

**PBS Projects Update: Closed Captioning, XDS, and V-Chip**

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Public Broadcasting Service  
PBS Technology Conference, 04/21/01

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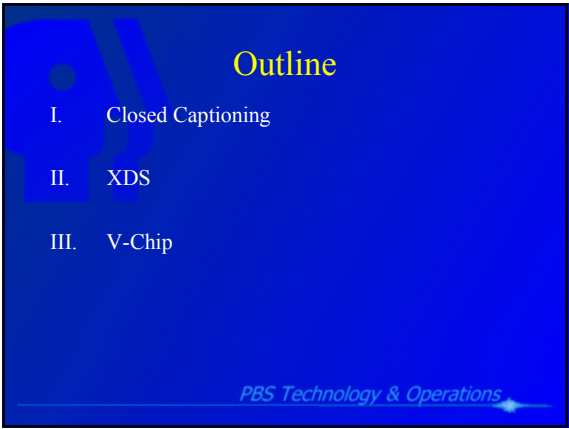
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**Outline**

- I. Closed Captioning
- II. XDS
- III. V-Chip

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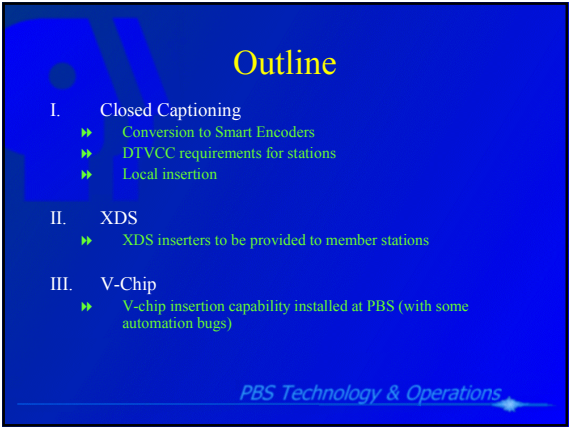
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**Outline**

- I. Closed Captioning
  - » Conversion to Smart Encoders
  - » DTVCC requirements for stations
  - » Local insertion
- II. XDS
  - » XDS inserters to be provided to member stations
- III. V-Chip
  - » V-chip insertion capability installed at PBS (with some automation bugs)

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## PBS NTSC Captioning

- » Converted from analog to SDI for Captioning in 2000
- » 4 @ Evertz 8074 digital cc encoder to do NTSC captioning with ProCap servers
- » 3 @ Evertz 8084 dedicated to live encoding
- » 24 @ Evertz 8084 connected to SDI router to clean up captions and insert V-chip

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## Regulatory Requirements

- » 708-compliant decoders due 7/1/02
- » Program captioning for ATSC tracks NTSC schedule starting 7/1/02

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## Regulatory Requirements

- » Schedule in FCC Rules - 47CFR 79.1(b)
  - » New programming phased in, up to 100% by 01/06
    - » "New" is after 1/98 for NTSC; all ATSC is new starting 07/02
  - » Legacy programming (NTSC before 01/98)
    - » 30% by 01/03
    - » 75% by 01/08
  - » Captioning for Spanish
    - » New programming phased in by 01/10 (currently 450hr/qu)
    - » 30% of legacy by 01/05, 75% by 01/12
- » DVS passthrough required

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## PBS ATSC Captioning

- » 608 captions on SDTV (708 req'd for SDTV as well)
- » 708 caption capability in HD

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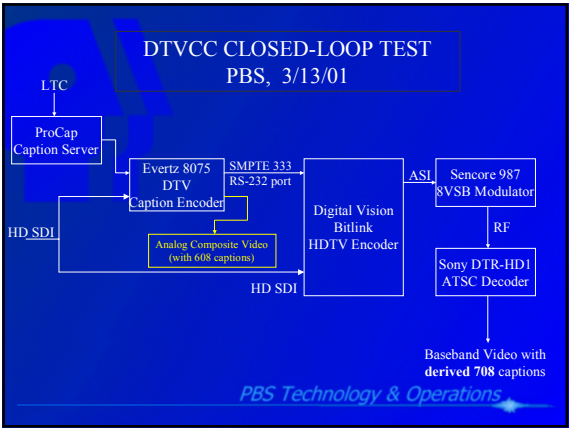
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## Caption Encoding Protocols

- » XML-based authoring file format
- » SMPTE 333 – Pull Protocol
- » SMPTE 334 – Push Protocol with data embedded in VANC
- » Payload (708 caption data)
  - » CDP's
  - » Enhanced .TDS

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## XDS

- ▶ 3 XDS encoders tested at PBS.
- ▶ Evertz smart encoders (8084AD) to be deployed at member stations.
- ▶ 8084 vs 8085
- ▶ Video inputs include analog composite and SDI (SMPTE 259M). Time code via LTC.

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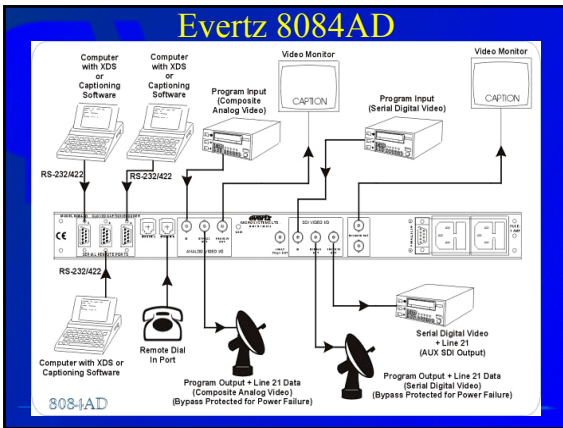
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## Evertz 8084AD



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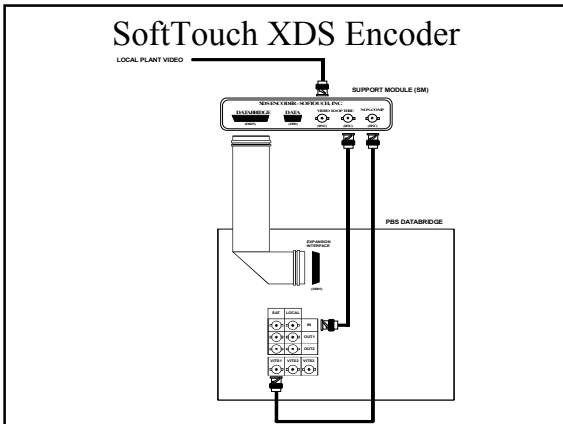
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## SoftTouch XDS Encoder



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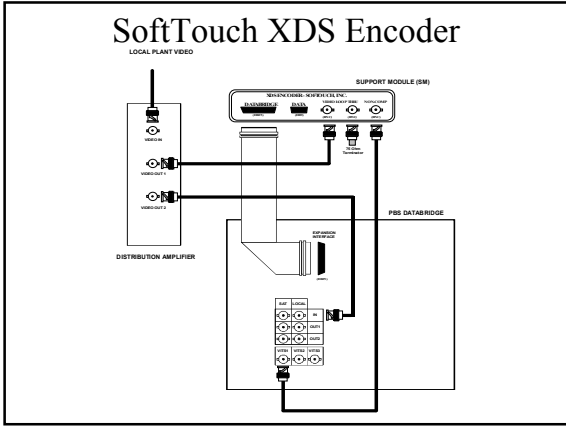
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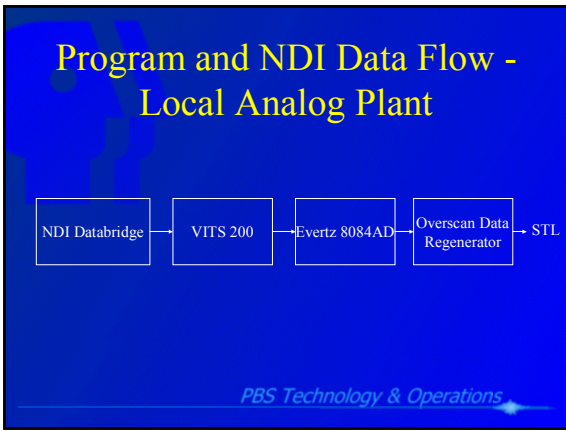
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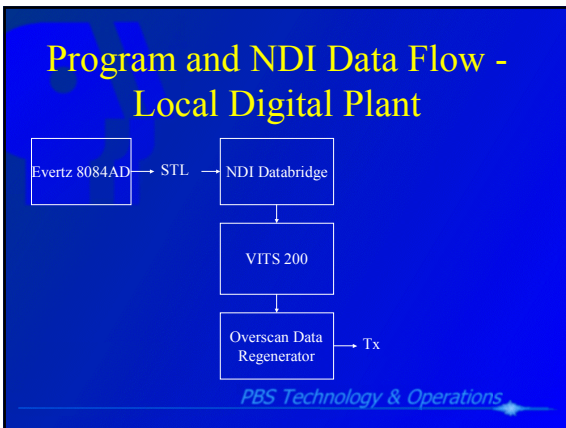
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### V-Chip Encoding at PBS

- ▶ 9 Evertz 8084 encoders to take CR output and feed digital router.
- ▶ Monitoring capability installed 04/01
- ▶ Leitch Logomotion for logos and icons
- ▶ Some automation bugs are preventing RE rating

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## Local V-Chip Insertion

- » Local v-chip insertion capability via smart encoders, such as Evertz 8084AD
- » Should work in serial with NDI databridge

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## Summary

- » Closed Captions
- » XDS
- » V-Chip

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## Summary

- » Closed Captions
  - » Digital encoders installed at PBS
  - » 708 captioning on the horizon
- » XDS
  - » Encoders to be supplied to 175 station plants
- » V-Chip
  - » PBS ready to go on-air (shortly)
  - » Local insertion via smart encoders

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- » [www.evertz.com](http://www.evertz.com)
- » NCAM
  - » [www.dtvaccess.org](http://www.dtvaccess.org)
- » ATSC IS/S3 AHWG on DTVCC -  
<http://www.atsc.org/meetings.html>

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