



Open Market Handsets Test requirements and Acceptance Group (TAG) Process Guide

CDG Document 182

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Revision History

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Date	Version	Description
Oct. 2009	1.0	• Initial Version
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Introduction

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Document Overview

3 The purpose of this document is to specify the acceptance processes for three key
4 areas associated with the Open Market Handsets (OMH) initiative. These areas are
5 OMH devices, OMH networks, and OMH SIMs. Note that because of de facto
6 familiarity with the term SIM, it is used generically to refer to the R-UIM.

7 The OMH Test requirements and Approval Group (TAG) is the industry group
8 responsible for managing each of these processes. As such, the document begins
9 with an overview of this group.

10 Following this overview, each of the three areas is addressed by a separate chapter.
11 Each of these chapters follows a similar structure, identifying the test coverage,
12 acceptance process, and logo usage associated with that area.

13 At the end of the document, the Appendix provides OMH SIM test recommendations.
14 Note that while unofficial R-UIM test recommendations are provided in this document,
15 device and network test plans are maintained in separate, version-controlled
16 documents. These separate test plans are referenced by this document.

17



TAG Overview

About the TAG

The TAG is a technical working group under the OMH Special Interest Group (SIG) within the CDMA Development Group (CDG). The TAG is tasked with the following responsibilities on behalf of the OMH ecosystem:

- Managing OMH test requirements
- Providing an industry forum for discussing OMH testing and acceptance
- Accepting OMH devices and networks and authorizing use of the OMH Logo
- Maintaining an ecosystem website of accepted OMH devices and networks

The TAG works cooperatively with the CDMA Certification Forum (CCF) and leverages CCF test plans wherever possible. Where test coverage deemed necessary by the TAG is either not currently covered or not within the scope of the CCF, the TAG may define new test procedures and/or work directly with test facilities to ensure that such test coverage is available. Any test procedures developed by the TAG are contributed to industry organizations such as CCF or 3GPP2 for publication as new test specifications or inclusion in existing test specifications.

For general information on the CDMA Certification Forum, visit: www.GlobalCcf.org.

For general information on 3GPP2, visit: www.3gpp2.org.

TAG Membership

TAG membership is comprised of individuals from CDMA vendors and operators with an interest in the OMH ecosystem. Members generally have a working knowledge of OMH technical concepts and testing processes. TAG members must belong to an organization that is a member of the CDG. Information on becoming a CDG member organization can be found at www.cdg.org/cdg/MemInfo.asp.

TAG Leadership

TAG leadership typically consists of two or more co-chairpersons working cooperatively to provide fair and balanced leadership, organize conference calls and meetings, and provide guidance on achieving the objectives of TAG. These co-chairs are elected on a yearly basis from nominees within the OMH ecosystem of operators and vendors.

For more information or questions, contact OmhTagChair@cdg.org.

1 **TAG and OMH Testing Online Resources**

2 **CDG OMH Testing Website**

3 The OMH testing portion of the CDG website can be found at
4 <http://www.cdg.org/cdg/teams/omh/testing.asp>. This website provides an overview of
5 OMH testing principles and processes. Also, the website provides the OMH device
6 and network declaration forms used for TAG declaration processes.

7 **TAG wiki**

8 The TAG wiki can be found at wiki.cdg.org/wiki/OMH_TAG. This wiki provides TAG
9 information, contacts, meeting notes, documents in development, etc... Additionally, it
10 provides a whiteboard area for questions and the exchange of ideas among members.

11 Information on the TAG wiki is accessible to all visitors. However, a login is required
12 for posting to the whiteboard area. To obtain a login, e-mail WikiMaster@cdg.org.

13 **TAG E-mail List**

14 The OmhTag@cdg.org e-mail list enables distribution of information to all TAG
15 members as well as interactive discussion among members on various issues. To be
16 added to this list, e-mail TagMembership@cdg.org.

17 *Note: To avoid potential spam, the e-mail list only distributes messages originating*
18 *from e-mail addresses that are part of the list.*

19



OMH Devices

OMH device acceptance is designed to minimize time-to-market for device vendors while providing operators with assurance that OMH devices entering their networks have undergone adequate testing. OMH device acceptance incorporates the following two concepts:

- **One-Time Testing:** OMH devices are tested against an industry-accepted OMH test plan. This removes the need for acceptance testing by each operator. Once a device successfully completes OMH device testing and has been accepted by the TAG, it can be sold into any market where OMH operators exist.
- **Declaration:** OMH device acceptance is based on a “declaration” process. Once the device vendor has passed all applicable tests, the vendor declares to the TAG that the device is ready for acceptance. The TAG reviews the declaration information. If all acceptance criteria have been met, the TAG accepts the device.

The TAG recognizes two types of devices for acceptance purposes: “parent” devices and “variant” devices. This chapter describes both the device acceptance process and the device variant acceptance process. The device variant acceptance process may only be used for devices that meet the following criteria:

- Are based on a parent device that was previously accepted by the TAG
- Have only minor modifications relative to the previously accepted parent device (e.g. a device with a different PCB would not qualify as a variant)
- Do not need to be re-tested except for minor new/different functionality

Any device not meeting the above criteria would be considered a parent device and use the device acceptance process.

Device Test Coverage

OMH device test coverage is identified in [CDG183] and focuses on common capabilities and features that allow the device to be successfully used across any OMH network. It generally does not address aspects of the device that are unrelated to network or SIM interaction. Examples of areas that are not intended to be addressed by OMH device test coverage include: 1) testing of the device with accessories, 2)

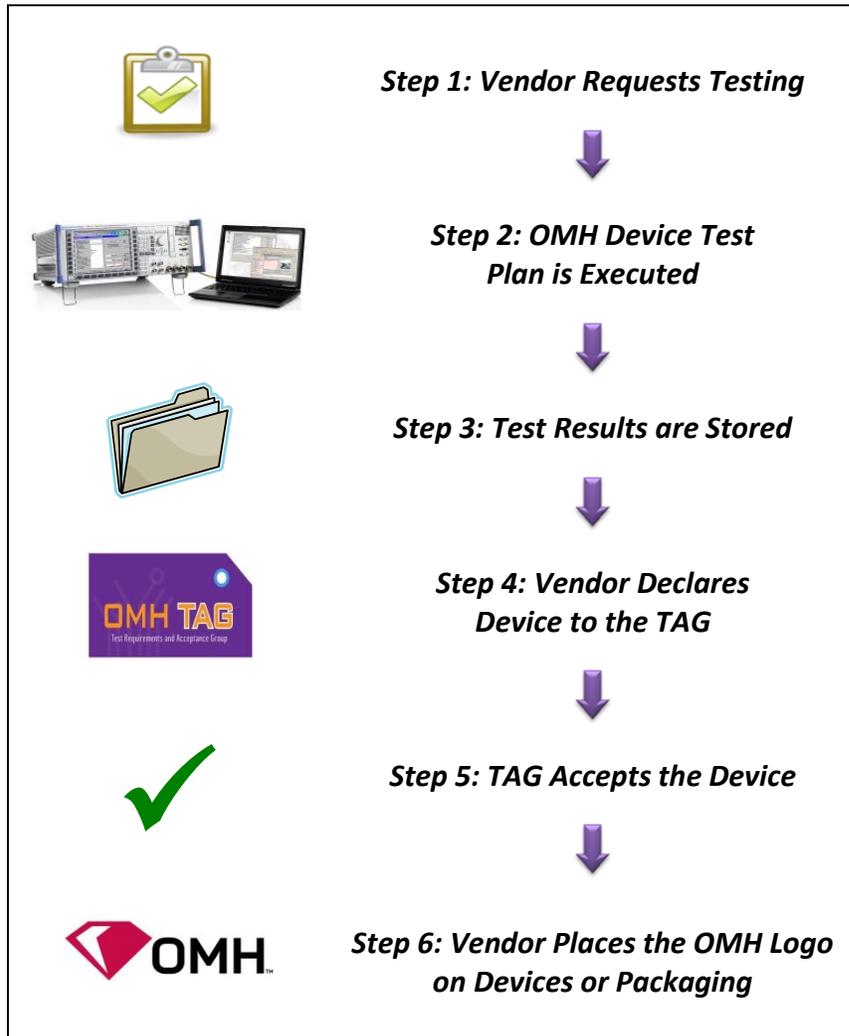
1 testing of the vendor-specific user interface implementations, and 3) testing of
2 applications not addressed by [CDG167].

3 **Device Acceptance Process**

4 The OMH device acceptance process is used for testing and accepting parent devices.

5 The figure below provides a high-level overview of the OMH device acceptance
6 process. Additional details for each step in the process are provided in the
7 corresponding subsections located below this figure.

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Figure 1: Overview of Device Acceptance Process

1. Vendor Requests Testing

Before a device can be accepted, testing must be completed on that device. To initiate this testing, the device vendor must do the following:

- **Select an Authorized Testing Facility (ATF):** OMH testing must be executed by a CCF Authorized Testing Facility. The vendor selects the ATF that they want to use for execution of testing on their device. Note that an ATF may be a third party laboratory or the device vendor themselves, provided that the vendor has been authorized by the CCF as an ATF. For a list of test labs capable of supporting OMH acceptance testing, visit: <http://www.cdg.org/cdq/teams/omh/testing.asp>.
- **Identify the Capabilities of the Device to the ATF:** [CDG183] contains a feature and function checklist that should be completed by the vendor indicating the capabilities of the device. The capabilities of the device will determine the portion of test coverage that is applicable for that device. For example, a device that does not support location based services would not require test coverage related to LBS.

2. OMH Device Test Plan is Executed

All OMH testing must be executed by a CCF Authorized Testing Facility (ATF). This provides assurance to the industry that execution of test coverage is performed in a consistent, reliable, and reproducible manner. While an ATF is traditionally an independent test services company, any device vendor with appropriate internal test capabilities, equipment, and processes may become an ATF. The process to authorize a test facility is the same for vendors and third party laboratories, and is detailed in the “CCF Process Guide”, available from the CCF website.

In the event that device software must be updated to correct an issue identified during the process of testing, the extent of re-testing required will be determined by the significance of the issue being corrected and the resultant change. In such cases, the extent of re-testing is determined by the device vendor. If test coverage is executed across more than one version of device software, each documented test case result must include the device software version used in the execution of that test case.

Multiple ATFs can be used to test different portions of required test coverage. If multiple ATFs were used, the vendor should indicate which portions of the test coverage were executed by each ATF in the notes section of the OMH Device Declaration Form.

3. Test Results Stored

Once testing has successfully completed, the ATF provides test results to the device vendor. The vendor must store these results in a compliance folder and make these results available to TAG operators upon request for the purposes of clarification. All requests for test result details will be directed to the device vendor.

4. Vendor Declares Device to the TAG

Once testing has been successfully completed and test results stored, the vendor declares the device to the TAG by e-mailing the OMH Device Declaration Form to OmhTagChair@cdg.org.

The OMH Device Declaration Form is available at <http://www.cdg.org/cdg/teams/omh/testing.asp>. This form allows the vendor to:

- Identify the device being declared
- State that the device has been tested in accordance with OMH device acceptance procedures
- Provide a summary of device information and features that may be listed on the OMH ecosystem website.
- Request waivers in the event of a test case failure that the device vendor can reasonably justify as applicable.

Waiver requests by a vendor must identify the particular test requirement in question and provide a reasonable rationale for waiving it. All waiver requests must be made against the final software binary used during testing. All waiver requests will be reviewed by the TAG leadership to determine whether the waiver request will be granted and the device accepted. The vendor will receive a response to waiver requests within three business days.

If a waiver is granted, the TAG will evaluate the test requirement to determine if it should be removed or modified in the OMH Device Test Plan. The TAG may also work with industry organizations such as 3GPP2 or CCF to make any necessary contributions to have such changes integrated into future test specifications and/or test plans. For example, a waiver request may result in the realization that a particular test case category should have been optional instead of mandatory and trigger an update to the test plan to reflect this.

5. TAG Accepts the Device

The TAG reviews all device declaration forms and waiver requests. A device that meets the following criteria will be accepted by TAG:

1. Applicable OMH test coverage per the OMH test plan and device capabilities identified in the OMH Device Declaration Form was executed by an ATF
2. All mandatory test cases passed with the exception of those associated with a waiver request in the OMH Device Declaration Form
3. Test results are stored by the device vendor in a compliance folder.
4. A properly completed OMH Device Declaration Form was received by the TAG
5. All included waiver requests were granted by the TAG

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2 The vendor will receive a response from the TAG within three business days that
3 provides either 1) confirmation of device acceptance or 2) details of additional data or
4 corrections needed for acceptance.

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6 **6. Vendor Places the OMH Logo on Devices or Packaging**

7 The OMH logo may be placed on any accepted device, packaging, or associated
8 marketing material for any device that has been accepted by the TAG. Typically,
9 vendors would display the OMH logo on accepted devices to provide a visual indication
10 that these devices support OMH SIMs and to indicate that the device will work properly
11 in any OMH operator network. For more information and usage guidelines associated
12 with the OMH logo, refer to [http://www.cdg.org/cdg/teams/omh/about-resources-
13 brand.asp](http://www.cdg.org/cdg/teams/omh/about-resources-brand.asp)

14 **Device Variant Acceptance Process**

15 The OMH device variant acceptance process is used for testing and accepting variant
16 devices.

17 The figure below provides a high-level overview of the OMH device variant acceptance
18 process. This process is very similar to the (parent) device acceptance process, with a
19 few key differences. The description of the process below outlines these differences
20 and the previous device testing section can be consulted for more information.

21 Additional details for each step in this process are provided in the corresponding
22 subsections located below this figure.

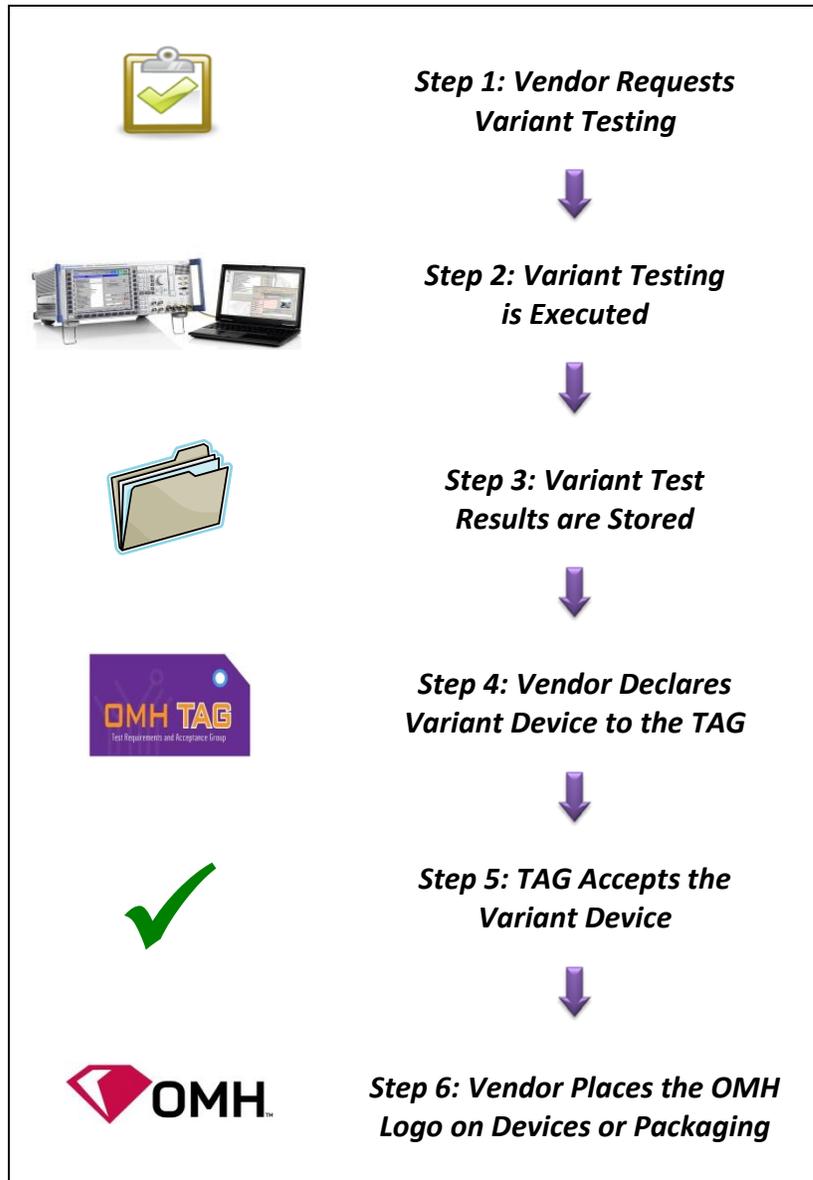


Figure 2: Overview of Device Variant Acceptance Process

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1. Vendor Requests Variant Testing

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The vendor identifies the parent device of the variant and the additional testing required for the device variant. The vendor provides this information to an ATF and requests the ATF to perform the required testing.

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2. Variant Testing is Executed

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The ATF performs the required testing identified by the vendor. Unlike the (parent) device acceptance process, all testing for a device variant must be performed on the same binary.

5

3. Variant Test Results Stored

As with the (parent) device acceptance process, the vendor must keep the results of device variant testing in a compliance folder. The vendor must make these results available to TAG operators upon request for the purposes of clarification. All requests for test result details will be directed to the device vendor.

4. Vendor Declares Variant Device to the TAG

Once testing has been successfully completed and test results stored, the vendor declares the variant device to the TAG by e-mailing the OMH Device Variant Declaration Form to OmhTagChair@cdg.org.

The OMH Device Variant Declaration Form, which is available at <http://www.cdg.org/cdg/teams/omh/testing.asp>. This form allows the vendor to:

- Identify the variant device being declared and its parent device
- State that the device variant has been tested in accordance with OMH device variant acceptance procedures
- Provide a summary of device information and features that may be listed on the OMH ecosystem website

The TAG does not accept or grant waiver requests for device variants.

5. TAG Accepts the Variant Device

The TAG reviews all device variant declaration forms. A device that meets the following criteria will be accepted by the TAG:

1. Applicable OMH test coverage identified for the device variant was executed by an ATF
2. All mandatory test cases passed
3. Test results are stored by the device vendor in a compliance folder
4. A properly completed OMH Device Variant Declaration Form was received by the TAG

The vendor will receive a response from the TAG within three business days that provides either 1) confirmation of device variant acceptance or 2) details of additional data or corrections needed for acceptance.

6. Vendor Places the OMH Logo on Devices or Packaging

With respect to the OMH logo, an accepted variant device is no different than a accepted parent device. For more information and usage guidelines associated with the OMH logo, visit <http://www.cdg.org/cdg/teams/omh/about-resources-brand.asp>.



OMH Networks

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2 The OMH network acceptance process is designed to:

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- 4 • Enable operators to test their network for OMH compliance
- 5 • Enable operators to verify their OMH SIM provisioning
- 6 • Assure device vendors that networks have been tested to support OMH devices

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10 OMH network acceptance is a declaration process. Once the network operator has
11 passed all applicable tests, the operator declares to the TAG that their network is ready
12 for acceptance. The TAG reviews the declaration information, and if all acceptance
13 criteria have been met, the TAG accepts the network.

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17 **Network Test Coverage**

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19 OMH minimum network test coverage is identified in [CDG173]. This document
20 identifies sufficient test cases to allow an operator to validate a minimum level of
adherence to OMH network requirements. Operators must execute this test plan in
their network to validate that their provisioning process supports OMH SIM provisioning
and that their network provides a minimum level of compliance with OMH
specifications.

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27 **Network Acceptance Process**

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29 The figure below provides a high-level overview of the OMH network acceptance
30 process. Additional details for each step in the process are provided in the
corresponding subsections located below this figure.

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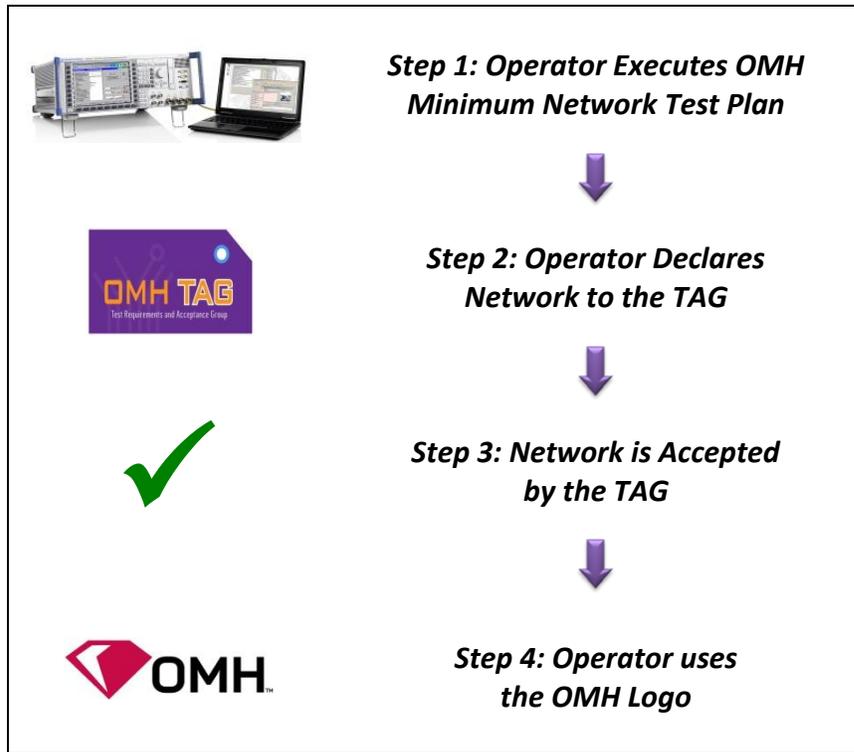


Figure 3: Overview of Network Acceptance Process

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1. Operator Executes OMH Minimum Network Test Plan

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The operator executes test coverage on their network per [CDG173]. This testing must be performed using:

3

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1. One or more accepted OMH devices
2. One or more OMH SIMs containing provisioning for all OMH features supported by the operator’s network.

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In cases where the operator’s network contains the same infrastructure elements from more than one vendor (e.g. Mobile Switching Centers from two different vendors), testing must be repeated to include the infrastructure elements from each vendor.

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Operators must record the network testing results using CDG174 (OMH Minimum Network Test Results)

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2. Operator Declares Network to the TAG

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The OMH network acceptance process is a declaration-based process. Once testing has been successfully completed, the operator declares the network to the TAG using the OMH Network Declaration Form. This form allows the operator to state that their network has been tested in accordance with OMH acceptance procedures and provide a summary of network information and features that may be listed on the OMH

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1 ecosystem website. The OMH Network Declaration Form is available at
2 <http://www.cdg.org/cdg/teams/omh/testing.asp>.

3 Along with the OMH Network Declaration Form, the operator provides a completed
4 [CDG174] document containing their network testing results. These two documents
5 are submitted as attachments to an email addressed to OmhTagChair@cdg.org.

6 **3. Network is Accepted by the TAG**

7 TAG leadership reviews all network declaration forms and test results. A network that
8 meets the following criteria will be accepted by the TAG:

- 9 1. All applicable testing per [CDG173] was performed as described above
- 10 2. All executed test cases passed
- 11 3. A properly completed OMH Network Declaration Form and [CDG174] network
12 test results document were received by the TAG

13 The vendor will receive a response from the TAG within three business days that
14 provides either 1) confirmation of device acceptance or 2) details of additional data or
15 corrections needed for acceptance.

16 **4. Operator uses the OMH Logo**

17 Once their network has been accepted by TAG, an operator is recognized as a
18 member of the OMH ecosystem and is granted the right to use the OMH logo in
19 their marketing materials, OMH SIMs, and packaging. For more information and usage
20 guidelines associated with the OMH logo, refer to
21 <http://www.cdg.org/cdg/teams/omh/about-resources-brand.asp>.

22



OMH SIMs

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2 The OMH SIM acceptance process has been defined to:

- 3 • Allow operators to leverage their current acceptance criteria for SIM cards that
4 they purchase
- 5 • Enable OMH operators to enhance their acceptance testing to ensure that OMH
6 support is covered
- 7 • Ensure that SIMs that display the OMH logo are associated with OMH accepted
8 networks

9 The OMH SIM acceptance process differs from the device and network processes in
10 that there is no declaration to the TAG. OMH operators test and purchase SIMs based
11 on their own acceptance testing criteria. However, the TAG provides OMH operators
12 with OMH SIM test recommendations that can be used to augment or replace their
13 current acceptance testing.

OMH SIM Test Coverage

14 Appendix A of this document provides the TAG recommendations for testing OMH
15 SIMs. OMH network operators are strongly encouraged to incorporate these
16 recommendations into their current card acceptance process to ensure that their OMH
17 SIMs are adequately tested.
18

OMH SIM Acceptance Process

19 The figure below provides a high-level overview of the OMH SIM acceptance process.
20 Additional details for each step in the process are provided in the corresponding
21 subsections located below this figure.
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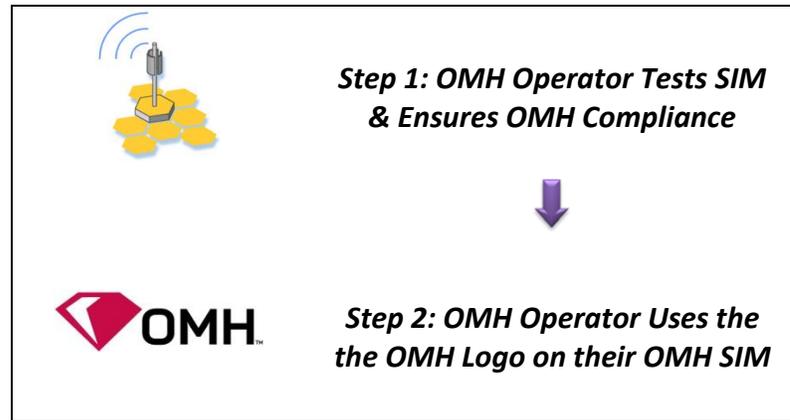


Figure 4: Overview of OMH SIM Acceptance Process

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1. OMH Operator Tests SIM & Ensures OMH Compliance

OMH operators should execute OMH SIM testing sufficient to meet their internal acceptance criteria and verify that the OMH SIM functions correctly and complies with [CDG166]. The recommendations provided in Appendix A can help the OMH operator achieve this.

2. OMH Operator Uses the OMH Logo on their OMH SIM

Once an OMH network operator has met their internal acceptance criteria and has verified that the OMH SIM functions correctly and complies with [CDG166], they may accept the card. Note that an SIM may only be accepted as OMH by an OMH network operator. For information on the OMH network acceptance process, see the [OMH Networks](#) section of this document.

OMH network operators are strongly encouraged to ensure that the OMH logo is present on their OMH SIMs, packaging, and marketing materials. The OMH logo indicates to distributors, retailers, and customers that the card is ready to enable all OMH supported features offered by the operator (e.g. 3GPD, MMS, etc...) when used with an OMH device. For more information and usage guidelines associated with the OMH logo, refer to <http://www.cdg.org/cdg/teams/omh/about-resources-brand.asp>.



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Terminology

<i>Acronym</i>	<i>Meaning</i>
ATF	Authorized Testing Facility
BREW	Binary Runtime Environment for Wireless
CCF	CDMA Certification Forum
CDG	CDMA Development Group
EF	Elemental File
EV-DO	Evolution-Data Optimized
IOT	InterOperability Testing
LBS	Location Based Service
MMS	Multimedia Messaging Service
OMH	Open Market Handsets
R-UIM	Removable User Identity Module
SIG	Special Interest Group
SIM	Subscriber Identity Module <i>Note: While the term SIM technically refers to a GSM card, its usage has become generisized to refer to both CDMA R-UIMs as well as GSM SIMs (i.e. users are generally unaware of the difference). This document uses the term as a generic reference to the CDMA R-UIM.</i>
TAG	Test requirements and Acceptance Group

2



References

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- [CDG166]** CDG Reference Document 166, *OMH R-UIM Specification*.
- [CDG167]** CDG Reference Document 167, *OMH Device and Network Specification*.
- [CDG173]** CDG Reference Document 173, *OMH Minimum Network Test Plan*.
- [CDG174]** CDG Reference Document 167, *OMH Minimum Network Test Plan Results*.
- [CDG183]** CDG Reference Document 183, *OMH TAG Device Test Plan*.
- [CS0049]** 3GPP2 C.S0049, *Removable User Identity Module Conformance Testing for Spread Spectrum Systems*, v2.0, June 2006.

2



1 **Appendix: OMH SIM Test Recommendations**

2 **1. EF Presence, Sizing, and Provisioning**

3 Operators should ensure that all of their required EFs, including newly introduced OMH
4 EFs, are present on SIMs. [CDG166] contains an appendix table useful in this process.
5 EFs should be appropriately sized, including variable length EFs which should be sized
6 according to the operator's requirements. Operators should ensure that EFs are
7 correctly provisioned according to the operator's completed, [CDG169]. A card reader
8 and provisioning tool is helpful in this process.

9 **2. OMH EF Testing**

10 It is important that operators test the provisioning, extraction, and use of all the new
11 EFs that OMH functionality introduces. For OMH SIM testing, operators should use a
12 well known and tested OMH device, i.e. a "golden handset". Operators should execute
13 the "OMH IOT" and "OMH Specific" portions of the OMH Device Test Coverage with
14 new OMH SIMs. OMH IOT testing should be performed on the operator's commercial
15 network while OMH Specific testing may be performed either on the live network or
16 with laboratory test equipment.

17 **3. Card Certification**

18 The [CS0049] testing specification provides a complete test plan for R-UIM/SIM
19 features and functions. At the present time, the CCF is finalizing a process to provide
20 R-UIM/SIM certification based primarily on [CS0049]. Operators are encouraged to
21 require CCF certification of OMH SIMs. The CCF can refer operators to an Authorized
22 Testing Facility (ATF) that can perform such certification testing.

23