


The Importance of Testing and The Way to Conformance

Julius Mong
Eurofins Digital Testing

- Leading media, device & software testing specialists in:
 - Creation of conformance test suites for validation of devices
 - Consulting on conformance, spec authoring, test lab and testing services
- Work closely with standards organisations, manufacturers, operators, broadcasters, regulators and trade bodies in over 38 countries
- ISO/IEC 17025 accredited test lab for receiver certification
 - Licensed for UK Freeview certification of STB and iDTV
 - Only lab that can provide HbbTV 2.0 certification reports for Freeview Play logo
 - Approved test labs for Freeview Australia and New Zealand
 - Appointed exclusive test lab by NBC Nigeria for DTT STB
 - First approved lab for DTT and HbbTV Receivers for SIRIM (Malaysia)
 - Established complete test lab for SABS South Africa for DVB-T2 STB
 - Approved test lab for Ghana DTT STB

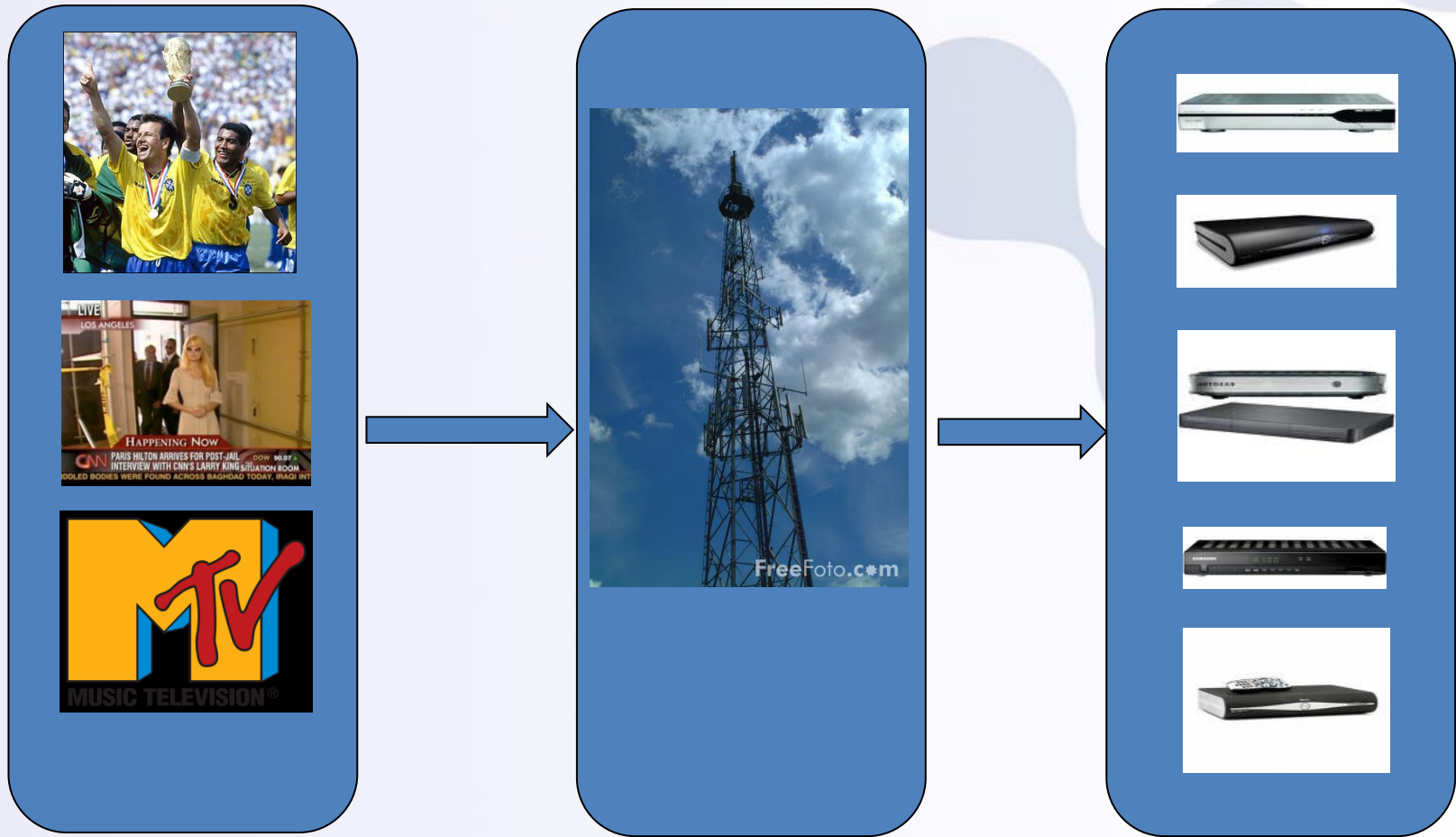
 Official Test Lab for
Freeview Australia &
Freeview New ZealandSupplier of TNT 2.0
Test Suite & DRM
ServicesSupply of TDT
Hibrida Test Suite
& Test ToolsHbbTV Consultancy
ServicesOIPF Test Suite & Test
Harness

HbbTV Services

Supplier of Official
Test HarnessCustom HbbTV/OIPF
Test SuiteHbbTV 2.0 &
DRM Test SuiteSouth African STB
Conformance &
DTT Test Lab

- Why care about receiver compliance?
- How to ensure a successful launch / transition?
- How to make sure quality will meet requirements?
- Who can help me get there?

Why care about receiver compliance?

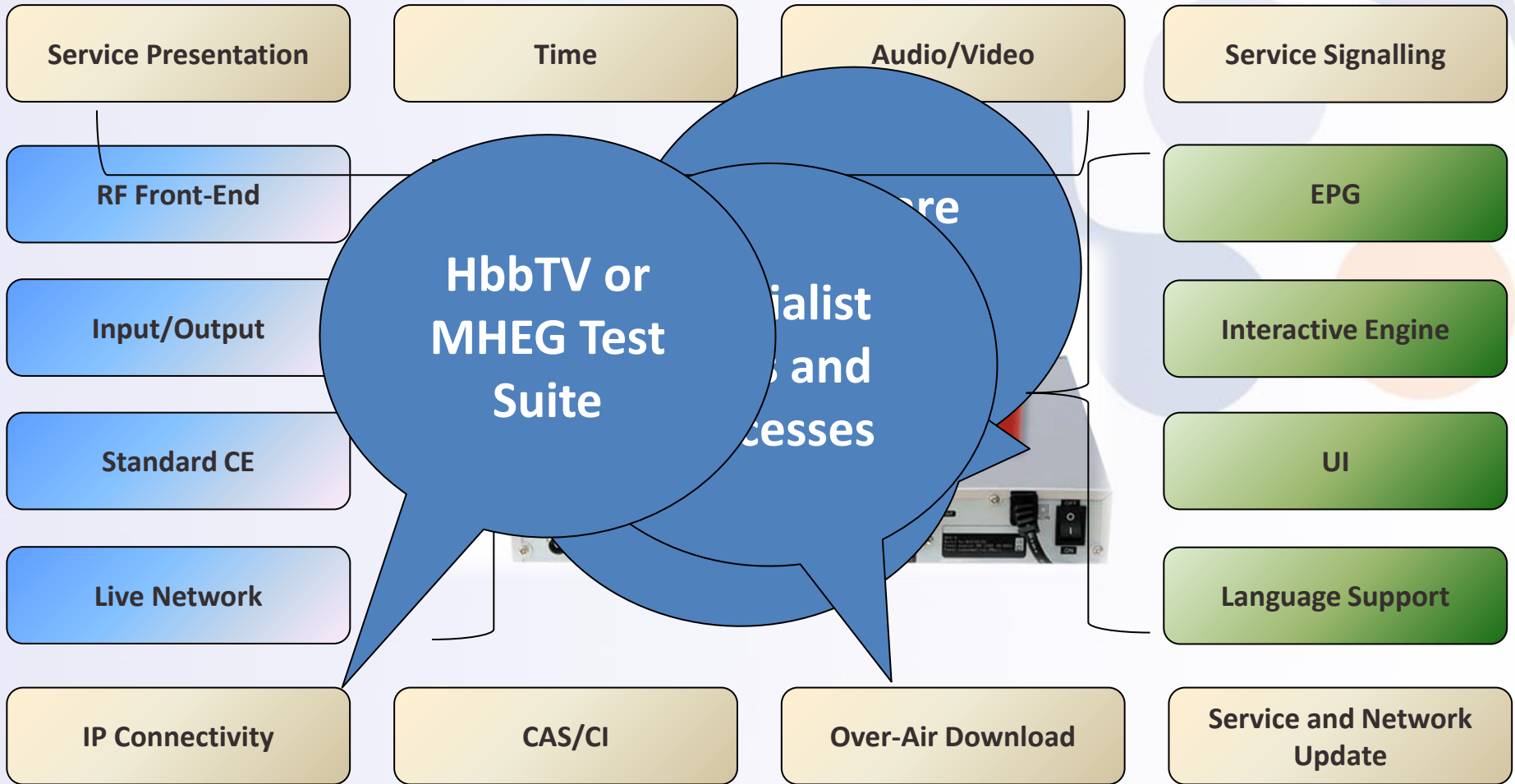


Ensuring a good consumer experience

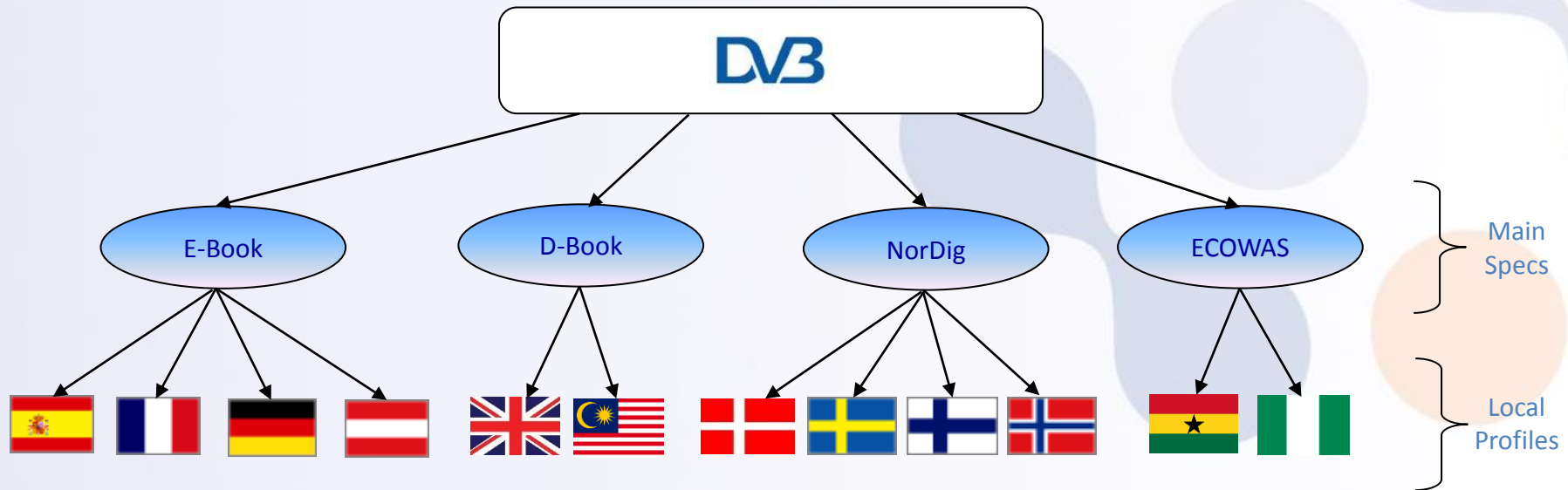
- Choice of receivers
- Low cost
- Easy to use
- Supports local languages
- Access expected channels
- Picture and audio quality
- Interactive applications work (e.g. EPG, info services)
- Responsive
- Reliable
- Supports new services & network changes
- Easily upgradeable



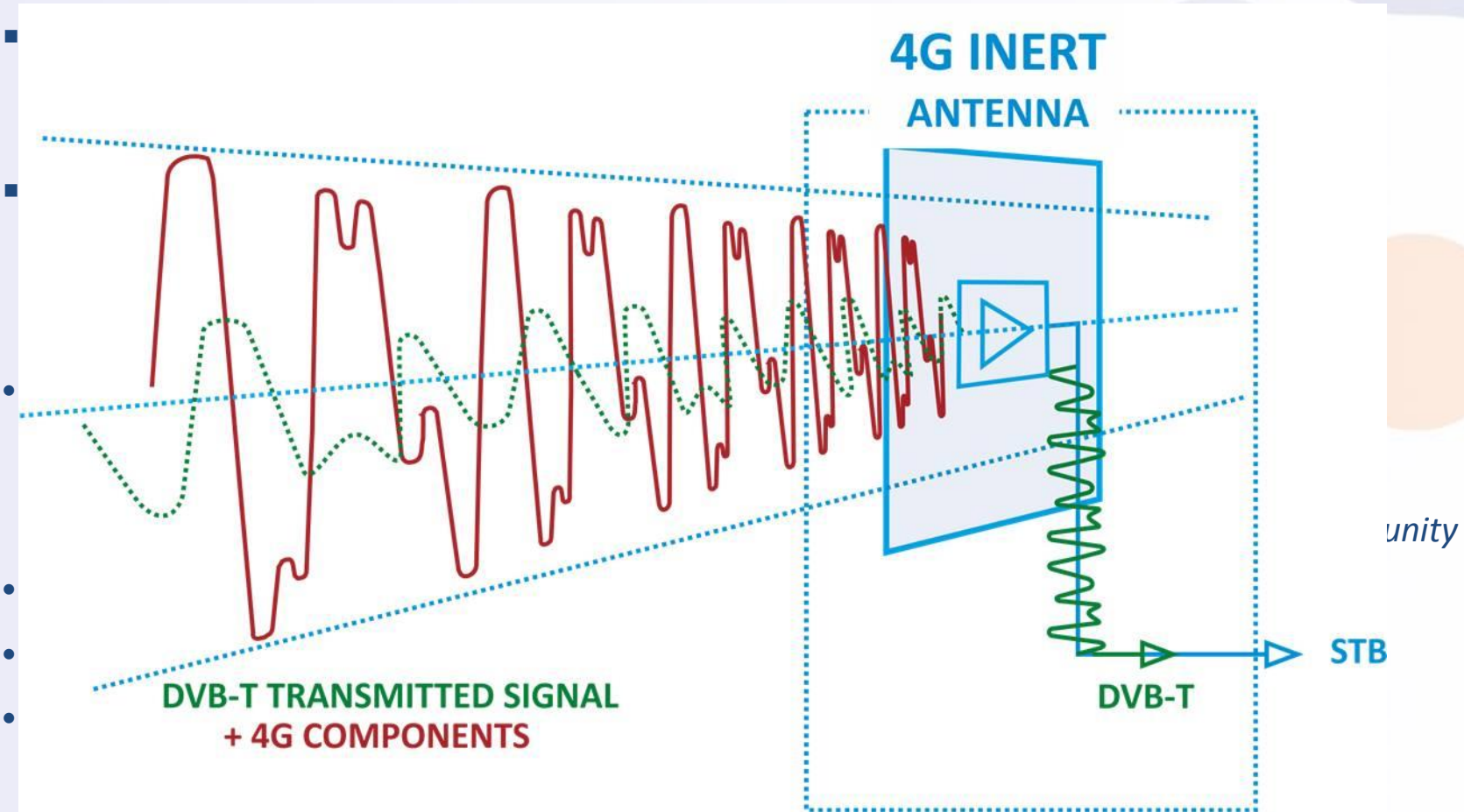
- Each country's requirements are different
- Receivers in field will be non-compliant
- Consumer complaints and calls
- DTT Platform brand damage
- Interactive apps and UI – different behaviours
- OAD not supported
- Can't handle new services / network changes
- Poor RF sensitivity on specific channels
- Poor border behaviour
- EPG not displayed properly
- Interactive interoperability, etc.



How to ensure a successful launch / transition?



- DVB is a toolkit – many different options / country profiles
 - DVB-T2 – huge matrix of transmission parameters
 - PSI / SI (data signalling to receivers) – big variations
 - Considerations for AVC? HEVC? UHD or HD? HE-AAC vs Dolby etc
- Need to have a specification clearly defined to test against
 - Must **NOT** be a wish / feature list
 - Get it reviewed by the stakeholders



How to make sure receiver quality will meet requirements?

**Option 1:
Low Effort****Do Minimum****Free uncontrolled
market**

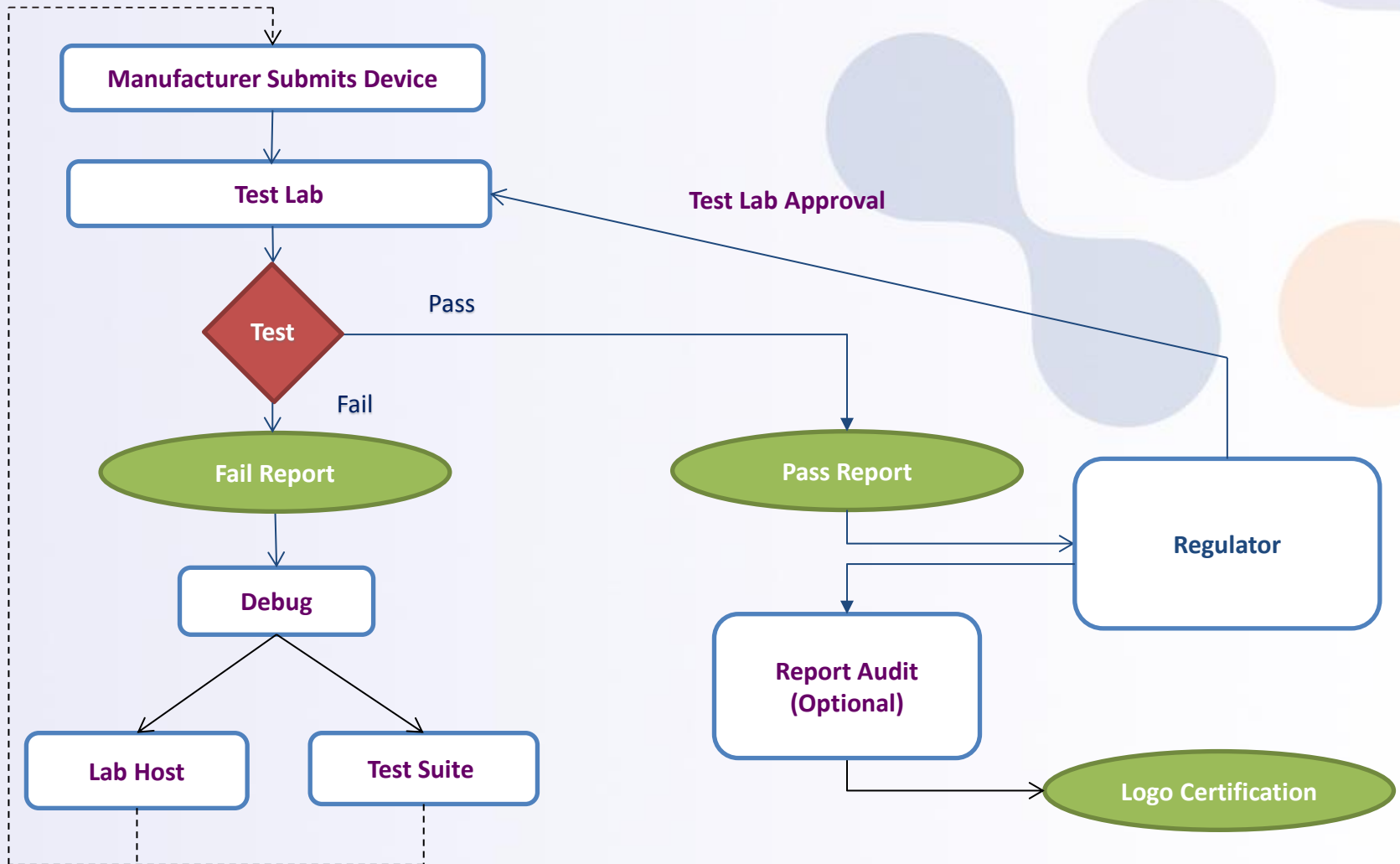
- Receiver issues in field
- Platform brand damage
- Inability to add new services
- Interactive applications impossible to write
- Lots of bad receivers
- Potentially costly

**Option 2:
Risky****Self-Cert****Manufacturer certifies
they conform to spec**

- Relies on honesty
- Marking own homework
- Manufacturers absorb cost of test suite dev
- Audit process
- Non-conformant receivers in the field

**Option 3:
Full Control****Test Centre****Manufacturer submits
receivers to test lab**

- Ensure quality
- Interactive apps work
- Platform upgrades
- Good user experience
- Local or “hosted” lab
- Manufacturers absorb costs of test suite dev
- Potential revenue for regime



- Test process to verify that implementations meet the technology specifications
- Based on use of single, standard set of test procedures covering the specification, and corresponding test materials, which together form a **test suite** – used to certify that implementations are conformant to the standard
- Generally used to validate final, fully integrated devices, same process can be used throughout device development
- Key component to ensure interoperability among devices of different vendors
- Interoperability can be tested further in plug-fests

- “Validation” suite:
 - Functional test
 - Audio/Video
 - PSI/SI
- Consists of:
 - Test plan
 - Test cases (data, procedures, scenarios, expected results)
 - Test streams (custom or canned ones)
 - Pass and fail criteria
- Ensures receiver complies with specification
- Test coverage for features not testable in live network

Run test - SABS/2294 - SABS (Control)

Project settings Tests Issues Coverage

Help Settings Logout

Project:

Home Project Automated Test Run Search Tests: Playready Results Network Activity² Setup Guide Settings

Project Statistics

761 tests in project. Read only project
 292 passed 0 failed 0 pending;
 0 tests cannot be run.
 627 tests can be automated.

Notes For Reports

Tests

ID	Title	Last Result	Last Run
HbbTVClient/Signalling			
fr.hdforum_93440001	Verify signalling of PlayReady DRM capability to HbbTV applications	No result	Never
HbbTVClient/AVControlObject			
fr.hdforum_93440031	PlayReady DRM license pre-acquisition with PlayReady DRMSystemID	No result	Never
fr.hdforum_93440033	PlayReady DRM license automatic post-acquisition	No result	Never
fr.hdforum_93440041	PlayReady DRM license pre-acquisition failure (server cannot deliver a license)	No result	Never
fr.hdforum_93440042	PlayReady DRM license automatic post-acquisition failure (server cannot deliver a license)	No result	Never
fr.hdforum_93440044	PlayReady DRM license pre-acquisition failure (server not reachable)	No result	Never
fr.hdforum_93440045	PlayReady DRM license automatic post-acquisition failure (server not reachable)	No result	Never
fr.hdforum_93440055	Playback errors when an invalid PlayReady license is automatically acquired (invalid rights)	No result	Never
fr.hdforum_93440101	Support of live encrypted streaming with key rotation and static MPD for PlayReady Terminals	No result	Never

Test Details Test Results

fr.hdforum_93440031
 PlayReady DRM license pre-acquisition with PlayReady DRMSystemID

Test Suite
 HbbTV_DRM

Test Version
 3

HbbTV Test Object
 HbbTVClient/AVControlObject

Assertion Text
 The Terminal shall be able to acquire a PlayReady license using 'sendDRMMessage' method with PlayReady DRMSystemID

HbbTV Preconditions

Other Preconditions
 No licence cached in the terminal
 PlayReady DRM supported by the Terminal

Applies To
 TNT2 1.1

Specification References

TNT2 - 1.1
Chapter 6.2
 PlayReady is one of the DRMs recommended for TNT 2.0 content protection

OIPF-DAE - 1.2

Run Test Get Test Code Add/Edit comment

- Good coverage on the specification
 - Everything gets tested
- Test procedures clearly laid out
 - Not left to tester's interpretation
- Well defined passing criteria
 - Not left to tester's discretion
- Test streams specific to mechanism being tested
- Regular updates & professional and responsive support
 - On-going and fast, consider the team behind the test suite too as they'll be the help at hand for a long time coming
 - Specs get updated regularly, so should the tools
 - Don't get stranded with obsolete test suites

- Author & Publish the receiver specification
 - Keeping up to date with future changes in broadcasting rules of operations and new services being introduced
- Selecting a conformance model
 - Consider *not* just STB's and iDTV's
- Develop all test materials to support the conformance regime
 - Test materials for silicon vendors and receiver manufacturers
 - Technical support services for the test material licensees
 - Keep up to date with changes in official receiver specification
- Commission your own or appoint a test laboratory
- Announcing the conformance regime
 - Registration instructions, where for testing services, and certification process
- Guidance to manufacturers interested in the Logo to the test laboratory
- Manage the ongoing development of the conformance regime
 - Developing a concessions policy
 - Police the market
 - Build a receiver zoo

Who can help me get there?

Good QA strategy consultants should be able to provide:

- Receiver conformance strategy and gap analysis
- Broadcast and receiver specification authoring
- Test regime design and setup
- Bespoke test suite development
- Test plans and test cases development
- Functionality and robustness testing of receivers
- Technology & technical knowledge transfer
- Operational and support training
- Supply chain consultancy
- Management consulting on benefits of testing and required governance
- Staffing plans

Feel free to contact us for advice:



UK
Belgium
Hong Kong
Sweden
Poland



JuliusMong@eurofins.com



www.eurofins-digitaltesting.com



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