

# 1<sup>st</sup> Draft Document

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## URs for optical disc recorders for television

# New EBU PMC Project P/AGTR

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## “User requirements for optical disc recorders for television”

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# Recording Medium 1

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- **EBU prefers that a single optical disc medium for recording of the recommended signal formats is standardised**
- **Shall be based on consumer product and permit procurement of mass-produced products of stable quality at low price**
- **Technologies applied must be compatible**
- **Many expectations on future applications are based on available interoperability as desired**

# Recording Medium 1

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- **Recording time of 45 min at 50 Mbit/s plus Metadata**
- **Must perform reliably under adverse environmental conditions**
- **Should be more than 1000 times re-writable**
- **Lifetime should be more than 30 years**
- **Media cost less than 20 Euro**
- **Lower operating costs than tape based systems expected**
- **Life time of laser head more than 3000 hours**

# Basic Aspects 1

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- **The optical disc recording system must support special functionalities for broadcast use**
- **High importance on non-linear functionalities**
- **Actual implementation of functionalities may depend on type of device and will be one area of competition; cost may be another one**
- **Recording of thumbnails (key-frames) essential**
- **Generation and recording of Low-Resolution video (browsing) copy on disk may be advantageous**

# Metadata

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- **Generation, exchange, representation and processing of Metadata**
- **Relevant Standards are SMPTE 336M, SMPTE 335M, SMPTE RP 210, ...**
- **Sufficient space must be provided to accommodate uncompressed Metadata**
- **The minimum capacity provided shall be equivalent to the one defined by ...**
- **The minimum Metadata items to be recorded are defined in ...**
- **Metadata recording for different granularities (frame, clip, programme)**

# Metadata, UMID

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- **Automatic generation of Metadata, e.g. UMID,**
- **Subsequent independent recording of Metadata**
- **Metadata to be pre-recordable, editable and enrichable (and by subsequent devices and systems)**
- **Extended UMID source pack generated in acquisition must be preserved throughout production process**
- **Mechanism available to prevent overwriting if necessary**
- **Automatic generation and recording of the extended UMID is required**
- **GPS data shall be ON/OFF switch-able**

# Direct Access to and Exchange of Content



- **Subsequent system must be able to use the recorded essence without re-encoding**
- **Signals and data recorded must be directly accessible via appropriate interfaces**
- **3<sup>rd</sup> party systems must be able to achieve editing functionalities (random access, hard cuts)**
- **Streaming in faster (2 or 4 times) and lower than real time**
- **File transfer in faster (2 or 4 times) and lower than real time**

# Compatibility with further developments

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- **Future equipment must be able to replay Optical Discs of previous systems**
- **In future 720p / 50Hz might be a useful option for enhanced picture quality**
- **Optical Disc device that can operate in 720p / 50Hz must be able to replay disks that have been recorded with conventional SDTV signals.**

# Optical disc recorder family

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- **A variety of optical disc devices may be required in order to allow smooth integration into existing and migration to future TV production environments.**
- **Portable device for ENG use,**
  - **Camcorder, Journalist camcorder, Laptop editor, etc.**
- **Device for studio applications,**
  - **Replay and recording device (feeder, edit drive, etc.), Office player, Studio device, Jukebox for multi-access, etc.**