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К ВОПРОСУ О СОЗДАНИИ ЕДИНОЙ ЭЛЕКТРОННОЙ ГОСУДАРСТВЕННОЙ СИСТЕМЫ СРЕДСТВ ИЗМЕРЕНИЙ

Аннотация: *Авторами статьи предложен переход на электронный вид хранения результатов поверок средств измерений как более альтернативного и прозрачного метода ведения отчетности о результатах проведенных испытаний. В ходе исследования авторами рассмотрены преимущества ведения электронного документооборота, а также обоснована идея создания единой электронной государственной системы средств измерений в целях минимизации бюрократических деформаций и максимизации прозрачности проведения работ испытательных лабораторий, а также упрощения процесса проведения поверок со стороны служб инспекционного контроля.*

Ключевые слова: *средства измерений, поверка, единая электронная государственная система средств измерений, теневой сектор, ISO/IEC 17025, принципы прозрачности и достоверности, фальсификация.*

CREATION OF A SINGLE ELECTRONIC SYSTEM OF MEASURING INSTRUMENTS

***Abstract**: The authors propose a transition to electronic storage of verification results of measuring instruments as more alternative and transparent method based on the results of the tests. In the course of the study, the authors consider the advantages of electronic document management, as well as the idea of creating a unified electronic state system of measuring instruments in order to minimize bureaucratic deformations and maximize the transparency of the testing laboratories, as well as to simplify the process of verification by the inspection control services.*

***Keywords:** measuring instruments, verification, unified electronic state system of measuring instruments, shadow sector, ISO/IEC 17025, principles of transparency and reliability, falsification.*

The modern model of economic development has developed under the influence of globalization and informatization making qualitatively new requirements to quality of products that, in turn, defines "survival" of the organization (enterprise) depending on the competitive advantages occupied by it in the market of goods and services. In the conditions of constantly growing competition between manufacturers, the problem of developing programs to improve the quality of services and continuous improvement of the quality management system is of particular importance.

As one of the priority tasks facing the domestic practice is the task of forming a quality management system that fully corresponds to the world analogues in accordance with the latest achievements of science and technology, which, accordingly, solves the problem of creating products with qualitatively new competitive characteristics. In the process of formation and subsequent modernization of the quality management system, metrological support of production was developed, disciplines on standardization and certification were introduced, quality groups were developed, a set of technical and organizational, economic, social and other measures regulated by the standards of the enterprise was carried out, the State system of standardization of the Russian Federation was

formed, the integral understanding of the quality as a multidimensional socio-economic category was "reborn".

Today it is difficult to imagine modern measuring instruments without the use of software, that is, the process of automated accounting, facilitating the metrological support of production. Metrologists carry out a number of significant operations of the same type on the documentation support of operations on measuring instruments throughout the life cycle of products. However, it should be noted that in the course of these operations, there are some problems associated with the ordering of data when performing planned and unplanned metrological verification of measuring instruments.

As show modern realities, domestic practice of formation of the reporting results of measuring instruments (the report on tests, the certificate of calibration, the act of selection of samples, etc.) acts as one of priority problems facing not only the enterprises and producers, but also the state. That is, today in the Russian practice there is a problem of ensuring transparency of work of testing laboratories that, in turn, directly depends on the form of reporting on test results. The lack of a single electronic system, or base of measurement instruments entails the possibility of falsification of documents, certificates of verification, licenses and other supporting documents, dishonest conduct of verifications, and a lack of objectivity and impartiality of management of laboratories, the availability of the fact of an uncontrolled number of tests, etc., which, it should be noted that it leads to the growth of a shadow sector of the economy and has a negative impact on the entire economy.

It is obvious that the use of paper media requires large financial costs and is economically inefficient, at the same time as the translation of technical documentation into electronic form qualitatively changes the form and nature of the content of the document flow process. Let's consider some advantages of transition to the electronic format of reporting on the results of verification:

1.there is no need to duplicate the submitted documentation on paper;

2. a protection of reports provided in electronic form and impossibility of adjustment by third parties;

3. an availability of viewing of the reporting on results of the laboratory tests placed in free access, except for information which is considered object of the right and shall be considered as confidential [1];

4. the ability to ensure traceability of technical record changes from initial observations and previous versions to current changes, indicating the nature of the changes and the persons responsible for these changes, as well as the preservation of both primary and modified data;

5. simplification and optimization of the process of monitoring and the reliability of the results, as well as the identification of trends through the use of statistical methods for the analysis of results;

6. minimizing the risk of falsification of documents on passing tests;

7. simplification of inspection control tasks during inspections, etc.

According to the international standard ISO/IEC 17025 - 2017, reporting on results should be provided accurately, clearly, unambiguously and objectively, as a rule, in the form of a report, which should include all the information agreed with the client and necessary for the interpretation of the results, as well as all the necessary information in accordance with the method used. All issued reports should be kept as technical records [2].

According to paragraph 8.4.1., the Laboratory shall maintain and keep records in a readable form to demonstrate compliance with the requirements of this document (ISO/IEC 17025).

According to clause 8.4.2, the Laboratory shall carry out the management necessary to ensure the identification, storage, protection, backup, archiving, search, storage time and deletion of its records. The laboratory shall keep records for a period established by contractual obligations. Access to these rules records must comply with the confidentiality agreement. Records should be easily accessible.

Thus, it seems expedient to come to electronic storage of the results of verification of measuring instruments. We propose to create a unified state system for storing information on verification of measuring instruments, which will ensure the reliability and transparency of the results of verification.

For example, part 6 of article 13 102-FZ "on ensuring the uniformity of measurements" points out that information on the results of verification of measuring instruments is transferred to the Federal information Fund for ensuring the unity of measurements. At the same time, non-entry of information on verification does not cancel the results of verification, because in accordance with part 4 of this article, the results of verification are certified by the verification mark applied to the measuring instrument and (or) the certificate of verification and (or)the record in the passport (form) of the measuring instrument. That is, the transition to mandatory electronic registration of verification is appropriate, but it should be noted that this modernization requires amendments to the Federal law [3].

The provisions of the Federal law from 26.06.2008 n 102-FZ "On ensuring the unity of measurements" provides the obligation of legal entities and individual entrepreneurs, carrying out the verification of measuring instruments, on transfer to the Federal information Fund for ensuring the uniformity of measurements information about the results of verification of measuring instruments intended for application in sphere of state regulation of ensuring the uniformity of measurements.

At this moment, the transmission of such information may be done either through an information resource of the Federal information Fund for ensuring the uniformity of measurements in the Internet, either via a Central site automated information system "Mercontrol". The use of the information resource of the Federal information Fund to ensure the unity of measurements is carried out by using a web browser, but this resource allows only manual entry of basic information about the results of verification of measuring instruments (or batch download in manual mode), and it does not allow to fully automate the processes of accounting for the results of verification of measuring instruments[4].

AIS "Mercontrol" allows to fully automate the accounting processes of the results of verification activities, but the use of this tool is possible only with the installation of specialized clients' software. While technological limitations prevent simultaneous use of the AIS "Mercontrol" and information resource of the Federal information Fund for ensuring the uniformity. When transmitting information on the results of verification of measuring instruments, the use of an electronic signature is not provided in any instrument, which does not fully ensure their legal significance. Besides, at the moment there are no open program interfaces for transfer to Federal information Fund on ensuring unity of measurements in the automated mode of data on results of verification of measuring instruments. For the solution of the accumulated problems it is necessary to develop as a part of Federal state information system of Rosstandart the module of accounting of results of verification of measuring instruments.

Thus, in order to minimize bureaucratic deformations and maximize the transparency of testing laboratories, as well as to simplify the process of verification, the authors propose the creation and implementation in Russian practice of a single electronic system of measuring instruments, which, as experts note, should be based on the functioning of the following key elements:

- full automation of the process of accounting for the results of verification of measuring instruments;

- integration with other information systems in order to obtain information about citizens and organizations that own measuring instruments;

- presentation of a free user interface without installing specialized software;

- integration with information resources of the Federal information Fund to ensure the unity of measurements in terms of obtaining information from centralized directories in the field of verification of measuring instruments;

- creation of open program interfaces of data exchange with external information systems capable of providing non-discriminatory access to the provision

of information on the results of verification of measuring instruments from the software of third parties.

Conclusion. Thus, the creation and implementation of a unified information base of measuring instruments is one of the key elements of the modernization of the results of the state system of measuring instruments. The introduction of such an information cloud will ensure the reliability and transparency of the reporting on the results of the work provided to the inspection services.

References:

1. Order No. 1815 of 2.07.2015 "On approval Of the procedure for verification of measuring instruments, requirements for the verification mark and the content of the verification certificate».

2. International standard ISO / IEC 17025 third edition 2017-11.

3. Federal law of 26.06.2008 № 102-FZ "On ensuring the unity of measurements".

4. Order of 20.08.2013 No. 1328 "On approval of the Procedure for the establishment and maintenance of the Federal information Fund to ensure the unity of measurements, transfer of information to it».