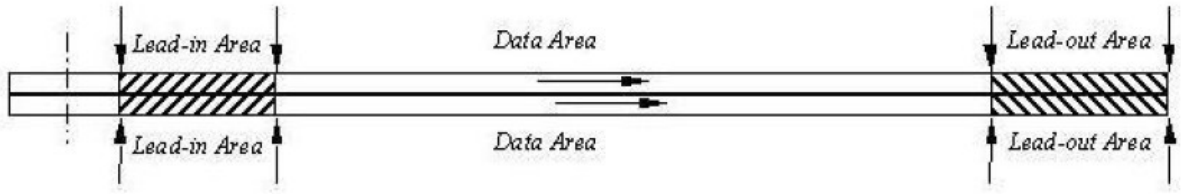
Double layer discs

Arrangement of layers at double layer discs

At the DVD-9 format, the layers can be oriented in two ways from the point of view of the reading direction, namely in the PTP way (parallel track path) and OTP way (opposite track path). The layers are numbered upwardly from zero, i.e. the layer 0 and the layer 1.
We recommend selecting the OTP type at the preparation of masters for the double layer DVD-Video discs.

PTP

The layers are oriented in the same way as with the CD format, where each layer has its lead-in area, data area and lead-out area. The orientation of recording and reading is from the disc inner area (lead-in) to its edge area (lead-out).



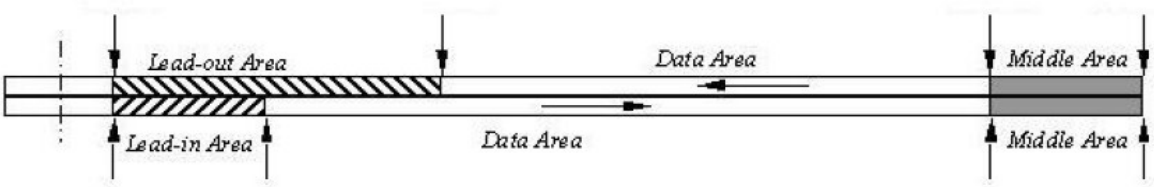
PTP is most often used for the DVD-ROM format or hybrid DVD discs, which contain the whole DVD-Video part of disc on one layer, whereas on the second layer there is only the DVD-ROM part. The selection of the PTP format for double layer DVD-Video disc does not cause any malfunction of the disc, but the delay at video playback is increased when transiting from layer 0 to layer 1. The playback device must focus from layer 0 to layer 1, move the reading head to the inner area of disc on the start of layer 1, and change the revolutions.

The behaviour of disc depends on the playback device used and on the selection of place of the layers' transition (called "layer break") at the production of disc. If the layer break is selected in the place, where no video exists, then the behaviour of PTP disc and OTP disc will be equal and imperceptible for the user.

In the event of supplying the master for double layer DVD-Video disc with PTP orientation, with layer break in the middle of video-track and with layer 0 longer than layer 1, the GZ premastering studio can change the layers' orientation to OTP for the purpose of better disc functionality, without giving notice to the customer.

OTP

The layer 0 starts at the inner part of the disc with the lead-in area, continues with the data area, and ends in the so-called "middle area". The layer 1 starts from the "middle area", continues with the data area up to the lead-out area. At the OTP discs, the layer 1 must not be longer than the layer 0.



Recommendations for layer break at DVD-9

It is possible to select the place for the data division into 2 layers; however, it must meet the specifications for DVD-Video. The more the full disc capacity is utilized, the shorter is the interval, during which it is possible to search for this place. The most suitable places are the ones outside the video-track, for example at the beginning of any IFO file or BUP file.

If the transition from layer 0 to layer 1 at DVD-9 lies within the video-track, then at some DVD playback devices there may occur a short stop of playing, which shows itself by a short "freeze-up" of image and loss of sound. This characteristic is an integral part of the format and it is impossible to remove it entirely. However, a proper authoring can minimize it. The ideal place is the transition through the black colour with minimal level of sound. If it is impossible to find such a place, then we recommend finding out a place with minimal movement in the image and with minimal level of sound outside the spoken word and music in the background. Authoring studio preparing the source data must carry out this division.

In some cases, it is possible to change the layer break in the supplied source materials in the GZ premastering studio.

Methods of recording on DVD+R DL, DVD-R DL:

- singlesession (DAO - disc At Once) – RECOMMENDED
- multisession (SAO - Session At Once) – NOT ACCEPTED!!!!

Instructions for burning the DVD+R DL, DVD-R DL:

- As for the double layer DVD-Video discs, pay attention especially to a proper layers' division in a suitable place; therefore, please, use for the burning and producing of the ISO image from the VIDEO_TS folders only the professional software, possibly freeware application ImgBurn
- Please use preferably DVD+R DL discs („plus" format) for double layer DVD-Video titles. They offer more possibilities for setting up of the layer break.
- Use only high quality media from a major brand, preferably the higher versions from the relevant manufacturer (e.g. Verbatim DVD+R DL 2.4x, made in Singapore)
- The quality of burning depends above all on a proper combination of the burning mechanics and burning software with a concrete type of media. Therefore, it is impossible to recommend a sole most suitable speed of burning or a sole "guaranteed" method.
- We recommend to find out the optimal combination by means of burning several testing discs and to test the quality of burning in the program "KProbe2" or "Nero CD-DVD Speed". Then use the combination of the burning device, software, and media with the best results for the DVD masters preparation.
- At higher recording speeds there will occur the step change of burning speed and operation of laser (zone burning). Thereby the readability of disc is worsened.
- Supply the error checking protocol for DVD+R, DVD-R, if it is available.
- Not cover the DVD 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 disc 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.
- We recommend test viewing of the complete DVD-Video disc in standalone DVD player (not only in the computer) prior to sending it to the production, and checking the correct behaviour of the menu navigation, if contained in the disc.