CD-ROM - Technical conditions

These technical conditions describe the acceptable source data and materials, including documentation required for the CD-ROM production in the company GZ Media, a. s. The customer has the duty to get acquainted with them prior to placing the order. The source data not mentioned in these technical conditions, or source data, which are inconsistent with these conditions, should be consulted in advance with a pre-mastering engineer.

Technical Specifications

Technical parameters of source materials for the production of a "CD-ROM" format must conform to the specification of the **Yellow Book** standard. If the supplied source materials do not conform to this specification, they will be adjusted in the pre-mastering, or will be rejected as nonconforming, should it be impossible to adjust them.

Data capacity for CD-ROM (Mode 1 and Mode 2 form 1)			
length (min:sec)	2:51	21:44	80:00
data (MB)	25	195	700
note:	limit for CD business card	limit for 8 cm CD (single)	max. recommended size

NOTE: The quantity of saved data depends on the number of files and directories and size of the individual files (even a file with several bytes will occupy the whole sector of 2048 bytes).

File systems:
A file system specifies the description and location of files on CD-ROM with regard to the files used and platform, for which they are determined. The applicable division is stated in the table below. The selection of file system must be already carried out during the master processing.

File systems for CD-ROM, which can be processed		
name	platform	description
ISO 9660 Level 1	DOS, Windows, Linux, BSD, Mac OS 7-10	files with names in the following form: name 8 characters, dot and 3 characters of extension, directories: only 8 characters without extensions, maximally 8 levels of nesting, limiting of the applicable characters to: A-Z, 0-9, _
ISO 9660 Level 2	Windows 95 and higher, Linux, BSD, Mac OS 7-10	files with name length up to 31 characters (name and filename extension), they must neither begin nor end with any dot; only one dot is permitted in the name, limiting of the applicable characters to: A-Z, 0-9, _
Joliet	Windows 95 and higher, Linux, BSD, Mac OS X 10	recommended system for Windows 95, 98, ME, NT, 2000, XP, Vista, extension of ISO 9660 file system, maximally 64 arbitrary characters (unicode), backward compatible with DOS and Windows 3.xx (it will convert the names to 8+3)
Rock Ridge	Unix, Linux, BSD, Mac OS X 10	extension of ISO 9660 file system for Unix systems, up to 255 characters, less limitation on the character set than ISO
HFS, HFS+	Mac OS	file systems for Apple Macintosh computers, files with name length up to 31 characters
Hybrid	DOS / WINDOWS / Mac OS	combination of ISO 9660 (possibly also with Joliet extension) and HFS file system on one CD-ROM

Formats of input source media

Complete master

Contains all data in the format, which is directly usable for the production by pressing without necessity of carrying out any changes or adjustments. The studio will carry out only the check of the supplied master, and if required or suitable, also the adjustment of master so that it would meet the standards and recommendations of Philips/Sony.

CD-ROM master

Fully functional pressed or burnt disk in the CD-ROM format playable in the computers PC, Apple Macintosh or Unix/Linux/BSD. We do not accept the shaped CDs, business cards, etc.

DDP (Disk Description Protocol) format

Worldwide standard for handing-over the source data for production of optical disks supported by all manufacturers of equipment for CD and DVD mastering, as well as by manufacturers of professional workstations for processing of audio or DVD authoring.
For CD-ROM we recommend the version 1.00. We also accept the version 2.00.

CMF (Cutting Master Format)

It is similar to DDP. CMF is transferable to DDP. If your workstation supports both DDP and CMF, select the option DDP.

Files with CD-ROM image

Files, which can be used without any adjustments for the CD-ROM master burning, thereby can be transferred to the case 2.1.1.

Recommended formats:
- ISO, IMG – images of data disk (user data in sectors of 2048 bytes)
- NRG (Nero) – image of data disc of any CD-ROM format
- BIN/CUE (CDRWin, Toast, etc.) – image of standard CD-ROM
- DMG (Apple Macintosh) - image of data disc for Apple Macintosh

Acceptable formats:
- C2D (WinOnCD)
- CIF (Easy CD Creator)
- CCD/IMG/SUB (Clone CD)
- CDI (DiscJuggler)
- IBP/IBQ (IsoBuster)
- MDF/MDS (Alcohol 120%)
- BWT/BWI, B5T/B5I, B6T/B6I (BlindWrite)
- TOAST, CDR (Toast, Apple Disk Utils)
- ISZ (UltraISO)
- UIF (MagicISO)

Individual files

They cannot be used directly for the production by pressing. At first the data must be processed in pre-mastering and a master must be produced. The processing includes the check of supplied files according to the Yellow Book standard, possible adjustments specified by the customer in supplied documentation, compilation of the disk image from the particular files and the verification of function of the resulting master.

Physical carriers

<u>Scope of liability for damage:</u> Company GZ Media, a.s. is liable for damage or loss of the medium only up to the price of new medium, not for the price of the medium content.

Physical carriers must be readable in the entire length of the programme. In the event that the supplied carrier contains non-correctable errors of reading, the processing of order will be suspended. The customer will be asked for supplying new source data.

The particular carriers must be unambiguously identifiable in accordance with the supplied documentation and order (catalogue number, customer). The description must also contain the format of data, which are stored on the carrier (for example CD-ROM master, DDP master or files for CD-ROM). The description must appear both on the cover and on the medium itself. However, it must not prevent its error-free reading (self-adhesive labels and stickers, description of CD media using a hard-core pens, etc.).

If one data carrier contains the files for more titles, the files must be stored in a separate folder named according to the catalogue number, in accordance with the supplied documentation and order.

<u>Recommendation:</u> For the production, please send always a copy of your original master. We recommend sending 2 identical copies clearly identified as master and backup copy. We will use the backup copy in order to minimise the risk of delays that could occur in case of master readability failure, in which case the material would need to be sent again.

Pressed or burnt optical disk – CD-ROM master
Fully functional pressed or burnt disk in the CD-ROM format playable in the computers PC, Apple Macintosh or Unix/Linux/BSD. We do not accept the shaped CDs, business cards, etc.

Methods of recording on CD-R(W):
- singlesession (DAO - Disk At Once) – RECOMMENDED
- multisession (SAO - Session At Once) – acceptable
- recording by tracks (TAO - Track At Once) – NOT recommended!!!!

Format of data on CD-ROM:
- Mode 1 – RECOMMENDED
- Mode 2 form 1 – acceptable
- Mode 2 form 2 - NOT recommended! Such a prepared disk does not contain the data for possible correction of errors on the physical carrier (scratched disc, etc.).

Instructions for burning the CD-R(W):
- Use only high quality media from a major brand, preferably the higher versions from the relevant manufacturer.
- Use the recording speeds in the middle of range recommended by the manufacturer (according to the possibilities of the driving mechanism). At higher recording speeds there will occur the step change of burning speed and operation of laser (zone burning). Thereby the readability of disk is worsened.
- Supply the error checking protocol for CD-R(W), if it is available.
- Not cover the CD with paper tapes or other self-adhesive tapes; however it is possible to use the technologies for burning of graphic information on the side of disk labelling (LightScribe, etc.).

- Describe the medium only on the labelling side, and only with a felt tip marker intended for

that use. Common felt tip markers are not suitable. Using hard-core pencils and ballpoints will damage the medium.

🔟 Prior to sending the disc to the production we recommend checking the entire disc by an antivirus program and verifying the functionality of Autorun and all applications contained in the CD.

Optical disks CD-R(W), DVD-R(W), DVD+R(W) with data content

Those are disks in the format of CD-ROM or DVD-ROM with the content according to the points 2.1.2 - 2.1.4 or 2.2.

Disks must contain a compatible file system (ISO9660, Joliet, HFS or UDF).

One disk may contain the data for more titles.

Hard disks

We accept all sizes of hard disks (3.5", 2.5"), all applicable possibilities of connection (IDE, SCSI, SATA, eSATA, USB, Firewire, LAN).

We recommend using the external disks; however we also accept the internal disks.

One disk may contain the data for more titles.

Format of disk:

🔟 NTFS (Windows 2000, XP, Vista) - we recommend

🔟 FAT32 (Windows 9X) – we accept (the maximal size of file is 4294967294 bytes)

🔟 EXT2, EXT3 (Linux) – we accept

🔟 HFS (Apple) – we accept

Storage media

We accept the following memory cards: SD, SDHC, XD, MMC, Compact Flash, Memory Stick and storage media USB Flash disk.

One storage medium disk may contain the data for more titles.

For more information contact the pre-mastering engineers.

Data transmission via FTP server

The source data for production transmitted via FTP server must contain the check elements enabling the verification of data integrity prior to the production itself. Without check elements it is impossible to guarantee the conformity of files received by the manufacturer to the original files on the side of customer.

The orders, which do not contain the check elements, are suspended until the customer sends the data in acceptable format. If the customer insists on the production from non-secured data, he will assume all risks related to any possible undesirable changes of data during its transmission and storage.

The check elements can be supplied in one of the following ways:

Source data packed in the archive

The files representing the image of disk, DDP, CMF or individual files, which do not contain any check elements, must be packed in one single file that can contain even the documentation.

Acceptable archive files: ZIP, RAR, SIT, 7Z, BZ2, ARJ, ACE, other formats might be accepted only with prior agreement with the pre-mastering department.

Format of source data, which already contains the check elements

ISZ, UIF – compressed formats of CD image with the check elements

The check code supplied separately

As for the files, which do not contain any check elements and are not packed in archive file, there must be supplied the check codes for them, by means of which it is possible to verify any damage to data or an unauthorised manipulation with data.

We accept the codes MD5, CRC32 and SHA1. The code must be calculated separately for each file and a "List of files with checking codes" must be attached to the documentation. The check codes can be created using for example the programme HashCalc, which may be used free of charge.

Location and identification of data files

If the customer supplies the source data in the form of files on a data carrier or via FTP transmission, there must be chosen such location into folders and names of files so that the data identification would be unambiguous, and in accordance with the supplied accompanying documentation and order.

The observance of all below mentioned recommendations will secure the continuous and problem-free processing of the whole order and reduce the risk of production delay or even of mistake of data.

We recommend <u>naming</u> the archive files and files of disk image <u>according to the catalogue number of order</u> and not adding any additional information to the name (date, etc.).

The source data saved on FTP into a disk space allocated to the customer, or saved on a data carrier must be located in a folder with the name, which is identical to the catalogue number of title. Any file or directory, even inside the archive, must not contain any inadmissible characters of operating systems for PC and Apple Macintosh: / \ > < : * ? |

Make a special notice if the source medium contains system files or hidden files, and specify whether or not those files are to be put on the CD. Unless specified otherwise, the entire data content of the medium will be transferred without change.

Recommendation for preparation of complete master:

Location of the file on disc

Place the frequently used and short files (index files, database files, program files, …) (if the burning software so allows) at the beginning of CD, where the access time is shorter. Place the long files, such as audio and video clips, at the end of the CD. When reading these files, the access time is not decisive, but the transfer rate, which is higher at the edge of the disc in most of advanced mechanisms.

Check of content

Check the content of prepared master by an antivirus program with the updated virus database. Furthermore compare the bit conformity, as well as the number and sizes of files and directories of the resulting master with the original source data.

Check of functionality

Test the functionality of Autorun and all executable applications even on other computers or operating systems, which are different from those computers and operating systems, on which the applications were developed. That is to say the end user might not have the same standard software installed, which was used or presumed when developing the application (decoders of image and sound, media players, etc.).

Check of data integrity

> Check the data integrity by means of copying all files from the prepared master to another medium, for example hard disk.

Documentation

The documentation must unambiguously and undoubtedly identify the supplied source data so that it would enable making a decision about the accuracy of data during the input check and subsequent processing. It is necessary to specify mainly all non-standard elements and abnormalities, such as errors allowed within the recording, intentional exceptions to the specification, required protections against copying, etc.

The processing of orders (titles) without the documentation required is suspended until the customer supplies the source data and documentation conforming to the technical conditions. If the customer insists on the production without the documentation supplied, he will assume all risks related mainly to the mistake of titles or mistake of compositions.

The documentation must contain the following information:

Identification information

> Catalogue number, name of customer, name of title, etc

Information about source data supplied

Type of source data supplied
Location of source data on FTP server: directory and name of file
Format of source data (CD-ROM master, DDP, disk image, individual files)

Description of the resulting product

Name of disk

> Name of the disk as displayed in the computer (volume label, see the chapter 1)

Number of files, folders and total capacity of user data

> This combination is so unique for each data disk that it will enable the identification of disk. It is possible to obtain this information from the files' explorer by marking all files and folders of the root directory of disk, and by subsequent selection of "Properties".

Autorun

> If the CD contains the function of autorun in Windows, we recommend describing its function, for example: "the presentation of company will start up – START.EXE"

Target operating system

> We recommend identifying the operating system, for which the disk is destined, possibly the file systems contained in the master, too. This information will prevent any claims on the ground of malfunctioning on the unsupported configuration of computer. We do not carry out on a regular basis the testing of master functionality in older operating systems (Windows 3.xx, 95, 98, ME, 2000, MS-DOS, etc.)!