



**27<sup>th</sup> ASIA-PACIFIC LEGAL  
METROLOGY FORUM  
ONLINE MEETINGS  
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## Economy Report

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### *Chinese Taipei*

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## SECTION 1 – Organisation and structure for metrology

### Organisation Structures

The Bureau of Standards, Metrology and Inspection (BSMI) under the Ministry of Economic Affairs (MOEA) is the competent authority for legal metrology. With a view to maintaining an effective national metrology system and to facilitating trade, the BSMI has been working towards promoting the use of the International System of Units, harmonizing national technical requirements for weights and measuring instruments with international requirements, and implementing a sound verification/inspection scheme in line with international practices.

The BSMI's activities in the field of metrology cover two areas, including legal metrology and scientific metrology.

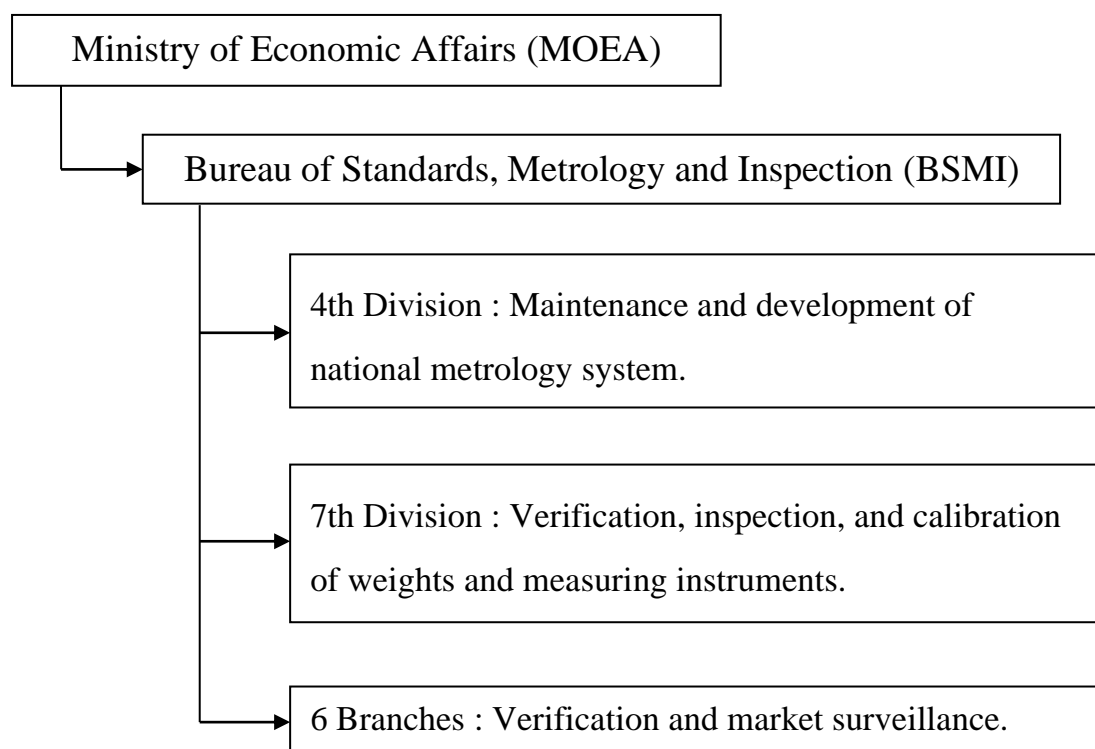


Figure 1: Organization chart of the BSMI

## Legislative Frameworks

The Weights and Measures Act is the regulatory basis for the BSMI in conducting its activities in the field of legal metrology. The Act was revised in January 2009 to incorporate important elements for implementing the national metrology system more effectively. These elements include the establishment of criteria for metrological engineers and technicians to ensure that verification of measuring instruments is done by qualified personnel, the establishment of a consumer volunteer scheme to strengthen market surveillance, the inclusion of manufacturers' self-verification approach to simplify the verification procedure, and the inclusion of physical volume tests for prepackaged goods.

Having recognized the impact on fair trade resulted from the use of weights and measuring instruments and the specific characteristics of the industry, the BSMI requires that a license obtained first in order for any person to be engaged in operating the business of manufacturing, repairing or importing measuring instruments so as to ensure adequate management.

Measuring instruments employed for business transactions, public safety, law enforcement and health care purposes that are subject to metrological control as announced by the MOEA, should be verified before sale or putting into use, and should be inspected by the BSMI when they are in use. The conformity assessment of measuring instruments is conducted by the BSMI itself or by the commissioned organizations assessed and recognized by the BSMI. All measuring instruments that pass conformity assessment will be subject to market surveillance conducted solely by the BSMI.

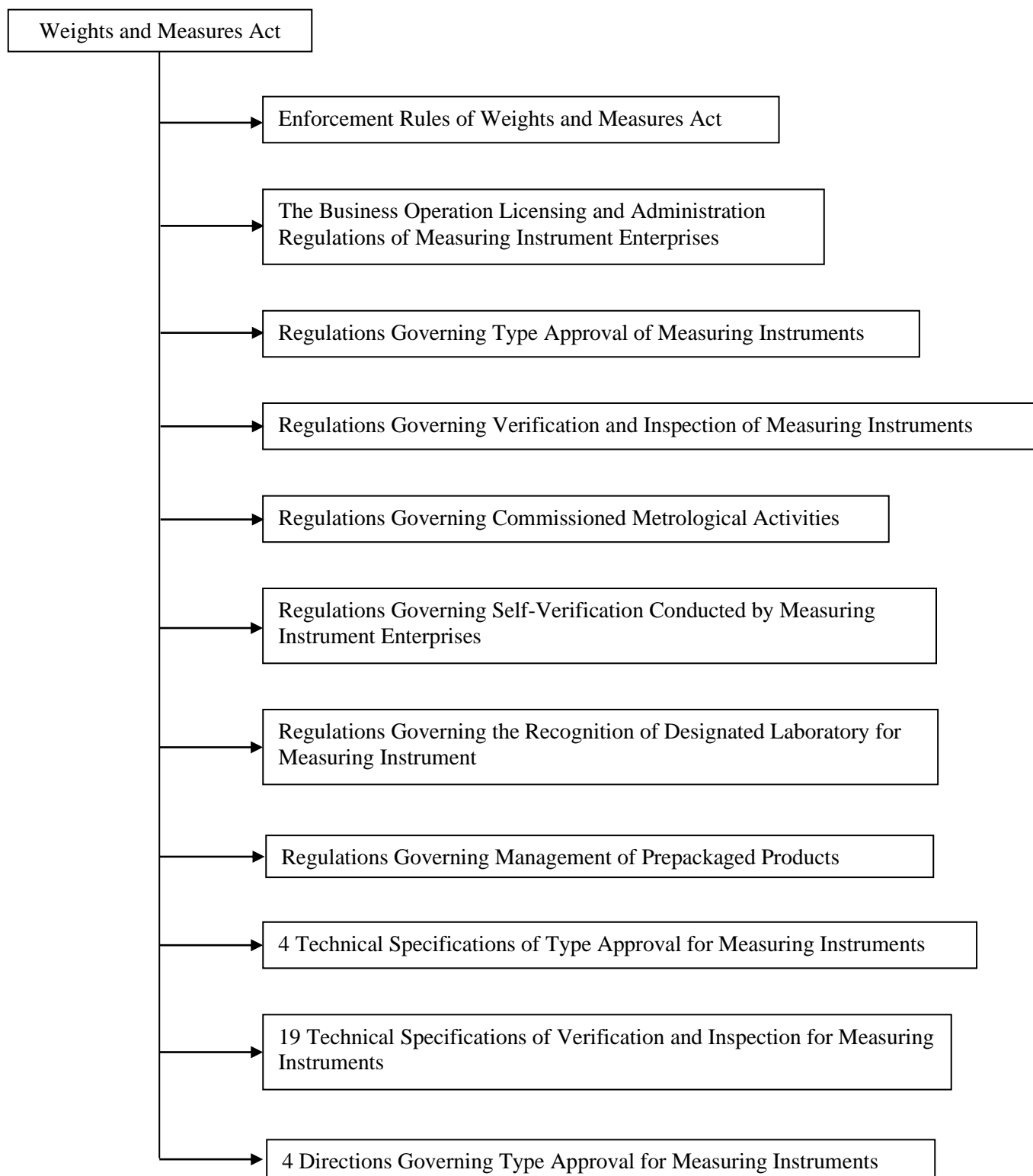


Figure 2: Legislative framework of legal metrology

## SECTION 2 – Key activities of 2020

### Working with industry

The BSMI is working on reviewing the existing technical specification of type approval for water meters. The existing technical specification applies to water meters based on mechanical principles only. Following the increasing needs for water meters based on electrical or electronic principles and mechanical types incorporating electronic devices, as well as the development of Automated Meter Reading, revision of the aforementioned technical specification becomes top priority. The BSMI has held a meeting with the industry, including water meters manufacturers and importers and water supply utilities, joined with the National Measurement Laboratories to discuss the road map for the revision on October 6, 2020. A consensus has been reached on the meeting to work together to revise the technical specification.

### Legislation Affairs

#### **New Regulation for Average Speed Control Devices**

In response to the need for introduction of Average Speed Control (ASC) devices for law enforcement, a project for developing technical specification for ASC devices was launched. Details of the project are described in the section of Major projects of this report. The ASC devices will be put into legal control as a measuring instrument subject to verification starting from January 1, 2021.

In addition to the new technical specification for ASC devices, 5 related metrology regulations have been amended in order to achieve the objective. To be more specific, they are as follows:

1. Amendment of "The Categories and Scopes of Legal Measuring Instrument" to designate ASC devices as a legal measuring instrument.

2. Amendment of "Regulations Governing Verification and Inspection of Measuring Instruments" to designate ASC devices as a legal measuring instrument subject to verification.
3. Amendment of "Necessary Standards for Measuring Instrument Enterprises and the Traceability of the Calibration Laboratories" to specify exact reference standards with which the ASC devices manufacturers have to equip.
4. Amendment of "Regulations Governing Commissioned Metrological Activities" to include the verification tasks of ASC devices as one of the commissionable metrological activities.
5. Amendment of "Fee-Charging Standards for Measuring Instruments" to include the service fees for verification of ASC devices.

### **Amendment of "Regulations Governing Management of Metrological Technical Personnel"**

This amendment is focused on loosening up the qualification requirements for applying Class A metrological technical personnel examination and reducing the requirement of learning credits for the metrological technical personnel certificate renewal.

### **License**

According to the Weights and Measures Act, enterprises engaging in operating business of manufacturing, repairing or importing legal controlled measuring instruments shall acquire a license issued by the BSMI. While applying for a business license, the applicants have to submit basic documents such as application forms and company register documents. Furthermore, the manufacturers or repairers have to show the BSMI that they are equipped with

necessary reference standards and file related technical documents. The BSMI will review the technical documents such as calibration reports prepared by the applicants and carry out on-site evaluation before a license being approved. Up to the end of September 2020, there are 1,232 licenses having been issued, including 253 for manufacturers, 220 for repairers and 759 for importers.

### **Self-Verification Scheme**

Starting from January 2019, one more category of legal controlled measuring instruments, i.e. electricity meters, is authorized to be verified by the manufacturers themselves.

There are five categories of legal controlled measuring instruments are authorized to be verified by manufacturers i.e. taxi meters, NAWIs, water meters, diaphragm gas meters and electricity meters.

In order to ensure the conformity of the measuring instruments verified by manufacturers, the BSMI will conduct follow-up on-site audit periodically, once or twice a year. Appropriate amount of samples will be selected for re-test to ensure the self-verification is adequately implemented.

### **Protecting consumers**

#### **Voluntary Self-Management Measures on Gas Stations, Traditional Markets and Post Office**

According to the Weights and Measures Act, the BSMI shall implement inspection against measuring instruments used for trade. However, during a specific period of time only a small portion of in-service measuring instruments used for trade has been actually inspected due to the limitation of sampling schedule and verification technicians workload. Therefore, the BSMI launched a program, named Voluntary self-management measures on gas stations, traditional markets, supermarket chains and post offices, to encourage the

owners or the operators of gas stations, vendors in traditional markets and post offices' employees to voluntarily conduct calibration and maintenance for their own measuring instruments so that accuracy of these instruments in these places could be kept even without being inspected by the legal metrology officials. When the candidate of the program meets the requirements set up by the BSMI, the BSMI will issue a certificate to the candidate. This self-management program is expected to enhance consumers' confidence when they buy gas or trade goods at these places. Up to the end of September 2020, Voluntary Self-Management certificates are granted by the BSMI to 1,981 gas stations and 534 traditional markets, supermarket chains and post offices.

## **Major projects - What we did and what we learned**

### **Project for Developing a Technical Specification for Average Speed Control Devices**

Average Speed Control (ASC) devices are new instruments for road traffic law enforcement. In order to enhance the credibility of the instruments and to protect the rights and interests of the general public, the BSMI and relevant government agencies reached a conclusion that ASC devices shall be verified by the BSMI. A new project to develop the technical specification for ASC devices was launched on May 2020.

Through the project, the BSMI has referred to relevant technical specifications of the United Kingdom, Germany, Switzerland and Netherlands. Following discussions with related government agencies and stakeholders, the technical specification for the verification and inspection of the ASC devices has been published in late October this year.

Regarding the accuracy of ASC devices that the public is concerned about, the technical specification of ASC devices gives explicit rules of maximum



permissible error (MPE), i.e. when the average speed is below 100 km/h, the positive MPE is 2 km/h and the negative MPE is 4 km/h; when the average speed is greater than 100 km/h, the positive MPE (a relative error) is 2%, and the negative MPE (a relative error) is 4%.

In addition, in the part of time measuring accuracy, ASC devices are required to have an additional set of time measuring instrument. The two sets of instrument should be compared with each other to confirm their accuracy. When the measuring error exceeds 0.2 seconds within 1 minute, an alarm signal should be automatically generated to prevent false measurement result.

### **Examinations for Metrological Technical Personnel**

Six examinations have been held in 2020 for Class A and Class B metrological technical personnel. Up to October 2020, 2,823 examinees have passed the examination since the program was launched in 2010. And according to the weights and measures related regulations, verification technicians and their technical supervisors of manufacturers or importers who are allowed to self-verify their own weighing and measuring instruments shall pass the examinations and be granted the certificates of metrological technical personnel issued by the BSMI. The same requirements are also applicable to those technicians and technical supervisors working in the commissioned organizations conducting verification activities.

### **Training**

By the end of October 2020, four sessions of training programs on various topics were held by the BSMI. The topics of these trainings include technical specification of verification and inspection for sound level meters and electricity meters. These training programs were mainly focusing on strengthening verification skills for those in need. In addition, these training courses were not

only opened to inspectors from the BSMI but also to metrological technicians and supervisors from industries who had have passed the examinations of metrological technical personnel.

### **World Metrology Day**

Due to the COVID-19 pandemic, the BSMI cancelled the annual conference of World Metrology Day (WMD) for epidemic prevention. However, the relevant actions to facilitate the accuracy of measurement were still being prompted through information sharing. The BSMI released the press about the Measurements for Global Trade for the theme of 2020 WMD. Responding to the letter from the CIPM President on repository of NMI Covid-19 Actions, the BSMI had shared 4 topics in supporting the fight against the COVID-19 pandemic, which had been published in the webpage, “Metrology in the fight against Covid-19”, of BIPM. The BSMI are also keeping to promote the worldwide information of metrology, such as the main theme of 2020 WMD, the webinar conferences “Metrology and the Updated SI” of NCSLI, etc.

For further details, please visit

2020 World Metrology Day: Measurements for global trade

<https://www.nml.org.tw/en/news-2/news-3/3947-20th-may-2020-world-metrology-day-measurements-for-global-trade.html>

NML’s capabilities for supporting the front line of epidemic control

<https://www.nml.org.tw/en/news-2/news-3/3950-nml's-capability-for-supporting-the-front-line-of-epidemic-control.html>

## **SECTION 3 – Future focus**

### **New initiatives planned (next 1-2 years)**

#### **Promotion of Self-verification Scheme**

It can be expected a surge of verification quantities for smart electricity meters in the upcoming future. Therefore, the BSMI is taking steps to utilize the self-verification scheme for electricity meters in order to satisfy the needed capacity for verification of electricity meters.

The BSMI is planning to promote the scheme and encourage more enterprises to be certified as a self-verifier in order to tackle issues of limited resources and drastic increase of the need of verification at the same time.