Bureau of Standards, Metrology and Inspection

2020 ANNUAL REPORT

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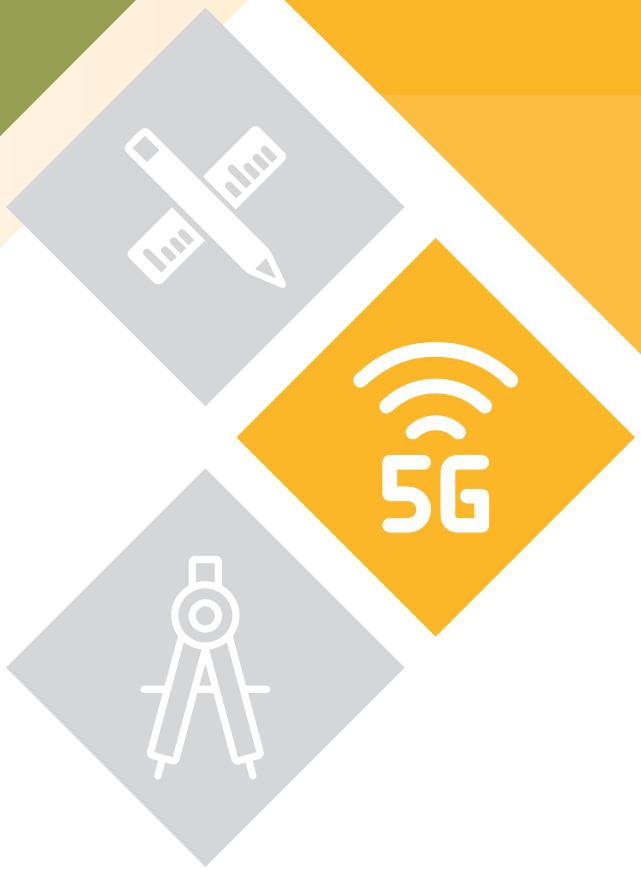
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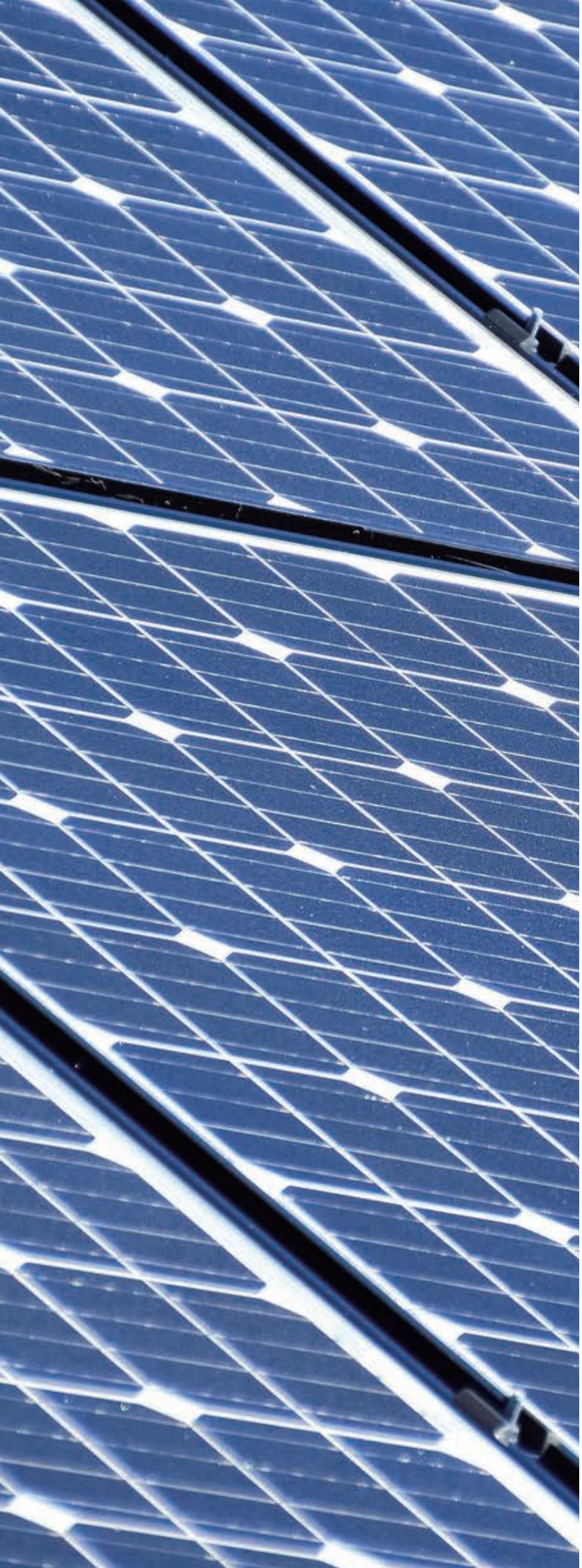


Foreword from the Director General

In 2020, the Covid-19 pandemic had a profound impact on international economic and trade activities. Taiwan is fortunate to be one of the few countries that have been able to maintain positive economic growth amid the ongoing global pandemic. The pandemic also prompted us to revisit our responsibilities as both a builder of the national quality infrastructure and a gatekeeper of consumer product safety. While priorities had to be adjusted to take into account the impacts of the pandemic on the society, progress was made steadily in accordance with the planned schedule.

I am very proud of my colleagues, who have managed to achieve quite much under such a stressful and challenging situation. Below are some highlights of our achievements.

Standardization--211 national standards were developed or updated in areas of smart machinery, green energy technology, consumer safety, and elderly care to support the government policy of promoting industrial transformation.

Metrology and legal metrology --along with the actions towards fighting against Covid-19, efforts were specifically devoted in the calibration of clinical thermometers, calibration of flow and pressure of ventilators, measurement of key parameters of ultraviolet (UV) light-emitting diode (LED) and gas-phase scanning mobility particle sizer for virus-like particles. In addition, the

technical specification for verification of average speed control (ASC) devices was adopted to verify the accuracy of ASC devices deployed by road safety authorities on highways to enforce speed limit requirements.

Consumer product safety--a number of technical regulations were adopted or updated to provide better protection of consumers from hazards resulted from products with high risk (such as 18 kinds of children's articles and electric motorcycle charging equipment). An automatic information collection and analysis system was developed to help implement border control and market surveillance more efficiently by identifying products or sellers with high possibility of non-compliance.

At international level, despite the almost year-round cross-border travel restrictions, the BSMI established closer partnership with counterpart organizations abroad through virtual meetings. A Letter of Intent was signed with INTN of Paraguay to promote technical cooperation and an agreement was renewed with SII of Israel to undertake joint activities involving standardization and conformity assessment. The pandemic showed the strong interdependence among different sectors and countries worldwide and only by taking joint efforts can we go through the crisis.

Looking ahead, I believe that we are better equipped to respond efficiently to any new problems based on past experiences and will accomplish more by implementing plans and projects that have incorporated innovative approaches. Let's stay healthy and positive to welcome the post-pandemic era.

OVERVIEW

Who We Are

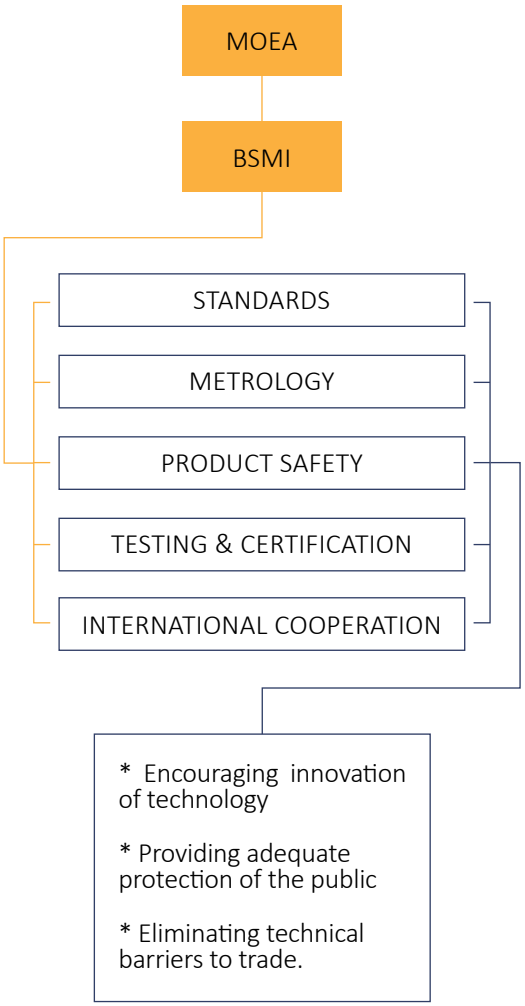
The Bureau of Standards, Metrology and Inspection (BSMI) under the Ministry of Economic Affairs (MOEA) is the authority responsible for standardization, metrology and consumer product safety in Taiwan.

What We Do

Being guided by the philosophy of "Innovative Thinking, Proactive Service and International Connection", we follow good practices that encourage innovation of technology, provide adequate protection for the public, and facilitate trade by eliminating technical barriers to trade.

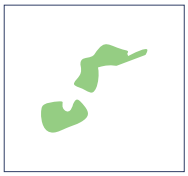
Key functions of our services are as follows:

- Developing and maintaining national standards and national measurement standards
- Regulating and monitoring safety of products, mainly industrial and consumer products
- Providing testing and certification services
- Cooperating with corresponding authorities or organizations of trading partners.

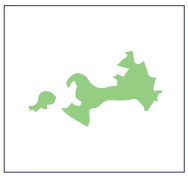


Where We Are

The BSMI has its head office in Taipei City, the capital of Taiwan, and six branches located in harbors, airports and major cities, providing a dense network of services nationwide.

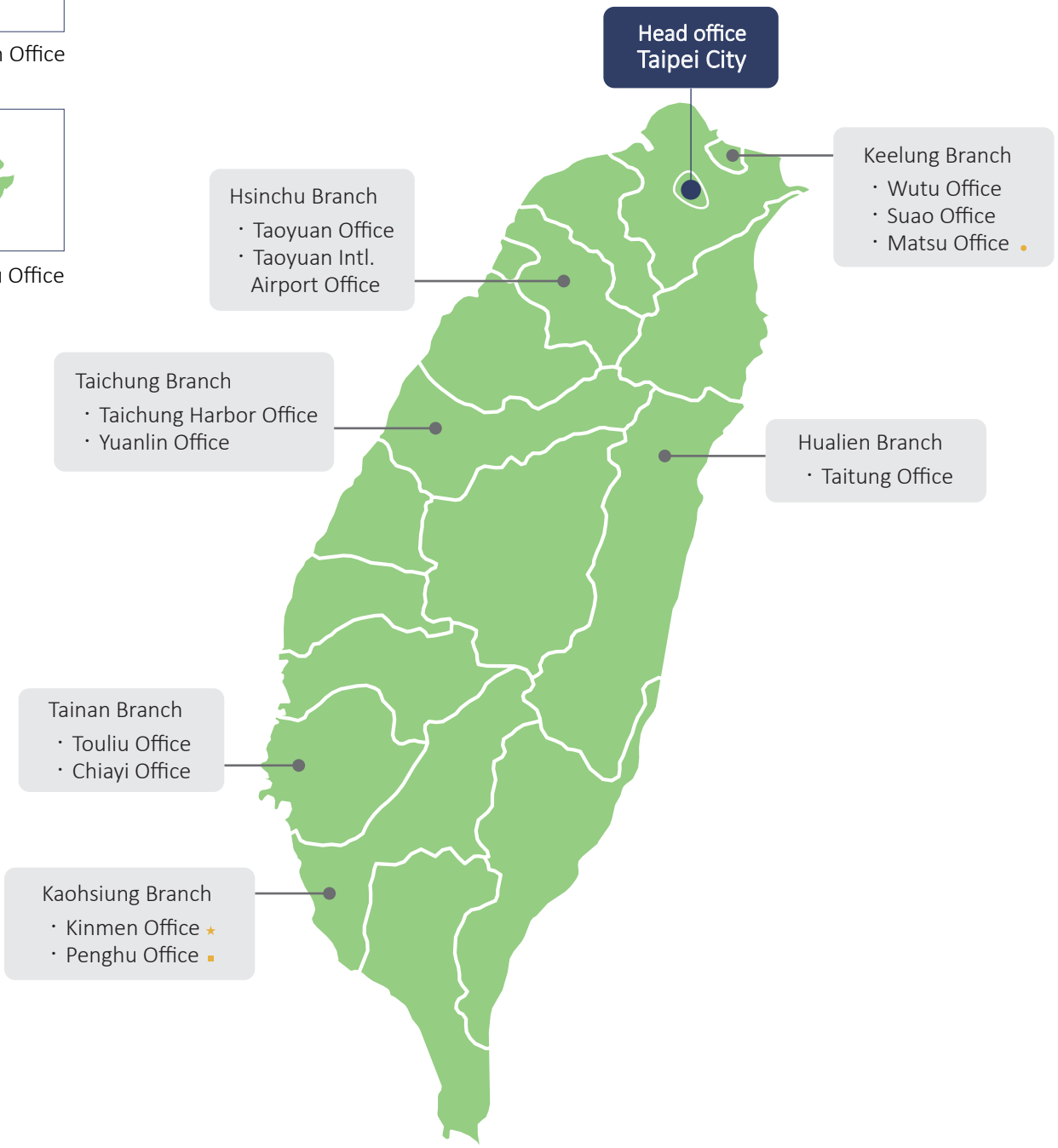


• Matsu Office

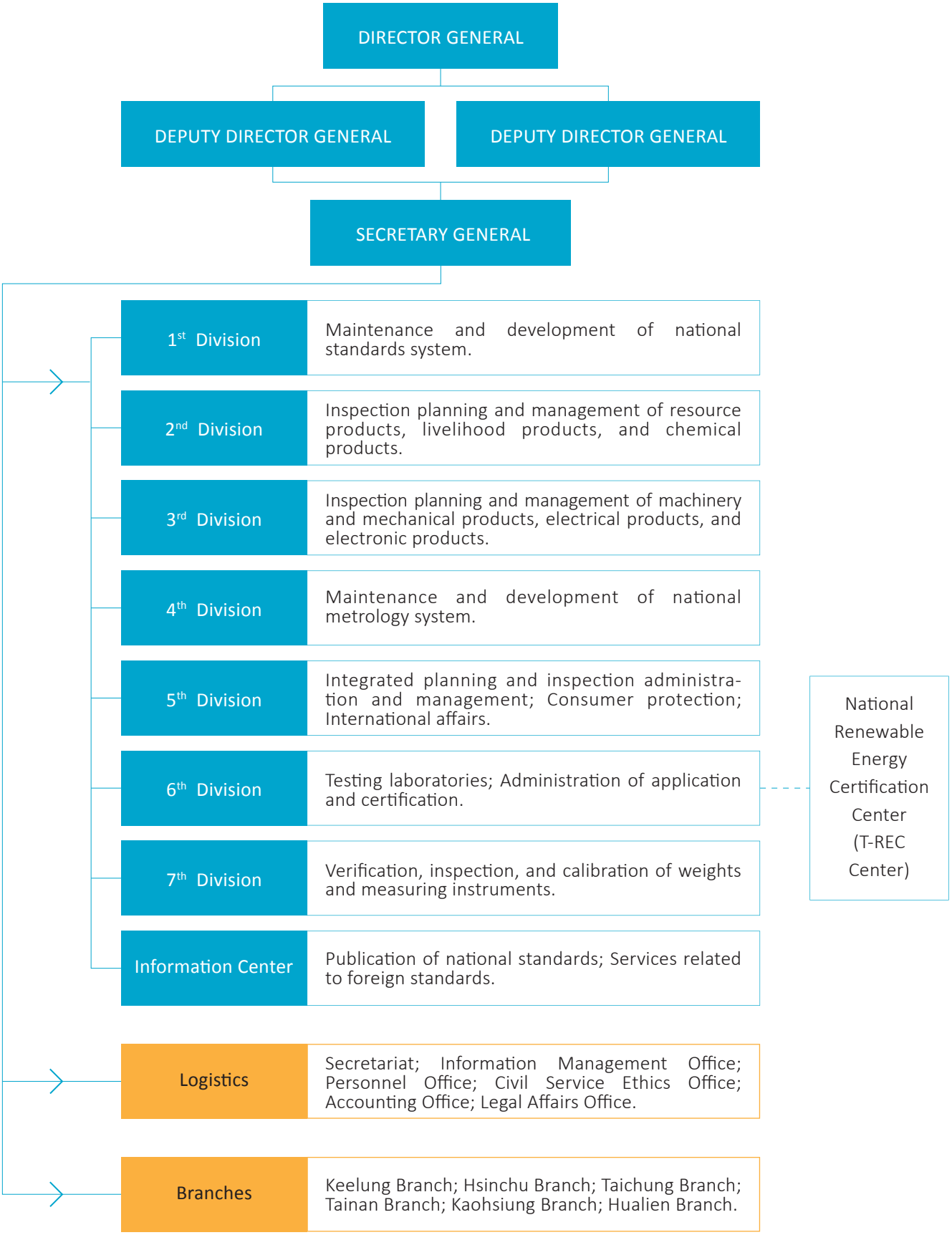


★ Kinmen Office

▪ Penghu Office



Organization Chart by Activities



Budget and Manpower

Annual Income Budget

Categories	Amount (Units: NTD 1,000)	Percentage
Fines & Compensation	19,042	1.79
Charges & Fees	1,033,514	97.09
Properties	4,419	0.42
Others	7,495	0.70
Total	1,064,470	100.00

Annual Expenditure Budget

Categories	Amount (Units: NTD 1,000)	Percentage
Development and Maintenance of Measuring Standards	350,527	14.29
Development and Maintenance of National Standards	343,058	13.99
General Administration	1,254,405	51.14
Inspection and Metrological Management	486,257	19.82
Construction	17,721	0.72
Transportation and Relative Equipment	997	0.04
Total	2,452,965	100.00

Age Distribution of Personnel

Age	Persons	Percentage
20~29	45	5.33
30~39	166	19.64
40~49	259	30.65
50~59	324	38.34
60+	51	6.04
Total	845	100.00

Distribution of Education Background of Personnel

Categories	Persons	Percentage
Graduate School	471	55.74
University	284	33.61
College	84	9.94
Senior High School and Vocational School	6	0.71
Total	845	100.00

STANDARDS
ACTIONS OF THE YEAR

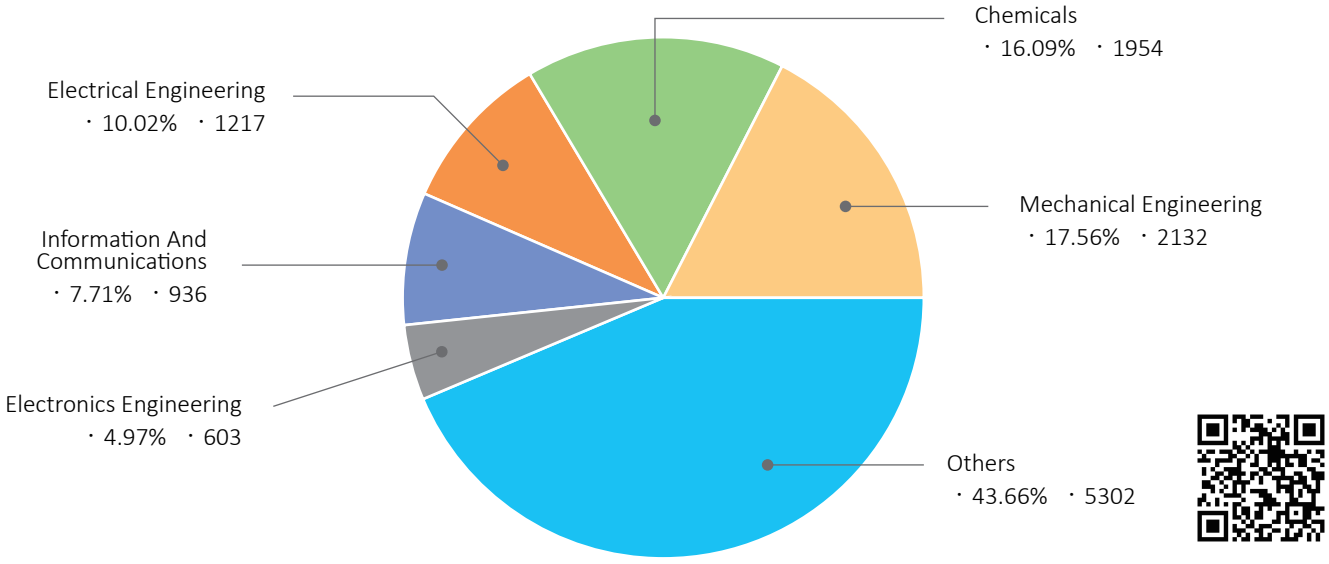
ACTIONS OF THE YEAR

Standards

Being the national standards body in Taiwan, the BSMI bears the responsibility of developing and operating a standardization system that is relevant and can effectively respond to regulatory and market needs, as well as keeps pace with scientific and technological development. Bringing national standards highly in line with international ones not only ensures compatibility and consistency of technical regulations, but also supports the advancement of industry and uplift the living quality of the society.

1. Brief on National Standards (CNS)

This year, we established 123 new standards, revised 88 standards, and withdrew 195 standards, which resulted in a total of 12,144 CNS in existence by the end of 2020. New standards mainly involve sectors of chemicals, information and telecommunication equipment, electrical engineering, mechanical engineering, motor vehicles, and consumer products. Besides, national standards (CNS) were adopted or newly revised to provide up-to-date guidelines, such as those in green energy technology, energy storage and smart machinery in response to the national policies, mainly the "5+2 Industrial Innovation Plan." The chart below shows the top 5 sectors and their proportions in the total number of CNS. For the numbers of CNS standards in different sectors please refer to Table 1. Updated CNS standards can be accessed at the CNS Online Service.



▲ Composition of CNS by the end of 2020 (https://www.cnsonline.com.tw/?locale=en_US)

2. Alignment of CNS with International Standards

Among the 12,144 CNS, 99% of them are harmonized with international standards when relevant international standards exist. Some CNS are not harmonized with international standards due to fundamental technological problems.

3. CNS referenced in technical regulations

The number of CNS referenced in technical regulations was 1,123, accounting for 9.2 % of the all. Among these standards, 96 % of them were harmonized with international standards when relevant international standards exist.

4. CNS Promotion Activities

To promote the use of and adherence to national standards, key initiatives of the BSMI are listed below.

(1)
The CNS Mark is a voluntary product certification system in Taiwan to demonstrate that the quality of products and the quality management system of manufacturing factories comply with national standards. CNS Mark products may enjoy exemption from related testing under government procurement projects. A total of 2,004 products are granted to use CNS Mark by 2020. For the categories of certified CNS Mark products and factories, please refer to Table 2.

(2)
Seminars and monthly e-newsletters are important means of keeping the public regularly informed of the progress of CNS standards. In collaboration with related associations, we held seminars to introduce updates on national standards to encourage the use of such standards in the production processes and enhance the performance of the products, for example in the area of light-emitting diode lighting. The number of participants of these events reached 70 in total. On the other hand, the e-newsletter covers topics that are fairly diverse but closely related to people's everyday lives and has been supported by the public ever since the first issue in 2011. Number of subscriptions had grown to 4,686 by the year.

◀ Products bearing CNS Mark

▼ Seminar on LED lighting standards in October 2020

5. Stakeholder-Led Initiatives

(1) Enhancement of Industry Participation in Standardization Activities

To encourage participation of the industry in the development of national standards and to develop human resources for private sectors, recognized standards development organizations (SDOs) are obliged to recommend drafts, submit comments, and attend technical committee meetings. In 2020, there were a total of 7 SDOs recognized by the BSMI.

(2) Support of Industry Participation in International Standardization Activities

We continuously provide financial support to companies and associations for sending experts to attend meetings held by international and industrial standardizing organizations, including ITU-T SG20, ETSI-ITS, 3GPP, and MPEG this year.

6. 2021 Work Plan for National Standards

The BSMI will continuously place emphasis on areas of green energy technologies, energy saving, smart machinery, public construction, and consumer and assistive products to guide scientific and technological development and social transformation.

Besides, as Artificial Intelligence (AI) and the 5th generation mobile networks (5G) become more ubiquitous, and the needs for international standards are increasing from industry, we are highly focusing on the global development of these two areas. Relevant national standards are under preparation in response to international development.

▼ Seminar on Standards and InnovativeApplications of Internet of Things

<Table 1>

Numbers of National Standards in 2020 (by categories)

Categories	Established	Revised	Withdrawn	Existing
Civil Engineering and Architecture	7	2	2	559
Mechanical Engineering	14	1	1	2,132
Electrical Engineering	22	7	9	1,217
Electronic Engineering	2	1	2	603
Motor Vehicles and Aerospace Engineering	4	-	13	477
Railway Engineering	9	1	1	96
Naval Architecture Engineering	-	-	-	354
Ferrous Materials and Metallurgy	-	6	-	312
Non-ferrous Materials and Metallurgy	-	1	15	236
Nuclear Engineering	-	-	-	-
Chemical Industry	10	22	12	1,954
Textile Industry	5	1	-	379
Mining	-	-	-	82
Agriculture	-	6	51	331
Food	-	2	5	355
Wood Industry	-	1	2	84
Pulp and Paper Industry	-	6	1	192
Environmental Engineering and Management	-	1	-	53
Ceramic Industry	-	5	3	283
Consumer Products	5	7	2	338
Hygiene and Medical Appliances	1	5	-	254
Information and Communications	3	1	-	936
Industrial Safety	28	2	2	246
Quality Control	2	3	22	71
Logistics and Packaging	4	-	-	173
General and Other Areas	-	7	52	428
Total	123	88	195	12,144

<Table 2>

Numbers of CNS Mark Products & Factories by 2020

Categories	Products	Factories
Civil Engineering and Architecture	514	201
Mechanical Engineering	130	61
Electrical Engineering and Electronic Engineering	334	139
Motor Vehicles and Aerospace Engineering	13	8
Railway Engineering	0	0
Naval Architecture Engineering	0	0
Ferrous Materials and Metallurgy	181	69
Non-ferrous Materials and Metallurgy	5	4
Chemical Industry	334	98
Textile Industry	1	1
Mining	0	0
Agriculture and Food Products	0	0
Wood Industry	1	1
Pulp and Paper Industry	77	35
Ceramic Industry	310	92
Consumer Products	39	25
Hygiene and Medical Appliances	7	7
Industrial Safety, Packaging, General and Other Areas	58	28
Total	2,004	678*

*It is not the sum of the above numbers because one factory may be certified for more than one product category.

ACTIONS OF THE YEAR
METROLOGY

ACTIONS OF THE YEAR

Metrology

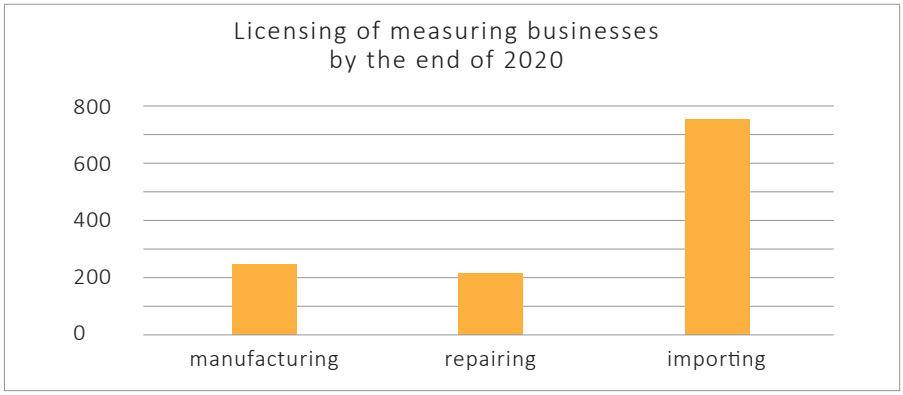
As stipulated in the Weights and Measures Act, the BSMI is responsible for the development of national metrology system in Taiwan. Accurate measurements and measuring equipment are vital to the industry in pursuit of quality and innovation. They are also needed for the protection of health, safety, the environment and consumers. The national metrology system consists of legal metrology, compulsory in nature, and scientific metrology, which provides state-of-the-art service to stakeholders.

1. Legal Metrology

The legal metrology system is implemented by three layers of control. This three layers control system is robust, resilient and adaptive in order to evolve and innovate with the rapid changing world. Besides the traditional legal metrology tasks, the BSMI has launched a major project to introduce Average Speed Control devices into legel control in 2021.

(1) Licensing of Measuring Businesses

The BSMI requires that a license be obtained in order for any person to be engaged in activities of manufacturing, repairing or importing measuring instruments. By the end of 2020, there were 1,227 measuring instrument enterprises in Taiwan, among them 251 being engaged in manufacturing, 220 in repairing, and 756 in importing measuring instruments.



▲ Chart 2- Licensing of measuring businesses by the end of 2020

(2) Verification and Inspection of the Instruments

20 kinds of measuring instruments (please refer to Table 3) are subject to verification before they are allowed to be placed on the market. After they pass verification, the products shall be inscribed, sprayed, branded or lead-sealed with the logo "同" and/or affixed with a conformity sticker. These measuring instruments are also subject to inspection when they are put in service. In 2020, 4,743,533 instruments were verified and inspected, 66% of them were water meters and watt hour meters. The rate of non-compliance is 0.23%.

▲ Breath Testers with Verification Mark "同"

▲ Verification Mark "同"

(3)
Type-Approval of Instruments

Legal metrology instruments that require higher levels of accuracy, stability and durability may be subject to type approval. These legal metrology instruments, prior to manufacture or importation, shall be filed for type approval to the BSMI. Once the type of an instrument has been approved, the BSMI issues a type approval certificate, which serves as a permission for them to apply for initial verification. Please refer to Table 4 for the list of such instruments.

(4)
Major Project in 2020

Average Speed Control(ASC) devices are brand new and quite advanced law enforcement instrument used by the police to enhance road traffic safety. In order to ensure the credibility of police department while using ASC devices, the BSMI and relevant government agencies reached a conclusion that ASC devices shall be included in the categories of measuring instruments subject to verification.

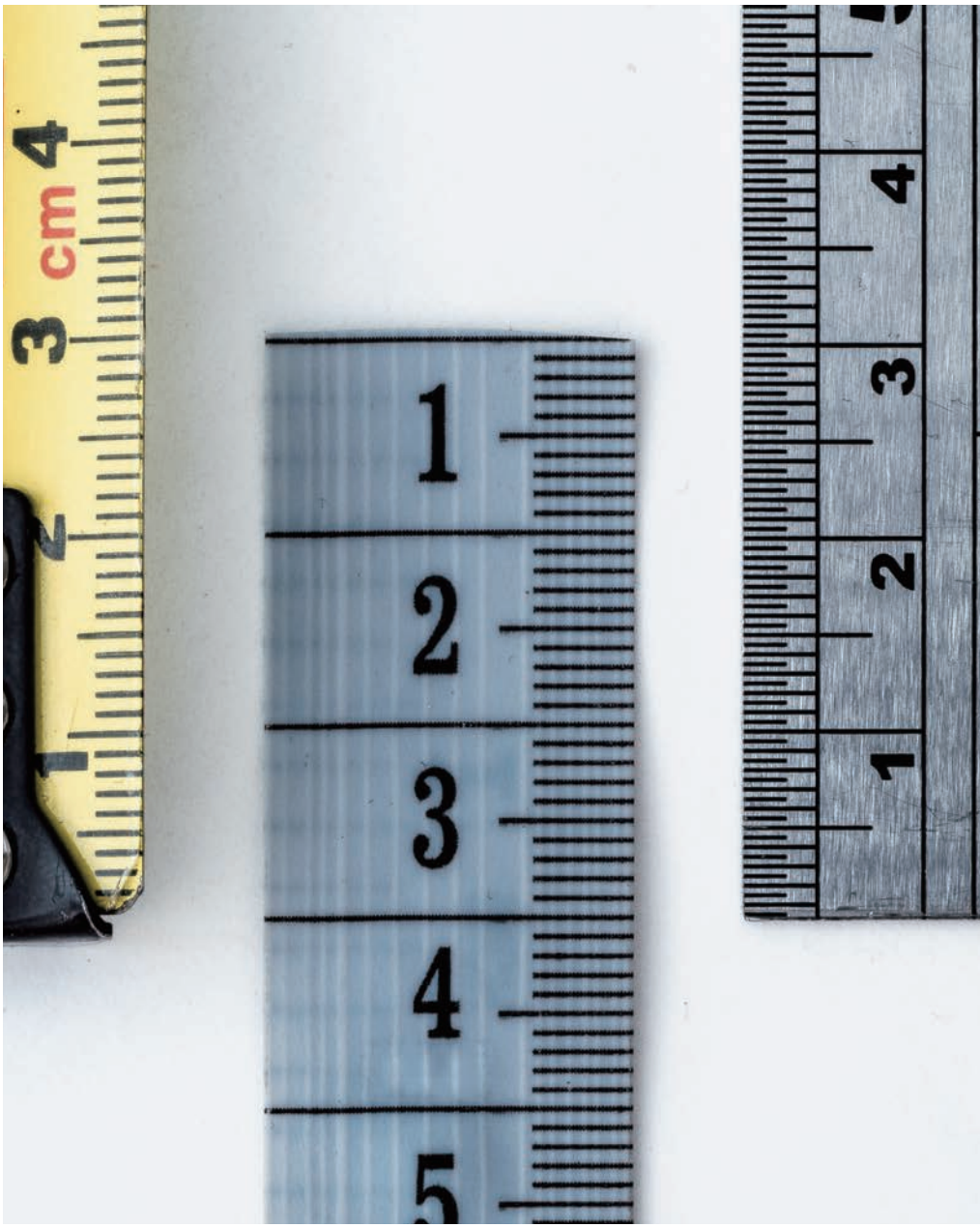
A major project to develop a technical specification for the verification of ASC devices and amendment of relating management regulations was launched on May 2020. In this project, 5 management regulations were reviewed and revised; in addition, 1 technical specification was established. All of these 6 regulations and specification were published by the end of 2020. Through these efforts, the ASC devices were introduced into legal control as a measuring instrument subject to verification starting from January 1, 2021.

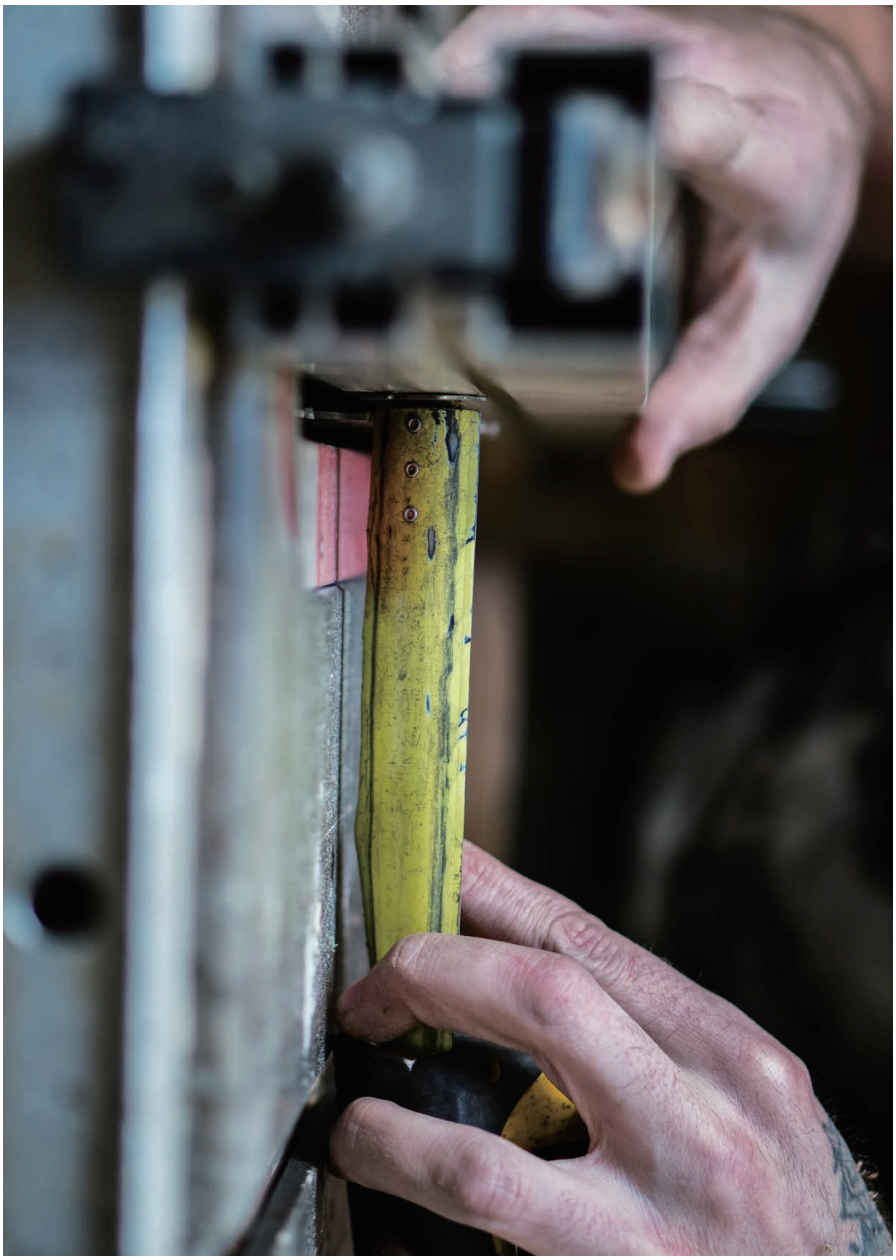
2. Scientific and Industrial Metrology

Being an associate state of the General Conference on Weights and Measures(CGPM) and a signatory to the Mutual Recognition Arrangement of the International Committee of Weights and Measures (CIPM MRA), the calibration and measurement capabilities of our national measurement laboratories are traced to international measurement standards and recognized by other countries.

(1)
National Measurement Standard Laboratories in Brief

The National Measurement System consists of three national measurement laboratories, which are National Metrology Laboratory (NML), National Time and Frequency Standard Laboratory (NTFSL), and National Radiation Standard Laboratory (NRSL). The whole system maintains 133 sets of standard measurement systems in 17 fields, and provides 4,952 calibration services for primary and secondary laboratories.





In 2020, they participated in key comparisons for 9 items of measurement traceability (please refer to Table 5). There had been 390 items of measurement standards registered to the BIPM's database by the year end, ensuring that Taiwan's national measurement standards are equivalent to international standards.

(2) Critical dimension metrology system for N2 GAA process

Semiconductor industry in Taiwan is in the R&D process of developing 2 nm process (N2) using Gate-All-Around (GAA) technology instead of Fin Field-Effect Transistor (FinFET) solution used for 3 nm process. According to IRDS 2020, X-ray based methods have been identified as the only feasible in-line CD and film thickness solution for N2 GAA process. X-Ray Reflectivity (XRR) with soft X-ray wavelength developed by NML is applied for in-die measurements with spot size of 50 x 50 μm^2 and to provide accurate thin film thickness measurements with an atomic-level resolution. The XRR has measured the 0.9 nm ultra-thin thin film of TiN on Si substrate, and the repeatability is ≦ 3%. The average value of the fitting analysis is 0.889 nm (≦ 0.9 nm).

(3)Measuring Systems

Measuring systems in the table below were improved by the NML in 2020.

System name	System spec before improvement	System spec after improvement	Applications
P03 Hydraulic Pressure Measurement System	Range：(2.8~280) MPa Measurement uncertainty：9.2 × 10^{-5} ~2.4 × 10^{-2}	Range：(1 ~280) MPa Measurement uncertainty：7.0 × 10^{-5} ~2.3 × 10^{-2}	This system is hydraulic pressure calibration system, and it could provide pressure calibration and traceability. Applicable industries include defense, smart machinery, shipbuilding, oil refining, steel manufacturing, nuclear power, food, rubber, etc.

(4)
Promotion of Measuring Techniques

In support of industrial development, the BSMI and the NML held 12 seminars and 2 workshops to share knowledge and information attained from research projects with the industry, and to introduce related services. Important topics include metrology techniques in areas of smart machinery, the new SI units, ISO 17025:2017, etc. In the field of ionizing radiation, the National Radiation Standard Laboratory (NRSL) held 2 workshops on proficiency testing programs to enhance technical exchanges of related secondary standard laboratories and uplift their capabilities.

3. Awareness Programs

(1)
World Metrology Day

The BSMI had organized a series of forums on international trend of metrology to celebrate the world metrology day in the past years. For 2020, due to the COVID-19, the celebration was held virtually on its website.

▲ 2020 World Metrology Day poster

The theme of World Metrology Day 2020 is measurements for global trade, which was chosen to create awareness of the important role that measurement plays in facilitating fair global trade, ensuring products meet standards and regulations, and satisfying customer quality expectations. The event introduced the contribution of measurement technologies to the progress of Taiwan, such as the established standards of ultrasonic flowmeters, thermometers, and pressure gauges supporting the fair trade transaction of natural gas.

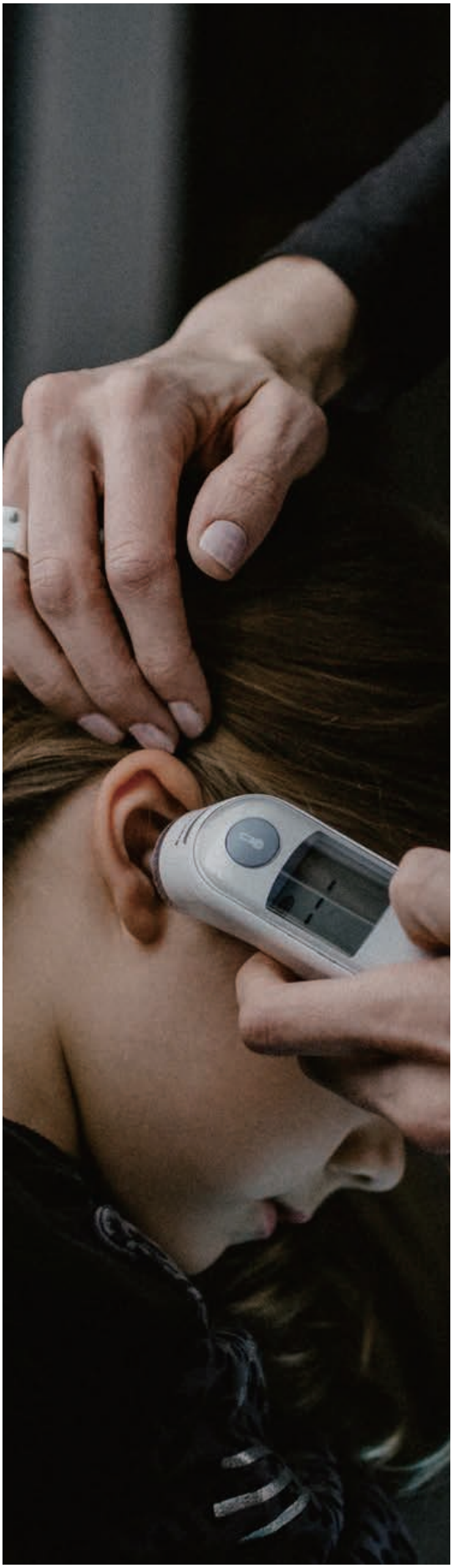
(2)
World Accreditation Day

The BSMI takes a critical role in developing the national quality infrastructure in Taiwan. It supervises and supports the operation of Taiwan Foundation Accreditation (TAF), which is a member of regional and international accreditation organizations.

In view of the Sustainable Development Goals (SDGs) of the United Nations, IAF and ILAC jointly set the annual theme of the 2020 World Accreditation Day for "Accreditation: Improving food safety", with an emphasis on how the accreditation system support the confidence of consumers, suppliers, buyers and regulators in food quality and safety.

(3)
Actions for COVID-19 Infection Prevention

2020 has been a challenging year due to the COVID-19 crisis. The BSMI supports the Government with its established capabilities in measurement standard to control the spreading of the pandemic. The technologies include clinical thermometer calibrator, calibration for flow and pressure of ventilator, measurement system for key



parameters of ultraviolet (uv) light- emitting diode (led), and gas-phase scanning mobility particle sizer for virus-like particles.

Responding to the request of CIPM (International Committee for Weights and Measures) President, we shared the capabilities with the global NMIs at a dedicated web page of "Metrology in the fight against COVID-19". The NML also shared the experiences with APMP (Asia Pacific Metrology Programme) on the COVID-19 Focus Issue in October 2020. The relevant contents are:

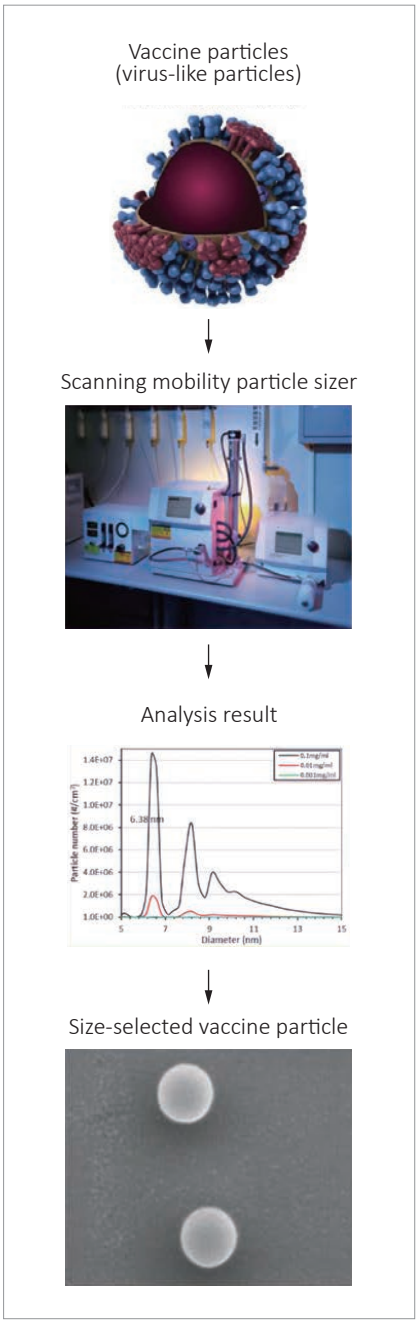
Clinical Thermometer Calibrator

Since the severe acute respiratory syndrome (SARS) epidemic in 2003, NML has developed the clinical thermometer calibrator to provide the temperature standard for measurement devices, such as the ear thermometers. The calibrator is portable and can be widely deployed for on-site calibration in hospitals, schools, supermarkets, offices, and any places requiring temperature inspection.

▲ The clinical thermometer calibrator

Gas-phase Scanning Mobility Particle Sizer for Virus-like Particles

The outbreak of COVID-19 called for the urgent development of vaccines as the demands of rapidly analyzing the physical characteristics of viruses and their derivatives were increased. Conventional methods for size and concentration analysis of viruses and their derivatives, such as polymerase chain reaction (PCR) and electron microscopy, are costly and time-consuming. NML has developed the gas-phase scanning mobility particle sizer (SMPS), which can provide size distribution with the precision from nanometer to sub-nanometer. Through this technique, the analysis of virus-like particles (VLPs) can be completed in less than an hour.



▲ The analysis of virus-like particles

<Table 3>

Categories and Scopes of Weights & Measuring Instruments Subject to Verification and Inspection

	Categories	Scopes
1	Taximeters	
2	Weighing instruments	
3	Non-Invasive mechanical sphygmomanometers	
4	Volumeters	(1) Liquid volumetric meters: metal measuring pails and measuring tanks marked with divisions; excluding the following measuring tanks: (i) Measuring tanks with a capacity of more than 110 m^3; and (ii) Pressure measuring tanks. (2) Diaphragm gas meters, excluding gas meters with a maximum air flow of more than 100 m^3/h. (3) Water meters: volumetric water meters, velocity water meters (Woltmann meters, single-jet meters and multi-jet meters), combination water meters and vortex water meters, excluding water meters with nominal diameter of more than 300 mm. (4) Oil meters provided for trading petroleum products, excluding oil meters with nominal diameter of more than 160 mm. (5) Liquefied petroleum gas flow meters.
5	Electricity meters	Watt-hour meters, Var-hour meters, Watt-hour demand meters, Static electricity meters and Instrument transformers.
6	Speedometers	(1) Radar speedometers for law enforcement. (2) Laser speedometers for law enforcement. (3) Inductive loop speedometers for law enforcement. (4) Average speed control devices for law enforcement (the verification entered into force on 1 January 2021).
7	Sound level meters for official inspection	
8	Concentration meters	(1) Breathe alcohol testers and analyzers for official inspection. (2) Rice grain moisture meters. (3) Field corn moisture meters. (4) Vehicle exhaust emissions analyzers for official inspection excluding those used for motorcycles and diesel engines.
9	Illuminance meters for official inspection	
10	Electrical thermometers	

<Table 4>

Categories and Scopes of Weights & Measuring Instruments Subject to Type Approval

	Categories	Scopes
1	Taximeters	
2	Electronic non-automatic weighing instruments, excluding those provided with an automatic packaging function	(1) Price-computing weighing instruments; (2) Non-price-computing weighing instruments:with a maximum capacity of more than 3 kg and not more than 100 kg, and with the number of verification scale intervals (n) all between 1,000~10,000, excluding portable suspended weighing instruments.
3	Water meters	(1) Vortex water meters with a nominal diameter of not less than 50 mm and not more than 100 mm; (2) Volumetric meters and velocity meters (Woltmann type, single jet type, and multi jet type) with nominal diameter not less than 13 mm and not more than 300 mm.
4	Diaphragm gas meters: with a maximum flow of not more than 16 m^3/h	

<Table 5>

The inter-comparison programs of NML in 2020

	Comparison sub-field	Transfer device(s)	Comparison registered No. or comparison country/institute	Comparison result with explanation
1	Vickers hardness	hardness reference blocks	Key Comparison APMP.M.H-K1.b APMP.M.H-K1.c	Results published in the BSMI website and in Metrologia 2020 57 Tech. Suppl. 07017.
2	Absolute pressure	Precise digital pressure gauge	Key Comparison APMP.M.P-K9	Results published in the BSMI website and in Metrologia 2020 57 Tech. Suppl. 07017.
3	Low-Pressure Gas Flow	Rotary gas meter	Key Comparison APMP.M.FF-K6	Calibration process completed by NML in September 2020 and the comparison is still in process.
4	Low-Pressure Gas Flow	Laminar flow elements	Key Comparison CCM.FF-K6.2017 (Pilot: NML)	The draft A version 3 final report published. NML is waiting for the feedback from participants.
5	Transmittance Haze	Haze plate	Pilot Study APMP.PR-P3.1 (Pilot: NML)	The Pilot (NML) has sent the haze plates to the participants. NIMT and SNSU-BSN submitted the measurement results to the Pilot.
6	Activity	Original solution of 59Fe	Key Comparison APMP.RI(II)-K2. Fe-59	Comparison result published in Metrologia 2020 57 Tech. Suppl. 06002.
7	Air kerma in ISO 4037 wide and narrow series X-ray beams	Ion chamber	Supplementary Comparison APMP.RI(I)-S3	Comparison results published in Metrologia 2020 57 Tech. Suppl. 06012.
8	GNSS receiver delay	BIPM GNSS receiver	BIPM, Japan/NICT, Taiwan/TL	Calibration process completed the in October 2020TL by TL.
9	Time and Frequency	TWSTFT Receiver	Japan/NICT, Korea/KRIS, Taiwan/TL	Comparison still in progress.
10	Time	GNSS Receiver	BIPM, Taiwan/TL, etc.	Comparison still in progress.
11	Frequency	Atomic clock	BIPM, Taiwan/TL, etc.	Comparison still in progress.

ACTIONS OF THE YEAR

PRODUCT SAFETY

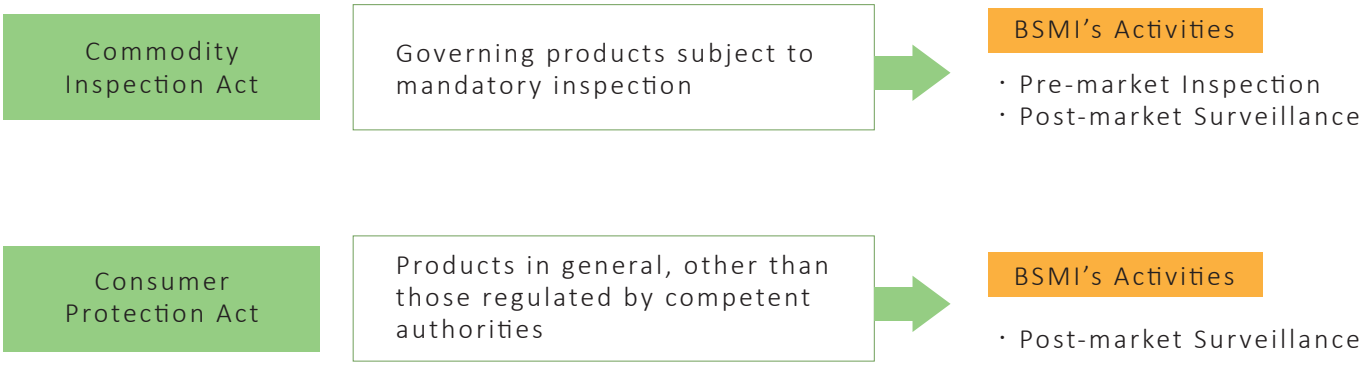
ACTIONS OF THE YEAR

Product Safety

The BSMI is one of the regulatory authorities in Taiwan. It operates mandatory inspection of products under the Commodity Inspection Act. Products fall under the jurisdiction of BSMI are mostly consumer-related commodities, including electrical & electronic products, mechanical products and chemical products. Commodities, both imported and domestically produced, that are announced to be subject to regulatory control shall comply with relevant requirements before they are imported or placed on the market. Inspection of such commodities is carried out by the following four schemes, listed in the order of stringency from high to low, namely:

- Batch-by-Batch Inspection (including Type-Approved Batch Inspection)
- Monitoring Inspection
- Registration of Product Certification (RPC)
- Declaration of Conformity (DoC)

After these regulated products enter the marketplace, they are monitored by the BSMI post-market surveillance system. In addition, according to Consumer Protection Act, the BSMI also keeps an eye on non-regulated products that are placed on the market or used by consumers to protect the public from hazards resulted from unsafe products.



1. Pre-Market Measures

(1) Regulated Products

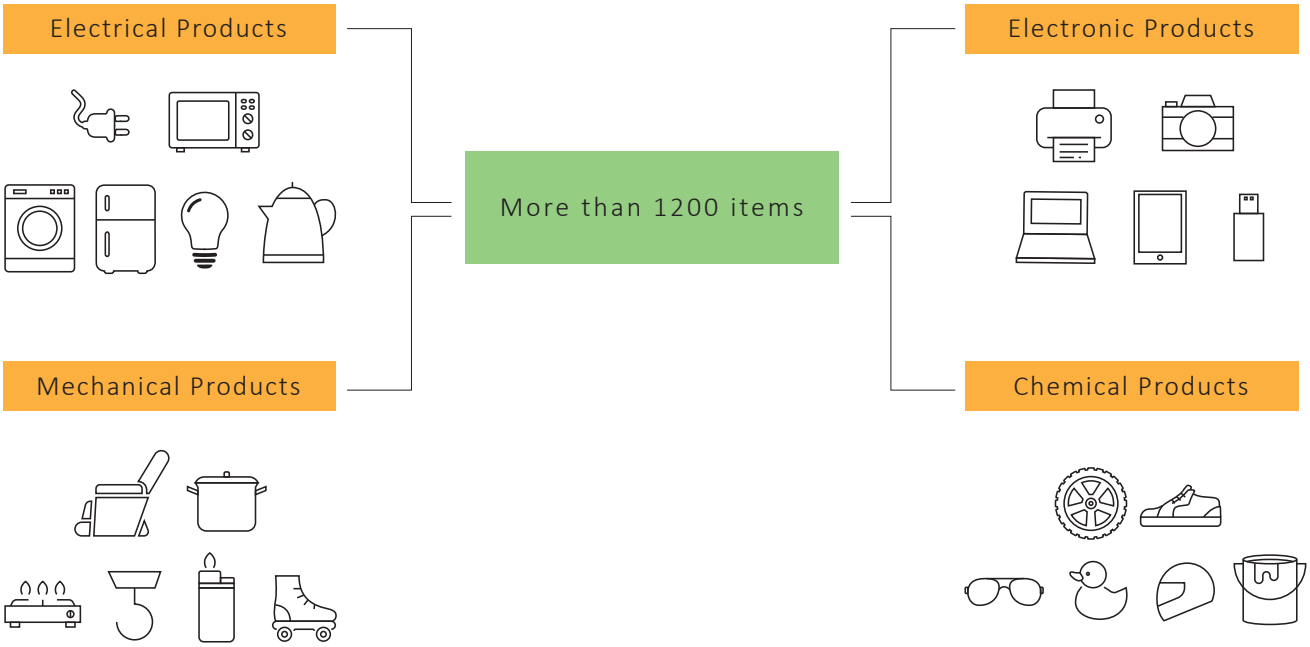
Products subject to mandatory inspection are required to follow the designated inspection schemes and comply with the applicable inspection standards. The Commodity Inspection Mark shall be affixed to all products that comply with regulatory inspection requirements.

The number of commodities subject to regulatory inspection was 1,298 by the end of 2020.

Most of them were mechanical, electrical, electronic products, and textiles. (Detailed description of the product items are provided in Table 6).

There were 570,963 batches of products inspected during the year, 98.9% of them being imported products; 56.3% being mechanical, electrical and electronic products.

▲ Commodity Inspection Mark



▲ Most regulated products of BSMI

(2)
Changes to Technical Regulations

The BSMI periodically reviews its laws and regulations. In 2020, it changed more than 35 technical regulations, including those were newly adopted or amended, with the goal of enhancing protection both of consumers and the environment that could keep abreast with the needs and development of modern times. Products involved in these changes were mainly household electronic devices. The BSMI notified the proposed changes to regulations to the World Trade Organization (WTO) (Please see Tables 7 to 9).

2. Post-Market Surveillance

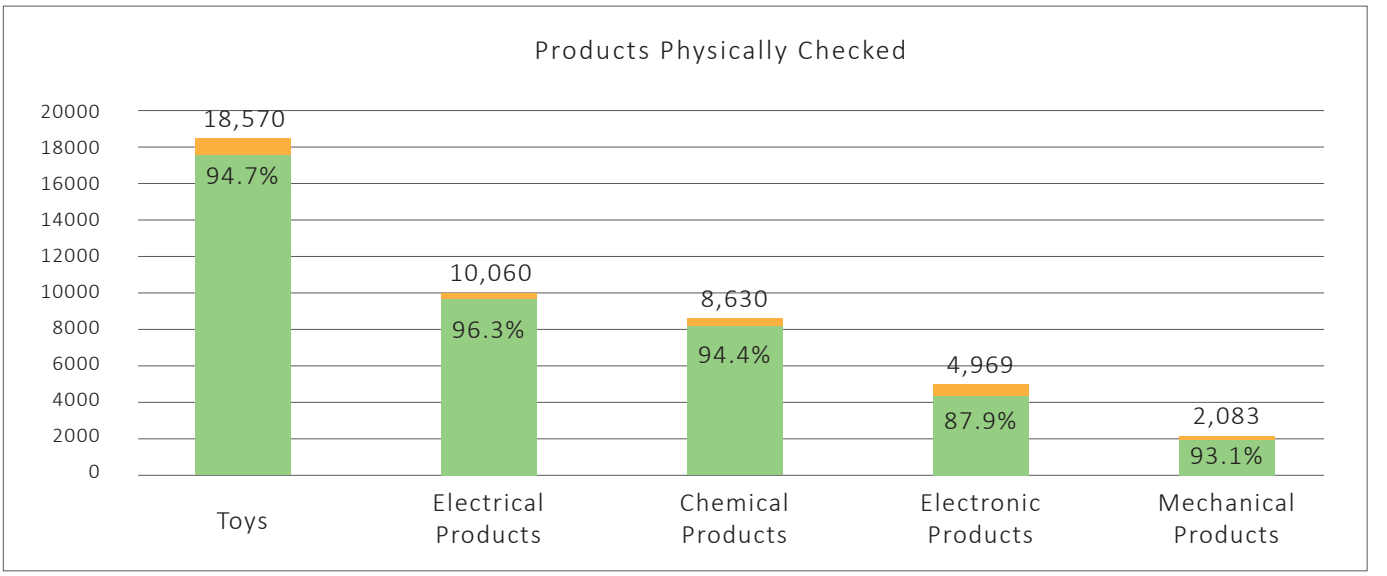
Post-market surveillance system is guided by an annual plan, prepared at the beginning of each year and forwarded to BSMI Branches located around the country for implementation. The annual plan identifies products of high risks and specifies principles for conducting surveillance activities. Market surveillance is performed by the 4 approaches listed below. Results of market surveillance activities and investigations into product incidents are used as references for making the next year's annual plan.

- Market checks
- Testing of Purchased Products
- Incident reports & Product recalls
- Report from volunteers and consumers

(1)
Market Checks

The projects basically target products with high risks, with high frequencies of noncompliance and of concerns to the public. Such products in 2020 encompassed portable blenders, baby cribs and cradles, LED bulbs, wooden plank, fast boiling electrical kettles, magnetic toys, electric ovens, deities worshipping lamps , power banks, etc. Penalties, including fines, recall of products, implementation of corrective actions, prohibition of display/sale and rescission of certificates, were imposed on noncompliant products depending on the situations of violation.

In 2020, 61,923 products were market-checked for their compliance with relevant labelling requirements, 44,312 of which were physically checked and the rest were checked over the Internet. For those physically checked, toys outnumbered other products, with a total of 18,570 items checked during the year. Compliance rate of electrical product is the highest, accounting for 96.3% of its own. The bar chart below illustrates the numbers of items checked and their respective compliance rate of the 5 sectors.



▲ Chart 3 - Numbers of Products Physically checked and its Compliance Rate

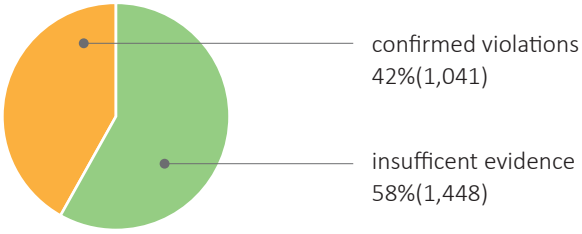
(2)
Testing of Purchased Products

40 projects were implemented in 2020 to test 528 products purchased from the market. These projects focused on compliance of the products' critical features against national standards. For example, infant or child pillows were tested for the content of formaldehyde and for physical requirements of small objects, and toys were tested for the content of phthalates and heavy metals to protect children's health. For electrical products, tests were conducted on the safety features, such as the leakage of electricity, voltage resistance, insulation resistance, rise of temperature, etc.

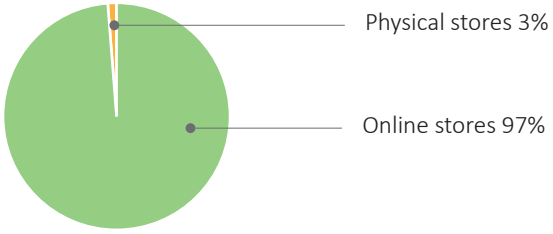
(3)
Report From Volunteers and Consumers

The BSMI has been implementing a volunteer program since 1991 to recruit consumers to help uncover suspect products on the marketplace. These volunteers (700 in 2020) are important assets of the BSMI as they serve a bridge between the BSMI and consumers and help disseminate product safety knowledge. In 2020, volunteers reported 2,489 cases of regulated products that possibly violated relevant requirements, and 1,041 violations were confirmed, accounting for 42% of the reports.

For reports made by consumers, there were 9,967 reports about suspect products in 2020, of which 97% of the total products were sold on the Internet, due to the prevalence of e-commerce. Products involved were mainly power banks, projectors, and digital cameras that were imported for sale on the Internet without bearing the required labeling or marking information. The reports increased in 2020 because some popular products were required to be inspected during this year, such as laser pointers, wireless vacuum cleaners, electric shavers and car chargers (power supply for cigarette lighters) and wireless chargers.



▲ Chart 4- Reports from Volunteers in 2020



▲ Chart 5- Reports from Consumers in 2020

To tackle the problem, the BSMI adopts several pragmatic approaches. These approaches include monitoring products sold on popular shopping websites, strengthening cooperation with online shopping platforms by imposing an obligation on the operators to ensure that information about the compliance of products with mandatory requirements is made available to consumers, and promoting safety awareness to consumers and sellers through social medias like facebook or App Line, in which we also disseminate timely safety messages about products that are of high concern to the public. In addition, the BSMI is planning to target its online market inspection towards popular products sold online with high evaluation comments and high sales volume, such as power banks and power supply products for automotive cigar lighter.

(4)
Incident Reports & Product Recalls

Timely incident reports are critical to avoid possible injuries or serious accidents from re-occurring. To encourage reporting, the BSMI operates a Product Safety Information Website allowing people involved in incidents, people with the obligation of reporting incidents or volunteers, to notify incidents caused by unsafe products. Investigation will be initiated upon receipt of the notifications. In 2020, the BSMI received 163 product incident reports, of which 137 were filed and investigated (the other 26 being either repeated cases, forwarded to the authorities in charge for processing, or not involving products).

The website also provides unsafe product information on recalled products and violating products. The information is updated daily by the BSMI, sourcing from domestic companies and competent authorities of other countries. In 2020, 1,273 pieces of information were provided on the website. For product recalls, the BSMI received 13 cases of voluntary recalls issued by the industry in the year.

▼ Product Safety Information Website and its QR code(https://safety.bsmi.gov.tw/wSite/mp?mp=65)

<Table 6>

Numbers and Inspected Batches of Regulated Products by Categories

Categories	Number of Product Items	Number of Inspected Batches
Total	1,298	570,963
Mineral products	22	2,399
Products of the chemical or allied industries	47	1,126
Plastics and articles thereof; rubber and articles thereof	49	9,622
Raw hides and skins, leather, fur skins and articles thereof; saddler and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	8	6,937
Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw, of esparto or of other plaiting materials; basket ware and wickerwork	179	9,602
Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard; paper and paperboard and articles thereof	21	1,182
Textiles and textile articles	381	28,540
Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof, prepared feathers and articles made therewith; artificial flowers; articles of human hair	27	3,987
Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	19	2,509
Base metals and articles of base metal	54	4,514
Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	338	321,168
Vehicles, aircraft, vessels and associated transport equipment	7	7,373
Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments; parts and accessories thereof	16	3,803
Miscellaneous manufactured articles	130	168,201

<Table 7>

Products Added to the List of Regulated Products in 2020

	Product Items	Effective Date	Description
1	Wireless chargers (G/TBT/N/TPKM/352)	2020.01.01	Inspection standards:CNS 14336-1, CNS 13438 and Section 5 of CNS 15663. Designated inspection schemes: RPC.
2	Laser pointers (G/TBT/N/TPKM/334)	2020.01.01	Inspection standards: Section 3.1.3 and 5 of CNS 15527 and CNS 15016-1. Designated inspection schemes: RPC or TABI.
3	Children's cots and folding cots for domestic use (G/TBT/N/TPKM/393/Add.1)	2020.03.01	Inspection standards:CNS 11676. Designated inspection schemes: RPC or TABI.
4	Electronic toilet seats (G/TBT/N/TPKM/327)	2020.07.01	Inspection standards:CNS 60335-1, CNS 60335-2-84, CNS 13783-1 and Section 5 of CNS 15663. Designated inspection schemes: RPC or TABI .
5	Folding tables (G/TBT/N/TPKM/381)	2020.07.01	Inspection standards:CNS 15518. Designated inspection schemes: RPC .
6	Baby carriers for domestic use (G/TBT/N/TPKM/397/Add.1)	2020.07.01	Inspection standards:CNS 16006-2. Designated inspection schemes: RPC or TABI.

<Table 8>

Revisions to Technical Regulations in 2020

	Product Items	Effective Date	Description		
			Inspection Standards Updated	Inspection Standards Added	Inspection Scope Modified
1	Water dispensers (G/TBT/N/TPKM/331/Add.1)	2020.01.01		●	
2	Electric Cookers (G/TBT/N/TPKM/361/Add.1)	2020.01.01		●	
3	Toys (G/TBT/N/TPKM/391/Add.1)	2020.03.01			●
4	Static converters and power supplies (G/TBT/N/TPKM/395/Add.1)	2020.03.19			●
5	Erasers (G/TBT/N/TPKM/379/Add.1)	2020.03.25	●		●
6	Pressure regulators for liquefied petroleum gas (G/TBT/N/TPKM/382/Add.1)	2020.05.01	●		
7	Steel bars for concrete reinforcement (G/TBT/N/TPKM/383/Add.1)	2020.05.01	●		
8	Electric storage tank water heaters, air conditioners with hermetic type compressor (G/TBT/N/TPKM/362/Add.1)	2020.07.01	●		
9	Children Restraint System for Vehicles (G/TBT/N/TPKM/402/Add.1)	2020.09.01	●		
10	Textiles (babies garments and clothing accessories, bedding, towels, underwear, swimwear, hosiery and garments and sweaters) (G/TBT/N/TPKM/426/Add.1)	2020.12.10	●		●

<Table 9>

Proposed and Adopted Technical Regulations That Come into Effect in 2021 or a Later Time

	Product Items	Effective Date	Description		
			Inspection Standards Updated	Additional Inspection Standards	Inspection Scope Modified
1	Self-ballasted LED lamps (G/TBT/N/TPKM/388/Add.1)	2021.01.01	●		
2	Hot cathode fluorescent lamps (G/TBT/N/TPKM/398/Add.1)	2021.01.01	●		
3	Eye protector for welding, filter for welding face shield, welding face shield, and eye protector of ultraviolet filtering, infrared filtering, sunglare filter for industrial use, and ocular without filtering effect (G/TBT/N/TPKM/411/Add.1)	2021.01.01	●		● New
4	Automobile light alloy disc wheels (G/TBT/N/TPKM/386/Add.1)	2021.05.01			● New
5	Electric motorcycle charging system equipment and battery swap system equipment (G/TBT/N/TPKM/401/Add.1)	2021.05.01			● New
6	Electric storage drink water heaters (G/TBT/N/TPKM/404/Add.1)	2021.07.01		●	
7	Hot-Dip Galvanized Steel Pipes (G/TBT/N/TPKM/423/Add.1)	2021.07.01			● New
8	Infant bath tubs (G/TBT/N/TPKM/412/Add.1)	2021.07.01			● New
9	Exterior tile (G/TBT/N/TPKM/425/Add.1)	2021.08.01			● New
10	Bedside sleepers (G/TBT/N/TPKM/415/Add.1)	2021.09.01			● New

	Product Items	Effective Date	Description		
			Inspection Standards Updated	Additional Inspection Standards	Inspection Scope Modified
11	Infant bath seats (G/TBT/N/TPKM/417/Add.1)	2021.10.01			● New
12	Chair mounted seat (G/TBT/N/TPKM/427/Add.1)	2021.11.01			● New
13	Cribs and cradles for domestic use (G/TBT/N/TPKM/433/Add.1)	2021.11.01			● New
14	Reclined cradles (G/TBT/N/TPKM/437/Add.1)	2021.11.01			● New
15	Playpens for domestic use (G/TBT/N/TPKM/438/Add.1)	2021.12.01			● New
16	Children's chairs and stools (G/TBT/N/TPKM/439/Add.1)	2021.12.01			● New
17	Table mounted chairs (G/TBT/N/TPKM/440/Add.1)	2021.12.01			● New
18	Safety barriers (G/TBT/N/TPKM/441/Add.1)	2021.12.01			● New
19	Carry cots and stands (G/TBT/N/TPKM/445/Add.1)	2021.12.01			● New
20	Fire doors of buildings (G/TBT/N/TPKM/320/Add.1)	2022.01.01	●		
21	Double-capped LED lamps (G/TBT/N/TPKM/406/Add.1)	2022.01.01			● New
22	Protective helmets ,having smart functions batterypowered, for drivers and passengers of motorcycle and mopeds; pedal cyclists and for users of skates, skateboards and roller skates; Safety headgear (G/TBT/N/TPKM/390/Rev.1)	To be determined	●		

ACTIONS OF THE YEAR

TESTING AND CERTIFICATION

ACTIONS OF THE YEAR

Testing and Certification

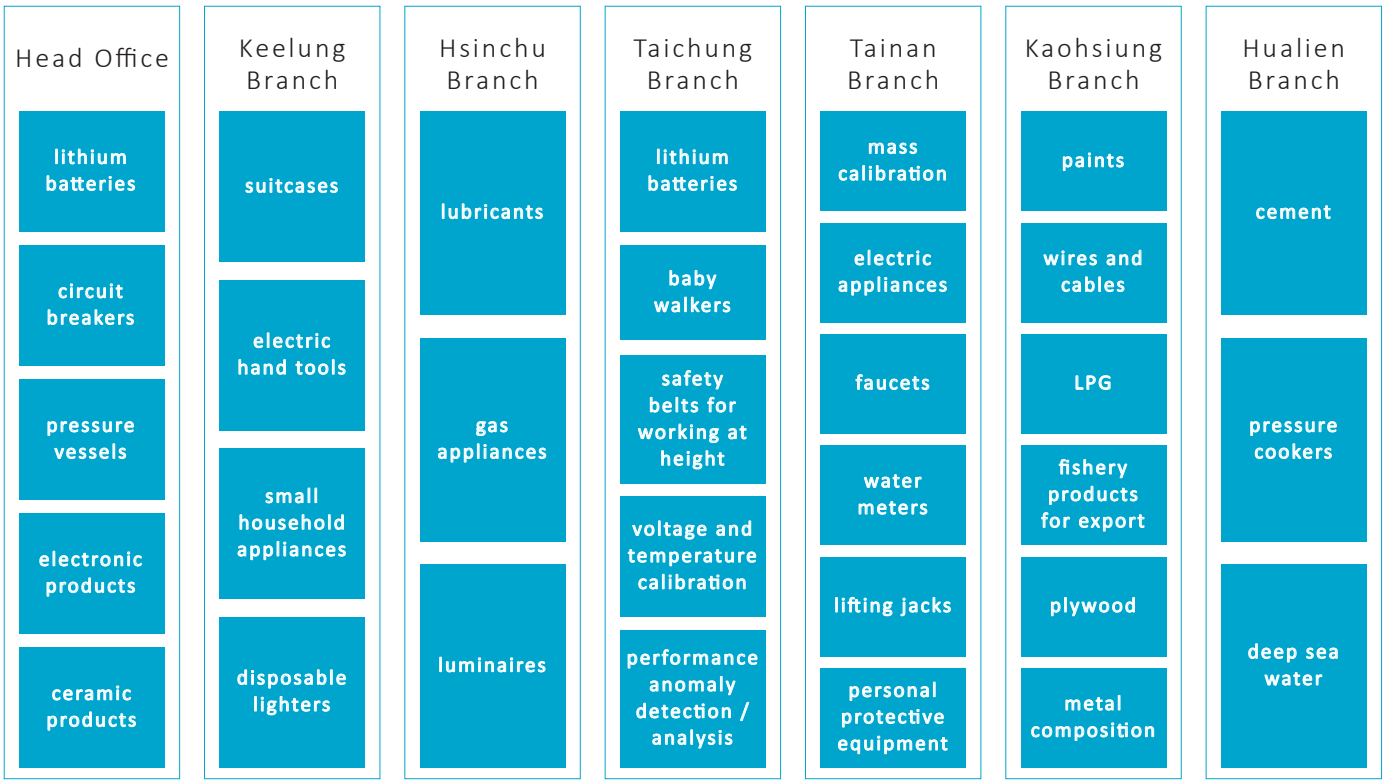
The BSMI takes an important role in the development of the national quality infrastructure in Taiwan. It maintains testing laboratories to support the regulated regime in terms of both pre-market control and post-market surveillance. The technical competence is also of great value to fulfill tasks required in national development projects. These have yielded a variety of services in the voluntary regime that are relied upon by other government agencies and industry.

1. Laboratories of BSMI in Brief

Laboratories of BSMI are located at the Headquarters and six Branches, which provide tests mainly for physical, chemical, electrical and electromagnetic compatibility properties of products. Laboratories in head-quarters also serve as hubs for technical support to those in the Branches. To make the best use of resources, specialized laboratories have been established to avoid repetition and to build on the expertise in the specific field. The followings are the specialized areas of BSMI's testing laboratories.

To keep pace with the emerging testing technologies, which bring forward products with new features, the BSMI participates actively in national programs on science and technology development to contribute its expertise in testing and certification.

For projects that the BSMI participated in 2020 and their brief descriptions are listed in Table 10.



2. Voluntary Certification Systems

The BSMI developed certification systems for industrial products, fishery products, and renewable energy to help our manufacturers achieve a higher level of quality and to facilitate their access to international markets.

(1) Voluntary Product Certification (VPC) System

The VPC System was launched by the BSMI in 2004, which differs from another voluntary product certification system, the CNS Mark System, operated by the BSMI in the standards used for testing. The VPC System intends to upgrade the levels of design, development and production of products based on more stringent requirements. In 2020, the VPC System contained 34 product items, most of them being electrical and electronic products (e.g. fluorescent lamps and starter holders, AC motor capacitors, switches, heat pump water heaters, medium and small wind turbines, stationary training equipment, etc.). There were more than 370 certified products by the end of 2020. VPC certified products can demonstrate to the market their enhanced performance and reliable quality assurance.

Product with the ▶ VPC Mark

Among the VPC certified products, photo voltaic modules and solar inventers received more attention from the public along with the governments's promotion projects.

Under the VPC, in addition to the requirements of safety, grid connection, and electromagnetic compatibility. Solar inventers also have to meet information security requirements in accordance with the "Technical Specification for Security Testing of PV Inverters and Monitoring Units" adopted on December 30, 2020. Starting from 2017 till 2020, a total of 133 photovoltaic modules and 88 solar inverters were certified.

(2) Certification of Fishery Products Exported to Foreign Countries

The BSMI offers the services of issuing health certificates and implementing the HACCP certification. The health certificates demonstrate compliance of Taiwan's processing establishments with the health and quality requirements of the trading partners. The HACCP certification is implemented to assist export of food products and fishery products to foreign countries. In 2020, BSMI was officially recognised by the Australian Department of Agriculture, Water and the Envirnment as Taiwan's competent authority for thermally treated salmon products. By the end of 2020, 3,685 health certificates were issued to 81 food processing plants.

The BSMI also serves as one of the national contact points to coordinate administrative arrangements for registering Taiwan's processing establishments and fishing vessels with the European Union, Russia, and Brazil. The numbers of registered establishments and vessels are described in Table 11.

(3) Taiwan Renewable Energy Certificate (T-REC)

The National Renewable Energy Certificate Center within the BSMI was officially launched in 2017 with a key mission to issue Taiwan Renewable Energy Certificates (T-RECs), which is an important tool for companies to demonstrate their commitment to Corporate Social Responsibility along with the efforts to protect the environment. Starting from May 2017 till the end of December 2020, the BSMI issued a total of 180,964 T-RECs, and 45,296 of them were traded in the market. Through the recognition by Taiwan Environmental Protection Administration (EPA) and the connected tracking system with the Taiwan's National Greenhouse Gas (GHG) Registry Platform, the BSMI aims not only to offer additional certificate tool for GHG recognition, but

also to improve the certification system steadily and consistently.

Connection1 - Sustainability / CSR Rating

Domestic

Global Views Monthly

Common Wealth Magazine Excellence in CSR

Global

CDP(RE100)

US EPA&IEEE

Connection2 - GHG Emission Management

The voluntary T-RECs can be regarded as Scope 2's electricity sources and the relative electricity emission factor of CO2 can be calculated as zero.

Connection3 - Awards&labels

Green Factory Label

The Type2 Green Mark

Corporate Governance Evaluation System

Nationnal Sustainable Development Award

EEWH

Green Procurement of Government Agencies

Banking & Finance Best Practice Awards

Corporate Environmental Protection Award

▲ T-REC' s connection and value

Based on the amendment to the Renewable Energy Development Act, the BSMI introduced the transaction functions in the REC website in March of 2020 to facilitate trading of renewable energy certificates. By the end of 2020, a total of 24 renewable energy stakeholders made green energy wheeling, where the annual transaction volume of green energy is estimated as 815,000 MWh (equivalent to 815,000 Taiwan Renewable Energy Certificates).

▲ "An Energy Transformation Milestone! Taiwan Achieves the First 110,000 Megawatt-Hour Green Energy Wheeling" article on BSMI website

3. Project Certification on Offshore Wind Farms

The BSMI published "Directions for Demonstration and Guidance on Reviewing Project Certification of Offshore Wind Farm Projects" in 2019, which required that offshore wind farm developers be reviewed for their implementation of project certification at each stage of the wind farm development so as to ensure the safety and quality of offshore wind farms. In this regulation, CNS 15176-22 is used as the standard of project certification, while CNS 15176-1 and CNS 15176- 3 are adopted to take the specific climate and seabed conditions of Taiwan Strait (e.g., typhoon and earthquake) into account. In 2020, a total of 6 offshore wind farms apply for project certification review.

<Table 10>

Participated National Programs on Science and Technology Development

Title of Category	Description of Projects
Third Party Certification and Testing Scheme	· Publication of "Directions for Demonstration and Guidance on Reviewing Project Certification of Offshore Wind Farm Projects",and performed project certification review for Formosa 1 wind farm · Offshore wind farm project certification, due diligence, and marine warranty survey · PV system outdoor test and geothermal productivity test
Smart Grid	· Interoperability standards for distributed energy resource (DER) Integration and regulation system · Inter-communication test platform of smart appliances · Research and analysis of OpenADR distributed energy resource(DER) network interoperability standards · AMI DLMS conformance test service platform · Low-voltage switchgear and controlgear standards
Off-Shore Wind Turbines	· Establishment of off-shore wind turbine load measurement, power measurement and pitch system testing environment · Publication of standards for type testing and certification of wind turbines and power measurement techniques · Revision of standards for wind turbine design requirements by taking typhoon related impacts into account · Revision of standards for wind turbine design requirements by taking earthquake related impacts into account · Publication of "Directions for Demonstration and Guidance on Reviewing Project Certification of Offshore Wind Farm Projects", and performed one wind farm Project Certification review
Emerging Energy	· LED lighting system (indoor/outdoor) testing · Freezers/air-conditioners and new coolants testing · Small and medium-sized wind turbines testing technology · Fuel cells and hydrogen energy system testing · PV power generation system and modules testing · Forestry wastes of transformed bio-fuel or chemical materials testing technology · International cooperation on standards and certification for small wind turbines
Assistive Devices	· Elder care occupancy detector · Wheelchair power · Power raising toilet seat · Power raising shower chair

<Table 11>

Registered Establishments and Vessels of Taiwan

Areas/Countries	Processing Establishments	Fishing Vessels
European Union	34	174
Russia	19	25
Brazil	24	386

ACTIONS OF THE YEAR

INTERNATIONAL COOPERATION

ACTIONS OF THE YEAR

International Cooperation

The different roles that BSMI takes in our national quality infrastructure have yielded a variety of international cooperation activities, which help us to achieve goals both internally and externally.

Internally, we engage our partner countries in exchanges of information, practices and experts to maintain a safety and fair society, as well as to support sound development of industry. Externally, we spare no efforts to facilitate export of our products by reducing unnecessary conformity assessment costs. We also participate actively in the limited number of international organizations of which we are a member to enhance our visibility in the international community in this area.

Externally	Internally
・To pave a smooth road for exporters ・To expand visibility in international community	・To maintain a safe and fair society ・To support sound development of industry

1. Bilateral Cooperation

The BSMI's international cooperation activities at bilateral level mainly take the forms of negotiating cooperative documents, convening formal meetings with counterpart organizations, holding joint workshops and providing training courses. The subject matters encompass a wide range of topics, which in addition to those under the BSMI's jurisdiction, may also involve the activities of other government bodies. The important activities in the year are highlighted below.

(1) Joint Activities

Joint workshops are of great value to have focused discussion on issues of interest to the BSMI and partner countries. They can be used to engage both sides in exchanging experiences from considerably extensive aspects. They also build bridges between stakeholders for further cooperation. Introduction to the regulatory systems by way of workshops makes it easier for exporters to understand technical regulations of the target market and complete conformity assessment procedures in a more efficient way. There were several featured events in 2020 as listed below.

Japan - The Fourth Annual Meeting on Product Safety

Taiwan and Japan held meetings on product safety regularly under the Memorandum of Understanding signed in 2016. The Fourth annual meeting was held virtually, co-hosted by the BSMI, Ministry of Economy, Trade and Industry (METI) and National Institute of Technology and Evaluation (NITE) on December 15-16. Both sides discussed product regulatory policies on smart goods, product accidents and the effect of COVID-19, as well as shared the accident investigation experience on lithium ion batteries and refrigerators.

▲ Virtual meeting of the Annual Meeting on Product Safety with Japan

Saudi Arabia- Seminar on SABER System

The BSMI in collaboration with Chinese National Federation of Industries held a seminar in May to help local exporters and manufacturers be acquainted with SABER, a newly released online product certification system in Saudi Arabia. The seminar was held in response to an increasing number of reports of barriers received by the BSMI.

▲ Director General of BSMI and CEO of SII signed General Agreement at the video conference in November 2020.

Israel- The Second Coordination Committee Meeting

Under the framework of Standardization, Conformity Assessment and Metrology Agreement between Taiwan and Israel, the BSMI and Standardization Administration, Ministry of Economy and Industry, Israel, had this virtual meeting on November 17. Their respective regulatory changes were introduced to each other and views on battery-powered children's products were exchanged. The MRA between Taiwan Testing and Certification Center (ETC) and Standards Institution of Israel (SII), signed in September 2020, was endorsed at the meeting.

Israel - Signing General Agreement for Cooperation

Dr. Lien, Director General of BSMI, and Dr. Golub, CEO of Standards Institution of Israel (SII), signed the General Agreement for cooperation on November 25. This General Agreement replaces the one signed in March 1999 and provides more opportunities for future cooperation in areas of standardization and conformity assessment.

Malaysia- Information Exchange on ISO/IEC 17025 Transition

The BSMI cooperated with the Department of Standards Malaysia in exchanging information on areas of standardization, accreditation and conformity assessment. The BSMI shared the information on transition progress of ISO/IEC 17025: 2017, including the current situation of laboratories transition, transition assessment approaches and tools and the common non-conformities of transition assessment of laboratories.

▲ Consumer Product Safety Webinar in November 2020

U.S. CPSC - Consumer Product Safety Webinar

Under the Memorandum of Understanding on consumer product safety matters signed in 2004, the BSMI and Consumer Product Safety Commission (CPSC) work together to organize joint activities on a regular basis."Consumer Product Safety Webinar: An Overview of the 2020 Age Determination Guidelines" was held on November 19. In the webinar, the CPSC provided Taiwan industry stakeholders with an overview of the 2020 Age Determination Guidelines, which includes age-grading information for toys, child care articles, and other children's products.

▲ Director General of BSMI and INTN signed LOI at the video conference in September 2020

Paraguay- Signing Letter of Intent on cooperation to promote technical cooperation

On 24 September, the Director General of BSMI, Ching-Chang Lien, and Director General of National Institute of Technology, Standardization and Metrology (INTN), Lira R. Giménez signed a Letter of Intent (LOI) on cooperation to promote technical cooperation at the 20th ROC-Paraguay Economic Cooperation (video) Conference. Both sides agreed to build mutual trust in the technical competence of the two sides' respective conformity assessment bodies and harmonize their regulatory systems through bilateral cooperation and exchanges in the areas of standardization, metrology and conformity assessment, with the ultimate goal of further facilitating and enhancing Taiwan-Paraguay bilateral trade.

(2)
Implementation of Mutual Recognition Arrangements (MRAs)

Taiwan has signed MRAs on conformity assessment results with 7 countries. They basically cover electrical and electronic products. While the ones with the United States, Canada and Australia only apply to recognition of test reports, the ones with New Zealand, Singapore and Japan are full-fledged, with recognition extending to certificates. Testing laboratories or certification bodies were designated under the MRA frameworks, which allow products for export to the other contracting party to be tested locally, thus saving time and costs for industry. The MRA with the Philippines was put into operation in 2020 after the approval from BPS of ETC and TRC as BPS recognized testing laboratories and/or inspection body. Since then, the stakeholders of both sides could use the MRA to reduce the conformity assessment costs and shorten inspection process for EE products and Tyres' to be exported to the other side.

Bilateral-MRAs

<table>
<tr><th></th><th>Electronic Products</th><th>Electrical Products</th><th>Tyres</th><th>Number of CABs being Recognized</th></tr>
<tr><td>USA</td><td rowspan="2">EMC Test Reports</td><td></td><td></td><td>USA: 71TL*
Taiwan: 59TL</td></tr>
<tr><td>Canada</td><td></td><td></td><td>Canada: 8TL
Taiwan: 0</td></tr>
<tr><td>Australia</td><td colspan="2">EMC Test Reports</td><td></td><td>Australia: 2TL
Taiwan: 0</td></tr>
<tr><td>Singapore</td><td colspan="2" rowspan="3">EMC + Safety
Test Reports + Certificates</td><td></td><td>Singapore: 3TL, 1CB*
Taiwan: 14TL, 2CB</td></tr>
<tr><td>New Zealand</td><td></td><td>NZ: 0
Taiwan: 34TL, 1CB</td></tr>
<tr><td>Japan</td><td></td><td>Japan: 16TL, 1CB
Taiwan: 0TL, 1CB</td></tr>
<tr><td>The Philippines</td><td></td><td>EMC + Safety Test Reports</td><td>Test Reports</td><td>Philippines: 0
Taiwan: 2TL, 1IB</td></tr>
</table>

* TL - Testing Laboratory; CB - Certification Body; IB - Inspection Body

2. Multilateral Cooperation

(1)
Activities under WTO/TBT Agreement

The BSMI operates the TBT Enquiry Point as required by the WTO Agreement on Technical Barriers to Trade (TBT). Five main functions are given by this enquiry point:

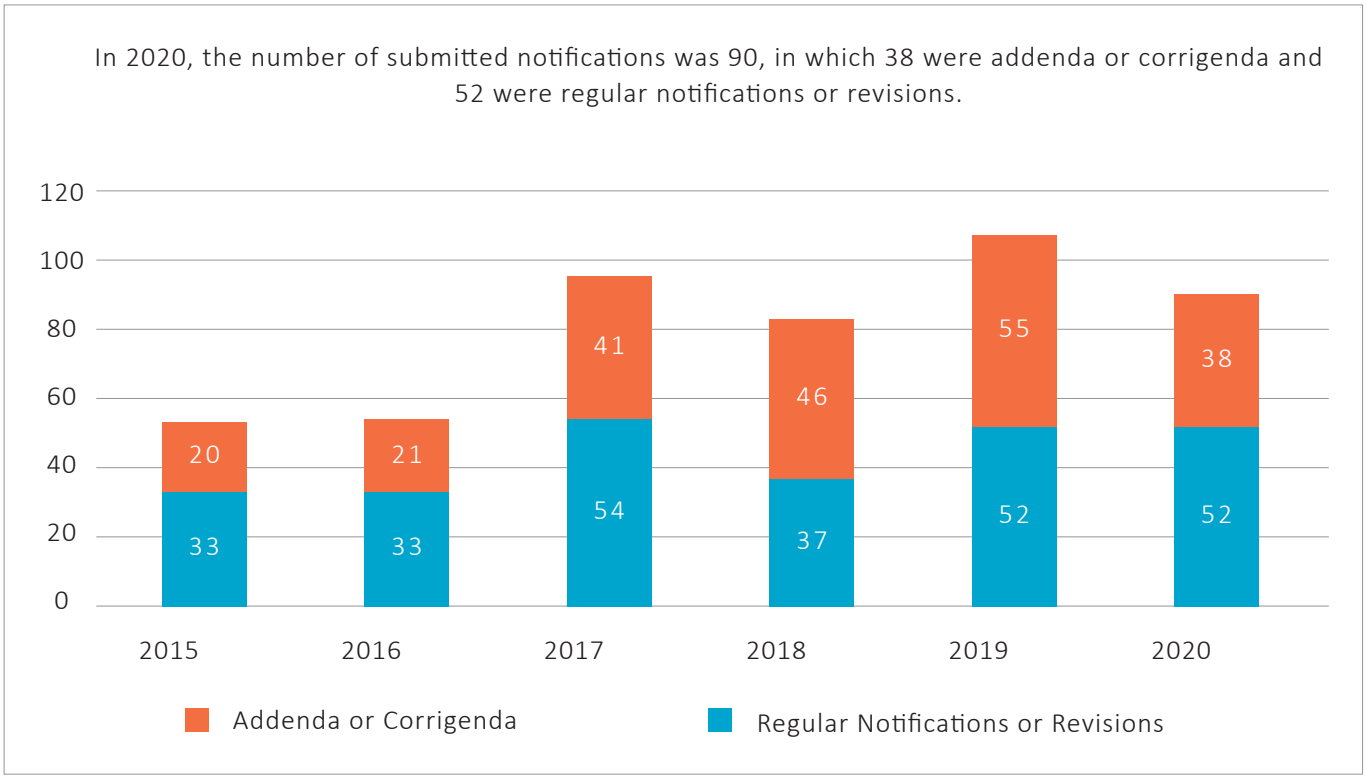
a.To disseminate and translate TBT notifications circulated by the WTO Secretariat;

b.To assist regulatory authorities in submitting TBT notifications and responding to comments and inquiries made by other WTO Members and businese operators;

c.To assist domestic stakeholders in providing comments on adopted or proposed measures by other WTO Members and to respond to their inquiries;

d.To convene domestic inter-agency TBT committee meetings and coordinate views with different regulatory authorities on issues discussed at the WTO/TBT Committee meetings; and

e.To maintain domestic on-line TBT notification database.



(2)
Activities under APEC/SCSC

The BSMI is responsible for coordinating Taiwan's participation in activities of the Sub-Committee on Standard and Conformance (SCSC) of Asia-Pacific Economic Cooperation (APEC).
2 SCSC meetings were held in 2020. One was held physically in Malaysia in February and the other was held virtually in September. The BSMI participated in both meetings and introduced its proposed project regarding renewable energy certification at the February meeting.

▼ APEC SCSC meeting in Malaysia in February 2020.

(3)
Participation in International Events

The table below lists BSMI's participation in international events throughout the year.

Date	Name of Events
February 9-10	APEC/SCSC 1 Meeting, Putrajaya, Malaysia
September 10	APEC JRAC Meeting (virtual)
September 14-15	APEC/SCSC 2 Meeting (virtual)
October 20-22	Annual Meeting of CIML (virtual)
October 27-29	WTO/TBT Committee Meeting (virtual)
December 3-4	The 27th APLMF Forum and Working Group Meetings (virtual)

<Table 12>

List of Cooperative Partners Based on Signed Agreements or MoUs

Cooperation Items	Cooperation Partners
Mutual Recognition of Conformity Assessment Results	1. United States Federal Communications Commission 2. Industry Canada 3. Australian Communication Authority 4. Directorate for Standards, Metrology and Quality, Viet Nam 5. New Zealand Worksafe and Ministry of Business, Innovation snd Employment 6. Enterprise Singapore 7. United States Environmental Protection Agency 8. Ministry of Economy, Trade and Industry, Japan 9. International Accreditation New Zealand 10. Bureau of Philippines Standards
General Cooperation (Information and Expert Exchange)	1. The Polish Centre for Testing and Certification 2. The KERMI Testing and Quality Control Ltd., Hungary 3. The Standards Institution of Israel 4. The Czech Office for Standards, Metrology and Testing 5. Consumer Product Safety Commission, United States 6. Mongolian Agency for Standardization and Metrology 7. The Directorate for Standards, Metrology and 48 Quality, Viet Nam 8. The Austrian Standards Institute 9. Bureau of Philippines Standards 10. Standardization Administration of China, General Administration of Quality Supervision, Inspection and Quarantine; Certification and Accreditation Administration, Mainland China 11. Ministry of Business, Innovation and Employment, New Zealand 12. Enterprise Singapore 13. Slovak Office of Standards, Metrology and Testing, Slovak Republic 14. Standardization Administration under Ministry of Economy and Industry, Israel 15. Standards Organization of Nigeria 16. National Institute of Technology and Evaluation, Japan 17. The Standards and Metrology Institute for the Islamic Countries (SMIIC)

Cooperation Items	Cooperation Partners
Standards	1. ASTM International, United States 2. BSI Standards Limited, UK 3. Beuth Verlag GmbH, Germany (authorized by DIN) 4. The Institute of Electrical and Electronics Engineers, Incorporated, (IEEE), United States 5. International Organization for Standardization 6. AFNOR, France 7. Underwriter Laboratories Inc., United States
Product Testing	1. Japan Electrical Testing Laboratory 2. Japan Quality Assurance Organization 3. Swiss Electrotechnical Association 4. Swedish Institute for Testing and Certification of Electrical Equipment 5. Hungarian Institute for Testing and Certification of Electrical Equipment
Technical Cooperation	1. Saudi Standards, Metrology and Quality Organization 2. GCC Standardization Organization 3. Regulatory and Quality Infrastructure Development Department under the Ministry of Commerce, Industry and Trade, eSwatini 4. Directorate General of Consumer Protection and Trade Compliance, Ministry of trade of Indonesia

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