HbbTV Testing and Certification
September 2020
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Agenda

• Overview of HbbTV Test System.
• HbbTV testing deliverables, processes and policy.
• Device testing and certification from technical aspect.
• Testing Group and contribution to testing activities.
HbbTV testing workflow

Specification Group
- Specification development
- Test description development
- New tests development
- Specification publication

Test Material Provider
- New tests development

Testing Group
- Test suite release
- Test review & approval
- Test suite maintenance
- March
- Test suite release
- Test review & approval
- Test suite maintenance
- July
- Test suite release
- Test review & approval
- Test suite maintenance
- November
An HbbTV Test System consists of:

1) A Test Suite

2) A Test Environment, including 2 major components:
   • Standard Test Equipment (STE) necessary to store, generate, and play out the tests.
   • Test Harness (TH) which support test execution and report generation.

Test Environment components are not delivered with the HbbTV Test Suite. Implementation of STE and TH is an individual decision. These components may be physically installed on a single piece of HW or on commonly accessible machine, they may be virtualized or integrated into commercially available tools.
Example Test System

A Test Environment consists of:

- **Device Under Test (DUT)**

- **Test Harness (TH)** is a system which orchestrates the selection and execution of Test Cases on the DUT, and the gathering of the Test Case Results for the Test Report.

- **Standard Test Equipment (STE)** is a collection of all “off the shelf” tools, which are needed to store, serve, generate, and play out the Test Cases on the DUT. This includes DVB Playout System. The components of the STE may be provided by commercially available test tools.

- **Optional Test Equipment (OTE)** which may be used to simplify or allow automation of some Test System tasks.

- **RF and IP connections** between the DUT and other elements of the Test Environment.

- **TLS test server** used to provide a server-side environment for execution of some TLS related test cases. This is provided on behalf of the HbbTV Association and does not need to be supplied separately.
<table>
<thead>
<tr>
<th>Publications</th>
<th>Target groups</th>
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| Test Specification: description of the technical process for HbbTV devices verification | • HbbTV Testing Centers  
• Quality Assurance Departments  
• Test Material Providers  
• Test Reviewers |
| Test Assertion Repository: dynamically updated list of approved tests (available soon) | • HbbTV Testing Centers  
• Quality Assurance Departments |
| Test schemas  
Test Material Approval Procedure  
Test Material Challenge Procedure | • Test Material Providers  
• Test Reviewers |
The HbbTV Test Suite consists of a number of **Test Cases**. Each **Test Case** is intended to verify a specific requirement of the HbbTV specification.

**Approved Test Cases** are approved by the HbbTV Testing Group and form part of the requirements for HbbTV compliance.

**Additional Test Cases** are not approved by the HbbTV Testing Group for compliance. They are distributed because they may be of use to developers.

Test cases may be changed from Additional to Approved.
Test suite history

2012
First release v0.9.0
250 TCs

Additional Test Materials available

2015
Nordig+ OIPF tests included

2016

2018
Last release v2020-2
2759 TCs

2020

New rules for:
• release cycle
• test suite name
## Test suite progress

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HbbTV test approval process

Developed test packages

50% tests in the package passed review

Initial Acceptance

Approved tests:
• Passed review
• Passed in at least one device or have no issue raised for 4 months

Final Approval

TS release

Approved

Additional

Fix & re-approval

Challenge
Testing Events

An event organized by the Testing Group where test materials are verified on one or more device implementations before test final approval.

An opportunity:

• for Test Material Providers to validate test on not typically available devices.
• for HbbTV implementers to analyze device implementation issues

Access to HbbTV Test Suite

Test Materials before approval

Test review & approval

HbbTV Test Suite

Free access for use in own facility

Test suite contributors

HbbTV members

Free access for use in own facility

HbbTV Registered Test Centers

Commercial testing services

Other users

Test Materials

HbbTV Test Suite

Registered Test Centers

Test suite contributors

HbbTV members

Free access for use in own facility

Commercial testing services

Other users
HbbTV test suite has been designed with three main scenarios in mind:

1. Self-certification by a manufacturer who either runs the test suite in-house or has a test centre run the test suite on their behalf.

2. Part of certification with a (national) trademark where the manufacturer delivers the results of running the test suite to the trademark administrator.

3. Manufacturers submitting their product for testing to a test centre appointed by a trademark administrator.

“While the HbbTV test suite is designed to be as clear, complete and comprehensive as possible and constitutes a major goal of HbbTV, it is not possible to guarantee that the test suite has a complete coverage of the specification.

The test suite alone does not provide a definitive measure of receiver compliance and makes no provision for testing application compliance.” *

*https://www.hbbtv.org/overview/#how-it-works
### Select tests for certification:
- There is no dedicated TS release for every version of spec
- Applications do not use all features defined in spec

Adding specific tests may be required because TS may not cover 100% spec requirements.

### Manage waiver process:
- Tests can be challenged after release publication

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**Important**

Device certification alone does not guarantee the success of HbbTV implementation in the market.

Interoperability issues can be caused by non-compliant applications.

Broadcasters and manufacturers should work together to elaborate a system to ensure devices and apps interoperability.
The HbbTV Testing Group is an owner of test suite releases and other HbbTV testing publications.

The group is responsible for:

- Test approval and challenge process
- Test suite and other testing publications maintenance.
- Being a technical arbitration between test material providers and test suite users.
- Supporting test suite licenses and test material providers.
Contribution to testing activities

Why contribute:
• To ensure that company products meet requirements before it is published.
• To be ready for product launch when new version of the standard is published.
• To meet other leaders from the industries, share and learn from their experiences.
• To influence on HbbTV development strategy.

How to contribute:
• Develop/fund test descriptions/ implementation.
• Contribute to test review.
• Support Test Material Providers on test validation.
Thank you