THE IMPORTANCE OF METROLOGY AND STANDARDIZATION TODAY

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Аннотация. At present, communication, information and in the field of telecommunication technologies measurement in a system of uniformity of measurements tool comparison, calibration, repair and three with metrological certification rights accredited metrology services are available. This article discusses these.

Ключевые слова. telecommunication technologies, unit of measurement, measurement tools, comparison, calibration, repair, metrological certification, standardization.

From the day of independence of our country, one of the most important directions of economic policy in the process of development must be a huge amount of business, start to produce products that meet world standards and continue to plan for life. It is known that the interaction with foreign countries and the scientific and technical association will ensure the rapid development of international trade. The most urgent task is to increase the share of science-intensive and technically complex products in the total volume of trade, to rapidly introduce the achievements of scientific and technological progress in production, to increase consumer confidence in product quality and durability.

To this end, in world trade relations, product quality improvement, standardization and product certification play an important role, which will be a key task to ensure a commercial position by increasing competition among commodity producers.

Metrology is made up of two Greek words: metron-measurement and logos – doctrine, which literally means the doctrine of measurement. Obtaining quantitative information about the properties of objects and processes with a certain accuracy and reliability, is the subject of metrology. Metrological means are a set of measuring instruments and metrological standards that ensure their rational use.

Metrology is divided into three sections:

- Theoretical metrology - deals with fundamental issues of the theory of measurement;
- Applied metrology - studies the development of theoretical metrology, issues related to the practical application of the rules of legal metrology;
- Considers the study of mandatory technical and legal requirements to the units and standards of legalized metrological and physical quantities, methods and measuring instruments aimed at ensuring the unity and required accuracy of measurements.
Metrology, as a science, measures a number of issues related to and related to them. Metrology is originally derived from the Greek word for measurement, measurement, speech, logic, science, or science. In general, metrology is the science of measurements.

Before we go into the details of the Unity of Measurement System, let's take a look at the basic concepts of measurements and unit standards.

A measure is a comparison of a given uncertain value with one of the previously accepted standards. Measurement allows us to quantify a given quantity. Measurement plays an important role in engineering and science.

There are two basic requirements for a unit of measurement:

1. The accuracy of the standards used in the comparison should be high and internationally agreed.
2. The apparatus and equipment used in the comparison must be metrologically approved.

The object to be measured here represents the quantity to be measured. The value is obtained by comparing pre-existing mass, length, time, and similar standards. Standards have been developed to represent different values (units of measurement) and are kept at the International Bureau of Weights and Measures in Sevres, near Paris. Standards of units of measurement are divided into the following classes:

- International standards
- With the primary standard
- Secondary standards
- Working standards

International standards represent international agreements. They are constantly evolving and are tested in absolute physical units. These international standards are not used for simple metrological operations such as measurement and calibration.

The main function of the primary standards is to calibrate and check the secondary standards. Primary standards are stored in the National Standard Laboratories of different countries. Primary standards cannot be used outside of National Laboratories.

Secondary standards are the primary standard for measurement and calibration in industrial laboratories. Secondary standards are approved based on which industry they belong to. Each secondary standard is sent to the National Standardization Laboratories for calibration and comparison with the primary standard.

Achieving uniformity of measurement is the basis of our work to ensure the quality, safety and competiveness of products, services and technologies. Ensuring the uniformity of measurements is a matter of national importance for every country in the world. It is known that the unity of measurements is based on the system of ensuring the unity of measurements in Uzbekistan. Unity of measurement is a key concept in modern metrology and describes a state of measurement in which the measurement results are expressed in legalized units of magnitude and their errors are within a given probability.

The scientific basis for ensuring the uniformity of measurements is the subject of metrology. Modern metrology consists of 3 sections:

- Theoretical metrology;
- Legal metrology;
- Applied metrology;

The technical bases of the system of ensuring the unity of measurements are:

- A set of national standards designed to replicate and store units of measurement.
A system for establishing the legality of measuring instruments and methods of measurement.

A system for transferring unit sizes from standards to measuring instruments that are subject to them.

The organizational basis of the system is the Metrological Service of Uzbekistan. This service consists of the state metrological service and the metrological service of legal entities. The legal basis of the system is the Law of the Republic of Uzbekistan "On Metrology".

Of course, high-precision measurements are only necessary in certain cases. The standardized metrological characteristics of measuring instruments fully describe the metrological properties of measuring instruments. The efficiency of using measurement information depends on the accuracy of the measurement. Measurement accuracy properties, which reflect the proximity of a measurement, produce the true values of the quantity being measured. Measurement accuracy can be large or small, depending on the resources allocated (measuring instruments, cost of conducting measurements, stabilization of external conditions). This condition should be optimal enough to complete the task. But it should not be more than that, because the sharp increase in accuracy leads to inappropriate financial costs. Therefore, along with the concept of accuracy, the concept of accuracy of measurement results is used, which is understood as the results of measurements with sufficient accuracy to solve the task.

References:


3. www.metrolog.ru