

## **Measurement defines the world, and precision changes the future**

— Remarks by AQSIQ Minister Zhi Shuping

on the World Metrology Day of 2016

Dynamism is an eternal nature of the world development. The theme of this year's world metrology day is "measurement in a dynamic world". This marks the cutting-edge development of metrology and embodies rich philosophical wisdom.

Metrology is the key to explore the dynamic world. Everything in the world is made of quantity and could be measured. Metrology describes the current dynamic world, and keeps exploring the future. According to historical records, Huangdi, the first legendary ruler in ancient China, set five quantity units for measuring medicine for the human being. The earliest historic book of China recorded peoples' efforts in trying to understand the scientific nature and unify the measurements. The first emperor of China, Qin Shihuang ruled that the country should have a unified transportation system and a single written language. Historically, people in China used horologe to measure time. Today, we have the strontium optical lattice clock of which the discrepancy is less than 1 second in 200 million years. Metrology has been developing along with the development of human civilization. With the improvement of measurement precision, a group of revolutionary techniques emerged, which brought the great-leap-forward

development of the industries. The three technological revolutions in history were all brought by breakthroughs on the measurement techniques. It's based on the better recognition of quantity, the progress of measurement methods, and improvement of measurement accuracy that the human being's ability of learning and changing the world has been enhanced, which further promoted the dynamic development of the human society. With the rapid development of science and technology and economic globalization, metrology is not only the basis of science and technology and the corner stone of social development, but also the foundation for normal national economic operation and fair trade, and one of the important factors of a nation's core competitive edge. It's safe to say that measurement defines the world, and precision changes the future.

This is a dynamic world and the demand for measurement is equally dynamic. Currently, the new wave of technological revolution is expediting major industrial reforms, and new production methods, new industrial forms, new commercial models and new growth points gradually take shape. Meanwhile, such change and revolution brings new demand and challenge to the metrology community. Metrology needs to provide more accurate, rapid and extensive service, needs to establish and improve the measurement techniques and methods in the areas of sensing technology, remote testing and on-line measurement. Metrology, from the perspective of national quality infrastructure, needs to provide forward-looking measurement technical service covering total life circles, whole industry chain, full traceability chain and total systems.

Metrology has to meet the demand of the world's dynamic development. The Chinese government has been attaching great importance to the development of metrology. With continuous efforts, China has set up a scientific system for metrology, which ensures a national system of unified units and accuracy of measurement results. China has made due contributions to the metrological development around the world. Aiming to support industrial innovation and transformation, focusing on the innovative demand of the national strategy, we will speed up the research on highly accurate and stable quantum measurement standards, and gradually establish and improve an advanced national measurement system. With the objective of promoting coordinated development, combining the implementation of Metrology Development Plan, Made in China 2025 and building China into a quality power, we will improve the mechanism of metrology development and take the initiative in building a pattern of extensive metrology. Aiming to support green development of China, we will strengthen research on key measurement technology and measuring instruments, and actively explore the establishment of big data platform, thus to accelerate the construction of metrology system for energy resources. With the goal of opening-up and win-win cooperation, we will vigorously implement the internationalization strategy of metrology, so as to provide metrological technical support for "Made in China" to "going global". We will meet the demand-oriented request, give a full play to the national measurement standards as strategic resources in promoting the national economic and social development,

and constantly enhance the supportive role of measurement for quality improvement.

At all times and in all countries, metrology has become a symbol of national sovereignty. Qin Shi Huang, the first emperor in China unified weights and measures, which laid the foundation for the unification of Chinese civilization; Forty-four countries and regions including United States, Germany and Britain has written metrology (weights and measures) into the Constitution as a basic requirement of the central powers and the unified management a country. Measurement should be placed in a more important and prominent position of economic and social development, and should be included in the overall planning of national and regional development, as an important tool of governance and a important part of the national core competitiveness.

For thousands of years, metrology keeps developing in the dynamic world, yet the pursuit of accurate and precise measurement remains the same. As China is vigorously promoting the quality construction, we need craftsmen to build our country, and we are calling for craftsmen spirit. We should not only encourage craftsman to master accurate and reliable measurement tools, advanced measurement techniques and measurement methods, but also spread the culture of excellence in metrology to next generations.

This is a fast-changing and colorful world. Let us seize the magical key of metrology, to perceive changes in the world more accurately and work together to open a bright future for the human development.