

Masterclass HbbTV

Implementing HbbTV



Overview of the Day



09:00 – 09:10 **Welcome** to the HbbTV Masterclass - Vincent Grivet (TDF), HbbTV Association Chairman

09:10 – 10:00 **Module One**, curated by the HbbTV Marketing and Education WG

Introduction to HbbTV matters – Angelo Pettazzi (Mediaset)

The business point of view – Jack Lacy (Intertrust)

10.00 – 10.50 **Module Two**, Mikko Karppinen (Icareus) & Julius Mong (Eurofins Digital Testing)

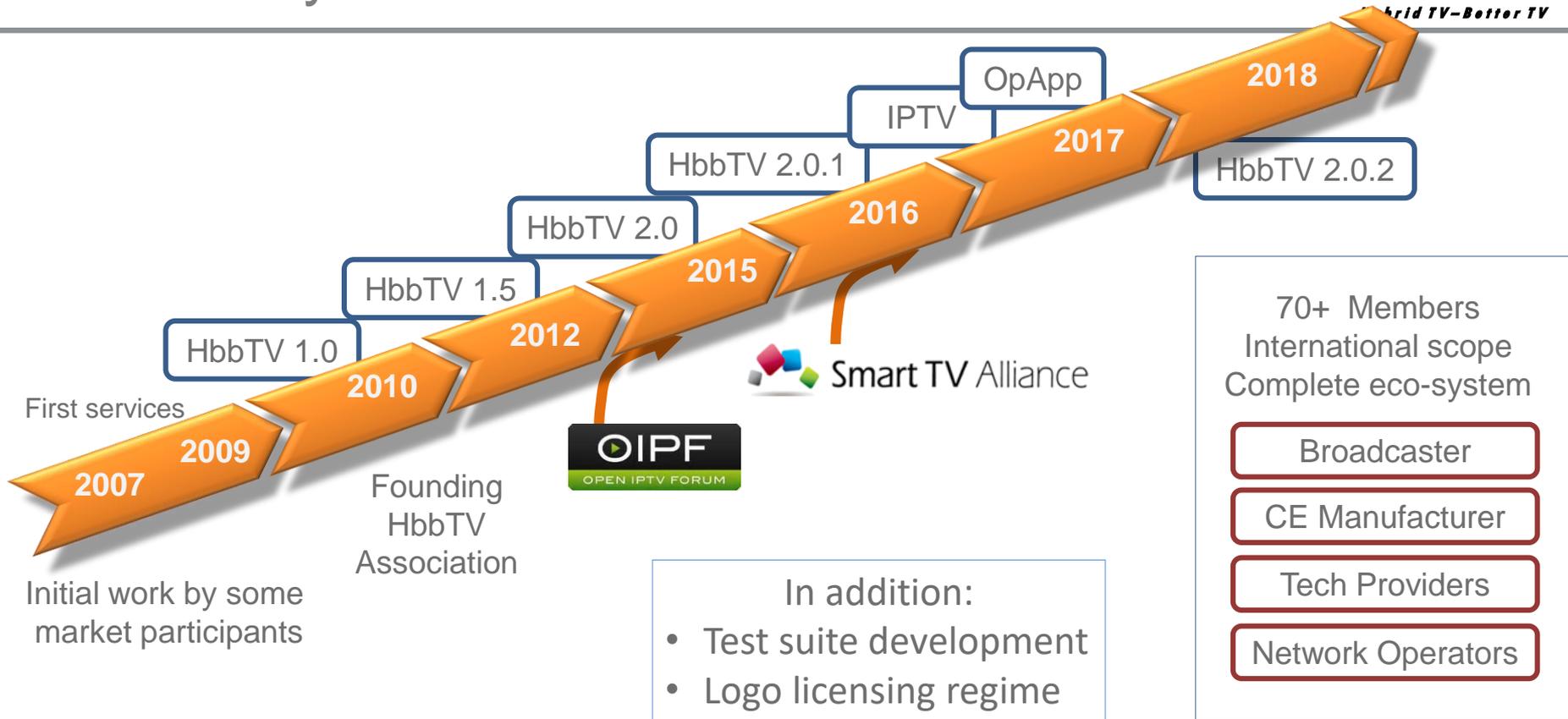
The technical point of view of the core specifications

11.00 – 11.45 **Module Three**, Teun van der Veen (TNO), Raj Patel (Yotta Media Labs)

The OpApp independent specifications – Business and technology opportunity

11.45 – 12.00 **Conclusions**, Vincent Grivet (TDF), HbbTV Association Chairman

Our History

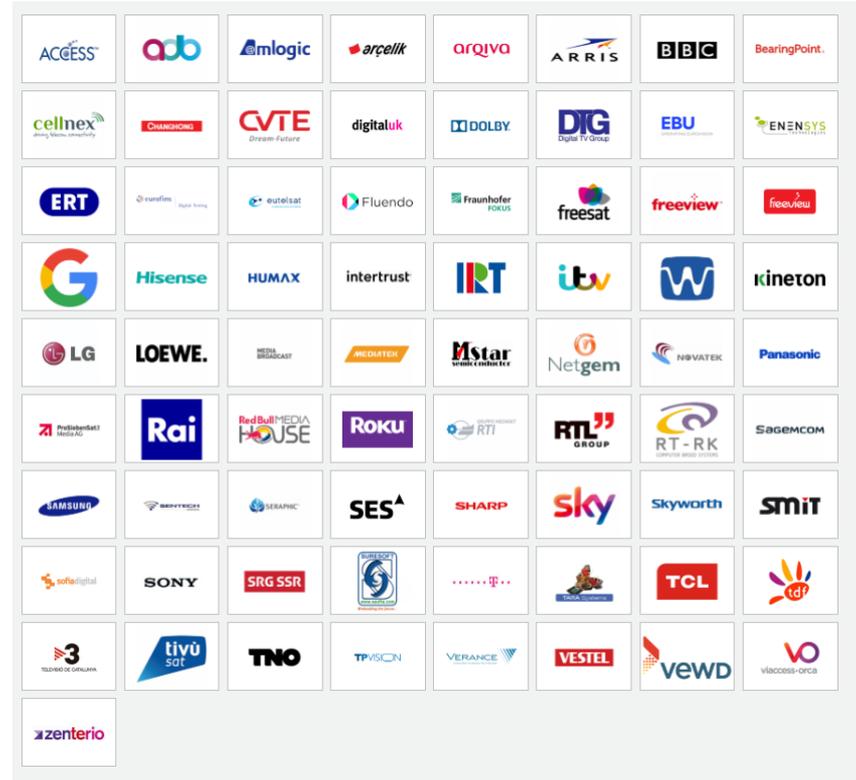


The HbbTV Association



Our Mission

The **Hybrid broadcast broadband TV** (or “HbbTV”) is a global initiative aimed at harmonizing the broadcast and the broadband delivery of entertainment services to consumers through **connected TVs**, set-top boxes and multiscreen devices.



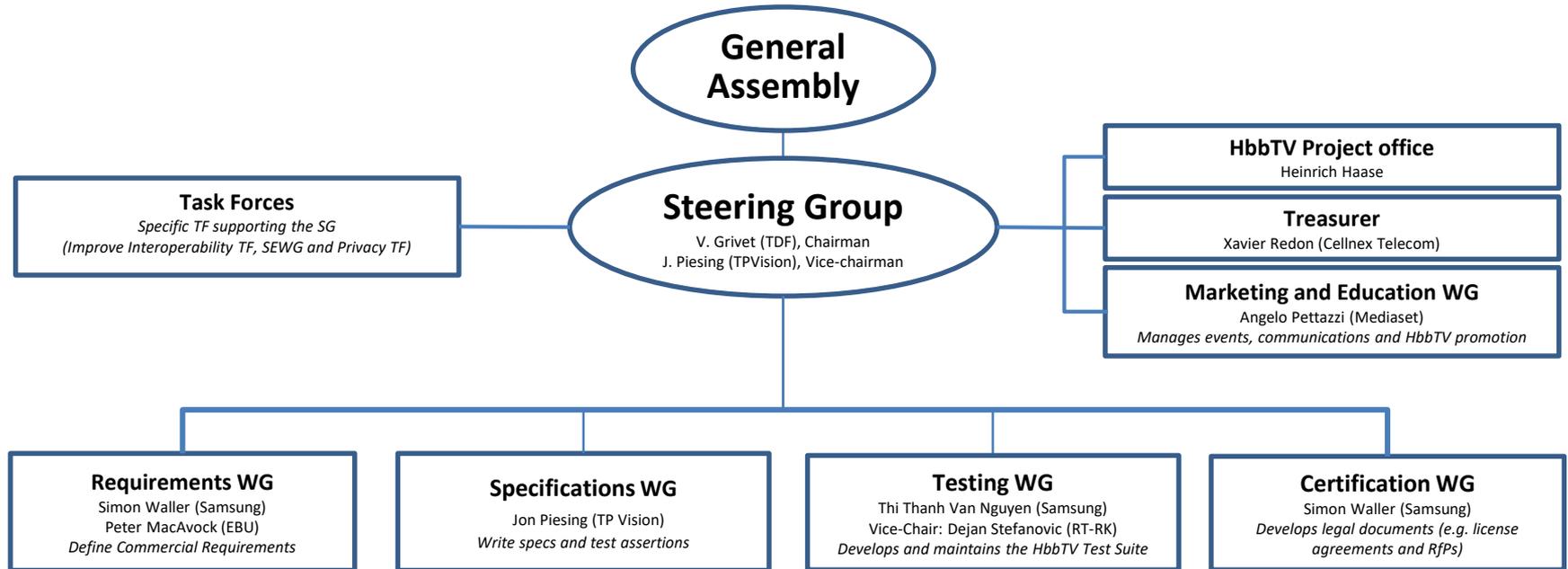
- HbbTV Purpose:

To develop and promote open specifications and solutions for hybrid **broadcast/broadband and IPTV** television systems, with the ultimate public interest objective to allow harmonization of broadcast and broadband delivered entertainment services and consumer equipment

- **Market driven requirements**
- Specification work follows
- No publication without **reviewed test assertions**
- Test suite follows publications

How We Are Organized

The “Working Groups” meet periodically to address market needs, overviewed by the “Steering Group”, the chief executive body of the Association



How We Are Organized

The Steering Group

Chair: Vincent Grivet, TDF

Vice Chair: Jon Piesing, TP Vision

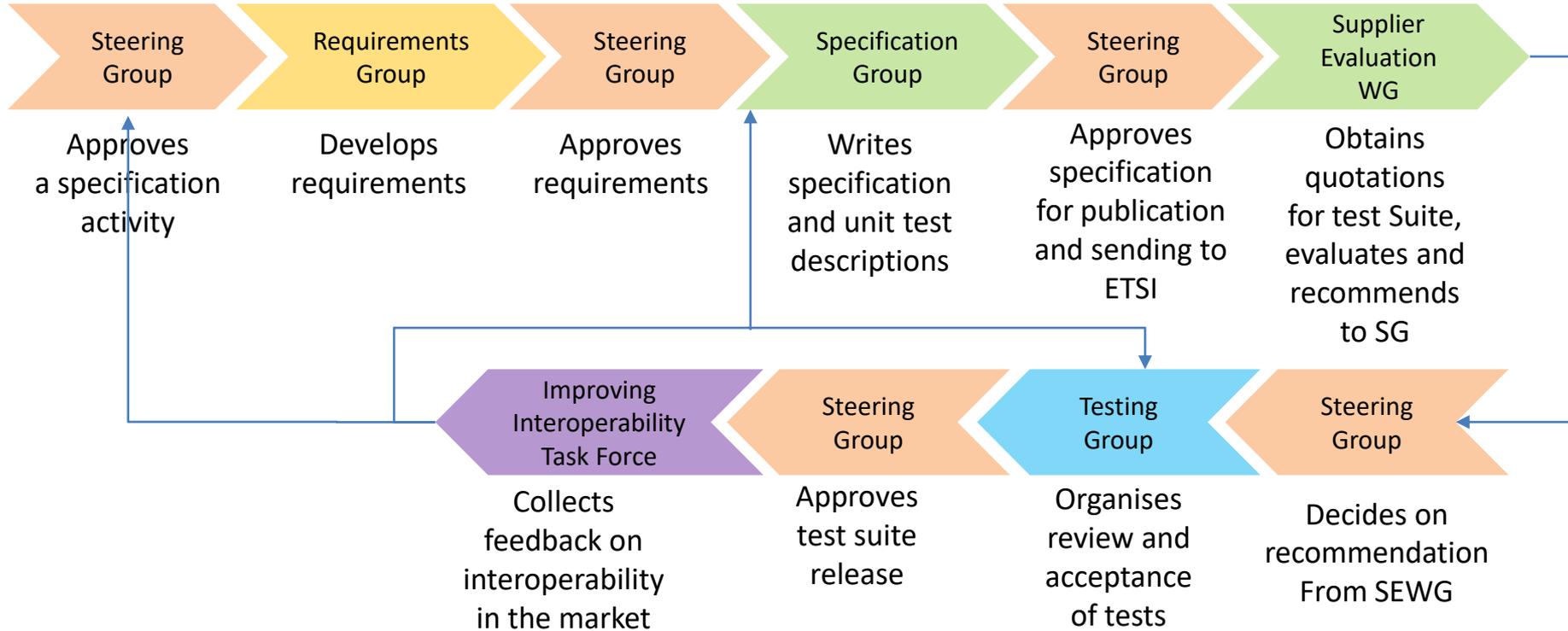
Treasurer: Xavier Redon, Cellnex Telecom

Constituencies

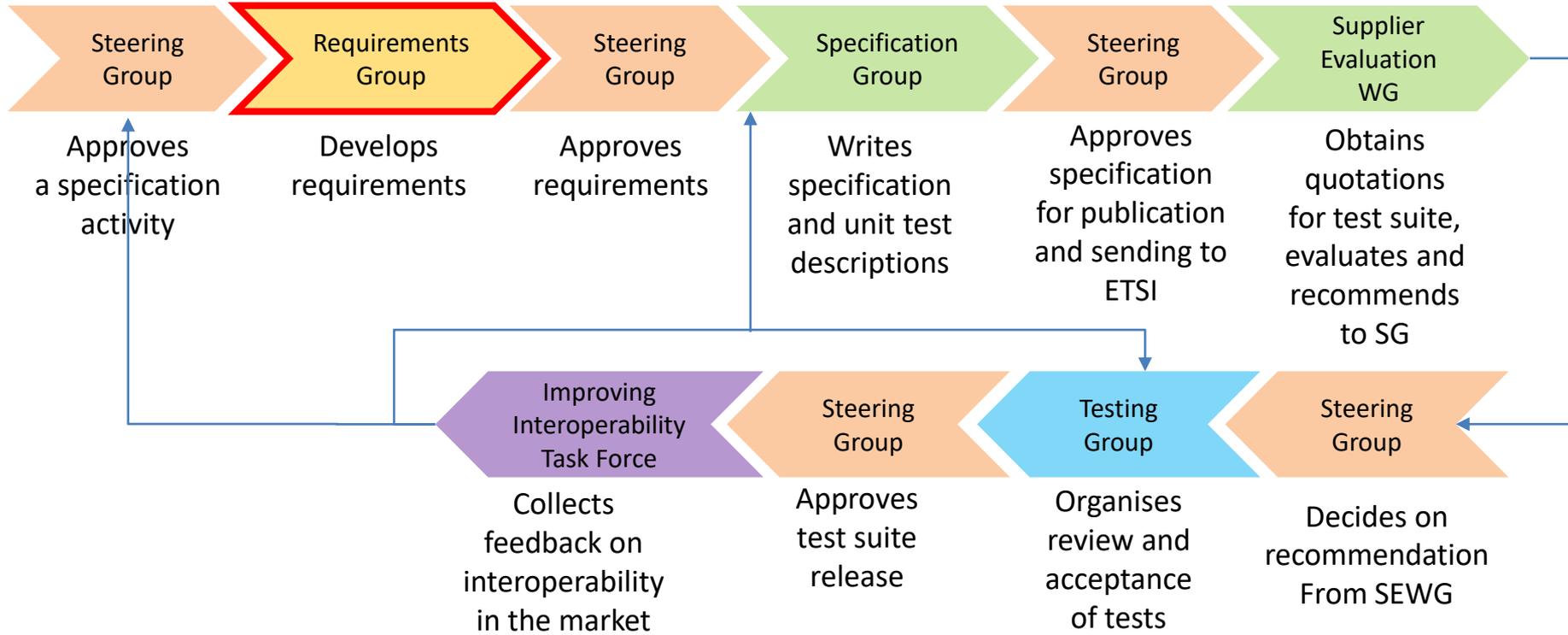
-  **BC** Broadcasters
-  **MN** Manufacturers
-  **OP** Operators
-  **TP** Technology providers

- | | |
|--|--|
|  OP Xavier Redon – Cellnex Telecom |  BC Angelo Pettazzi – Reti Televisive Italiane |
|  OP Dr. Jens Johann – Deutsche Telekom |  BC Martin Boronski – RTL Group SA |
|  BC Peter MacAvock – EBU |  MN John Adam – Samsung Electronics |
|  TP Dr. Bob Campbell – Eurofins Digital Testing |  MN Nigel Moore – Sony Europe |
|  BC Klaus Merkel – IRT |  OP Vincent Grivet – TDF |
|  MN Stuart Savage – LG Electronics |  OP Pedro Valiente Echezarreta – Tivù |
|  MN Martin Faehnrich – Panasonic |  MN Jon Piesing – TP Vision |
|  BC Daniele Alberto Rascio – RAI |  TP Frode Hernes – Vewd Software |

The HbbTV Specification Workflow



The HbbTV Specification Workflow



The Requirements Group - Recently

Co-Chairs: Simon Waller (Samsung), Peter MacAvock (EBU)

- The “Requirements WG” is working on defining a **new process to gather and to evaluate new features and potential deprecations**:
 - Annual cycle, but implemented only when considered appropriate
 - Two windows for specification release synchronized with manufacturers cycle of device development
 - RG evaluate, prioritizes and filters new features and deprecation based on defined criteria (e.g. user benefit, members support, effort availability,...).
 - RG will vote on proposed additions and deprecations
- Please, if you are a member, attend this relevant work!
- RG resources on this topic are available on KAVI to members

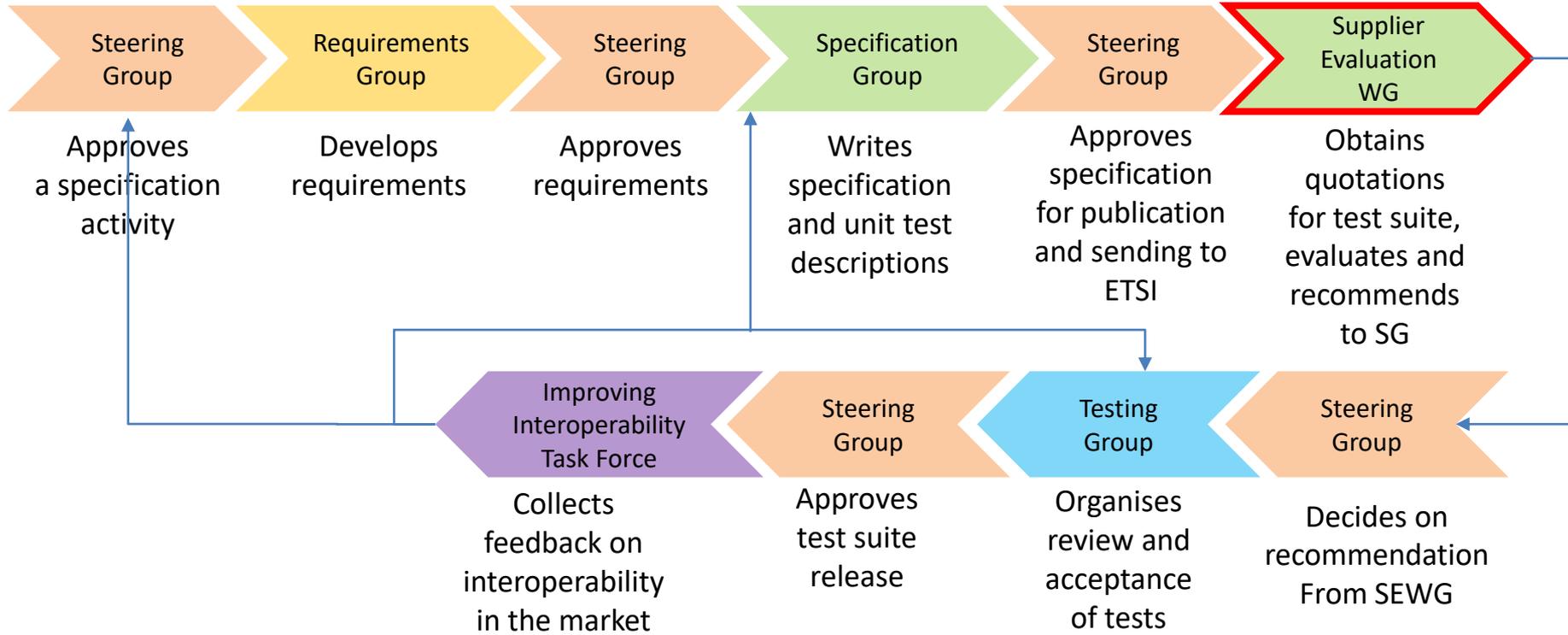
The Specification WG - Recently

Chair: Jon Piesing (TP Vision)

- The Specification WG main work today is the Targeted Advertising (TA) specification, in liaison with the DVB:
 - Focus on HbbTV terminals
 - Still looks like being a small specification
 - Optimistically expect feature complete by Easter
 - DVB dependency will take longer but is self-contained & doesn't impact the rest of the spec
- Other activities:
 - Application discovery over broadband #2
 - Errata to HbbTV 1.5/2.0.x/OpApps
 - Test Assertions



The HbbTV Specification Workflow

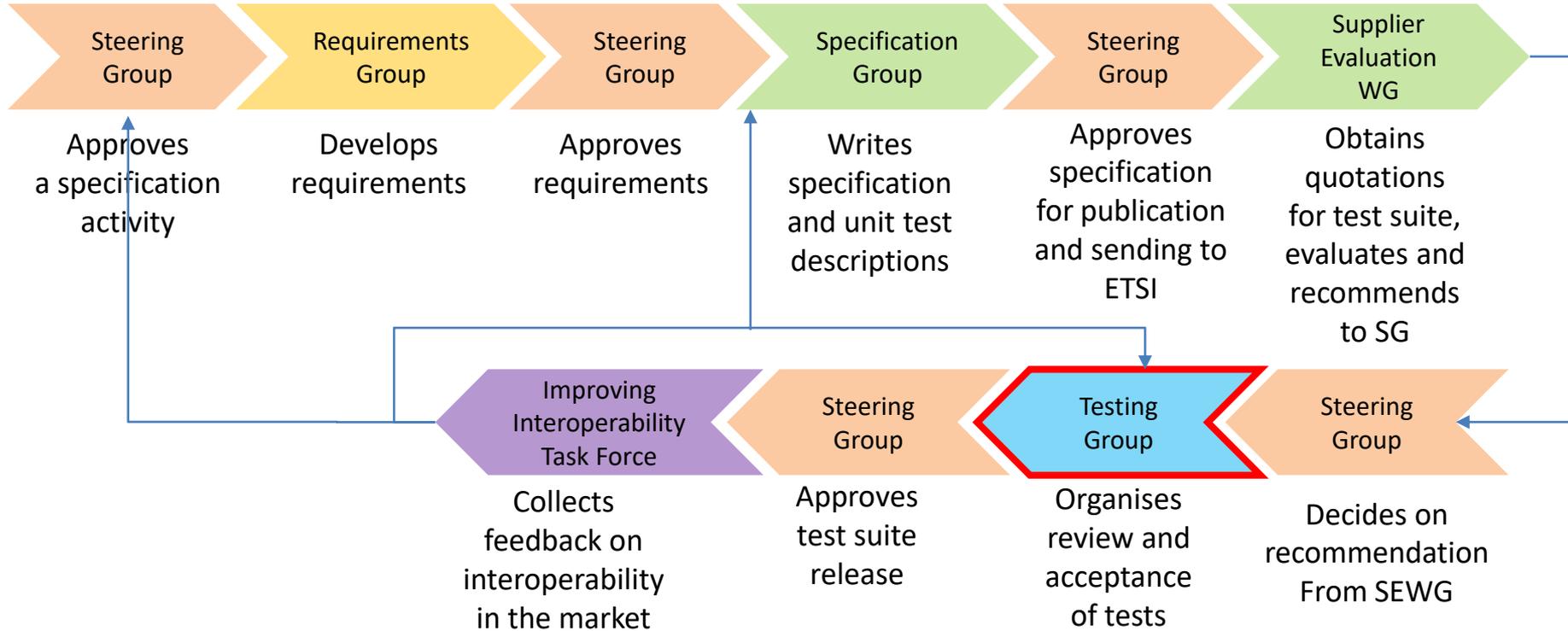


Supplier Evaluation Working Group

Chair: Stuart Savage (LGE)

- SEWG is responsible for obtaining and evaluating quotations from suppliers
 - Absolutely critical to manage the limited amount of money for testing
 - SEWG makes recommendation to Steering Group who make the decision
- Recently worked on ordering test cases for
 - Op App
 - HbbTV 2.0.2 HDR video / HFR video / Next Generation Audio
 - HbbTV 2.0.1/2 test cases (synchronisation, subtitles)
- Also worked on commercial side of paid Test Material Review services
- Looking forwards – more of the same for new specifications, e.g. TA

The HbbTV Specification Workflow

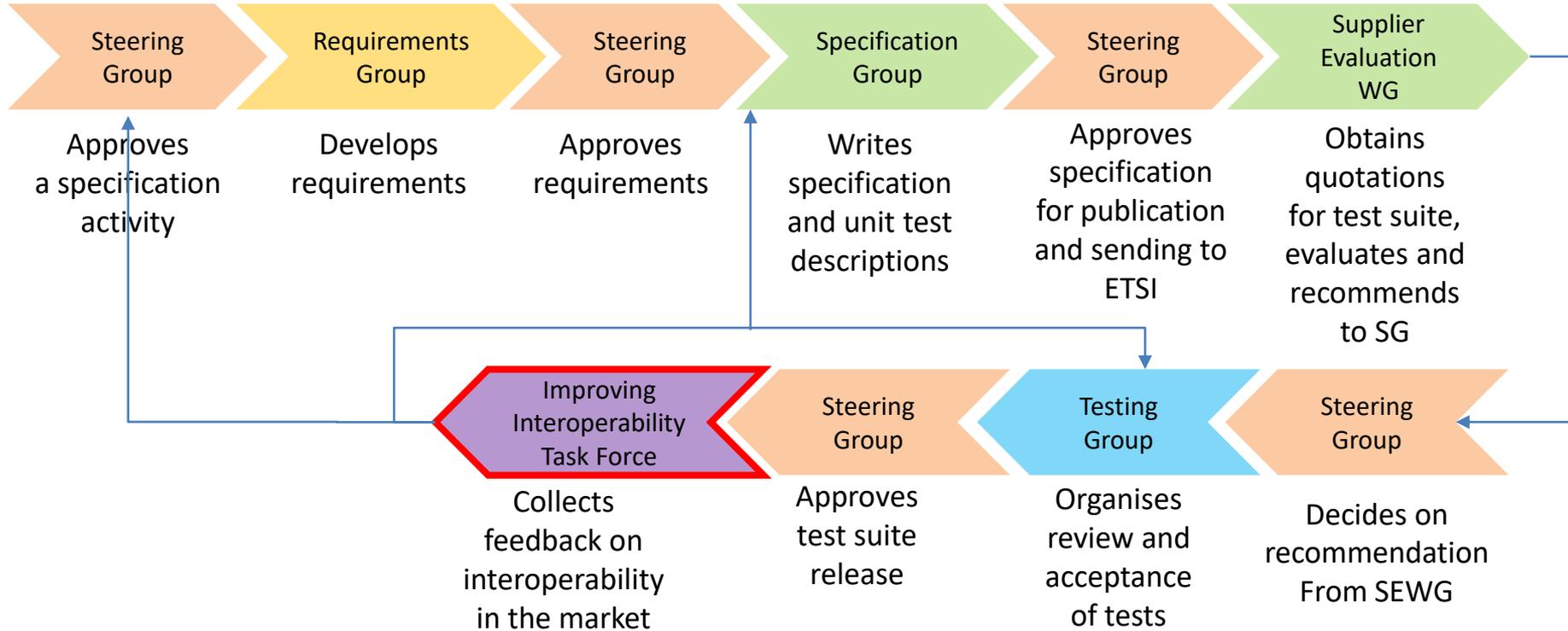


The Testing Group – Test Suite Overview

Chair: Thi Thanh Van Nguyen (Samsung); Vice-Chair: Dejan Stefanovic (RT-RK)

- Named **year-release number**, e.g. 2019-1, version numbers too confusing
 - Each release has tests for all spec versions
 - > 600 tests apply to all HbbTV spec versions
 - > 900 tests apply to HbbTV 1.5 and 2.0.1/2
- Continuing maintenance activity repairing & re-approving tests where problems are found
 - For example 2018-3 contains 2146 tests, of which 1644 are approved
 - Approving a test needs review and running the test on an implementation
- 2019-1 release has new approved tests for OpApps, HDR, HFR, NGA
 - OpApps: so far about 85 of 300 are reviewed
 - HDR, HFR, NGA: nearly 180

The HbbTV Specification Workflow



Chair: Bob Campbell (Eurofins Digital Testing)

- Collect feedback on inter-operability problems
 - Issues which occur on devices from multiple suppliers
 - Issues with devices from a single supplier need to be raised directly
- Review, triage, pass to relevant group
 - Specification Group, Testing Group, Steering Group, ...
- Monitor usage of HbbTV-DASH-DRM reference app & DASH validator
 - See if they're used enough to justify further extensions
 - Validator support for new profile of DVB-DASH used in HbbTV 2.0.2
 - Multi-period DASH in the reference app

The “Privacy TF”

Chair: Pietro Grignani (Rai)

- HbbTV takes privacy issues and the GDPR goals & regulations very seriously
- Consultants – “SwissMedia Partners” – were commissioned to do a report – a draft of which is currently available to HbbTV members
- The Privacy TF is working to generate a set of guidelines to inform broadcasters and service providers about options for meeting their obligations under GDPR.
 - Consultants focus on "consent" for everything but there are there grounds for processing data that give a better user experience when/if they apply.

Chair: Angelo Pettazzi (RTI)

- Athens “8th HbbTV Symposium and Awards”
 - Planned on 20th and 21st of November 2019
- Small company involvement
 - Working on defining if and how layering the membership fee to grant access to fresh and new energy from small company and individuals to our Association working groups
- On boarding project
 - Aiming at helping new comers to enter the HbbTV business

- If your company is an HbbTV member, please come & participate in the working groups and task forces
- If your company is not an HbbTV member & sees something interesting, please join and then participate

“The mission of HbbTV is to harmonize broadcast and broadband delivery of entertainment services to consumers through connected devices.”

We must continue to advance this message to encourage deployment and increased participation within the association and its efforts.

- The marketing & education working group (MEWG) was tasked by the SG to arrive at a strategy for increasing *HbbTV adoption* as well as *membership* in the Association
- Who & Where are HbbTV adopters?
 - What entities / roles make up HbbTV ecosystems?
 - A complex web of relationships involving Content Providers, Broadcasters, Operators, Service Providers, Device Manufacturers, Regulators & Governments, Consumers, Advertising Industry, etc.
 - Which countries / markets are likely candidates for new deployment?
 - Who are the decision makers?
- Why do people join standards efforts?
 - To ensure that technology requirements & standardization remain consistent with company strategies
 - Business development – to take advantage of synergies among the variety of participants
 - HbbTV messages have to target and reach both types

- MEWG recognized the need to focus not only on the *technology* advances and opportunities created by the HbbTV specifications and associated tools but also on new *business development* opportunities facilitated by those technology advances.
- This has led to a set of fundamental *technical & business messages* to be promoted via whatever means at our disposal:
 - Master Classes (such as this) –
 - HbbTV Booth at events – PLEASE SEE OUR BOOTH at DVB World!
 - Whitepapers & other resources (see <https://www.hbbtv.org/resource-library/>)
 - Our website
 - The annual HbbTV Symposium and Awards Ceremony
 - Press releases
 - Plugfests and training classes

Our Technology / Business Advantages

- The efforts stemming from this task have led to improving our understanding of HbbTV's advantages from both technical as well as business perspectives. From this understanding we have derived the following initial set of messages:

<ul style="list-style-type: none">• Enrich Broadcast Services	<ul style="list-style-type: none">• Enable Enhanced Digital Switchover
<ul style="list-style-type: none">• Maximum Reach for Interactive Services	<ul style="list-style-type: none">• Create Branded TV Viewing Experiences
<ul style="list-style-type: none">• Simple Access to Enriched Services	<ul style="list-style-type: none">• Reduce Costs & Accelerate Deployment
<ul style="list-style-type: none">• Enable Targeted Ads on TVs	

- Clearly such messages will continue to evolve as adoption in new markets increases, which leads to new requirements, leading to new specifications, and so on.
- We now review each of the messages at a high level – the remaining sessions will flesh these out more completely

- Consumer shifts in video content usage have given rise to the variety of new distribution models we see offered by OTT services
- HbbTV provides a standard platform for broadcasters to enrich their services by delivering functionality similar to that experienced via OTT, including interactive and on-demand services, without the need for individual manufacturer-controlled STB & TV applications.
- This enrichment clearly benefits all participants in the content distribution ecosystem.

Maximum Reach for Interactive Services



- The HbbTV standard platform allows broadcasters to maximize the reach of their interactive and on demand services across a wide variety of countries and devices from different vendors.
- Number of HbbTV devices sold (end 2017)
 - Germany > 27.8 million
 - Spain > 6.8 million
 - France > 5.5 million
 - UK > 4.8 million
 - Switzerland > 2 million
 - Poland > 1.8 million
 - Italy > 1.5 million
 - Australia > 1.3 million
 - Czech Republic > 0.8 million

Simple Access to Enriched Services



- HbbTV enables:
 - Red Button – Intuitive ‘call-to-action’
 - A unique mechanism providing TV viewers with simple access to interactive services.
 - Broadcasters to command the best spot on the portal.
 - That is, HbbTV can provide access from where the eyeballs are – the TV channel.
 - Transparent access to truly hybrid solutions
 - Viewers need not know or care about how content is delivered whether broadband or broadcast
 - Operator branded hybrid solutions

Enable Targeted Ads on TVs

- HbbTV enables *addressable* TV for broadcasters
- Addressable TV Enables:
 - Addressable ads & digital ad substitution -> creation and monetization of new ad inventory.
 - Merging the benefits of broadcast TV with the personalization and efficiency of digital advertising.
 - Ad sales houses to expand their portfolio with new types of ad products supporting interactivity as well as targeting features already known from the Internet
 - E.g., geolocation/regional targeting, classical re-targeting, usage-based targeting, etc.

Enable Enhanced Digital Switchover

- HbbTV is an International Standard – a lingua franca for digital services and devices
 - STBs & TVs, No gatekeeper, Interoperability
 - Minimize the complexity of switchover
 - Easy and cost effective to deploy
- Rich set of tools -> wide variety nationwide, cross-device digital services
- Value for Consumers – more content and services
- Value for Government – early Warning Systems, minimize digital divide
- Value for Broadcasters – Enriched TV services and reach
- Value for Business – Targeted ads, pay on demand services

- OpApp Specification was designed to facilitate the creation of virtual STBs.
- HbbTV OpApps enable operators to control the overall viewing experience
 - OpApps coexist and are fully compliant with other broadcast HbbTV services but without the reliance on proprietary middleware.
- This enables operators to provide a platform branded user interface on STBs and TVs that is tailored to the needs of the operator and their viewers.

Reduce Costs & Accelerate Deployment



- HbbTV OpApps allow for the creation of a virtual receiver
 - Write once – deploy everywhere
- The OpApp can run on any HbbTV enabled platform on STBs and digital TVs.
- This enables platform operators to reduce development, testing, deployment, and maintenance costs associated with deploying their interface on STBs and digital TVs.

Why Join the HbbTV Association?



- Help drive new standardization efforts for hybrid broadcast & broadband delivery of entertainment distribution services such as the targeted advertising work with DVB.
- Bring new requirements to HbbTV
- Help with testing efforts
- Business development – meet with leaders from the industries associated with creating HbbTV standards, and sharing experiences involved with developing new markets based on the standards and the HbbTV mission.
- Our work is not finished

- Thank you and please visit our booth this week!

- Back up

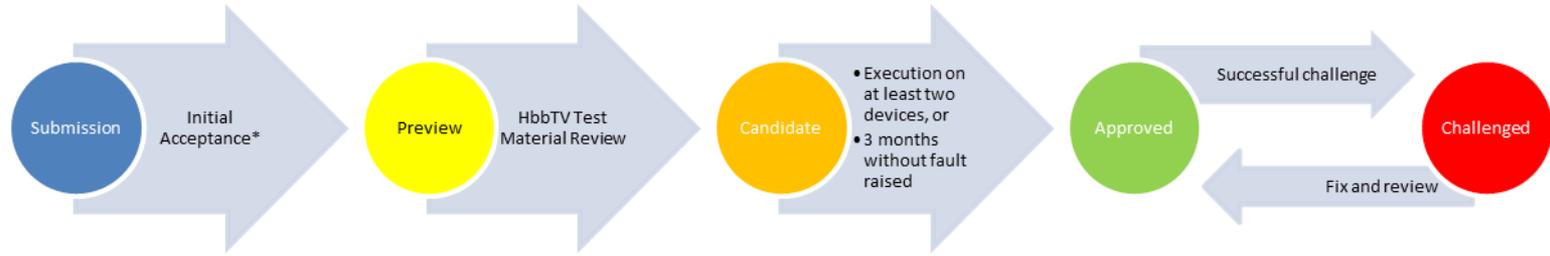
The General Assembly

- It is the meeting of all the Members of our organization. A General Assembly (GA) is held once a year and empowers the “Steering Group” with responsibilities for managing the affairs of the HbbTV Association.
- All Members shall be entitled to attend and participate in the discussions at the GA.
- The GA main competences are:
 - Approval of the Steering Group annual report on activities and accounts of the closing fiscal year
 - Approval of the new fiscal year activities and budget
 - Election of the SG (every two years) and the Auditors
 - Decision on all item of the GA agenda as, for instance, establishment of membership requirements, dues, and policy.

The Steering Group

- It is the chief executive body of the Association
- The actual SG consists of a Chairman, a Vice-Chairman, a Treasurer and 13 Representative; they stay in charge for two years.
- The SG main competences are:
 - the management of the Association.
 - planning and implementation of the activities of the Association.
 - keeping of the accounts of the Association's which shall consist of a profit and loss account as well as of a balance sheet.
 - the convocation of the General Assembly and the implementation of the decisions of the GA.
 - adoption and amendment of internal regulations (e.g. Internal Rules and Voting Rules).
 - election and exclusion of members of commissions appointed by the Steering Group.
 - the representation of the Association before third persons.

The Testing Group



- There are three releases of the Test Suite every year, on March, July and October:
 - March release meets manufacturer starting cycle of device development
 - July release is the main annual release, on time for manufacturer device testing and certification
 - October release is a minor release, useful to add test cases challenged or candidate in the July release.
- The HbbTV Test Suite provides a rich and permanently evolving tool as an aid for implementation of the HbbTV specification and selected other specifications that it references in receivers, e.g., TV sets.
- The test suite alone does not provide a definitive measure of receiver compliance and makes no provision for testing application compliance. More here <https://www.hbbtv.org/resource-library/#testing-information-and-support>

- IITF defined and implemented two tools to improve interoperability; freely available to the market, are downloadable from the hbbtv.org website <https://www.hbbtv.org/resource-library/developer-support/>:
 - **HbbTV DASH DRM Reference Application**
 - showing use of HbbTV with DASH and DRM to deliver VoD and live services
 - Tested on >20 actual HbbTV receivers going back to 2013
 - Open source license – re-use as-is, copy bits, do things the same way,
 - Available on github at <https://github.com/HbbTV-Association/ReferenceApplication>
 - **HbbTV/DVB DASH Content Validation Tool**
 - Extensions to DASH-IF validator to support HbbTV 1.5 DASH and DVB-DASH as used in HbbTV 2.0
 - Now integrated in DASH-IF validator - <https://conformance.dashif.org>