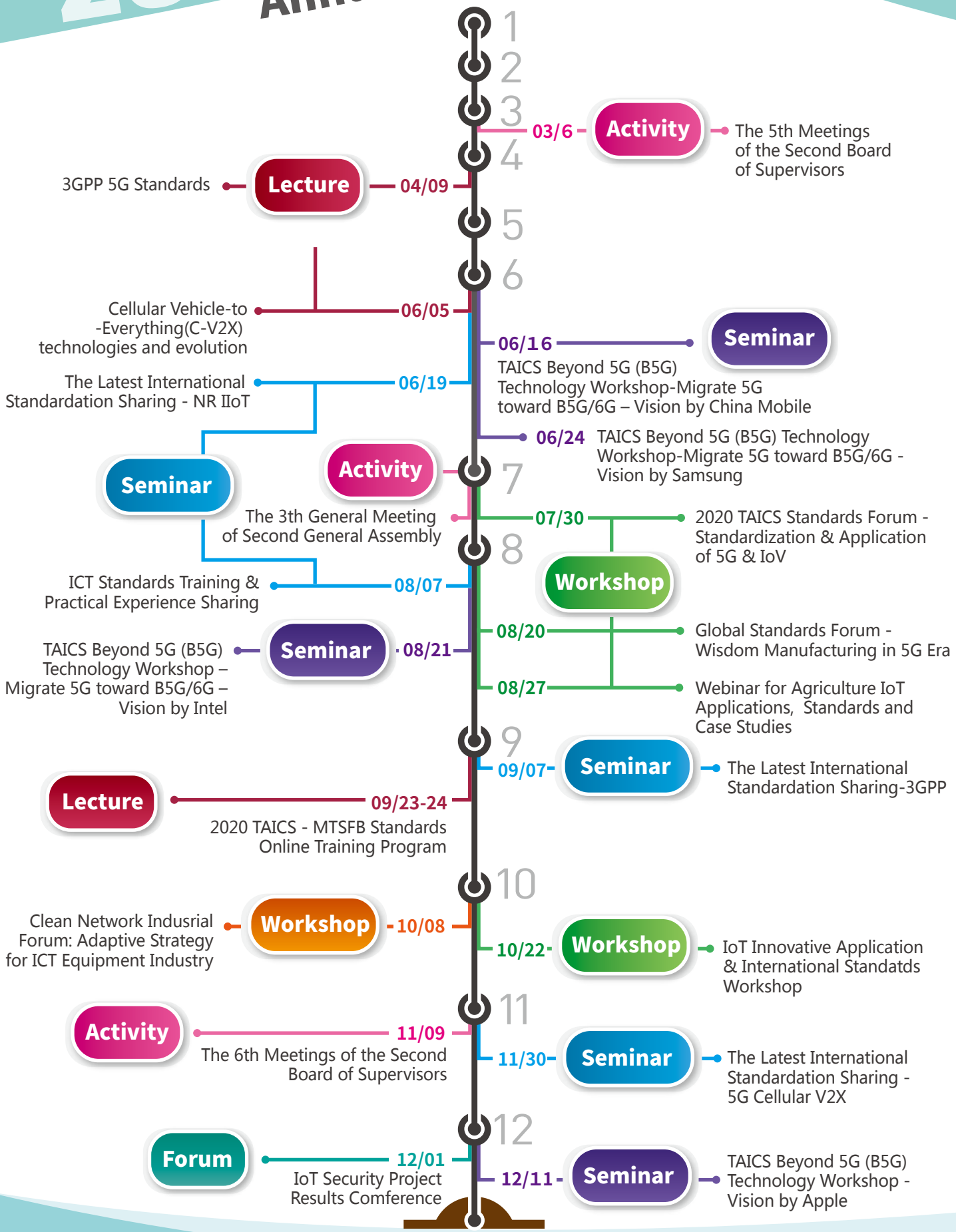
Taiwan Association of Information and Communication Standards

2020 Annual Event



Taiwan Association of Information and Communication Standards

A Message from the Chairman

We thank the industry, academia, and research communities for their long-term support and care for the Taiwan Association of Information and Communication Standards (TAICS). Although the medium for international exchanges became video conferencing due to the epidemic, it can be seen from our performance this year that we still spared no effort in international integration by continuing exchanges with standardization organizations in South Korea (TTA), Japan (ARIB), the U.S. (ETSI), and Malaysia (MTSFB) in promoting 5G and B5G. In addition to launching 5G this year, new business models have sprung up like mushrooms. At the member conference we held this year, TAICS invited major telecom companies to organize the 5G and IoV Standardization and Application seminar together. This seminar not only combined the strength of Taiwan's information and communication companies, but also expanded TAICS' influence over Taiwan's information and communication industry.

For standardization, TAICS hosted 56 technical meetings in 2020. More than 1,500 member experts attended the meetings and 16 standards and technical specifications were set for the industry. TAICS' promotion of the application of standards such as intelligent streetlight management platforms, infocom security for embedded software on smartphone systems, safety and surveillance for intelligent buildings, high-precision map geographic information content, and QR code for transport ticketing have also obtained support from the Ministry of Economic Affairs, the National Communications Commission, the Ministry of the Interior, and the Ministry of Transportation and Communications, and further applied to construction subsidies and tenders and procurements. On promoting certification and verification, the video surveillance system standard became the national standard CNS16120 at the end of last year (2019). This year, TAICS continued to promote the infocom security for embedded software on smartphone systems standard to become the national standard. Moreover, on promoting the application of standards, TAICS has also promoted a number of information security standards for IP CAM, intelligent streetlight, intelligent bus, and digital set-top box IoT devices to be included in certification and verification services. Currently, TAICS cooperated with nine laboratories to certify more than 60 products, showing that manufacturers recognize the certification and verification services.

TAICS has also received many requests from companies for cybersecurity product standards due to procurement program requirements. However, the need mostly comes from the importance the demand side places on cybersecurity products. We are very happy to play the role of a platform for Taiwan's IoT industry. We will help respond to the industry's standardization needs, help Taiwan's IoT industry produce differentiated products that guarantee quality via the IoT Cybersecurity Mark, and help companies expand globally to together promote the mark to the world.

Looking to the future, We hope that TAICS will reach new heights, combine the strengths of industry, academia, and research communities of Taiwan's information and communication industry, build internal consensus, and work together externally. TAICS strives to become the professional platform for industry standards and cybersecurity certification and verification to help manufacturers connect with the world and globalize.

TAICS Chairman and MediaTek Vice Chairman
Ching-Jiang Hsieh


網資安標章成果發表會
物聯網資安標章
成果發表會


第二屆第三次會員大會

TAICS

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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.

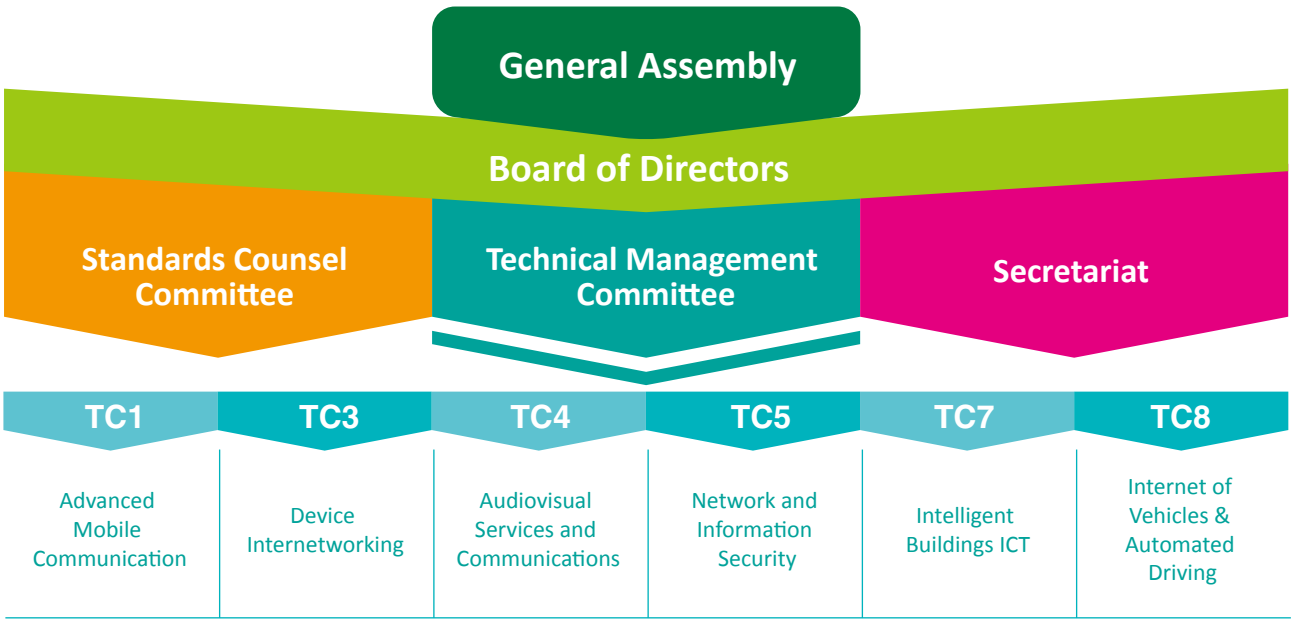
1.2 TAICS Organizational Structure

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.

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 Professor of National 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, Chief of Venture Officer, 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.



(Note: Due to the needs of the TAICS, TC6 has ceased operations in accordance with the decision of the Board on Oct. 26, 2017 and TC2 has ceased operations in accordance with the decision of the Board on Nov. 27, 2019.)

Fig. 1 TAICS Organizational Structure

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.

In 2020, TC1 completed the Spectrum Study for WRC-19 Agenda Items and sent the results to the Department of Posts and Telecommunications, MOTC, the National Communications Commission, the Taiwan Electrical and Electronic Manufacturers' Association, and the Taipei Computer Association for the next stage of international mobile telecom spectrum allocation and the study of relevant topics to help the industry stay competitive in the global market. TC1 also continued to evaluate the performance of IMT-2020 of International Telecommunication Union Radiocommunication (ITU-R), and sent the results and conclusions to TPCEG.

Looking forward to 2021, TC1 has already collected information and studied 6G, and gathered opinions from Taiwan's industry in 2020. TC1 plans to complete the Vision, Requirements, and Technology Trends of 6G White Paper and collect opinions for and write the New Spectrum Study for WRC-23, another important topic, in the first quarter of 2021. TC1 plans to present the Vision, Requirements, and Technology Trends of 6G White Paper at the TAICS-TTA joint 6G Workshop in the second quarter to express Taiwan's requirements and vision of 6G to the world to eventually exert influence in the development of the international standards for 6G.

TC1 will continue to share the latest information obtained from meetings about international standards and liaise with 3GPP in a timely manner to provide the opinions of Taiwan's industry to influence the development of international standards and even integrate Taiwan's capabilities with the 3GPP standards organization. TC1 will also strive to be re-elected as the RAN2 chairman to increase the exposure and acceptance of Taiwan's proposals and improve B5G standards in the future to continue to exert Taiwan's influence in the development of international standards for 5G.

1.2.2 TC3 Device Internetworking Technical Committee

TC3 has focused on Internet of Things (IoT) applications and selected fields, such assmart parking , intelligent environmental protection, intelligent cross-equipment monitoring in manufacturing, wireless charging interface standards, and mobile ticketing terminal equipment to specify industry standards and enhance the competitiveness of Taiwan's industry.

In 2020, TC3 completed the establishment of the Automatic clean water Monitoring System Field Deployment Guidelines and the Data Format Standard and Test Specification for Intelligent Streetlight Management Platforms-Lighting Systems.The Automatic clean water Monitoring System Field Deployment Guidelines proposes solutions and cases based on location, power, and network communications restrictions of water-quality monitoring equipment of different sites. The Data Format Standard and Test Specification for Intelligent Streetlight Management Platforms-Lighting Systems stipulates the standardization of common data fields and presentation structure, and data exchange with the front-end system via an application programming interface (API) to effectively manage the heterogeneous intelligent lighting systems.

In 2021, TC3 will carry out the formulation of cybersecurity standards for industrial automation and control systems (IACS) and develop cybersecurity industry standards based on the safety standards of IACS. These standards will be a reference for importing cybersecurity for automated equipment and tools to ensure that these automated systems are free from cyber attacks and cybersecurity threats and promote the development of IoT in Taiwan. TC3 expects to produce standards such as the Framework of the 5G Smart Manufacturing System Standards and the IACS Cybersecurity Standards.

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 combined the smart mobile broadcast and UHDTV Working groups into the 5G broadcast work group in 2020. TC4 also started developing the Study on the Development of Taiwan's 5G Broadcasting Industry, which is expected to be published in 2021. 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.

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 working group (WG1) completed the establishment of the Cybersecurity Standard and Test Specification for Smart Speakers, the Cybersecurity Standard and Test Specification for Air Quality Micro Sensing Devices, and the Infocom Security Standard and Test Specification for Embedded Software on Smartphone Systems in 2020 and produced the English version of the Intelligent Streetlight System Security Standard. The NCC supported the specification for smart speakers with policies and led the inclusion of the specification into the IoT cybersecurity mark evaluation system to promote self-inspection. For the Infocom Security Standard and Test Specification for Embedded Software on Smartphone Systems, the NCC will plan the smartphone sampling and announcement mechanism with the Consumer Protection Committee to improve the testing systems for embedded systems and software (ESS) on smartphone systems.

- The identify verification and identification working group (WG2) published the Case Studies on Global Government Applications of FIDO Standards in 2020 to help domestic industries and government units to understand and grasp opportunities for the development of emerging global identify verification standards.

- The mobile cybersecurity working 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, as well as the formulation of cybersecurity test specifications. The Cybersecurity Study Report for Multi-Access Edge Computing in 5G Non-Public Networks and the Cybersecurity Test Specification for gNodeBs were approved by the Technical Management Committee in 2020.

Looking forward to 2021, based on the trust in the series of cybersecurity standards for video surveillance systems, proposing requirements for formulating cybersecurity standards for IoT devices

will help drive the development of TC5. IoT device security standards are formulated based on general cybersecurity requirements for IoT devices. Thus, all equipment manufacturers can follow the cybersecurity requirements to improve cybersecurity quality by a certain degree. These standards are a reference for all domestic manufacturers to follow at the IoT device design stage, which can greatly increase the scale of TAICS certification, increase the visibility of TAICS and opportunities for foreign connections, develop business opportunities for domestic devices, and upgrade Taiwan's overall cybersecurity quality. In 2021, TC5 will formulate Wireless Broadband Routers, Consumer IP Cameras, Consumer IoT Products, Modems, and IoT Cybersecurity Assessment Guidelines.

On the other hand, mobile edge computing is a platform that combines computing resources and wireless networks. Through integrating cloud computing platforms and mobile edge computing technologies of mobile networks, computing capabilities are extended to the edge of networks to achieve low latency, high reliability, and high transmission rates. Its cybersecurity issues cover multiple layers. The domestic industry should gradually build industry consensus by introducing relevant standards and produce relevant regulations applicable to the domestic and industrial environment. For this reason, TC5 will start establishing the Mobile Edge Computing Cybersecurity Test Specification in 2021.

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 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 facilitate the development of the intelligent building industry in Taiwan.

The difference between the intelligent buildings and the general ICT field is that they are linked to two different types of industries: the construction field that has a long history of evolution and the rapidly evolving information and communication products. How to upgrade the buildings from automation to intelligentization requires the linkage and integration of various systems together to provide a holistic service and strengthen the dialogue with humans, rather than a mere collection of many single smart systems. TC7 helps manufacturers test and verify that the systems they have developed comply with the standard data format to strengthen the commonality of the data format of the system, reduce the cost of building and maintaining systems, and at the same time, take cybersecurity and scalability into account to facilitate the expansion and promotion of standards related to intelligent buildings. TC7 completed the formulation of the Test Specification for Data Format for Intelligent Building Safety and Surveillance Systems and the Test Specification for Data Format for Intelligent Building Energy Management Systems in 2020.

In the future, TC7 will continue to build a dialogue platform for the intelligent buildings industry to provide a foundation for cross-industry dialogue. Looking forward to 2021, TC7 will start formulating the Data Format Standards and Test Specification for Intelligent Building Facility Management Systems to provide standard interfaces for facility management systems made by different manufacturers to reduce the complexity of integrating facility management systems and improve the overall efficiency of building operations, maintenance, and management. 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 Taiwanese 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 terms of developing standards, TC8 focused on High-Definition maps (WG3), QR code data formats for ticketing in transport (WG2), and two-wheeler vehicles (WG3) in 2020. In terms of high-definition maps (WG3), TC8 completed the formulation of the High-Definition Map Geographic Information Content Standards for the geographic information and code format of the high-definition map, which includes roads, road facilities, traffic signs, signs, and markings at all levels, for the decision-making process of autonomous cars. The attributes and codes are formulated in accordance with Taiwan's traffic laws and regulations. For the high-precision maps operation and verification requirements for the finished product, TC8 formulated the Verification and Validation guidelines for HD Maps based on the HD Maps Operation Guidelines and the High-Definition Map Geographic Information Content and Format Standards.

In terms of QR code data formats for ticketing in transport (WG2), TC8 combines application field authorities, transportation service operators, and ticket inspection device manufacturers to jointly provide virtual ticketing for transportation. It was published in 2020. The Report for Researching Message Standards in Connected Two-Wheeler Vehicles (WG2) researched global message standards related to V2X and two-wheeler vehicles, and will serve as a reference for the subsequent formulation of message standards for two-wheeler vehicles.

Looking forward to 2021, in the field of high-definition maps (WG3) and with policy support from the Ministry of the Interior, TC8 will start formulating the Dynamic Mapping Guidelines for Static Geographic Information of High-Definition Maps, the Dynamic Updates Verification Guidelines

for Static Geographic Information of High-Definition Maps, and the High-Definition Map Dynamic Geographic Information Content and Format Standards to develop more comprehensive standards and specifications for Taiwan's high-precision map industry and provide references for the mapping and autonomous car industries to follow and apply. For IoV technology, TC8 will further explore developments relating to two-wheeler vehicles and plan and formulate the Data Format Standard for Connected Two-Wheeler Safety Warning, the Connected Vehicle Communication Interface Standard Research Report v2.0, and the Standard and Test Specification for Intelligent Diving Car Sensing Data Format 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

With members' eager participation, in 2020 we reached consensuses in various sectors through technical committees, establishing industry standards and specifications, completing a total of 16 formulations and publications, namely 6 standards, 7 specifications, and 3 study reports. 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 WRC-19 Agenda Items was completed. The Spectrum Study for WRC-19 Agenda Items studied the radio spectrum issues related to the existing and future development of the IMT System. The scope includes the research and recommendations of the International Telecommunication Union, the spectrum allocation configurations of various countries, and relevant discussions and resolutions of the WRC. From the resolution of WRC-19, we found that the development of radio communication will move from general user mobile communication to diverse directions like cars, trains, ships, airplanes, and even spacecrafts. This can serve as a reference for the next stage of development of the radio communication industry.

In device internetworking, the Data Format Standard and Test specification for Intelligent

Streetlight Management Platforms-Lighting Systems was completed. With common data fields, presentation structure, and APIs required for integrating smart street light management platforms as the starting point, the Data Format Standard and Test specification for Intelligent Streetlight Management Platforms-Lighting Systems gives systems made by different manufacturers a basis for exchanging data and gradually guides the exchange of system information so that stakeholders (such as street light management units/organizations/institutions, system integrators, operators, and application and service developers) can build and develop systems that are reliable, scalable, and interoperable.

In network and cybersecurity, the Case Studies on Global Government Applications of FIDO Standards, the Infocom Security Test Specification for Embedded Software on Smartphone Systems, the Cybersecurity Standard and Test Specification for Smart Speakers, and the Cybersecurity Standard and Test Specification for Air Quality Micro Sensing Devices were completed. The Case Studies on Global Government Applications of FIDO Standards introduces the import of FIDO by government units around the world to help domestic industries and government units to understand and grasp opportunities for the development of emerging global identify verification standards. The Infocom Security Test Specification for Embedded Software on Smartphone Systems is based on the Embedded Smartphone Software Information and Communications Security Testing Technology Standards and references international smartphone cybersecurity standards, regulations, and guidelines to stipulate the common methods that smartphones should adopt. The specification serves as a reference blueprint for product and testing technologies of smartphone manufacturers, software developers, and mobile phone cybersecurity testing laboratories. The Cybersecurity Standard and Test Specification for Smart Speakers references international IoT standards and specifications and establishes product security requirements based on six security aspects, physical security, system security, communication security, identity authentication, and mobile application security, to help related industries ensure cybersecurity for smart speakers, and through the formulation of standards and technical specifications, ensure smart speaker industry compliance and the implementation of detection mechanisms. The Cybersecurity Standard and Test Specification for Air Quality Micro Sensing Devices uses international cybersecurity standards for IoT devices as a basis and are formulated based on product characteristics, cybersecurity threats, and cybersecurity testing experience. The goal is to help the Environmental Protection Administration and various local government units to improve the cybersecurity capabilities of the air quality IoT sensing devices they deployed, and to lead manufacturers of air quality micro sensing devices and related IoT applications to import cybersecurity design concepts and technologies.

For intelligent buildings, the Test Specification for Data Format for Intelligent Building Safety and Surveillance Systems and the Test Specification for Data Format for Intelligent Building Energy Management Systems were completed. The Test Specification for Data Format for Intelligent Building Safety and Surveillance Systems is formulated in accordance with the Data Format

Standards for Safety and Surveillance Systems in Intelligent Buildings v2. It covers anti-theft protection, CCTV monitoring, access control intercom, parking management, fire monitoring, harmful gases monitoring, and other subsystems inside the buildings. The Test Specification for Data Format for Intelligent Building Energy Management Systems is formulated in accordance with the Data Format Standards for Intelligent Building Energy Management System. It covers electricity integration and monitoring, air conditioning integration and monitoring, lighting integration and monitoring, plumbing integration and monitoring, environmental data integration and monitoring, renewable energy integration and monitoring, and power integration and monitoring for use by intelligent building safety monitoring and energy management systems integration monitoring platforms. The hope is to reduce the cost of building and maintaining the system by strengthening the commonality of the data format of the systems, which would also ensure information security and expandability.

For IoV and autonomous driving, the Report for Researching Message Standards in Connected Two-Wheeler Vehicles, the HD Maps Data Contents and Formats Standard, and the QR Code Data Format Standard and Test Specification for Ticketing in Transport were completed. The Report for Researching Message Standards in Connected Two-Wheeler Vehicles refers to the application scenario of the Ministry of Transportation and Communications in the Project of Adopting V2X Technology to Improve Motorcycle Safety and Field Trial Analysis to discuss and recommend the framework and scope of standard formulation on the content that is applicable to current international standards as a basis for formulating standards for Taiwan's two-wheeler vehicle information industry. The HD Maps Data Contents and Formats Standard clearly stipulates the geographic information content and format of Taiwan's high-definition maps for autonomous cars. It defines the lane-level road network, traffic control facilities, and other road facilities to meet the requirements autonomous car positioning and navigation planning, and provides consistent geographic information and a common format as a reference for Taiwan's mapping manufacturers to improve the quality and consistency of data. The QR Code Data Format Standard and Test Specification for Ticketing in Transport is for formulating the QR code data format standard for virtual ticketing in transport. It is used for generating and verifying virtual transportation tickets, and combines application field authorities, transportation service operators, and ticket inspection device manufacturers to jointly provide virtual ticketing for transportation. It also proposes the data format and data structure verification method for QR code data to help accelerate the development of ticketing for public transportation.

2.2 TAICS Standards Adoption

Cumulative results of the IoT cybersecurity mark system

Since the promotion of the IoT cybersecurity mark system in 2018, a total of 9 laboratories have been approved and 60 products (or series of products) were certified, including 45 video surveillance systems, 3 digital set-top boxes (2 made by Chunghwa Telecom and 1 made by TBC), 3 mobile signal boosters (Coiler, Universal Mobile Technical Services, and Remotek), 2 intelligent streetlights (Delta Electronics and ORing), 3 on board units (Baoruh, Vacron, and Telenet), 2 intelligent bus stops (MaxWin Technology and New Light Opto), and 2 wireless routers (Arcadyan and ORing).

2020 verification and certification results

In 2020, a total of 37 products (including a series of products) were approved, 1 laboratory was approved for cybersecurity, and 7 laboratory approval items were added. The IoT cybersecurity mark results presentation was held on December 1 and certificates were awarded. Interested members may visit the website.

2020 IoT cybersecurity mark results presentation

The NCC and MOEA hosted the IoT cybersecurity mark results presentation at the NTUH International Convention Center on December 1, 2020. TAICS Chairman Ching Jiang Hsieh was the industry representative. Honored guests including Chuan-neng Lin, Deputy Minister of Economic Affairs; Chung-Shu Chen, Chief Secretary of NCC; Chia-Lin Hsu, Deputy Director of the Department of Cyber Security, Executive Yuan; Zsehong Tsai, Executive Secretary of the Board of Science and Technology, Executive Yuan; and Nuan-hsia Yu, Director of the Information Security Office of the National Security Council, presented the awards.

Currently, industries around the world are facing the issue of digital transformation. The number of IoT devices is increasing rapidly and cybersecurity has become an

▲ The Ministry of Economic Affairs and NCC jointly promote the cybersecurity mark. Industry representatives were enthusiastic.

important concern of the global industries. Europe, the United States, Japan, and South Korea have already started creating and promoting verification mechanisms for information and communication products. Taiwan has also deployed in advance in 2017. The Ministry of Economic Affairs, the National Communications Commission, and other related business management agencies worked together to expand from a single point to systems, interweaving them into a dense and solid security protection network that protects the living standard, ensures social stability, and keeps Taiwan safe.

▲ Chuan-neng Lin, Deputy Minister of Economic Affairs, delivers speech, pointing out the importance of strengthening cybersecurity due to the many cybersecurity incidents that occur.

In his speech, TAICS Chairman Ching Jiang Hsieh thanked IDB and NCC for their policy support over the past four years, allowing TAICS to effectively combine the strengths of industry, academia, and research to complete many IoT cybersecurity standards, build a cybersecurity mark system, and promote the certification of products and laboratories to productively implement cybersecurity and improve protection levels. We hope to help Taiwan's IoT industry produce differentiated products that guarantee quality via the IoT Cybersecurity Mark, and help companies expand globally to together promote the mark to the world.

During the presentation, four cybersecurity standards and test specifications for air quality micro sensing devices, consumer IP cameras, embedded software on smartphone systems, and smart speakers were issued. Many testing abilities of approved laboratories and products that passed the verifications were showcased on site as an important basis for various industries for procuring IoT devices.

2.3 TAICS Events

2020 TAICS Standards Forum - 5G and IoV Standardization and Application (2020.07.30)

Taiwan officially entered the 5G era in 2020, bringing new technological development and applications to the industry. TAICS and the 5G Development Alliance jointly held the 2020 TAICS Standards Forum on July 30, with 5G and IoV Standardization and Application as the topic. Industry, academia, and research experts from MediaTek, ITRI, High Definition Maps Research Center, Wave-

In Communication, Cisco Taiwan, Keysight, Chunghwa Telecom, Taiwan Mobile, and FarEasTone were invited to, from the international standards organization developments 3GPP and ITU-R, share the latest B5G technology trends, WRC-19 spectrum developments, and V2X standard developments. Topics about high-precision maps and 5G ORAN were also included to provide the industry with the most advanced development trends and applications of relevant standards.

▲Group photo of speakers and honored guests at the TAICS Standards Forum.

TAICS Secretary General Sheng-Lin Chou, also the convener of the 5G Development Alliance, said in his speech that since the three largest telecom companies launched 5G in early July, the development of Taiwan's 5G industry is in full swing in smart manufacturing, smart transportation, and smart healthcare, and commercial applications are loaded with business opportunities. We thank the MOEA, NCC, MOTC, and MOI for vigorously supporting domestic companies by successively integrating 5G device manufacturers and forming a 5G national team to effectively connect ICT-related industry chains together. TAICS will also continue to help Taiwan manufacturers stay up to date with international standards developments and broaden the influence of Taiwan companies over organizations that develop international standards.

This forum was also specially organized in conjunction with TAICS' third member conference of the second term, gathering representatives of Taiwan ICT manufacturers to participate in the 5G IoV event. The latest developments in 5G IoV by Chunghwa Telecom, Taiwan Mobile, FarEasTone, and Keysight were showcased, allowing guests to experience the thrill of 5G speeds and the wonder of diverse applications.

TAICS General Assembly (2020.07.30)

2020 TAICS General Assembly was held on July 30 in the 5th floor auditorium at the GIS MOTC Convention Center. Chairman Ching Jiang Hsieh served as the chairperson while Secretary General Sheng-Lin Chou of the secretariat presented the outcomes of 2019 and the 2020 work plan to the members. The work plan was reviewed and approved by the members that were present.

▲The Chairman hopes that TAICS will serve as the official channel through which Taiwan can connect with the development of international standards and integrate industry, government, academia, and research to effectively leverage synergies.

▲ 2020 TAICS General Assembly was successfully held. Group photo of honored guests and members.

Chairman Hsieh, the chairperson of the conference, said in his speech that the member conference was postponed due to the epidemic; Taiwan is in a relatively better position compared to other countries. The industrial economy is gradually recovering, and 5G promotion in Taiwan is not lagging behind. Thus, the topic of the release of 5G by Taiwan telecom companies was included on the same day as well with the 2020 TAICS Standards Forum - 5G and IoV Standardization and Application, giving members more opportunities to exchange. In his speech, Ta-Sheng Lo, General Director of the Department of Industrial Technology, MOEA, said that the 5G era is coming. There is a wide range of applications and the integration of various cloud systems requires common communication standards. I am very pleased with the advanced deployment and the establishment of TAICS together with the industry, as help from TAICS will be very important to the industry in the future. The Ministry of Economic Affairs will always stand by every industry and work together for Taiwan.

Since its establishment, TAICS has been integrating industry, government, academia, and research strengths. As the voice of Taiwan, TAICS, together with MediaTek, not only enticed the international standards developing organization 3GPP to host an international standards conference in Taiwan in January of last year, but also helped a Taiwan company (MediaTek) win the chair of the 3GPP RAN2 work group in August, obtaining a key position that can set agendas and has a voice in an international standards organization. At the same time, 25 ICT industry standards were completed last year, and a number of standards have been incorporated into relevant government regulations. Among them, the Video Surveillance System Security Standard was officially announced as a national standard (CNS 16120) by the Bureau of Standards, Metrology and Inspection of the Ministry

▲ Honored guest Ta-Sheng Lo, General Director of the Department of Industrial Technology, MOEA, gives speech stating that the MOEA will continue to back and work side-by-side with Taiwan's industries.

of Economic Affairs in October. These are the results of the joint efforts of the members. This member conference was held on the same day as the 2020 TAICS Standards Forum - 5G and IoV Standardization and Application. Chairpersons of technical committees and members of TAICS were invited to share the latest 5G applications. More than 170 people participated.

Smart Manufacturing International Standards Forum - Smart Manufacturing in the 5G Era (2020.08.20)

5G technology has high transmission speed, low latency, large connection, high traffic, and high security characteristics. 5G can accelerate the process of smart manufacturing, and is beneficial to the development of applications such as remote control, AR, AI, automated processes, and human-machine cooperation. However, standards related to 5G smart manufacturing are still in a warring states period when a hundred schools of thought contend. The integration of various systems is not easy. The domestic manufacturing industry has the advantage of clustering. If the development trend of international smart manufacturing standards can be understood, development of Taiwan products can be in line with suitable industry standards even before the international standards are finalized. This will shorten the time to market and maintain Taiwan's competitive edge in the global market.

To help domestic industries quickly grasp the development trend of international standards, this forum invited international standards organizations ETSI, IEEE, and IIC, and domestic technical experts to share the latest industry and technology trends, international standards, and applications, such as the application of important standards like OPC-UA, TSN, and MEC. IIC technical experts shared the United States 5G + AI smart manufacturing test bed case. Introducing successful cases from all over the world will help domestic companies accelerate the import of 5G smart manufacturing. In the post-epidemic era, they will be able to utilize the latest technology and apply the standards to enhance industrial competitiveness, and be the first to win huge business opportunities in application services in the 5G era. The latest industry and technology trends, international standards, and application cases of 5G smart manufacturing are brought to domestic manufacturers.

Online Seminar for IoT Application Standards and Cases (2020.08.27)

IoT-device applications in many fields has diversified in recent years. This means that the IoT era is rapidly unfolding, bringing opportunities for new applications and cross-industry consolidations. ITRI, the National Pingtung University of Science and Technology, MTSFB, and TAICS jointly organized the online seminar, which connected speakers from three locations. Experts from Taiwan companies (Tatung Company and Quadlink Technology), the College of Agriculture, NPUST, and

Malaysia ICT companies shared cases of IoT application in agriculture. This seminar enhanced the understanding of the two countries in the ICT field and the development of IoT applications. We hope that there will be more opportunities for cooperation in the future.

During the seminar, Tatung Company Director An-Yi Chen spoke about the Comprehensive Smart Greenhouse Control and Integrated Distributed Agricultural Power Grid System technology, which combines wind energy, solar energy, energy storage systems, and water circulation systems. Through smart monitoring systems, temperature and humidity control systems, water generation systems, and pest control strategies, it can not only provide suitable temperatures for crops, but also monitor environmental humidity and control ambient temperature, thereby reducing agricultural losses and increasing income. Quadlink Technology General Manager Otto Tsai spoke about the Aquadlink® Smart Aquaculture Application System, an innovative model that enhances the value of traditional farming through AI that has started the smart farming trend in Taiwan.

MTSFB representative Dr. Mohd Nazrin Md Isa spoke about the IoT-Based Paddy Productivity Monitoring and Advisory System (e-PADI), which monitors the growth of paddy fields by measuring environmental factors such as soil acidity and the water source to increase yield. The College of Agriculture, NPUST, Associate Professor Wen-Shin Lin also spoke about the application of IoT in Taiwan's rice fields, and the College of Agriculture Dean Henry Chen shared the talent cultivation practices of smart agriculture. A total of 149 people signed up for this event and the highest number of people online was 94 (80-90 on average). After the seminar, MTSFB also shared relevant information on its Facebook page.

2020 TAICS-MTSFB Standards Online Training Program (2020.09.23-24)

To promote the industry's understanding of participating in ICT technology and applications and international industry standards, and exchange with MTSFB, TAICS, together with the Institute for Information Industry and MTSFB, held the 5G Technology and Industry Standards Online Course from 2 pm to 5 pm on 9/23 and 9/24, to promote the exchange of talent and technologies in the ICT industry.

This course was divided into three units: 5G V2X, IoT cybersecurity standards, and cybersecurity test specifications and lasted for two days. National Chung Cheng University Associate Professor Shao-Yu Lian and Institute for Information Industry Engineer and cybersecurity standards expert Chin-Wei Wang and Senior Manager Yi-Ling Lai taught the whole course in English. A total of 102 people (41 from Taiwan and 61 from overseas) signed up for this event. The actual number of participants were a max of 43 people on 9/23 (40 people online on average) and a max of 32 people on 9/24 (29 people online on average).

TAICS Beyond 5G(B5G) Technology Workshop Technical standards sharing sessions

This year's international exchange programs were held online due to COVID-19. TAICS invited technical expert representatives from China Mobile (6/16), Samsung (6/24), Intel (8/21), and Apple (12/11) to share the latest trends in 5G and B5G.

Professional training (2020.04.09, 2020.06.05)

To welcome the 2020 5G era, TAICS offered relevant technical courses to strengthen industry talent's understanding of current 5G technology. TAICS offered the 3GPP 5G Technical Standards Exploration in April, inviting a group of elite speakers that have long participated in 3GPP international standards conferences and have many years of experience to help the students quickly understand NR MIMO, NR-U, NR IDLE mode, NR System Information, and NR Random Access Procedure. In June, TAICS held the C-V2X Technology Exploration with Leading the world to Connected Cars: Cellular Vehicle-to-Everything (C-V2X) Technologies and Evolution as the main topic. Hua-Lung Tsai, Deputy Manager of the Institute for Information Industry, was the speaker. He taught from easy to hard, allowing students to fully understand the evolution and development of C-V2X technology. The course also explored current IoV market trends and the challenges that may arise in the new 5G generation. Over 50 people participated in the professional training courses.

Appendix: Membership

NO	COMPANY	WEBSITE
1	MEDIATEK INC.	http://www.mediatek.com/zh-TW/
2	WISTRON NEWEB CORPORATION	http://www.wnc.com.tw/index.php?lang=tw
3	ACER INCORPORATED	http://www.acer.com.tw/ac/zh/TW/content/home/
4	ARCADYAN TECHNOLOGY CORPORATION	http://www.arcadyan.com/home.aspx
5	ASUSTEK COMPUTER INC.	https://www.asus.com/tw/
6	CHUNGHWA TELECOM CO., LTD.	http://www.cht.com.tw/
7	KEYSIGHT TECHNOLOGIES INC.	http://www.keysight.com/main/home.jspx?cc=TW&lc=cht
8	BUREAU VERITAS CONSUMER PRODUCTS SERVICES (HONG KONG) LIMITED, TAOYUAN BRANCH	http://www.bureauveritas-adt.com/
9	AUDEN TECHNO CORP.	http://www.auden.com.tw/
10	INVENTEC CORPORATION	http://www.inventec.com/
11	NATIONAL CHUNG-SHAN INSTITUTE OF SCIENCE AND TECHNOLOGY	http://www.ncsist.org.tw/csistdup/main/Default.aspx
12	ACCTON TECHNOLOGY CORP.	http://www.accton.com.tw/
13	GEMTEK TECHNOLOGY CO., LTD.	http://www.gemtek.com.tw/

NO	COMPANY	WEBSITE
14	ROHDE&SCHWARZ	http://www.rohde-schwarz.com.tw
15	TATUNG CO.	http://www.tatung.com.tw/b5/index.asp
16	ACBEL POLYTECH INC.	http://www.acbel.com.tw/index.aspx
17	UNITECH ELECTRONICS CO., LTD.	http://tw.ute.com/index.php?rbu=2
18	HWACOM SYSTEMS INC.	http://www.hwacom.com/
19	KBRO CO. LTD.	http://www.kbro.com.tw/mso_index.aspx?B=1
20	SATELLITE TELEVISION BROADACSTING ASSOCIATION R.O.C	http://www.stba.org.tw/
21	TAIWAN DIGITAL TELEVISION COMMITTEE	http://www.dtvc.org.tw/index.aspx
22	TREND MICRO INC.	http://www.trendmicro.tw/tw/index.html
23	ONWARD SECURITY CORPORATION	http://www.onwardsecurity.com/
24	SPORTON INTERNATION INC.	http://www.sporton.com.tw/
25	DEKRA TESTING AND CERTIFICATION CO., LTD.	http://www.dekra.com.tw/index.aspx
26	INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE	https://www.itri.org.tw/
27	INSTITUTE FOR INFORMATION INDUSTRY	http://www.iii.org.tw/Default.aspx
28	TAIWAN MOBILE CO., LTD.	https://www.taiwanmobile.com/index.html
29	TAIWAN INTELLIGENT BUILDIN G ASSOCIATION	http://www.tiba.org.tw/
30	PEGATRON CORP.	http://cht.pegatroncorp.com/
31	ZYXEL COMMUNICATIONS CORP.	http://www.zyxel.com/tw/zh/homepage.shtml
32	CHENG UEI PRECISION INDUSTRY CO., LTD.	http://www.foxlink.com.tw/index_c.php
33	HUA YAN MEDIA LTD.	N/A
34	SERCOMM CORPORATION	http://www.sercomm.com/home.aspx
35	NATIONAL CHIAO TUNG UNIVERSITY	http://www.nctu.edu.tw/
36	TAIWAN SECOM CO. , LTD.	http://www.secom.com.tw/
37	HTC CORPORATION	http://www.htc.com/tw/
38	NATIONAL CHUNG CHENG UNIVERSITY	http://www.ccu.edu.tw/
39	INFORMATION SERVICE INDUSTRY ASSOCIATION OF R.O.C	http://www.cisanet.org.tw/
40	ELECTRONICS TESTING CENTER, TAIWAN	http://www.etc.org.tw/default.aspx
41	WEEMA	http://www.weema.com.tw/
42	ANRITSU COMPANY INC.	http://www.anritsu.com/zh-TW/Home.aspx
43	ELITEGROUP COMPUTER SYSTEMS CO. LTD	http://www.ecs.com.tw/ECSWebSite/Index.aspx?MenuID=0&LanID=1
44	KINGDOM COMMUNICATION ASSOCIATED LTD.	http://www.kca.com.tw/tw/
45	GCOM TECHNOLOGIES CO.	http://www.gcomtw.com/index.php

NO	COMPANY	WEBSITE
46	TAIWAN INSTITUTE OF ECONOMIC RESEARCH	http://www.tier.org.tw/
47	FAR EAS TONE TELECOMMUNICATIONS CO., LTD.	http://www.fetnet.net/cs/Satellite/Corporate/coHome
48	TELECOM TECHNOLOGY CENTER	http://www.ttc.org.tw
49	NATIONAL INSTRUMENTS	http://www.ni.com/zh-tw.html
50	TAIWAN BROADBAND COMMUNICATIONS	http://www.tbc.net.tw/AboutUs
51	NATIONAL TAIWAN UNIVERSITY	http://www.ntu.edu.tw/
52	NATIONAL CHENG KUNG UNIVERSITY	http://web.ncku.edu.tw/bin/home.php
53	ASIA PACIFIC TELECOM CO., LTD.	http://www.aptg.com.tw/my/index.htm
54	TAIWAN TELEMATICS INDUSTRY ASSOCIATION	http://www.ttia-tw.org/
55	PANASONIC TAIWAN	http://www.panasonic.com/tw/
56	TAIWAN ELECTRICAL AND ELECTRONIC MANUFACTURERS' ASSOCIATION	http://www.teema.org.tw/index.aspx
57	SENAO NETWORKS, INC.	http://www.senao.com/Taiwan/
58	NATIONAL CENTRAL UNIVERSITY	http://www.ncu.edu.tw/
59	ALPHA NETWORKS INC.	http://www.alphanetworks.com/
60	NAN YA PLASTICS CO.	http://www.npc.com.tw
61	EGIS TECHNOLOGY INC.	https://www.egistec.com/zh-hant/
62	TAIWAN-CA. INC.	https://www.twca.com.tw/Portal/Portal.aspx
63	SYNOLOGY INC.	https://www.synology.com/zh-tw
64	GAPERTISE INC.	http://www.gapertise.com/
65	TAIWAN TELECOM INDUSTRY DEVELOPMENT ASSOCIATION	http://www.ttida.org.tw/
66	ICP DAS CO., LTD.	http://www.icpdas.com.tw/index_tc.php
67	ARCRAN INFORMATION TECHNOLOGY INC.	http://www.arcran.com/tw/
68	NATIONAL TAIPEI UNIVERSITY	https://new.ntpu.edu.tw/
69	ALLION LABS, INC.	http://tw.allion.com/
70	NATIONAL DONG HWA UNIVERSITY	https://www.ndhu.edu.tw/bin/home.php
71	SGS TAIWAN LTD.	https://campaigns.sgs.com/zh-tw/taiwan/sgs-in-taiwan
72	TÜV RHEINLAND TAIWAN LTD.	https://www.tuv.com/taiwan/tw/
73	CHICONY POWER TECHNOLOGY CO., LTD.	https://www.chiconypower.com/zh-tw/
74	AUTOMOTIVE RESEARCH TESTING CENTER	https://www.artc.org.tw/
75	TAIWAN POWER RESEARCH INSTITUTE	https://tpri.taipower.com.tw/default.htm
76	DELOITTE TOUCHE TOHMATSU LTD.	https://www2.deloitte.com/tw/tc.html

NO	COMPANY	WEBSITE
77	ASKEY COMPUTER CO.	http://www.askey.com.tw/
78	DYLAN-TEK CO., LTD.	https://www.facebook.com/dltek/
79	ESSEN PATENT AND TRADEMARK OFFICE	http://www.essenptl.com/
80	LEEGOOD AUTOMATIC SYSTEMS INC.	http://leegood.com.tw
81	WISTRON CORPORATION	https://www.wistron.com/
82	M.D.T. TECHNOLOGIES, INC.	N/A
83	SPECTACULAR Co.,Ltd.	N/A
84	CHINESE CRYPTOLOGY AND INFORMATION SECURITY ASSOCIATION	https://ccisa.org.tw/

TAICS

Taiwan Association of Information and Communication Standards