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6 ***CDMA Certification Forum™ (CCF) Introduction and Overview***

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4 Official CDMA Certification Forum™ (CCF) WEB Site: www.globalccf.org

5 Incorporated in the state of California, USA

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1 Introduction

1.1 Purpose and Scope

This document provides an introduction and overview of the CDMA Certification Forum (CCF), proposes its value to the industry, describes 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.

1.2 Problem Statement

The CDMA industry is experiencing increasingly rapid growth in demand and complexity of CDMA devices on a global scale. To meet these demands, design cycles are shortening, cost per device is decreasing, more manufacturers are developing CDMA products, and more operators are providing basic and advanced product offerings. To ensure continued or improved end user experience, it is essential that the product acceptance process maintain pace with this industry growth.

1.3 Solution Statement

To ensure integrity is not compromised as products become commoditized at the low end and increasingly sophisticated at the high end, a fundamental element of any acceptance test process is to define and implement a process to maximize the minimum level of performance of any device entering the marketplace.

To this end, the CCF has been established as a partnership between CDMA operators and CDMA device vendors to establish and maintain a core global device certification process that helps improve quality through consistent interoperability, conformance and performance testing.

2 References

Appropriate normative and informative references:

- [1] CCF Test Plan CCF-TG-005-30040-01.0.0
- [2] CCF Certification Process CCF-CG-FF001-0008 Rev00.2
- [3] CCF Articles of Incorporation CCF-SG-FF003-0006
- [4] CCF Bylaws CCF-SG-FF003-0005
- [5] CCF Membership Package

1 3 Definitions and Abbreviations

2

3GPP2	3 rd Generation Partnership Project 2
A2LA	American Association for Laboratory Accreditation
CATR	China Academy of Telecommunications Research
CCF	CDMA Certification Forum
CCF-F	CCF Field
CCF-L	CCF Lab
CDG	CDMA Development Group
CDMA	Code Division Multiple Access
CG	Certification Group
CNAL	China National Accreditation Board for Laboratories
CTIA	Cellular Telecommunications & Internet Association
GCF	Global Certification Forum
GHRC	Global Handset Requirements for CDMA
GSM	Global System for Mobiles
ICC	Institute of Cellular Communications
IOT	Interoperability Test
IPR	Intellectual Property Rights
MII	Ministry of Information Industry
MS-BS	Mobile Station – Base Station
OMA	Open Mobile Alliance
R&D	Research and Development
R-UIM	Removable User Identity Module
SIM	Subscriber Identity Module
STT	System Test Team
TG	Technical Group
TTA	Telecommunications Technology Association

3 4 Overview

4 This CCF Introduction and Overview document defines key principles that drive its
 5 creation and operation, states objectives of the forum and those specifically beyond the
 6 scope of the forum, describes the organizational structure of the entity, and briefly
 7 illuminates its place among other CDMA industry groups.

8 4.1 Key Concepts

9 As stated earlier, the mission of the CCF is a partnership between CDMA
 10 operators and CDMA device vendors to establish and maintain a core global
 11 device certification process that helps improve quality through consistent
 12 interoperability, conformance and performance testing. There are three primary
 13 factors driving this mission.

1 **First**, there is universal industry consensus that the time and cost of bringing a
2 CDMA terminal to market must be dramatically reduced to provide wireless
3 service that is affordable to the global market and to compete with other air
4 interface technologies.

5 **Second**, this must be done while raising the performance bar to ensure basic voice
6 and data service in many emerging markets.

7 **Third**, for the forum to be successful, it must be supported by operators and
8 vendors world-wide and enabled with test resources readily accessible to all
9 CDMA markets in the most practical (affordable) sense.

10 **4.2 Objectives**

11 The primary objective of the CCF is to define and implement a core global
12 terminal certification process. There are several near-term supporting objectives:

- 13 1) Establish the CCF itself, defining clear goals and objectives for at least the
14 first two years of operation. The sub-groups formed to realize these goals and
15 objectives must be established at the earliest opportunity.
- 16 2) The CCF looks to the CDMA Development Group's (CDG) Global Handset
17 Requirements for CDMA (GHRC) team to reach consensus on the
18 requirements for terminal features and functions to be mapped to the CCF
19 Test Plan.
- 20 3) Define, document, and publish the CCF Test Plan by which a terminal device
21 will demonstrate compliance to the GHRC requirements in order to achieve
22 CCF certification. This would include lab-based and field-based test cases to
23 verify minimum performance, signaling conformance and
24 terminal/infrastructure interoperability.
- 25 4) Define and document the certification test process. This includes not only
26 stating the test process itself, but also defining and implementing all the
27 mechanisms that must be in place to execute that process. Examples include
28 establishing the authorization criteria for testing facilities based on ISO-
29 17025, defining a validation process to ensure test platforms execute to the
30 intent of the 3rd Generation Partnership Project 2 (3GPP2)
31 specifications, and creating certification criteria compatible with existing
32 regional certification programs.
- 33 5) Educate operators and vendors on CCF certification test procedures and
34 processes.
- 35 6) Authorize testing facilities to conduct certification testing. This would involve
36 providing documentation to a candidate testing facilities defining the
37 certification process and the requirements to become an authorized testing
38 facility, conducting an on-site visit to evaluate first hand their abilities,
39 procedures, and general lab disciplines, and granting authorized status as
40 appropriate. Longer term objectives would include implementing an audit
41 mechanism to ensure continued compliance with existing and evolving test
42 requirements.

4.3 Objectives NOT

It is not the objective or the intent of the CCF to provide a comprehensive end-to-end terminal test process inclusive of all carrier test requirements. The CCF recognizes and appreciates the need for operators to define handset test requirements over and above those of the CCF certification test process to meet the particular demands of their specific markets.

While the CCF may have the need for specific test cases that are not covered in existing international standards, it is not the intent of the CCF to independently maintain these test cases. New test cases required to meet the needs of the CCF certification test program will be developed by the appropriate international standards group.

It is not the objective or the intent of the CCF to determine which products or services must be recognized by CDMA operators. Handsets certified and testing facilities authorized by the CCF simply demonstrate a known level of performance for participating operators' consideration in commercializing products. Participation in the CCF is voluntary.

4.4 Position in Industry

The CCF serves the CDG and CDMA industry to reduce the time and expense of bringing a product to market while improving product quality through consistent and repeatable testing methods. The CCF looks to the GHRC to provide feature and function requirements, developed on a global scale, to which the CCF will establish a process to verify product conformance. The CCF and CDG are separate legal entities for anti-trust and liability purposes. The CCF does not maintain test cases but points to industry test specifications such as those published by the 3GPP2. The CCF is establishing formal liaisons with the Global Certification Forum (GCF) and Open Mobile Alliance (OMA) to share solutions above the air interface layer and thus ensure there is no duplication of effort. The CCF looks to regional certification bodies to point to the CCF for the foundation of their market specific certification processes.

4.5 Organization

The CCF is a Nonprofit Mutual Benefit - 501(c) (6) Corporation. The organization currently consists of one standing committee and two working groups. The Steering Committee enjoys representation from across the CDMA industry. Operators and Device Vendors enjoy dual-majority voting on issues that can not be resolved by consensus. All other participants have observer status, allowing them to participate and contribute to the success of the CCF, but do not have voting rights. A Technical Working Group has been established with the primary charter of defining, implementing, and evolving a test plan. A Certification Working Group has been established with the primary charter of defining, implementing, and evolving a certification process.

The CCF is a world wide organization and is open to all corporations associated with CDMA technology that are duly organized and in good standing within their specific jurisdiction of incorporation.

1 **5 Value Proposition**

2 The CCF brings tremendous value to all CDMA industry members. As further delineated
 3 below, the CCF allows operators to focus their limited test resources on higher level
 4 features and functions that differentiate them in the marketplace, device and chip vendors
 5 to pursue a uniform set of performance criteria, and infrastructure vendors to focus on
 6 more value add to their customers.

7 **5.1 Advantages – Operators**

8

Operator Benefits	Rationale
Reduced Operating Cost	Defer Routine Handset Screening To Third Party Lab
Scalable Test Solution	Higher Capacity Test Process Allows More Handset Models
Increased Handset Selection	All Handsets Ready For Carrier Acceptance Tests
Higher Quality Product Availability	All Handsets Tested To Highest Common Standard
Enables SIM/R-UIM Distribution Model	Same Test Model As GSM – Lab and Field IOT
Uniform Global Core Certification Process	Handset Certified For Multiple Markets
Greater Market Differentiation	Lab Resources Available For Feature Development
No Cost To Implement	Certification Costs Borne By Handset Vendor

9 **Table 5-1 Operator Advantages**

10 **5.2 Advantages – Device Vendors**

11

Terminal Mfg. Benefits	Rationale
Faster Time To Market	Issues Flushed Out Before Certification Cycle
Certification Tests Incorporated Into R&D	Rather Than R&D Part Of Certification
Local Availability Of Test Resources	Qualified Labs In Any Market For All Markets
Better Defined Certification Process	Navigates 3GPP2 Specification Maze
Consistent Global Core Certification Process	Reduces Multiple Certification Cycles

12 **Table 5-2 Device Vendor Advantages**

13 **5.3 Advantages – Infrastructure Vendors**

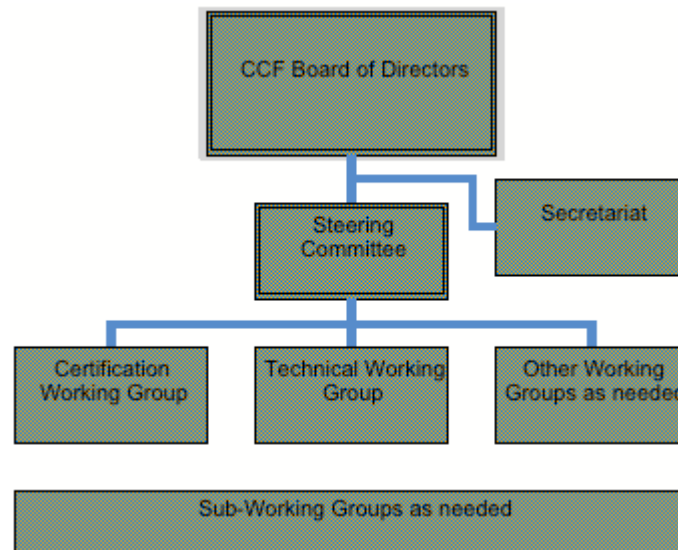
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Vendor Mfg. Benefits	Rationale
Greater Market Differentiation	Lab Resources Available for Feature Development
Increased Customer Support	Focus on Value Add Performance Testing
Increased Test Capacity	IOT Resources Not Flushing Out Basic Modem Issues
Higher Quality Product Entering Test Program	All Handsets Certified to Highest Common Standard

15 **Table 5-3 Infrastructure Vendor Advantages**

1 **6 Organization**

2 The CCF is a nonprofit corporation organized to define and implement a core global
 3 device certification process for devices using CDMA technology and to engage in such
 4 other related business as the Board of Directors may determine from time to time. As
 5 with any organization, the Board is primarily responsible for strategic level management
 6 of the corporation. The CCF established a Steering Committee responsible for day-to-day
 7 tactical management of the Corporation. The Steering Committee established the
 8 Technical and Certification Working Groups to define test plans and certification
 9 processes, respectively.



10

11 **Figure 6-1 Forum Organization Structure**

12 **6.1 Corporation**

13 The CCF was incorporated in the state of California in 2004 as a nonprofit mutual
 14 benefit corporation organized under the Nonprofit Mutual Benefit Corporation
 15 Law 501(c) (6). Bylaws were drafted to capture the essential articles of operation
 16 of the corporation. An Operating Principles guide is being drafted to document,
 17 within the principles of the bylaws, more specific operating guidelines and
 18 clarifications that may be defined or modified by the Steering Committee to
 19 effectively manage the forum.

20 **6.1.1 Articles of Incorporation**

21 The Corporation is nonprofit and is not organized for the private gain of any
 22 person. The purpose of the Corporation is to engage in any lawful act or activity,
 23 other than credit union business, for which a corporation may be organized under
 24 such law and to conduct its activities as an association in accordance with Section
 25 501(c)(6) of the U.S. Internal Revenue Code, as amended. The articles of
 26 incorporation can be found in their entirety at <http://www.globalccf.org/>.

1 **6.1.2 Bylaws**

2 The bylaws of the CCF serve to define the purpose of the Corporation,
3 membership criteria, meeting requirements, board structure and assignments, the
4 process of electing officers, defining committees, and standard operating
5 requirements. The bylaws are available on the CCF web site for review in their
6 entirety and are briefly summarized herein.

7 The CCF recognizes two membership categories, Statutory and Observer.
8 Statutory members include CDMA operators and device and chip vendors and can
9 participate in a dual-majority voting process. Observer members include any
10 corporate entity serving the CDMA industry that is not an operator or device/chip
11 vendor. Observer members are not entitled to a vote but do participate in the
12 consensus process at the working group level.

13 The CCF board has nine Directors. Four Directors shall be elected by a majority
14 of the Operator Members (collectively, “Operator Directors”) and four Directors
15 shall be elected by a majority of the Vendor Members (collectively, “Vendor
16 Directors”) at a meeting of the Statutory Members. The CDG shall sit in the ninth
17 board seat as an invited observer. This ninth board seat does not have voting
18 rights. Board members are elected on an annual basis.

19 The officers of the Corporation shall be a President, a Secretary, and a
20 Treasurer/Chief Financial Officer. The Chair of the Board of the Corporation shall
21 also serve as President. Officers are elected on an annual basis.

22 The general philosophy employed in creating the bylaws is to include only those
23 concepts and principles essential to the success of the forum and defer operational
24 details to an operating principles document. For example, the bylaws must
25 identify the need for a Steering Committee and the voting structure of that
26 committee. However, strategic or tactical plans on how the Steering Committee
27 drives the development of test plans and certification processes is best left to an
28 operating plan. Changes to the bylaws require board approval, whereas changes to
29 the operating plan can be approved by the Steering Committee. As bylaws can be
30 changed, it is not necessary to define the perfect set of bylaws at the start.

31 **6.1.3 Operating Principles**

32 An Operating Principles Guide serves to capture agreed upon operating
33 requirements essential to the efficient day-to-day operation of the forum but
34 beyond the scope of the bylaws. This document would, for example, cover the
35 process by which contributions are posted and approved, further define and
36 differentiate the roles of the various working groups, provide formal direction
37 from the Steering Committee to the various working groups, and provide a
38 mechanism to formally document directives and requirements for the group as a
39 whole. The Operating Principles can be modified as required through the standard
40 document process without the need for formal ratification of the board of directors
41 (as required for modifications of the bylaws).

1 **6.2 Steering Committee**

2 The Corporation shall have one permanent Standing Committee that shall be the
3 Steering Committee. The Steering Committee shall be composed of
4 representatives of each of the Statutory Members. The Chairperson and Vice-
5 chairperson of the Board shall serve as the Chairperson and Vice-chairperson of
6 the Steering Committee. Observer members may participate in Steering
7 Committee meetings but will not have a vote. The Steering Committee shall be
8 responsible for defining and evolving the CCF Mission, establishing working
9 groups as required, helping set the goals and guidelines of each working group in
10 conjunction with the members of such Standing Committee, defining a set of
11 guidelines for Member participation in CCF, including dispute resolution
12 mechanisms, developing the Membership Agreement in conjunction with the
13 Board, resolving issues within the purview of the working groups upon which the
14 working groups are dead-locked or unable to render a decision, approving the
15 election of the Chair and Vice-Chair of working groups, and approving and
16 managing the overall certification process.

17 **6.3 Working Groups**

18 The Steering Committee from time to time will establish Working Groups to work
19 specific objectives of the CCF. The Steering Committee has established a
20 Technical Working Group and a Certification Working Group. The Steering
21 Committee has considered the formation of Operator and Vendor working groups
22 to establish goals and objectives for their respective industry groups but has not
23 yet agreed upon utility for such formality.

24 **6.3.1 Technical Group**

25 The Technical Group defines the technical requirements that will be executed
26 during the certification process in the form of test cases. The Technical Group
27 will develop and release lab and field test plans, validate test platforms and
28 participate in the authorization of testing facilities. The charter of the Technical
29 Group shall be further developed by the Members of the Technical Group in
30 consultation with the Steering Committee from time to time. The Technical Group
31 shall make decisions by consensus of all Members participating in Technical
32 Group matters. If the Technical Group cannot reach consensus on any matter,
33 such matter shall be referred to the Steering Committee for a decision.

34 **6.3.2 Certification Group**

35 The Certification Group defines the certification process by which a device will
36 demonstrate its compliance with the technical requirements. The Certification
37 Group will develop and release platform validation, lab authorization, and device
38 certification processes. The charter of the Certification Group shall be further
39 developed by the Members of the Certification Group in consultation with the
40 Steering Committee from time to time. The Certification Group shall make
41 decisions by consensus of all Members participating in Certification Group
42 matters. If the Certification Group cannot reach consensus on any matter, such
43 matter shall be referred to the Steering Committee for a decision.

1 **6.4 Sub-Working Groups**

2 The various working groups may from time to time establish sub-working groups
3 to work specific objectives of the working group. The Certification Group may,
4 for example, establish a sub-working group to develop a requirements document
5 for the database through which the certification of devices will be tracked.

6 **7 Position in Industry**

7 The CCF serves the needs of the CDMA industry and the CDG by simplifying and
8 accelerating the testing process for all operators and device vendors, helping speed
9 handsets to market. The CCF complements other organizations serving the CDMA
10 industry. These include the CDG, 3GPP2, CATR, CTIA, ICC, TTA, GCF, and OMA.

11 There are a number of international standards bodies that define interface standards, and
12 test *specifications* to help ensure CDMA devices meet those standards. However, until
13 now there has been no international standard defining a certification *process* for such
14 devices. Therefore, the CCF was formed in 2004 as a partnership between CDMA
15 operators and CDMA device vendors to establish and maintain a core global terminal
16 certification process that helps improve quality through consistent interoperability,
17 conformance and performance testing.

18 **7.1 CDMA Development Group**

19 The CCF was formed as a separate legal entity from the CDG to address possible
20 anti-trust and liability concerns associated with the certification of handsets.
21 Membership in the CDG is a pre-requisite for membership in the CCF.

22 The certification test plan under development by the CCF Technical Group is
23 being driven by the feature and function requirements under development by the
24 GHRC team. GHRC feature and function requirements documents will be
25 mapped to industry standard test cases (e.g., 3GPP2) identified within the CCF
26 test plan. These test cases will then be used to verify handsets meet those feature
27 and function requirements.

28 The CDG System Test Team (STT) continues to develop system level test
29 solutions to bring new technologies to market, as well as solutions that support the
30 most demanding CDMA markets in terms of availability and performance. The
31 CCF certification test process works to automate routine and mundane testing of
32 the modem layer functionality for mature technologies. This helps ensure more
33 reliable handsets enter the system level test process. More important, it allows
34 system level testing to focus on developing value-added performance and
35 application layer evaluations.

1 **7.2 Third Generation Partnership Project**

2 The CCF test plan serves as a pointer document to test specifications developed
3 and maintained by CDMA industry recognized international standards bodies.
4 The CCF Test Plan does not maintain test cases itself. When test cases need to be
5 developed to support certification testing, the CCF Technical Working Group will
6 task the appropriate industry standardization body (e.g. 3GPP2) to develop such
7 test cases and incorporate them into the appropriate test specification. Thus, the
8 CCF looks to the 3GPP2 to continue to publish and maintain test cases. The CCF
9 is in the process of establishing a formal liaison with the 3GPP2.

10 **7.3 Regional Certification Program**

11 The CCF is working with the CTIA's Certification Program directorate to develop
12 a global CCF certification process that is compatible with the market specific
13 CTIA certification process. The goal of this cooperative effort is to define a
14 certification process that the CTIA can draw upon for the core of its certification
15 program. Using this CCF process as a foundation, the CTIA certification program
16 would then add United States market specific certification requirements and
17 processes. It is the vision of the CCF that a handset that has successfully
18 completed CCF certification testing undergoes only CTIA market specific testing
19 to receive CTIA certification. Other such cooperative efforts are underway with
20 CDMA certification programs in other markets including the China Academy of
21 Telecommunications Research (CATR) in China, the Institute of Cellular
22 Communications (ICC) in Russia, and the Telecommunications Technology
23 Association (TTA) in Korea.

24 **7.4 Global Certification Forum and Open Mobile Alliance**

25 The CCF is establishing formal relationships with the GCF and the OMA with the
26 objective of developing common certification test solutions above the air interface
27 technology specific layers. All three organizations recognize the tremendous
28 challenges that lie ahead in solving application layer certification testing of
29 wireless devices. No organization can afford to duplicate solutions developed by
30 the other. To facilitate this cooperation, the CCF is establishing formal liaisons
31 with the GCF and OMA.

32 **7.5 Test Process Convergence**

33 The objective of the CCF certification program is to define a process to conduct
34 the optimal set of parametric performance and signaling conformance testing on
35 commercial test equipment. Some features and functions need to be evaluated
36 against commercial infrastructure. The CCF does provide for evaluating core
37 features and functions on devices incorporating established technologies on
38 infrastructure in commercially available networks. Evaluating new features or
39 functions on devices incorporating emerging technologies is best conducted on
40 commercial infrastructure in a cabled environment and is outside the scope of the
41 CCF. The decision on the proper test environment for the features and functions
42 on a given device is left to the operator, handset vendor, and network provider.

1 **8 Steering Committee**

2 **8.1 Organization**

3 The Steering Committee is composed of representatives from each of the statutory
4 members. Observer members may participate in Steering Committee meetings.
5 All members work toward consensus while completing Steering Committee
6 objectives. In the event that consensus can not be achieved by all participants,
7 issues are resolved by a dual-majority vote of the statutory members.

8 **8.2 Charter**

9 The Steering Committee is responsible for day-to-day tactical management of the
10 Corporation.

11 **8.3 Roles and Responsibilities**

12 The Steering Committee shall be responsible for:

- 13 • defining and evolving the CCF Mission,
- 14 • setting specific and achievable goals and objectives and deliverables to
15 help the CCF realize its mission,
- 16 • providing strategic level direction to the working groups,
- 17 • resolving disputes when consensus cannot be achieved within the working
18 groups,
- 19 • reviewing documents generated by CCF members and providing
20 substantial corrective input as required before publication,
- 21 • approving the election of the Chair and Vice-Chair of working groups, and
22 • approving and managing the overall certification process.

23 **8.4 Deliverables**

24 Early deliverables for the Steering Committee include publishing operating
25 principles, defining and implementing a lab deployment strategy, providing high
26 level test and certification requirements, developing and implementing a
27 marketing strategy, establishing liaisons with key industry working groups,
28 managing the corporate finances, launching and maintaining a corporate web site,
29 and establishing working groups as required to execute on these deliverables.

30 **8.4.1 Operating Principles Document**

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

1 **8.4.2 Lab Deployment Strategy**

2 The lab deployment strategy outlines the method by which test facilities are
3 solicited and subsequently qualified to become authorized test facilities. The
4 strategy is expected to include means by which market demand is demonstrated
5 (e.g., Operators and Vendors publicly endorse the CCF), a trade on the merits of a
6 reference lab versus contracting existing lab(s), and how the effort may be funded.

7 **8.4.3 Test and Certification Requirements**

8 A globally agreed upon set of features and functions provide the foundation upon
9 which a certification program can be established. To provide high level test and
10 certification requirements in the form of globally defined features and functions,
11 Operator and Vendor CCF participants are working with the GHRC. These
12 feature requirements are then mapped to CCF test plans. This GHRC series of
13 documents being developed and released by the operator and device vendor
14 members of the CDG will serve the immediate needs of the CCF.

15 **8.4.3.1 Certification Requirements**

16 The Steering Committee provides a baseline set of requirements that handset
17 vendors and handset test labs must meet for their products or services to even be
18 considered by the participating operators. It is the responsibility of the Technical
19 Group and Certification Group to translate these baseline requirements into
20 functional test plans and certification processes, respectively.

21 **8.4.3.1.1 Handset Certification**

22 The Steering Committee would collectively define the set of requirements a
23 handset must meet to receive CCF certification. Handset certification
24 requirements are envisioned to encompass the optimal suite of tests that can be
25 performed in a cabled environment on commercially available automated test
26 platforms, plus a minimum necessary suite of tests that can be performed in a
27 field environment on commercial networks.

28 **8.4.3.1.2 Lab Authorization**

29 The Steering Committee would collectively define the set of requirements a
30 testing facility must meet to be considered as a test resource for handset
31 certification. Lab authorization requirements are envisioned to include ISO-17025
32 compliance, which covers test processes and competencies.

33 **9 Technical Group**

34 **9.1 Organization**

35 The Technical Group is the engineering arm of the CCF and is composed of
36 CDMA test domain experts from organizations involved in the CDMA industry at
37 large. A Technical Group member must be a corporate entity duly organized and
38 in good standing in its jurisdiction of incorporation.

1 **9.2 Charter**

2 The charter for the Technical Group is to ensure that the common test
3 requirements defined by the GHRC are validated according to appropriate
4 international specifications, to assist in the authorization of test facilities to
5 conduct certification testing as defined by the CCF, and to provide technical
6 guidance to the CCF to readily enable adoption and implementation of evolving
7 CDMA-based technologies.

8 **9.3 Roles and Responsibilities**

9 Initial roles and responsibilities for the Technical Group include:

- 10 1) Publish and maintain lab and field test plans which point to industry standard
11 performance and conformance test specifications
- 12 2) Define common test report format.
- 13 3) Work with test equipment vendors to increase test cases support to test plan,
14 including automation.
- 15 4) Provide ongoing technical support to operators, vendors, and testing facilities
16 conducting certification testing.

17 **9.4 Deliverables**

18 Near-term deliverables include a modem layer test plan, lab assessments, and an
19 application layer test strategy.

20 **9.4.1 Modem Layer Test Plans**

21 Two modem layer test plans are to be developed and published at the earliest
22 opportunity. The first is a Lab Test Plan to define all test requirements that shall
23 be conducted in a cabled environment on commercially available test equipment.
24 The second is a Field Test Plan to define all interoperability test requirements that
25 shall be conducted in a commercially available network environment.

26 **9.4.1.1 Lab Testing**

27 Define:

- 28 • the optimum set, supported by commercially available test equipment, of
29 the compliance tests specified in C.S0011-B (TIA/EIA-98-E), C.S0036-0
30 (TIA-916) and C.S0033-0 (TIA-866), and
- 31 • the optimum set of signaling conformance tests specified in C.S0031-0
32 (TIA-898), C.S0038-0 (TIA-919), and C.S0037-0 (IS-918)

33 The objectives of these tests are to seek the optimum level of test coverage under
34 automated, repeatable, and fully controllable test conditions.

1 9.4.1.2 Field Testing

2 Identify the C.S0058 test cases and the infrastructure-dependent test cases
3 extracted from industry standard specifications such as C.S0031-0 (TIA-898),
4 C.S0038-0 (TIA-919), C.S0037-0 (IS-918), C.S0036-0 (TIA-916), and selected
5 tests from CDG Reference 64. These tests are performed on commercially
6 available networks representing infrastructure manufacturers in the target market.
7 The objective of these tests is to verify MS-BS compatibility where the Base
8 Station is known to be standards-compliant, but where the Base Station vendor
9 implementation of the Standard will govern operation of certain features.

10 9.4.2 Test Case Contributions

11 From time to time, the Technical Group may identify gaps in the coverage of
12 industry test specifications. When this occurs, a request to develop additional test
13 cases will be sent to the appropriate international standards group for
14 incorporation into the appropriate standard. Certification testing conducted
15 against international standards includes minimum performance, signaling
16 conformance, interoperability, application execution environment, application
17 enabler, and application testing.

18 9.4.3 Testing Facility Assessments

19 The CCF will look to the Technical Group to provide the subject matter expertise
20 required for the the testing facility authorization process. This will involve
21 evaluation of the competence in CDMA technologies of testing facility personel
22 and verification of test platform setup, calibration, and operation.

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

27 9.4.4 Platform Verification

28 While defining and implementing the platform validation process is the
29 responsibility of the Certification Group, the Technical Group must provide the
30 engineering resources required to execute the process.

31 9.4.5 Application Layer Test Strategy

32 While a modem layer certification test plan may meet the immediate needs of the
33 emerging CDMA markets, an efficient application layer test strategy is in great
34 demand across the CDMA industry. Without compromising the energy required
35 to establish a modem layer test plan, the Technical Group is encouraged to define
36 an application layer test strategy at its earliest opportunity. Initial efforts should
37 focus on application enabler testing while surveying the wireless industry for air
38 interface independent solutions.

1 **9.5 Administration**

2 The Technical Committee shall make decisions by consensus of all Members
3 participating in Technical Committee matters. If the Technical Committee cannot
4 reach consensus on any matter, such matter shall be referred to the Steering
5 Committee for a decision.

6 **10 Certification Group**

7 A fundamental philosophy of the CCF Certification Group is to focus on both
8 authorizing test facilities to conduct certification testing and validating specific
9 test platforms. It is believed that this approach is critical to remain current with
10 the rapid pace of technology development and deployment. These test facilities
11 may also be a resource to the CCF to validate commercial test solutions.

12 It will be the role of the CCF Certification Group to develop and implement a
13 handset certification process and lab authorization process that works to ensure
14 conformance to standards and interoperability when handsets reach the market. It
15 will NOT be the role of the CCF Certification Group to select which labs are
16 evaluated or qualified. Any lab that meets the established criteria and pays the
17 nominal authorization fee will be authorized by the CCF to conduct CCF
18 certification testing. The acceptance of those test results will be at the discretion
19 of the benefiting operator.

20 **10.1 Organization**

21 The Certification Group is made up of CCF members and observers. A
22 Certification Group member must be a corporate entity duly organized and in
23 good standing in its jurisdiction of incorporation.

24 **10.2 Charter**

25 The initial charter of the Certification Group is to define and maintain global core
26 certification test processes based upon a test plan created by the Technical Group
27 to ensure terminal conformance to feature and function requirements set forth by
28 the GHRC. These processes must allow for and support local market variations.
29 The initial focus of the Certification Group would be to define, publish, and
30 implement a set of process documents including test platform validation, handset
31 certification, lab authorization and subject matter expert certification. The initial
32 charter would also include granting the “certification seal” as well as defining and
33 convening as necessary a council to resolve disputes over certification

34 **10.3 Roles and Responsibilities**

35 Initial roles and responsibilities for the Certification Group should focus on
36 ensuring all the technical, business, and legal processes are in place to support the
37 certification process. By way of example, these would include:

- 38 1) Publishing and maintaining certification process document.
- 39 2) Establishing a database for tracking CCF certified products.

- 1 3) Identifying certifying bodies in each market (e.g., A2LA, CNAL) and
- 2 establishing requirements for authorizing testing facilities in their markets.
- 3 4) Orchestrating the authorization of testing facilities.
- 4 5) Identifying and ensuring that the CCF is not in conflict with local regulatory
- 5 requirements (i.e. proper legal mechanisms in place, clear separation between
- 6 CCF and local regulatory requirements, liability issues resolved).

7 **10.4 Deliverables**

8 Initial deliverables for the Certification Group include terminal device
9 certification, test facility authorization, test platform validation, subject matter
10 expert qualification, and evolution processes.

11 **10.4.1 Terminal Device Certification**

12 A Terminal Device Certification process defines the process by which a handset is
13 certified by the CCF. The CCF Terminal Device Certification Process is
14 comprised of two separate stages: CCF-L (Lab Testing) and CCF-F (Field
15 Testing).

16 **10.4.2 Test Facility Authorization Process**

17 A test facility authorization process defines the means by which a test facility is
18 authorized to conduct certification testing per the CCF certification process. Such
19 a specification is envisioned to include requirements per ISO-17025, a definition
20 of minimum competence requirements, and an objective methodology for
21 developing or evaluating that competence. Auditing procedures would be an
22 essential element of testing facility authorization to ensure they maintain their
23 level of qualification as technologies and test coverage evolve, as well as ensuring
24 consistent results across authorized testing facilities.

25 **10.4.3 Test Platform Validation Process**

26 A test platform validation process would define how test equipment
27 manufacturers would go about verifying their specific hardware and software
28 configurations and how to maintain validation status. Concepts of a reference lab,
29 test equipment vendor labs, and virtual labs are under evaluation.

30 **10.4.4 Subject Matter Experts**

31 A Subject Matter Expert certification would define the process by which the CCF
32 recognizes an individual as qualified to represent the engineering interests of the
33 CCF during testing facility authorizations. This is particularly critical to the CCF
34 philosophy of focusing equally on testing facility competency and validated test
35 platforms. Such a specification is envisioned to include exhaustive written and
36 oral evaluations and perhaps a brief apprenticeship program. There are currently
37 no specific standards to guide this effort. Objective evaluation criteria must be
38 established (e.g. current laboratory assessor certification), experience in relevant
39 technologies, understanding of relevant industry standards and test specifications,
40 and understanding of the CCF certification process and evaluation criteria must be
41 demonstrated.

1 **10.4.5 Evolution**

2 Woven into the very fabric of the certification process must be the concept that
3 the process must continually evolve. The level at which operators and vendors
4 differentiate their services and products in the market place continues to climb. As
5 the functional layer at which operators and vendors differentiate their services and
6 product increases, lower layer test cases and processes become more
7 commoditized. The CCF Certification Group, with help from the Technical
8 Group, should continually work to incorporate these commoditized test cases into
9 the certification test process. In the same vein, test cases that no longer yield
10 meaningful test data should be removed from the test plan and test process. The
11 certification test process should also provide guidance and motivate testing
12 facilities and test equipment manufacturers to evolve their commercial test
13 solutions.

14 **10.4.6 Administration**

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

20 A fundamental operating principle of the CCF will be to establish and maintain a
21 certification test methodology that ensures proper execution of test cases as well
22 as uniformity of test results across all authorized testing facilities. However, it is
23 expected that some discrepancies will occur between vendor test results and
24 certification test results, or even certification test results between two testing
25 facilities. Therefore, the Certification Group would define procedures by which
26 disputes between participating members can be resolved.

27 **10.5 Certification Body Participants**

28 Certification bodies from major CDMA markets are participating in the definition
29 and development of the CCF certification process. Their participation helps
30 ensure compatibility with their regional certification programs and allows the
31 global process to build upon their regional successes.

32 **10.5.1 ICC**

33 The Institute of Cellular Communications (ICC) is chartered by the Russia
34 government to conduct certification testing of wireless devices against federal
35 regulatory requirements. Thus, certification testing is compulsory in Russia. The
36 ICC is already working to implement CCF validated test processes in Russia in
37 parallel with the broader CCF certification process definition effort.

1 **10.5.2 CATR**

2 The China Academy of Telecommunications Research (CATR) is a nation-level
3 research organization in telecom field directly under the leadership of the MII.
4 CATR integrates the functions of research, test and certification and consultancy.
5 It mainly performs support work for government, such as research on
6 development planning, policies and regulations, network standards as well as
7 carrying out of regulatory work. Meanwhile, it can also provide services for the
8 industry, such as quality system certification of enterprises, telecom metrology,
9 and product test/certification as well as network planning/design and consultancy
10 for enterprises.

11 **10.5.3 TTA**

12 The purpose of the Telecommunications Technology Association (TTA) is to
13 contribute to the advancement of technology and the promotion of information
14 and telecommunications services and industry as well as the development of the
15 South Korean economy. The association achieves this goal by effectively
16 establishing and providing technical standards that reflect the latest domestic and
17 international technological advances needed to plan, design, and operate global
18 end-to-end telecommunications and related information services. It works in close
19 collaboration with companies, organizations and groups concerned with
20 information and telecommunications such as network operators, service providers,
21 equipment manufacturers, academia, R&D institutes, and so forth.

22 **10.5.4 CTIA**

23 The Cellular Telecommunications and Internet Association (CTIA) represents all
24 elements of wireless communication - cellular, personal communication services
25 enhanced specialized mobile radio, and mobile satellite services - serving the
26 interests of service providers, manufacturers, and others. The CTIA Certification
27 Program provides the wireless industry with an unbiased, independent and
28 centralized product evaluation service. Since 1991, the Certification Program has
29 tested consumer wireless products for conformance to established industry
30 standards. Products passing CTIA's rigorous analysis are granted the right to
31 display the CTIA Certification Seal.

32 **11 Administration**

33 **11.1 Membership Guidelines**

34 The CCF Member Guidelines provide Members of the CCF with basic
35 information about their membership in the CCF and their rights, privileges and
36 obligations in connection therewith. The Membership Application, CCF Articles
37 of Incorporation, CCF Bylaws, IPR Policy and CCF Member Guidelines shall
38 constitute a binding agreement between the Member and CCF and shall
39 collectively be the Membership Agreement.

1 11.2 Document Management

2 The purpose of document management is to define the methods and
3 responsibilities for controlling all CCF documents. The controlled documents are
4 to be used for various purposes such as; providing work instruction, providing
5 process and certification direction, setting policy, and defining methods for
6 document revision, approval, and distribution.

7 This procedure applies to all documents contributed to, issued by, published by,
8 or controlled by the CCF. Controlled documents may be internal or external in
9 origin.