NorDig T report to Excom

NorDig Excom meeting 11th March 2021 (webinar/Teams)
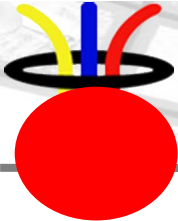
Agenda (draft):
Place: Webinar due to covid-19

1. **Agenda and report from previous meeting**
2. **Organizational matters**
   - 2.1. Membership situation
   - 2.2. Finance matters, budget
   - 2.3. Organizational matters

3. **Report from NorDig/T** (Per T/NorDig T)
   - 3.1 Progress report
   - 3.2 NorDig technical specifications, draft proposal package v3.1.2
     - NorDig Unified IRD specification (IRD) v3.1.2, *see slide 2-4*
     - NorDig Rules of Operation (RoO) v3.1.2, *see slide 2*
     - NorDig Test Plan v3.1.2, *see slide 2*
   - 3.4 New mandates for NorDig/T for period 2021-2022, *proposal see slide 8-9*

4. **Report from Industry**
5. **Reports from members, DVB and other**
   - 5.1 NGA presentation
6. **Any other business**
   - 6.1 Proposals of special topics for autumn 2021 meeting
7. **Date and place for the meetings in 2020/21**

Green Text: text highlighted for Excom **(waiting Excom decision/approval)**

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Unified IRD specification

- Latest published: NorDig IRD spec v3.1.1 (published September 2019)
- New draft proposal IRD v3.1.2 d003 now ready, waiting Excom approval
  - main changes: video dHDR, audio AC-4, HbbTV v2.0.3, terrestrial (removal 700-800MHz)
  - remains: reference list, cross-ref and spelling
  - Video dHDR (dynamic metadata HDR), see slide 3,
  - Audio NGA/AC-4 update/correction – adding clarifications and missing options, see slide 4
  - **Proposal**: make reference list same in IRD, Test Plan & RoO (simplified future maintenance)

- Test Plan – *up to date*
  - Latest published: NorDig Test Plan v3.1.1 (published September 2019) + Test streams [NGA/AC-4 + old LTE interference stream]
  - New draft proposal Test Plan v3.1.2 d001 now ready, waiting Excom approval
    - main changes: terrestrial (removal 700-800MHz)
    - remains: reference list,
  - (prev discussed TTML reference test streams, DVB has late 2020 published ref. test streams, made by IRT etc)

- Rules of Operation
  - Latest published: NorDig RoO v3.1.1 (published September 2021)
  - New draft proposal RoO v3.1.2 d001 now ready, waiting Excom approval
    - main changes: SSU, HbbTV, terrestrial (removal 700-800MHz), General description
    - remains: reference list, cross-ref and spelling
    - Updates mainly remaining parts from work with v3.1.1 (SSU, HbbTV, "intro" about broadcast chain)

- EPG/EIT metadata exchange format
  - Latest published: NorDig Metadata Exchange format specification v1.3, Guidelines v1.3.1 and Genre list v1.1

- Website and admin *- no changes*

Dynamic metadata HighDynamicRange (dHDR) video

- *NorDig Excom decided, Oct 2019*
  - *Decision to not mandate dHDR, but add if dHDR is used then signaling shall be as DVB specified and IRDs shall not be disturbed by formats not supported. AP for NorDig T to prepare proposal.*

- NorDig T/video dHDR – draft proposal inside draft IRD spec v3.1.2, March 2021
  - *(Oct2020 – two proposals: draft008 drafted inside main NorDig T group, reached a more or less acceptable & stable text proposal in May 2020, supported by most inside NorDig/T. A late draft011 Sep2020 alternative draft from Samsung supported by Sony, "minimalistic" draft, seen as non-complete by several other inside NorDig/T, no consensus inside NorDig T but majority for d008. More background in Annex D, E and F).*
  - dHDR proposal inside draft IRD spec v3.1.2 based upon dHDR draft008 (with only smaller changes for spelling and selecting formulation alternative with same meaning)
  - Voting inside NorDig T jan2021, absolute majority supported draft008 (only Samsung & Sony in favour for draft011) NorDig T group then selected draft008 (with some smaller changes) as final proposal.

  - NorDig T (majority) view was that the alternative draft011 is not mature and not technical complete (only Samsung & Sony other view)
  - NorDig T asked Samsung & Sony to present a more technical complete draft than draft011 to Jan2021, but they have not presented any updated draft to discuss around.
  - Several IRD manufactures (LG, Panasonic, TP Vision) support d008 and asks Samsung and Branschkansliet to NOT state that their companies are against d008. (They are surprised by Branschkansliet's (Nordic trading organisation) letter to Excom chair).
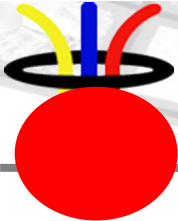 - Excom view?

SDR   Static HDR   Dynamic HDR

NorDig IRD specification v3.1.2 – Audio (same as reported to Excom in Oct2020):

- TV manufactures (Samsung and LG) has identified and asked questions around some missing <u>corner cases</u> related to audio stream selection.
    - Audio Prioritisation inside the NGA Audio PID/stream , cases related to PMT APD signalling and inband ac4_toc signaling.
    - (legacy a.codec) Supplementary Audio, if broadcaster/network do not transmit according to DVB/Nordig recommendation (i.e. do not incl suppl_audio_descriptor) and
- NorDig T/Audio has drafted
    - clarification for NGA prio
    - clarification for Supplem. Audio handling if some signaling is missing and
    - (Annex) flowchart guide for Audio prio
- Draft agreed & stable within NorDig T/Audio (ready for next IRD spec release)

NorDig EPG group and Event exchange file format:

- *Keep TV Anytime spec up to date*

- *Updated of guidelines*

- *Work to promote / help impl and use of NorDig EPG/event file format*

- Open workshop 2nd Oct 2020 (webinar)

- Last period,

  - Genre list w translations (v1.1 incl missed translation to Irish),

  - Exchange implementation experience of NorDig TV Anytime

  - Discussion of using EPG data to help with audience measurement and how to generate ids.

- Status of implementation and use of NorDig common EPG/Event metadata exchange format, done or in process: NRK, TV2DK, TV2NO, DR, TDC, Red Bee Media, SimpleTV, SVT and Teracom.

- DVB video&audio codec
  - Under study new future codecs

- DVB-I
  - DVB finalised specs
  - Italy UHD receiver spec foresees mandatory DVB-I support (under some conditions Italian broadcasters' successful proof-of-concept & trials etc. See more info at https://dvb.org/news/new-italian-receiver-spec-foresees-mandatory-dvb-i-support/)
  - Several NorDig Operators has today already their hybrid broadcast & broadband live TV services but with proprietary solution.

- DVB TA (Target Advertising)

Excom view?

NorDig Unified IRD spec future – next version ("v3.1.3") proposals:

- General
- FrontEnd
- Demultiplexing
- Video
- Audio
- Subtitling
- Interfaces & CA/CP/Security
- SSU
- PSI/SI, menus etc…
- PVR
- HbbTV
- User Preferences

- Others?
  - DVB-I?

Excom view?

NorDig T – PROPOSED mandates & items for period 2021-2022 – waiting Excom input & approval

- General:
  - Keep IRD, RoO and Test Plan in line with each other
  - Maintain and keep NorDig spec up to date (debug, reference list to international spec is up to date etc)
  - Monitor DVB, HbbTV and other relevant IRD specs changes and new technologies
- NorDig Unified IRD spec
- NorDig RoO specification
  - Review sections that are not fully updated,
    - focus on helping broadcasting avoid issues for IRD/viewers
    - Additions to DVB
    - minimize and shorten text that are mainly relevant for the IRD
- NorDig Test and Test plan
  - Maintain and update NorDig Test plan to match IRD spec
    - Review and where possible combine similar test cases to make it easier and faster to test
    - "minimize" redundant test cases if possible without compromising with test quality, to speed up time for verification testing.
    - Update and improve test cases
- NorDig EPG exchange file format
- Excom inputs?

continue new PROPOSED NorDig T mandates & items for period 2021-2022

- Video, audio, subtitling
  - monitor DVB specifications and recommendations and I/O (HDMI).
  - **NGA&TTML:** monitor NGA&TTML audio usage and experience (in order to help NorDig member using/launching NGA &/or TTML).
- HbbTV
  - NorDig HbbTV test and test cases; maintain NorDig developed test cases. Propose new test cases if needed.
  - NorDig HbbTV IRD requirements; maintain and update HbbTV requirements. Investigate, present and when confirmed by Excom draft proposal for new HbbTV requirement that are of interest for NorDig members
  - HbbTV implementation: Monitor and report HbbTV implementation in NorDig networks & IRD side, exchange experience
- Accessibility
  - Work with harmonization of broadcast and better describe current broadcast for IRD manufactures
  - HbbTV for Accessibility services – investigate how HbbTV can be used for Accessibility and if needed propose changes to IRD and RoO requirements
  - Investigate benefits with NGA for accessibility
- CA and CI
- DVB-I ?

Excom view? anything else?

- EPG/Event exchange file format:
  - Promote use for NorDig members for example via open workshops to support promoting and implementation of NorDig TVA format.
  - Maintain NorDig specification of common EPG/Event exchange file format and Guidelines, to be in line with TA Anytime specs

List of Countries using NorDig specifications (outside NorDig members), Nothing new to report, same as last meeting (same as previous report).

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).

Country / Network	Status
Turkey DTT	Confirmed via Vestel
Several eastern Europe countries	Indications, not confirmed
Malaysia *(blue copy)*	Digita
German DTT (Media broadcast/TDF)	Based on/reference to NorDig IRD
Georgia DTT	Based on/reference to NorDig IRD (v2.2)
French DTT/FAVN ??	Based on/reference to NorDig IRD v??
Italien DTT + Satellite	Partly based on/reference to NorDig IRD (v2.5, RF), partly own requirements (e.g. SI)
Poland DTT	Might be based on/reference to NorDig IRD

END presentation
NorDig-T report

DRAFT

After here some detailed informative slides

ANNEX

- Annex A: NorDig T OLD mandates 2019-2020 - informative
- Annex B: NorDig T meeting calendar 2020 - informative
- Annex C: NorDig T subgroups – informative
- Annex D: dynamic HDR video (presentation from Excom Oct2019 and Oct2020 meeting) – informative
- Annex E: draft008 dynamic HDR, text proposals for NorDig IRD spec (main parts), main NorDig T group's draft May'20
- Annex F: draft011 dynamic HDR, Samsung's text proposals for NorDig IRD spec (main parts), supported by Sony Sep'20.

NorDig T – OLD mandates & items for period 2019-2020 - *Excom approved March 2019*

- General: Keep IRD, RoO and Test Plan in line with each other

- RoO
    - Maintain and update NorDig RoO - focus for 2019 RoO v3.1.x
    - (Excom Oct 2018) changing layout to same as IRD spec, focus for RoO on items necessary to avoid misbehavior in IRDs.

- Test and Test plan
    - Maintain and update NorDig Test plan to match IRD spec
        - Review and where possible combine similar test cases to make it easier and faster to test
        - "minimize" redundant test cases if possible without compromising with test quality, to speed up time for verification testing.
        - Update and improve test cases

- NorDig Unified IRD spec
    - Maintain and update NorDig IRD specification
        - debugging, references to international standards and specifications are up to date)
    - NorDig IRD spec update - investigate HEVC dynamic HDR
    - Other items (listed since earlier):
        - Review and improve IRD's auto update for network changes?
        - Handle mix of broadcast and OTT in same channel list? (similar to or based upon DVB-I)

continue NorDig OLD mandates & items for period 2019-2020

- Video, audio, subtitling
    - **Video** codec: NorDig's first subset of HEVC (DVB's UHD, HDR&WCG, SFR), incl video processing and I/O (HDMI).
    - **New Video** codec: monitor/investigate issues with adding HEVC dHDR support, check with Industry, make proposal
    - **New Video** codec: If Excom decide, propose tech requirements for dynamic HDR
    - **Video**: Secure good IRD implementation for mixing/blending of SDR content (HbbTV, menus, subtitling) on top of HDR video.
    - **Audio** NGA (Dolby AC-4), monitor DVB and Dolby specifications and recommendations
    - **Audio:** monitor evolution immersive audio and object based audio.
    - **Audio:** if it is possible supports with tests and trials of NGA audio (both basic NGA and more advanced NGA).
    - **Subtitling**: monitor DVB specifications (TXT subt, DVB Subt, TTML).
    - **HbbTV**: Investigate use and mandate of new codes (HEVC and NGA) for (HEVC) HbbTV/Hybrid IRDs.

continue NorDig OLD mandates & items for period 2019-2020

- HbbTV
  - NorDig HbbTV test and test cases:
    - Maintain NorDig developed test cases. Propose new test cases to be developed if needed.
  - NorDig HbbTV IRD requirements:
    - Maintain and update HbbTV requirements
    - Monitor and report HbbTV spec development and usage.
  - 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).
    - Investigate DVB-TA watermarking, impact V/A and possibility to use for STB solutions where STB do not support HbbTV (STB bypass)
  - 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
  - HbbTV DRM
    - Monitor HbbTV DRM
    - Review security requirements

continue NorDig OLD mandates & items for period 2019-2020

- Accessibility
  - Work with harmonization of broadcast and better describe current broadcast for IRD manufactures
  - Subtitling, propose updates and new IRD requirements both for normal and hard-of-hearing subtitling.
  - Create document explaining the work of the group, (which ExCom members to pass this to their internal accessibility teams). Gather information from accessibility groups and broadcasters to understand what their pain points are.
  - Set up a best practice workshop with broadcasters, manufacturers and distributors
  - Investigate the implications for streaming services on accessibility
  - HbbTV for Accessibility services – investigate how HbbTV can be used for Accessibility and if needed propose changes to IRD and RoO requirements
  - Investigate benefits with NGA for accessibility.
- 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.
  - Review security requirements
- EPG/Event exchange file format:
  - Promote use for NorDig members for example via open workshops to support promoting and implementation of NorDig TVA format.
  - Maintain NorDig specification of common EPG/Event exchange file format and Guidelines, to be inline with TA Anytime specs
  - Common solution and recommendations about unique program ID's.
  - Translation of genres between Nordic and Irich language and English.
  - Transform NorDig TVA XML schemas to JSON and developing guidelines for using TVA with JSON (on request from developers)

NorDig T (main group) meeting calendar 2021:

- NorDig T, #1, 13th January 2021, webinar, 10:00-12:00
- NorDig T, #2, 3rd February 2021, webinar, 10:00-12:00
- NorDig T, #3, 3rd March 2021, webinar, 10:00-13:00 CET.

  Informative Excom 11th March 2021

- NorDig T, #4, 31th March 2021, webinar, 10:00-12:00 CET
- NorDig T, #5, 26th May 2021, webinar, 10:00-12:00 CET,
- NorDig T, #6, 1st September 2021, webinar, 10:00-12:00 CET
- NorDig T, #7, 29th September 2021, webinar, 10:00-12:00 CET

  Informative Excom 14th October 2021

- NorDig T, #8, 3rd November 2021, webinar, 10:00-12:00 CET
- NorDig T, #9, 8th December 2021, webinar, 10:00-12:00 CET.

Overview - informative

group – status - chairman

NorDig T – *active* – *Per Tullstedt, Teracom*

NorDig T subgroups – status

- Audio – *active* – *Johan Lindroos, SVT*

- Test – *active* – *Pasi Toiva, Labwise*

- RoO – *Des Mac Giolla an Chloig, RTÉNL and Peter Mølsted consultant (NorDig tech secretary)*

- Accessibility – *dormant* – *Kjell Norberg, NRK*

- HbbTV/API/PVR – *active* – *Erik Vold, NRK*

- EPG/Event exchange metadata – *active* - *Peter Mølsted, consultant (NorDig tech secretary)*

- *SSU – within NorDig T*

- *CA/CI+/Sec – within NorDig T*

- *Video – within NorDig T (been active for v3.1.1 now dormant)*

From NorDig Excom meeting Oct2019:

Summary mini-study and proposal NorDig HEVC extensions dynamic HDR:

- dHDR
    - DVB has specified three formats [Technicolor/Philips SL-HDR2, Samsung HDR10+, Dolby Vision]
    - no result f comparing, coming/already in several TV sets to some degree (not as DVB specified),
    - Service plans in Europe: OTT several, broadcast: some considering and trails
    - NorDig Broadcasters: high interest from broadcasters (for usage in some program events, like drama productions)
    - Broadcasters might need to deliver (broadcast and OTT) different dHDR for different content (due to restriction from content owners etc), therefore complex for NorDig to select only one format
    - NorDig specification today includes sHDR (HLG + PQ)
    - NorDig work around dHDR:
        - NorDig Excom will collect from members/broadcasters service plans and intensions and (regularly) present it the Industry /NorDig T (planned to be presented at Excom meeting 10th Oct 2019)
        - **NorDig T/video group study more, report back in Oct 2019 (waiting Excom decision before start drafting)**
        - **If NorDig is interested in adding dHDR:**
            - **Technical evaluation among 3 candidates is expected to be TOO difficult to achieve with "correct" conclusions within NorDig (too many dependencies) in order to select ONE.**
            - **IF one format is to be selected, NorDig T would only be able to make a technical info gathering similar as NGA work (e.g. collect tech info, licenses etc) AND would be very difficult to come with a recommendation for a single dHDR AND would need to establish well defined criteria before**
            - **Alternative for selecting ONE system could be to:**
                - **dHDR optional, where used dHDR signaling shall be as DVB specified and that IRD shall not be disturbed by formats not supported or**
                - **Not mention/recommend dHDR, BUT incl that IRD shall not be disturb by formats not supported**

Excom Oct2019 decision:
- At present time Public Service Broadcasters has no concrete plans and low interest for dHDR
- Excom decision to not mandate dHDR
- Excom decide to add into next NorDig IRD spec if dHDR is used then signaling shall be as DVB specified and IRDs shall not be disturbed by formats not supported. AP for NorDig T to prepare proposal, (however this item is not seen as important to trigger any immediate release of new spec, instead item to be incl whenever next release is released)

From NorDig Excom meeting Oct2020:

- NorDig T/video – dHDR two draft alternatives (draft008/AnnexE and draft011/AnnexF):
  - **Draft008** – the draft that has been developed inside NorDig T group during Oct'19 to May'20, much time and discussions has been spent to find a balance between not adding to much text or requirements but some/enough to ensure if implemented. NOT favouring any of the three dHDR technologies. Proposal might not be perfect for all TV manufactures, but as Per T/chair understood it (May2020) it was then more or less acceptable for all participants, ie almost agreed and stable status. (Mainly been Sony mentioned that they would prefer to not mention dHDR at all).
    - Most in NorDig T except Samsung+Sony either support or can accept this draft.
  - **Draft011** – new input from Samsung Sep2020 (June 2020) supported by Sony. Changes most of previous agreed/acceptable text proposal for dHDR and goes back to almost an earlier proposal that was not agreed inside NorDig T. Motivation for their all changes of previous draft and why so late has according to them been:
    - Issue for manufacturers (technical overload, expectations, costs, no commercial interest), confusions for viewers & broadcasters, little interest for dHDR, broadcasters can already start intro dHDR in current proposal. (however no motivation why they were so late with this proposal, Samsung's representative says he new into NorDig work since April/May).
    - Samsung+Sony support this draft. TP Vision, LG and Panasonic are neutral to both alternatives and can accept either of the drafts (008 or 011).
  - Comments from the others in the NorDig T group for this Samsung+Sony draft011:
    - Draft is not clear and needs more clarifications
    - Draft includes "This specification does not include requirements for…" which is not common for NorDig
    - Weak motivations for removing all the earlier drafted text parts (Samsung mainly refers to that the text have been in "opposition to ExCom request")
    - Disturbance in NorDig T group to come so very late with a proposal tearing up all earlier work and discussions and starting from square 1 again.

From NorDig Excom meeting Oct2020:

Extract of NorDig T group **draft008** text (main part) for dynamic metadata HDR as:

- *Not mandating dHDR + IRD not to be disturbed by dHDR not supported + When used according t DVB specs*

- **NorDig IRD spec** proposed text for dHDR (Yellow highlight is proposed changed/add text)
  - Ch5.1 video, General requirements,
    The following clauses of ETSI TS 101 154 [26] are relevant to this specification:
    5.14.4 "HEVC HDR UHDTV IRDs and Bitstreams" (1). Support for both PQ10 and HLG10 is required for the NorDig HEVC IRD. Only support of 50 Hz and 25 Hz frame rates are required for the NorDig HEVC IRD. Support for Supplemental Enhancement Information messages carrying one or more DMI formats conforming to sub-section 5.14.4.4.3.3.4 is not required i.e. optional. Any non DMI cognisant HEVC HDR UHDTV IRD shall be able to decode and present the service, even if DMI is in the bitstream (i.e. the IRD shall not be disturbed by DMI SEI messages not supported by the IRD) *Note 2: DMI refers to HDR dynamic mapping information and is information associated with one or more frames of the video content as part of a DVB service that can guide dynamic mapping, as produced in a reference viewing environment or otherwise (as defined in ETSI TS 101 154).*
  - Ch5.5 colorimetry, add at the end a note:
    Note: In the case that DMI messages are included in the bitstream, the NorDig Rules of Operation require broadcasters to provide video quality from that bitstream to NorDig HEVC IRDs that do not support DMI at the level that can be expected from a bitstream that does not include DMI messages. DMI enables further enhancement of the video quality.
  - Ch5.5.1 NorDig HEVC STB colorimetry, following changes (only extracted sentenses with changes):
    The complete ANSI/CTA-861-G shall be taken into account, ~~except the "6.10 Extended InfoFrame" and "6.10.1 HDR Dynamic Metadata Extended InfoFrame". (1)~~

    The EDID-information shall be used by the Decoder Format Converter of the NorDig HEVC STB to determine any applicable ~~convert~~ colorimetry conversion, display mapping (if supported) or DMI message pass-through (if supported).

    Hence, the Decoder Format Converter of the NorDig HEVC STB shall output SDR video formats based on the HDR to SDR conversion methods described by the ITU (e.g. ITU-R BT.2390 [90] and operational practises in HDR television production ITU-R BT.2408 [95]) or based on DMI (if supported).
    In Note: The latter for example via user control of overall brightness and contrast. The initial display adaptation can be done by using DMI (if supported) ~~Leads on how to best perform the initial display adaption is~~ or by applying processing derived from the conversion methods described by…
  - Ch5.6 Dynamic changes in the video stream, add at the end of section:
    For NorDig HEVC IRD supporting one or more of the DMI formats, dynamic switching should be handled as described in ETSI TS 101 154 sub-section 5.14.4.4.3.3.4.2 "Dynamic switching between bitstreams with and without DMI".

- SI chapter Ch12.3.6 Component descriptor – add into table stream and component type values for all three dHDR as Optional

From NorDig Excom meeting Oct2020:

Extract of NorDig T group **draft011** proposal vs draft008 (main parts) for dynamic metadata HDR as:

- *Not mandating dHDR + IRD not to be disturbed by dHDR not supported + When used according t DVB specs*

- **NorDig IRD spec** proposed text for dHDR (Green highlighted draft011 text, yellow highlight draft008 text)
    - Ch5.1 video, General requirements,
      This specification does not include requirements for dynamic HDR. Any dynamic HDR metadata would be delivered to the IRD in accordance with ETSI TS 101 154 [26]. The NorDig IRD shall ignore HEVC SEI messages the IRD does not support.
      The following clauses of ETSI TS 101 154 [26] are relevant to this specification:
      5.14.4 "HEVC HDR UHDTV IRDs and Bitstreams" (1). Support for both PQ10 and HLG10 is required for the NorDig HEVC IRD. Only support of 50 Hz and 25 Hz frame rates are required for the NorDig HEVC IRD. Support for Supplemental Enhancement Information messages carrying one or more DMI formats conforming to sub-section 5.14.4.4.3.3.4 is not required i.e. optional. Any non DMI cognisant HEVC HDR UHDTV IRD shall be able to decode and present the service, even if DMI is in the bitstream (i.e. the IRD shall not be disturbed by DMI SEI messages not supported by the IRD) *Note 2: DMI refers to HDR dynamic mapping information and is information associated with one or more frames of the video content as part of a DVB service that can guide dynamic mapping, as produced in a reference viewing environment or otherwise (as defined in ETSI TS 101 154).*
    - Ch5.5 colorimetry, add at the end a note:
      Note: In the case that DMI messages are included in the bitstream, the NorDig Rules of Operation require broadcasters to provide video quality from that bitstream to NorDig HEVC IRDs that do not support DMI at the level that can be expected from a bitstream that does not include DMI messages. DMI enables further enhancement of the video quality.
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      The complete ANSI/CTA-861-G shall be taken into account, except the "6.10 Extended InfoFrame" and "6.10.1 HDR Dynamic Metadata Extended InfoFrame". (1)

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      In Note: The latter for example via user control of overall brightness and contrast. The initial display adaptation can be done by using DMI (if supported) Leads on how to best perform the initial display adaption is or by applying processing derived from the conversion methods described by…
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      For NorDig HEVC IRD supporting one or more of the DMI formats, dynamic switching should be handled as described in ETSI TS 101 154 sub-section 5.14.4.4.3.3.4.2 "Dynamic switching between bitstreams with and without DMI".

- SI chapter Ch12.3.6 Component descriptor – add into table stream and component type values for all three dHDR as Optional

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