

DIE TECHNOLOGIE DER VORSTELLUNG VON RARITÄTSMUSIKAUFEICHNUNGEN AUF CD

TECHNOLOGY OF PRESENTATION OF RARITY MUSICAL RECORDS ON CD

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Zusammenfassung:

In Museen, Bibliotheken, Archiven wird eine grosse Menge von Audioaufzeichnungen auf Phonographzylindern (die Zylinderkopien) aufbewahrt. Die Audioaufzeichnungen sind von grossem wissenschaftlichen und kulturellen Wert. Eine wichtige Aufgabe ist ihre Vorstellung in einer Form, die einem breiten Kreis von Fachleuten, Forschern, Musikkennern zugänglich ist. Diese Aufgabe kann mit Hilfe von modernen Informationstechnologien gelöst werden. In diesem Fall sollen zwei Hauptaufgaben erfüllt werden: die Transformation von Audioaufzeichnungen in die digitale Form und ihre Vorstellung in der Form, die dem Benutzer am meisten bequem und informativ ist.

Abstract:

In museums, libraries, archives is saved a large quantity of audiorecords on phonographic cylinders (copies of cylinders). Such audiorecords are of large scientific and cultural value. The representation of them by the way, accessible for a wide circle of the specialists, explorers, judges of music is an important problem, which can be solved by using modern information technologies. In this case two primary tasks should be performed: conversion of audiorecords into digital form, and also presentation of them in the form, which is the most convenient and informative for the user.

Technology of sound reproduction from Edison phonographic cylinders

From the majority of phonographic cylinders accessible to the scientific employees, the reproduction of sound was made already repeatedly, but the obtained quality of sounding in most cases leaves much to be desired. And the capabilities of obtaining high-quality reproduction at the subsequent attempts are reduced. The musicologists set their hopes on development of new methods of reading, the number of which is recently growing fast [1]. The methods of sound reproduction from phonographic cylinders should, first of all ensure non-destructive effect of sound, secondly, have a high response of a pick-up in broad spectral range, thirdly, present information which has been played back from cylinders, by the way, which will allow to execute its subsequent effective processing for a decrease of a noise level [2].

The instrumental recordings should contain a maximum of information which is stored on the rarity carrier. This information is objective and can be used multiply in the processes of sound clearing. The technology of sound clearing by software is updated constantly and one can look forward that many instrumental records will find quite a new sounding with time.

Among sensors of small linear movements, which can be used in systems for sound reproduction, the peak sensitivity have the interference sensors [3]. They exceed approximately in 1000 times in sensitivity piezoelectric sensors and in 100 times magnetolectric ones, which most often are used in systems of sound reproduction from phonographic cylinders. The interference sensors are also more sensitive in comparison with other optical pickups used in systems of sound reproduction from phonocylinders: the optical pickups with beam deflection have sensitivity one-fourth as large, and the fiber-optic ones – one-thirties as large [3]. The interference sensors allow to reproduce the constant component at reproducing profile of the sound track surface, what enables to read out the information with a low speed (smaller by a factor of 20-50 of the speed, at which the record was made) and to record the fullest information on profile of a sound track.

These features of the interference method were used by us at creation of a system for reproduction of sound from phonographic cylinders.

The realization of potentialities of the interferometric method is possible only under following conditions:

- The stabilization of rotation speed of the cylinder should be not worse than 10^{-2} %;
- The accuracy of sound track tracking should not be less than 10 % of track width;
- Mobile mass of the interferometric sensor should be minimum;
- The mechanical vibrations of a pick-up should be minimum.

The fulfilment of these conditions has allowed us to create a system of sound reproduction from Edison cylinders ensuring frequency band of reproduced audiosignal up to 20 kHz, time of sound reading no more than 60 minutes.

High quality of the instrumental records is provided by precise measurement of the sound track profile taking into account the features of a method of record and by wide-band registration of reproduction signals. The choice of the technology for subsequent clearing of sound compositions is determined in the first place by the quality of a signal, secondly, by the presence of hardware and software methods of clearing, thirdly, by requirements of the sound materials presentation.

Preparation and issuing of audiorecords

The phonograms reproduced from phonographic cylinders and presented to scientific community should be cleared of noise. In a method used by us the clearing is made in two stages: the smoothing of profile of a sound track is carried out; areas conforming to deep scratches and pits from chips, which at receiving a differentiated sound signal cause a broadband noise are removed and approximated. At the second stage is made the conventional computer clearing of a sound signal.

Short audiorecords from phonographic cylinders of duration 0.5-5 min, and not of very high quality (the frequency band is not higher than 7-8 kHz for professional cylinders and 4-5 kHz for cylinders from ethnographic expeditions) in comparison with records on modern compact discs can attract attention of themselves only at presentation of the full information on performers, place of performance, authors of compositions, specialists who made recording and processing of phonograms.

A feasible version of issuing is the appendix to CD of the detailed booklet with the additional information on compositions recorded on CD. This version of issuing is attractive, since it is accessible to a large number of users. Such kind of publications was chosen by us for issuing

Beregovsky collection, recorded on more than 1000 phonographic cylinders. The first disk of this collection dedicated Julius Engel expedition is published.

Other more preferential issue for museums, libraries is a multimedia one, which we schedule to make in parallel with issuing of a CD-A. The planned multimedia edition is based on a detailed catalogue of collection with possible addressing to audiorecords, note records made by collection collectors, to photodocuments.

References

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