

# DVB CM-VR OVERVIEW & ON-GOING WORK

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CM-VR Chair – Ludovic Noblet (b<>com)

# CM-VR BACKGROUND

# STUDY MISSION ON VR

- › Resulted from the DVB study mission on VR
  - Report delivered November 2016
  - One goal: what to do ?
- › Significant piece of work
  - Ecosystem overview
  - Definition and potential range of experiences, challenges for production, prediction of sales and VR equipment, trials, standardization, audio, psycho-physical aspects, delivery, etc
  - [https://www.dvb.org/resources/public/whitepapers/dvb\\_vr\\_study\\_mission\\_report\\_summary.pdf](https://www.dvb.org/resources/public/whitepapers/dvb_vr_study_mission_report_summary.pdf)
- › Conclusions moving forward
  - Launch a CM-VR group, focus on VR/3DOF
  - Cooperate with other SDOs
  - Develop requirements by mid-2018

# CM-VR, TERMS OF REFERENCE (OVERVIEW)

› CM-VR created on June 21<sup>st</sup>, 2017

› Mandate

- *“Target DVB IRDs such as TVs, STBs where the conventional TV display or a connected VR headset or a new “panning” display technology is expected to be the consumption device”*
- *“Target next generation, IP connected devices such as Smart Phones, Tablets, Game Consoles, PCs”*
- *“Making use of DVB broadband and broadcast networks for delivering VR content from broadcasters”*
- *“Intending to deliver an audiovisual experience up to “panoramic/3DOF plus” considering available technologies and realistic deployment scenarios”*

› Quality of experience requirements

- *“Remain to be decided by the group, but the option should be available for delivering VR contents via broadband or broadcast, within a channel of adequate capacity”*

# INTER-SDO COLLABORATION

- › Is one of the mandates for the CM-VR
- › *“Whenever it is relevant, DVB will take into account the work being done by other VR standardization and industry organizations, in particular MPEG, VR Industry Forum and 3GPP. Where appropriate and without prejudice to the process of defining commercial requirements, the CM-VR will produce its best efforts in order to contribute to the harmonization of work across those different organizations”*

# DEVELOPMENT OF COMMERCIAL REQUIREMENTS

# THE WAY THE CM-VR CURRENTLY WORKS (1/2)

- › Ensure the effort is driven toward those who provide content services
  - Relevant commercial requirements = relevant use cases at a service level
- › Step 1: develop end-user stories / use cases, in progress
  - Story (high level and detailed description)
  - Category: e.g. linear channel VR-only, on-demand VR-only, VR as a companion service to a main 2D service
  - How is it relevant to DVB, which groups ?
  - End-to-end aspects: identification of any impact outside the scope of DVB
  - Assumptions about commercial requirements related to that user story / use case
- › Step 2: survey, scheduled end of december
  - Main goal: « does it make sense ? » « do you buy it ? »

# THE WAY THE CM-VR CURRENTLY WORKS (1/2)

- › Step 3: develop detailed commercial requirements for approval by Q2-2018
  - Including identification of other DVB groups which need to be involved



# ON-GOING WORK ON USER STORIES / USE CASES (1/2)

- › 13 submitted user stories / use cases so far
- › Considered into 3 main categories: experience, broadcast/unicast workflow, broadcast/unicast delivery
- › Experience related
  - Live event with VR as synchronized secondary screen (broadband/streaming synchronized with broadcast): 2 proposals, one is very detailed and complete
  - Guided rendering/viewing (e.g. initial viewpoint / recommended viewport, predefined switching to viewports): 2 proposals
  - Support of UGC-like / prosumer contents captured with fish-eye cameras: 1 proposal
  - Subtitling and graphics overlays: 2 proposals

# ON-GOING WORK ON USER STORIES / USE CASES (2/2)

## › Workflow

- VR content preparation for DVB broadcast/broadband delivery (e.g. viewport dependent packing/coding, processing): 1 proposal

## › Delivery

- Question of any backward compatibility requirement for horizontal markets (e.g. display of a 2D portion of a VR content): 2 proposals
- Partitioned delivery for broadcast (e.g. packed sub-streams): 1 proposal

# SURVEY ARCHITECTURE (DRAFT)

- › Yet to be finalized but likely to include questions about
  - Timeframe and commercial services
  - Interdependency with other solutions
  - Quality aspects requirements
  - Infrastructure level conditions
  - Common broadcast/broadband delivery aspects
  - Etc
  
- › To be launched by the end of 2017

THANK YOU