**Project Identification Document for**

**Indiana University**

### Acronyms used in this document:

PID = Project Identification Document

IU = Indiana University

Tbc = to be confirmed

**IU – 01**

**TEST PHASE PID**

**Version 1.0**

**(MSLC stage 7 Initiate project – Test phase PID)**

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# EXHIBITS

Exhibit 1 Requirements for the digitization facility (will be provided at a later stage in the project)

Exhibit 2 Lease agreement for the digitization facility (will be provided at a later stage in the project)

Exhibit 3 Non-disclosure agreement

# CONTACTS

Each party will be responsible for ensuring that the other party is kept up to date with any changes to key contacts or other important operational company information.

## Indiana University

|  |  |
| --- | --- |
| **Bloomington campus :** | 107 S. Indiana Ave. Bloomington, IN 47405-7000  Phone: + 1 (812) 855-4848 |

|  |  |  |  |
| --- | --- | --- | --- |
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| **Janice Kent**  Personal Assistant to Laurie |  |  | [jkent@iu.edu](mailto:jkent@iu.edu) |
| **Don Brock** Physical Facilities Management | Manage physical facility for temporary location | (812) 855-7684 | [dbrock1@indiana.edu](mailto:dbrock1@indiana.edu) |
| **Mike Casey** Director of Technical Operations, MDPI | Direct IU facility, primary interface with Memnon, supervise prioritization and preparation for digitization | (812) 855-8090 | [micasey@indiana.edu](mailto:micasey@indiana.edu) |
| **Jon Dunn** Interim Assistant Dean for Library Technologies | Key player in developing library-related workflows and applications | (812) 855-0953 | [jwd@indiana.edu](mailto:jwd@indiana.edu) |
| **Patrick Feaster** Media Preservation Specialist | Guides prioritization and preparation for digitization |  | [pfeaster@indiana.edu](mailto:pfeaster@indiana.edu) |

## MEMNON

|  |  |
| --- | --- |
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**Overall project team:**

|  |  |  |  |
| --- | --- | --- | --- |
| **First name Last name**  Title in the company | **Function in the project** | **Phone** | **E-mail** |
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| **Nathalie Mouton**  Assistant Project Management | Administrative support to the Overall Project Team | +34 985 33 66 20 (land)  +34 630 750 179 (mobile) | Nathalie.mouton@memnon.eu |

**Bloomington digitization set-up and work:**

|  |  |  |  |
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|  | Project Manager for Bloomington operations |  |  |

**Brussels digitization work:**

|  |  |  |  |
| --- | --- | --- | --- |
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# VOLUMES

## TOTAL VOLUME BLOOMINGTON

It will be confirmed at a later stage whether DVD-Rs will be digitized in Brussels or in Bloomington.



All total volumes that appear in this PID are subject to change should IU determine that its priorities for objects to be digitized must be adjusted to ensure that the cost of the project remains within the total maximum cost specified in the Agreement for Media Digitization Services between The Trustees of Indiana University and Memnon Archiving Services. Total volume changes are subject to a maximum of 5 % deviation from the original agreed volumes for each category. Any more important changes requested by IU would be subject to mutual agreement and would entitle Memnon to modify its original pricing grid. Memnon agrees that it will discuss pricing reductions if there is a volume increase by more than 50% in the volume of any of the following carrier classes: open reel audio tapes, audio cassettes, DATs, BetaSP, VHS;

The digitization of at least 35,000 LPs is committed by IU.

# DELIVERABLES CHECK LIST

## Audio

An MD5 checksum will be generated for each Preservation master and each Production master delivered..

### Preservation master

|  |  |
| --- | --- |
| **Unit** | Carrier or carrier side |
| **Sample rate** | 24/96 (except for DATs: 16/44.1 or 16/48 and CD-Rs: 16/44.1) |
| **Format** | BWF |
| **Nbr channels** | 2 if stereo source, 1 if Mono source  For commercial 78rpm: 1 file with 2 channels, stereo + 1 file with 1 channel, mono |
| **Coding** | PCM |
| **Embedded Metadata** | One or more chunk (see metadata section) |

### Production master

|  |  |
| --- | --- |
| **Unit** | Preservation master |
| **Sample rate** | 24/96 (except for DATs: 16/44.1 or 16/48 and CD-Rs: 16/44.1) |
| **Format** | BWF |
| **Nbr channels** | same as preservation master (for 78rpms, same as the 1 channel/mono preservation master) |
| **Coding** | PCM |
| **Embedded Metadata** | One or more chunk (see metadata section) |

### Delivery (access) files

|  |  |
| --- | --- |
| **Unit** | Preservation master |
| **Sample rate** | 192 kbps |
| **Format** | MPEG-4 |
| **Nbr channels** | Same as production master |
| **Coding** | AAC |

## Video

Memnon will produce an MD5 checksum for each Preservation master file and each Mezzanine file delivered. These MD5 will be produced from the initial original file, at first transfer from creation / generating tool

### Preservation master for all carrier formats except IMX, DV, DVD-R and VCD

|  |  |
| --- | --- |
| **Video** | **Sound** |
| **Unit:** carrier | **Sample rate:** 24bit/48kHz |
| **Format:** NTSC 720x486px, Component YUV 4:2:2  10bit @ 30 fps (Four CC V.210) | **Coding:** PCM |
| **Codec:** uncompressed | **Nbr channels:** 2 |
| **Wrapping:** QuickTime |  |
| **Metadata:** yes, embedded in QuickTime wrapper (TCin, TCout, Duration) and in XML | |

### Preservation master & Mezzanine file for IMX tapes

|  |  |
| --- | --- |
| **Video** | **Sound** |
| **Unit:** carrier | **Sample rate:** 16bit/48kHz |
| **Format:** NTSC 720x486px, 4:2:2  8 bit @ 30 fps (IMX / SMPTE D10) | **Coding:** PCM |
| **Codec:** MPEG-2 4:2:2 Profile  @ ML 50 Mbit/sec. (tbc)  (IMX50 (tbc) / SMPTE D10) | **Nbr channels:** 8 |
| **Wrapping:** QuickTime |  |
| **Embedded metadata:** yes, embedded in QuickTime wrapper ( TC in, TC out, Duration, ) and in XML | |

### Preservation master & Mezzanine file for DV tapes

|  |  |
| --- | --- |
| **Video** | **Sound** |
| **Unit:** carrier | **Sample rate:** 16 bit/48kHz |
| **Format:** NTSC 720x486px, Component 8 bit YUV 4:1:1  @ 30 fps | **Coding:** PCM |
| **Codec:** DV25 | **Nbr channels:** 2 |
| **Wrapping:** QuickTime |  |
| **Metadata:** yes, embedded in QuickTime wrapper (TCin, TCout, Duration) and in XML | |

### Preservation master for DVD-R and VCD

|  |  |
| --- | --- |
| **Video and Sound** | **Sound** |
| **Unit:** carrier | **Sample rate:** N/A |
| **Format:** iso 9660 for VCD  Iso 11346 for DVD-R (tbc) | **Coding:** N/A |
| **Codec:** N/A | **Nbr channels:** N/A |
| **Wrapping:** iso |  |
| **Metadata:** N/A | |

### Mezzanine file for all carrier formats except IMX & DV

|  |  |
| --- | --- |
| **Video** | **Sound** |
| **Unit:** carrier\* | **Sample rate:** 24bit/48kHz |
| **Format:** NTSC 720x486px, 4:2:2  8 bit @ 30 fps (IMX / SMPTE D10) | **Coding:** PCM |
| **Codec:** MPEG-2 4:2:2 Profile @ ML 50 Mbit/sec.  (IMX50 / SMPTE D10) | **Nbr channels:** 2\*\* |
| **Wrapping:** QuickTime |  |
| **Embedded metadata:** yes, embedded in QuickTime wrapper ( TC in, TC out, Duration, ) and in XML  Except for DVD-R and VCD | |

\* For DVD-R, from the ISO, extraction of the main video program (tbc)

\*\* For DVD-R, a stereo track with English language (tbc)

### Delivery (access) files for all carrier formats

|  |  |
| --- | --- |
| **Video** | **Sound** |
| **Unit :** carrier | **Sample rate :** 16bit/48kHz |
| **Derived from:** Mezzanine file | **Coding :** AAC-LC  128 Kbit/sec |
| **Format :** MPEG-4 (H.264), 720x486px, 4:2:0  8 bit @ 30 fps interlaced | **Nbr channels :** 2 (stereo) |
| **Codec:** H.264 High Profile Level 3.1  3 Mbit/sec. |  |
| **Wrapping:** MP4 |  |

## Analysis reports

For DATs only, graphical and text reports (subject to confirmation of digitization being performed with NOA).

# OVERALL TIMING

Target completion date is end of 2019, in time for the bicentenary of IU in 2020.

## General framework

Memnon services referred to in this PID are based on industrial processes. Therefore, carriers made available by IU should be suitable for industrial treatment (e.g. volume, physical condition, identification, packaging, etc.). Should carriers not meet this requirement, this point will be addressed jointly by both parties in order to determine whether it is IU or Memnon who will handle these “problematic” carriers. Memnon could handle problematic carriers but within specific commercial conditions, to be agreed upon.

## Prioritization

* Imaging – IU will decide by the end of 2014 how much imaging will be done; any imaging work that IU wants Memnon to do will be covered by an amendment to the PID.
* Audio digitization in Bloomington will start with high-value, commercially unavailable LP’s, open reel audio tapes, and audio cassettes collections in order to allow Memnon optimizing set-up and operations on the largest and easiest collections.
* DATs and non-commercial optical audio will be digitized in Brussels in the early phase of the project (1st half of 2014).
* Video digitization in Bloomington will start with VHS, followed by BetaSP.
* It will be confirmed at a later stage whether DVD-Rs will be digitized in Brussels or in Bloomington.

## Tentative overall digitization timeline

* A more detailed timeline will be provided at a later stage in the project
* The digitization of at least 35,000 LPs is committed by IU.
* It will be confirmed at a later stage whether DVD-Rs will be digitized in Brussels or in Bloomington.
* 

# BLOOMINGTON FACILITIES

IU will use its best efforts to make the Bloomington Facility available for Memnon Bloomington operations within 60 days of execution of a lease agreement, with a goal of July 1, 2014, but the parties understand and agree that the timing of the Bloomington Facility’s availability may be affected by the amount of work necessary to prepare the space to Memnon’s specifications.

Memnon expects the Facility to be delivered in a state that will enable Memnon to setup its installations and cabling; Memnon is not expected to carry out the work nor be responsible for cost of HAVC, partition walls, physical security, etc. Decisions on any additional contracting work to be performed on the Facility will be made jointly after Memnon provides its facilities plan to IU.

The Facility will remain available for Memnon at least 5 years. A lease agreement will be attached as Appendix 2 to the PID, at a later stage in the project.

# EQUIPMENT PROCUREMENT

## Playback devices

* Memnon will provide the list of required playback devices. IU and Memnon will collaborate to find the best possible solution(s) to procure the playback equipment; costs will be supported by Memnon.

## IT equipment

* Memnon will provide the first list of required IT equipment. IU and Memnon will collaborate to find the best possible solution(s) to procure IT equipment.

# LOGISTICS

## Feeding of Memnon production chain

### Bloomington operations

IU will use its best efforts to ensure that Memnon is constantly supplied with carriers following the agreed upon digitization target pace. To this end, Indiana University shall provide to Memnon a buffer corresponding to at least 6 weeks of digitization in advance of the production chain. Should the production chain be interrupted due to IU’s inability to meet the carriers deliverable for digitization at Memnon’s facility, Memnon would be entitled to fixed costs coverage for the period of inactivity (based on open book policy and justified costs). Memnon and IU will use their best efforts to work collaboratively to avoid interruptions in the Memnon production chain, which efforts will include jointly monitoring the buffer supply no less frequently than once per week. If the buffer supply drops below a period of four weeks, then the parties will escalate the issue within the dispute resolution mechanism outlined in this PID. Memnon further agrees to use its best efforts to reallocate its personnel and other resources to other aspects of the project, or to other projects if expressly approved by the IU MDPI Executive Director, to ensure that its resources are used as efficiently as possible and that any period of inactivity is minimized or eliminated to the greatest extent possible.

### Brussels operations

DATs, for digitization in Brussels will be ready for collection from IU, for delivery to Brussels, by May 31, 2014.

## Preparation of the batches by IU

Batches will be prepared by IU so that the maximum homogeneity is achieved in order to meet the constraints of industrial digitization processes organized by Memnon:

* A given batch will not contain carriers of different types
* Carriers expected to require specific physical restoration treatment will be grouped in specific batches (cleaning needs, baking needs, mechanical repair needs, etc…).
* In a first stage, tapes showing mold/fungus will not be sent to Memnon in order to avoid potential contamination of Memnon’s equipment and installations; a specific area dedicated to the treatment of such tapes might be foreseen within Memnon facilities at a later stage in the project with specific commercial and technical conditions to be determined
* Packaging units will be clearly defined for each carrier type and will not vary from one batch to the other (for a given carrier type). For example:
  + 1 container (transport box) contains xx [carrier] boxes
  + 1 [carrier] box contains zz carriers
* Memnon will return carriers in the same containers as they were received but cannot guarantee that it will be in the same order as received within the containers.

## Packaging

* Transport boxes (containers) will be provided by I.U. Memnon will provide recommendations based on its experience. (done on 2/12/2013, mail sent to Mike Casey)
* Packaging for transport will be handled by I.U.
* IU will barcode each box and each container; the container and box barcode/identifier will be included for each carrier in the metadata provided by IU
* Packaging and carrier sorting/preparation are IU’s responsibility so as to ensure the easy manipulation of carriers and to meet the requirements of Memnon’s industrial workflows. Manipulations performed by operators are expected to be limited to scanning the bar code on each carrier or carrier case, and inserting/playing the carrier in the playback device. No specific manipulation related to the handling of loose/separate sheets of paper or to inadequate carriers’ cases is expected. Exceptions include manipulation specifically outlined in this document such as azimuth adjustments, chroma/luma adjustments, tape rewinding, etc.
* Loose accompanying printed documents (any document other than original leaflets included in the original carrier case/box/ jacket) will not be sent to Memnon

### Expected packaging of DAT tapes

* Bar code will be placed on the DAT case, always in the same position for all collections of DAT tapes
* Tapes will be packed in proper individual cases, possibly archiving cases
* When a CD is stored together with a DAT tape, it will be removed and packed with CD batches
* There will be 2 levels of packaging:
  + Boxes with up to several tens of tapes (maximum 50 tapes per box)
  + Containers
* Tapes will be sorted/grouped first by sample rate (32kHz, 44.1 kHz and 48 kHz) and second by duration
  + *In the Radio and TV Services collection, it has been noted that the duration on the box does not equal the actual duration of the DAT, which means the duration has to be checked on the DAT itself, not on the box*
* Within a given batch, the variation in duration should not exceed 5 minutes for durations until 60 minutes/tape, 10 minutes for durations above 60 minutes/tape.
* Write protection switch will be engaged on each DAT to avoid accidental erasure

### Expected packaging of CD and DVD type carriers

* Bar code will be placed on the carrier case, always in the same position for all collections of CD and DVD type carriers
* A bar-code will be associated to each disc (1 disc = 1 bar code, even if several discs in a set/box)
  + If the case contains several discs, the bar code to be stuck on the case is the ID of the first disc in the carrier stream: V01\_XX (*where “V” means “Volume”, “01” is the place of the CD in the volume stream, and “XX” is the total number of volumes in the volume stream*)
  + The bar codes of the other discs in the volume stream will be placed inside the CD/DVD case, on a bookmark:
    - If discs are packed individually (sleeve), each disc bar code will be placed on the bookmark and, below the bar code, will appear the IU reference UID and the volume ID of the disc (V02\_XX, V03\_XX, etc.); bookmarks will be inserted in each sleeve
    - If discs are not packed individually, all disc bar codes will be placed on the bookmark, and below each bar code, will appear the IU reference UID and the volume ID of the disc (V02\_XX, V03\_XX, etc.); the bookmark will be placed inside the case
* There will be 2 levels of packaging:
  + Boxes with one to several tens of discs (maximum 50 discs per box)
  + Containers
* If possible, CD-ROMs will be packed separately from CD-Rs
* If possible, DVD-ROMs and VCDs will be packed separately from DVD-Rs
* Permanent ink used for identification on disc surface; depending on the time the ink is on the disc, on the quality of the carrier itself and on the quality of the burning process, this could lead to reading errors. IU will make its best effort to check that these carriers are in proper condition for industrial digitization.

### Expected packaging of discs

Note: systematic ultrasonic cleaning will be performed for the committed volume of LPs; the bar coding requirements described below will be confirmed at a later stage (a duplicate of the bar code will probably be needed).

* A bar-code will be associated to each disc (1 disc = 1 bar code, even if several discs in a set/box/ jacket)
* Bar codes will be placed always in the same position on the jackets of LPs and on the sleeves 78s and 45’s:
  + In case of a single disc:
    - on the upper right corner of the jacket or sleeve, always on the front or always on the back
  + In case of a set of discs:
    - If discs are packed in individual sleeves:
      * On the upper right corner of each individual sleeve, always on the front or always on the back
      * Plus ideally the volume index (V1\_3 for example)
    - If discs are not packed in individual sleeves:
      * IU will procure individual sleeves and bar code discs as described above
* Discs will be sorted/grouped by format (LPs, 45rpm and 78rpm) and as much as possible by diameter (5”, 7”, 10”, 12” and 16”)
  + LPs will be digitized first, then 45rpms
* Discs will be stored vertically in the containers
* There will be 2 levels of packaging:
  + Boxes with one to several tens of discs (maximum 25 discs per box for LPs, maximum 40 discs per box for 45rpm and maximum 20 discs per box for 78rpm)
  + Containers
* Release date is available for those items that are catalogued (46,683 LPs); for those LPs catalogued, IU anticipates that about 10% will predate 1956: it is anticipated that IU will group these discs and pack them separately, to be digitized at the end of “standard” LPs digitization, just before starting with 78rpms digitization.

### Expected packaging of audio cassettes

* Bar code will be placed on the cassette case, always in the same position for all collections of audio cassettes
* There will be 2 levels of packaging:
  + Boxes with one to several tens of cassettes (maximum 50 cassettes per box)
  + Containers
* Cassettes will be sorted/grouped by cassette total duration (C30, 45, 60, 90, 120); Less than 5% cassettes are expected to be below C60 duration.
* Cassettes of unknown duration will be packed separately, grouped in specific batches

### Expected packaging of open reel tapes

* Bar code will be placed on the cardboard box, always in the same position for all collections of open reel tapes
* Tapes will be sorted/grouped by duration using reel size, tape thickness, and playback speed as guides; the proportion of short (10mn>duration<20mn) and very short (duration<10mn) tapes for a given batch will be confirmed at a later stage. Less than 5% open reel tapes are expected to be below 30mn duration
* Tapes of unknown duration will be packed in separate batches
* Tapes will be stored vertically in the containers

### Expected packaging of video carriers

* Bar code will be placed on the video carrier box, always in the same position for all carriers of the same type
* All video carriers will be sorted/grouped by maximum cassette length.
* For 1 inch tapes, the proportion of short tapes (<30mn) for a given batch will be confirmed at a later stage
* Umatic tapes:
  + high band tapes will be packed separately from low band tapes
  + if possible, tapes will be grouped/sorted by brand
* Tapes will be stored vertically in the containers

## Logistics for U.S. operations

### Transport of carriers between I.U. and Memnon

* IU will assemble all carriers to be digitized in the Auxiliary Libraries Facility (ALF), the Archives of Traditional Music vault, or the Music Library vault.
* Transport between IU storage and Memnon, and back between Memnon and IU’s ALF/libraries, will be done by IU

### Volume of physical batches and frequency of transports from the ALF to the digitization Facility

To date, the volume of audio carriers to be made available each month for Memnon is:

* Open reel audio tapes: +/- 2,750 tapes
* Audio cassettes: +/- 3,000 cassettes
* Commercial LPs: +/- 3,900 discs
* Commercial 78rpm: +/- 3,300 discs
* Commercial 45rpm: 1 single batch (4,060 discs)

The equivalent of the batches in hours will be confirmed at a later stage.

Memnon will confirm the estimated volume of the expected batches of video carriers, as well as the estimated frequency of transport from the ALF\ATM\Music Library to the Facility as soon as possible, provided all services to be delivered by Memnon are clearly defined (deliverables, specifications, etc…).

### Return of original carriers

Memnon will make original carriers available for return to IU at a pace to be agreed on, probably on a bi-weekly or monthly basis.

Memnon will guarantee that recordings go back into the same container as they were received in, but not in the same order.

Carriers of a given batch which require specific treatment, and therefore need to remain longer within Memnon premises, will be gathered in a separate container identified as “Exceptions batch [ID batch]”. This container will be returned to IU as soon as possible after digital files corresponding to these exceptions are delivered.

## Logistics for Belgian operations

### Transport of carriers between I.U. and Memnon

* Transport solutions will be studied by Memnon and agreed on with IU.
* Date and transport details will be confirmed at a later stage in the project

### Volume of physical batches and frequency of transports

* All carriers to be digitized in Belgium will be transported in one single transport
* At this stage, the volumes to be transported are estimated to be 10,730 CD-R + 2.579 DVD-R + 5,985 DAT
* Exact volumes per carrier type will be confirmed by IU at a later stage in the project; it will be confirmed at a later stage whether DVD-Rs will be digitized in Brussels or in Bloomington.

### Return of original carriers

* Memnon will guarantee that recordings go back into the same container as they were received in, but not in the same order.
* Memnon will return original carriers to IU in one single transport, as soon as possible after IU has provided notification of approval for the digital files delivered.

\*\*\*AUDIO CARRIERS

# GENERAL AUDIO DIGITIZATION RULES

* Digitization from physical start to physical end of the carrier (except for some DATs played on R-500 readers where transfer is interrupted automatically as soon as the player detects the absence of frequency).
* Preservation Master Files are produced with no editing, gain changing, denoising, or other subjective alterations. These files represent as faithful a reproduction of the source recording as possible

# GENERAL NON INDUSTRIAL PROCESSES (AUDIO)

* When digitization must stop because of physical defect of the carrier disabling playback until rectified, the carrier will be set aside and its status set to “Failed” with comment on the reasons for rejection.

The partial file generated until transfer interruption will not be delivered and the digitization will be invoiced at 50% of the unit digitization price (per item or per hour).

The same process and charges will apply for carriers for which the operator identifies that no signal is present on the side or carrier being transferred, and therefore interrupts the transfer.

For a given batch, as soon as the number of carriers leading to failed digitization exceeds 2% of the batch, Memnon will come back to IU and discuss the technical solution(s) and commercial conditions (based on open book policy and justified costs) to best handle the specific batch. The threshold for failed digitization is set to 4% instead of 2% of a given batch for the following collections:

* + Archives of Traditional Music open reel tapes (approximately 17,000 tapes)
  + Lilly Library open reel tapes (approximately 1,400 tapes)

# CD-R

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* CD-R: 10,730;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* CD-R = 65mn

### Music Library (4,000 CD-Rs):

* + Programs are mainly concerts recordings of students made in the MAC (Musical Arts Center), program description usually included
  + CD-R mainly
  + CD-Audio format
  + No CD-Text nor UPC/EAN code
  + No DATA (no CD Extra or Mixed Mode CD)
  + Good condition / storage

### Radio & TV Services (2,000 CD-Rs):

* + CD-R copies
  + CD-Audio or CD-ROM format (containing MP2, MP3 or WAV files)
  + Permanent ink used for identification on disc surface; depending on the time the ink is on the disc, on the quality of the CD-R itself and on the quality of the burning process, this could lead to reading errors. IU will check that this collection is in proper condition for industrial digitization.
  + No CD-Text, CD Extra or Mixed Mode CD

### ATM collection (60 CD-Rs):

* + Only originals, commercials
  + Mainly CD-Audio format with possible CD-Text and UPC/EAN codes
  + Few CD-ROM’s.

## SPECIFIC DIGITIZATION RULES

* CD Extra and Mixed mode CDs: the audio signal in CDA format will be transferred, but tracks containing data will be ignored
* For CDs with sub-coding (UPC EAN and/or CD-Text and/or ISRC), ghost tracks (audio present before track 1) won’t be digitized by the system

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* If any, will be confirmed at a later stage in the project

# DAT

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 5,985 DATs;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 100mn (tapes of 60, 90 & 120mn)

### Music Library (4,300 DAT):

* + Mainly in 48 kHz

### Radio & TV Services (1,000 DAT):

* + Mainly in 44.1 kHz
  + Mainly 60, 90 and 120 min

### ATM collection (223 DATs):

* + No homogenous sample frequencies, but the parameter will be encoded in MediaScore (=internal database of IU)
  + Mainly 60, 90 and 120 min duration, the parameter will be encoded in MediaScore

## SPECIFIC DIGITIZATION RULES

* DATs will be digitized at original sample rate: either 16/44.1 or 16/48.

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* If any, will be confirmed at a later stage in the project
* In a first stage, 32 kHz tapes will be set aside and will not be digitized; 32 kHz tapes could indeed lead to a file longer than 3 hours, thus generating a \*.w01 file besides the standard \*.wav file. If the proportion of 32 kHz tapes goes beyond 2% of the total volume, specific commercial conditions will be agreed on for the treatment of these tapes.

# OPEN REEL TAPES

## CARRIER INFO

* IU knows date of recording for priority tape collections
* All carriers have been manipulated/played back by students :
  + reels not always wound properly,
  + could be tails in or tails out
* Coating side is always “rest of world” (standard configuration)

### TOTAL EXPECTED VOLUME :

* 66,301 tapes;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 40 mn (various sizes, various speeds, various track configurations)

### Music Library (61,500 tapes):

* + 7” reel size only
  + All typical speeds: 3,75 ips, 7,5 ips & 15 ips
  + 2 and 4 tracks
  + A large group is already gathered and ranked by year, ready for batch processing (same characteristics)
  + Acetate (more sensitive to humidity and heat, hydrolysis syndrome, tape degradation) and Polyester tape-based
  + CINE core type (standard core)
  + Brand & off-brand tapes, some have been manufactured near Bloomington (poor quality, more fragile)
  + Programs are mainly concert recordings of students made in the MAC (Musical Arts Center), program description usually included

### ATM collection (17.500 tapes):

* + Distinction between :
    - OT’s = Original Tapes
    - EC’s = Earliest Copies (copies made internally from original discs or copies of recordings retained by the collector or originating institution)
  + 5” & 7” reel size mainly, but also 3”, 4” and 6” reel size
  + Some few very short tapes (less than 10 min)
  + Program is mainly Field Recordings made on location
  + All types of track configuration:
    - Full track mono
    - 2 tracks dual mono (A/B sided)
    - 4 tracks stereo
    - No real “discrete” 4 tracks
  + CINE core type (standard core)
  + Good condition / storage

### Radio & TV Services (100 tapes):

* + 7” & 10” reel size
  + Mainly 7,5 ips
  + 2 tracks stereo/dual mono configuration
  + All kinds core types (NAB, AEG-DIN, CINE)
  + Tapes are in good condition but need proper rewind before digitization process

## SPECIFIC DIGITIZATION RULES

* Azimuth manual adjustment for every ¼”tape – assumption of 30 seconds/1 minute to make the adjustment – no adjustment during transfer
* No reverse playback or bidirectional capture

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### Unitary digitization:

* IU’s own 1 to 1 digitization services will take care of tapes which cannot be handled within Memnon‘s industrial parallel processes. The list of such tapes/corrections will be confirmed by Memnon after full assessment of the collections at a later stage in the project.

### Uneven winding and tails out tapes:

* Memnon standard procedure is that tapes requiring winding/rewinding prior to digitization are treated on a case per case basis up to 2% of the volume of a given batch. IU would expect a different procedure: IU will group tapes that will need rewinding by batch. Batches of tapes made available to Memnon “tails out” will be rewound at no additional cost.
* When done because of uneven winding on the original or because of broken tape reel, or when done on a case per case basis for “tails out” tapes that would not have been identified upfront by IU, winding/rewinding will be done free of charge until 2% of the batch volume. If the proportion of “ad hoc” winding/rewinding goes beyond 2% of a given batch, Memnon will come back to IU and discuss how to best handle this batch.

### Short tapes (duration < 20mn) and very short tapes (duration < 10mn):

* Memnon highlights that commercial conditions have been based on the capability of Memnon to perform industrial parallel processes (min 3-4 lines in parallel); this is not possible with short tapes. Commercial conditions will need to be reassessed once we have a better view of the proportion of short and very short tapes (for example, a fixed price for tapes below 10mn and for tapes between 10 and 20mn)

### Unknown track configuration:

* It is anticipated that IU will include track configuration in the metadata provided upstream. If this information cannot be provided for any tape, commercial conditions will be revised. If track configuration cannot be provided upfront for part of the tapes (maximum 2%), these tapes will be grouped in specific batches which will fall under a specific process. Specific commercial conditions will be agreed on for the treatment of these tapes.

### Unknown recording speed:

* It is anticipated that IU will include recording speed in the metadata provided upstream. If this information cannot be provided for any tape, commercial conditions will be revised. If recording speed cannot be provided upfront for part of the tapes (maximum 2%), these tapes will be grouped in specific batches which will fall under a specific process. Specific commercial conditions will be agreed on for the treatment of these tapes.

### **Low speed tapes (1,875 and 0,9375) :**

* Memnon standard process is to read these tapes with a playback speed of 3,75 ips, and then adapt the sample rate in the digital domain to match the original playback speed. We have noted IU’s preference for digitizing at original speed to avoid equalization anomalies and will try to procure some low speed readers (like Revox B77-LS for example). However, the implementation of the “low speed” process will depend on the volume of low speed tapes to be treated; if volume is not significant, low speed digitization might be subcontracted. If possible, low speed tapes should be grouped when preparing the batches, and kept for digitization in the last open reel tape batches.

### Broken tape reels

* Broken tape reels will be replaced as needed (within the limit of 2% for a given batch) and the “replacement of broken tape reel” charge on the price list will apply for the treatment of these tapes.

### BAKING

* IU will group tapes requiring baking by batch. The “systematic baking” charge in the price list will apply for these batches.
* When done on a case per case basis for tapes that would not have been identified upfront by IU, baking will be charged at the “individual baking” charge in the price list.

# AUDIO CASSETTES

## CARRIERS INFO

All carriers have been manipulated/played back by students: audio Cassettes not always rewound

### TOTAL EXPECTED VOLUME:

* 15,163 cassettes;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 70mn (60mn & 90mn tapes)

### ATM collection (7,400 cassettes):

* + Chrome and Metal types
  + Mainly 60 & 90 min
  + A & B sides are usually identified
  + No Dolby
  + Program is mainly Field Recordings made on location

### Music Library (5,000 cassettes):

* + Collection has not been inspected

### Radio & TV Services (10 cassettes):

* + Only copies
  + Timing not always shown on the cartridge nor the box

Some Sony Low-Noise C30 are listed among stock brands in the Lilly / LMC 2514 (Corman) collection.

## SPECIFIC DIGITIZATION RULES

* Side identification: in case side A & B are not identified, sides will be arbitrarily assigned and a comment noted in the database
* IU will sort tapes by length so no mechanical preview will be anticipated in the workflow to determine tape length
* Azimuth: both Memnon and IU understand that the best practice should consist in adjusting the azimuth for each and every cassette. However the difficulty to find adequate players and the fragility of the azimuth adjustment mechanism on these players does not make practical the systematic azimuth adjustment for each and every cassette.

Therefore, IU agrees to identify which of the collections are the most critical and would need individual azimuth adjustment. Memnon will make its best efforts to procure and maintain adequate players so as to digitize as much cassettes as possible with individual adjustment within an industrial scale process. However, Memnon cannot commit at this stage to handle more than 20% of the total audio cassettes volume in this manner.

It is assumed that 30 seconds to 1 minute per cassette will be needed to make the adjustment.

* For each batch, IU will inform Memnon whether a Dolby should be applied or not; the type of Dolby available will depend on the players selected.

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* As per packaging specifications (see section “Logistics”), cassettes should be grouped by duration:
  + Cassettes of unknown duration will be grouped in specific batches which will fall under a specific process. The audio cassette preview charge on the price list will apply for the treatment of these cassettes.
  + Tapes shorter than 30mn can hardly be digitized within industrial processes and the treatment of these cassettes should be discussed based on IU best estimations.

# LPs and 45rpm DISCS

## CARRIERS INFO

* ATM collection: no 80 rpm, no 16 rpm, no non-standard speed

### TOTAL EXPECTED VOLUME :

* LP: 99,000; the digitization of at least 35,000 LPs is committed by IU.

Given Memnon’s projected rate of 3500-4000 discs per month, IU agrees to begin providing high-value, commercially unavailable LPs for digitization in Bloomington at the start of the project. Balance between the 99,000 expected volume and the 35,000 committed volume is subject to a confirmation by IU by end of calendar year 2014

* 45rpm: 4,060, no commitment by IU to any digitization, volume to be confirmed by IU by end of calendar year 2014

### Contractual expected average duration LPs:

* + 48mn

### Contractual expected average duration 45rpm:

* + 6mn

### Music Library (92,000 LPs and 5 discs 45rpm):

* + Commercials only
  + A lot of finger prints
  + Lots of box-sets (carrier streams)

### ATM collection (13,400 LPs and 3,400 discs 45rpm):

* + mainly RIAA curve
  + 10” & 12” (25-30 cm) discs, some 16” (40 cm)
  + Commercial discs mainly
  + Very good condition / storage

### Radio and TV Services (10,000 LPs, no 45rpm):

* + Collection has not been inspected

## CARRIER PREPARATION

### CLEANING

* Systematic ultrasonic cleaning for the committed number of 33rpm (LP) approved
* Discs will only be cleaned once

## SPECIFIC DIGITIZATION RULES

### SIDE IDENTIFICATION

* Side identification is based on the information shown on the discs provided that they are readily identifiable. In the event of problematic identification, the sides will be chosen arbitrarily and this will be filled in the metadata.

### STYLUS

* Based on our evaluation on site, on Memnon standard processes and taken into account the commercial nature of a large majority of the LP and 45rpm discs, we suggest using a .0007 elliptical stylus. For specific collections of LPs older than 1955, we recommend using a .0011 elliptical stylus.

### LEVEL

* A standard pre-amp level for LPs and 45rpm will be discussed between IU and Memnon so as to obtain the best possible optimized signal level and avoid saturations in the useful signal.

### POC

* Disc sides will be played back from physical start to physical end, including stylus “poc”

### SIGNAL CONFIGURATION

* In case of mono signal configuration, the signal will be digitized to single channel mono

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### CURVE

* Release date is available for those items that are catalogued (46,683 LPs); for those LPs catalogued, IU anticipates that about 10% will predate 1956: it is anticipated that IU will group these discs and pack them separately, to be digitized at the end of “standard” LPs digitization, just before starting with 78rpms digitization.
* For those items that are not catalogued (and for which release date is unknown), LP discs older than 1956 or any other disc for which a specific curve other than standard RIAA curve is indicated on the jacket will be set aside for digitization at a later stage.

### DIAMETER

* It appears that discs of 16” (40 cm) diameter are extremely rare within IU’s collections; therefore, 16” (40 cm) discs will be set aside for specific treatment after discussion with IU.

# 78rpm DISCS

## CARRIERS INFO

* Dates of recording are unknown
* ATM collection: no 80 rpm, no 16 rpm, no non-standard speed

### TOTAL EXPECTED VOLUME :

* 39,613 discs;

### Contractual expected average duration 78rpm

* 8mn

### ATM collection (38,000 discs 78rpm):

* A large group of 78 rpm is already ready for batch processing (same characteristics)

## SPECIFIC DIGITIZATION RULES

### SIDE IDENTIFICATION

* Side identification is based on the information shown on the discs provided that they are readily identifiable. In the event of problematic identification, the sides will be chosen arbitrarily and this will be filled in the metadata.

### STYLUS

* As batches will be prepared in the most homogeneous manner possible (see Logistics), the initial choice of a stylus/cartridge type will be made based on the information available (label, age of the disc, editor, etc.). Memnon recommends the use of a .0028 or a .0035 elliptical stylus; alternatively, the same size but with conical diamond.

### LEVEL

* A standard pre-amp level for 78rpm will be discussed between IU and Memnon so as to obtain the best optimized signal level and avoid saturations in the useful signal.

### POC

* Disc sides will be played back from physical start to physical end, including stylus “poc”

### SIGNAL CONFIGURATION

* Memnon will produce both a stereo Preservation Master File without equalization and a mono Preservation Master File with equalization. Although initial lab testing has confirmed the feasibility to perform this in a single pass process, the operational feasibility will have to be confirmed during the test/start-up phase.

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### CLEANING

* Methodology, price, and scope of cleaning for 78 RPM discs will be discussed by IU and Memnon at a later date. This discussion will include possibilities for ultrasonic cleaning.
* Discs will only be cleaned once.

### CENTERING

Discs will be centered on the turntable prior to digitization whenever necessary.

### CURVE

* For the mono master, curve will be chosen on the basis of the label and year provided by IU.
* Stereo masters will be produced without equalization as required.

### PLAYBACK SPEED

Discs with a playback speed different than 78rpm will initially be set aside. Specific costing based on open book policy will be discussed, depending of the number of discs requiring speed adjustment.

\*\*\*VIDEO CARRIERS

# GENERAL VIDEO DIGITIZATION RULES

* Digitization from physical start to physical end of the carrier

Preservation Master Files are produced with no editing, gain changing, denoising, or other subjective alterations. These files represent as faithful a reproduction of the source recording as possible

* Mechanical adjustments (tracking and skew) for each tape as needed to achieve maximum video stability and level before digitization commences. These adjustments are part of standard operating procedure and are made at no charge.
* Adjustment of luma and chroma levels to minimize clipped whites and/or crushed blacks within program material as necessary before digitization commences. These adjustments will be based on the color bar at the beginning of the tape if available; otherwise they will be based on the first images. These adjustments are part of standard operating procedure and are made at no charge.
* Assumption of 30 seconds/1 minute to make the adjustments – no adjustment during transfer; Tapes that exhibit level issues requiring more than a single luma and single chroma adjustment may be set aside and marked for review by University.
* Handling of time code, close captioning and sub-titles will be agreed on at a later stage in the project

# GENERAL NON INDUSTRIAL PROCESSES (VIDEO)

* When digitization must stop because of physical defect of the carrier disabling playback until rectified, the carrier will be set aside and its status set to “Failed” with comment on the reasons for rejection.

The partial file generated until transfer interruption will not be delivered and the digitization will be invoiced at 50% of the unit or hourly digitization price per carrier

The same process and charges will apply for carriers for which the operator identifies that no signal is present on the carrier being transferred, and therefore interrupts the transfer.

For a given batch, as soon as the number of carriers leading to failed digitization exceeds 2% of the batch, Memnon will come back to IU and discuss the technical solution(s) and commercial conditions (based on open book policy and justified costs) to best handle the specific batch. The threshold for failed digitization is set to 4% instead of 2% of a given batch for the following collections:

* + University Archives
    - Betacam SP (approximately 2,500 tapes)
    - U-matic (approximately 2,100 tapes)
    - VHS (approximately 1,500 tapes)
  + Kinsey Institute VHS (approximately 9,000 tapes)
* IU estimates that very few other TV standards than NTSC (PAL, SECAM,…) will be present in the collections: in a first stage, these carriers will be set aside and their status set to “Failed” with comment on the reason for rejection. Should the number of such carriers be significant, Memnon will come back to IU and discuss the technical solution(s) to best handle these carriers (Memnon has a very large experience in PAL and SECAM).

# XDCAM, DVD-R and VCD

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 2,579 DVD-Rs;
* 223 XDCAM and 18 VCD

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* DVD-R: 60mn

### Kinsey Institute (100 DVD-Rs)

* A DVD-R copy is made by the Institute itself when a VHS/Film from the library is requested very often.
* Produced on consumer grade DVD recorder by playing the VHS tape.
* Very simple menu structure with only a few items (video only).
* Comply with the DVD norm. File structure is quite simple.

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* If any, will be confirmed at a later stage in the project

# BETACAM SP, BETACAM, DIGIBETA and IMX

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* Betacam SP: 22,084 tapes;
* Betacam (28 tapes), Digital Betacam (24 tapes) and IMX (1,220 tapes) are small volumes

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* BetacamSP: 40mn

### Radio & TV Archive (15,400 BetacamSP + 1,200 IMX + 20 Digibeta)

BetacamSP (only 2 tapes were played back during inspection):

* contains professional production broadcast on the University TV station
* Tape suppliers are mainly from Ampex and Sony
* Most of them are edited tape
* Most of them were not new tapes
* Audio is on 2 channel (2 mono or 1 stereo, AFM track are not used separately)
* Duration is from 5 – 90 min
* Audio Level is 0VU = +4 dBm
* No tape degradation seen
* Good overall picture quality.
* No sync loss / few drops seen

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### CLEANING & BAKING

* The need for cleaning or baking is usually identified during the first digitization attempt. When cleaning or baking need is suspected, cleaning or baking will be performed on a case per case basis when necessary up to 2% of a given batch. The individual Betacam cleaning or baking charge on the price list will apply for the treatment of these tapes.
* If, for a given batch, the proportion of tapes requiring cleaning or baking exceeds 2% of the total batch volume, systematic cleaning or systematic baking will be discussed with IU and the systematic Betacam cleaning or baking charge on the price list will apply for the treatment of these tapes.
* Tapes will only be cleaned or baked once.

# HDCAM

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 124 tapes from the Radio & TV Archive

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 60mn

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* If any, will be confirmed at a later stage in the project

# U-MATIC

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 6,680 tapes;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 53mn

## CARRIER PREPARATION

### CLEANING

* U-matic tapes will be systematically cleaned before ingest and the systematic cleaning of U-matic tapes charge on the price list will apply for the treatment of these tapes.
* Tapes will only be cleaned once.

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### BAKING

* The need for baking is usually identified during the first digitization attempt. When baking need is suspected, baking will be performed on a case per case basis when necessary up to 2% of a given batch. The individual baking charge on the price list will apply for the treatment of these tapes.
* If, for a given batch, the proportion of tapes requiring baking exceeds 2% of the total batch volume, systematic baking will be discussed with IU and the systematic baking charge on the price list will apply for the treatment of these tapes.
* Tapes will only be cleaned or baked once.

# VHS

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 27,406 tapes;

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 90mn

### Kinsey Institute (9,000 VHS, 6 tapes have been inspected)

* Most are commercial video. Also a few home recorded video.
* All the tapes come from various donations so there is no uniformity in the collection.
* Good condition, no physical degradation
* Visual quality varies a lot and shows classical degradation inherent to VHS tape including :
  + color fading or low chroma level
  + chroma noise
  + crosstalk
  + flagging/skewing
  + drop

### Music Library (2,300 VHS, only 3 tapes have been inspected)

* Recording of show/opera/concert held on the University campus.
* Recorded with semi-professional equipment by University technicians or students.
* Various (US) suppliers: 3M / Maxwell. Most of the tape are« professional grade » tape
* Each tape is accompanied from a leaflet describing the content
* Very good condition, no physical degradation
* On the tape dated 1995, recording quality very poor, visible image degradation but no image stability problem and no sync loss (during 10mn play)
* On the tape dated 1978, few image stability issues but no sync loss (during 10mn play)

### Radio & TV Archive (400 VHS)

* No tape has been inspected

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### CLEANING

* The need for cleaning is usually identified during the first digitization attempt. When cleaning need is suspected, cleaning will be performed on a case per case basis when necessary up to 2% of a given batch. The individual cleaning charge on the price list will apply for the treatment of these tapes.
* If, for a given batch, the proportion of tapes requiring cleaning exceeds 2% of the total batch volume, systematic cleaning will be discussed with IU and the systematic video cleaning charge on the price list will apply for the treatment of these tapes.
* Tapes will only be cleaned once

# 1 INCH

## CARRIERS INFO

### TOTAL EXPECTED VOLUME:

* 3,836 tapes

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* 75mn

### Radio & TV Archive (3,000 one inch tapes, only 2 tapes have been inspected)

* Tape suppliers are mainly from Ampex and Sony
* Can last up to 2 hours
* Recorded on Sony BVH-2000
* Tapes have been played back up to 150 times
* Audio is recorded on 1 evt. 2 channel(s)
* Audio Level is 0VU = +4 dBm

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project.

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

### CLEANING and BAKING

* The need for cleaning or baking is usually identified during the first digitization attempt. When cleaning or baking need is suspected, cleaning or baking will be performed on a case per case basis when necessary up to 2% of a given batch. The individual 1 inch cleaning/baking charge on the price list will apply for the treatment of these tapes.
* If, for a given batch, the proportion of tapes requiring cleaning or baking exceeds 2% of the total batch volume, systematic cleaning or systematic baking will be discussed with IU and the systematic 1 inch cleaning or baking charge on the price list will apply for the treatment of these tapes.
* Tapes will only be cleaned or baked once

# DV VIDEO TAPES, MINI-DV, DVCAM and DVC-PRO

## CARRIERS INFO

### TOTAL EXPECTED VOLUME

* DV videotapes: 89
* MiniDV: 1,582
* DVCam: 613
* DVCPro: 9

### CONTRACTUAL EXPECTED AVERAGE DURATION:

* DV Video tapes: 60mn
* Mini-DV: 60mn
* DVCAM: 90mn
* DVC-PRO: 45mn

## SPECIFIC DIGITIZATION RULES

* If any, will be confirmed at a later stage in the project.

## SPECIFIC NON INDUSTRIAL PROCESSES HANDLING

* If any, will be confirmed at a later stage in the project.

# METADATA

## Ideal upfront information to be supplied by IU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **ALL (audio & video)** | Assumed OK | IU carrier reference | IU own reference code for the carrier |  |
|  | Assumed OK | Carrier bar code |  | 1 carrier = 1 bar code = 1 line/set of metadata |
|  | Assumed OK | Carrier stream index | Vn\_m | Support identification of volumes within a carrier stream |
|  | Assumed OK | Title | Carrier title |  |
|  | Assumed OK | Batch ID | Batch number/ID |  |
|  | Assumed OK | Container bar code | Bar code of the container the carrier is packed in |  |
|  | Assumed OK | Root file name | Root file name which will be common to all derivatives | Value to be used as [original file name] for embedded metadata |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **Betacam tapes** | Assumed OK | Betacam type | oxide / SP / Digital / SX / IMX 30 / IMX 40 / IMX 50 |  |
|  | Assumed OK | Physical condition | various | cleaning expected, obvious mechanical defect, etc. |
|  | Assumed OK | Image format | 4:3 / 16:9 |  |
|  | Assumed OK | Color Format | PAL / NTSC |  |
|  | Assumed OK | Tape length | various | Length of the tape, not content duration |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Tape Brand | various |  |
|  | Recommended | Frame Rate | (linked to Colof format) 25 / 29,997 / 30 ips |  |
|  | Recommended | TimeCode | LTC / VITC / both | Important if required work based on TC – Depending on the agreed TC handling, this field might be required |
|  | Recommended | Audio 1-2 | stereo / mono 1 / mono 2 / dual mono / no audio / dolby E | All Beta / dolby E on |
|  | Recommended | Audio 3-4 | stereo / mono 1 / mono 2 / dual mono / no audio / dolby E | All but beta Oxyde |
|  | Recommended | Audio 5-6 | stereo / mono 1 / mono 2 / dual mono / no audio / dolby E | IMX only |
|  | Recommended | Audio 7-8 | stereo / mono 1 / mono 2 / dual mono / no audio / dolby E | IMX only |
|  | Recommended | Cassette size | small / large |  |
|  | Optional | Digital Betacam Cue Track (track 5) | used | Digital Beta only |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **U-matic** | Assumed OK | U-Matic type | low-band / high-band / SP / PCM audio | PCM audio is audio only |
|  | Assumed OK | Physical condition | various | cleaning expected, baking expected, obvious mechanical defect, etc. |
|  | Assumed OK | Image format | 4:3 / 16:9 |  |
|  | Assumed OK | Color Format | PAL / NTSC |  |
|  | Assumed OK | Tape length | various |  |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Tape Brand | various |  |
|  | Recommended | Frame Rate | (linked to Color format) 25 / 29,997 / 30 ips |  |
|  | Recommended | Timecode | yes | only for High-Band – Depending on the agreed TC handling, this field might be required |
|  | Recommended | Audio 1 | stereo L / mono / dual mono / no audio |  |
|  | Recommended | Audio 2 | stereo R / mono / dual mono / no audio |  |
|  | Recommended | Cassette size | small / large |  |
|  |  |  |  |  |
| **VHS** | Assumed OK | VHS type | VHS / S-VHS / ADAT | Adat is for audio only |
|  | Assumed OK | Physical condition | various | cleaning expected, obvious mechanical defect, etc. |
|  | Assumed OK | Image format | 4:3 / 16:9 |  |
|  | Assumed OK | Tape label | T-60, T-90, T-120, T-160, T-180, T-200, DF480/T-240, E-120, E-180, E-240, E-300 |  |
|  | Assumed OK | Recording time | SP / LP / EP/SLP(NTSC) |  |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Cassette size | C (compact) format / Standard format |  |
|  | Assumed OK | Color Format / frame rate | PAL625/50 / PAL525/30 / NTSC525/30 / SECAM625/25 / MESECAM |  |
|  | Assumed OK | Tape Brand | various |  |
|  | Recommended | Audio | Mono / Stereo / VHS HI-FI |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **DVD-R** | Assumed OK | Box number | various | DVD-Rs are packed in second layer boxes |
|  | Assumed OK | Disc index | 1 / various | For sets of discs: place order of the disc in the set |
|  | Assumed OK | Number of discs | 1 / various | For sets of discs: number of discs in the set |
|  | Assumed OK | Physical condition | various | Obvious physical defect |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Image format | 4:3 / 16:9 |  |
|  | Assumed OK | Type of content | Video / Data |  |
|  | Recommended | Layer / Side configuration | DVD-5 / DVD-9 / DVD-10 / DVD-18 | single/double layer and/or single/double side |
|  | Recommended | Zone | zone 0 > zone 8 |  |
|  | Recommended | Disc Type for DVD-R | DVD-R / DVD+R |  |
|  |  |  |  |  |
| **ALL AUDIO CARRIERS** | Assumed OK | Description | Concatenation of descriptive metadata | Value to be embedded in the [Description] field of the BEXT chunk |
|  | Assumed OK | IARL | Concatenation of descriptive metadata | Value to be embedded in the [IARL] field of the INFO chunk |
|  | Assumed OK | ICMT | Concatenation of descriptive metadata | Value to be embedded in the [ICMT] field of the INFO chunk |
|  | Assumed OK | INAM | Title | Value to be embedded in the [INAM] field of the INFO chunk |
| **DAT** | Assumed OK | Box number | various | DATs are packed in second layer boxes |
|  | Assumed OK | Sample rate | 32 kHz / 44.1 kHz / 48 kHz |  |
|  | Assumed OK | Tape length in minutes | various |  |
|  | Assumed OK | Content duration | various |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **Open reel audio tapes** | Assumed OK | Physical condition | various | baking expected, mould, obvious mechanical defect, etc. |
|  | Assumed OK | Reel size in inches | 3” / 4” / 5” / 6” / 7” / 10” |  |
|  | Assumed OK | Reading speed (ips) | 3,75 / 7,5 / 15 / various |  |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Track configuration | Full track / 2 tracks / 4 tracks |  |
|  | Assumed OK | Signal configuration | Full mono / Dual mono / stereo |  |
|  | Assumed OK | Brand | various |  |
|  | Recommended | Sides configuration | A or A/B |  |
|  | Recommended | Program | 1 / 2 | for Dual Mono, and if "Number of sides" is "A", the signal could be the same or different between track 1 and 2 |
|  | Recommended | Core type | CINE / NAB / AEG-DIN |  |
|  | Recommended | Material | Acetate / Polyester |  |
|  | Recommended | Year of recording | yyyy |  |
|  | Recommended | Tail in / out | in / out |  |
|  | Recommended | Coating side | Rest of World / German |  |
|  | Recommended | start / end leader | yes / no |  |
|  |  |  |  |  |
| **CD-R** | Assumed OK | Box number | various | CD-Rs are packed in second layer boxes |
|  | Assumed OK | Disc index | 1 / various | For sets of discs: place order of the disc in the set |
|  | Assumed OK | Number of discs | 1 / various | For sets of discs: number of discs in the set |
|  | Assumed OK | Physical condition | various | Obvious physical defect |
|  | Assumed OK | Content duration | various |  |
|  | Assumed OK | Type | Commercial / CD-R |  |
|  | Assumed OK | Format | CD-Audio / CD-ROM / CD-Extra / Mixed mode |  |
|  | Recommended | Sub-coding presence | UPC EAN and/or CD-Text |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Carrier** |  | **Key** | **Value** | **Remark** |
| **Audio cassettes** | Assumed OK | Box number | various | Cassettes are packed in second layer boxes |
|  | Assumed OK | Physical condition | various | Obvious mechanical defect |
|  | Assumed OK | Tape length in minutes | various | Length of the tape, not the duration of the content |
|  | Assumed OK | Content duration | various |  |
|  | Recommended | IEC type | Normal (I) / chrome (II) / ferrichrome (III) / metal (IV) |  |
|  | Recommended | Dolby | yes / no |  |
|  | Recommended | Dolby type | A / B / C / HX-pro |  |
|  |  |  |  |  |
| **Commercial discs** | Assumed OK | Disc index | 1 / various | For sets of discs: place order of the disc in the set |
|  | Assumed OK | Number of discs | 1 / various | For sets of discs: number of discs in the set |
|  | Assumed OK | Physical condition | various | Cleaning expected, obvious physical defect, etc. |
|  | Assumed OK | Speed in rpm | 16 / 45 / 33 / 78 / 80 / stroboscope |  |
|  | Assumed OK | Diameter in inches | 5 / 7 / 10 / 12 / 16 |  |
|  | Assumed OK | Recording type | horizontal / vertical |  |
|  | Assumed OK | Groove | micro / coarse |  |
|  | Assumed OK | Year of recording | yyyy |  |
|  | Assumed OK | Label | various |  |
|  | Recommended | Signal configuration | mono / stereo |  |
|  | Recommended | Groove start | internal / external | only for early 78 rpm's |
|  | Recommended | Origin | various | Country of origin |

## Audio metadata to be delivered by Memnon

### Embedded metadata

* The exact content of the metadata embedded into both the bext and INFO chunks will be agreed and confirmed at a later stage in the project. The metadata embedded in the audio files’ chunks is expected to be either generated by the digitization workstation automatically (NOA or other) or provided upfront by IU. No manual encoding or manipulation is expected.

### Technical and digital provenance metadata

* The exact content of the technical and digital provenance metadata will be confirmed at a later stage in the project

## Video metadata to be delivered by Memnon

### Embedded metadata

* The exact content of the wrapper will be confirmed at a later stage in the project. The metadata embedded in the video files’ wrappers is expected to be either generated by the digitization workstation automatically or provided upfront by IU. No manual encoding or manipulation is expected.

### Technical and digital provenance metadata

* The exact content of the technical and digital provenance metadata will be confirmed at a later stage in the project

## Copy / transfer of target metadata from Memnon PAM to I.U. ATMC software

* The target metadata will be defined at a later stage in the project.

# DELIVERY SPECIFICATIONS FOR BLOOMINGTON OPERATIONS

## Delivery pace

* The exact delivery pace will be confirmed at a later stage in the project.

## Delivery media

* Over an IU IT network connection to be established between the digitization facility and IU’s data center.
* Technical specifications will be confirmed at a later stage in the project.

## Delivery specifications

* Will be confirmed at a later stage in the project.

## Directories and folders organization

* Will be confirmed at a later stage in the project.

## Procedure for receipt confirmation and qualitative acceptance

I.U. should provide Memnon with the following acceptance confirmations:

* Will be confirmed at a later stage in the project.

# DELIVERY SPECIFICATIONS FOR BRUSSELS OPERATIONS

## Delivery schedule

* Files will be delivered once a month

## Delivery media

* RAID5 hard disk drive
* The hard disk drives will be made available to IU for ingesting the delivered files in IU’s system. The hard disk drives will remain the property of Memnon
* Other technical specifications, if any, will be confirmed at a later stage in the project

## Delivery specifications

* Will be confirmed at a later stage in the project.

## Directories and folders organization

* Will be confirmed at a later stage in the project.

## Procedure for receipt confirmation and qualitative acceptance

I.U. should provide Memnon with the following acceptance confirmations:

### Delivery Receipt Confirmation:

We need I.U. to confirm that they have received the delivered media. The Delivery Receipt Confirmation should be transmitted to Memnon by email, within 48 hours after delivery.

### Physical Receipt confirmation:

Within 5 business days, we need I.U. to confirm that all the expected files (as per the production report):

* Are present on the delivered media,
* Are stored on I.U.’s system

In case I.U. cannot meet the 5 business days deadline to ingest the delivered files, Memnon should be informed and the handling of additional storage needs will be discussed with I.U. Physical receipt confirmation triggers the off-line production back up.

### Qualitative Acceptance confirmation:

Within 40 days after delivery for audio digital files, and within 30 days for video digital files, we need I.U. to confirm the qualitative acceptance (or rejection) of the delivered files by email.

Qualitative Acceptance confirmation triggers the erasure of all approved files.

# FILE NAMING PROCEDURE

* Will be confirmed at a later stage in the project.

# TEST PHASE

A set of benchmark carriers, carefully selected to be representative of the entire carrier category concerned, will be digitized prior to the main digitizing and file conversion activity.

This benchmark content is used to ensure that the assessment of acceptable quality is understood by all parties in the project.

## Composition of the test batches

Expected composition of the test batches per carrier type:

### Bloomington operations

|  |  |  |  |
| --- | --- | --- | --- |
| **Media Category** | **Media** | **Memnon Digitize BLMN** | **Test batch** |
| Open-Reel | Open Reel | 66,301 | 56 |
| Cassette | Audiocassette | 15,163 | 32 |
| Parallel Discs | Commercial LP disc | 35,000 | 56 |
| Parallel Discs | Commercial 78 rpm disc | 39,613 | 32 |
| Parallel Discs | Commercial 45 rpm disc | 0 | 0 |
|  |  |  |  |
| Optical Video | XDCAM | 223 | - |
| Optical Video | VCD | 18 | - |
| Betacam | Betacam SP | 22,084 | 56 |
| Betacam | Betacam | 28 | - |
| Betacam | Digital Betacam | 24 | - |
| Betacam | IMX | 1,220 | 16 |
| Betacam | HDCAM | 124 | - |
| 1” |  | 3,836 | 16 |
| Umatic | Umatic | 6,680 | 16 |
| VHS | VHS | 27,406 | 56 |
| DV | DV videotape | 89 | - |
| DV | MiniDV | 1,582 | - |
| DV | DVCAM | 613 | - |
| DV | DVC Pro | 9 | - |

### Brussels operations

|  |  |  |  |
| --- | --- | --- | --- |
| **Media Category** | **Media** | **Memnon Digitize  BXL** | **Test batch** |
| **Optical Audio** | **CD-R** | **10,730** | **50** |
| **DAT** | **DAT (Digital Audio Tape)** | **5,985** | **40** |
| **Optical video** | **DVD-R** | **2,579** | **20** |

It will be confirmed at a later stage whether DVD-Rs will be digitized in Brussels or in Bloomington.

## Elements to be validated during test phase

The objectives of the test phase are to test, validate and adjust on a small scale basis:

* The logistics process (Memnon and IU)
* The production chain tooling from preview stage to delivery of preservation and access files (Memnon)
* The data exchange process (Memnon and IU)
* The production pace, including data exchange pace (Memnon and IU)
* The quality assurance process by the creation of benchmark files (Memnon)
* The delivery process (Memnon and IU)
* The delivery acceptance process, together with erasure procedure (Memnon and IU)