



# Coming Soon from HbbTV

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- Specifications
  - Candidate TS 102 796 V1.5.1
  - High Dynamic Range, High Frame Rate Video and Next Generation Audio
  - Operator applications
  - Phase 2 of application discovery over broadband
- Test suite
- Improving inter-operability around DASH
  - HbbTV – DASH – DRM reference application
  - DVB-DASH content validator

- Informal name not yet decided
  - 2.0.2? 2.1? 2.5?
- Main features
  - High Dynamic Range & High Frame Rate video
  - Next Generation Audio
- Also fixes bugs in V1.4.1/2.0.1
  - Currently agreed bug fixes found in errata #2 to V1.4.1
    - Approved last week but publication delayed by this event
    - Includes 41 new bug fixes as well as 14 previously in errata #1
  - Most significant – re-enable sharing cookies (etc) between apps delivered via broadcast carousel in multiple services



"Candidate" because ETSI's role in the process must be respected

# High Dynamic Range, High Frame Rate Video and Next Generation Audio



- Delivery of HDR (HLG, PQ10), HFR, NGA (AC-4, MPEG-H) defined by DVB
  - For broadcast in TS 101 154 V2.3.1 (2017-02)
  - For broadband in TS 103 285 V1.2.1 (any day now)
- HbbTV will integrate this DVB work and
  - Enable apps to ask if a terminal supports the technology for broadcast, for broadband
    - Support for a technology via broadcast doesn't mean it's supported for broadband or vice-versa
    - Also enable asking if terminals support HDR solutions outside DVB
  - Define how HDR, HFR, NGA would fit with the rest of the system
    - e.g. Ad insertion
      - What if main content is HDR+NGA but ads are SDR and stereo
  - Need to do due diligence on other changes included in the DVB-DASH update
- Test assertions need to be written & reviewed for all this
  - Spec not published until this happens
  - Cannot be guaranteed that all 5 technologies from DVB will end up in the HbbTV spec. if not enough market interest to do this



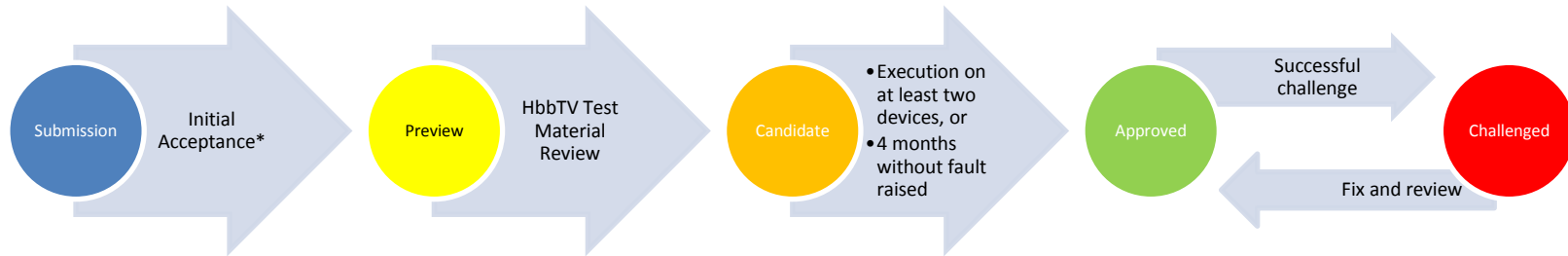
We have a panel on these later & I won't duplicate what's there

- **Status**
  - Spec stable since end of April
    - Changes now based on feedback from early implementations and test assertion development
  - Test assertions delivered before IBC - 392
  - Test assertions being reviewed, as of last week;
    - 130 approved
    - 101 have passed 1<sup>st</sup> review & waiting 2<sup>nd</sup> review
- Ideally test assertion review will complete before Christmas
  - Ideally spec can be published this year

- Phase #1 of ADB published earlier this year
  - Targets TVs connected to broadcast network where operator does not carry HbbTV-specific signalling
  - Uses information from generic DVB signalling to construct internet DNS query to find HbbTV signalling over broadband
- Phase #2 of ADB in development
  - Targets TVs connected to STB over HDMI
  - Based on ATSC 3.0 watermark in video and/or audio
  - Uses information from watermark(s) to construct internet DNS query to find HbbTV signalling over broadband
  - Not a magic bullet - consumer experience not as good as phase #1 & broadcasters will need to invest in consumer education



# Updated Test Suite Process and Schedule



- 3 releases per year: March, July and October
  - Aim for the 1<sup>st</sup> of the month, so the exact release date may be slightly before
- For the March and July releases, there are no restrictions on how test cases may pass through these states.
- For the October release, further test cases can only be Approved if they were in the July release as Challenged and subsequently fixed.
  - Test cases that were not in the July release at all or were in the July release as Preview or Candidate cannot be Approved in October.
  - July Candidate material cannot be Approved in October
  - July Preview material can be Candidate material in October
- The cycle began with the July 2017 release (there is no March 2017 release)

Will be presented in detail later today by Sofia Digital

- HbbTV goals for this activity
  1. To give content providers more confidence that DRM can work with HbbTV+DASH in the real world,
  2. Provide a recipe that content providers & their suppliers can copy that has been tested on a wide variety of TVs in the market
  3. Give manufacturers something to use for system integration testing



- DASH-IF have a content validator for their DASH profile
  - Validates a DASH MPD and the fmp4 files against their DASH profile
  - Identifies errors against the spec & use of features outside the profile
- HbbTV wants one for HbbTV 1.5 DASH and DVB-DASH
  - Negotiations in progress with supplier
  - Expect announcement once the contract is signed
- Looking for volunteers to help validate the validator
  - If you have DASH content & are interested in helping, please contact Chair of Improving Interop TF ([BobCampbell@eurofins.com](mailto:BobCampbell@eurofins.com))
    - Known "bad" content is particularly interesting

