



Standardization, Metrology and Certification in Our Country

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Abstract: This article provides historical data on the organization of metrology and certification. Central Russia in the 19th century. In 1894, the Russian government issued an instruction on the unconditional use of Russian measurements in Turkestan, and the metrological history of the period that has passed to the present day and the contribution of Western scientists metrology and certification problem solutions are mentioned in detail.

Keywords: Ammeter, voltmeter, rotating disk induction mechanism, wattmeter, phasometer, galvanometer.

Introduction

It can be known from the information in the works of Zahiriddin Muhammad Babur and dozens of other great scientists that great importance is attached to the metrology field in Uzbekistan. Ulugbek's contribution to the development and improvement of the theory of measurements should be emphasized. The fact that the information he recommended as a result of his astronomical observations and measurements differed very little from the information obtained on the basis of modern and sophisticated devices, and in some cases did not differ at all, still amazes scientists and specialists. The theory of measurements is also given special importance in "Nightmare" by Kaikovus, who traveled all over the world. In the chapter of the work devoted to the science of geometry, the author admits that neglecting small measurement errors will ultimately lead to great inconvenience. Western scientists have also made great contributions to the development of metrology and the theory of measurements. Galileo Galilei, Nicolaus Copernicus, Isaac Newton, Pascal, Dmitri Mendeleev's services in the formation of metrology as a science are very important. The study of electrical phenomena led to the appearance of electrical measuring instruments. In 1745, M.V. Lomonosov's colleague, Acad. G. V. Rychman was the first to create an electrical measuring device. This device, wrongly called "power indicator", is actually an electrometer that measures the potential difference. After the invention of electric current by A. Volt and L. Galvani at the end of the 18th century, it was necessary to solve the problem of measuring it and creating measuring devices. In 1820, A. Ampere was the first to show the galvanometer, which shows the effect of the current in the conductor on the magnetic shaft. Danish scientist H. Oersted invented the magnetic effect of electric current. The German physicist G. Ohm who used it in 1826 showed that the change of the magnetic shaft depends on the current passing through the conductor, i.e. the turning of the magnetic shaft to a certain angle under the influence of the magnetic field around the conductor. checked the dependence on the material. By making a tool



based on this principle, Ohm created his own law [1]. In 1867, U. Thompson (Kelvin) created a galvanometer with a movable coil and a permanent magnet. The second half of the 19th century is famous for the invention of electromechanical energy sources in the history of electrical engineering. These sources cannot be used without electrical measuring instruments. The service of the Russian electrical engineer M.O. Dolivo Dobrovsky in the creation of electrical measuring devices deserves special attention. He invented electromagnetic ammeters and voltmeters, rotating disk induction mechanisms. Based on these devices, wattmeters and phasometers were created. In 1872, A.G. Stoletov investigated the effect of the strength of the magnetic field on the magnetic absorption of iron and proposed a method based on the measurement of magnetic induction. Academician B.S. Jacobi, who used a ballistic galvanometer, proposed several devices for measuring electrical circuit parameters. He was the first to prove the need for a common supply unit for measuring electrical quantities. Because, at that time, electrical measuring devices were needed to compare the results of innovations and inventions in the field of electrical engineering, to prove complete similarity. Therefore, the need for general measurement support of the system of electrical quantities has arisen. Such a system was adopted at the 1st International Electrotechnical Congress held in Paris in 1881 [3]. The great Russian scientist D. I. Mendeleev - as the author of fundamental works in the field of weights and measures, made a great contribution to the development of the science of metrology. In 1892, on the initiative of D.I. Mendeleev, the "Chamber of Weights and Measures" was established in Russia. Another great service of the scientist is that he founded the implementation of the metric system in Russia and prepared it from an organizational point of view. Buesia was a suitable ground for the implementation of the metric system in 1918-1920. Standardization, metrology and certification in the republic. On April 18, 1923, the "Regulation on Weights and Scales" was approved by the decision of the SNK of the Republic of Turkestan, and the Bureau of Weights and Scales of Turkestan was established under the committee for the establishment of internal trade. The Chamber of Comparison of Trade Measures and Scales was established in the city of Tashkent, the scope of which covered the entire territory of the Republic of Turkestan. In 1924, the first laboratory of state control over standards and measuring instruments (DNL) was established. In the same year, the name of the Chamber of Comparison was changed to the name of the Central Asian Chamber of Weights and Measures, and Kyrgyzstan became the founder of metrological services in the republics of Tajikistan and Turkmenistan. One of the greatest achievements of this period was the complete implementation of the metric system in our republic. In March 1930, a standardization committee was established under the Council of the Uzbek SSR, and in 1931 it was merged with the Chamber of Weights and Measures. In the years after the war, state testing laboratories (DTL) were established in each regional center. Their work was led by the representative of the committee on measuring instruments and measuring works under the Council of Ministers of the Uzbek SSR. In 1966, DTL became known as "Laboratories of State Control over Measuring Techniques and Standards". The laboratory of the Republic of Uzbekistan (UzRDTL) will be established in the city of Tashkent for state control over measuring techniques and standards. In 1979, UzRDTL was transformed into the Center of Standardization and Metrology of Uzbekistan (UzSMM) [3]. In 1992, standardization, metrology and certification under the Cabinet of Ministers of UzSMM was changed to the state center of the Republic of Uzbekistan (Decision of the Cabinet of Ministers of Uzdavstandart No. 93 of March 2, 1992 "On



the organization of standardization work in the Republic of Uzbekistan"). Uzdavstandart is designated as the national office of the Republic of Uzbekistan in the fields of standardization, metrology and certification. In order to carry out the tasks assigned to it, Uzdavstandart and its regional offices have a fleet of standard measuring devices and high-precision comparison devices, including working standards and 2319 units. In a new two-story building with an area of more than ten thousand square meters, there are laboratories, where the comparison of measuring instruments for 15 types of measurements is carried out. A repository of state standards is being created.

Conclusion: To conclude this article, it should be said that today the role of certification in ensuring the quality and efficiency of products is considered very high. It would not be a mistake to say that the introduction of standardization, metrology and certification in our country's first Republic has led to the production of products that meet high-level foreign requirements, i.e. standards.

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