

Solving Social Issues Through Business



Test and Measurement Business

■ Description of Social Issues

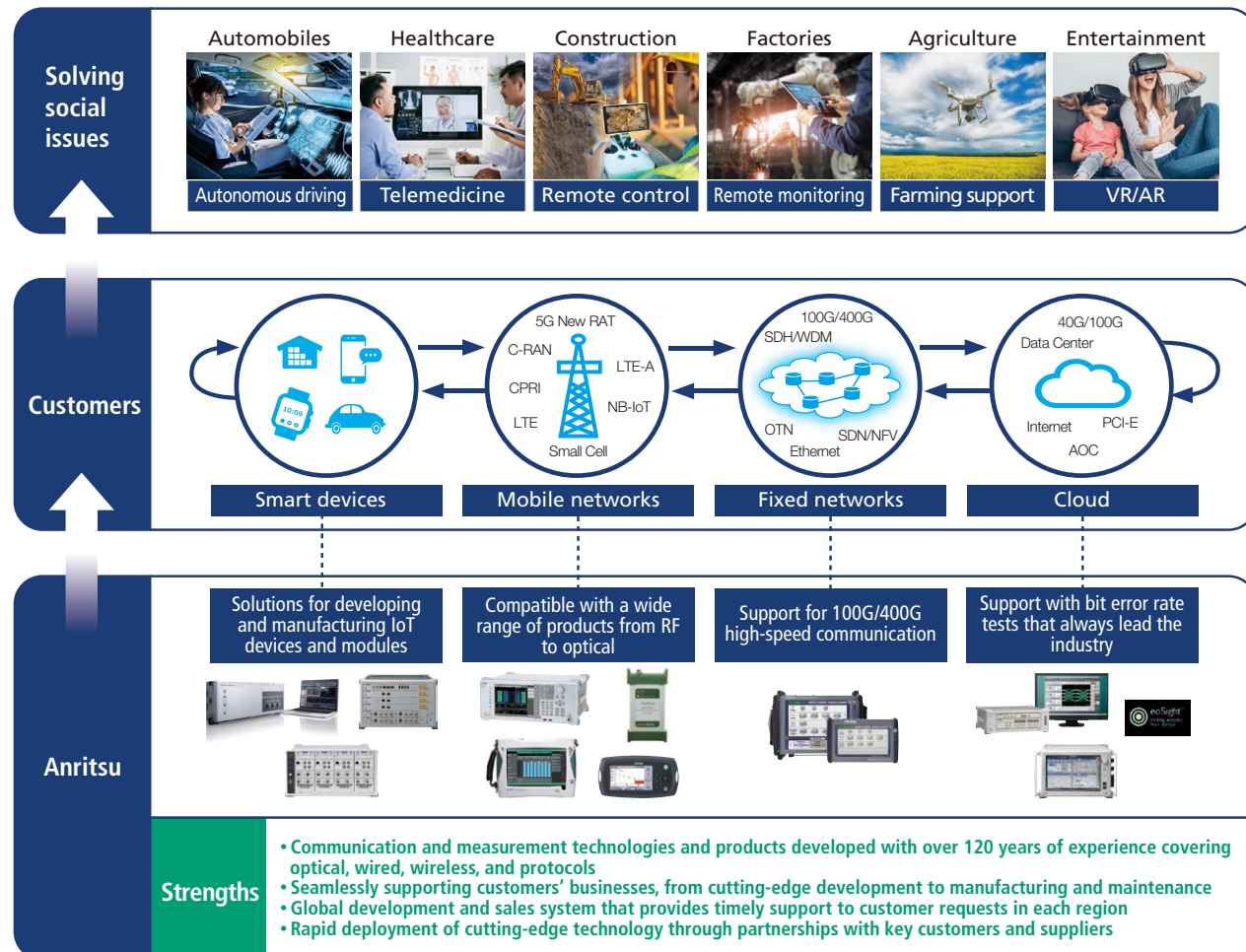
Information communications, and tools that connect people over the Internet, such as social networking, photo sharing and video sharing services, have become indispensable in society today. These communications networks that allow people to connect with one another have been advancing on a daily basis, and fifth-generation mobile communications systems (5G) are on the verge of being launched with ultrahigh-speed, large capacity, ultra-low latency, and multiple simultaneous connections. In addition to the increasing sophistication of smartphones and tablets, 5G will find uses in fields such as medicine, agriculture, automobiles, and disaster prevention. This 5G technology is also expected to become communication infrastructure that helps us realize a sustainable society and solve a range of social issues including as a means to eliminate information disparities, prevent traffic accidents, and alleviate labor shortages.

■ Anritsu Initiatives

Anritsu provides its customers with a variety of measurement solutions that help ensure communications quality and conformance with standards-based specifications at the development, production, construction and maintenance stages for smart devices, mobile networks, fixed networks and cloud computing data centers that are the basis of 5G communications networks. Customers use our testing and measurement instruments so their products can safely and securely connect to robust 5G communications networks.

These 5G communications networks will not only contribute to greater convenience for people, but will also be used in the industrial field. The realization of these new applications will both boost economic growth and provide solutions for social issues, such as SDGs and lead to a more sustainable society.

With a mission of being the first to deliver optimal testing and measurement solutions with its advanced measurement technologies, Anritsu contributes to the creation of industry and advances in innovation that assist with the development of a sustainable society by helping customers maintain safe and secure communication infrastructure.



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Product introductions

Anritsu measuring solutions are essential to the development of IoT devices that are expected to be used in 5G communication equipment

The MT8000A Radio Communication Test Station

Smartphone Development

Before new smartphones are released, Anritsu measuring instruments are generally used to verify functionality and performance in a variety of processes, as shown in the figure on the right. Anritsu provides social value through use of MT 8000A measuring equipment, which verifies handset manufacturer connections and functionality (see the second figure from the left).

What is the MT8000A?

When smartphone manufacturers develop new models, they need to connect to base stations that relay radio waves to test functionality and performance. However, since a smartphone under development cannot be connected to a base station currently in operation, the manufacturers need some kind of alternative environment for the testing. The MT8000A can simulate the behavior of a base station and is compatible with the latest 5G communication system.

Since 5G uses a higher frequency (millimeter wave) than conventional 4G (LTE) communications, it is important to ensure that the measuring equipment used contains the most sophisticated measuring technology available. Anritsu has been able to develop advanced and innovative 5G measurement solutions by leveraging the latest technological innovations and its partnerships with leading global customers.

Examples of Customer Use

Using the MT8000A Radio Communication Test Station, customers can quickly develop smartphones meeting 5G communication standards

- Testing if RF transmission/reception is compliant with standards
- Testing if the communication protocol between the smartphone and the base station is compliant with standards
- Millimeter wave measurement using the anechoic chamber

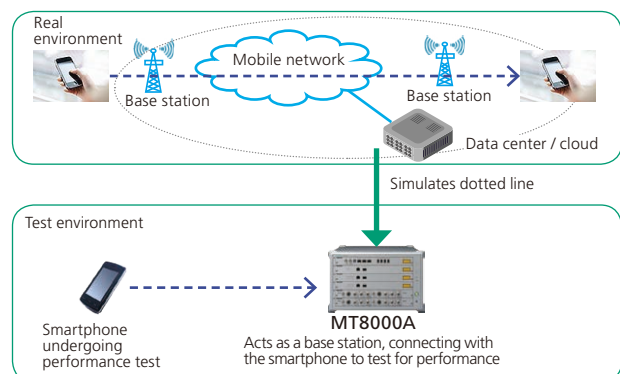
Social Value Provided by the MT8000A Radio Communication Test Station

5G is expected not only to allow an improvement in performance in mobile devices such as smartphones, but is likely to be used through IoT in a variety of industrial applications, including autonomous driving, telemedicine and diagnosis, and virtual reality. The MT8000A Radio Communication Test Station is also being used for the new wireless devices embedded in equipment used in such applications.

The MT8000A Radio Communication Test Station supports innovation and the creation of new social value, as well as the new services likely to be born from the realization of 5G and IoT.

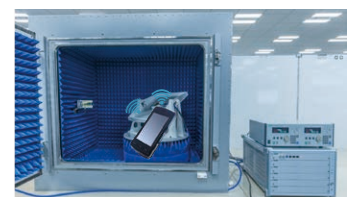


Role of the MT8000A



High frequency (millimeter wave)

Accurate measurement using a chamber-based Over The Air (OTA)* connection



*OTA is a measuring method using an antenna-based wireless connection rather than a cable

Solving Social Issues Through Business

PQA Business

■ Description of Social Issues

Through the use of food processing technology that raises the storage life of perishables, our daily lifestyles have undergone rapid advances in the modern era. Instead of buying ingredients and preparing meals at home, food is now distributed as a packaged product that has greatly improved convenience and plentifulness in people's lives. Once food is distributed in large quantities, however, uneaten food is thrown away (i.e., food loss) in increasing amounts, a social problem that has drawn attention lately. SDG Target 12.3 is stated as, "Halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses," a clearly stated objective to ensure a sustainable food consumption and production pattern.

Today, most food processing companies have identified the reduction of food loss as a major issue alongside guaranteeing the deliciousness, safety and security of their products.

■ Anritsu Initiatives

At food processing plants, factory automation has facilitated the faster processing of food in larger amounts for shipment.

It is necessary to inspect each individual product to ensure processed food is safe and reliable. In the past, a large number of workers were used in the food inspection process to examine the food before shipment. However, inspections by people are subject to issues related to differences in individual skills and fatigue causing people to lose their concentration.

Along with providing solutions for automating the quality inspection process on food production lines, Anritsu aims to provide solutions linked to minimizing food loss. Together with its customers, the Company will continue to provide advanced quality assurance solutions with the aim of contributing to the realization of a sustainable society with little food loss, and a society where anyone can live their lives in safety without worry.

Solving social issues



Increasing the sophistication of quality assurance for food and pharmaceuticals to achieve:

- A safe and secure society
- A sustainable society with little food loss



Customers



Anritsu



Automatic electronic weighing machines



X-ray inspection systems



Metal detectors



Checkweighers

QUICCA



Quality management/control systems

Strengths

- High-speed, high-precision, quality inspection technology for production lines
- Engineering capability to adapt inspection equipment to various food manufacturing environments
- Extensive maintenance service system and experienced maintenance engineers in Japan
- Past record and top-class market position in the food inspection market in Japan

Solving Social Issues Through Business

Product introductions

Reducing food loss using X-ray inspection systems and QUICCA overall quality management and control systems

Food Loss and the Reasons for its Occurrence

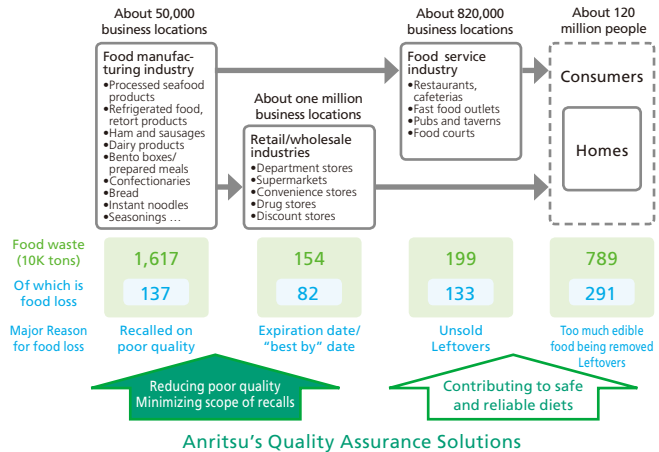
While global food production is estimated at about four billion tons annually, about one-third of this, or about 1.3 billion tons, is not consumed and ultimately discarded.* Reasons for food loss, meaning food that is discarded even though it is still edible, include the food losing its freshness over time or its expiration date being reached, poor product quality, an excess of food leading to leftovers, and too much edible food being removed. It has been estimated that about 60% of food loss in Japan happens in the distribution and household consumption stages.**

Advances in refrigeration and packaging technologies have led to the distribution of processed foods

with longer shelf lives, which in turn has contributed to reduced food loss. However, foods with longer periods when they are fit for consumption may stay in the market or on the shelves at home longer, and recalling and discarding these products can lead to substantial losses. For food manufacturers, extending the expiration date reduces the risk of food loss, but the increased risk of losses when the products are recalled highlights the need for the strictest standards in quality assurance.

Sources: * UN World Food Programme. ** Ministry of Agriculture, Forestry and Fisheries of Japan.

The example of Japan



Anritsu's Quality Assurance Solutions Contribute to Reduced Food Loss

Strict quality assurance activities prevent the occurrence of defective products in the manufacturing process and reduce the potential for defective products to make it to market. They also reduce the likelihood of accidents leading to products being recalled. Anritsu's quality assurance solutions not only help reduce food loss, but also provide benefits by eliminating the problem of labor shortages on food production lines, thus boosting the customer's profitability. Our solutions also enhance customer brand strength on the back of added safety and security. Below we have provided an outline of some of our mainstay products.

① X-Ray Inspection Systems

X-ray inspection equipment is used to inspect the inside of a product, including food products, using an image obtained by irradiating the item with X-ray. There are a substantial number of X-ray applications, including detecting for contaminations, and inspecting for missing items, defective shape, or defective packaging. Anritsu's state-of-the-art XR75 series of X-ray inspection equipment uses newly developed sensors and image processing algorithms, enabling inspection that was difficult when using conventional techniques, including the detection of bones left in chicken products and the detection of foreign substances in over-lapping products, such as bagged sausages.



② Overall quality management and control systems

Anritsu's QUICCA 3 overall quality management and control system is a data management and control system on production lines, including food production lines that: 1) automatically records production data; 2) monitors the operational status of production; and 3) investigates and analyzes the cause of any production problems. Together with the quality inspection equipment, the system constantly monitors production quality to prevent the occurrence of defective products. It also allows traceability, so should there be an accident, the cause can be quickly determined, the scope of risk can be identified, and recalls can be minimized.

Social Value from Quality Assurance Solutions

It is vitally important that the international community unite to achieve a sustainable society.

By providing highly sophisticated quality assurance solutions, Anritsu's PQA business alongside its customers contributes to the realization of a sustainable society.

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Information and communications business

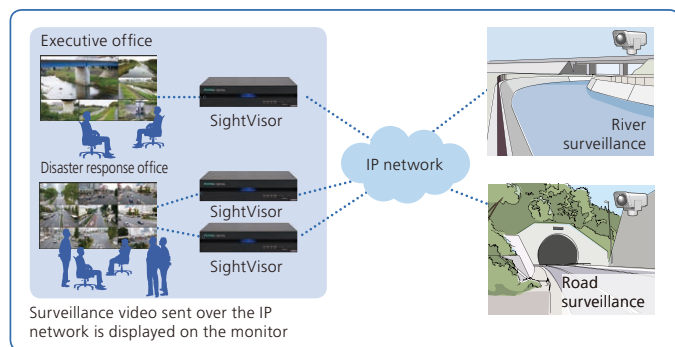
■ Description of Social Issues

Natural disasters, including earthquakes and torrential rain, which has been said to have been exacerbated by climate change, occur quite frequently in Japan, and from the perspective of disaster prevention and mitigation, improving and expanding remote monitoring systems can be said to be a national concern. For example, the establishment of multiple monitoring systems in remote river areas could allow rapid responses to flooding in these river system caused by torrential rain and help to minimize damage.

■ Anritsu Initiatives

The Anritsu Sight Visor is a video information monitoring system, produced by Anritsu Networks Co., Ltd., that can simultaneously monitor multiple locations using the monitoring system in a disaster response room and cameras at the water level, playing an important role in activating initial response activities. Through products such as these, we are contributing through our business with the government to an enhanced resilience and the ability to adapt to climate change and other natural disasters.

Video surveillance



Devices business

■ Description of Social Issues

As smartphones grow increasingly common around the world and businesses utilizing data continue to expand, the amount of data being transferred over networks is only increasing. The challenge now is to further increase speed and capacity in wireless communications between communication devices and base stations, as well as wired communication using optic fiber cables between base stations and other base stations or between data centers.

■ Anritsu Initiatives

Anritsu Devices Co., Ltd. is working with carriers and system vendors to build a robust communications infrastructure that can handle the increase in communications traffic. This includes providing small semiconductor optical amplifiers for optical transceivers that enable fast, high capacity, long-distance communications, as well as pump laser diodes to amplify degraded signal levels due to the loss of optical signal transmitted through fiber.

Optical fiber amplifier using a pump laser diode (EDFA: erbium-doped fiber amplifiers)

