

## TECHNICAL SPECIFICATIONS AND RECOMMENDATIONS FOR PREPARING MATERIALS FOR PRODUCTION

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## **1. Technical specifications defining how to prepare the master for the production of CDs and DVDs**

**1.1.** Any material can be transmitted in the form of a physical medium (disc, memory stick, HDD) or sent electronically.

**1.2.** Any material can be transmitted in the form of a physical medium (disc, memory stick, HDD) or sent electronically.

**1.3.** The master should be prepared by the Buyer in accordance with the standards set out in the specifications for specific types of media, described with a title according to the order, order number, and, in the case of delivery in physical form, described with an indelible marker as “master” and signed by the approving person. It is not recommended to deliver masters on rewritable discs. If the master is recorded in many sessions, these sessions must be closed. A DVD master must be recorded in a single session.

**1.4.** In the event of failure to comply with paragraph 1.2. and 1.3 by the Buyer, WMF is not responsible for any failure to make or improper operation of CDs and DVDs duplicated with the master, or for failure to comply with the standards set out in the specifications for different types of media, tested with DaTARIUS Quality Control System.

**1.5.** CDs and DVDs manufactured by WMF will be bit-compatible with the master delivered by the Buyer. If, despite the fulfilment of the above conditions by the Buyer and due diligence by WMF, stamping with the master proves to be objectively impossible due to reasons beyond the control of WMF, then the Buyer will deliver a new master, recorded on another device.

**1.6.** OCDs and DVDs images uploaded to FTP must be in ISO or DDP, DDP 2.0.

### **The steps required for the transmission of the master using the FTP server:**

**1.7.** Preparing ISO or DDP 2.0 files. Materials in DDP 2.0 format can be directly uploaded during the mastering process. Materials in other formats make it necessary

to burn off a physical media, which may not be bit-identical with the master provided by the Buyer (other recording software, disc etc.)

**1.9.** Compressing files into a single archive, e.g. \*.RAR.

**1.10.** Generating MD5 checksum for this archive, e.g. with MD-5Summer, and sending it by e-mail.

**1.11.** Uploading the compressed image in the form of DDP/ISO files to the FTP server. To gain access, contact WMF employees.

**1.12.** Providing all information (title, the access path to the material) to the contact person in WMF.

**1.13.** Specification of the capacity of individual media is as follows:

NOŚNIK	POJEMNOŚĆ	RODZAJ PŁYTY
DVD5	4.7 GB	DVD-R
MINI-DVD5	1.4 GB	DVD-R
DVD9	8.5 GB	DVD-R
MINI-DVD9	4.7 GB	DVD-R
DVD 10	2 x 4.7 GB	DVD-R
DVD PLUS	DVD 4.7 GB	DVD-R
	CD 720 MB	CD-ROM 720
CD-ROM	720 MB	CD-ROM 720
CD-Audio	78 MIN	CD-Audio
Mini CD	195.8 MB	CD ROM

## 2. Sound preparation for the production of vinyl

### The maximum level of digital signal:

**2.1.** The maximum level of the digital input signal should not exceed 0.0 dB TruePeak. The True Peak Level (dBTP) should not be confused with the normal Peak Level.

### Frequency range

**2.2.** The Buyer should ensure that signals below 30Hz and above 180Hz do not “stand out” other acoustic bands. Also, take the phenomenon of the upper frequency limit at the end of both sides into account. This phenomenon cannot be resolved.

### Sibilance

**2.3.** Excessive levels of high frequency, in particular sibilants in vocals (vowels: sz, ś, ź...) is not suitable for recording and playback on vinyl records. “Standing out” sibilants cause distortion, revealing the instability in the stereo panorama. If necessary, use deesser in the mastering process.

### Phase signal, stereo correlation

**2.4.** Overall correction of signal stereo should not exceed the range of 0°-90°, where 0° is mono signal and 180° means counterphase. Correlation of signals below 200Hz should narrow down even more, and signals below 100Hz should be 0° (mono). Exceeding this norm causes glitches and cracks of the higher acoustic band, which unacceptable for the listener.

### Dynamics and nonlinear distortion

**2.5.** It is recommended not to overuse signal maximisers in the process of vinyl mastering. Obtaining the volume level of -10 LUFS is sufficient in most cases of loud

masters. Note that the process of cutting the DMM matrix and playing a vinyl record is analogue in nature, bringing nonlinear distortions. In view of the above, take into account that any type of nonlinear distortion used in the production process can act in an unforeseen manner when playing the disc.

## File formats

**2.6.** To prepare the DMM matrix the following formats of digital audio files are accepted: .wav and .aiff. Sampling frequency and bit resolution: 44.1 KHz (16,24 bits), 48 KHz (16,24 bits), 88 KHz 24 bits, 96 KHz 24 bits. On special request, 192 KHz 24 bits.

Note: in any case, the preferred resolution is 24 bits. On special request and for an extra charge, we accept recordings on analogue tapes: 1/4 and 1/2 inches.

## Edition of the materials

**2.7.** WMF does not add automatic pauses between recordings. Thanks to this, in the case of attacca recordings, there are no unnecessary breaks. Between such recordings there will be visual track markers, allowing to see which recording is playing. Any planned artistic spacings between recordings must be "added" to the end of each recording (before the next track). Files should be named in such a way to allow for alphabetic sorting, in accordance with the contents and ordering of the material on the side, e.g.: A\_01 A\_02 B\_01 B\_02 C\_01 C\_02 D\_01 D\_02.

## Length of recordings

**2.8.** When preparing audio material for the production of vinyls, take into account some technical limitations arising from the DMM matrix cutting mechanics, as well as playing the grooves on the disc by the pickup.

Format	7" – 17cm	12" – 30cm		
		Pop, Rock	Jazz	Klasyka
33½ rpm	7:00 min	21:00 min	23:00 min	28:00 min
45 rpm	5:00 min	12:00 min	–	–

## Closing remarks

**2.9.** The sound of a vinyl record is different from digital pre-master, which is a natural phenomenon. In the case of digital media, it is possible to produce recordings that vinyls are not able to reproduce. If in doubt, WMF offers a paid service to verify the technical correctness of the material.

**2.10.** Due to the limited durability of DMM, discs will be embossed using a copy for 3 months from the date of notching.

**2.11.** Resumes after the deadline specified in point 2.10. will be made with the "safety copy", or the negative of the original master.

**2.12.** Resumes after a period longer than one year from the date of the first order will be notched after the acceptance of test-press copies.

### **3. Technical conditions of use, storage, and transport of vinyl records**

#### **Usage**

**3.1.** Vinyl records require special conditions of use.

**3.2.** The temperature during storage, handling, and use of records may be between 5°C to 35°C.

**3.3.** Air humidity should not exceed 85%. The impact of chemical and toxic agents should also be minimized.

**3.4.** Records should be stored in an upright position, avoiding slanted positions.

**3.5.** Records should be protected against any physical damage, including improper operation caused by defective equipment, packaging etc. The technical condition of the playback equipment is crucial for the longevity of an analogue disc.

#### **Moving and shipping**

**3.6.** During transport, efforts should be made to prevent mechanical damage.

**3.7.** Records should be packaged in rigid cartons and placed in a vertical position (up to 4 layers on the palette).

**3.8.** Cartons must be secured to prevent their displacement; other goods cannot lie on the cartons.

## 4. Specification of materials necessary to perform the authoring service

### Video material

**4.1.** Files in max FullHD resolution (1920x1080), without compression or with codecs e.g. progress, in mov or mp4 format;

**4.2.** After individual arrangements with WMF, the material is accepted in the form of:

- Betacam tape (analogue, digital, IMX) in PAL/NTSC format,
- HDCAM tape (excluding H DSR) in PAL /NTSC format,
- preroll minimum of 30 seconds,
- postroll minimum of 30 seconds.

**4.3.** In the case of large materials, the material can be divided into two tapes. The division should be made on a splice, in a place with noise levels as low as possible.

**4.4.** Within all the material the TimeCode continuity and LTC and VITC compliance are required.

**4.5.** The time code of the whole tape with preroll and postroll should be contained within a single day (cannot pass through 00:00:00:00),

**4.6.** In the case of audio materials delivered separately (on another medium), the tape should contain at least one audio track (the so-called pilot track).

**4.7.** In the case of materials with the target format 16:9, the material on the tape should be written in the 16:9 format (not Letterbox).

**4.8.** The tape should be described in a way consistent with the order, content, input and output timecode, and should contain information of audio tracks contained.

**4.9.** Providing video material on any other media types, e.g. ready DVD discs (unprotected), Blu-Ray (unprotected), encoded files (M2V) requires individual arrangements with WMF (except ready HD-DVD discs, which will not be accepted).

**4.10.** In the case of files encoded to the correct DVD/Blu-Ray format, WMF is not responsible for the visual and technical quality of the material.

**4.11.** Any source materials supplied by the Buyer are treated as verified and validated in terms of technical correctness and quality. In the case of materials of unknown quality or content, arrangements with WMF are required.

**4.12.** Video material is not subject to editing.



## Audio material

**4.13.** Files in wav, aff, compliant with the video material.

**4.14.** Betacam tapes (analogue, digital, IMX), HDCAM - containing stereo material. In the case of the so-called stereo cutting to 5.1, the international tone should be delivered additionally.

**4.15.** Audio material can be divided into acts.

**4.16.** Audio material delivered on media with time codes should be prepared in the 25FPS format. The time code should be consistent with the video material on the Beta-cam/HDCAM tape.

**4.17.** Providing audio material on other media types, e.g. ready DVDs, encoded files (AC3), requires individual arrangements with WMF.

**4.18.** Media described in a way consistent with the order, content, input and output timecode, and should contain information of audio tracks contained.

**4.19.** Any source materials supplied by the Buyer are treated as verified and validated in terms of technical correctness and quality. In the case of materials of unknown quality or content, arrangements with WMF are required.

**4.20.** Media described in a way consistent with the order, content, input and output timecode, and should contain information of audio tracks contained.

## Graphic materials and parameters of graphics prepared by the Buyer for DVD-Video

**4.21.** Graphics files in BMP formats (as well as other popular graphics formats).

**4.22.** RGB colour format.

**4.23.** Graphics size:

- for 4:3 - 720 x 576 pixels

- for 16:9 - 1024 x 576 pixels

**4.24.** Masks for buttons should be prepared in sizes contained in section 4.23, in grayscale.

Mask colours:

- mask colours for backlit areas – black

- mask colours for transparent areas – white

Other levels of grey are not applicable (black and white only).

- 4.25.** Image files in TIFF, TGA, BMP, PSD, JPG formats, with minimum compression.
- 4.26.** In order to be consistent with the printing, cover, and other graphic materials related to the title, open files used to produce these materials are required. Fonts should be rasterized.
- 4.27.** All materials should be prepared in a form allowing for their edition. Any source materials supplied by the Buyer are treated as verified and validated in terms of technical correctness and quality. In the case of materials of unknown quality or content, arrangements with WMF are required.
- 4.28.** Animations should be delivered as AVi files without compression or QuickTime without compression or encoding, which does not introduce significant deterioration in the image quality comparing to the original material (proress).
- 4.29.** WMF can prepare graphics (this service is additionally charged upon prior arrangement).

## Subtitles

**4.30.** Sub Station Alpha (SSA) or Sonic Scenarist (SST) format.

**4.31.** Graphic format according to the following scheme:

SP NUMBERSTART END FILE NAME

1 >>?? 00:00:22:14>? 00:00:26:08>? file.name.1.bmp  
2 >>?? 00:00:26:14>? 00:00:30:06>? file\_name.2.bmp  
3 >>?? 00:00:33:14>? 00:00:36:03>? file\_name.3.bmp  
4 >>?? 00:00:36:08>? 00:00:40:19>? file\_name.4.bmp  
5 >>?? 00:00:58:17>? 00:01:01:01>? file\_name.5.bmp  
6 > >?? 00:01:03:00>? 00:01:07:03>? file\_name.6.bmp

- ">" means tab,

- "?" means a space in ASCII code.

**4.32.** For DVD-Video discs, subtitle files in BMP indexed format with the following colour palette:

- white (255/255/255) only as background – ultimately mapped as transparent,
- black (0/0/0) main outline of the characters – ultimately mapped as black,
- blue (0/0/255) fill colour - ultimately mapped as white,

- red (255/0/0) secondary text colour, smoothing colour – ultimately mapped as white,
- a single image should not contain more than 2 lines of text, up to 38 characters each.

**4.33.** In text format according to the following scheme:

1> > ?? 00:00:22:14>? 00:00:26:08>?3 First line of text|Second line of text

2> > ?? 00:00:26:14>? 00:00:30:06>? First line of text

3> > ?? 00:00:33:14>? 00:00:36:03>? First line of text|Second line of text

4> > ?? 00:00:36:08>? 00:00:40:19>? First line of text

5> > ?? 00:00:58:17>? 00:01:01:01>? First line of text|Second line of text

6> > ?? 00:01:03:00>? 00:01:07:03>? First line of text

- “>” means tab,
- “?” means a space in ASCII code,
- “|” means line break.

**4.34.** Maximum 2 lines up to 38 characters.

**4.35.** Subtitles should be synchronized with the time code contained in the video material.

**4.36.** Subtitles are treated as closed and are not subject to editing.

**4.37.** Any other formats require additional arrangements with WMF.

#### **Disc capacity (DVD-Video):**

**4.38.** With very good quality video material containing one audio stereo track and one subtitles track with a static menu system (main menu, scene selection, turn off/on subtitles), a DVD disc can contain:

- DVD5 - up to 120 minutes of material,
- DVD9 - up to 200 minutes of material.

**4.39.** The amount of material possible to contain can be smaller in case of:

- poor quality of the video,
- very dynamic video (e.g. clips),
- higher audio formats (5.1, PCM),
- more additional materials (advertising spots, audio tracks, subtitles tracks, animated menu, etc.),
- addition of computer data.

## 5. Rules for the preparation of publishing materials for print

### Method of delivery of files

**5.1.** Materials in electronic form should be sent to a WMF employee. The method of delivery should be agreed with the person responsible for contact with the Buyer.

### Preparation of production files

**5.2.** Closed files:

- PDF composite (1.2,1.3,1.4).

**5.3.** Open files:

- EPS (curved fonts)

- TIFF (rasterized fonts)

**5.4.** Photos and other raster graphics should have a resolution of 300 dpi. Using lower resolution means the acceptance of lower quality.

**5.5.** Input files should be prepared in CMYK or Pantone® system.

**5.6.** Additional Pantone® colours must be prepared as separate colours from the Pantone Matching System.

**5.7.** Due to a different interpretation of colours by graphics processing devices, conversion from RGB or Pantone to CMYK should be done by the Buyer.

**5.8.** Additional information contained in a file with graphic design (die layout, technical information) must be placed in a separate layer of the project, so as not to collide with the graphics for printing.

**5.9.** All fonts used in the files must be embedded or outlined.

**5.10.** Graphic elements in the files for printing cannot contain postscript codes from Corel Draw.

### Line-up

**5.11.** The project must be in 1:1 scale.

**5.12.** In the case of a multi-page publication, page size must be the same for all the pa-

ges contained in the document.

**5.13.** The position of the image on the page must be centred in relation to the page area.

**5.14.** In the case of a multi-page publication, each graphics page must be prepared on a separate page, in a single PDF file.

**5.15.** Format signs must be centred in relation to the print and page, and spaced at 3 mm from the net format.

**5.16.** Each project page should have bleeds on all sides. Minimal bleed value is 3mm.

**5.17.** Critical design elements should be placed at a distance of not less than 3 mm from the outline, in order to protect them from cutting during the binding process.

**5.18.** Minimum type:

- single colour: 7 pt.,
- multi-coloured, one-piece: 8 pt.,
- multi-coloured, two-piece: 10 pt.,
- reversed print: 10 pt.,

**5.19.** Minimum allowable line thickness:

- single colour: 0.25 pt.,
- multi-coloured or reversed: 0.75 pt.,

**5.20.** For lines with a thickness of less than 0.5 pt. with single-colour printing, its full colour coverage is recommended (without a grid in individual colour extractions).

**5.21.** Black text with a value less than or equal to 24 pt. should be built with the same K and should have an overprint attribute (printing on the background). Black texts with a value greater than 24 pt. should be underlined with CMY component to achieve deep black.

**5.22.** Prints on CD/DVDs without raster graphics or with uniform colours (including colour background) should be printed in screen printing technology, using paints from the Pantone® system.

**5.23.** In order to achieve deep black in colour backgrounds using offset printing technology, such areas should be prepared with the following components:

- CMYK (60,60,60,100) for coated and uncoated paper products,
- CMYK (80,80,80,100) for CDs / DVDs.

**5.24.** Greys should be built with the same K in order to avoid dominants and colour differences on individual prints.

**5.25.** For the preparation of CMYK grey, it should be built with twice the majority of K colour relative to other colour extractions.

**5.26.** In the case of blacks for vinyl labels (W01, W14), do not build colours using single colour extractions. In such a case, black areas should be built from CMYK, in order to achieve the greatest possible depth of black due to the weakening of colour resulting from the vinyl disc production process.

**5.27.** In order to obtain the most accurate colour compensation, WMF reserves the right to make Pantone® (and CMYK) colour trap or gain for colour background for CDs/DVDs and coated material substrates (print using metallization).

**5.28.** Standard colour trap used in WMD is in range with 0.3-0.5 pt.

**5.29.** In case of colour background (print with disc metallization) for CD/DVDs gain with respect to the graphic is at least 1 pt.

**5.30.** Barcode must be prepared in one colour and in full coverage (scanner readable colour, 100% K recommended).

**5.31.** Barcodes prepared in a colour lighter than the background will not be readable by the laser beam.

**5.32.** In the case of hot-stamping, do not cut the graphics from beneath the film coverage area (the film is applied to the graphic to avoid errors). The exception is white film, in which case it is recommended to cut out the graphics due to the large transparency of the white film.

**5.33.** Graphic elements to be obtained with hot-stamping should not be duplicated with printed elements (ideal fitting of the duplicated element will not be possible).

**5.34.** A hot-stamping project should be prepared in the form of vector graphics, with full coverage in one colour extraction (100% K recommended).

**5.35.** For the coated side of raw material, the reproductive capacity of hot-stamping is 0.6 pt. in line. Reproductive capacity in reversed print is 1 pt. Any elements below these values will not be properly mapped to the printing sheet.

**5.36.** For the uncoated side of raw material, the reproductive capacity of hot-stamping is 1.2 pt. in line. Reproductive capacity in reversed print is 2 pt. Any elements below these values will not be properly mapped to the printing sheet.

**5.37.** In the case of the project containing embossed or raised elements, all elements of a width less than half the thickness of the embossed raw material will not be reprodu-

ced or will be reproduced incorrectly.

**5.38.** In the case of projects with refinements, material for CMYK or Pantone® print and individual refinement elements must contain registration marks in vector form, placed at the same positions on the page (off-print) in order to fit printed features to refined elements.

**5.39.** A file for embossing should be prepared in the form of vector graphics, with full coverage in one colour extraction (100% K recommended).

**5.40.** In the case of selective UV coating, it is recommended that the paint does enter the area of the layout.

**5.41.** A file for UV coating should be prepared in the form of vector graphics, with full coverage in one colour extraction (100% K recommended).

**5.42.** The minimum line width guaranteeing the correct representations of UV coating elements is 1.4 pt. (in reversed print 2.8 pt.). All elements outside this range will not be properly mapped to the printing sheet.

**5.43.** Uncoated materials are not suitable for UV coating.

**5.44.** In the case of convex UV paint (3D), the minimum line width is 4.3 pt. The maximum line width is 28 pt. All elements outside this range will not be properly mapped to the printing sheet.

**5.45.** In projects that contain glitter, the minimum line width that guarantees correct glitter mapping is 5.7 pt.

## Colour profiles

**5.46.** Projects may not contain colour profiles.

**5.47.** If the project contains a colour profile, the latter will be removed, which can cause a change in colours for which WMF is not responsible.

**5.48.** The maximum ink limit for coated raw materials is 320%.

**5.49.** The maximum ink limit for noncoated raw materials is 280%.

**5.50.** The maximum ink limit for CD/DVD is 380%.

## Colour patterns

**5.51.** It is recommended to use certified proof for each multi-colour page (excluding

black background colours).

**5.52.** Each colour pattern delivered to WMF must contain a Ugra/FOGRA control strip along with a certification measurement.

**5.53.** The lack of certification measurement on the proof prevents the use of this proof as a colour pattern for the accepted printing job.

**5.54.** In the absence of certified proof for jobs for which the quality of colour reproduction is critical, reprinting may be used as a certified proof at the expense of the Buyer.

**5.55.** Proof should be made of final input materials prepared for print by WMF and after obtaining the approval of the Buyer.

**5.56.** If the Buyer fails to deliver a certified proof and in the case of the lack of order for its printing at WMF, printing is done in accordance with the values specified for a particular substrate.

**5.57.** If the Buyer accepts printing, a printing master material for the printing machine operator is the printing sheet accepted and signed by the Buyer.

**5.58.** Prints from previous editions are not the colour pattern.

**5.59.** In the case of additional refinements of printed surfaces, WMF reserves the possibility of colour differences in relation to proofs. It should be noted that flashing film or flashing UV paint make a dominant colour towards yellow, while matt film and matt UV paint towards magenta.

**5.60.** In the case of printing the uncoated side of raw materials, the proof may not be to colour pattern. Printing is done in accordance with the values specified for the particular substrate or Pantone Matching System pattern for a project using colours from that system.

**5.61.** Colour patterns delivered by the Buyer for printing with Pantone® system are used for the selection of the most similar colour from the PMS palette.

## General information

**5.62.** WMF has the right to refuse to accept files made outside the specifications and written in newer software versions than Adobe Creative Suite CS5.

**5.63.** Additional works performed on the Buyer's materials, designed to adapt them to the specifications, WMF can perform as additional services after prior consultation



with the Buyer.

**5.64.** WMF is not responsible for the correctness of the transfer of projects to the printing sheet if the projects have not been prepared in accordance with the instructions in section 5.

**5.65.** Each time when placing an order, the Buyer is obliged to attach the required product specification.

**5.66.** Colours of the finished product should be consistent with the certified proof delivered by the Buyer, taking into account potential deviations related to the specificity of offset printing, paper quality, and other factors affecting the colour of the copy.

**5.67.** Files sent to the Buyer for acceptance are the result of the completion of printing adaptation processes. An illustrative PDF (RGB, bitmap) file will be generated from the production file using RIP software. After the approval, any further complaints regarding differences with respect to the input material will not be accepted.

**5.68.** Due to technological differences resulting from the way of displaying colours by most monitors, comparing the colours of the print with the colours presented on the screen is technically incorrect. The lack of colour matching between the print and the screen image is not a reason for complaint.

**5.69.** Projects requiring 1:1 colour reflection as per the previously approved colour proof must be printed separately, according to the individual offer. In case the Buyer does not report the need of such, combined printing method is used and any occurrence of colour differences regarding the source materials may not warrant any further complaint.

## **WMF operating system**

**5.70.** MacOS X 10.6.8 to 10.8.5

## **WMF graphics software**

**5.71.** Adobe Creative Suite

-Adobe Illustrator CS5.1

-Adobe InDesign CS5.5

- Adobe Photoshop CS5.1
- Adobe AcrobatPro 8
- Acrobat Distiller 10

## **6. Materials for preparation entrusted by the Buyer**

**6.1.** In any case, it is advisable to consult the dimensions with WMF.

**6.2.** The recommended weight of the outer package (envelope) for a vinyl record is 350g / m<sup>2</sup>. In the case of lower weights, there is a risk of media damage for which WMF is not responsible.

**6.3.** Printing materials supplied must be described with a title/order number.

**6.4.** Printing materials for different orders should be packed separately and bear the order title (production name), along with the stock issue confirmation document.

**6.5.** In case of inability to adapt the supplied materials to the WMF technological process, WMF reserves the right to reject or modify them for an additional fee.

**6.6.** WMF does not control the supplied materials for quality and quantity. All components are considered to be verified by the Buyer.

**6.7.** It is required to provide printing materials taking into account technological surplus in the amount of 3% for each order. In the case of orders for more than 20 000 pieces, it is determined individually.