HOW TO PREPARE A SUITABLE MASTER FOR VINYL

To get the best results with your records, we recommend to read the following hints and requirements before preparing your audio master. Following these instructions will ensure that you are satisfied with the final product.

The ultimate goal of your work is not only the recording on your tape-recorder, disk of your computer or on the "burnt CD-R", but more likely on a vinyl record, which you intend to offer to your listeners. However, before the recording created by you becomes the "black disc", it has to pass necessarily a long way – a number of technological operations. All this way has its limitations – determinate limits, which result from the physical laws. You certainly wish that the result of your work would pass this way without suffering any "scratches". In short, your situation is similar to the situation of a railway man, who has to load the goods so that the wagon would pass under a bridge, would go through a tunnel, would not exceed the bearing capacity of bridges, and at the same time the loading capacity of the wagon should be used as much as possible.

1. Try not to exceed the maximum recommended playing lengths per side too much, as longer playing times will lead to a dramatic decrease in recording levels and dynamics. On the other hand, the requests for extremely high recording levels (LOUD CUT option) decrease the possible playing time - see the table in the next section for recommended playing times for all formats.

2. Try to place demanding, powerful and exposed tracks at the beginning of the required side and not towards the end of the record. The conditions for cutting and subsequent playback of vinyl records get worse with the decreasing diameter towards the middle of the record (the label) causing higher risk of various kinds of distortion.

3. Try to avoid using psycho-acoustic processors, loudness maximizers and brick-wall limiters to an excessive degree.

4. If possible, please check the master by using a correlation meter (it must not be drastically in the red field or have negative values) and a frequency spectrum analyzer to ensure the signal does not contain unreasonably large elements in the low frequency range (around 20 Hz) and also the top end of the frequency zone (around 20 kHz).

5. The lowest frequencies of the acoustic zone that are below 100 Hz (better below 300 Hz) should be in phase. Cutting engineers usually use so-called elliptical equalizers for this task. The phase issues are analyzed and corrected by us so you can master low frequencies freely but with this having on mind (the lowest frequencies should be in phase). We will claim the source audio if it is too out of our recommendations or close to the limits of mechanical technology.

6. Filter away all inaudible signals to avoid possible problems during recording and reproduction, e.g. subacoustic signals below 20 Hz and high frequencies above 20 kHz. Also gradual high-pass filters below 40 Hz (12 or 18 dB/oct.) and low-pass filters above 16 kHz can help both the cutting and the playback, but it may be better to let us do the work as we will choose a proper filter if it is really necessary.

7. Take a special care of sibilants and high-frequency percusive sounds as hi-hats, cymbals and tambourines. The mechanical technology is very sensitive for long and excessive high-freq signals, sometimes beginning yet from 4-5 kHz. These issues can be corrected by de-essers and HF limiters/compressors. De-essing works best if applied on separate vocal tracks, therefore it should be done during mixing process. If it is not possible and only the 2-track final mixdown is available, then the de-esser has to be set up cautiously to prevent changes to other HF sounds (percussions, ac. guitars).

8. If your recording substantially differs from natural sounds, which can be caused by spreading out the energy in the acoustic zone, there is a risk of audible changes to the sound during the cutting. This is due to the limitations of mechanical recording processes and can be for example caused by using electronic processing on vocals or by electronically generated effects or samples. We are able to correct most problematic signals or reduce their negative effects, but in the worst scenario where the signal/music has such critical characteristics that it may damage the cutting head, the supplied audio will be claimed to the customer.

9. STANDARD CUT - we choose the highest reasonably possible recording levels in accordance with the character of the supplied recording and with respect to the specific properties of the mechanical recording technology. If it is tolerated by the limit values of the cutting lathe and by the playing time of the supplied audio, then it is possible - at customer's express request (mostly for DJ genres or rock and heavy-metal bands) – to use higher recording levels – LOUD CUT. However, on the side of reproduction it can be to the prejudice of distortion or stability of the tip during playback.

10. Try to avoid 7" vinyl formats at 33 & 1/3 rpm as the possibilities of the recording and reproduction are most limited at this format. If there is no other solution you have to take into account that the final product will be in some way compromised. Low groove speed limits max. recording levels and causes a higher decrease of the high frequencies near the middle of the record and can also causes more distortion.

11. Remember that good playback results on the user's side depend on the quality, technical conditions and correct adjustment of the turntable, esp. the quality of the pickup, the shape of stylus tip, the cleanness and the level of its attrition and the adjustment of the vertical force and anti-skating.

12. We need a complete track list for your audio master containing the names of all tracks (including the hidden and bonus tracks), timings of tracks and pauses, division of tracks between side A and side B, and the total time of each side! Please inform us of any special effects or anomalies in the supplied audio and also any special requests (endless grooves etc.). Any orders without a complete track list will be refused for production.

13. If you require additional adjustments or pre-mastering changes in track order, disregarding some tracks, creating a compilation from several masters etc., please specify your request exactly on the order form and the track list, and note what is on the master and what needs to be done for the final product.

Recommended lengths of audio recordings for various formats of records (informative average values for one side of the record)

Typical average values of geometrical parameters of the groove	[μm]	Size of record	Minutes at 33&1/3 rpm	Minutes at 45 rpm
For common music				
Basic width of the groove	**40-50**			
Width of the mirror	**10-20**	30cm (12´´) record	15-22	12-16
Horizontal amplitude	**20**	25cm (10´´) record	12-15	9-12
Vertical amplitude	**10**	17cm (7´´) record	6-8	4-6
For techno, dance, electronic genres				
Basic width of the groove	**50-60**			
Width of the mirror	**20-40**	30cm (12´´) record	10-16	8-12
Horizontal amplitude	**70**	25cm (10´´) record	8-10	6-8
Vertical amplitude	**5**	17cm (7´´) record	4-6	3-4