**Request for commercial proposals for test material
for HbbTV 2.0.5 and Errata**

HbbTV TEST SUITE DEVELOPMENT

The HbbTV Association invites proposals (the "**Proposals**") from potential suppliers ("**Suppliers**") for the development of test material to be used to validate implementations of HbbTV in TVs and STBs as specified in the attached Request for Proposals (the "**RfP**").

This RfP is a call for Proposals for test material provided under a commercial license.

The content and structure of the Proposal shall follow the guidance given in the RfP. Details of how to submit your Proposal and the deadline for submission are given in the RfP.

Suppliers should note the requirement to submit Proposals for test material in the format set out in Annex 1 of the RfP.

Any Supplier appointment shall be subject to the negotiation and completion of a new HbbTV V3 Test Material Provider and Distribution Agreement (Commercial) where one is not already in effect.

HbbTV reserves the right to appoint any number of Suppliers or may come to the conclusion of appointing no Suppliers at all in respect of this RfP. Where necessary, HbbTV may enter into several agreements with the same Supplier in respect of different test materials or sets of test materials delivered under different terms and conditions.

Dated this March 27th 2026

Signed by

Vincent Grivet
(no signature – electronic delivery)
For and on behalf of the HbbTV Association
Attachment: Request for Proposals for Test Material - HbbTV TEST SUITE
DEVELOPMENT - HbbTV Specification 2.0.5 and Errata

Request for Proposals for Test Material

HbbTV TEST SUITE DEVELOPMENT
HbbTV Specification 2.0.5 and Errata

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1   Scope of the RfP

Proposals are invited for the supply of test material and supporting software and services corresponding to the test assertions specified in Annex 2 to this RfP.

Proposals for test material shall include:

- the creation and/or update of test implementations to meet the test assertions included in Annex 2, compliant with the HbbTV v2.0.5 Specification (available on the HbbTV web site)
- maintenance and support of the delivered test material during test acceptance, during the warranty period.

Proposals for supporting materials and services shall include at least one of:
- Limited, partial implementations those parts of the HbbTV 2.0.5 specification corresponding to the test assertion packages listed in Annex 2.
- Creation, support and maintenance of DVB-I service list servers, service lists and content guide servers used by the test materials. Hosting of these in the cloud and later enabling local hosting by users of the test materials.
- Hosting of live (linear) video and audio content used by the test materials, in the cloud and later enabling local hosting by users of the test materials.

Proposals only offering supporting materials and services can be considered.

HbbTV Association licenses or distributes the HbbTV Test Suite only to its member companies.

This RfP replaces any previous RfP referring to the same subject.

2   Guidance for Submission

2.1   Period of Validity

The Proposal shall be valid for a period of six months from the date of the Proposal.

2.2   Delivery of Proposal

The deadline for submitting a Proposal shall be at 4pm CET six weeks from the date on the accompanying letter to this RfP.

The Proposal shall be submitted by the deadline by email to the <testmaterialrfp@hbbtv.org> email address.

2.3   Further Information

Contract, administrative and technical queries should be sent to the <testmaterialrfp@hbbtv.org> email address.

Queries should be clearly marked as confidential if the Supplier wishes them to be treated as such.

Suppliers are allowed to send in questions related to RfP subjects within the first week from the date on the accompanying letter to this RfP. Anonymized responses to these questions will be provided by HbbTV within 10 working days to all Suppliers.

3   Requirements

The Suppliers and the Proposals must fulfil the following requirements:

3.1   Proposal Structure and Contents

Proposals shall follow the proposal structure and contents given in Annex 1.

3.2   Pricing

3.2.1   General

All pricing must be in Euros including all applicable fees and taxes.

In a departure from previous RfPs issued, **HbbTV seeks outright ownership of all software developed resulting from this RfP**. For changes to material derived from existing test material resulting from this RfP, the modifications to the derived material will owned by HbbTV.

Suppliers will have the same right to use the test material as any other HbbTV member.

HbbTV may divide any order resulting from this document between more than one Supplier. Proposals shall indicate if there is a minimum order size, either by value or by number of tests. One possible division would be to order package 1 from one Supplier and as much as possible of the remainder from another Supplier.

Prices quoted shall include coverage for warranty (see section 3.8).

Suppliers shall provide separate pricing and terms for support and maintenance (see section 3.9).

3.2.2   Test Material

Suppliers shall not charge any fee for test material supplied under an open-source license. However, Suppliers shall provide and may charge for coverage for warranty in this case.

Suppliers shall provide all of the following:

- A single price for all packages
- Pricing for all packages individually, so that HbbTV has the option of buying one or more packages from multiple Suppliers
- Pricing for sets of packages and supporting software and services where this provides some price advantage for HbbTV.

For each price above, the associated number of man hours required also shall be provided.

If the proposal is dependent on the delivery of any additional costed item, technology or resource that may be common to more than one test assertion, or more than one packages of assertions then that shall be listed and priced separately and in addition to the cost of the individual packages, i.e., such prices should not be apportioned across or subsumed within the prices of the individual packages.

3.2.3 Supporting software and services

Suppliers shall provide a separate price for each of the work-packages they propose to offer.

3.3 Characteristics of Test Material and Testing Approach Considerations

The test material, including the updated test definition XML file, shall be compliant with the requirements set out in the HbbTV Test Specification. It shall be possible to execute the test on a test harness that complies with the HbbTV Test Specification.

Supplier shall describe their approach to the considerations listed in Annex 4 including, but not limited to, any extensions required to the HbbTV Test Specification (see Annex 3). In some cases, this could be a description of how the tests running on the terminal will interact with the test harness and hence the functionality required to be provided by the test harness.

For all areas of testing, whilst not preferred, if the Supplier believes that the HbbTV Test Specification would need to be modified to enable the tests to be executed, such modifications should be stipulated in the Proposal. Supplier is responsible for any such extensions which must be approved by the HbbTV Testing Group prior to the submission of any affected test material. This must be done in sufficient detail to permit independent test harness implementations to include that extension to run the test material. Note section 4.1 of Annex 1.

Test material may need to contain components not originally developed by the Test Material Provider. In this case, any licensed components need to be identified to HbbTV if the TMP thinks that there may be a risk of leakage into components being delivered that could affect HbbTV's ability to license the test suite under its current model. In this situation, TMPs are urged to contact HbbTV at the earliest opportunity to discuss practical ways forward.

To minimise HbbTV member resources needed to review test material, where one or more test cases have only small differences, Supplier should use the mechanism defined in clause 6.3.5.4 of the HbbTV Test Specification to indicate one or more test cases as being derived from other(s) and to indicate the differences.

Tests shall be constructed to enable the maximum possible full automation of test execution and should be constructed to enable the automatic analysis of results at some later time.

This also applies to the case where tests are derived from existing tests where the existing test automation support is not as extensive as it could be. Where some improvements could be made to the original test, Suppliers are encouraged to document this and provide to HbbTV. For example:

- Video assets should contain both QR codes and human readable timestamps, and readable (w,h) resolution information
- Different DASH representation distinguishing themselves with (for example) colour indicators in the same area of the display to allow automated analysis
- For audio samples, avoiding sample identification that requires specialist tester knowledge (for example, it isn't possible for all testers worldwide to be able to identify and differentiate between separate languages).
  - Further any signalling of this nature should be consistent with the content of components (e.g. a signalled component containing German spoken audio should be signalled as German not e.g. French).

If this requirement for automation conflicts with the requirement earlier in this clause to 'minimise HbbTV member resources needed to review test material', then those requirements of take precedence.

Further consideration should also be given to instructions for testers, which comprise a key part of the test material. Instructions and pass criteria should be clear and unambiguous and should not require any particular specialist knowledge on behalf of the tester – just the ability to follow instructions and interpret the pass criteria in the context of the test material.

3.4 Characteristics of Supporting Materials and Services

DVB-I service lists and servers that implement server-side interfaces defined in the DVB-I specification shall be compatible with the most recent version of the DVB-I specification, whether TS 103 770 or a DVB BlueBook. Compatibility with older versions of the DVB-I specification is desirable but, where incompatible changes have been made, the newer version of the specification shall have preference.

HbbTV strongly prefers a single DVB-I service list for all tests developed under this RfP. Needing to install or re-install service lists other than at the very start of a test run should be avoided. HbbTV will consider changing or even dropping test assertions in order to avoid any need to re-install the DVB-I service list during a test run.

Servers that implement server-side interfaces defined in the DVB-I specification shall be packaged as docker images. The scripts to do this shall be included in the delivery. Initially these servers shall be hosted in the cloud but they shall be designed from the beginning to enable local hosting by users of the HbbTV test suite and that shall be supported towards the end of the contract. HbbTV prefers these servers be hosted using its AWS account but is prepared to consider alternatives where there would be a significant cost saving.

Live (linear) test streams referenced by DVB-I service lists should be provided consistently with the live streams used for the existing DVB-I tests.

The scope of the limited, partial implementations of the HbbTV 2.0.5 specification should be complete enough to validate the correct functioning of the test case packages. Complete coverage of all corner cases and failure modes is not required. The reliability needed for inclusion in a consumer electronics product is not required. Any dependencies should be available to Test Material Providers and reviewers, ideally for free. The following are highly desirable but not absolutely essential.

- That HbbTV have the rights to extend and modify the partial implementation independent of Supplier
- The implementation be licensed under an open-source license such as an MIT or Apache2 (i.e. one without GPL IPR terms) license
- Any dependencies be freely available to all HbbTV members or indeed the entire HbbTV ecosystem

3.5   Schedule

HbbTV Association expects groups of packages to be delivered in a staged manner and for all packages to have been delivered within 6 months of the contract date. The Proposal shall indicate:

- the month of delivery for each package counting from contract signature (more precision will be added during the contract negotiation with the selected supplier(s)), and
- any dependencies between packages.

In general, HbbTV prefers packages not be split across deliveries. However, Supplier should give a higher priority to getting a basic set of test material delivered and included in the earliest possible release of the HbbTV Test Suite than getting a full set of test material delivered. If this requires splitting packages, then that can be considered.

If the delivery times of the packages would be different depending on whether the Supplier were the only one selected or whether the work was divided between more than one supplier, then the Proposal should state this and explain the differences.

A number of packages actually delivered by the Supplier in accordance with the contract on the same delivery date shall be treated as a group of packages.

HbbTV Association will carry out initial acceptance testing of each delivered package of test material within 8 weeks of the actual date of delivery. If HbbTV rejects any package, it shall notify Supplier of such rejection and Supplier must fix any errors notified to it and re-submit the package which has been rejected. Upon re-submission HbbTV will recommence initial acceptance testing which it will carry out within 8 weeks of the actual date of re-submission. Initial acceptance of any package or group of packages shall be notified to Supplier by HbbTV once HbbTV has completed initial acceptance testing in accordance with the Test Material Approval Process (see Annex 3). In the event that no such notification is made to Supplier within a period expiring 8 weeks following the delivery or re-submission of test material in a package or group of packages, then initial acceptance of that package or group of packages shall be deemed to have taken place. For the avoidance of doubt, where any package contained within a group of packages has been rejected, then initial acceptance of that group of packages shall not take place until the last rejected package in the group has been re-submitted and initial acceptance testing of that package has been successfully completed.

This paragraph shall apply to the payment to Supplier of any fees including any fee in respect of Supplier's warranty. Upon initial acceptance, Supplier may submit their invoice (minus a retention fee corresponding to 70% of the contracted amount) in respect of the initially accepted test materials. Full acceptance testing will follow the procedure set out in the Test Material Approval Process (see Annex 3). Before invoicing for the retention fee, Supplier shall produce a report listing any remaining unresolved test suite errors with the material being invoiced for and how Supplier plans to address those errors and agree this report with HbbTV. No retention fee shall be payable before this report has been agreed. The retention fee may be invoiced upon the earlier of final acceptance of all packages to be delivered by Supplier and the expiry of 6 calendar months following initial acceptance of the last package delivered by Supplier. In the latter case, no retention fee shall be payable unless all test suite errors notified to the Supplier during the 5-month period following initial acceptance of the last package delivered by the Supplier have been fixed to the satisfaction of HbbTV.

3.6   General expertise

Developing tests for a number of the packages will require specialised or scarce expertise. These are listed below:

- MPEG DASH related packages will require expertise in MPEG DASH and the ISO base media (aka MP4) file format and with DASH-IF 'livesim'.
- DVB-I related packages will require knowledge of DVB-I metadata (including related applications) and streaming formats.

Proposals shall identify what, if any, expertise the Supplier has related to each of the above. If the Supplier does not yet have the needed expertise, then Proposals shall identify how the Supplier would address this to supply the package(s) concerned (e.g. hire, sub-contract, partner) including the lead time expected to put those arrangements in place.

HbbTV requires that the primary point of contact for project management and technical issues shall be located in Europe. Proposals shall identify the location from which these activities will be carried out and the names of those staff involved. There shall be no requirement for HbbTV (or company members representing HbbTV) to travel outside Europe for the purposes of this contract.

It is important that the Proposals indicate how they will manage continuity of staff and expertise over the period of time covering test material creation, warranty and maintenance.

Supplier shall indicate any staff overlap between this project and other work they are doing for the HbbTV Association during their development and delivery period.

3.7 Warranty

HbbTV Association requires a warranty period starting from the submission date of the invoice relating to the final delivery of the first package until 12 months following the invoice relating to the final delivery of the last package. During this period, Suppliers shall provide updates to the test material if any test material is found to not satisfy the test assertion or be not in compliance with the HbbTV v2.0.4 Specification or otherwise not meet the requirements of the acceptance process, whether discovered during acceptance testing or via the Test Material Challenge Procedure (see Annex 3). During the warranty period Suppliers shall actively participate in any Test Challenges relating to their test material and shall attend HbbTV organised Testing Events which take place on a quarterly basis. At the end of the warranty period, Supplier shall produce a report listing any remaining unresolved test suite errors with the material being, how it plans to address those errors and agree this report with HbbTV.

3.8 Additional Duties of Suppliers

Suppliers shall sign or shall have already signed the Test Repository Access Agreement (included in Annex 3) and one or more agreements substantially in the form of the template HbbTV V2 Test Material Provider and Distribution Agreement (Commercial) included in Annex 3 and subsequently comply with the terms of the relevant agreements.

All test material shall be submitted electronically directly to the Test Repository (using SVN).

Suppliers shall, at their own expense, participate in the test events organised by the HbbTV Testing Group to support the validation of their submitted test material.

3.9 Maintenance

HbbTV Association requires the Supplier to provide pricing for a time and materials price for maintenance services. Suppliers will be expected to provide guaranteed

response times for fixing issues found with any test material and otherwise supporting the Test Material Challenge Procedure (see Annex 3) as required. Suppliers will be expected to respond to questions concerning the test material.

3.10 Acceleration of initial acceptance

HbbTV requests quotations that include the cost of having performed an additional independent review on the materials to be provided. Specifically, that Supplier would warrant that an independent review has been performed on all the submitted material sufficient to meet the requirements of Initial Acceptance as defined in the HbbTV Test Material Approval Procedure.

HbbTV makes no requirement on, nor makes any specific recommendations as to who would perform this independent review. If the reviewer is an internal employee of Supplier, then the proposal must describe the cleanroom principles that will be applied in order to ensure that the review is independent of the implementation. If the reviewer is an external resource, then the proposal must indicate the capability and veracity of the resource being used.

In either case HbbTV would have no engagement with the reviewer. HbbTV expects to have visibility of the progress and results of the independent review. The details of this are left to Supplier and should be included in the proposal. An example would be to follow the same procedure as would be followed by a reviewer not connected to Suppler including the following;
- tests being uploaded to the HbbTV subversion repository before the start of the independent review and
- the independent reviewer reporting issues using HbbTV's Redmine issue tracking system and not Supplier's internal issue tracking system and
- the independent reviewer adding history items with type "rejected" to the test in the HbbTV subversion repository when rejecting a test case

3.11 Acceleration of final commercial acceptance

HbbTV's goal is to accelerate achieving a set of tests that are high quality at the time of final commercial acceptance as defined in the HbbTV V3 Test Material Provider Agreement (Commercial). As part of this goal, HbbTV's preference is for all test materials to achieve final approval (as defined in the HbbTV Test Material Approval Procedure) after execution at a testing event rather than through the path of waiting 4 months since the test was TMAP reviewed.

For each of the key features of the 2.0.4 specification (accessibility, DVB-I, voice assistant integration), Supplier's response shall explain how confident they are of having access to early implementations of that feature through their own industry relationships. Note that identification of the implementor is not expected.

Suppliers should note that HbbTV will also be seeking quotations for limited, partial implementations of these key features in order to ensure the goal stated above can be

achieved. Supplier should indicate how the availability of such limited, partial implementations would modify their proposal including any potential cost saving due to contingency being reduced.

Suppliers may propose other additional work to accelerate final approval. Such additional work should be separately priced and the expected difference it would make to final approval described in significant detail.

3.12 Test Harness

Developing a test harness is outside the scope of this RfP, however to fulfil their obligations under this RfP the selected Supplier(s) will require access to a test harness possibly including the ability to modify it or have it modified. Proposals shall indicate how access to a test harness would be organised if the Proposal was accepted. Specifically:

a) Supplier already has a test harness with the rights to modify it
b) Supplier will partner with someone who has a test harness including the rights to modify it
c) Supplier will buy a test harness and contract the supplier for modifications
d) Supplier will develop a test harness themselves
e) Supplier will not require the ability to modify a test harness and has access to an existing test harness that will be able to execute tests developed during the course of this project
f) other (please explain).

In the case of options c) and d) above, the Proposal shall indicate how the cost of purchasing or developing the test harness is to be funded. Specifically, whether the Supplier is intending to fund this themselves (e.g., because they intend to offer a product or service based on it) or if the funding for this is to be paid for by HbbTV, either explicitly as an item in the Proposal or as an overhead on the price of the tests.

4 Appointment Process

The process of making any appointments of a Supplier or Suppliers is the following:

4.1 Evaluation and Appointment

Proposals will be opened and reviewed internally at the convenience of HbbTV Association. Within 6 weeks of the submission deadline, HbbTV Association will have completed a comparative assessment of received Proposals in order to make a decision as to which Proposals should be selected for further analysis and negotiation.

At the end of the analysis and negotiation phase, HbbTV Association will make a provisional appointment (the "**Appointment**"), at its entire discretion, of the Supplier or Suppliers who demonstrate the best ability to meet the requirements set out in this RfP to deliver the test material.

Proposals will be subject to a technical review and a commercial/business review:
- The significant factors for the technical review shall be the quality of the Proposal, how the supplier proposes to achieve a set of tests that are high quality at the time of final acceptance and the effort anticipated to be needed, both from the Supplier and from HbbTV Association, for the test material to pass through the HbbTV test material approval process and be released as part of an approved HbbTV Test Suite.
- The significant factors for the commercial/business review are the perceived ability and track record of the Supplier, the proposed delivery schedule, the price, the maintenance commitments for the test material after it has been released as part of an HbbTV Test Suite and whether the submission is already in use in national markets.

None of these factors is dominant and Proposals which score highly on one factor may be rejected due to scoring badly on another.

4.2 Clarification of Proposals / Changes to Process

Notwithstanding any other provision of this RfP, HbbTV Association reserves, at its entire discretion, the right to:
a) Conduct discussions with any or all potential Suppliers for the purpose of clarification of Proposals;
b) Waive, or decline to waive, any defect in any Proposal;
c) Accept, reject, or negotiate any or all Proposals or the terms of any Proposal for the purpose of obtaining the best and final offer;
d) Cancel or amend this RfP or issue other requests for proposals (and in doing so will endeavor to communicate transparently and in a timely manner with all Suppliers);
e) Request Suppliers submitting Proposals to resubmit Proposals with the pricing for different grouping of packages;
f) Provisionally appoint any number of Suppliers and complete more than one agreement with any one Supplier relating to different test materials and to complete agreements at different times for the purpose of expediting the delivery of test materials; and
g) Select no Proposals at all.

4.3 Negotiation and Execution of Agreements

Suppliers provisionally appointed shall execute the agreements as set out in section 3.8. In the event that there is negotiation and the appointed Supplier and HbbTV Association are not able to reach agreement and execute such agreements within 30 days of the Appointment, HbbTV Association may declare the Appointment void and may provisionally appoint another Supplier or Suppliers or issue a new RfP.

The list of test materials which HbbTV has definitively agreed to obtain from the Supplier shall be the included as a schedule in one or more HbbTV V3 Test Material Provider and Distribution Agreements (Commercial) entered into with the Supplier.

4.4   Not Accepted Proposals

HbbTV Association has no duty to provide Suppliers with any explanation or justification of its decisions not to accept a Proposal or to accept a Proposal only in part.

5   Intellectual Property

The HbbTV Association retains the immaterial and property rights to all materials accompanying this RfP or materials made available separately by the HbbTV Association for the purpose of preparation of Proposals to this RfP. Nothing in this RfP gives recipients the right to use these materials for any purpose other than preparing Proposals to this RfP.

Suppliers will own all the intellectual property in the test materials and documents developed as part of this project, subject to the provisions of the HbbTV V3 Test Material Provider and Distribution Agreement (Commercial) and the Test Repository Access Agreement (see Annex 3).

If any part of test materials is making use of any third-party intellectual property, it must be clearly identified and must follow that third party's intellectual property licensing requirements.

If any test materials contain open source components, this must be disclosed in the Proposal and will be subject to further negotiation.

6   Exclusion of liability / Costs

The test assertions, attached documents and other materials are supplied without any obligation or warranty from HbbTV Association. The HbbTV Association reserves the right to amend the test assertions during the present submission process.

The HbbTV Association has prepared this RfP in good faith with a particular interest for swift and cooperative progress in the development of the test material to be used to validate implementations of HbbTV in TVs and STBs. To the extent permitted by law, the HbbTV Association excludes any liability (whether in contract, tort, negligence or otherwise) for any incorrect or misleading information contained in this RfP.

Any costs or expenses incurred by any Supplier or other person under the present submission process will not be reimbursed by the HbbTV Association and neither the HbbTV Association nor any of its representatives will be liable in any way to any

Supplier or other person for any costs, expenses or losses incurred by any Supplier or other person in connection with this RfP.

7   Confidentiality

Sections 1 to 8 of the Proposals may be shared with any member of the HbbTV Association. Sections 9 and 10 of the Proposals will only be shared with members who have been specifically tasked with considering the Proposals and will not be shared more widely.

The documentation as listed in Annex 3 is made available separately by the HbbTV Association on request and, where appropriate, as confidential materials under a separate NDA.

8   Applicable Law and Dispute Settlement

This present RfP, as well as subsequent negotiations shall in all respects be governed by and construed in accordance with Swiss law.

The present RfP must be regarded as a modality of a negotiation subject to the general rules of the Swiss Code of Obligations. Swiss law does not subject requests for proposals in the present context to any specific rules, such as e.g. public procurement rules, and HbbTV Association is entirely free to enter into contract with whatever Supplier it considers best suited for the awarded work. As a consequence, no claims can be brought against the HbbTV Association out of the present procedure. For all practical purposes, the following dispute settlement rules shall nevertheless apply:

All disputes arising out of or in connection with the present RfP shall be submitted, in the first instance, to the Dispute Adjudication Board ("**DAB**") in accordance with the Dispute Adjudication Board Rules of the International Chamber of Commerce (the "**DAB Rules**"), which are incorporated herein by reference.

The DAB shall consist of three (3) members to be appointed as follows: when a dispute arises that could not be amicably settled, each of the potential Supplier and HbbTV Association (each a "**Party**", collectively the "**Parties**") may send a written notice to the other Party requesting the establishment of the DAB. Each Party shall then within 10 business days appoint one independent DAB member who must have the following credentials: (i) be demonstrably experienced in the subject matter of the dispute, and (ii) be an employee or representative of a company that is a member of the HbbTV Association. The two appointed DAB members shall appoint, within 10 business days, the third independent DAB member, who shall act as chairman of the DAB.

The DAB procedure shall be purely private, and the parties shall not revert to the ICC Dispute Board Center. Problems arising from not having the support of the ICC Dispute Board Center shall be resolved ad hoc by the DAB.

For any given dispute, the DAB shall issue a decision in accordance with the DAB Rules and within a time period of 2 months. The deadlines for the various steps of the procedure shall be set (and if longer deadlines are mentioned in the DAB Rules be systematically reduced) to allow for a swift rendering of the decision of the DAB within the time limit of 2 months.

If (i) any Party fails to comply with a decision when required to do so pursuant to the DAB Rules, (ii) any Party sends a written notice to the other Party and to the DAB expressing its dissatisfaction with a decision, as provided in the DAB Rules, (iii) the DAB does not issue the decision within the time limit of 2 months, or (iv) if the DAB is disbanded pursuant to the DAB Rules, the dispute shall be finally resolved by arbitration in accordance with the Swiss Rules of International Arbitration of the Swiss Chambers of Commerce (the "**Swiss Rules**") in force on the date when the notice of arbitration is submitted in accordance with these Swiss Rules. The number of arbitrators shall be one (1). The applicable procedure shall be the expedite procedure under Article 42 para 1 of the Swiss Rules (in particular: award to be made within six months). The seat of the arbitration shall be Geneva and the arbitral proceedings shall be conducted in English.

Each Party hereby: (i) irrevocably consents to the exclusive jurisdiction of such arbitral tribunal for the resolution of such disputes; (ii) irrevocably waives any objection that it may now or hereafter have to the venue of any such action or proceeding in such arbitral tribunal or to the convenience of conducting or pursuing any action or proceeding in such arbitral tribunal; and (iii) irrevocably waives any right to a trial by jury regarding the resolution of any dispute between the Parties hereto.

Neither the DAB procedure, nor the arbitration under the Swiss Rules oblige the HbbTV Association to suspend or abort its work on the submission, assessment and testing of test material.

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10. Supporting confidential information

Each section should start on a new page.

Section 10 should only be used for material that is clearly confidential. Use of section 10 for material that needs to be assessed by the HbbTV Testing Group may damage the chances of the Proposal being accepted.

Annex 2: List of Tests

This annex includes a list of tests (listed with their test ID and title) which are included in this RfP, broken down by package. The details of each test assertion are included in the zip file, available on request from HbbTV after signing the NDA.

There are 98 new tests in 10 packages as follows. Package 9 is for re-working existing tests as a result of a mandatory feature becoming optional in 2.0.5.

8.1   Package 1 – General (16 tests)

This package contains a varied collection of HbbTV tests without any specific dependencies.

id	title
org.hbbtv_GAPFILLING3200	Graphics composition over broadcast video in v/b object - correct alpha compositing
org.hbbtv_GAPFILLING3201	Graphics composition over broadband video in video element - correct alpha compositing
org.hbbtv_GAPFILLING3202	Graphics composition over broadcast video (transparent background) - correct alpha compositing
org.hbbtv_GAPFILLING3510	getCurrentActiveComponents
org.hbbtv_PINVALID0100	ParentalPINLength – parental access control disabled
org.hbbtv_PINVALID0110	ParentalPINLength – parental access control not a string
org.hbbtv_PINVALID0120	ParentalPINLength – parental access control is a string
org.hbbtv_PINVALID0130	VerifyParentalControlPIN – incorrect PIN
org.hbbtv_PINVALID0140	RequestParentalControlApproval – access approved
org.hbbtv_PINVALID0150	RequestParentalControlApproval – access not approved
org.hbbtv_TEXT1001	Text size constraints - sans-serif 22
org.hbbtv_TEXT1002	Text size constraints - sans-serif 30
org.hbbtv_TEXT1003	Text size constraints - monospace 22
org.hbbtv_TEXT1004	Text size constraints - monospace 30
org.hbbtv_UILANGUAGE0010	Configuration.preferredUILanguage47 and Configuration.preferredUILanguage
org.hbbtv_WASM1001	WebAssembly JSAPI support

8.2   Package 2 – Internet (13 tests)

This package introduces dependencies including the modification of the test specification and / or test harness to support an HTTP/3 server.

id	title
org.hbbtv_CSP0010	CSP - stricter
org.hbbtv_CSP0020	CSP - basic
org.hbbtv_HSTS0010	HSTS - known host
org.hbbtv_HSTS0020	HSTS - includeSubDomains directive true

org.hbbtv_HSTS0030	HSTS - includeSubDomains directive false
org.hbbtv_HTTP30010	TLS and HTTP/3 - successful request - page load - Alt-Svc
org.hbbtv_HTTP30015	TLS and HTTP/3 - successful request - page load - RFC9460
org.hbbtv_HTTP30020	TLS and HTTP/3 - successful request - XHR
org.hbbtv_HTTP30030	TLS and HTTP/3 - successful request - first page load
org.hbbtv_HTTP30040	TLS and HTTP/3 - DASH manifest with native DASH player
org.hbbtv_HTTP30050	TLS and HTTP/3 - XML AIT
org.hbbtv_HTTP30060	Loading first and second pages of application via HTTP/1.1, HTTP/2 or HTTP/3
org.hbbtv_UPGRADE_INSECURE0010	upgrade-insecure-requests

8.3   Package 3 – Native DASH Player - AV1 (10 tests)

id	title
org.hbbtv_AV1-NATIVE0010	AV1:HTML5 DASH video representation transition from UHD HLG10 HDR to HD HLG10 HDR content with same frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_AV1-NATIVE0020	AV1:HTML5 DASH video representation transition from HD HLG10 HDR to UHD HLG10 HDR content with same frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_AV1-NATIVE0030	AV1:HTML5 DASH video representation transition from UHD HLG10 HDR to HD HLG10 HDR content with different frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_AV1-NATIVE0040	AV1:HTML5 DASH video representation transition from HD HLG10 HDR to UHD HLG10 HDR content with different frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_AV1-NATIVE0050	AV1:HTML5 DASH video representation transition from HLG10 HDR (3840x2160) to HLG10 HDR (3200x1800) content with same frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_AV1-NATIVE0060	AV1:HTML5 DASH video representation transition from HLG10 HDR (2560x1440) to HLG10 HDR (3840x2160) content with same frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_AV1-NATIVE0070	AV1:UHD HLG10 is indicated and plays in HDR mode when HLG10 broadband capability is supported
org.hbbtv_AV1-NATIVE0080	AV1:UHD is indicated and UHD HLG10 plays when UHD (SDR) broadband capability is supported
org.hbbtv_AV1-NATIVE0090	AV1:HTML5 DASH video representation transition from 1920x1080p25 to 1280x720p25 content within the same adaptation set following bandwidth restriction
org.hbbtv_AV1-NATIVE0100	AV1:HTML5 DASH video representation transition from 1280x720p25 to 1920x1080p25 content within the same adaptation set following bandwidth becoming unrestricted

8.4   Package 4 – Native DASH Player – VVC (8 tests)

id	title
org.hbbtv_VVC-NATIVE0010	VVC:HTML5 DASH video representation transition from UHD HLG10 HDR to HD HLG10 HDR content with same frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_VVC-NATIVE0020	VVC:HTML5 DASH video representation transition from HD HLG10 HDR to UHD HLG10 HDR content with same frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_VVC-NATIVE0030	VVC:HTML5 DASH video representation transition from UHD HLG10 HDR to HD HLG10 HDR content with different frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_VVC-NATIVE0040	VVC:HTML5 DASH video representation transition from HD HLG10 HDR to UHD HLG10 HDR content with different frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_VVC-NATIVE0050	VVC:HTML5 DASH video representation transition from HLG10 HDR (3840x2160) to HLG10 HDR (3200x1800) content with same frame rate within the same adaptation set following bandwidth restriction
org.hbbtv_VVC-NATIVE0060	HTML5 DASH video representation transition from HLG10 HDR (2560x1440) to HLG10 HDR (3840x2160) content with same frame rate within the same adaptation set following bandwidth becoming unrestricted
org.hbbtv_VVC-NATIVE0070	VVC:UHD HLG10 is indicated and plays in HDR mode when HLG10 broadband capability is supported
org.hbbtv_VVC-NATIVE0080	VVC:UHD is indicated and UHD HLG10 plays when UHD (SDR) broadband capability is supported

8.5   Package 5 – DASH (9 tests)

This package contains all the assertions relating to DASH excluding those related to new video codecs.

id	title
org.hbbtv_DRM0010	DRM support
org.hbbtv_GAPFILLING3300	live DASH subtitles
org.hbbtv_GAPFILLING3310	live DASH subtitles – changing components
org.hbbtv_GAPFILLING3320	DASH subtitles – multiple Periods
org.hbbtv_GAPFILLING3330	DASH subtitles – multiple Periods with and without subtitles
org.hbbtv_GAPFILLING3400	Non-continuous period playback – audio gap
org.hbbtv_GAPFILLING3410	Non-continuous period playback – overlapping audio
org.hbbtv_GAPFILLING3420	Non-continuous period playback – video and audio gap
org.hbbtv_GAPFILLING3430	Non-continuous period playback – video and audio overlap

8.6   Package 6 – Errata to annex O of HbbTV 2.0.4 (21 tests)

id	title
org.hbbtv_DVBI_ERRATA0100	selection of service instance with LA 1.2 where presentation is blocked by parental access control and overridden
org.hbbtv_DVBI_ERRATA0110	selection of service instance with LA 1.2 where presentation is blocked by parental access control until signalling changes
org.hbbtv_DVBI_ERRATA0120	selection of service instance with LA 1.2 where presentation is blocked by parental access control
org.hbbtv_DVBI_ERRATA0200	org.hbbtv.ipplayback.setComponents
org.hbbtv_DVBI_ERRATA0210	org.hbbtv.ipplayback.selectComponents
org.hbbtv_DVBI_ERRATA0300	DVB-I parental access control – native DASH player – success
org.hbbtv_DVBI_ERRATA0310	DVB-I parental access control – native DASH player – rating change
org.hbbtv_DVBI_ERRATA0320	DVB-I parental access control – native DASH player – failure
org.hbbtv_DVBI_ERRATA0400	Application overrides DVB-I service instance selection
org.hbbtv_DVBI_ERRATA0500	Generic HTML5 applications – both HbbTV and HTML
org.hbbtv_DVBI_ERRATA0510	Generic HTML5 applications – HTML only
org.hbbtv_DVBI_ERRATA0600	Application controlling media presentation cannot be started – 404 loading XML AIT - fall back to DASH
org.hbbtv_DVBI_ERRATA0610	Application controlling media presentation cannot be started – 404 loading 1st page of app - fall back to DASH
org.hbbtv_DVBI_ERRATA0620	Application controlling media presentation cannot be started – 404 loading XML AIT - fall back to broadcast
org.hbbtv_DVBI_ERRATA0630	Application controlling media presentation cannot be started – 404 loading 1st page of app - fall back to broadcast
org.hbbtv_DVBI_ERRATA0700	Application using video and audio decoders when channel changes to DASH – decoders released
org.hbbtv_DVBI_ERRATA0710	Application using video and audio decoders when channel changes to broadcast – decoders released
org.hbbtv_DVBI_ERRATA0720	Application using video and audio decoders when channel changes – decoders not released
org.hbbtv_DVBI_ERRATA0800	Linked application exits – irrecoverable error
org.hbbtv_DVBI_ERRATA0900	applicationHowRelatedHref
org.hbbtv_DVBI_GUIDE0015	DVB-I: findProgrammesFromStream(currentChannel, startTime,...) of Metadata API shall retrieve programme showing at the startTime on current channel.

8.7   Package 7 – DVB-I A177R7 linked application types 4.1, 4.2 and 4.3 (8 tests)

id	title
org.hbbtv_DVBI_A177R8_APPS0100	Type 4.1 app - failure
org.hbbtv_DVBI_A177R8_APPS0110	Type 4.1 app - success
org.hbbtv_DVBI_A177R8_APPS0120	Type 4.3 app - 404
org.hbbtv_DVBI_A177R8_APPS0130	Type 4.3 app - time
org.hbbtv_DVBI_A177R8_APPS0140	Type 4.3 app - failure
org.hbbtv_DVBI_A177R8_APPS0150	Type 4-3 app - success with new key
org.hbbtv_DVBI_A177R8_APPS0200	Type 4.2 application - consent withdrawn
org.hbbtv_DVBI_A177R8_APPS0210	Type 4.2 application - consent unchanged

8.8 Package 8 – DVB-I A177R7 linked application type 1.3 (13 tests)

id	title
org.hbbtv_DVBI_A177R8_APPS0300	Type 1.3 application - success - followed by type 1.2 linked application
org.hbbtv_DVBI_A177R8_APPS0310	Type 1.3 application followed by type 1.1 application
org.hbbtv_DVBI_A177R8_APPS0320	Type 1.3 application - success - followed by type 1.2 linked application - persistent is forever
org.hbbtv_DVBI_A177R8_APPS0330	Type 1.3 application - success - followed by type 1.2 linked application - persistent is date
org.hbbtv_DVBI_A177R8_APPS0340	Type 1.3 application with persistent does not block running the same app for another reason
org.hbbtv_DVBI_A177R8_APPS0350	Type 1.3 application in multiple services
org.hbbtv_DVBI_A177R8_APPS0360	Type 1.3 application and service outside availability window
org.hbbtv_DVBI_A177R8_APPS0370	Type 1.3 application and parental control
org.hbbtv_DVBI_A177R8_APPS0400	Type 1.3 application - failure - service - retry in seconds
org.hbbtv_DVBI_A177R8_APPS0410	Type 1.3 application - failure - service - retry infinite
org.hbbtv_DVBI_A177R8_APPS0420	Type 1.3 application - failure - service - retry unlimited
org.hbbtv_DVBI_A177R8_APPS0430	Type 1.3 application - failure - service instance - retry in seconds
org.hbbtv_DVBI_A177R8_APPS0440	Type 1.3 application - failure - service instance - retry infinite
org.hbbtv_DVBI_A177R8_APPS0450	Type 1.3 application - failure - service instance - retry unlimited

8.9 Package 9 – Modifying Existing Tests Using Transport Stream Format over IP

Media carried in a transport stream over IP which is being made optional in HbbTV 2.0.5. The following existing tests rely on this and have been decided to be worth modifying to use ideally DASH or, if not possible, progressive download (i.e. a .MP4 file). Additionally use of the A/V control object should be replaced with the HTML video element at the same time.

org.hbbtv_00021011	Modify test to use an MP4 or DASH asset rather than a TS asset. Spec. ref text may need updating…
org.hbbtv_ACCESSIBILITY0010	See https://redmine.hbbtv.org/issues/13859#note-9
org.hbbtv_ACCESSIBILITY0020	
org.hbbtv_DEMUX0030.xml	Modify test to use an MP4 or DASH asset rather than a TS asset. Update assertion.
org.hbbtv_DEMUX0040.xml	Modify test to use an MP4 or DASH asset rather than a TS asset. Update assertion.
org.hbbtv_RELIABILITY01	No equivalent ISOBMFF or DASH test exists, so this needs updating to e.g. ISOBMFF
tv.oipf_AVC-AAC-004-001	As above.
tv.oipf_AVC-AAC-004-002	
tv.oipf_AVC-AAC-004-003	
tv.oipf_AVC-AAC-005-001	

tv.oipf_AVC-AAC-005-002	
tv.oipf_AVC-AAC-005-003	
tv.oipf_AVC-AAC-005-004	
tv.oipf_AVC-AAC-005-005	
tv.oipf_AVC-AAC-005-006	
tv.oipf_AVC-AAC-005-007	
tv.oipf_AVC-AAC-005-008	
tv.oipf_AVC-AAC-005-009	
tv.oipf_AVC-AAC-005-010	
tv.oipf_AVC-AC3-001	

8.10 Package 10: Limited partial implementation for test acceptance

This package includes the following.

Test package	Minimal implementation
Package 1 – General (16 tests)	Prioritise support for org.hbbtv_PINVALID tests as others may be passed by some existing implementations.
Package 2 – Internet (13 tests)	Prioritise HTTP/3 support as others may be passed by some existing implementations.
Package 3 – Native DASH Player - AV1	Perhaps negligible work required
Package 4 – Native DASH Player – VVC (8 tests)	Creating a platform supporting VVC decoding and/or integrating a VVC decoder is out of scope.
Package 5 – DASH (9 tests)	Should be passed by existing DASH players but may need a zoo test.
Package 6 – Errata to annex O of HbbTV 2.0.4 (21 tests)	Revision of an existing DVB-I implementation.
Package 7 – DVB-I A177R7 linked application types 4.1, 4.2 and 4.3 (8 tests)	As above.
Package 8 – DVB-I A177R7 linked application type 1.3 (13 tests)	As above.
Package 9 – Modifying Existing Tests Using Transport Stream Format over IP	No action required – should pass on existing devices.

Annex 3: Documentation Provided

The following supporting documentation is relevant to all organisations considering responding to this RfP. HbbTV members may request this documentation immediately (this documentation is covered by the confidentiality clause in the Membership Agreement); non-members must first sign an NDA before the documentation will be made available.

1   Test Material Challenge Procedure
    Available in Subversion at https://hbbtv-association.assembla.com/spaces/HbbTV/subversion/source/HEAD/documents/release_documents/Test_Material_Challenge_Procedure_(TMCP)_v4.docx

2   Test Specification for HbbTV Specification
    Available in Subversion at https://hbbtv-association.assembla.com/spaces/HbbTV/subversion/source/HEAD/documents/release_documents/HbbTV_Test_Spec.docx

3   Test assertions for V2.0.5 and Errata
    Available in Subversion under https://hbbtv-association.assembla.com/spaces/HbbTV/subversion/source/HEAD/draft/HbbTV/v2/v205 or /draft/HbbTV/v2/v205

4   HbbTV V3 Test Material Provider Agreement (Commercial)
    https://member.hbbtv.org/document/6958

5   Test Repository Access Agreement v3.0
    https://member.hbbtv.org/wg/Licensing/document/6801?downloadRevision=9469

6   HbbTV Test Suite Distribution and License Agreement v2.3
    https://member.hbbtv.org/wg/Licensing/document/6429?downloadRevision=9004

7   Test Material Approval Procedure
    Available in Subversion at https://hbbtv-association.assembla.com/spaces/HbbTV/subversion/source/HEAD/documents/release_documents/Test_Material_Approval_Procedure_(TMAP)_v12.docx

Documents in Subversion can be provided on request to parties without Subversion access that are interested in responding.

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Annex 4: Testing Approach Considerations

This annex contains information on some of the issues involved with testing specific functional areas which may impact the approach taken by Suppliers when authoring the Test Materials.

- Errata to annex O of HbbTV 2.0.4
  - o DVB-I service list information shall follow the conventions used for the HbbTV 2.0.4 test suite where each test is accompanied with that information in a file called 'config.xml'.
- VVC with native DASH
  - o Use of the "DVB-DASH" test content from https://dvb.org/specifications/verification-validation/vvc-test-content/ is very strongly preferred. If there would be no suitable content then changing the assertion to permit use of content from that page is preferred over encoding & validating new content. If suitable test content from the CTA WAVE project would be available in time then that could be an acceptable alternative but it is not available at the time of writing.
- HTTP/3 server
  - o The HTTP/3 tests in package 2 require the HbbTV test infrastructure to be extended with a server supporting HTTP/3. The details of this need to be agreed with the HbbTV Testing Group. For efficiency, HbbTV may choose to commission related other work on that infrastructure at the same time. This related other work would be on a time & materials basis.
- DVB-I A177R7 linked application types 4.1, 4.2 and 4.3
  - o The remark in this test assertions concerning tests tolerating a number of different implementation scenarios needs to be carefully considered.