NorDig Excom Agenda 27th January 2015:

Place: Arlanda Hotel, Arlanda in Stockholm, Time: 10:00 to approx. 16:00

1.   Agenda and report from previous meeting

2.   Organizational matters

  2.1.   Chair of NorDig ExCom

  2.2.   Organization in the future

  2.3.   Funding of NorDig specification work (RoO spec, IRD spec etc)   `Partly inputs from NorDig T and RTÉNL`

  2.4.   Budget 2015 & Member Fee 2015   `Partly inputs from NorDig T, HBBTV test cases`

3.   Report from NorDig/T   `Inputs from NorDig T`

  3.1.   Specification and work status

  3.2.   Future planning for 2015-2016 and mandates

4.   Report from Industry

  4.1.   Report from Nordic Product Manager meeting

  4.2.   Report from industry members

5.   Future TV formats and HEVC (NorDig T short presentation future technologies, this time   `Inputs from NorDig T`
Anders Berglund from Teracom present UHDTV phase 2, MPEG-H HEVC etc)

6.   Reports from members, DVB and other organizations

7.   Any other business

8.   Date and place for next meeting

2.3 Funding of NorDig specification work (RoO spec, IRD spec etc) – background info

NorDig T main activities and output:

Normally NorDig T work has been based on members and observers voluntary inputs (i.e. members and participants take their own cost for time spent, travelling, host of meeting etc). This to minimise NorDig fee and organisation.

- IRD spec
    - today via inputs from members and observers, (no NorDig funding)
    - today mainly update of existing texts/requirements, but sometimes quite big workload
      (e.g. of big inputs from last IRD versions: update of audio chapter, introduction of PVR, SSU, HbbTV)

- RoO spec
    - today via inputs from members and observers (volunteers), (no NorDig funding)
    - today major update ongoing, major input made by chairman (RTÉNL) but big workload ahead

- Test plan
    - today via expert consultancy and some from members (limited volunteers), currently receiving NorDig funding
    - (Basic) Test plan: Labwise paid to ensure creation of test cases and admin this work, approx 25kEUR/year
    - HbbTV test cases: Sofia Digital create cases 2014 and maintenance 2015 (no volunteer) 12.5kEUR/2014+6kEUR/2015

- Others documents (experience exchange, white papers, proposals, presentations etc)
    - today via inputs from members and observers, (no NorDig funding)

- Meeting and admin
    - Meeting documents (agenda, MOM) – work for chairmen & participants, (no NorDig funding)
    - Cost for hosting of meeting – host (no NorDig funding)
    - Final specification editing and website admin, some NorDig funding (Labwise work)

2.3 Funding of NorDig specification work (RoO spec, IRD spec etc)

- This voluntary contribution process has resulted in slow progress and long delays.

- Many of us NorDig members seems last couple of years getting more difficult to spend time for contributing into NorDig. (OK for meetings, but more difficult to get continuous time for the homework of writing proposals).

- **NorDig funding is required to use professional editor/secretary to ensure timely delivery.** This would however need a new NorDig membership fee level (in magnitude from 2kEUR/year to 4-5kEUR/year). Decision for ExCom

- Proposal is to extend our use more professional editor/secretary so it cover all of our work (IRD spec, RoO, HbbTV, Test), of course still with very valuable input contributions from us members.

- Consider that NorDig are an open platform, who openly publish our combined knowledge base for the world to employ as reference and compare that to the practice of the DTG who charge a significant figure for membership and only distribute to that membership.

NorDig	DTG
Approx Annual Member Fees	*Approx Annual Member Fees*
Full 2 000 EUR *	Full 14 100 EUR (£11 000)
Associated 1 000 EUR *	World 7 050 EUR (£5 500)
* 2014 level (2015 level not yet defined)	New Entrant £3 300
	Paying affiliate £4 400

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2.4 NorDig budget 2015 – cost estimate for NorDig related to HbbTV (1/2)

Background:
- NorDig paid editor (Sofia Digital) for the time spent for development of NorDig test cases (no volunteer editor), shared cost NorDig, NRK and DR (for NorDig 8 + 4.5 kEUR). This work incl proposing test cases but not incl maintenance. **Maintenance of these NorDig developed test cases would cost some extra .**
- NorDig Excom has decided to make these NorDig developed test cases **open available** in our NorDig website (in addition to be incl in HbbTV test suit), to ensure IRD manufactures really incl these tests in the testing. (HbbTV standard test suit/harness is not open and has a fee (2000 EUR) that intended to cover contributors cost for developing test cases).

NorDig organisation's HbbTV related items that may have cost estimate 2015: **5.4kEUR**
- Finalizing development of listed Test items – no extra cost.
- Maintenance (complete) of listed Test items – some cost (5.4kEUR/2015 f debugg/update/replies).
- Licensing &/or membership fees (for repository etc) – no cost for NorDig
- Development of additional new Test items – one-time cost (unless someone volunteer)
- HbbTV v2.0 additions – no new NorDig specific requirements is identified that would require NorDig specific test cases.

HbbTV related cost estimate for 2015 and alternatives:

- Alt 1: Maintenance of current NorDig HbbTV test cases, <u>approx 5.4kEUR/year</u>. This enables NorDig to keep our NorDig HbbTV test cases open and secure IRD use them during testing.

- Alt 2: NorDig do not pay for maintenance. Unless tests some other way are maintained (updated, corrected) they will likely not be part of HbbTV's standard test suit (hoping for someone else):
    - Alt 2a: Test maintained via editor get paid via test part of Test suit package fee (ie not longer opened). Not sure this option is possible.
    - Alt 2b: Test cases dropped.
- **Excom to decide**

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2.4 NorDig budget 2015 – cost estimate for NorDig related to HbbTV (2/2)

Details of what is included in _Maintenance cost_ of our NorDig HbbTV test cases for 2015:

Consultancy for "Maintenance" our NorDig HbbTV test cases.

Reason: No volunteer inside NorDig to do this, work need an HbbTV expert. Company offering to do this work for NorDig is very small company and need some (not all) compensation for hours.

Company: Sofia Digital

Cost: 5.4kEUR (Feb to June à 675EUR/month, July to Dec à 337,5 EUR/month)

Descriptions yearly maintenance project:
- Responding to test material challenges
- Necessary for following new developments inside HbbTV and DTV in general
- Proposa Updated 27 Jan 2015
- responding to queries about the individual tests
- Providing support for individual manufacturers wanting to run NorDig's HbbTV Test cases

Test cases has during 2014 been developed/created for NorDig by Sofia Digital. NorDig + NRK has compensated Sofia Digital some for their work. NorDig test cases now proposed into HbbTV group. Now test need "Maintenance" (correct, update, discussed) after others in HbbTV comments to our NorDig test cases.

2.4 NorDig budget 2015 – cost estimate for NorDig related to HbbTV (2/2)

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Company: Sofia Digital
Cost: 5.4kEUR (Feb to June à 675EUR/month, July to Dec à 337,5 EUR/month)

Descriptions yearly maintenance project, basic (first priority) tasks:
- Maintaining the NorDig Test Case repository as part of the HbbTV Test Repository and providing the test package for individual downloads via the Nordig.org website (or similar)
- Responding to queries about individual test cases
- Bug fixing of test cases and assertions provided by Sofia Digital
- Communicating towards HbbTV Association and acting as the technical contact in matters related to NorDig HbbTV and HbbTV in general (for example forwarding questions to the test authors)
- Responding to test material – related general questions coming from NorDig member and groups

Additional (second priority) tasks:
- Following new developments inside HbbTV and DTV in general
- Proposals for new assertions for new specification requirements

Others tasks: Optional (subject to separate agreement between Sofia Digital and NorDig or individual manufacturer)

Test cases has during 2014 been developed/created for NorDig by Sofia Digital. NorDig + NRK has compensated Sofia Digital some for their work. NorDig test cases now proposed into HbbTV group. Now test need "Maintenance" (correct, update, discussed) after others in HbbTV comments to our NorDig test cases.

Updated 27 Jan 2015

Overview NorDig T specification work :

- Rules of Operation
  - v2.0 target: Q4 2015

- Unified IRD specification
  - v2.5.1 has been published July/Aug 2014 (v2.5 and then correction to v2.5.1)
  - No work started yet with any future release (waiting Excom input and mandate)

- Test Plan
  - v2.4 has been published Feb 2014
  - v2.5 planned Q1 2015 (incl test for PVR crids, HbbTV etc)

- HbbTV
  - Test cases (both NorDig and HbbTV test specs), under progress, NRK supervising, Sofia Digital consulting for writing test cases (partly paid by NorDig and partly by NRK+DR) (target Q1.2015)
  - Logo + marketing: no NorDig specific, no other than HbbTV standard
  - DRM: no NorDig DRMs specified for IRDs (NorDig T still monitor and report DRM to Excom)

Overview

NorDig T – *active*

NorDig T subgroups – status

- Video – *dormant*

- Audio – *active* (audio related for IRD, Test Plan and RoO. Working together w Accessiblity group)

- Test – *active* (Test Plan)

- RoO – *active* (RoO spec)

- Accessibility – *active* (accessibility related for IRD, Test Plan and RoO)

- PVR/API – *active* (HbbTV testing (cases+setup), API+PVR related for IRD, Test Plan and RoO)

- CA/CI+/Sec – *dormant* (CI+ v1.4)

- (SSU – *closed after IRD v2.5 work*)

Organisation and status

NorDig T – *Per Tullstedt, Teracom*

NorDig T subgroups – status

- Video – *dormant (future maybe HEVC, UHDTV, HDMI 2.x etc)*

- Audio – *Johan Lindroos, SVT, preparing proposals related to audio for IRD, RoO and Test specs*

- Test – *Pasi Toiva, Labwise, drafting NorDig Test Plan*

- RoO – *Des Mac Giolla an Chloig, RTÉNL, drafting RoO spec*

- Accessibility – *Kjell Norberg, NRK, preparing proposals related to accessibility (audio, video, subtitling, menus…) for IRD, RoO and Test specs*

- PVR/API – *Erik Vold, NRK, preparing proposals related to PVR and API (HbbTV) for IRD, RoO and Test specs. Investigations DRM alt, test model/process. Creating complementing HbbTV Test streams*

- CA/CI+/Sec – *dormant (CI+ v1.3, CI+ v1.4)*

- SSU – *dormant*

Summary activities during 2014

NorDig T – *~12-14 active participants/members (mix of members+observers, ~25-30 total incl passive), 9 meetings 2014, main activity: NorDig IRD, Test and RoO spec update, test process, NorDig HbbTV setup, general info exchange.*

NorDig T subgroups – status

- Video – *dormant, monitored by NorDig T*

- Audio – *~15 participants/members (mix of members+observers), 2-3 meetings 2014 (but working together w Accessibility), main activity: prepare proposals related to audio for IRD, RoO and Test specs*

- Test – *~Y participants/members, 4-6 meetings 2014 (also getting inputs HbbTV testing from API group), main activity: drafting Test plan v2.5.0*

- RoO – *~15 participants/members (mix of members+observers), 0 meetings 2014 (but getting inputs from other subgroups), main activity: updating/drafting RoO spec*

- Accessibility – *~16 participants/members (mix of members+observers), 3-5 meetings 2014, main activity: prepare proposals related to accessibility (audio, video, subtitling, menus…) for IRD, RoO and Test specs*

- PVR/API – *~22 participants/members (mix of members+observers), ~10 meetings 2014, main activity: prepare proposals HbbTV requirements and PVR for IRD, RoO and Test specs. Investigations DRM alt, test model/process. Creating complementing HbbTV Test streams. Started a smaller "expert subgroup" inside the subgroup for creating HbbTV test cases.*

- CA/CI+/Sec – *dormant,*

- SSU – *dormant (6-7 extra meetings during 2014 during update/review of SSU chapter for IRD spec v2.5.1)*

NorDig T meeting calendar 2015:

- 13th Jan 2015, telco/webinar

  Informative: NorDig Excom 27 Jan

- 10th March 2015, telco/webinar

- 13th May 2015, physical (Stockholm, Sweden)

  Informative: NorDig Excom 26 May

- (prel 16th June 2015, shorter webinar before summer break)

  Informative: IBC 10-15 Sept

- 22th Sep 2015, physical (London, UK)

  Informative: NorDig Excom 29 Sep

- 27th Oct 2015, telco/webinar

- (prel 8th Dec 2015, shorter webinar before X-mas)

NorDig T – mandates from Excom

- Current mandates from Excom are from early 2013
- Last (smaller) updated Excom meeting Jan 2014
- NorDig T has made proposal for new mandates for coming period, to be approved and updated by Excom

3.2 NorDig T future work - proposal mandates & activities for period 2015-(2016):

- RoO
  - Continue major update of RoO spec and exchange experience (focus area within NorDig T)
    - Plan in basic have same structure to be same as IRD spec
    - Guidelines and recommend broadcast settings and levels (to reduce differences between NorDig networks)
    - examples
    - Include specific info related to different NorDig members networks/platforms
  - (after major update above) Maintain and update NorDig RoO.

- Test and Test plan
  - Test plan v2.5
    - Match IRD spec v2.5.1 (incl PVR crids, HbbTV and other today missing test cases)
    - Review and where possible combine similar test cases to make it easier and faster to test
    - "minimize" RF test cases
    - Missing audio/video test cases (e.g. metadata, video crop etc.)
  - Update and improve test cases
  - HbbTV test and test cases:
    - finalise development of already defined NorDig specific HbbTV test cases and maintain them (minimise NorDig unique specific test cases, based on open test cases). Propose new test cases to be developed if needed (keep to minimum).
    - add HbbTV test requirements into NorDig Test Plan (based on ref as much as possible to HbbTV test suit, clarify if HbbTV optional test is mandatory for NorDig Hybrids)
    - contribute to HbbTV org the NorDig developed HbbTV test cases for inclusion in HbbTV standard Test suits (include as much as possible in HbbTV standard test suits).
    - Propose budget for NorDig's HbbTV activities (costs , descriptions, alternatives)
    - Supervise and manage any NorDig HbbTV consultancy work (currently Sofia Digital)

continue - NorDig T proposal mandate and activities for coming period 2015-(2016):

- HbbTV IRD requirements
    - Monitor and report HbbTV spec development and usage, (HbbTV now close to release v2.0 spec w HTML5 etc).
    - Investigate additional HbbTV feature and requirements that are of interest for NorDig members (to be confirmed by –T and Excom before detailed proposal and any incl into IRD spec) like:
        - HbbTV 2.0 (functionalities, IRD manufactures implementation, when and how this could be incl into IRD spec, potential possibilities with v2.0 like HTML5, HEVC. Members interest for new feature/functionality with v2.0)
        - Portable devices, Second screen, synchronisation etc (part of HbbTV 2.0)

- HbbTV implementation:
    - Monitor and report HbbTV implementation in NorDig networks and other networks,
    - Monitor and report implementation status on IRD side
    - Monitor and discuss experience and issues/problems with launching HbbTV services
    - Write Guidelines on Operators and broadcasters use of HbbTV, possible cooperation

- HbbTV DRM
    - Monitor HbbTV DRM implementation, interest for common DRM requirements
    - Monitor technologies and functionality (common encryption, CAM/CI+ etc)

continue - NorDig T proposal mandate and activities for coming period 2015-(2016):

- Video, audio, subtitling
    - Surround sound, is it possible to reduce the problems with down-mixing, especially investigate broadcast side.
    - Dolby AC4, monitor and get more info about its efficiency and functionality (not yet proposed to specify).
    - Monitor and report NorDig members interest for new audio and video codecs (HEVC, 3D Audio etc) and formats. Investigate how new codec can be introduced in NorDig specs. Check with industry support for new codecs (New codec like HEVC would probably also need review of HDMI, SI and maybe audio requirements etc).
    - **New codes for HbbTV OTT? (likely HEVC will come earlier for OTT compared to Broadcast).**
    - **Excom and members inputs?**

- Accessibility
    - Work with harmonization of broadcast and better describe current broadcast for IRD manufactures
    - Advanced Clean Audio / Dialogue Enhancement - investigate members interest for this and if they are able to broadcast this
    - Spoken subtitling, investigate how NorDig broadcasters today broadcast this and how much difference there is around this in NorDig broadcast.
    - HbbTV for Accessibility services – investigate how HbbTV can be used for Accessibility and if needed propose changes to IRD and RoO requirements
    - Investing new technology and equipment for accessibility services.
    - (SVT) Investigate more in to adjusting volume for receiver mixing (if needed)

- CA and CI
    - monitor and report CIplus LLP (CI+ v1.4 and v2.0) and DVB work (CI+ v2.0 etc) within these topics to NorDig Excom and Technical group.

continue - NorDig T proposal mandate and activities for coming period 2015-(2016):

- NorDig Unified IRD spec
  - No major updates or new requirement foreseen for 2015 - need for new IRD spec v2.6 under 2015 or wait until 2016?
  - Maintain and update current requirements for NorDig IRDs (minor, all sections, references to other spec are up to date, requirements are up to date, clarification is added for FAQ etc, e.g. HbbTV errata).
  - Update guidelines wordings in GUI and translations (mainly related Accessibility and Audio)
  - Review and improve IRD's auto update for network changes
  - FE (DVB-T/-T2) review if 800MHz scanning can be removed (NRK) and add optional requirements for 700MHz LTE immunity (hopefully via reference to ITU/ETSI)
  - IPTV – ComHem launching IPTV and has some interest to updated current IPTV IRD requirement.
  - IRD surveillance (like using TR069), some interest to investigate this more.
  - SSU, add alternative for broadcasting SSU notification in accordance with new DVB SSU spec 2015 for IRDs with very large file size
  - Recommendation Remote Control related to accessibility settings, check if possible to get a RC key for changing Accessibility setting or modify current requirements and recommendations. (Ensure RC can be via Smartphones etc)
  - HbbTV – investigate and prepare update IRD spec for latest HbbTV v1.5 (i.e. latest errata)
  - (TV recorder – closed. No need to define TV Recorder (PVR lite) unless someone volunteer to come with a more concrete text proposal)
  - OTT? Mix of broadcast and OTT? (if so HEVC for OTT?)

- Points NorDig T will wait Excom decision before drafting into IRD spec:
  - HEVC, 3D Audio, AC4), HDMI v2, DRM

- Others
  - Interest for common Event Info file format (Broadcast + OTT), interchange Content Providers to Distributers? ("Public schedule")

Short info about news/progress relevant Standards – NorDig members interest?

General

- EU renewal Radio Equipment Directive (RED) 2014/53/EU, to ensure that 'radio equipment' (incl TV, STB etc) is "efficient", this is principles for the CE marking of products (mandatory from 13 July 2017)
- DVB SSU update spec to handle broadcast of update notification for IRD with too large file size for broadcast

Front Ends (NorDig IRD v2.5.1: DVB-S/-S2, -C, -T/-T2, some for "-IP")

- DVB-C2 extension (espec for Japan market)
- US ATSC 3.0 reviewing complete spec, DVB propose DVB techn (updated version of DVB-T2)

Video & Audio (NorDig IRD v2.5.1: MPEG2 + MPEG4)

- MPEG-H HEVC, UHDTV phase 1 and Dolby AC4 (DVB finalizing subset & additional signaling details)
- UHDTV phase 2, DVB still working with Commercial Requirements

CA, CI+, DRM and security (NorDig IRD v2.5.1: CI+v1.3, scrambling DVB CSA, no CA, no DRM)

- CI+ v2.0 still under development, plan to include new form factor (PCMCIA → USB), waiting low level USB handling
- CI + v1.4, CI+ LLP (Limited Liability Partnership) still working on what and how CI+ v1.4 will be required
- Security – DVB investigate security and tamper proof aspects to ensure credibility with broadcast signals

HbbTV (NorDig IRD v2.5.1: HbbTV v1.5 aka ETSI TS 102796 v1.2.1)

- HbbTV v2.0 (draft ETSI TS 102796 v1.3.1) late 2014 w first impl early 2016, incl HTML5, sync devices etc
- HbbTV Test suits v1.5, 2014/2015 (NorDig contribute/propose)

I/O interfaces etc (NorDig IRD v2.5.1: HDMI v1.4, SCART output optional)

- HDMI v2.0 for UHDTV (4k, 10bit, 50/60Hz, but old colors and dynamics, Sep 2013)

List of Countries using NorDig specifications (outside NorDig members), Several IRD manufactures and other mentions that several other territories and DVB networks refers or uses NorDig as basis for their IRD specs (especially "newer" networks). Among reasons seems open spec and content (T2, HbbTV, subtitling etc).

First list:

Country / Network	Status
Turkey DTT	Confirmed via Vestel
Several eastern Europe countries	Indications, not confirmed
Malaysia *(blue copy)*	Digita

END presentation
NorDig-T report

After here some detailed informative slides

HbbTV API + PVR

Informative: Detailed proposed activities and mandates **from NorDig T to API&PVR** subgroup (based on mandates from Excom):

- NorDig Unified IRD (future versions):
  – Maintain and update current HbbTV requirements for NorDig hybrid IRDs.
  – Investigate additional HbbTV feature and requirements that are of interest for NorDig members (to be confirmed by –T and Excom before detailed proposal and any incl into IRD spec) like:
    • HbbTV 2.0 (functionalities, IRD manufactures implementation, when and how this could be incl into IRD spec, potential possibilities with v2.0 like HTML5, HEVC. Members interest for new feature/functionality with v2.0)
    • Portable devices, Second screen, synchronisation etc (part of HbbTV 2.0)
    • HbbTV for Accessibility services
- NorDig Test Plan related to HbbTV and HbbTV test cases:
  – Maintain and create necessary HbbTV test cases for NorDig (minimise NorDig unique specific test cases, include as much as possible in HbbTV standard test suits, based on open test cases)
  – Propose budget for NorDig's HbbTV activities (costs , descriptions, alternatives)
  – Supervise and manage any NorDig HbbTV consultancy work (currently SofiaDigital)
- HbbTV organisation and specifications – monitor and report development and features
- HbbTV implementation:
  – Monitor and report HbbTV implementation in NorDig networks and other networks,
  – Monitor and report implementation status on IRD side
  – Monitor and discuss experience and issues/problems with launching HbbTV services
  – Write Guidelines on Operators and broadcasters use of HbbTV, possible cooperation
- DRM for HbbTV
  – Monitor HbbTV DRM implementation, interest for common DRM requirements
  – Monitor technologies and functionality (common encryption, CAM/CI+ etc)
- *RoO – support and propose text for HbbTV to RoO group (API+PVR subgroup task)*

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NorDig HbbTV test cases - Detailed background and status:

- NorDig decided to develop during 2014 a number of important HbbTV test cases for NorDig hybrid that where missing in the HbbTV standard test suit (e.g. related to subtitling and Nordic languages).
- NorDig HbbTV test cases made on same format as HbbTV's Standard test cases and most of NorDig test cases will be included as optional in coming HbbTV standard test suit.
- NorDig had to pay editor (Sofia Digital) for development of NorDig test cases (no volunteer editor), shared cost NorDig, NRK and DR (for NorDig 8 + 4.5 kEUR). Much more extra work than expected and much of the work has been to learn developing/"writing" HbbTV test cases.
- NorDig Excom has decided to make these NorDig developed test cases <u>open available</u> in our NorDig website (in addition to be incl in HbbTV test suit), to ensure IRD manufactures really incl these tests in the testing. (HbbTV standard test suit/harness is not open has a fee that intended to cover contributors cost for developing test cases).
- NorDig has within our work of contributing test cases into HbbTV been granted access to their test case website for contributing and updating test cases (HbbTV's repository, admin contact NRK, Erik Vold).
- Status 17th December 2014:
  - TRAA (Test Repository Access Agreement) and TMPA signed by Sofia Digital with HbbTV.
  - Repository access established and verified.
  - TSLA (Test Suite Licencing Agreement) for Nordig Test Cases proposal to be sent to Nordig before end of 2014.

- Now NorDig well educated in writing HbbTV test cases and access to HbbTV repository can much easier develop any further test cases.
- For the future is to ensure that our NorDig HbbTV test case proposal are corrected and at all time updated, this mean Maintenance of the Test cases.

NorDig HbbTV test cases - background and status:

- NorDig HbbTV test cases that have been uploaded late December 2014 to HbbTV repository:
    - 0010 parental control and blocking application.
    - 0031 EBU teletext, no HbbTV teletext.
    - 0031 HbbTV teletext, no EBU teletext.
    - 0032 EBU teletext and HbbTV teletext.
    - 0034: No EBU Teletext, no HbbTV teletext.
    - 0035: No EBU teletext, HbbTV teletext signalled but not available.
    - 0040: EBU subtitles over broadband TS, A/V object, no scaling.
    - 0041: EBU subtitles over broadband TS, A/V object scaled down.
    - 0042: EBU subtitles over broadband TS, A/V object scaled up.
    - 0050: Broadcast video scaling, 1 x 1.
    - 0051: Broadband TS video scaling, 1 x 1.
    - 0052: Broadband MP4 video scaling, 1 x 1.
    - 0060: EIT P/F, characters.
    - 0061: EIT MetadataSearch, characters

- **Future detailed planning within NorDig HbbTV Test case work 1H2015:**
    - Completion of all test tasks and packaging the NorDig Test Suite as an optional part of the official HbbTV Test Suite
    - Completion of the documentation for the different tests
    - Agreeing on yearly maintenance project
    - Responding to test material challenges
    - Necessary for following new developments inside HbbTV and DTV in general
    - Proposals for new assertions
    - Responding to queries about the individual tests
    - Providing support for individual manufacturers wanting to run NorDig HbbTV Test cases
    - Communicating towards HbbTV Association and acting as the technical contact in all matters related to NorDig HbbTV and HbbTV in general
    - For Ex-Com approval 27 Jan 2015 on budget for coming work
    - Work will probably continue uninterrupted with regards to ongoing reviews until middle of 2015

NorDig HbbTV test cases - status report from Juha Joki, Sofia Digital (page 1/3)**:**

109 tests defined for Nordig HbbTV Test Suite

Status 26th January 2015:

- 71 tests completed and marked as OK - pending for manufacturer and operator reviews
- 4 tests are lacking a verified stream, but test code is OK
- 8 tests to be obtained from DTV Labs and packaged together with the Nordig Test Suite (pending approval of Nordig Test Suite License agreement text)

- 11 samsung provided tests need informational text change in test and assertion (70,80,82,100,101,110,200,210,240,250 and 260)
- 16 Samsung provided tests need information text change in assertion (220, 230, 270, 280, 290, 300, 310, 320, 330, 340, 341, 350, 351, 400, 410 and 420)

NorDig HbbTV test cases - status report from Juha Joki, Sofia Digital (page 2/3) **:**

TEST	STATUS	DESCRIPTION	COMMENTS
com.samsung_00000010	OK	Exit button on broadcast independent application: restore broadcast video.	
com.samsung_00000020	OK	Exit button: restore broadcast video from PIP mode.	
com.samsung_00000050	OK	Setting of preferredUILanguage	same as tv.oipf_DAE-CONFIGURATION_SETTING-023?
com.samsung_00000060	OK	Updating preferredUILanguage after language change in Navigator	
com.samsung_00000100	OK	Disabling subtitles.	needs change in instructions
com.samsung_00000101	OK	Disabling subtitles over broadband TS.	needs change in instructions
org.nordig_0010	OK	Parental rating blocks application	needs stream without stuffing and correct pids
org.nordig_0030	OK	EBU teletext, no HbbTV teletext	
org.nordig_0031	OK	HbbTV teletext, no EBU teletext	
org.nordig_0032	OK	EBU teletext and HbbTV teletext	
org.nordig_0033	OK	EBU Teletext, HbbTV teletext signalled but not available	
org.nordig_0034	OK	No EBU Teletext, no HbbTV teletext	Test restarting
org.nordig_0035	OK	No EBU teletext, HbbTV teletext signalled but not available	
org.nordig_0040	OK	EBU subtitles over broadband TS, A/V object, no scaling	
org.nordig_0041	OK	EBU subtitles over broadband TS, A/V object scaled down	
org.nordig_0050	OK	Broadcast video scaling, 1x1	maybe add instructions (or even additional tests) about TV screen setup
org.nordig_0051	OK	Broadband TS video scaling, 1 x 1	maybe add instructions (or even additional tests) about TV screen setup
org.nordig_0052	OK	Broadband MP4 video scaling, 1 x 1	maybe add instructions (or even additional tests) about TV screen setup
org.nordig_0060	OK	EIT P/F, characters	
org.nordig_0061	OK	EIT MetadataSearch, characters	
org.hbbtv_00003850	OK	OIPF Configuration: preferredAudioLanguage	same as tv.oipf_DAE-CONFIGURATION_SETTING-021?
org.hbbtv_00003860	OK	OIPF Configuration: preferredSubtitleLanguage	same as tv.oipf_DAE-CONFIGURATION_SETTING-022-001?
org.hbbtv_00003870	OK	OIPF Configuration: countryId	
org.hbbtv_AVC00060	OK	getComponents(COMPONENT_TYPE_AUDIO) method of video/broadcast object returns correct collection of audio AVcomponents.	
org.hbbtv_AVC00070	OK	getComponents(COMPONENT_TYPE_SUBTITLE) method of video/broadcast object returns correct collection of subtitle AVcomponents.	
org.hbbtv_AVC00100	OK	Terminal correctly recognizes language of audio AVComponents.	
org.hbbtv_AVC00110	OK	Terminal correctly sets audioDescription of audio AVComponent.	
org.hbbtv_AVC00130	OK	Terminal correctly recognizes language of subtitle AVComponent.	
org.hbbtv_AVC00140	OK	Terminal correctly recognizes hearing impaired of subtitle AVComponent.	
org.hbbtv_AVC00145	OK	Terminal correctly returns active AVComponents using getCurrentActiveComponents(componentType) method of video/broadcast object.	
org.hbbtv_AVC00150	OK	Terminal correctly switches AVComponents using selectComponent(AVComponent component) method of video/broadcast object.	
org.hbbtv_AVC00155	OK	Terminal correctly updates active AVComponents collection.	
org.hbbtv_AVC00160	OK	SelectedComponentChange callback is called when selectComponent switches	
org.hbbtv_AVC00170	OK	Unselecting COMPONENT_TYPE_VIDEO stops rendering video AVComponent.	
org.hbbtv_AVC00180	OK	Unselecting COMPONENT_TYPE_AUDIO stops rendering audio AVComponent.	
org.hbbtv_AVC00190	OK	Unselecting COMPONENT_TYPE_SUBTITLE stops rendering subtitle AVComponent.	
org.hbbtv_AVC00200	OK	Terminal restore rendering video AVComponents after	
org.hbbtv_AVC00201	OK	Terminal restores rendering audio AVComponents after	

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NorDig HbbTV test cases - status report from Juha Joki, Sofia Digital (page 3/3):

TEST	STATUS	DESCRIPTION	COMMENTS
org.hbbtv_AVC00202	OK	Terminal restore rendering subtitle AVComponents after selectComponent(COMPONENT_TYPE_SUBTITLE) calling.	
org.hbbtv_AVC00210	OK	Terminal selects by default audio AV component with language equal preferredAudioLanguage property of Configuration object.	
org.hbbtv_AVC00220	OK	Terminal selects by default subtitle AVcomponent with language equal preferredSubtitleLanguage property of Configuration object.	
org.hbbtv_AVC00230	OK	video/broadcast object updates component collection, if broadcasted data related to AV components changes.	
org.hbbtv_AVC00235	OK	SelectedComponentChange is called, if AVcomponent being presented is no longer available.	
org.hbbtv_AVC01060	OK	getComponents(COMPONENT_TYPE_AUDIO) method of A/V control object returns correct collection of audio AVcomponents from mp4 file.	
org.hbbtv_AVC01070	OK	A/V Control object correctly sets language of audio AVComponents.	
org.hbbtv_AVC01080	OK	Terminal correctly reads active AVComponents using getCurrentActiveComponents(componentType) method of A/V Control object.	
org.hbbtv_AVC01099	OK	onSelectedComponentChanged callback is called when terminal switches AVComponents using unselectComponent(AVComponent component) method of A/V Control object.	
org.hbbtv_AVC01101	OK	Terminal correctly switches AVComponents using selectComponent(AVComponent) method of A/V control object	
org.hbbtv_AVC01110	OK	Terminal stops presenting video AV component when unselectComponent(COMPONENT_TYPE_VIDEO) of A/V Control object is called.	
org.hbbtv_AVC01120	OK	Terminal stops presenting audio AVcomponent when unselectComponent(COMPONENT_TYPE_AUDIO) of A/V Control object is called.	
org.hbbtv_AVC01130	OK	Terminal starts to render AVComponents using selectComponent(componentType) method of A/V Control object.	
org.hbbtv_AVC01140	OK	A/V control object updates component collection after start of playing different mp4 file.	
org.hbbtv_DA540750	OK	DASH stream transitioning from progressive to interlaced video content	
org.hbbtv_DA540760	OK	DASH stream transitioning from 25fps video to 50fps video content	
org.hbbtv_DA540980	OK	DASH stream with 1 video AdaptationSet and 15 audio AdaptationSets	
org.hbbtv_DA540990	OK	DASH stream with 1 video representation and 16 audio representations	
org.hbbtv_EAC30013	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, MP4 container (audio language change during test)	
org.hbbtv_EAC30013_2	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, MP4 container (English) (audio language change before test)	
org.hbbtv_EAC30013_3	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, MP4 container (French) (audio language change before test)	
org.hbbtv_EAC30014	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, HbbTV ISOBMFF Live profile (English) (audio language change during test)	
org.hbbtv_EAC30014_2	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, HbbTV ISOBMFF Live profile (English) (audio language change	
org.hbbtv_EAC30014_3	OK	Test of support for Multiple Languages from multiple E-AC-3 elementary streams, HbbTV ISOBMFF Live profile (French) (audio language change before test)	
tv.oipf_DAE-CONFIGURATION_SETTING-021	OK	Configuration - preferredAudioLanguage	
tv.oipf_DAE-CONFIGURATION_SETTING-022-001	OK	Configuration - preferredSubtitleLanguage (OIPF 1)	
tv.oipf_DAE-CONFIGURATION_SETTING-023	OK	Configuration - preferredUILanguage	
org.hbbtv_DDP-GC-LANG-DASH	OK	AV Components: getComponents() returns correct the 'language' strings for multiple DD+ (EAC3) audio components in a DASH stream	
org.hbbtv_DDP-GC-LANG-MP4	OK	AV Components: getComponents() returns correct the 'language' strings for multiple DD+ (EAC3) audio components in an mp4 stream	
org.hbbtv_DDP-GC-LANG-TS	OK	AV Components: getComponents() returns correct the 'language' strings for multiple DD+ (EAC3) audio components in a TS stream	
org.hbbtv_DDP-SC-LANG-DASH	OK	AV Components: Selecting audio components from a DASH stream with multiple language DD+ (EAC3) audio components	
org.hbbtv_DDP-SC-LANG-MP4	OK	AV Components: Selecting audio components from an mp4 stream with multiple language DD+ (EAC3) audio components	
org.hbbtv_DDP-SC-LANG-TS	OK	AV Components: Selecting audio components from a TS stream with multiple language DD+ (EAC3) audio components	

NorDig API - Details proposal/offer for Test Cases maintenance from Sofia Digital for period 2015:

General

The API group of the NorDig organization has implemented the initial set of NorDig HbbTV test cases with Sofia Digital and the maintenance and support terms of these test cases are set under this offer.

Terms of the Project

- Sofia Digital will start the maintenance 1st February until end of 2015.
- Allocated working time is one working day for each month until June and half working day from July 2015.
  - Period A (February – June 2015) 5 months * 675 EUR = 3375 EUR
  - Period B (July – December 2015) 6 months * 337,5EUR = 2050 EUR
- Year 2015 maintenance total = 5400 EUR.

Description of the tasks

Basic (first priority) tasks:

1. Maintaining the NorDig Test Case repository as part of the HbbTV Test Repository and providing the test package for individual downloads via the Nordig.org website (or similar)
2. Responding to queries about individual test cases
3. Bug fixing of test cases and assertions provided by Sofia Digital
4. Communicating towards HbbTV Association and acting as the technical contact in matters related to NorDig HbbTV and HbbTV in general (for example forwarding questions to the test authors)
5. Responding to test material –related general questions coming from NorDig member and groups

Additional (second priority) tasks:

- Following new developments inside HbbTV and DTV in general
- Proposals for new assertions for new specification requirements

Optional (subject to separate agreement between Sofia Digital and NorDig or individual manufacturer) tasks:

- Providing support to individual manufacturers wanting to run NorDig HbbTV Test cases
- Any other consultancy related to NorDig testing

Commercial Terms: Costs are invoiced annually at the beginning of each period. Prices exclude any possible value added taxes or duties, which shall be paid by the customer. Sofia Digital can issue invoices according the Customer requirements. Invoices can be for example split into 2 or more segments. This Proposal is valid until February 28 2015.

NorDig Accessibility

Informative: Detailed proposed activities and mandates **from NorDig T to Accessibility** subgroup (based on mandates from Excom):

- IRD:
    - Maintain and update current Accessibility requirements for NorDig IRDs. (all minor)
    - Update guidelines wordings in GUI and translations
    - Recommendation Remote Control related to accessibility settings, check if possible to get a RC key for changing Accessibility setting or modify current requirements and recommendations. (Ensure RC can be via Smartphones etc)

- Test Plan
    - Support Test group to review test cases related to Accessibility

- RoO
    - Support RoO and come with proposals related to Accessibility

- Others and info
    - Work with harmonization of broadcast and better describe current broadcast for IRD manufactures
    - Advanced Clean Audio / Dialogue Enhancement - investigate members interest for this and if they are able to broadcast this
    - Spoken subtitling, investigate how NorDig broadcasters today broadcast this and how much difference there is around this in NorDig broadcast.
    - HbbTV for Accessibility services – investigate how HbbTV can be used for Accessibility and if needed propose changes to IRD and RoO requirements
    - Investing new technology and equipment for accessibility services.
    - (SVT) Investigate more in to adjusting volume for receiver mixing (if needed)

NorDig Audio

Informative: Detailed proposed activities and mandates **from NorDig T to Audio** subgroup (based on mandates from Excom):

- **IRD:**
    - Maintain and update current Audio requirements for NorDig IRDs. (all minor)
    - Participate in Accessibility sub group
- **Test Plan**
    - Support Test group to review test cases related to Audio
- **RoO**
    - Support RoO and come with proposals related to Audio (main focus)
- **Others and info**
    - Dolby AC-4, monitor and get more info about its efficiency and functionality (not yet proposed to specify).
    - Monitor and report NorDig members interest for new audio and video codecs (HEVC, 3D Audio etc) and formats. (New codec like HEVC would probably also need review of HDMI, SI and maybe audio requirements etc).
    - Surround sound, is it possible to reduce the problems with down-mixing, especially investigate broadcast side.
    - Advanced Clean Audio / Dialogue Enhancement - investigate the algorithms

NorDig Video - Informative:

- **Multiplex layer**
  - Broadcast: MPEG2 Transport stream used for all types (SD, HD, UHD) and codecs (MPEG2, MPEG4 AVC and MPEG-H HEVC)

- **TV Format:**
  - Interlaced SDTV, up to 720x576i25fps, MPEG2 and subset of MPEG4 AVC HD – NorDig requirement
  - Progressive SDTV
  - Interlaced HDTV, up to 1920x1080i25fps, MPEG4 AVC and subset of MPEG-H HEVC HD "phase 1" – *NorDig requirement*
  - Progressive HDTV, up to 1280x720p50fps, MPEG4 AVC and subset of MPEG-H HEVC HD "phase 1" – *NorDig requirement*
  - Progressive "Full HDTV", up to 1920x1080p50fps, MPEG4 AVC and MPEG-H HEVC HD "phase 1" *(not specified in NorDig)*
  - Progressive UHDTV phase 1, up to 3840x2160p50fps, MPEG-H HEVC UHD phase 1 *(not specified in NorDig)*
  - Under development: Progressive UHDTV phase 2, TBD (new TV format from SMPTE/ITU), MPEG-H HEVC ("phase 2")

- **DVB's Codec** (with relevance for us in NorDig using 25/50Hz systems)**:**
  - MPEG-2, SD profile – *NorDig requirement*
  - MPEG-4 AVC, HD profile (for us HDTV which includes SDTV, but DVB has also defined an MPEG-4 SDTV) – *NorDig requirement*
  - MPEG-4 AVC, "full HD" profile (1080p50fps, only 8-bits) *(not specified in NorDig)*
  - MPEG-H HEVC "full HD" profile "phase 1", (1080p50fps, 8 and 10-bits) *(not specified in NorDig)*
  - MPEG-H HEVC UHD profile phase 1, (2160p50fps, 8 and 10-bits) *(not specified in NorDig)*
  - Under development: MPEG-H HEVC "phase 2", UHD phase 2, TBD (discussed features are more bits, HDR, HFR, more colours…)

- **Interfaces:**
  - SCART (SDTV, NorDig optional)
  - Analogue component (NorDig optional, max SDTV resolution)
  - HDMI v1 (HDTV, NorDig requirement: HDMI v1.4b incl ARC)
  - HDMI v2 (UHDTV phase 1) *(not specified in NorDig)*
  - Future: "HDMI vX" for UHDTV phase 2

- **IRD Support for MPEG-H HEVC** (short indicative check inside NorDig T with TV manufactures)**:**
  - **Samsung:** support HEVC for higher model range, for OTT but also broadcast (future German market etc), uncertain if all UHD or HD
  - **LG:** support HEVC for broad range models (except entry level models), for OTT and broadcast
  - **Sony:** support HEVC for higher model range, for OTT and broadcast for some markets
  - **Vestel:** developing support for HEVC for higher model range, for OTT maybe broadcast

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NorDig Video - Informative:

Short overview summary Video Formats and Video Codecs in DVB specs (as per Jan 2015):

	MPEG-2 H.262	MPEG-4 AVC HD H.264	MPEG-H HEVC HD H.265	MPEG-H HEVC UHD H.265	H x V t fps	SD	SD+	HD--	HD-	HD	HD	Full HD	UHD--	UHD-	UHD	UHDp2
SD-			n/a	n/a	352x288i25	0,24	0,1	0,1	0,07	**0,06**	0,049	0,024	0,014	0,009	0,006	0,003
SD			n/a	n/a	720x576i25	**1**	0,4	0,4	0,27	**0,23**	0,2	0,10	0,06	0,04	0,02	0,01
SD+	n/a	n/a			960x540p50	2,5	**1**	1,0	0,67	0,56	0,5	0,25	0,14	0,09	0,06	0,03
HD--			n/a	n/a	960x1080i25	2,5	1	**1**	0,67	0,56	0,5	0,25	0,14	0,09	0,06	0,03
HD-					1440x1080i25	3,8	1,5	1,5	**1**	0,84	0,75	0,38	0,21	0,14	0,09	0,05
HD					1280x720p50	4,4	1,8	1,8	1,2	**1**	0,89	0,44	0,25	0,16	0,11	0,06
HD					1920x1080i25	5	2	2	1,3	**1,1**	**1**	0,5	0,28	0,18	0,12	0,06
Full HD					1920x1080p50	10	4	4	2,7	**2,3**	2	**1**	0,56	0,36	0,25	0,12
UHD--					2560x1440p50	18	7,1	7,1	4,7	4	3,6	1,8	**1**	0,64	0,44	0,22
UHD-					3200x1800p50	28	11	11	7,4	6,3	5,6	2,8	1,6	**1**	0,69	0,35
UHD					3860x2160p50	40	16	16	11	**9**	8	4	2,3	1,4	**1**	0,50
UHDp2					3860x2160p100	80	32	32	21	**18**	16	8	4,5	2,9	2	**1**

(MPEG-2 refers to DVB's MPEG-2 SD profile, MPEG4 AVC refers to DVB's MPEG4 720p/1080i HD profile, HEVC UHD refers to DVB's HEVC UHDTV phase 1 profile)

(UHDp2 refers to UHDTV phase 2 which is still very much under discussion in DVB, ie not defined by DVB CM and is here just an example of how it could become. For UHD Phase2 it is discussed to be based on a new TV format with more colors, higher dynamic range, higher frame rates etc.)