Module definitions in Section 1.2 c) Added Certified Chipset, Chipset, Embedded Modem, LTE-M and NB-IoT definitions in Section 1.2 d) Added MMI definition to Section 2.1 e) Updated Section 6.1 PTCRB Primary Test Laboratory f) Added Section 11.3.1.4 Valid Production Model Name/Number g) Updated Section 11.3.1.11 Certification Fees h) Added bullets 2-4 in Section 11.10.6 i) Updated Appendix E
December 2021	3.4	a) Updated Sections 8.2.1, 11.10.3 and 11.11.10 consistent with the GSM sunset program b) Additional clarification to the definitions of Certified Chipset and Chipset
March 2022	3.5	a) Updated entire document to reflect addition of IoT Network Certified Program b) Updated Section 11.10.6 to include note on VoLTE Feature Set c) Updated Section 11.15.5 and 11.16.8 to reflect that Variants are permitted for Chipset Certification
June 2022	3.6	a) Added clarification of waiver process to Section 11.8.2 b) Added Section 11.4.3.16 DUT's Manufacturer's Objection to Laboratory Review c) Update to Section 11.6.4 ECO Certification Laboratory Review d) Update to Section 11.10.6 concerning PTCRB Authorized Test Lab verification of VoLTE disablement

Date	Version	Description
September 2022	3.7	a) Added in Section 11.7 that testing and submission of FR2 was not mandatory to NAPRD03 v6.9 or earlier b) Added Section 11.9.1 header for modules supporting up to and including FR1 and added Section 11.9.2 for module supporting FR2 c) Added in Section 11.8.2 waiver request submission rulings
December 2022	3.8	a) Added 3.5 (e) The qualifications for PIC test lab delegates b) Modified 8.2.1 and 8.2.4, SVN checking process performed by labs c) Added additional definition to modules supporting FR2 in Section 1.2 d) Added limitation of Parent/Child concept to Section11.11.5 e) Added Section 11.3.3 to clarify GEA1/GEA2 support rules and Section 11.6.8.1.4 to clarify NAPRD03 applicability for ECOs disabling GEA1/GEA2.
June 2023	3.9	a) Modified Section 11.3.1.6 to include the *Declaration of Equivalence Across Multiple Marketing* Names formerly located in Appendix A b) Modified Section 11.3.1.6 to include a new *Declaration of Accuracy and Completeness* declarations to the others required by this section c) Modified Sections 11.4.3.4 to reference the device's (P)ICS/(P)IXIT information described in Section 11.3.1.6 d) Modified Section 11.10.3.7 to stipulate that OTA testing for Integrated Devices shall be executed according to the latest NAPRD03 version e) Modified Appendix A from a bulleted list to a numbered checklist with the expectation that other Appendices will follow suit in future PPMD updates f) Renamed "Appendix I Revision History" to "Revision History" g) Updated the document to follow the CCERT OTA Editorial Group's guidelines. For example, standardized the generic term "device" (as a common noun) in place of "Device" (as a proper noun). Eliminated vague terms such as "unit" or "product" h) Modified Section 11.3.3 to ban support for GEA1 and GEA2 regardless of UE's declared 3GPP GERAN release. Added text to explicitly state that GEA1 is banned from the publication date of NAPRD03 V6.12 and GEA2 is banned from the publication date of NAPRD03 V6.13
December 2023	3.10	a) Added IoT Network Certified Embedded Modem text in Section 1.1 and 1.2 b) Added Wearables definition in Section 1.2 c) Updates to Section 11.10.10 and subsections
April 2024	3.11	a) Added Lifetime Waiver requirements to Section 11.8.2 and Lifetime Waiver definition to Section 1.2 b) Modified Section 3.6 by adding the nominee qualifications for a PIC industry segment representative