The CD-DA

Figure 9.22 A simplified road map showing the complex interrelationships between CD formats.
YES – 44.1/16 WAV
MediaInfo XML > PBCORE XML

YES – 44.1/16 WAV
<Mediainfo version="0.7.67">
  <File>
    <track type="General">
      <Count>285</Count>
      <StreamCount>1</StreamCount>
      <StreamKind>General</StreamKind>
      <StreamKind_String>General</StreamKind_String>
      <StreamKindID>0</StreamKindID>
      <AudioCount>1</AudioCount>
      <Audio_Format_List>PCM</Audio_Format_List>
      <Audio_Codec_List>PCM</Audio_Codec_List>
      <FileName>WNYC-LLSH-2004-11-30-39542-A</FileName>
      <FileExtension>wav</FileExtension>
      <Format>Wave</Format>
      <Format_String>Wave</Format_String>
      <Format_Extensions>wav</Format_Extensions>
      <Codec>Wave</Codec>
    </track>
  </File>
  <FileSize>624106152</FileSize>
  <FileSize_String>595 MiB</FileSize_String>
</Mediainfo>
### XSL Stylesheets

- [https://github.com/johnnypass/cavafy-xsl-stylesheets](https://github.com/johnnypass/cavafy-xsl-stylesheets)

### MediaInfo CLI

- [http://mediaarea.net/en/MediaInfo](http://mediaarea.net/en/MediaInfo)

### PBCORE Media CMS

- [https://github.com/mlc/wnetpbcore](https://github.com/mlc/wnetpbcore)

### PLEXTOOLS Utility


### DAVID Media Systems


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#### Show 1 essence track

**Instantiation**

<table>
<thead>
<tr>
<th>Format ID (David Title):</th>
<th>WNYC-BLSH-2007-09-28-52941-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date (Created):</td>
<td>2014-02-21</td>
</tr>
<tr>
<td>Date (broadcast):</td>
<td>2007-09-28</td>
</tr>
<tr>
<td>Format:</td>
<td>BWF</td>
</tr>
<tr>
<td>Format Location:</td>
<td>DAVID</td>
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<tr>
<td>Media Type:</td>
<td>Sound</td>
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<tr>
<td>Generation:</td>
<td>Master: preservation</td>
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<tr>
<td>Duration:</td>
<td>00:54:00</td>
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<tr>
<td>Data Rate:</td>
<td>1411201</td>
</tr>
<tr>
<td>Tracks:</td>
<td>1 audio track</td>
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<tr>
<td>Channel Configuration:</td>
<td>2</td>
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#### Hide 1 essence track

<table>
<thead>
<tr>
<th>Identifier</th>
<th>WNYC-BLSH-2007-09-28-52941-A</th>
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</thead>
<tbody>
<tr>
<td>Standard</td>
<td>PCM</td>
</tr>
<tr>
<td>Encoding</td>
<td>Captured from MFDigital Ripstation</td>
</tr>
<tr>
<td>Data Rate</td>
<td>1411200</td>
</tr>
<tr>
<td>Duration</td>
<td>00:54:00.000</td>
</tr>
<tr>
<td>Bit Depth</td>
<td>16 bit</td>
</tr>
<tr>
<td>Sampling Rate</td>
<td>44.1 kHz</td>
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</tbody>
</table>
The Good
The Good  The Bad
IASA TC-04 8.1.9 Errors, Life Expectancy and Testing and Analysis

A comprehensive testing regime allows for best possible planning of preservation strategies by acting on the known, objective and measurable parameters that digital archiving make possible.
The results of the tests may differ from system to system, and should always be viewed in context, like test environment, used hardware, software, media, etc.
C1(BLER) - It represents correctable random error and is generally not used as an indicator of failure or lost information.

C2 (E22) - The second tier of error correction. Correctable errors but require more robust methods of correction.

CU (E32) - Uncorrectable errors that are present after C2 error correction. cannot be played at all because they contain data that cannot be recovered.
8.1.9 Errors, Life Expectancy and Testing and Analysis

BLER average $< 10$

BLER peak $< 220$

E 22 (correctable errors) $0$

E 32 (uncorrectable errors) $0$
2398 silver Mitsui Silver CD-Rs ripped (CDs were created from 2001 - 2003)

Tested 20% of the silver CDs randomly using Plextools, measuring for BLER, E22, E32 errors
BLER average < 10

34% had a BLER average < 10

66% had BLER average > 10
BLER peak < 220

33% had a BLER peak < 220

67% had BLER peak > 220
8.1.9 Errors, Life Expectancy and Testing and Analysis

E 22 (correctable errors)  0

54% had 0 E22
8.1.9 Errors, Life Expectancy and Testing and Analysis

E 32 (uncorrectable errors) 0

45% had 0 E 32
No discs passed the IASAs specifications for errors, even though the test results varied widely.
TAKEAWAYS

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2. It is virtually impossible to know why CD-DAs go bad.
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3. Accelerating aging tests only tell a part of the story.
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1. CD-DA don’t last long and decay appears largely unpredictable.
2. It is virtually impossible to know why CD-DAs go bad.
3. Accelerating aging tests only tell a part of the story.
4. New solutions for comprehensive testing and ripping of CD-DAs into archives.
Thanks!
questions?
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