

Test and Measurement Business

With a mission of being the first to deliver optimal test 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 build safe and secure communication infrastructure.



Evaluating and Inspecting the Development, Manufacturing, Construction, and Maintenance of 5G Infrastructure Using Anritsu's Measuring Instruments

Social Issues and Customer Needs

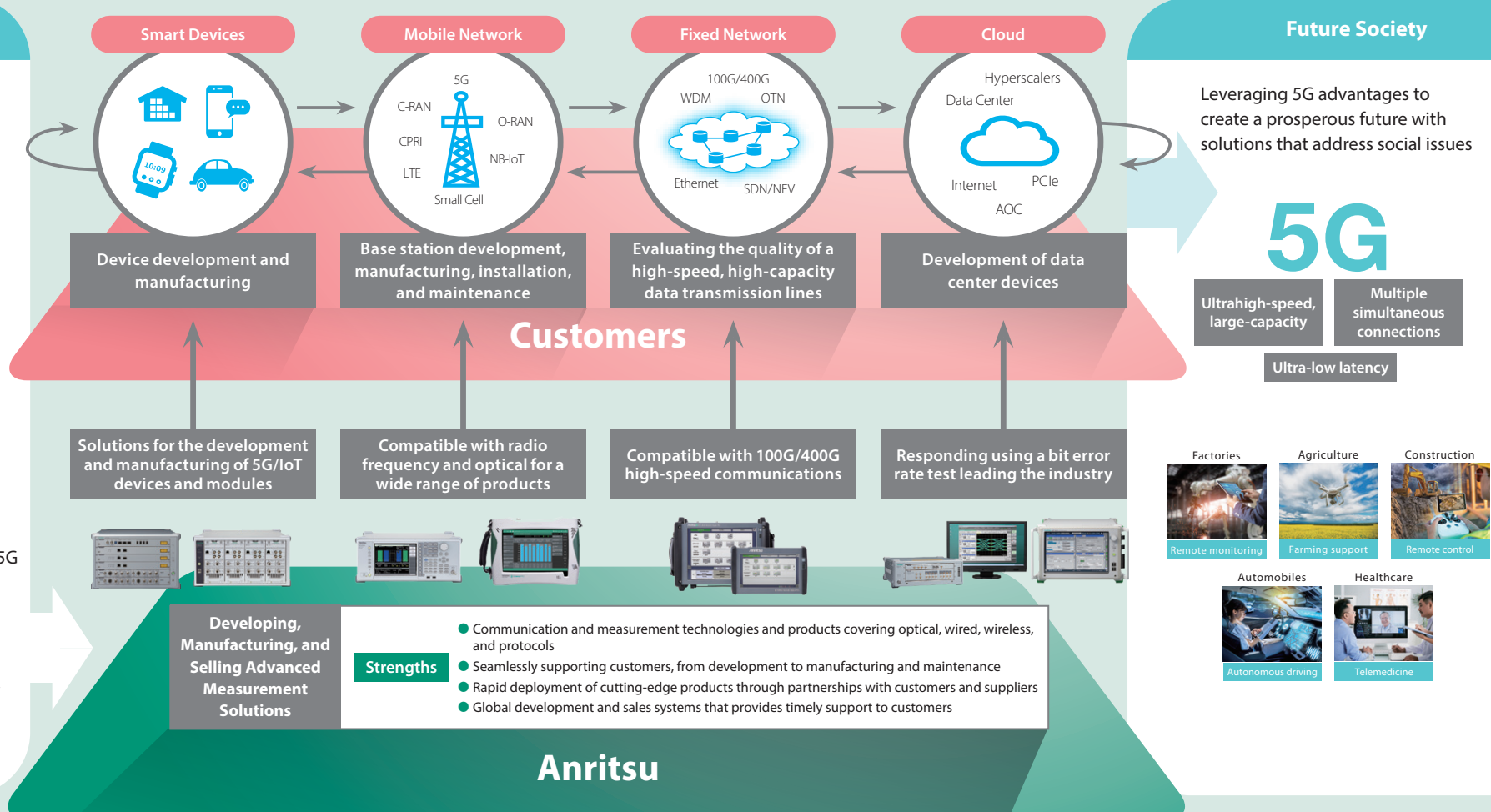
Anticipating the next social transformation through digital transformation

Social Issues

- Digital transformation
- Strengthening telecommunication infrastructure
- Improving telecommuting environment
- Reducing traffic accidents
- Improving industrial efficiency
- Eliminating regional disparities

Customer Needs and Interests

- Quick response to cutting-edge 5G technology
- Development of 6G technology
- Global support
- High Return on Investment
- Reducing environmental impact, etc.



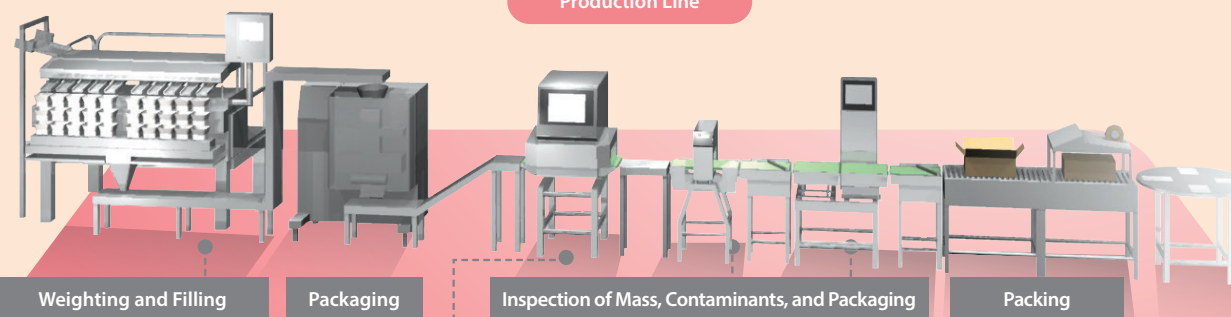
PQA Business

The PQA Business provides solutions for automating the quality inspection process on production lines of the food and pharmaceutical industries. Representative Anritsu initiatives (presented below) address social issues faced by the food industry and account for over 80% of our PQA business.



Realizing the Automation of Quality Inspection Process with Anritsu's Quality Assurance Solutions

Production Line



Customers

Social Issues and Customer Needs

Stable supply of safe and secure foods

Social Issues

- Stable supply of healthy, tasty foods
- Assurance of safe and secure food quality
- Reducing food loss
- A workplace that allows all employees to feel fulfilled

Customer Needs and Interests

- Stricter quality inspection/quality assurance
- Rigorous health management
- Quality data management and utilization
- Improved yield (increased productivity)
- Reduced labor shortages through automation
- Securing Traceability
- Adoption of environmentally friendly food packaging

Future Society

Increasing the sophistication of quality assurance for food to achieve:

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



Automatic electronic
weighing machines

X-ray inspection systems

Metal detectors

Checkweighers

Quality management/
control systems

Developing,
Manufacturing, and
Selling Fast, Precise,
and Highly Reliable
Inspection Equipment

Strengths

- High-speed, high-precision inline quality inspection technology
- Adaptability for introducing inspection equipment into diverse production lines
- Extensive maintenance service system and experienced maintenance engineers in Japan
- Past record and top-class market position in the food inspection market in Japan

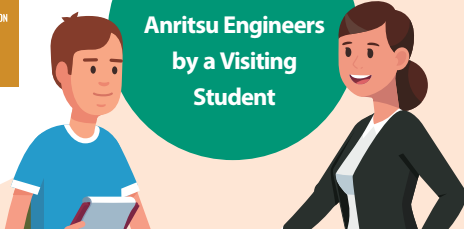
Anritsu

SDGs in the PQA Business

Every year, 1.3 billion tonnes of food are lost around the world. Reducing this loss has become a key challenge for realizing a sustainable society. While the principal causes of food loss are leftovers and reaching the expiration date, some of the loss can be avoided by improving the quality of production. The PQA Business is focusing its quality assurance solutions on achieving Target 12.3 of the SDGs: By 2030, 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.



Questions Posed to Anritsu Engineers by a Visiting Student



Q: Please explain food loss.

A: "Food loss" refers to food that has been thrown away even though it was still edible. Before ingredients are processed in factories and consumed at home, a huge volume of food is discarded as waste. This has become a major social issue. The SDGs calls for cutting food loss in half, and the international community is working together to achieve this target.



Q: Why is this a social issue?

A: The fact that many people in the world cannot afford to eat well at the same time that resources are not being used effectively is a serious problem. Food resources are limited, so it is important to ensure that food delivered to consumers can be preserved for a long time and is safe and satisfying to eat.



Q: Please describe Anritsu's solutions for reducing food loss.

A: When processed food is found to be defective products after having been shipped from the factory and distributed in the market, a large volume of food must be recalled and discarded. Anritsu helps to reduce food loss by providing inspection equipment to food manufacturers to prevent the shipment of defective products to the market.



Q: Could you please elaborate on this?

A: Quality defects can occur in any process. Anritsu's quality assurance solutions encompass the entire manufacturing process. For example, we cannot only find defects that are smaller than ever before, but also eliminate only defective areas, identify package defects, and so on. We also offer solutions that can reduce the risk of producing defective products or identifying lots that have defective products by monitoring quality data.



I can now see clearly how Anritsu's solutions are helping to reduce food loss.

Examples of Our Contributions to Food Loss Reduction

The example of Japan

Food manufacturing industry



Retail/wholesale industries



Food service industry



Consumers



	About 50,000 business locations	About 1,000,000 business locations	About 820,000 business locations	About 120 million people
Food waste	13.39 million t	1.34 million t	1.51 million t	7.48 million t
Of which is food loss	1.21 million t	0.73 million t	0.81 million t	2.47 million t
Major Reason for food loss	Discarded due to poor quality	Expiration date/"best by" date	Unsold / Leftovers	Too much edible food being removed Leftovers

*"Food waste" refers to foods that are still edible as well as parts of foods such as the bones of meats and fish that are separated out in the course of food processing and are not edible. The food waste and food loss figures are estimates in fiscal 2020 and were published by the Ministry of Agriculture, Forestry and Fisheries of Japan.

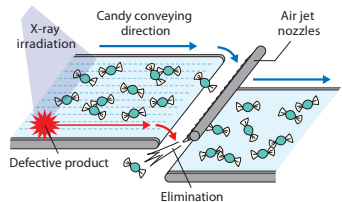
Reducing poor quality
Minimizing scope of recalls

Contributing to safe
and reliable diets

Anritsu's Quality Assurance Solutions

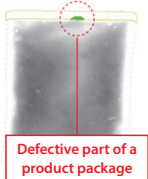
Pinpoint sorting to improve yield

Defective products are meticulously identified and blown away by the many air jet nozzles placed perpendicular to the direction of flow at the end of the inspection machine conveyor. The pinpoint function is extremely precise, leaving non-defective products untouched and thus minimizing food loss and improving yields.



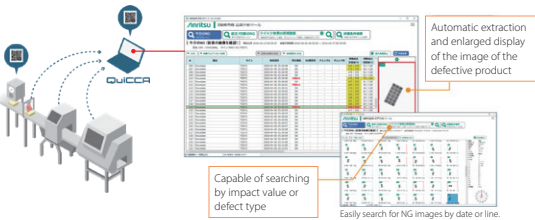
Preventing the shipment of defective packages

Defective packages cause sealing and anti-moisture properties to deteriorate, leading to alteration (degradation) and spoilage of the contents. Eliminating defects prevents quality degradation after shipment, which can lead to food loss.



Quick response by analyzing inspection images

All inspection image data of produced food products can be stored. This makes it possible to promptly analyze the details of any potential foreign material contamination after production or any customer complaint of foreign material contamination.



Environmental Measurement Business

To establish a resilient social infrastructure, we provide highly reliable information and communications solutions that utilize technologies for remote monitoring, image information, and communication bandwidth control. We also support the introduction and operation of Private 5G and process improvement using measurement solutions to facilitate the transformation into a new digital society. Furthermore, we contribute to the realization of a safe, secure, and pleasant carbon-neutral society by providing EV (electric vehicle) and battery evaluation solutions.



Providing Environmental Measurement Solutions that Contribute to a Safe, Secure, and Environmentally Friendly Society

Social Issues and Customer Needs

Anticipating the next social transformation through digital innovation.

Social Issues

- Dramatic rise in traffic due to increased telecommuting and online education
- Increase in natural disasters such as torrential rains and earthquakes
- Transition to a de-carbonized society

Customer Needs and Interests

- Easily dealing with communication failures in a company (late transmission, disconnection)
- Accurately grasping the state of a monitoring site with visual images in real time
- Development of energy-efficient EVs

Improvement of the Resilience of Social Infrastructure

Roads, rivers, communications, water, electricity, and finance



Advances in infrastructure monitoring operations and ensuring the safety of aging infrastructure
Disaster prevention/mitigation and smart city implementation

Remote monitoring system Image information system



Bandwidth controller Disaster prevention management



Selling highly reliable information and communications equipment and solutions, and EV and battery measurement solutions

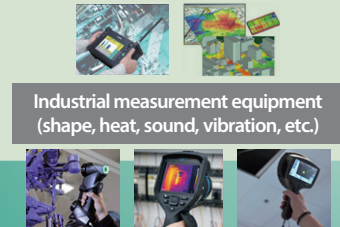
Promotion of Industrial Digitalization

Factories and construction



Introduction and operation of Private 5G
Labor saving and productivity improvement of production facilities

Services to support Private 5G introduction



Industrial measurement equipment (shape, heat, sound, vibration, etc.)



Strengths

- Provision of solutions that integrate advanced proprietary technologies
- Ability to accurately identify customer issues and provide effective solutions

Promotion of Carbon Neutrality

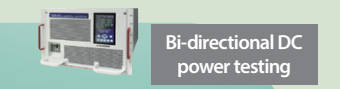
Automobiles and motorcycles, construction machinery, agricultural machinery, and ships



Increased use of EVs and batteries
Expanded use of renewable energy



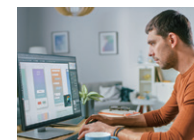
Battery charge and discharge testing



Bi-directional DC power testing

Future Society

Creating a communications environment that ensures stress-free, comfortable connectivity anywhere, anytime



Realizing a society in which measures to prevent and mitigate natural disasters have advanced and everyone can live securely



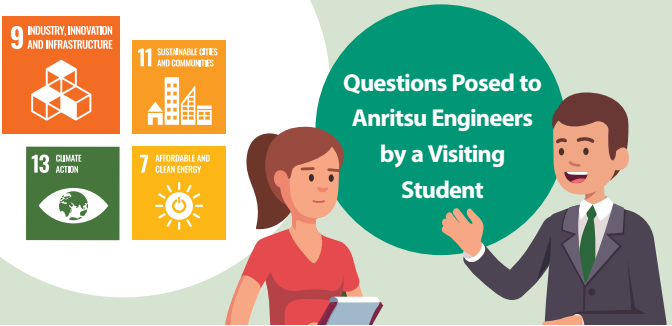
Realization of Earth-friendly and green transportation systems through the spread of highly reliable EVs



Anritsu

SDGs in the Test and Measurement Business

Anritsu's Environmental Measurement Business intends to achieve Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation; Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable; Goal 13: Take urgent action to combat climate change and its impacts; and Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all, in partnership with customers by providing initiatives and solutions that contribute to improving the resilience of social infrastructure, improving productivity through industrial digitalization, and carbon neutrality, all indispensable for creating a sustainable society.



Q: Please tell us about the social infrastructure monitoring necessary to make cities and human settlements inclusive, safe, resilient, and sustainable.

A: Our lives are built on various types of social infrastructure, including roads, rivers, communications, water supply, and electric power, which need to be properly operated and maintained. Given the increased frequency and severity of natural disasters associated with climate change, measures to prevent or mitigate natural disasters are also necessary. Social infrastructure is constantly monitored for these efforts and measures, and Anritsu provides the necessary products and solutions for this monitoring.

Q: So, Anritsu hopes to solve social issues by contributing to the SDGs together with its customers, rather than simply trying to solve them on its own?

A: Yes, that's right. We are contributing to Goals 11 and 13 by offering monitoring solutions that apply IoT technologies and contribute to disaster prevention and mitigation to customers who manage infrastructure.

Q: Please tell us about these monitoring solutions.

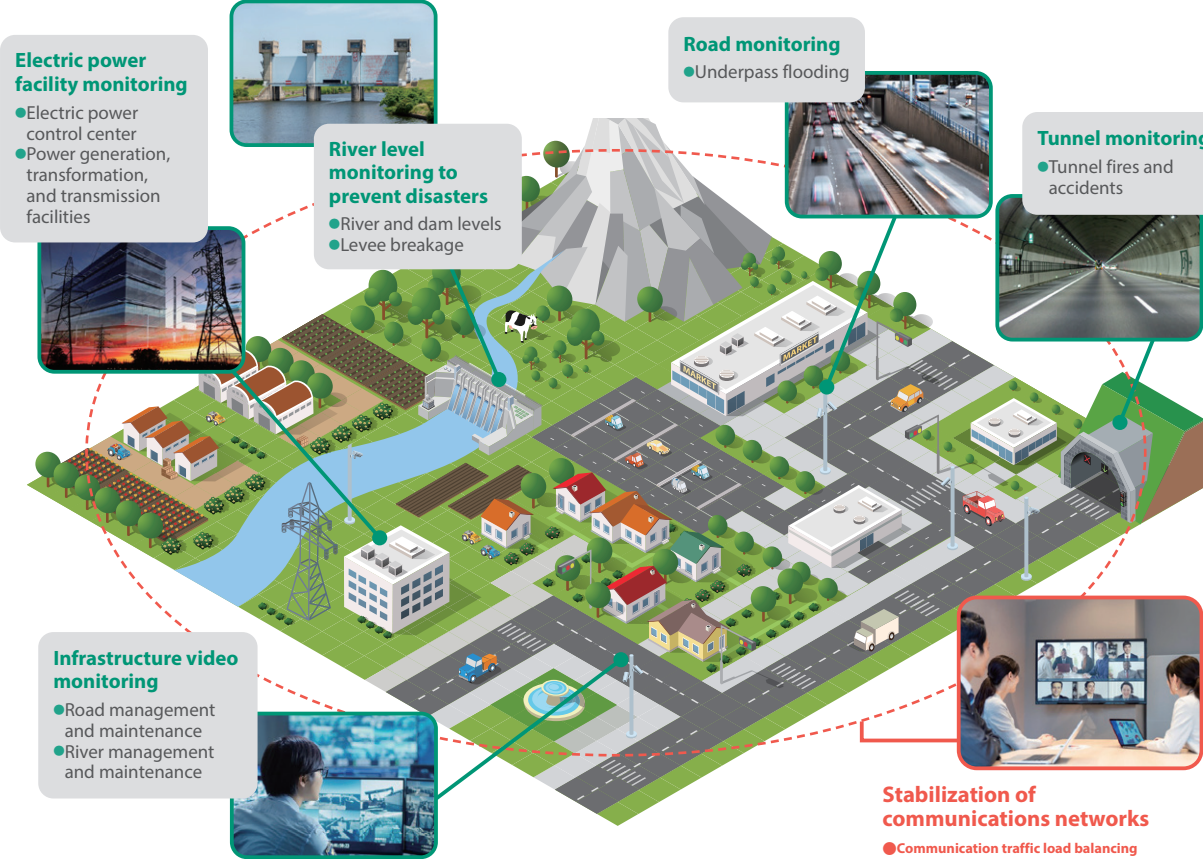
A: To ensure that aging facilities and natural disasters can be promptly and effectively addressed, efficient and accurate assessment of the situation is required to determine priorities. Anritsu provides unique distributed remote monitoring devices that collect the necessary information for this purpose by applying IoT technologies, information browsing devices that efficiently keep track of increasing amounts of footage and data, centralized monitoring solutions built with these devices, and bandwidth control devices that can ensure the stability of critical communications.

Q: What do you mean by distributed remote monitoring?

A: Our distributed remote monitoring devices can be connected to a wide range of equipment to meet the demand for easily monitoring the status of various social infrastructure facilities. We also use edge computing technology to offset the load from the network and central processing unit. This allows, for example, real-time monitoring of the status of warning signs, traffic signals, and emergency alert devices in tunnels, to support safe driving.

Q: I see that Anritsu's solutions are contributing to the SDGs in various fields.

Social Infrastructure Monitoring to make cities and human settlements inclusive, safe, resilient and sustainable



Stabilization of communications networks

- Communication traffic load balancing
- Bandwidth security for critical communications

Sensing and Devices Business

Anritsu contributes to realizing a safe, secure, and comfortable society by improving convenience in our lives together with customers through the provision of optical devices that constitute core components of industrial products and Ultrafast electron devices across the world.



Providing Core Devices to Make Living in Society More Comfortable

SOA

Module

Chip carrier type

Data center

Optical transceiver

Anritsu's SOA-equipped optical transceiver enables long-distance communication between data centers without degradation of optical signals. New product of chip carrier type SOA smaller than module type assists miniaturization of optical transceivers.

Optical coherence tomography (OCT) for ophthalmology

SLD light source

Incorporating Anritsu's SLD light sources into ophthalmic OCT systems allows for high-resolution retinal examination, leading to the early detection of age-related macular degeneration and glaucoma.

Customers

Social Issues and Customer Needs

Anticipating the next social transformation through digital transformation

Social Issues

- Building a robust communications infrastructure that handles increased data traffic
- Increased number of patients with eye diseases due to the aging population

Customer Needs and Interests

- Secured quality of optical signals transmitted through optical fiber that constitutes part of the communications infrastructure
- Development of a high-resolution retinal examination device

Future Society

Helping to solve social issues through digital transformation utilizing high-speed, high-capacity communications



Realizing a society in which people of all generations can enjoy healthy lives due to medical advances



Semiconductor Optical Amplifier (SOA)

Amplifies weak optical signals of long-distance communication

SLD Light Sources for Optical Sensing for Medicine

High resolution imaging for ophthalmic OCT systems

Developing, Manufacturing, and Selling High-performance, Highly Reliable Devices

Strengths

- Advanced device technology with compound semiconductor as core technology
- Realizing flexible responses and high product quality through integrated processes ranging from wafer processing (crystal growth, etc.) to packaging

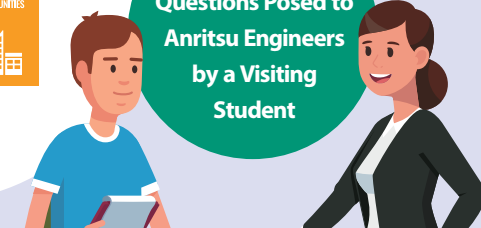
Anritsu

SDGs in the Sensing and Devices Business

Ultra-high-speed optical digital communications networks, together with wireless access networks such as 5G, are accelerating digital innovation and serving as the foundation for solving social issues in various industrial fields, including the environment, medicine, agriculture, automobiles, and disaster prevention. Anritsu's Sensing and Devices Business contributes to achieving Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, and Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable, in partnership with customers by supplying optical devices and ultra-high-speed electronic devices that are the key to various industrial products for customers around the world.



Questions Posed to Anritsu Engineers by a Visiting Student



Q: In what areas are Anritsu's devices being utilized and contributing to the SDGs? Please share the best-known examples.

A: In long-distance optical communications networks that connects the world, it is necessary to intensify, or amplify, optical signals that gradually decrease intensity during transmission. Anritsu provides light sources, namely pump lasers, which are vital for communication network amplifiers, and semiconductor optical amplifiers (SOA), which are equipped optical transceivers in data centers. A stable communication environment is an essential part of Goals 9 and 11, so we are contributing to the SDGs by supporting these environments in partnership with our customers. We are also contributing to Goal 13, as it leads to the reduction of CO₂ emissions.



Q: Can you provide some details about that?

A: More and more data centers are being built due to the increase in data traffic. Our SOAs that amplify optical signals allow large-scale data centers to be constructed at a distance, thereby reducing the need for additional data ones between them, and this in turn reduces power consumption and therefore CO₂ emissions as well. We are also developing SOAs that can be supplied in a chip carrier type instead of a module and that function at high temperatures to help our customers downsize their products and reduce the power consumption required to cool them. We have supplied quite a large quantity of pumping lasers, which are being used around the world in numerous applications. While the power consumption of each individual unit may seem small, it can be enormous when taken as a whole, so it is important to save power.



Q: Have you set any numerical targets for power saving?

A: Our goal is to reduce power consumption by 5% by fiscal 2023 compared to fiscal 2020, and we are promoting power saving initiatives to achieve this.



Q: I see—Anritsu is helping to solve social issues by contributing to the stable operation of optical communications networks and power saving.

Devices Supporting Communications Networks

