

Author(s): Paul Conway, 2008-2010.

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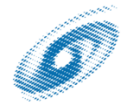
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SI 678 Preserving Sound and Motion

Class 3 – Analog and Digital Sound



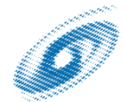
Themes

Themes

- 1 What is sound
- 2 What is recorded sound
- 3 Machines and standards
- 4 Analog versus digital

“There are no technical barriers to archiving.”

Cohen, *Preservation of Audio* (2001)



What is recorded sound?

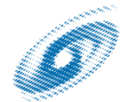
Sound

Recorded sound

Machines and standards

Analog vs. digital

- Electrical or mechanical inscription and re-creation of sound waves.
- Many historical formats since 1889
- Magnetic tape as our focus
 - Bing Crosby, Ampex, 3M
 - Format, speed (ips), track structure
- Enforced industry standards made recording and distribution possible.



Tape Recording Process

What is recorded sound?

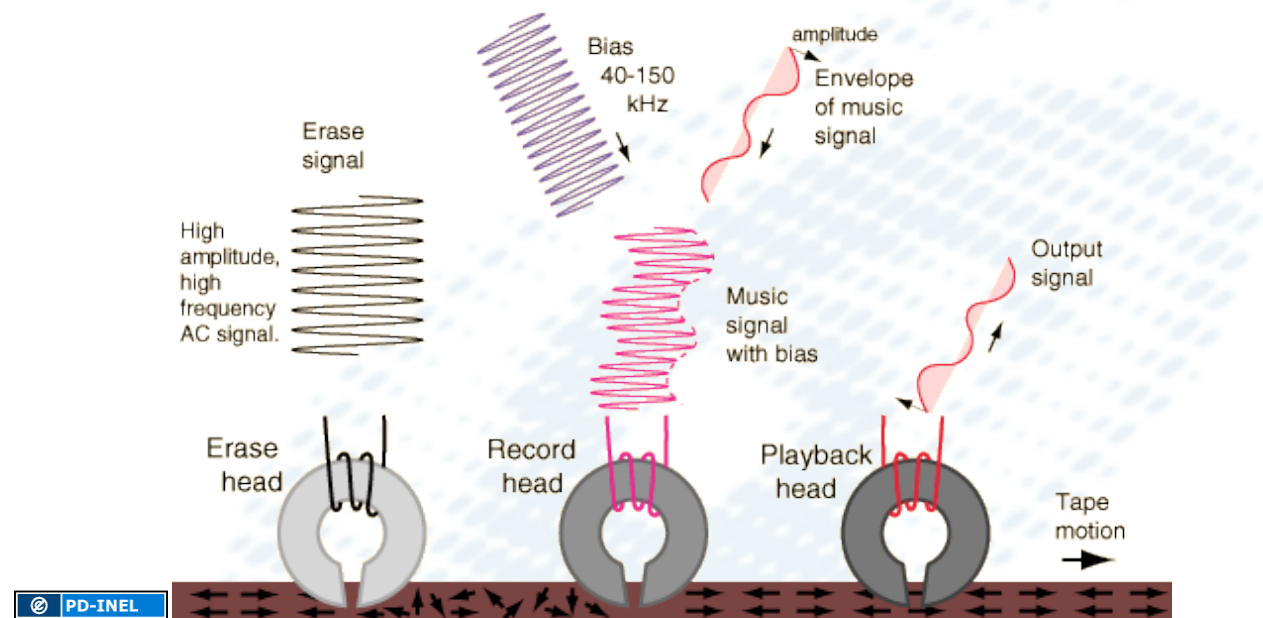
Sound

Recorded sound

Machines and standards

Analog vs. digital

■ Tape Recording Process



<http://hyperphysics.phy-astr.gsu.edu/hbase/audio/tape.html>

HyperPhysics (SGU): <http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html>



Post-transfer decision making

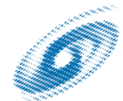
Re-recording

Transfer

Decision making

Sampling

- Levels of modification
 - The recording as it was heard in its time
 - The recording as it has been produced
 - The recording as produced, but with compensation for historical imperfections
 - The recording enhanced to contemporary taste
- Digital transfer enables and challenges these assumptions



Machines and Standards

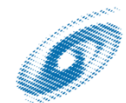
Sound

Recorded sound

Machines and standards

Analog vs. digital

- Initial rarity of technology – all in one system
- Standards emerge from cooperation among tape and tape deck manufacturers
- Standardization of tape speeds, tape tracking, tape sensitivity
- No attention (really ever) to longevity.



What is re-recording?

Re-recording

Transfer

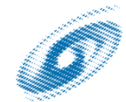
Decision making

Sampling

- “to preserve the original sonic content of a recording”
- “preserve history, not re-write it”
- “maintain objectivity”

Boston, *Guide to the Basic Technical Equipment* , 1990.

- Supports accurate transfer; quality fidelity; skilled vendor services; fully documented processes



Analog vs. Digital

Sound

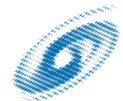
Recorded sound

Machines and standards

Analog vs. digital

- How born (media, format, technique)
- Aging patterns
- Rebirth – gain and loss

- What are the advantages of analog signals
- What are the advantages of digital signals



Thank you!

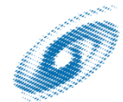
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