**TAICS**

*Taiwan Association of Information and Communication Standards*

6F., No.30-2, Beiping E. Rd.,
Zhongzheng Dist., Taipei City 100, Taiwan
+886-2-2356-7698
http://www.taics.org.tw

TAICS

# Taiwan Association of Information and Communication Standards

# 社團法人台灣資通產業標準協會

# 2023 Annual Report

# 2023 Annual Event

● Seminar ● Workshop ● Activity

**01 January**

**02 February**

**03 March**

- 03/13 5G-Advanced & 6G Technology Workshop-Intel
- 03/15 5G-Advanced & 6G Technology Workshop-Apple
- 3/28 The 6th Meetings of the Third Board of Supervisors

**04 April**

**05 May**

- 05/26 2023 TAICS Standards Forum-B5G/6G NTN Technology Development and Applications
- 5/26 The 3rd General Meeting of the Third General Assembly

**06 June**

- 06/09 5G-Advanced & 6G Technology Workshop-Session I
- 06/19 5G-Advanced & 6G Technology Workshop-Session II
- 06/30 EU Cybersecurity Workshop

**07 July**

**08 August**

- 08/09 [Data format standard & test specification for sensing data in smart agriculture ] Public Seminar-Taipei Section
- 8/14 The 7th Meetings of the Third Board of Supervisors
- 08/18 [Data format standard & test specification for sensing data in smart agriculture ] Public Seminar-Taichung Section

**09 September**

- 09/14 EU Cybersecurity Workshop

**10 October**

- 10/13 EUCC Tutorial Workshop
- 10/25 Globally Interoperable Solutions for Smart City, 5G, AI, Metaverse-oneM2M International Workshop

**11 November**

- 11/22 Edge Cloud & IA Glasses Situational Application Workshop

**12 December**

- 12/6 The 8th Meetings of the Third Board of Supervisors

# A Message From the Chairman

In recent years, 5G/B5G-related applications have emerged, and the Internet of Everything era has arrived. Thus, standards for the information and communication industry are increasingly important. We thank members for their long-term supporting. In 2023, we harnessed the power of the industry, government, academia, and research. This collaborative effort led to the successful completion of more than 50 standards formulation meetings and the publication of 9 industry standards, specifications, and guidelines, which span across cybersecurity fields such as IoT applications, DNS, 5G Open RAN, and 5G OSS, and B5G spectrum research, the White Paper on Potential 6G Technologies, the data exchange interoperability standard for intelligent buildings, and smart vehicle navigation systems. These standards, specifications, and guidelines will serve as a reference for domestic industry development. Relevant government agencies have also utilized some of these standards for installation grants or procurement requirements. Moreover, the industry has recognized the IoT cybersecurity certification mark issued by TAICS. TAICS is now TAF ISO17065 certified, becomng it Taiwan's first local certification body to pass the voluntary product certification body .

Regarding international exchanges, we signed an MoU with 6G IA (the EU's 6G Smart Networks and Services Industry Association) at the end of May 2023. We look forward to collaborating with our international partners to advance the development and application of 6G technologies. In mid-June, TAICS and member MediaTek successfully invited the international standards development organization 3GPP to Taiwan to hold the 100th member meeting. Over 800 technology standards experts participated in this unprecedented event. In early December of the same year, with the support of the Department of Industrial Technology, MOEA, 5G ACIA (5G Alliance for Connected Industries and Automation) was invited to Taiwan to sign an MOU with TAICS. In the future, we will lead Taiwan's industry, academia, research institufes, and global alliances to develop a series of collaborative negotiations that will lay the foundation for long-term exchanges and cooperation.

In the future, TAICS will continue to build Taiwan's ICT industry standards platform and promote the implementation of standards. We will also work to connect with international standards organizations, maintain good multilateral relations through regular cooperative exchanges, and expand our regional and global influence.

Chairman of TAICS

Jyuo Min Shyu

# Contents

## 1 Overview



## 2 Achievements of the TAICS

# 1 Overview

## 1.1 Mission

Taiwan Association of Information and Communication Standards (TAICS) is an industry organization founded in June 2015, with the objectives of developing information and communication technology (ICT) standards among Taiwan's industries and engaging them with related international standards to enhance the competitiveness of Taiwan's industry. To achieve such goals, TAICS performs the following tasks.

### 1 *Establish a platform*

Establish a platform to facilitate collaborative development of ICT standards among domestic vendors to meet Taiwan's industrial needs.

### 2 *Connect international standards organizations*

Act as an intermediary for Taiwan in international standardization affairs and strengthen the connections between regional, international standards development organizations.

### 3 *Promote industry standards*

Promote the adoption of Taiwan's ICT industry standards by local, regional or international standards bodies.

## 1.2 TAICS Organizational Structure

The Taiwan Association of Information and Communication Standards (TAICS) is organized and operated by key companies of Taiwan's information and communication industry. We have nearly 100 members from industry, academia, and research organizations.

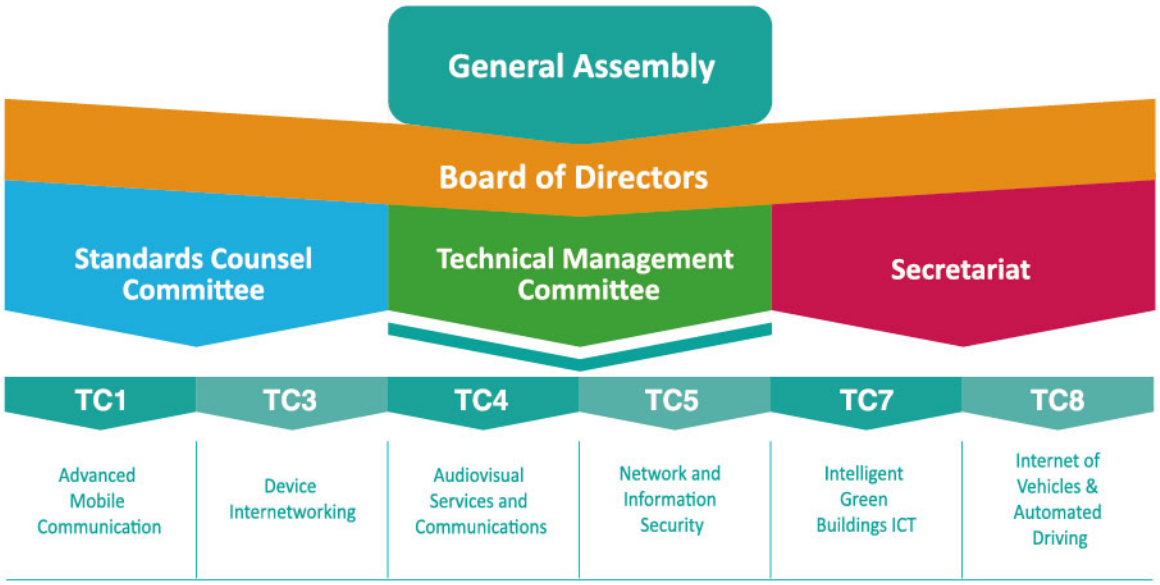


Fig 1. TAICS Organizational Structure

Representatives of various companies participated enthusiastically in the elections during the member conference and elected the Board of Directors for the current term (3rd term). Jyuo-Min Shyu, Research Fellow of the Industrial Technology Research Institute, will serve as the Chairman; Tsu-Chin Lee, Director of Inventec Corporation, and Pei-Zen Chang, Executive Vice President of the Industrial Technology Research Institute, will serve as the Vice Chairmen; and ShyueChing Lu, Honorary Proffessor of National Yan Ming Chiao Tung University, will serve as Executive Supervisor.

Chairman of TAICS
Jyuo Min Shyu

## · Board of Directors

| Position in TAICS | Name | Company | Position |
|---|---|---|---|
| Chairman & Managing Director | Jyuo Min Shyu | Industrial Technology Research Institute | Research Fellow |
| Vice Chairman & Managing Director | Richard Lee | Inventec Corporation | Board of Director |
| Vice Chairman & Managing Director | Pei-Zen Chang | Industrial Technology Research Institute | Executive Vice President |
| Director | Cheng-Te Chuang | MediaTek Inc. | Corporate Executive Vice President, Wireless Technology Group |
| Director | Shun-I Chu | Zyxel Communications Corp. | Chairman |
| Director | Jason/Yi-Bing Lin | National Yang Ming Chiao Tung University | Chair Professor |
| Director | JK Chen | Chunghwa Telecom Laboratories | Consultant |
| Director | Henry Yeh | ASUSTek Computer Inc. | Corporate Vice President, Technology Innovation Office |
| Director | Wei-Bin Lee | Hon Hai Research Institute | CEO |
| Director | James Hsu | AMPACS Corporation | Vice Chairman |
| Director | Karen Chang | Egis Technology Inc. | Vice Chairman |
| Director | Daniel Chang | Auden Techno Corp. | Chairman |
| Director | Gary Chen | HwaCom Systems Inc. | Chairman |
| Director | Steve Lai | ECOLUX Technology Co., Ltd. | Chairman |
| Director | Alice Chou | Taiwan Institute of Economic Research | Vice President |
| Alternate Director | Herman Rao | Far Eastone Telecommunications Co., Ltd. | Executive Vice President |
| Alternate Director | Morgan Hong | Onward Security Corporation | General Manager |

## · Board of Supervisors

| Position in TAICS | Name | Company | Position |
|---|---|---|---|
| Executive Supervisor | Shyue Ching Lu | National Yang Ming Chiao Tung University | Honorary Proffessor |
| Supervisor | Show-Ling Wen | Taiwan Intelligent Building Association | President |
| Supervisor | HT Lin | Telecom Technology Center | CEO |
| Alternate Supervisor | Albert Chen | Inventec Co. | Senior Vice President |

Three units are established under the Board of Directors: the Technical Management Committee (TMC), the Standard Counsel Committee (SCC), and the Office of the Secretariat.

The Technical Management Committee (TMC), chaired by Albert Chen, Senior Vice President, Inventec Co., is to review the tasks, productivity, personnel appointments, and formation of the technical committees (TC). Also, the TMC coordinates the work among the TCs in the standardization process of the TAICS.

TMC Chair Albert Chen

SCC Chair Shyue Ching Lu

The Standard Counsel Committee (SCC) is to provide concrete recommendations for drafts of standards, standardization plans, and the promotion of standard counseling for TAICS. Dr. Shyue Ching Lu, Honorary Proffessor of National Yang Ming Chiao Tung University, is the chair and Dr. Ming-Whei Feng, Vice President and Director General of Smart System Institute (SSI), at Institute for Information Industry (III), is the vice chair.

The Secretary General of the Office of the Secretariat is Sheng-Lin Chou, Consultant, Information and Communications Research Laboratories (ICRL) at Industrial Technology Research Institute (ITRI). The Office of the Secretariat deals with international affairs, partner relations, promotion of achievements, project management, and other administrative tasks. They also provide support for the operation of the TMC and SCC.

Secretary General Sheng-Lin Chou

In addition, 6 Technical Committees (TCs) have been established under the TMC in certain fields in Taiwan according to the urgency of the need to develop technical standards. TCs is where the industry come together to develop ICT industry standards in technical fields.

## 1.2.1 TC1 Advanced Mobile Communication Technical Committee

The primary focus of TC1 is the new generation of key industry technology in wireless communications, including access technology, network technology, the frequency spectrum of the future, and industry applications. The purpose of this Technical Committee is: The TC1 concentrates the research resources of the domestic industry, academia, and research institutes, and build a consensus, all for the purpose of developing of a new generation of wireless communication technologies. TC1 will become the single channel of communication for Taiwan in related international standard development organizations, e.g. 3GPP, and will thereby promote a connection to related international and regional standards as a precursor to establishing core intellectual properties in the future of international mobile communication standards.

TC1 defined the development vision and requirements of next-generation wireless communication technology based on the characteristics and demands of Taiwan's industries. Based on the applications and technology evolution of next-generation wireless communications, TC1 conducts applicable spectrum studies to provide a reference for policy formulation and for the development of key technologies and system specifications for next-generation wireless communications, in order to influence future B5G/6G standards and technologies. At the same time, TC1 serves as an intermediary of international partnerships for Taiwan's next-generation wireless communication technologies. TC1 facilitated international partnerships and business matching, drove international marketing, and strengthened the connection with international/regional standards.

TC1 completed the Chinese version of the White Paper on 6G technology candidates and the Spectrum study for B5G mobile communication system, which discusses the application scenarios and requirements of the global B5G system and its possible operating networks in 2023. TC1 plans to publish the 6G White Paper in 2024 and will continue to share the radio spectrum topics discussed at the WRC-23 conference. Additionally, TC1 will be involved in discussions about WRC-27 topics and research planning to provide domestic and international policy management and references for industrial development.

## 1.2.2 TC3 Device Internetworking Technical Committee

Develop universal industry standards for device internetworking applications such as smart environment protection monitoring, smart grid, smart lighting, and other fields to improve competitiveness across the industry in Taiwan.

TC3 established the Data format standard and test specification for sensing data in smart agriculture in 2023. With agricultural IoT data exchange as the objective, the Data format standard and test specification for sensing data in smart agriculture defines the data format standard for agricultural management systems of relevant agricultural units in Taiwan.

In 2024, TC3 will publish Smart agricultural machines interoperability protocol, which will focus on enabling seamless data connectivity between various smart agricultural machines, equipment, expert systems, and agricultural service platforms that are common in smart agricultural fields. The 5G technology application service level specification will cooperate with the Diffusion plan for innovative 5G private frequency and private network applications to evaluate representative cases and provide guidance for testing and verification for implementation in various cases of vertical fields. The Technical report for collaborative operation and management of drones gathers the needs of domestic industries and analyzes international standards and specifications for drone collaboration. This report will serve as the foundation for developing the domestic industry standard for collaborative drone networking and building a Collaborative and connected drone standard  suitable for Taiwan. The standard can be applied in firefighting, national defense, industry, agriculture, and other fields.

## 1.2.3 TC4 Audiovisual Services and Communications Technical Committee

The goal of TC4 is to consolidate audiovisual services and communications technologies, establish a content-service integration platform, enrich specialty audiovisual channels and content, facilitate development of innovative value-added audiovisual operating and service modes, and drive the development of Taiwan's digital audiovisual software and hardware industry chain.

To establish 5G broadcast industry technical standards that are in line with Taiwan's situation, TC4 started developing the Study on the Development of Taiwan's 5G Broadcasting Industry. The goal of the study is to promote the experimental program for the next-generation digital wireless TV and 5G broadcasting to accelerate the development of Taiwan's 5G broadcast industry.

In terms of international connections, TC4 will continue to participate in events related to MPEG video standards, such as H.266 and Point Cloud Compression (PCC), regularly update the status of the development of MPEG-related video standards, and obtain and share firsthand video standards information and technology trends as a reference for the technology development blueprint of Taiwan's video industry . TC4 will continue to reference and attend conferences of the relevant standards of the ECI collaboration platform to accelerate the formulation of industry standards for content protection and copyright management of emerging media in Taiwan.

## 1.2.4 TC5 Network and Information Security Technical Committee

TC5 promotes the development of industry standards according to the security needs of Taiwan's information communication industry. TC5 keeps track of the latest trends in the region and in the world to promote the development of safe and trustworthy products and services, bolster the influence of Taiwan in international organizations, and facilitate the industry's global market strategy.

- The IoT cybersecurity work group (WG1) researches specifications and standards for interface security, vulnerability testing, and security compliance of IoT devices and systems. In 2023, WG1 published the Security assessment guidelines for IoT-enabled field applications v2 and the Cybersecurity guidelines for Domain Name Systems (DNS).
- The identify verification and identification work group (WG2): researches biometric identification with FIDO technology. WG2 discusses the technical specifications of cybersecurity technology combined with the PKI framework and connects with foreign countries.
- The mobile cybersecurity work group (WG3) researches and analyzes future development trends and cybersecurity requirements of the new generation of mobile communication technologies and builds consensus on mobile cybersecurity through cybersecurity analysis and studies and formulating cybersecurity test specifications. In 2023, WG3 published the Cybersecurity test specification for 5G Open RAN and the Cybersecurity assessment guidelines for 5G private network service management systems.

In 2024, TC5 will finish the Cybersecurity guidelines for smart manufacturing IACS - Part 3: Cybersecurity management of manufacturing for product suppliers and continue to improve the cybersecurity capabilities of industrial automation and control systems based on the needs of various roles in CNS/IEC 62443 standard applications to provide a stable and safe industrial environment. Additionally, the development of the Cybersecurity standard and test specification for user terminals of Low Earth Orbit (LEO) satellite aims to boost the security functions of LEO satellite user terminals and introduce cybersecurity design concepts and technologies to ensure operational security and data integrity.

After developing the Cybersecurity test specification for 5G Open RAN and the Cybersecurity assessment guidelines for 5G private network service management systems, formulated with reference to NIST's SP 800 series of standards, TC5 began formulating the Cybersecurity test guidelines for 5G virtualized networks - Kubernetes security settings, which defines the security settings requirements for Kubernetes containers in the virtualization layer of 5G Standalone (SA) network functions virtualization infrastructure (NFVI). It also provides Taiwan 5G system integrators and 5G O-RAN base station equipment manufacturers with security assurance mechanisms and test case implementation methods.

## 1.2.5 TC7 Intelligent Buildings ICT Technical Committee

The mission of TC7 is to develop and promote information communication standards for intelligent buildings. The purpose of TC7 is to act as a platform for communication among the industry, government, academia, and research institutions, and for developing and promoting standards with consideration of intelligent buildings information communication standards; to represent Taiwan in activities hosted by the international intelligent building standards alliance and to facilitate the development of the intelligent building industry in Taiwan.

In 2023, TC7 published the Data Exchange Standards and test specification for Intelligent Building to establish the application program interface (API) between the management systems of intelligent buildings and the intelligent building cloud platforms and test specification to effectively collect, store, integrate, analyze, and manage the data of intelligent buildings, providing an intelligent building cloud management platform to promote the development of intelligent buildings further to create comfortable, convenient, and safe living environments.

In the future, TC7 will continue to build a dialogue platform for the intelligent buildings industry to provide a foundation for cross-industry dialogue. In 2024, TC7 will formulate the Communication standard and test specification for intelligent building healthcare and the Home management data format standard and test specification for intelligent buildings. For global connections, TC7 will continue to participate in APIGBA events and help with the participation of Taiwan's excellent intelligent green buildings and system products to promote Taiwan as Asia's bellwether of intelligent green buildings.

## 1.2.6 TC8 Internet of Vehicles (IoV) & Automated Driving Technical Committee

TC8 was established with the purpose to improve industry competitiveness by developing a common industry standard that follows the global trend in next generation intelligent transportation and the development of automated driving and V2X initiated by the IoV. By creating specifications that is on par with international standards, TC8 can provide local companies a reference specification when manufacturing and marketing products. The committee will also serve to introduce foreign technologies that can serve as a reference for the industry, government, academia, and research sectors as they formulate their strategy for the future.

In 2023, TC8 focused on developing standards for high-precision maps (WG3) and finalized the Accuracy requirements and verification guidelines for intelligent vehicle navigation systems. These standards are for the navigation applications of intelligent vehicles and multi-sensors. By referring to the domestic and international positioning requirements and verification procedures for multi-sensor navigation systems, the standard defines the positioning accuracy indicators and verification procedures for multi-sensor navigation to ensure accuracy and safety consistent with vehicle navigation applications in Taiwan's complex traffic environment.

For IoV technology in 2024, driven by the Research Project for Applying IoV Technology to Improve Two-Wheeler Safety and the Research of Internet of Vehicle on Shared Scooter Safety Field Trial initiated by the Ministry of Transportation and Communications in 2022 and to improve two-wheeler safety and promote the development of the smart two-wheeler industry, TC8 formulated the Data format standard for connected two-wheeler safety warning. Following feedback on the Ministry of Transportation and Communications' Connected Two-Wheeler Collaboration Security and Service Diffusion Pilot Research Project, TC8 proposed revisions to the standard and plans to release the Data format standard for connected two-wheeler safety warning v2. TC8 also plans to formulate the Verification guidelines for positioning accuracy of inertial navigation systems of unmanned aerial vehicles to integrate the latest information on international standards development, providing reference for domestic industry development.

For participating in the development of international standards, TC8 will continue to attend international standards conferences, including those organized by SAE (U.S.), ETSI (Europe), ARIB (Japan), and the ITS Forum. TC8 will share the information obtained from the conferences in the working meetings to provide Taiwan's industry a plan for future product output to help Taiwan's manufacturers develop products that are globally connected.

# 2 Achievements of the TAICS

## 2.1 Standards Development

TAICS hosted nearly 50 technology standards meetings in 2023, which more than 1,500 member experts attended. With members' eager participation, we reached consensuses in various sectors through technical committees, establishing industry standards and specifications, completing a total of 9 formulations and publications, namely 3 standards and specifications, 1 study, 1 white paper and 4 guidelines. The results of these standards and specifications serve as a reference for industry development, and were also utilized by related government agencies as reference standards for installation grants and procurement.

In advanced mobile communication, the Spectrum study for B5G mobile communication systems and White paper on 6G technology candidates were completed.

- The Spectrum study for B5G mobile communication systems focuses on B5G mobile communications, organizes and analyzes the development and plans of the global information and communication industry, and the spectrum issues and solutions that the next-gen radio may face, including research challenges and configuration feasibility of low, medium, and high-frequency bands, as well as coexistence issues and perspectives and positions of global and regional organizations.
- The White paper on 6G technology candidates focuses on the development trend of global 6G application scenarios and technology needs. Based on the research and development capacity of Taiwan's industry, academia, and research sectors, it explores and analyzes the development direction of Taiwan's potential 6G technologies, including sub-terahertz wireless communications, extremely large-scale input/output antennas, reconfigurable intelligent surface technology, open wireless network architecture, all-photonics networks, edge computing, communication and sensor fusion systems, native smart networks, non-terrestrial networks, fully automated network management, energy conservation technologies for devices, and cybersecurity, gathering and integrating professional insights and opinions of industry, academia and research sectors and compiling the information into a white paper as a reference for Taiwan's 6G policy management and industrial research and development to benefit the development of the domestic and international mobile communications industry.

In device internetworking, the Data format standard and test specification for sensing data in smart agriculture was completed. The standard and test specification applies to the sensing data format (including the representation structure, common or individual data fields, etc.) used in the API of the platform layer. It aims to enable data sharing and connections between different smart agriculture platforms by following this standard to improve the data transparency of agricultural IoT and reduce communication and program development costs to accelerate smart agriculture development in Taiwan.

In network and information security, the Security assessment guidelines for IoT-enabled field applications v2, the Cybersecurity test specification for 5G Open RAN, the Cybersecurity guidelines for Domain Name Systems (DNS), and the Cybersecurity assessment guidelines for 5G private network service management systems were completed.

- The Security assessment guidelines for IoT-enabled field applications v2 has been optimized based on practical operation and testing experience. The adjusted content includes threat model analyses and explanations, test item classifications, and test content and judgment explanations.
- The Cybersecurity test specification for 5G Open RAN refers to the TAICS TR-0025 v1.0 Cybersecurity study report for 5G Open RAN, the TAICS TS-0035 v2.0 Cybersecurity test specification for gNodeBs v2, and the O-RAN Alliance standard and specification to formulate the details of 5G Open RAN cybersecurity testing. This test specification specifies the test items, test conditions, test methods, and test results of the cybersecurity tests for base station manufacturers, system integrators, and 5G cybersecurity test labs to use as the test requirements for related product testing technologies.
- The Cybersecurity guidelines for Domain Name Systems (DNS) defines DNS's cybersecurity configuration assessment items, including the authoritative name server and caching name server of the host, DNS software, DNS availability, configuration files, DNS query and response settings, transaction signatures, security extension activation, and other applicable scopes and structures. The guidelines apply to large-traffic service providers such as telecom companies and DNS hosting providers that provide DNS infrastructure for public use. Private companies and groups with relatively small traffic or internal service units can also refer to these guidelines.
- The Cybersecurity assessment guidelines for 5G private network service management systems are based on security control measures proposed by NIST SP 800-53. Information in the Security Control Map chapter that is applicable to the 5G field is extracted. This includes ten major security areas and 46 security controls (SC), such as identification and authentication, access control, encryption, and security monitoring, which are recommended as a reference for 5G implementations. Three processes need to be followed to determine if an application has basic cybersecurity controls in plac e. This involves using an item control sheet that records (a) asset inventory and assessment inspection operations, (b) self-assessment of cybersecurity requirements, and (c) cybersecurity detection and verification operations.

For intelligent green buildings ICT, the Data Exchange Standards and test specification for Intelligent Building was completed. It defines the data exchange and interoperability standards and test requirements between cloud platforms and various systems to provide integrated interfaces between different intelligent building systems. The intelligent building cloud platform collects relevant data through the network to provide regulatory units with a real-time understanding of the status of various intelligent building systems. We hope to promote the rapid integration of Taiwan's intelligent building-related industries to enhance industrial competitiveness.

For Internet of Vehicles (IoV) & Automated Driving, the Accuracy requirements and verification guidelines for intelligent vehicle navigation systems was completed. The guidelines cite EN 16803-1:2016, focusing on navigation applications of intelligent vehicles and multi-sensors, and references the domestic and international positioning requirements and verification procedures for multi-sensor navigation systems to define the positioning accuracy indicators and verification procedures for multi-sensor navigation to realize vehicle navigation applications, further improve the safety of autonomous driving systems, and ensure the safety of drivers, passengers, and road users.

## 2.2 TAICS Standards Adoption

### ▶ Became a TAF ISO/IEC 17065 product certification body and launched the CNS16120 cybersecurity verification business

It has been over five years since TAICS implemented the IoT cybersecurity mark system in 2018. On June 19, 2023, TAICS obtained the ISO/IEC 17065 product certification body from TAF (certification number: PC092), becoming the first local certification body in Taiwan to pass the voluntary product certification for cybersecurity that is also qualified for IoT cybersecurity verification. At the same time, TAICS launched the CNS16120 National Video Surveillance System Security Standard Verification business on June 1, providing cybersecurity compliance verification services for products related to video surveillance systems.

### ▶ Cumulative results of TAICS' IoT cybersecurity mark system

Currently, a total of 7 laboratories have been accredited, and a total of 245 certificates of IoT cybersecurity mark compliance were issued to products or series of products, including 168 video surveillance system - wired IP cameras, 1 video surveillance system - video recorder, 26 digital set-top boxes, 21 mobile communication repeaters, 16 intelligent streetlight systems, 4 intelligent bus telematics system - on board units, 3 intelligent bus telematics system - intelligent bus stops, and 6 wireless routers.

* Accredited testing lab added in 2023: Baohwa Trust Co., Ltd. - SmartTech Cybersecurity Testing Lab.
* Verification items added in 2023: modems, set-top boxes, and CNS16120-1 to 3.

*Table: Cumulative number of certificates issued (2018 - 2023)*

| Product Category | Accredited Testing Lab | Certified Product |
|---|---|---|
| Video Surveillance System | 7 | 169 |
| Wireless/Hybrid IP Camera | 2 | 0 |
| Digital Set-Top Box | 2 | 26 |
| Mobile Communication Repeater | 2 | 21 |
| Intelligent Streetlight | 1 | 16 |
| Intelligent Bus Telematics System | 1 | 7 |
| Wireless Access Point | 1 | 0 |
| Wireless Router | 1 | 6 |
| Air Quality Micro Sensing Device | 1 | 0 |
| Wireless Broadband Router | 1 | 0 |
| Consumer IoT Product | 1 | 0 |
| Modem | 1 | 0 |
| Set-Top Box | 1 | 0 |

The products tested and passed by the 7 TAICS accredited laboratories are listed in the following table. Interested members are welcome to contact them directly. Interested members are welcome to contact them directly. Please check the TAICS' website for the contact information. (Path: Product Certification-Accredited Testing Labs)

*Table: Statistics of cumulative number of items (2018-2023)*

| Cardinal | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Name of the laboratory / Product category | Telecom Laboratories/ Chunghwa Telecom Co., Ltd./ Testing Center | Gapertise Mobile Vetting Service Co., Ltd/Smart IoT Security Vetting Laboratory | Taiwan Testing and Certification Center/Information and Communications Testing Laboratory | Telecom Technology Center /Info-Com Security Testing Laboratory | PricewaterhouseCoopers Taiwan/Information Security and Forensic Science and Technology Laboratory | Onward Security Corporation/ Security Assessment Laboratory | Baohwa Trust Co., Ltd. /SmartTech Cybersecurity Testing Lab |
| Video Surveillance System | V * | V | V * | V | V * | V * | V * |
| Wireless IP Camera | V | | | V | | | |
| Wireless Access Point | | | | V | | | |
| Wireless Router | | | | V | | | |
| Digital Set-Top Box | V | | | V | | | |
| Intelligent Bus (on board units, intelligent bus stops) | | | | | | V | |
| Intelligent Streetlight (intelligent lighting) | | | | | | V | |
| Mobile Communication repeater | V | | | V | | | |
| Air Quality Micro Sensing Device | | | | | | V | |
| Wireless Broadband Router | | | | V | | | |
| Consumer IoT Product | | | | V | | | |
| Modem | | | | V | | | |
| Set-Top Box | | | | V | | | |

Note: *(including CNS16120)

## ▶ 2023 verification and certification results

In 2023, 51 products (including product series) were certified, 5 certificates were extended, and 24 were multiple listings. These are listed in the certified products list on the TAICS website. Interested members may visit the website.

| Product Category | Main Product | Series of Product | Extension of Certificate | Multiple Listee | Total |
|---|---|---|---|---|---|
| Video Surveillance System- Wired IP Camera | 12 | 21 | - | 24 | 57 |
| Video Surveillance System- Video Recorder | 1 | - | - | - | 1 |
| Intelligent Streetlight System | 1 | - | 3 | - | 4 |
| Digital Set-Top Box | 2 | 2 | - | - | 4 |
| Wireless Router | 1 | - | - | - | 1 |
| Mobile Communication Repeater | 6 | 5 | - | - | 11 |
| Intelligent Bus Telematics System | - | - | 2 | - | 2 |
| Total | 23 | 28 | 5 | 24 | 80 |

2023 approved certification applications, up to December 31, 2023

| Item | | | Main Product | Series of Product | Extension of Certificate | Multiple Listee | Total |
|---|---|---|---|---|---|---|---|
| IoT devices (total in 62 items) | | Wired IP Camera | 12 | 21 | 0 | 24 | 57 |
| | 1 | Vital Resources Co., Ltd. | 0 | 0 | 0 | 7 | 0 |
| | 2 | YITE TECHNOLOGY CORP | 2 | 4 | 0 | 0 | 6 |
| | 3 | CHIPER TECHNOLOGY CORPORATION | 0 | 0 | 0 | 2 | 2 |
| | 4 | HI SHARP ELECTRONICS CO., LTD. | 0 | 1 | 0 | 0 | 1 |
| | 5 | Hunt Electronic Co., Ltd. | 2 | 6 | 0 | 0 | 8 |
| | 6 | JEAWAY CCTV SECURITY LTD. | 0 | 2 | 0 | 0 | 2 |
| | 7 | ACTi Corporation | 3 | 5 | 0 | 0 | 8 |
| | 8 | AGNI TECHNOLOGY INC. | 0 | 0 | 0 | 5 | 5 |
| | 9 | DYNACOLOR, INC. | 1 | 1 | 0 | 0 | 2 |
| | 10 | QCTEK CO., LTD. | 0 | 0 | 0 | 5 | 5 |
| | 11 | A-MTK CO., LTD. | 4 | 2 | 0 | 0 | 6 |
| | 12 | SHU HWA ELECTRONIC CO., LTD. | 0 | 0 | 0 | 4 | 4 |
| | 13 | DYNATEK DIGITAL TECHNOLOGY CO., LTD. | 0 | 0 | 0 | 1 | 1 |
| | | Video Recorder | 1 | 0 | 0 | 0 | 1 |
| | 1 | ACTi Corporation | 1 | 0 | 0 | 0 | 1 |
| | | Intelligent Streetlight System | 1 | 0 | 3 | 0 | 4 |
| | 1 | Delta Electronics, Inc. | 0 | 0 | 1 | 0 | 1 |
| | 2 | OMA-LIGHTING CO., LTD. | 1 | 0 | 0 | 0 | 1 |
| | 3 | ORING INDUSTRIAL NETWORKING CORP. | 0 | 0 | 1 | 0 | 1 |
| | 4 | FAR EASTONE TELECOMMUNICATIONS CO., LTD. | 0 | 0 | 1 | 0 | 1 |

| Item | | | Main Product | Series of Product | Extension of Certificate | Total |
|---|---|---|---|---|---|---|
| Netcom devices (total in 22 items) | | Digital Set-Top Box | 2 | 2 | 0 | 4 |
| | 1 | DAFENG TV LTD. | 1 | 0 | 0 | 1 |
| | 2 | TAIWAN INFRASTRUCTURE TECHNOLOGIES CO., LTD. | 0 | 2 | 0 | 2 |
| | 3 | TAIWAN BROADBAND COMMUNICATIONS, CO., LTD. | 1 | 0 | 0 | 1 |
| | | Wireless Router | 1 | 0 | 0 | 1 |
| | 1 | ATOP Technologies, Inc | 1 | 0 | 0 | 1 |
| | | Intelligent Streetlight System | 1 | 0 | 3 | 4 |
| | 1 | OMA-LIGHTING CO., LTD. | 1 | 0 | 0 | 1 |
| | 2 | Delta Electronics, Inc. | 0 | 0 | 1 | 1 |
| | 3 | FAR EASTONE TELECOMMUNICATIONS CO., LTD. | 0 | 0 | 1 | 1 |
| | 4 | ORING INDUSTRIAL NETWORKING CORP. | 0 | 0 | 1 | 1 |
| | | Intelligent Bus Telematics System | 0 | 0 | 2 | 2 |
| | 1 | FUHO TECHNOLOGY CO., LTD. | 0 | 0 | 1 | 1 |
| | 2 | NEW LIGHT OPTO CO., LTD. | 0 | 0 | 1 | 1 |
| | | Mobile Communication Repeater | 6 | 5 | 0 | 11 |
| | 1 | Codetech Telecommunication Co., Ltd. | 1 | 2 | 0 | 3 |
| | 2 | UNIVERSAL MOBILE TECHNICAL SERVICES INCORPORATION | 2 | 2 | 0 | 4 |
| | 3 | REMOTEK CORPORATION | 1 | 0 | 0 | 1 |
| | 4 | MORELINK TECHNOLOGY CORPORATION | 1 | 1 | 0 | 2 |
| | 5 | COILER CORPORATION | 1 | 0 | 0 | 1 |

## 2.3 TAICS Events

### ▶ [2023 TAICS Standards Forum] B5G/6G NTN Technology Development and Applications (May 26, 2023)

TAICS held the 2023 TAICS Standards Forum online and physically on May 26, 2023, focusing on B5G/6G NTN technology development and applications. 5G technology experts of standards organizations and industry representatives from Taiwan, Japan, and South Korea were invited to share the latest 5G policy plans, technology developments, and applications.

During the opening remarks, TAICS Secretary General Sheng-Lin Chou expressed his gratitude for the support from ARIB of Japan and TTA and ETRI of South Korea. TAICS will also regularly interact with Japanese and Korean standards organizations to advance together, form a more solid and stable friendship, and then form alliances in the 3GPP organization to exert more significant influence.

During this forum, Taiwan Space Agency Deputy Program Chair Hsiu-Li Chen shared information about Taiwan's current space policies and plans, Japan's NTT DOCOMO representative shared the current development process and trends of Japan's NTN technologies, South Korea's ETRI representative shared 6G space communications and related research and applications, while speakers from Taiwan (representatives from MediaTek, Hon Hai, Chunghwa Telecom, Auray Technology, Keysight, National Central University, and ITRI) shared about exciting topics like 5G/B5G developments and applications, NTN satellite applications and challenges, low earth orbit satellite tests, development of high-altitude spacecraft communication and payload applications. Many members attended this event; there were about 140 participants.


Caption: Group photo of speakers and guests

## ▶ EU Cybersecurity Workshop (June 30, 2023)

The importance of cybersecurity has grown significantly in recent years across various industries. This is especially true due to the impact of globalization, the internet of everything, and the increasing complexity of digital product consumption and service supply chains. Taiwan plays a crucial role in the supply chain involved in manufacturing front-end components, OEMs, and various brands with a global service scope. Early global deployment is essential for Taiwan to seize international opportunities.

Given this, the Ministry of Digital Affairs entrusted TAICS to plan and organize the EU Cybersecurity Workshop on June 30, 2023, inviting representatives and scholars from Nemko Norway, Red Alert Labs, Auray Technology, Wistron NeWeb, Pegatron, and the University of Science and Technology to share about topics that include the Cyber Resilience Act draft, RED cybersecurity and privacy regulations, EUCC certification scheme, and ETSI EN 303 645, and discuss industry response strategies. 81 members (11 attended in person, 70 attended online) from 43 units participated in this workshop.

This workshop introduces the EUCC and CRA regulations that are currently under discussion to provide companies with first-hand information to help them understand how to plan and pass EU cybersecurity certification from the product development and design stage. In addition, cybersecurity issues have generally garnered global attention. Speakers also suggested that companies wishing to apply for EUCC or ENISA certification should promptly contact an EU certification-accredited laboratory. Cybersecurity certification is time-consuming, and meeting the CC and EUCC cybersecurity certification specifications sometimes involves more than ensuring the product passes. In the future, the entire factory production line and production process will need to be re-examined and certified.

This workshop invites relevant EU agencies, domestic and foreign cybersecurity laboratories, domestic manufacturers, and academia to discuss with each other. It aims to help Taiwan's industries gain a clearer understanding of EU cybersecurity regulations and to allow industry, academia, and research sectors to be more aware of their role in this era of increased emphasis on cybersecurity to work together to find greater opportunities for niche development.


Caption: Group photo of discussants and guests

## ▶ EU Cybersecurity Workshop (Sep. 14, 2023)

Cybersecurity is becoming increasingly important, and various countries have started to release relevant cybersecurity laws. In 2022, the European Union proposed the Cyber Resilience Act and will implement a new version of the Radio Equipment Directive. This latest version will include requirements for network security, privacy protection, and more. In the future, regulations for smart IoT devices entering the EU market will be formulated to meet key security specifications, undergo regular cybersecurity testing, and obtain compliance marks.

The event centered on EU cybersecurity regulations, the latest developments in cybersecurity standards, and the impact of cybersecurity certification on the European market. TAICS brought together domestic and foreign experts and companies, including ENISA, ETSI, JTSEC, and TÜV, to deliberate on the potential impact of future EU cybersecurity regulations on industries in Taiwan. 80 people attended this event and more than 50 companies participated.

During his speech, Albert Chen, TAICS TMC Chair, mentioned the increasing incidents of blackmail by Internet companies, highlighting the critical network security issues under the Internet of Everything. Notably, representatives from ENISA, ETSI, and JTSEC from Europe were invited to a rare gathering, where the virtual and physical events were held simultaneously. Additionally, there were insights shared by representatives from industries and research institutions such as TÜV, Energywell Technology, and the Institute for Information Industry, enriching the event's content.

This event brought together representatives from ENISA and ETSI to provide an overview of the latest European cybersecurity standards and regulations. Additionally, the French laboratory JTSEC shared insights on cybersecurity regulations and precautions for products entering the European market. This event provided valuable knowledge and understanding for Taiwanese companies. Recognizing cybersecurity regulations early and prioritizing cybersecurity in the product life cycle is crucial for avoiding obstacles during international market promotion.

During the event, TÜV NORD Taiwan representatives shared relevant international information technology security standards. Tony You, VP of Energywell Technology, discussed the cybersecurity principles of smart manufacturing. Finally, Dr. Yi-Hsueh Tsai of the Institute for Information Industry spoke about the Cybersecurity test specification for 5G Open RAN and concluded the event successfully with the industry leaders. Cybersecurity standards continuously evolve and will be updated gradually to reflect changes in the journey over time and technology. Staying updated with the latest industry standards is crucial for securing opportunities. In the future, TAICS will continue organizing events on cybersecurity standards to support the industry with the latest global trends and early deployment.


Caption: Group photo of speakers and guests

## ▶ 2023 TTA-TAICS 5th Joint Workshop–5G-Advanced and Beyond (Oct. 19, 2023)

The TTA-TAICS 5th Joint Workshop was successfully held in Seoul on October 19, 2023. This year's theme focused on 5G-Advanced and Beyond. Taiwanese representatives from Chunghwa Telecom, MediaTek, ITRI, and National Taipei University, led by TAICS Secretary General Sheng-Lin Chou, participated. Cho Kyeongrae, Director of MSIT, led South Korea's TTA. He led expert representatives from LG Uplus, SKT, SAMSUNG, LG, and ETRI to conduct exchanges.

In this workshop, three perspectives were discussed: operators, technology suppliers, and juridical entities. Technical representatives from Taiwan and South Korea talked about the needs and technology development status from different angles. ITU-R plans to complete the IMT-2030 framework in 2024, the requirements in 2027, and the standards development in 2030. For 3GPP, ITU-R plans to complete R19 (5G advanced) in 2025, R20 (6G study) in 2027, and R21 (6G work) in 2029. According to the schedule of the international standards organization mentioned above, Taiwan and South Korea are making every effort to develop and exchange information with each other. They aim to take the lead in developing the new generation of communication technology.

During the workshop, TAICS presented the White Paper on Potential 6G Technologies that the Department of Industrial Technology, MOEA, supported. The white paper compiled the perspectives of Taiwan's industry, academia, and research organizations in a year and includes potential 6G technologies like sub-terahertz wireless communications, extremely large-scale input/output antennas, reconfigurable intelligent surface technology, open wireless network architecture, all-photonics networks, edge computing, communication and sensor fusion systems, native smart networks, non-terrestrial networks, fully automated network management, energy conservation technologies for devices, and cybersecurity. The presentation sparked a very lively discussion.


Caption: Group photo

## ▶ 5G-ACIA visited Taiwan for the first time to host a meeting for members and signed an MoU with TAICS (Dec. 6, 2023)

To capitalize on global 5G private networks opportunities worth hundreds of billions, TAICS signed an MoU with the 5G Alliance for Connected Industries and Automation (5G-ACIA) on December 6, 2023. In the future, the two parties will collaborate to establish a comprehensive global 5G IIoT ecosystem, expedite the implementation of 5G private networks in IIoT, and assist local and global companies in collaborating the latest standards into developing and deploying 5G smart factories to ensure a smooth introduction of 5G technology in the ICT and industrial automation fields. With the support of the Ministry of Economic Affairs, TAICS jointly organized the 5G-ACIA annual membership meeting, which was held in Taiwan for the first time, with ITRI. The event included a series of activities, such as the Industrial 5G Day exhibition, which attracted nearly 100 domestic and foreign manufacturing and communications companies. Participants discussed the best strategies for progressing towards the next stage of 5G, Beyond 5G, and 6G smart factories.

During the 5G-ACIA membership meeting in Taiwan, over 20 significant local companies gathered with global ones to witness Taiwan's software and hardware capabilities in 5G communications and applications. The participating companies included Qualcomm, Ericsson, Nokia, NXP, Keysight, Rohde & Schwarz, Litepoint, Pegatron, Moxa, Askey, Compal, LiteOn, Quanta Cloud, HwaCom Systems, Jorjin, Sercomm, Ataya Taiwan, Inventec, LIONS Taiwan, CTOne, TANGRAM, O'Prueba, Saviah, ITRI, III, and the Telecom Technology Center. Together, they exhibited more than 32 cutting-edge technology applications in 5G smart factories, aiming to help Taiwan's companies gain entry into the international supply chain and explore the endless possibilities of 5G smart manufacturing.


Caption: TAICS and 5G-ACIA signed an MoU to collaborate on building a comprehensive global 5G IIoT ecosystem and accelerating the application of 5G private networks in IIoT.

## 5G-Advanced & 6G Technology Workshop

To prepare for the 5G-Advanced technical standards and the future 6G technology blueprint, TAICS organized four 3GPP-related 5G/6G standards sharing sessions in 2023. The sessions featured technical experts from Intel, Apple, Ericsson, Qualcomm, and InterDigital, who were invited to Taiwan to provide updates on the latest progress in standards.

## Public briefing - the Data format standard and test specification for sensing data in smart agriculture

To enhance the stability of bandwidth and cybersecurity in agricultural IoT applications and to establish standardized data formats in agricultural IoT production, TAICS assisted the Ministry of Agriculture in conducting a public briefing on the Data format standard and test specification for sensing data in smart agriculture on August 9 and 18. Relevant industry, government, academia, and research sectors were invited to attend. The briefing discussed the development and application of standardized agricultural IoT data formats, the interoperability benefits of data standardization, and smart agricultural technology service systems. It also included successful case studies shared by companies.

# Appendix: Membership

| No. | Company Name | Website |
|---|---|---|
| 1 | MEDIATEK INC. | https://www.mediatek.com/ |
| 2 | Wistron NeWeb Corporation | https://www.wnc.com.tw/ |
| 3 | Acer Incorporated | https://www.acer.com/ |
| 4 | HON HAI PRECISION INDUSTRY CO., LTD. | https://www.honhai.com/ |
| 5 | Arcadyan Technology Corporation | https://www.arcadyan.com/ |
| 6 | ASUSTEK COMPUTER INCORPORATION | https://www.asus.com/ |
| 7 | CHUNGHWA TELECOM CO., LTD. | http://www.cht.com.tw/ |
| 8 | Keysight Technologies Taiwan Ltd. | https://www.keysight.com/ |
| 9 | BUREAU VERITAS CONSUMER PRODUCTS SERVICES (HONG KONG) LIMITED, TAOYUAN BRANCH | https://cpstp.bureauveritas.com/ |
| 12 | AUDEN TECHNO CORP. | https://www.auden.com.tw/ |
| 13 | INVENTEC CORPORATION | https://www.inventec.com/ |
| 14 | NATIONAL CHUNG SHAN INSTITUTE OF SCIENCE AND TECHNOLOGY | https://www.ncsist.org.tw/ |
| 18 | ACCTON TECHNOLOGY CORPORATION | https://www.accton.com/ |
| 21 | GEMTEK TECHNOLOGY CO., LTD. | https://www.gemteks.com/ |
| 22 | ROHDE & SCHWARZ TAIWAN LIMITED | https://www.rohde-schwarz.taipei/ |
| 25 | AcBel Polytech Inc. | https://www.acbel.com |
| 27 | UNITECH ELECTRONICS CO., LTD. | https://www.ute.com/ |
| 29 | HWACOM SYSTEMS INC. | https://www.hwacom.com/ |
| 33 | Satellite Television Broadcasting Association R.O.C | http://www.stba.org.tw/ |
| 36 | Association of NextGen TV and Apps | https://www.nextgentv.org.tw/ |
| 37 | Trend Micro Incorporated | https://www.trendmicro.com/ |
| 39 | Onward Security Corporation | https://www.onwardsecurity.com/ |
| 43 | SPORTON INTERNATIONAL INC. | https://www.sporton.com.tw/ |
| 44 | DEKRA Testing and Certification Co., Ltd. | https://www.dekra.com/ |
| 48 | INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE | https://www.itri.org.tw/ |
| 49 | INSTITUTE FOR INFORMATION INDUSTRY | https://www.iii.org.tw/ |
| 53 | TAIWAN MOBILE CO., LTD. | https://www.taiwanmobile.com/ |
| 62 | Taiwan Intelligent Building Association | https://www.tiba.org.tw/ |
| 68 | PEGATRON CORPORATION | https://www.pegatroncorp.com/ |
| 70 | ZYXEL COMMUNICATIONS CORPORATION | https://www.zyxel.com/ |
| 74 | Sercomm Corporation | https://www.sercomm.com/ |
| 75 | National Yang Ming Chiao Tung University | https://www.nycu.edu.tw/ |
| 76 | TAIWAN SECOM CO., LTD. | https://www.secom.com.tw/ |
| 78 | National Chung Cheng University | https://www.ccu.edu.tw/ |
| 79 | Information Service Industry Association of R.O.C. | https://www.cisanet.org.tw/ |
| 81 | Taiwan Testing and Certification Center | https://www.etc.org.tw/ |
| 84 | ANRITSU COMPANY, INC. | https://www.anritsu.com/ |
| 90 | Taiwan Institute of Economics Research | https://www.tier.org.tw/ |
| 93 | FAR EASTONE TELECOMMUNICATIONS CO., LTD. | https://corporate.fetnet.net/ |
| 94 | TELECOM TECHNOLOGY CENTER | https://www.ttc.org.tw/ |
| 97 | National Taiwan University | https://www.ntu.edu.tw/ |
| 98 | National Cheng Kung University | https://www.ncku.edu.tw/ |
| 100 | ASIA PACIFIC TELECOM CO., LTD. | https://www.aptg.com.tw/ |
| 101 | Taiwan Telematics Industry Association | https://www.ttia-tw.org/ |
| 103 | Taiwan Electrical and Electronic Manufacturers' Association | https://www.teema.org.tw/ |
| 104 | Senao Networks Inc. | https://www.senaonetworks.com/ |
| 110 | National Central University | www.ncu.edu.tw/ |
| 113 | NAN YA PLASTICS CORPORATION | www.npc.com.tw/ |
| 114 | EGIS TECHNOLOGY INC. | https://www.egistec.com/ |
| 116 | TAIWAN-CA INC. | www.twca.com.tw/ |
| 117 | SYNOLOGY INC. | https://www.synology.com/ |
| 118 | GAPERTISE MOBILE VETTING SERVICE CO., LTD | https://www.gapertise.com/ |
| 119 | Taiwan Telecommunication Industry Development Association | https://www.ttida.org.tw/ |
| 120 | ICP DAS CO., LTD. | https://www.icpdas.com/ |

| No. | Company Name | Website |
|---|---|---|
| 123 | National Taipei University | https://new.ntpu.edu.tw/ |
| 126 | SGS Taiwan Limited | https://www.sgs.com.tw/ |
| 127 | TÜV RHEINLAND TAIWAN LTD. | https://www.tuv.com/ |
| 128 | Chicony Power Technology Co., Ltd. | https://www.chiconypower.com/ |
| 129 | AUTOMOTIVE RESEARCH & TESTING CENTER | https://www.artc.org.tw/ |
| 132 | DELOITTE & TOUCHE CONSULTING CO. | https://www2.deloitte.com/ |
| 134 | ASKEY Computer Corporation | https://www.askey.com.tw/ |
| 136 | Essen Intellectual Capital Management Co., Ltd. | https://www.twincn.com/item.aspx?no=27354960 |
| 140 | Spectacular Co., LTD. | https://www.linkedin.com/company/spectacular/?originalSubdomain=tw |
| 144 | NEMKO GROUP AS, TAIWAN BRANCH (NORWAY) | https://www.nemko.com/ |
| 145 | AEON MOTOR CO., LTD. | https://www.aeonmotor.com.tw/ |
| 146 | CHT Security Co.,Ltd. | https://www.chtsecurity.com/ |
| 147 | AESOPOWER, INC. | https://29041938.jetbean.com.tw/web/Comp?command=Intro |
| 148 | ECOLUX Technology Co., Ltd. | https://ecolux.tech/ |
| 149 | AUO Corporation | https://www.auo.com/ |
| 150 | AMPACS CORPORATION | https://www.ampacscorp.com/ |
| 151 | TRON FUTURE TECH INC. | https://www.tronfuture.com/ |
| 152 | AuthMe Co., Ltd. | https://authme.com/ |
| 153 | EY Advisory Services Inc. | https://www.ey.com/ |
| 154 | TÜV SÜD ASIA LIMITED TAIWAN BRANCH (H.K.) | https://www.tuvsud.com/ |
| 155 | National Taiwan University of Science and Technology | https://www.ntust.edu.tw/ |
| 156 | EVERSPRING INDUSTRY CO., LTD. | https://www.everspring.com/ |
| 157 | Photonics Industry & Technology Development Association | https://www.pida.org.tw/ |
| 158 | QUANTA CLOUD TECHNOLOGY INC. | https://go.qct.io/qct-branding-promotion/ |
| 159 | MOXA INC. | https://www.moxa.com/ |
| 161 | ENERGYWELL TECHNOLOGY CO., LTD. | https://energywell.com.tw/ |
| 162 | Wiwynn Corporation | https://www.wiwynn.com/ |
| 163 | Compal Electronics, Inc. | https://www.compal.com/ |
| 164 | TAIWAN ANSYS TECHNOLOGIES CO. | https://www.ansys.com/ |
| 165 | Baohwa Trust Co., Ltd. | https://www.baohwatrust.com/ |