



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

*CDG Document 182*

*Version 1.1*

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***Revision History***

Date	Version	Description
Oct. 2009	1.0	<ul style="list-style-type: none"><li>Initial Version</li></ul>
Feb. 2011	1.1	<ul style="list-style-type: none"><li>Changed CCF ATF required to lab conformance with ISO 17025</li><li>Expanded “device variant” definition</li></ul>

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# ***Introduction***

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## ***Document Overview***

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

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

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

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



# ***TAG Overview***

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## ***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 leverages 3GPP2 test plans wherever possible. Where test coverage deemed necessary by the TAG is either not currently covered or not within the scope of 3GPP2 test plans, the TAG may define new test procedures and/or work directly with test facilities to ensure that such test coverage is available.

For general information on 3GPP2, visit: [www.3gpp2.org](http://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](http://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. For more information or questions, contact [OmhTagChair@cdg.org](mailto:OmhTagChair@cdg.org).



## **TAG and OMH Testing Online Resources**

### **CDG OMH Testing Website**

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

### **TAG wiki**

The TAG wiki can be found at [wiki.cdg.org/wiki/OMH\\_TAG](http://wiki.cdg.org/wiki/OMH_TAG). This wiki provides TAG information, contacts, meeting notes, documents in development, etc... Additionally, it provides a whiteboard area for questions and the exchange of ideas among members.

Information on the TAG wiki is accessible to all visitors. However, a login is required for posting to the whiteboard area. To obtain a login, e-mail [WikiMaster@cdg.org](mailto:WikiMaster@cdg.org).

### **TAG E-mail List**

The [OmhTag@cdg.org](mailto:OmhTag@cdg.org) e-mail list enables distribution of information to all TAG members. To be added to this list, e-mail [TagMembership@cdg.org](mailto:TagMembership@cdg.org).



## 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. 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. minor PCBA changes, new application changes.
- 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) testing of the vendor-specific user interface implementations, and 3) testing of applications not addressed by [CDG167] or [CDG196].

## Device Acceptance Process

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

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

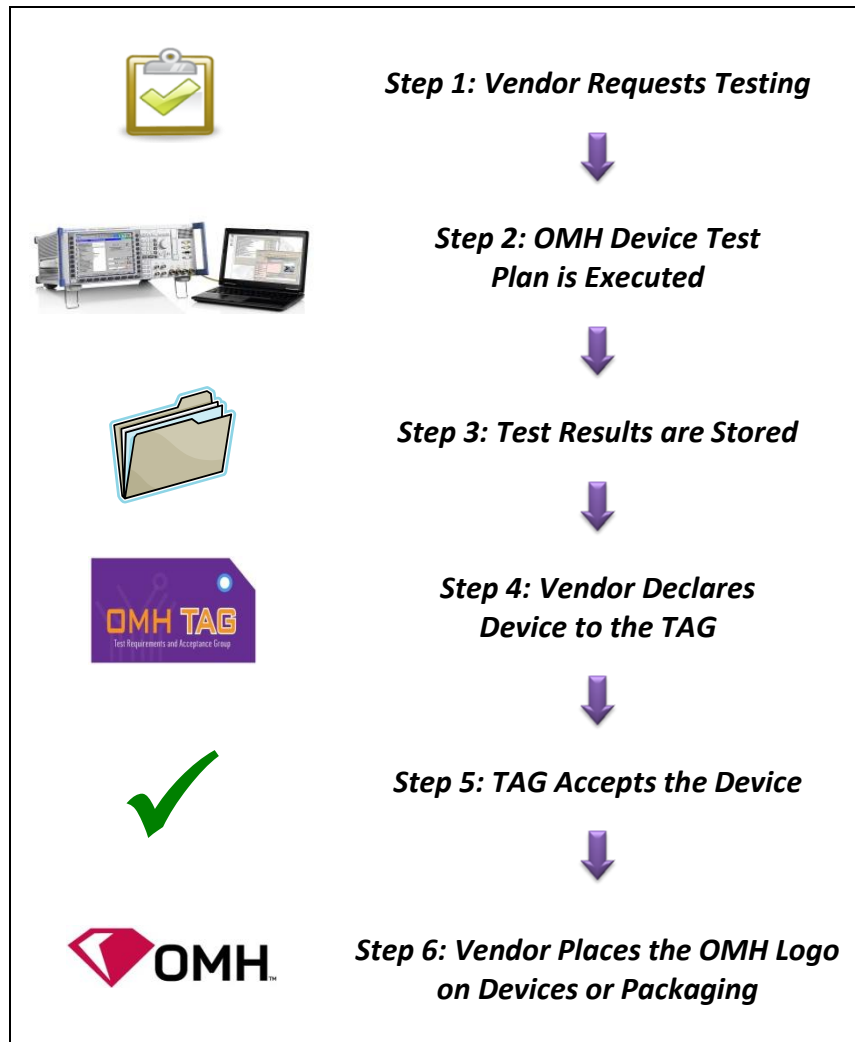


Figure 1: Overview of Device Acceptance Process

### 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 a lab:** OMH testing must be executed by an ISO 17025 test lab. The vendor selects the lab that they want to use for execution of testing on their

device. Note that a lab may be a third party laboratory or the device vendor themselves, provided that the vendor's lab is 17025 compliant.

- **Identify the Capabilities of the Device to the test lab:** [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 ISO 17025 compliant test lab. This provides assurance to the industry that execution of test coverage is performed in a consistent, reliable, and reproducible manner. While a test lab is traditionally an independent test services company, any device vendor with appropriate internal test capabilities, equipment, and ISO 17025 compliance may become an OMH test lab.

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

## **3. Test Results Stored**

Once testing has successfully completed, the test lab 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](mailto: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

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

7

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

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

## 21       **5. TAG Accepts the Device**

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

- 24       1. Applicable OMH test coverage per the OMH test plan and device capabilities
- 25       identified in the OMH Device Declaration Form was executed by an ISO 17025
- 26       compliant test lab
- 27       2. All mandatory test cases passed with the exception of those associated with a
- 28       waiver request in the OMH Device Declaration Form
- 29       3. Test results are stored by the device vendor in a compliance folder.
- 30       4. A properly completed OMH Device Declaration Form was received by the TAG
- 31       5. All included waiver requests were granted by the TAG

32

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

36

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

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

## 8 ***Device Variant Acceptance Process***

9 The OMH device variant acceptance process is used for testing and accepting variant  
10 devices.

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

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

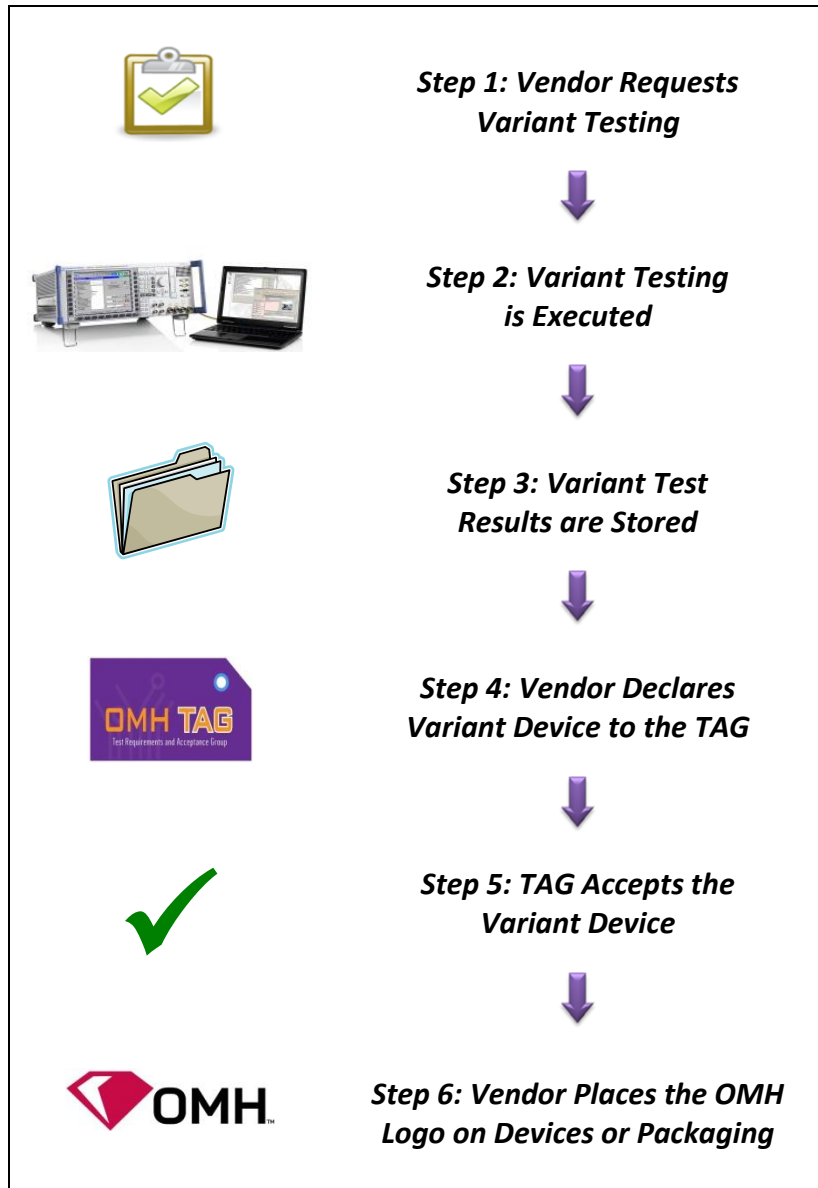


Figure 2: Overview of Device Variant Acceptance Process

## 1. Vendor Requests Variant Testing

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 ISO 17025 compliant test lab and requests the lab to perform the required testing.

## 2. Variant Testing is Executed

The test lab 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.

### **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](mailto: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 ISO 17025 compliant test lab
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

The OMH network acceptance process is designed to:

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

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

### ***Network Test Coverage***

OMH minimum network test coverage is identified in [CDG173]. This document 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.

### ***Network Acceptance Process***

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

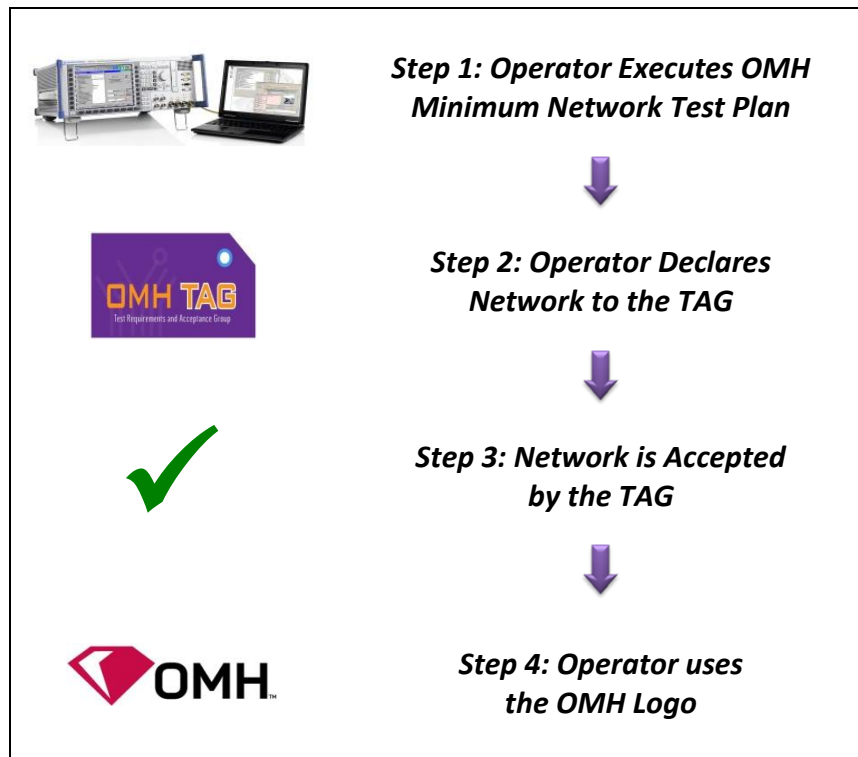


Figure 3: Overview of Network Acceptance Process

## 1. Operator Executes OMH Minimum Network Test Plan

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

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.

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.

OMH SIMs used in this testing effort may be engineering samples that are provided by the operator's preferred RUIM vendor(s).

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

## 2. Operator Declares Network to the TAG

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

1 network has been tested in accordance with OMH acceptance procedures and provide  
2 a summary of network information and features that may be listed on the OMH  
3 ecosystem website. The OMH Network Declaration Form is available at  
4 <http://www.cdg.org/cdg/teams/omh/testing.asp>.

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

### 8 **3. Network is Accepted by the TAG**

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

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

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

### 18 **4. Operator uses the OMH Logo**

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



## OMH SIMs

The OMH SIM acceptance process has been defined to:

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

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

### ***OMH SIM Test Coverage***

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

### ***OMH SIM Acceptance Process***

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

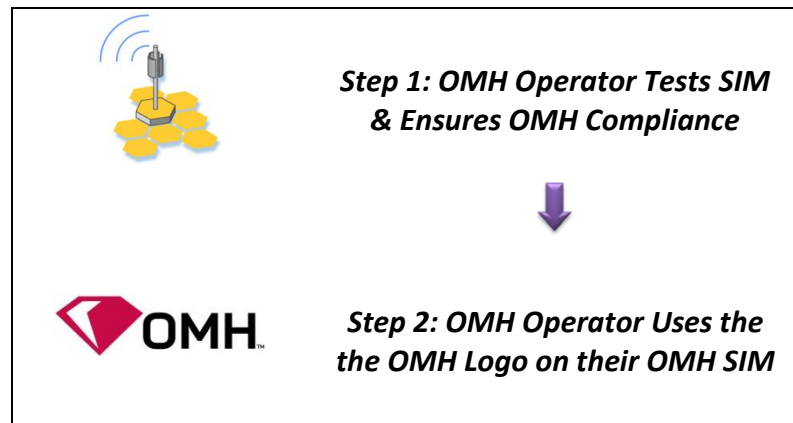


Figure 4: Overview of OMH SIM Acceptance Process

### **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 C.S0023-D and [CDG166], they may accept the card. Note that a 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***

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<b><i>Acronym</i></b>	<b><i>Meaning</i></b>
BREW	Binary Runtime Environment for Wireless
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



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## 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***

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### 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] and 3GPP2 C.S0023-D contains an appendix  
5 table useful in this process. EFs should be appropriately sized, including variable  
6 length EFs which should be sized according to the operator's requirements. Operators  
7 should ensure that EFs are correctly provisioned according to the operator's  
8 completed, [CDG169]. A card reader 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. Operators are encouraged to require lab testing of OMH SIMs  
20 using this test plan. .  
21