



# ***CDMA Certification Forum™ Operating Principles***

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# Table of Contents

<b>CDMA CERTIFICATION FORUM™ OPERATING PRINCIPLES</b> .....	<b>1</b>
<b>1 INTRODUCTION</b> .....	<b>1</b>
1.1 SCOPE .....	1
<b>2 REFERENCES</b> .....	<b>2</b>
<b>3 DEFINITIONS AND ABBREVIATIONS</b> .....	<b>2</b>
<b>4 BENEFITS TO MEMBERS</b> .....	<b>3</b>
<b>5 FORUM ORGANIZATION</b> .....	<b>4</b>
5.1 ARTICLES OF INCORPORATION.....	4
5.2 CORPORATE BYLAWS .....	4
5.3 INTELLECTUAL PROPERTY RIGHTS POLICY .....	4
5.4 MEMBER GUIDELINES.....	4
5.5 MEMBERSHIP APPLICATION.....	4
<b>6 STEERING COMMITTEE</b> .....	<b>5</b>
6.1 ROLES AND RESPONSIBILITIES .....	5
6.2 DELIVERABLES .....	5
6.2.1 <i>Introduction &amp; Overview Document</i> .....	6
6.2.2 <i>Operating Principles Guide</i> .....	6
6.2.3 <i>Contribution Prospectus</i> .....	6
6.2.4 <i>Document Control Process</i> .....	6
6.2.5 <i>Promotion</i> .....	6
6.2.6 <i>Test and Certification Requirements</i> .....	6
6.3 GUIDELINES .....	7
<b>7 WORKING GROUPS</b> .....	<b>7</b>
7.1 TECHNICAL WORKING GROUP.....	7
7.1.1 <i>Roles and Responsibilities</i> .....	7
7.1.2 <i>Deliverables</i> .....	8
7.1.3 <i>System Test Team (STT) Sub-Working Group</i> .....	9
7.1.4 <i>Reference Lab</i> .....	10
7.2 CERTIFICATION WORKING GROUP.....	11
7.2.1 <i>Roles and Responsibilities</i> .....	11
7.2.2 <i>Deliverables</i> .....	12
7.2.3 <i>Evolution</i> .....	13
7.2.4 <i>Administration</i> .....	14
7.3 SUB-WORKING GROUPS .....	14
7.4 AD HOC GROUPS .....	14
7.5 PROCEDURAL ITEMS .....	15
7.5.1 <i>Minutes</i> .....	15
<b>8 AUTHORIZED TEST FACILITIES</b> .....	<b>15</b>
8.1 MINIMUM PARTICIPATION .....	15
8.2 MINIMUM ACTIVITY .....	15
8.3 INTERLAB COMPARISON .....	15
8.4 SCOPE MAINTENANCE .....	15
8.5 PERFORMANCE METRICS .....	15
<b>9 MARKETING &amp; COMMUNICATION (MARCOM)</b> .....	<b>16</b>
9.1 ROLES & RESPONSIBILITIES.....	16

9.2	DELIVERABLES .....	17
9.3	REGIONAL REPRESENTATIVES .....	17
9.4	MEMBER SUPPORT .....	17
<b>10</b>	<b>LIAISONS .....</b>	<b>17</b>
10.1	REGIONAL CERTIFICATION BODIES .....	18
10.1.1	<i>CTIA Certification Program</i> .....	18
10.2	CDMA DEVELOPMENT GROUP .....	18
10.2.1	<i>Device Strategy Council</i> .....	18
10.2.2	<i>Global Handset Requirements for CDMA (GHRC)</i> .....	18
10.2.3	<i>IA450 Special Interest Group</i> .....	19
10.3	3 <sup>RD</sup> GENERATION PARTNERSHIP PROJECT 2 (3GPP2).....	19
10.4	GLOBAL CERTIFICATION FORUM .....	19
10.5	PTCRB .....	20
10.6	AFRICA CDMA FORUM .....	20
10.7	CENTRAL ASIAN CDMA FORUM.....	20
<b>11</b>	<b>FINANCE .....</b>	<b>20</b>
11.1	BUDGET .....	20
11.2	MEMBERSHIP FEES .....	21
11.3	LAB AUTHORIZATION FEES .....	21
11.4	CERTIFICATION FEES .....	21
11.5	MEMBER CONTRIBUTIONS .....	21
11.6	INVOICE PROCESS .....	21
11.7	TAX.....	22
<b>12</b>	<b>ADMINISTRATION .....</b>	<b>22</b>
12.1	MEMBERSHIP COMMITTEE .....	22
12.2	SUB-CONTRACT MANAGEMENT .....	22
12.3	ISO GUIDE 65 .....	22
<b>13</b>	<b>POLICIES &amp; PROCEDURES .....</b>	<b>22</b>
<b>14</b>	<b>LEGAL .....</b>	<b>22</b>
14.1	TEST AUTHORIZATION AGREEMENT .....	23
14.2	MEMBER LOGO LICENSE.....	23
14.3	CTIA SERVICE AGREEMENT.....	23

# 1 Introduction

The CDMA Certification Forum's (CCF) is a partnership between CDMA operators and CDMA vendors with a mission to implement and evolve the single global device certification process for devices incorporating CDMA2000 technology. This process helps ensure quality through consistent interoperability, conformance and performance testing across the globe at the lowest practical cost. Participation in the CCF is voluntary.

Early objectives focused on publishing modem layer test plans and certification processes, authorizing test facilities around the world to conduct certification testing, and educating the industry on the new process. While maintaining and evolving a solid program at the modem layer, energy is now beginning to shift above the modem layer to provide certification test solutions for application enablers such as mobile browser, multi-media messaging (MMS), and mobile video services. This focus above the modem layer is largely driven by high priority industry initiatives such as Open Development, Open Market Handset, and M2M.

The CCF is a stand-alone non-profit legal entity. Its fundamental structure is articulated in its corporate bylaws, intellectual property rights policy, and membership guidelines. This Operating Principles Guide goes beyond the scope of these documents to capture and articulate the fundamental roles, responsibilities, and deliverables of the Steering Committee, Technical Working Group, Certification Working Group, and other supporting functions at the tactical level.

## 1.1 Scope

This guide serves to capture specific, agreed upon operating requirements essential to the efficient day-to-day operation of the forum but beyond the scope of the bylaws. This includes, by way of example, the process by which contributions are posted and approved, defining and differentiating roles of the various working groups, providing formal direction from the Steering Committee to the various working groups, and a mechanism to formally document directives and requirements for the group as a whole.

This guide can be modified as required through the standard document control process without the need for formal ratification of the board of directors (as is required for modifications of the bylaws).

## 2 References

Appropriate normative and informative references:

- [1] Bylaws of CDMA Certification Forum
- [2] Membership Application
- [3] Membership Guidelines
- [4] CCF Intellectual Property Rights
- [5] CCF Introduction and Overview
- [6] Articles of Incorporation
- [7] Test Authorization Agreement
- [8] Document Control Process
- [9] CDMA Lab Test Plan
- [10] CDMA IOT Test Plan
- [11] CDMA Field Test Plan
- [12] Validation Report
- [13] Certification Process Guide Document

## 3 Definitions and Abbreviations

3GPP2	3 <sup>rd</sup> Generation Partnership Project 2
ACF	Africa CDMA Forum
ATF	Authorized Test Facility
CACF	Central Asian CDMA Forum
CCF	CDMA Certification Forum
CCF-F	CCF Field
CCF-IOT	CCF Interoperability Test
CCF-L	CCF Lab
CDG	CDMA Development Group
CDMA	Code Division Multiple Access
CTIA	Cellular Telecommunications and Internet Association
GCF	Global Certification Forum
GHRC	Global Handset Requirements for CDMA
ILAC	International Laboratory Accreditation Cooperation
IPR	Intellectual Property Rights
MARCOM	Marketing Communications
MMS	Multimedia Messaging
TE	Test Equipment

Ad Hoc:	A working group formed for a specific task with an expected duration of less than one year. By way of example, to create a specific test plan.
Adopt	An operator accepting CCF certified devices or a vendor utilizing the CCF test process.
Sub-Working Group	A team formed for a specific purpose that is expected to be ongoing, who's charter is a subset of the working group under which it is formed. By way of example, to create and evolve a specific series of test plans.
Test Plan	A collection of test cases to be executed in a controlled fashion to demonstrate compliance with a known set of requirements.
Test Process	A series of actions or steps taken in sequence in order to achieve a particular end result.

#### 4 Benefits to Members

Only CCF member companies shall enjoy the following benefits:

- Voting rights (Statutory Members Only)
- Eligible for board seat (Statutory Members Only)
- Participate in Steering Committee or Working Groups
- Web Access (beyond public sight)
- Access to documents including test plans
- Allowed to have test platform validated (test equipment manufacturers)
- Allowed to apply to become a CCF Authorized Test Facility
- Allow vendor-designated operators visibility into test data.<sup>1</sup>
- Discounted device certification fees
- Common definition of device test requirements and test cases, development of test plans and test platforms, validation of test platforms, certification of test results,

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<sup>1</sup> Vendor members may only view test results and test data from certification tests conducted on their devices that they have certified or are in the process of certifying. Only CCF vendor members may selectively authorize, on a certification request by certification request basis, a CCF member operator or operators, by name and limited to the operator's Certification Database logon privileges, to download and view test results and test data directly from the CCF Certification Database. The CCF Certification Database default shall be that there will be no operators selected to view the test results or test data. The vendor member will be forced to actively select an operator or operators they want to view the certification test results on that specific device, otherwise there will be no operator that can view the test results or test data.

authorization of test labs, and reduction of test cases, so each member does not have to duplicate the work of others.

- Focus premium resources on differentiation in the market place rather than executing routine and mundane commodity testing.

## **5 Forum Organization**

The CCF is a nonprofit mutual benefit corporation characterized by its Articles of Incorporation, Corporate Bylaws, IPR Policy, Member Guidelines, and Membership Application. These documents are briefly summarized below and the reader is encouraged to read them for a more comprehensive understanding of the CCF and its operations.

### **5.1 Articles of Incorporation**

The CCF was incorporated in the state of California in 2004 as a nonprofit mutual benefit corporation organized under the Nonprofit Mutual Benefit Corporation Law 501(c)(6).

### **5.2 Corporate Bylaws**

The bylaws of the CCF serve to define the purpose of the Corporation, membership criteria and meeting requirements, board structure and assignments, the process of electing officers, defining committees, and standard operating requirements.

### **5.3 Intellectual Property Rights Policy**

The Intellectual Property Rights Policy covers ownership of intellectual property, license to use development materials and confidential information, copyright license to contributions and permissible use of confidential information, assignment of copyright in jointly developed IP, license of copyright in jointly developed IP, member warranties, CCF warranties, and use of the CCF logo.

### **5.4 Member Guidelines**

The Member Guidelines provide members of the CCF with basic information about their membership in the CCF and their rights, privileges, and obligations in connection therewith.

### **5.5 Membership Application**

The Membership Application collects member contact information (including MARCOM contact), defines membership fees based on membership type and annual CDMA revenue, and states fundamental terms and conditions of the membership including but not limited to the CCF Articles of Incorporation, CCF Bylaws, CCF Operating Principles, CCF Intellectual Property Rights Policy and CCF Member Guidelines.

## 6 Steering Committee

The Steering Committee is responsible for day-to-day tactical management of the CCF. It is made up of representatives of each of the statutory members (i.e. Vendor or Operator members). Observer members may participate in Steering Committee meetings but do not have a vote. All members work toward consensus in the completion of CCF objectives. In the event that consensus cannot be achieved by all participants, issues are resolved by dual-majority vote of the statutory members.

### 6.1 Roles and Responsibilities

The Steering Committee is responsible for:

- Soliciting guidance from the operator community to ensure the CCF remains focused on addressing their device certification requirements,
- Chairing meetings of the committee,
- Defining and evolving the CCF mission,
- Establishing working groups as required,
- Setting specific and achievable goals, objectives and, deliverables to help the CCF realize its mission,
- Establishing and tracking performance metrics to provide quantitative demonstration that the CCF is successful in optimizing the time and cost of certifying devices,
- Maintaining alignment between the CCF and industry priorities established by the CDG Device Strategy Council and CDMA operators world-wide.
- Defining a set of guidelines for Member participation in the CCF,
- Resolving issues within the purview of the working groups upon which the working groups are dead-locked or unable to render a decision,
- Approving the election of the Chair and Vice-Chair of working groups,
- Approving and managing the overall certification process,
- Define a face-to-face meeting schedule at least 1 year in advance. Conference calls are scheduled as needed.

### 6.2 Deliverables

Deliverables for the Steering Committee include publishing and maintaining an Introduction & Overview document, this Operating Principles Guide, the contribution prospectus, a document control process, high level test and certification requirements, developing and implementing a marketing strategy, maintaining liaisons with key industry working groups, managing the operating finances, launching and maintaining a corporate web site, establishing working groups or sub-committees as required to execute on these deliverables, and delivering reports to its membership on CCF activities on a routine basis.

### **6.2.1 Introduction & Overview Document**

The Introduction & Overview Document provides the newcomer a brief description of the CCF, proposes its value to the industry, describes at a high level the organization including charter, initial goals, objectives, and deliverables of each of its member groups, and describes the position of the CCF within the CDMA industry.

### **6.2.2 Operating Principles Guide**

This Operating Principles Guide provides a mechanism to capture practices and procedures essential to the successful execution of the CCF charter but beyond the scope of the corporate bylaws. This guide is a “living” document that can be changed by the Steering Committee as required to govern the day-to-day practical operations of the forum.

### **6.2.3 Contribution Prospectus**

The purpose of the Contribution Prospectus is to communicate the value of the CCF to prospective members of the CCF and senior management of participating members to help solicit and justify fees, in-kind commitments, and capital contributions to help ensure the success of the CCF. The prospectus provides a brief description of the opportunity of the CCF, the services it offers, the organization required and operational elements in place to provide those services, potential risks, and financial and in-kind resources required by the forum to realize its objectives.

### **6.2.4 Document Control Process**

The Steering Committee shall develop, document, and maintain a methodology for controlling all CCF documents. This methodology provides for a formal posting and review process by which any participant with a material concern and alternative language can propose a change to the posted document. The document management process and formal creation and distribution procedures are further delineated in the Document Control Specification.

### **6.2.5 Promotion**

Crucial to the success of the CCF is the continued promotion of the forum and its benefits to the operator and vendor community. Members and participants are encouraged to provide resources from their internal MARCOM and technology marketing organizations to develop a promotion package for the CCF. This may include such items as web site design and content (including maintenance), press releases, promotional campaigns, and presence at industry trade shows.

### **6.2.6 Test and Certification Requirements**

A globally agreed upon set of features and functions provide the foundation upon which a certification program can be established. To provide high level test and certification requirements in the form of globally defined features and functions, CCF member operators and vendors are working with the CDMA Development Group (CDG) Global Handset Requirements for CDMA (GHRC) team. These feature requirements are then to be mapped to CCF test plans.

### **6.3 Guidelines**

The Chair and Vice Chair of the Steering Committee or Working Groups may allow guests to attend meetings on an occasional basis. Guests are not granted access to any information outside the meeting documents, nor do they have access to the members only section of the CCF web site.

## **7 Working Groups**

The Steering Committee is responsible for establishing working groups as required to fulfill the mission of the CCF. The two working groups established to date include the Technical Working Group and the Certification Working Group to define test plans and certification processes, respectively. Each working group is authorized to create sub-working and ad hoc groups as required to accomplish their objectives and deliverables.

### **7.1 Technical Working Group**

The Technical Working Group is the engineering arm of the CCF and is composed of CDMA test domain experts from organizations involved in the CDMA industry at large. It defines the technical requirements that are executed during the certification process in the form of test plans. The charter of the Technical Working Group shall be further developed by the Members of the Technical Working Group in consultation with the Steering Committee from time to time. The Technical Working Group shall make decisions by consensus of all Members participating in Technical Working Group matters. If the Technical Working Group cannot reach decision on any matter, such matter shall be referred to the Steering Committee for a decision.

#### **7.1.1 Roles and Responsibilities**

The Technical Working Group is responsible to:

- Develop, validate, release, maintain, and evolve lab and field test plans based on industry standard test cases,
- Facilitate, through member organizations, the development and publication of test cases required to support the certification process,
- Coordinate activities and priorities amongst all its sub-working and ad hoc groups from a technical perspective
- Identify and qualify subject matter experts to support assessment of test facilities,
- Work with test equipment vendors to prioritize and expand test case coverage, including automation,
- Provide ongoing technical support to operators, vendors, and test facilities conducting certification testing,
- Explore alternative venues within cable interop labs for CCF Field Testing in cases where live air testing in an Operators network is not feasible.

- Provide technical guidance to the CCF to readily enable adoption and implementation of evolving CDMA-based technologies, and
- Define a face-to-face meeting schedule at least 1 year in advance. Conference calls are scheduled as needed.

## **7.1.2 Deliverables**

Technical Working Group deliverables include test plans, validation reports, test facility assessments, technology and implementation road maps, and standards contributions.

### **7.1.2.1 Test Plans**

The Technical Working Group is responsible for developing, publishing, maintaining, and evolving a family of laboratory and field test plans by which CDMA devices are certified. These test plans are mapped directly from each of the GHRC requirements documents to provide a clear test solution for each of the features and functions defined by the GHRC. The CCF also considers the priorities set by the GHRC as to development and implementation of test solutions for each of these features and functions.

The test plans should reference existing published test specifications from organizations such as 3GPP2 to the maximum extent practical. When test cases essential to the mission of the CCF are beyond the scope of existing standards organizations, the CCF shall create, maintain, and own such test cases.

The test plan can only be used under license to the CCF and associated payment of applicable fees.

### **7.1.2.2 Validation and Reports**

The Technical Working Group is responsible for the ongoing validation of test platforms and provide the results of these activities in the form of validation reports. These reports are objective statements of fact regarding the observed behavior of test solutions based on empirical evaluation of its performance. A given test solution or test plan is not recognized by the CCF unless or until the appropriate validation report has been released in accordance with the document control processes.

### **7.1.2.3 Test Facility Assessment**

The CCF looks to the Technical Working Group to provide the subject matter expertise required for the test facility authorization process. This test facility authorization process is envisioned to include as a minimum evaluation of the competence of the facility in testing CDMA technologies and verification of test platform setup, calibration, and operation.

While defining and implementing the competency requirements is the responsibility of the Certification Working Group, the Technical Working Group must provide for the engineering resources required to help establish the competency criteria and verify the competencies are satisfied.

#### **7.1.2.4 Technology & Implementation Road Maps**

A key element of the ongoing success of the CCF is to continually evolve the test plans and certification processes as CDMA technology evolves over time.

The Technical Working Group is responsible for publishing and maintaining a technology road map that provides direction and focus for the CCF from a technical perspective. This agreed upon technology roadmap also provides a common industry voice to help the test equipment providers prioritize their development efforts. CCF may look to the CDG Device Strategy Council to help identify and prioritize new technologies that may become the focus of the CCF.

The Technical Working Group is also responsible for publishing and maintaining an implementation roadmap that communicates to the general membership near-term tasks and objectives with status and target completion dates.

#### **7.1.2.5 Standards Contributions**

In an effort to provide the most comprehensive test plans, the CCF may identify gaps in the coverage of industry test specifications. When this occurs, CCF member companies work with the appropriate international standards body to develop and have published additional test cases to help close these gaps.

It is the desire of the CCF to develop a direct liaison with the 3GPP2 to allow the CCF to generate contributions directly to the 3GPP2.

#### **7.1.3 System Test Team (STT) Sub-Working Group**

Under the management of the TWG, the System Test Team Sub-Working Group (STT SWG) focuses on development, validation, maintenance, and evolution of device / base station interoperability test plans. The STT SWG defines the requirements for interoperability testing using existing 3GPP2 test specifications, CCF test cases, and GHRC requirements as appropriate. The STT SWG proactively identifies high-value test cases to enhance interoperability testing for current and developing CDMA features and technologies. Just as important, the STT SWG identifies low-value test cases to retire.

##### **7.1.3.1 Roles & Responsibilities**

- Define test plans to facilitate the demonstration of interoperability between infrastructure and wireless devices.
- Promote the automation of cabled interop test cases where possible to continually improve test efficiency.
- Evaluate existing IOT specifications (i.e. C.S0044-A and C.S0073-0) to identify and recommend test cases required for cabled interoperability testing.
- Identify and create test plans to define value-added testing in the cabled interop labs, including but not limited to application enabler and system level performance testing.
- Maintain alignment with the 3GPP2 through co-location of meetings with the 3GPP2 super meetings where practical.

### **7.1.3.2 Deliverables**

#### ***7.1.3.2.1 Interoperability Test Plan***

The STT SWG shall develop, validate, maintain, deliver, and evolve test plans to demonstrate interoperability of a mobile with the particular base station infrastructure on which the testing is performed. The interoperability test plan shall support either cabled or over-the-air environments. The scope of the testing is primarily three-fold:

- Verify performance of features and functions essential to achieving a minimal level of service on any network.
- Verify performance of all features and functions implemented by the infrastructure supporting the testing.
- Verify infrastructure specific implementations of industry standard features and functions (i.e. for which unique device / base station behavior is expected),

#### ***7.1.3.2.2 System Performance Testing***

The STT SWG shall help develop, validate, maintain, deliver, and evolve the CCF test plan to provide a collection of standardized tests to objectively evaluate the performance of CDMA from an end-user perspective.

#### ***7.1.3.2.3 Field Interoperability Testing***

The STT SWG shall help develop, validate, maintain, deliver, and evolve the CCF test plan to demonstrate interoperability between mobile station and base station in a live over-the-air environment on a commercial or commercial-ready network.

### **7.1.4 Reference Lab**

The mission of the CCF reference lab is to provide an unbiased source of technical expertise to ensure that the test equipment and processes used during the course of CCF certification testing is as accurate and technically viable as possible while helping to bring the latest in testing equipment and processes to the market in the most timely manner.

The CCF reference lab is exclusively operated by the CDMA Certification Forum for the purpose of providing the industry with an unbiased commercial test platform validation facility that supports the needs of the CCF membership. Along with the primary goal of test platform validation the CCF reference lab is responsible for maintaining and distributing the pool of reference artifacts for Authorized Test Facility (ATF) authorization and ongoing quality control.

The reference lab shall set, as a goal, 100% cost recovery for its platform validation operations.

#### **7.1.4.1 Roles & Responsibilities**

- Provide the test platform developers and manufacturers with an independent and unbiased organization to validate test hardware and software that is used to perform testing associated with the CCF certification requirements.
- Provide core technical resources to address testing issues and anomalies that arise associated with CCF test plans.
- Maintain and manage reference artifacts used in the lab authorization and on going validation processes.
- Develop and maintain test cases to fill gaps not currently supported by industry standards organizations.

#### **7.1.4.2 Deliverables**

The primary deliverables of the Reference Lab are validated test platforms. The lab may be called upon from time to time to test devices for the purpose of resolving testing issues between device vendors, test equipment vendors, and test service providers.

#### **7.1.4.3 Test Platform Contributions**

Key to the reference lab success is the loan by test platform vendors of test platform equipment and software to the CCF reference lab for the purpose of research and validation. During the validation efforts the test equipment vendors are required to lend their technical support to complete the platform validation.

### **7.2 Certification Working Group**

The Certification Working Group defines and maintains global core certification test processes based upon test plans created by the Technical Working Group to ensure terminal conformance to feature and function requirements as set forth by the CDG GHRC team. The charter of the Certification Working Group shall be further developed from time to time by the members of the Certification Working Group in consultation with the Steering Committee. The Certification Working Group shall make decisions by consensus of all Members participating in Certification Working Group matters. If the Certification Working Group cannot reach decision on any matter, such matter shall be referred to the Steering Committee for a decision.

#### **7.2.1 Roles and Responsibilities**

Roles and responsibilities for the Certification Working Group focus on ensuring all the technical, business, administrative, and legal processes are in place to support the certification process. These include:

- Publishing and maintaining certification process documents,
- Establishing and maintaining a database for managing CCF processes,
- Identifying accreditation bodies in each market (e.g., A2LA, CNAL) and establishing requirements for ISO-17025 accreditation of test facilities in their markets,

- Orchestrating the authorization of test facilities,
- Identifying and ensuring that the CCF is not in conflict with local regulatory requirements (i.e. proper legal mechanisms in place, clear separation between CCF and local regulatory requirements, liability issues resolved),
- Granting of the “certification seal”, and
- Defining and convening as necessary a council to resolve disputes over certification.
- Define a face-to-face meeting schedule at least 1 year in advance. Conference calls are scheduled as needed.

### **7.2.2 Deliverables**

The Certification Working Group develops, maintains, and evolves a platform validation process, test facility authorization process, device certification process, test case development process, subject matter expert qualification process, and database to administer the certification program.

#### **7.2.2.1 Test Platform Validation Process**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which test platforms are validated to support the CCF certification process. By way of example, this validation process shall include definition of a validation organization, identification of eligible test cases for validation, procedures for validating test cases, processes for corrective action, and a mechanism for downgrading test cases.

#### **7.2.2.2 Test Facility Authorization Process**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which the CCF authorizes CCF Authorized Test Facilities (ATF). The development of this process is based on ISO/IEC 17025 and includes minimum competence requirements and an objective methodology for developing or evaluating that competence. Auditing procedures are an essential element of test facility authorization to ensure test facilities maintain their level of qualification as technologies and test coverage evolve, as well as ensuring consistent results across authorized test facilities.

The process relies heavily on accreditation bodies recognized by the International Laboratory Accreditation Cooperation ([ILAC](#)), and specific inherent knowledge accumulated by individuals with hands-on testing experience to help ensure consistency in the authorization process.

The CCF authorizes any qualified test facility that satisfies its requirements. The CCF does not limit the number of CCF authorized test facilities. This is left to market forces.

### **7.2.2.3 Device Certification Process**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which the CCF certifies that CDMA devices successfully pass the requisite test plans. The CCF Terminal Device Certification Process offers three separate test elements: CCF-L (Lab Test), CCF-IOT (Interop) and CCF-F (Field Test). Separate certifications are provided for each element. The complete terminal device certification process is documented in the Certification Process Guide document.

### **7.2.2.4 Test Case Development Process**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which the CCF develops and validates test cases that do not currently exist in any internationally recognized standards organization. The process should first promote the pursuit of development within an existing standards body. When required test cases are beyond the scope of any standards body, then the process should accommodate the development, validation, and maintenance of test cases within the CCF organization.

### **7.2.2.5 Subject Matter Experts**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which a subject matter expert is recognized by the CCF to represent the engineering interests of the CCF during test facility authorizations. Such a specification may include exhaustive written and oral evaluations and perhaps a brief apprenticeship program. There are currently no specific standards to guide this effort. Objective evaluation criteria must be established, which could include experience in relevant technologies, understanding of relevant industry standards and test specifications, and understanding of the CCF certification process.

### **7.2.2.6 Database**

The Certification Working Group is responsible for defining, developing, implementing, and administering a database to provide device certification administration, on-line feature & function checklist, test platform configuration management, automated test report generation & verification, document management, and operator visibility into test data as authorized by each device vendor.

### **7.2.3 Evolution**

The Certification Working Group is responsible for developing, publishing, and maintaining a process by which the CCF certification program continues to evolve to support new technologies.

Woven into the very fabric of the certification process must be the concept that the process must continually evolve. The functional layer at which operators and vendors differentiate their services and products in the market place continues to elevate. As the functional layer at which operators and vendors differentiate their services and product expands, lower layer test cases and processes become more commoditized. The CCF Certification Working Group continually works to incorporate these commoditized test cases into the certification test process. In the same vein, test cases that no longer yield meaningful test data should be removed from the test plan and test process. The certification test process should also provide guidance and motivate test facilities and test equipment providers to evolve their commercial test solutions.

#### **7.2.4 Administration**

The overall process by which the certification of terminal devices is executed is a primary contribution of the Certification Working Group. Two key elements are the database used to track devices going through the certification process, and an objective set of policies and procedures necessary to ensure objectivity and fairness to all participants in the certification program.

A fundamental operating principle of the CCF is to establish and maintain a certification test methodology that ensures proper execution of test cases as well as uniformity of test results across all authorized test facilities. However, discrepancies do occur between vendor test results and certification test results, or even certification test results between two test facilities. Therefore, the Certification Working Group defines procedures by which disputes between participating members can be resolved.

#### **7.3 Sub-Working Groups**

At its discretion and upon approval from the Steering Committee, a Working Group can create one or more sub-working groups to focus on development, validation, and implementation of specific elements of their mission. These sub-working groups have long-term assignments. All sub-working groups must generate, and receive Steering Committee approval for, charter statements clearly articulating their measurable objectives and goals, roles & responsibilities that enable them to meet those objectives and goals, and tangible deliverables that result from the exercise.

#### **7.4 Ad Hoc Groups**

At its discretion, a Working Group can create one or more Ad Hoc groups to focus on development, validation, and implementation of specific short-term tasks. All Ad Hoc groups must generate charter statements clearly articulating their measurable tasks and objectives, roles & responsibilities that enable them to meet those objectives, tangible deliverables that result from the exercise, and clear exit criteria. Ad Hoc groups are to be dissolved upon completion of the assigned task, or after a period of 1 year from their creation, whichever occurs first.

## **7.5 Procedural Items**

The Technical and Certification Working Groups are left largely to their own devices but there are a few procedural items the Steering Committee wishes to implement.

### **7.5.1 Minutes**

Formal meeting minutes per Robert's Rules of Order are not required of the working groups. However, publication of key decisions and discussions during face-to-face meetings or teleconferences must be maintained in order to fairly capture and communicate material items that may impact the operation of other working groups or the Steering Committee. The working groups should endeavor to publish such minutes within 48 hours of the conclusion of the subject meeting.

## **8 Authorized Test Facilities**

The CCF shall authorize and license any qualified test lab that meets CCF defined authorization requirements. These requirements are based largely on ISO-17025 accreditation.

### **8.1 Minimum Participation**

CCF Authorized Test Facilities shall maintain minimum levels of participation in CCF meetings and teleconferences in order to remain current with the program and ensure operational efficiencies. This is essential to make certain that devices are properly qualified and to promote a positive reputation for the CCF and the CDMA industry. The requisite levels of participation are left to the discretion of the Working Group Chairs.

### **8.2 Minimum Activity**

CCF Authorized Test Facilities shall execute the CCF test plan at least once per 12 month period to demonstrate continued proficiency.

### **8.3 Interlab Comparison**

CCF Authorized Test Facilities shall support inter-lab comparison testing to help ensure program consistency across ATF's.

### **8.4 Scope Maintenance**

CCF Authorized Test Facilities shall make all commercially reasonable efforts to evolve their test scope as the CCF increases test coverage.

### **8.5 Performance Metrics**

CCF Authorized Test Facilities shall support the tracking of CCF program performance and provide reports on an as-requested basis by the CCF.

Specifically, ATFs shall document:

- Number of devices entering the test process

- Test cases failed by each of these devices
- Number of times a given device is tested prior to certification
- Time to complete certification testing

## **9 Marketing & Communication (MARCOM)**

The MARCOM group within the CCF promotes the CCF through a number of channels. These include primarily on-site visits, web site, press releases, and trade shows. On-site visits are to potential CCF members and current members seeking their adoption of the certification process and participation in the forum. The web site is used to promote the CCF and thus contains program overviews, press releases, list of certified devices, to name a few. It also serves as a repository of information supporting CCF corporate, Steering Committees, and working groups. The CCF participates in key industry trade shows in the form of speakerships and booth presence as appropriate.

### **9.1 Roles & Responsibilities**

The MARCOM committee is responsible for:

- Promoting CCF accomplishments and initiatives to the wireless industry.
- Maintaining member marketing relationships to secure their promotion of the CCF within their companies and their customer base. This includes by way of example, securing testimonials and quotes from top management on the value CCF brings to their organization.
- Creating and distributing press releases to communicate launch of key initiatives and accomplishments of key objectives.
- Build the reputation and credibility of the CCF in the wireless industry
- Develop brochures and other marketing material to handout at trade shows or customer visits promoting the value of CCF.
- Publish newsletters to CCF members communicating accomplishments, new initiatives and their objectives, and other important events.
- Take ownership of the CCF web site to ensure fresh, accurate, and compelling content.
- Coordinate CCF participation in key wireless industry conferences & tradeshows.
- Ensure the CCF has necessary authorizations and current logo files from member companies to use their logos to promote the CCF.
- Encourage member companies to place the CCF logo on their certified products and promotional opportunities (e.g. trade show booths, product literature).
- Maintain and update presentation templates to ensure fresh and current industry image for CCF.

- Maintain a core marketing powerpoint slide deck outlining the CCF organization, opportunity, value, membership and adoptions, certified devices, authorized test labs, and how to join the CCF.

## **9.2 Deliverables**

The MARCOM committee deliverables include overview presentations, promotional literature, web site content and presentation, press releases, newsletters, and an overall marketing strategy.

## **9.3 Regional Representatives**

The CCF shall endeavor to contract regional representatives to promote the CCF program across the globe and provide a mechanism for the CCF to better understand and serve the varied needs of operators world-wide.

## **9.4 Member Support**

Key elements of the MARCOM mission are to promote the value that CCF brings to its members and the wireless industry and, increase the recognition and credibility of the CCF around the world. CCF member support is critical to these objectives. This support is needed in the form of:

- Proactively promote support for the CCF for both current and future value realized (by way of example, publicly state support for development efforts underway to encourage industry participation in the effort).
- Promoting the CCF at members' booths or pavilions at industry trade shows such as CTIA Wireless,
- Providing quotes and testimonials from senior management of member organizations. These are placed on web sites, brochures, and presentations,
- Creating fresh content for the CCF web site.

## **10 Liaisons**

It is important to the efficient operation of the CCF to establish and maintain liaison with other industry organizations that support or benefit the CCF. Liaisons help to ensure the two-way flow of information that allows the CCF and any of the other organizations to benefit from one another's work and avoid duplication of effort. The CCF maintains liaisons with the regional certification bodies, CDG, 3GPP2, GCF, PTCRB, ACF, and CACF.

## **10.1 Regional Certification Bodies**

Regional certification bodies are those organizations within specific markets already providing certification of CDMA devices. They include CATR of China, CTIA of the United States, ICC of Russia, and TTA of Korea. It is the objective of the CCF liaison to understand and effectively communicate the needs of the regional certification bodies to help the CCF provide a suitable foundation on top of which the regional certification bodies can more efficiently maintain a market specific certification process.

### **10.1.1 CTIA Certification Program**

The CTIA is a non-profit membership organization representing operators, manufacturers and other companies with interests in the wireless industry based in Washington, DC. Primary functions of the CTIA Certification Program Working Group include management of the CTIA certification process and administration of certification processes for the PTCRB and CCF.

The CCF and CTIA Certification Program work together to develop, implement, and evolve up-to-date a singular certification process.

## **10.2 CDMA Development Group**

The CDMA Development Group (CDG), founded in December 1993, is an international consortium of companies who have joined together to lead the adoption and evolution of 3G CDMA wireless systems around the world. The CCF shall endeavor to maintain alignment with the objectives set forth by the CDMA industry through the CDG. Three organizations with the CDG of particular interest are the Device Strategy Council, the Global Handset Requirements for CDMA, and the IA450 Special Interest Group.

### **10.2.1 Device Strategy Council**

The mission of the Device Strategy Council (DSC) is to provide leadership and direction for defining the strategic vision and the means for commercialization of CDMA2000 devices. The DSC routinely works with CDMA operators around the world to understand and collectively agree upon the top most challenges in bringing CDMA device to market. These challenges are then addressed through the development and publication of common device requirements. The CCF works to align with DSC defined development priorities.

### **10.2.2 Global Handset Requirements for CDMA (GHRC)**

The CDG GHRC team creates a set of common CDMA device requirements documents with consistent format, language, references, and definitions. It is the objective of the CCF / GHRC liaisons to understand the feature and function requirements and effectively communicate these to the CCF Technical Working Group to help ensure development and implementation of test solutions begin at the earliest practical opportunity and properly support the operators utilizing the GHRC documents.

The CCF looks to the GHRC to define feature and function requirements across a family of documents, and to map each feature and function to appropriate industry standard test cases.

The CCF maps these industry standard test cases to validated commercial test solutions in the form of certification test plans. These test plans are then executed to form the basis of the device certification.

### **10.2.3 IA450 Special Interest Group**

The IA450 Special Interest Group (SIG) represents the interests of mobile operators using the 450 MHz band including NMT analogue mobile system and suppliers of NMT analogue equipment and/or equipment for the digital upgrade of 450 MHz systems. This SIG represents over 70 operators, including operators in Scandinavia and Central & Eastern Europe and 63 Russian NMT operators (through their industry organization, SOTEL), all of which operate in the 450-470 MHz frequency band. It is the objective of the CCF/IA450 SIG liaison to promote the CCF as a comprehensive and cost effective device certification solution and educate its members on how to go about requiring and securing device certification.

### **10.3 3<sup>rd</sup> Generation Partnership Project 2 (3GPP2)**

The 3GPP2 is a collaborative third generation, telecommunications specifications-setting project that, among other things, defines and maintains test cases used to verify device compliance to international standards. It is the objective of the CCF/3GPP2 liaison wherever practical to help ensure that the 3GPP2 family of test specifications is sufficient to support the CCF certification test process. Furthermore, it plans to manage the development of and champion the contribution, through its member organizations, to the appropriate 3GPP2 working group as required to create new test cases in support of the CCF test objectives.

### **10.4 Global Certification Forum**

The GCF is a partnership between UMTS network operators and terminal manufacturers that provides an independent program to ensure global interoperability of 2G and 3G mobile wireless terminals. It is the objective of the CCF/GCF liaison to remain current with respect to the activities of the GCF to ensure minimum duplication of effort and explore use of common certification solutions wherever practical.

## **10.5 PTCRB**

The purpose of the PTCRB is to provide the framework within which GSM Mobile Equipment (ME) Type Certification can take place for members of the PTCRB. This includes, but is not limited to, determination of the test specifications and methods to implement the Type Certification process for GSM Mobile Equipment. This group will also be responsible to generate input regarding testing of Mobile Stations to standards development organizations. It is the objective of the CCF/PTCRB liaison to remain current with respect to the activities of the PTCRB to ensure minimum duplication of effort and explore use of common certification solutions wherever practical.

## **10.6 Africa CDMA Forum**

The primary objective of the African CDMA Forum is to lead the rapid evolution and deployment of 3G CDMA-based systems, based on open standards and encompassing all core architectures, to meet the needs of markets in greater Africa. It is the objective of the CCF/ACF liaison to educate operators and regional vendor representatives of the need for and value of device certification, promote the CCF as a comprehensive and cost effective solution, and help them on how to go about requiring and securing device certification.

## **10.7 Central Asian CDMA Forum**

The main objective of the Central Asian CDMA Forum is to create awareness, encourage dialogue and promote CDMA technology and its use in Central Asia for telecom operators, broadcasters, manufacturers, software companies, government, academia and the general public. It is the objective of the CCF/CACF liaison to educate operators and regional vendor representatives of the need for and value of device certification, promote the CCF as a comprehensive and cost effective solution, and help them on how to go about requiring and securing device certification.

# **11 Finance**

Key to the success of the CCF is availability of dedicated resources to realize the forum's objective of providing a certification process to the industry that is current with mature and developing technologies being commercialized on the market today. While many of these resources are being provided in the form of in-kind contribution of personnel, it is essential that some contributions be provided to the forum in the form of cash or capital. Such contributions may include cash, facilities, test equipment or seconded resources. Various fees and membership contributions are being solicited to help cover the cost of these operational expenses.

## **11.1 Budget**

It is a goal of the CCF to achieve revenues that will allow self-sustaining operation.

The CCF shall establish and operate within the budget approved by the CCF board of directors. In anticipation that revenues may not always cover operating expenses, operating expenses shall be prioritized most critical to least critical to the continued operation of the CCF:

1. Core Operations
2. Activities of greatest interest to the broad membership.
3. Activities of great interest but to a limited number of members.

### **11.2 Membership Fees**

Industry participants are being assessed a membership fee based on their membership description and their annual CDMA revenues. These fees are delineated in the Membership Application.

Membership fees shall be paid by the vendor member before CCF certification can be granted to a device manufactured by that vendor member.

### **11.3 Lab Authorization Fees**

Test facilities wishing to become CCF Authorized Test Facilities are assessed an authorization fee to cover the cost of granting and maintaining authorization status. These fees are further delineated in the Testing Authorization Agreement.

### **11.4 Certification Fees**

Device manufacturers wishing to have their devices CCF Certified are assessed a certification fee to help recover the cost of creating and maintaining the certification program. This fee shall be paid before CCF certification can be granted to a device manufactured by that vendor member.

### **11.5 Member Contributions**

Success of the CCF depends heavily on the contribution of engineering time and cash infusion to achieve its operating objectives. Membership fees “keep the lights on” and provide for a portion of the core operations such as corporate secretary and CFO/Treasurer.

Engineering, product management, program management, and administrative support are provided through member in-kind contributions on mostly part-time and some full-time basis. These disciplines are also contracted by the CCF when member cash contributions permit.

### **11.6 Invoice Process**

The CCF finance organization maintains an invoice process to help ensure member companies and authorized test facilities are properly notified well in advance of fee due dates. This includes, but is not limited to, confirming contact information at member companies, providing the information necessary to allow member companies to initiate their payment process, providing an invoice compatible with member company invoicing practices, securing payment before the annual 31 March deadline, and informing member companies of their loss of membership privileges if the deadline is not met.

## **11.7 Tax**

The CCF finance organization, lead by the CFO/Treasurer, is responsible for ensuring all required tax filing are executed properly and on time. Furthermore, this organization is responsible for securing, on an annual basis, a Tax Residency Certificate to support membership fee payment.

## **12 Administration**

There are a number of administrative functions that are essential to the proper operation of the CCF.

### **12.1 Membership Committee**

The membership committee has the responsibility to review and approve all membership applications to ensure obligations set forth by corporate bylaws and these operating principles are satisfied. No membership application shall be unduly withheld.

### **12.2 Sub-Contract Management**

As funding permits, the CCF shall engage various domain experts under contract to help the CCF pursue its mission. All sub-contracts shall be approved per the CCF procurement policy and managed by the benefiting CCF representative (e.g. group chair).

### **12.3 ISO Guide 65**

The Corporate Secretary shall be responsible for pursuing and securing ISO Guide 65 accreditation for the CCF. ISO/IEC Guide 65 specifies general requirements that a third-party operating a product certification system shall meet if it is to be recognized as competent and reliable.

## **13 Policies & Procedures**

The CCF maintains a code of ethics and procurement procedure that members are required to adhere to when acting on behalf of the CCF. The CCF also maintains a travel policy that applies to CCF contractors or people traveling under authorization of and funded by the CCF.

## **14 Legal**

There are a number of legal agreements that need to be put in place between the CCF and various member organizations and test facilities. Agreements identified to date include the Test Authorization Agreement, a Member Logo License Agreement, and a CTIA Service Agreement.

### **14.1 Test Authorization Agreement**

The Test Authorization Agreement defines the terms and conditions under which a licensee performs testing for certification compliance including licensee obligation, grant of license, intellectual property rights, licensing fees, and licensing revenues. The Test Authorization Agreement must be fully executed before a lab can achieve ATF status and conduct certification testing per CCF test plans and procedures.

### **14.2 Member Logo License**

The CCF Member Logo License agreement is entered into between the CCF and member companies to allow the limited use of each other's logos. By way of example, this agreement would allow the CCF to identify CCF members on the CCF web site.

### **14.3 CTIA Service Agreement**

The service agreement between the CCF and the CTIA provides for the CCF to utilize the CTIA's on-line product certification database for administering and tracking the certification of products by the CCF.

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