# ABSTRACT


## A. Motivation

With the rapid development of communication technology, 5G, Internet of Things and artificial intelligence are changing day by day, and the number of emerging wireless communication products has doubled. In response to international trends and industrial trends, taking the deregulation of laws and regulations from the perspective of national interests, industrial development, and public needs into consideration, help the government, the public and enterprises fully grasp the digital opportunities, jointly promote, and flourish the development of the digital economy.

## B. Method and Process

Under the trend of 5G emerging radio frequency equipment, the research team collect and analyze the regulatory adjustments, response strategies and related radio-frequency devices regulations of major countries, and analyze control policies and implementation methods. With reference to the regulatory adjustments and supporting measures of major countries, the research team propose amendments and management directions for the management system of Taiwan's controlled telecommunications radio-frequency devices, and harmonize the controlled substances and management regulations of controlled telecommunications radio-frequency devices without affecting the order of radio control. The research team held symposiums, inviting interested parties to compare and explain the differences in the management system of controlled telecommunications radio-frequency devices in foreign countries and Taiwan, and collect suggestions on the revision of the regulations of controlled telecommunications radio-frequency devices in Taiwan.

## C. Crucial Discovery

### a. Radio-Frequency Devices Regulatory Authority and Emerging Controlled Radio-Frequency Devices Regulation

Internationally, radio-frequency devices competent and cooperating agencies often cooperate with customs, police, consumer protection institutions and other parties. European Union countries (including the United Kingdom) have their own regional systems and systems, which can check imported products according to the Integrated Tariff of the European Union (TARIC) and cooperate with customs and market inspection agencies. Australia is coordinated by the Australian Communications and Media Authority (ACMA), the competent authority, and the Electrical Regulatory Authorities Council (ERAC), an officially established independent agency, and ERAC cooperates with ACMA to perform post-market surveillances. Internationally, there are also examples of cooperation between competent authorities and online shopping platforms, such as Germany, the United States, and the United Kingdom.

In terms of regulatory adjustments and regulatory strategies for emerging radio-frequency devices, the regulation of 5G wireless telecommunications terminal equipments is the same as 3G and 4G, remaining high control intensity, and certification is required. Low-power RF devices such as Bluetooth keeps light touch. Except for the United States, South Korea, and Mainland China, in recent years, low-power RF devices such as Bluetooth and other low-power RF devices have been identified as lower risk in major countries, and are gradually deregulated. Internet of Things or Vehicle-to-everything relevant radio-frequency devices, due to the variety of emerging technology standards and equipment and just in circulation, the current regulations in major countries vary depending on the equipment and application.

### b. Regulations on Import of the Radio-Frequency Devices

Regarding the regulations on RF devices for R&D and testing, Japan and Singapore have high regulatory strengths and no license exemption. Germany, the United Kingdom, the United States, Australia, South Korea, Mainland China and Taiwan all have regulations on RF devices for R&D and testing that are exempt from import permits. The U.S. and South Korea have set import quotas of 4,000 and 1,500 units respectively. Some countries, such as the United Kingdom, Australia, Singapore, and Mainland China, have regulations on RF devices with extremely low power, short distances, or less interference concerns.

### c. Post-Market Control Mechanism and Cases

In terms of post-market control mechanisms, the main international actions include dealing with appeals or complaints, radio-frequency devices license renewal system, model approval-related credit management systems, etc. The active actions include monitoring online platform transactions, cooperation with customs, retail market supervision, database randomly audits, requirements of telecommunications certification bodies, inspection of devices which exist potential interference problems, and investigation of RF devices frequently complained. In terms of penalties, different levels of measures will be implemented according to the severity of the violation, the impact of the violation, the degree of cooperation, the reason for the violation, the possible impact of the operation, and the degree of risk to consumers or the public.

## D. Main Suggestions

### a. Coordination Mechanism of Competent Authorities

Regarding the regulation of radio frequency devices sold on online shopping platforms, if it is a domestic online shopping platform, the research team suggest following the United States and the United Kingdom, cooperating with online platforms to perform the post-market surveillance. While facing overseas online shopping platforms, it is suggest adopting a cooperative approach or conducting random inspections as customs import.

### b. Emerging RF Devices Regulations

Due to the licensed frequency band and no radio wave interference, the regulation of 5G wireless telecommunications terminal equipments is the same as 3G and 4G, remaining high control intensity, and certification is required. Regarding the Internet of Things and Internet of Vehicles technology and equipment, this research suggests that Taiwan can maintain the status quo for further observations. For low-power radio-frequency devices, it is necessary to consider the risk of frequency interference and electrical safety, as well as industrial policies, such as industrial demand and technological maturity, to achieve complementary effects through verification methods and post-market surveillance.

### c. Radio-Frequency Devices Import Regulations

Under the premise that there is still room for strengthening post-market surveillance in Taiwan, this study believes that at least a light touch declaration of conformity should be a feasible option at present. With the research and development exemption from import permits has reached a consensus for most countries, it is suggesting that in response to the feedback from the industry players, the batches and quantities during the period can be coordinated with the customs to achieve consistent practices,

to alleviate the industry's practical operation obstacles, and boost the R&D energy of the industry.

**d. Import License Management System Platform**

Regardless of National Communications Commission (NCC), customs import information, or operators, there is a need for inquiries and management. It is recommended that a management system platform be set up where the business can inquire about the operator's own controlled telecommunications radio-frequency devices and the verification period in real time. NCC can also be notified by the management system platform to avoid the gap in quantity awareness (the gap between the number of applications and the actual import quantity), and can dynamically and effectively grasp the current status of the controlled telecommunications radio-frequency devices.

**e. Items of Controlled Telecommunications Radio-frequency Devices**

Standing on the deregulation thinking of the Telecommunication Management Act, and facing the diverse products that combine radio-frequency in the 5G Internet of Things era, the research team recommends moderate light touch to promote product circulation. At this stage, it is possible to use Article 44 of the Telecommunications Management Act to meet the requirements of the technical specifications, and to add the source of the law to the Article 1 of the Administrative Regulations on Manufacturing, Import and Report of the Controlled Telecommunications Radio-Frequency Devices, and establish a punishment basis for the non-compliant radio-frequency devices.

The research team suggested that the "Items of Controlled Telecommunications Radio-frequency Devices" should not restrict

communication technology and products, and should set standards based on technical specifications such as frequency bands and power. Taiwan's regulations mainly refer to FCC regulations, but currently the United States and the European Union still need to test and obtain certification for Bluetooth products. If Taiwan decides to begin light touch, it is recommended to use a complete series of test experiments, considering sufficient experimental variables, and formulate sufficient strength post-market control mechanism, to serve as a reason to persuade all walks of life to loosen the policy. NCC can also establish a professional working group to be responsible for related businesses, or cooperate with the customs to solve the problem of reporting online sales by means of source management, thereby reducing the problem of heavy banning costs.

**f. Post-Market Management Mechanism**

Taiwan currently has passive post-market control measures for interference reports handling, but active inspections can still be determined based on national conditions. For non-compliant products, different levels of penalties can be adopted according to the situation to ensure product safety and prevent radio interference. While maintaining order in the post-market through surveillances, the competent authority may strengthen the promotion of relevant policies in the consumer market to enhance consumer safety awareness, and consumers can also understand the government’s measures for consumer rights protection.