

EBU Technical Statement D88-1999 Transport of metadata in the Ancillary Data space of bit serial interfaces in television programme production

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Standardisation of metadata has been successfully started in SMPTE as well as in the EBU, based on the recent findings of the EBU/SMPTE Task Force [1] and subsequent practical experience. The work encompasses Metadata Dictionaries, a common metadata protocol called KLV (key, length, value) and the relevant mappings of the metadata onto various transport systems.

One transport mechanism under study for the KLV protocol is as ancillary data confirming to ITU-R BT. 1364 [5] carried in the serial digital interface, SDI, (EBU Tech 3267 [2], ITU-R BT.601 [3] and BT.656[4])

ITU-R Recommendation BT.1364 permits ancillary data (including KLV-Metadata) to be mapped of into any space available within the horizontal or vertical blanking intervals. Consequently a device used to extract or insert metadata has to scan in the whole of the HANC and VANC space in order to identify the relevant metadata types or to find space for insertion. Moreover, storage devices such as VTRs have only a limited data capacity on tape. In practice many VTRs only store a small part of the vertical blanking interval and none of the horizontal blanking interval.

The EBU therefore wishes to call the attention of manufacturers to the fact that some of the operating requirements of a television production environment may entail constraints on embedding and transport of metadata in ancillary data spaces, particularly when signals containing metadata are recorded on video tape.

Therefore the EBU suggests that:

- for VTR based systems, a transparent storage capacity of at least 1.2 Mbit/s should be sufficient for major metadata and essential data applications, (This is approximately equivalent to 4 lines/frame, each containing 1440 8 bit-Words.)
- KLV-metadata and essential data should be located in the ancillary data space in the vertical blanking interval only, preferably after the switching point,¹
- Devices supporting Ancillary data storage should be able to scan the VBI to locate Ancillary and/or KLV packets and store these packets transparently.

Note:

Devices which insert, extract and process of Metadata should be able to select specific data according to the KLV or Ancillary DID/SDIDs. Further processes such as erasing, re-justifying etc. should also be considered. (These should conform to ITU-R BT. 1364 or SMPTE 291M).

¹ For 625 line systems, a tentative switching point is during line 6.

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Bibliography

- [1] EBU Tech Review Special Supplement 1998: Final Report: Analyses and Results, EBU/SMPTE Task force for Harmonised Standards for the Exchange of Programme Material as Bit-streams
- [2] EBU Tech 3267 (2nd edition): EBU Interface for the 625-line digital video signals at the 4:2:2 level of CCIR Rec. 601
- [3] ITU-R BT.601-5: Studio encoding parameters of digital television for standard 4:3 and widescreen 16:9 aspect ratios
- [4] ITU-R BT.656-4: Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601 (Part A)
- [5] ITU-R BT.1364: Format of ancillary data signals carried in digital component studio interfaces
- [6] SMPTE 291M Ancillary Data Packet and Space Formatting