Eco-Office, Eco-Factory

Energy-saving Activities at Factories and Offices

The Anritsu Group in Japan depends on electric power for over 90% of its energy needs and is therefore continually striving to reduce its electricity use as the most important factor of environmental activities undertaken at its factories and offices.

Air conditioning equipment consumes the greatest amount of electricity, and the Anritsu Group in Japan has been systematically upgrading to energy-saving equipment, installing ice thermal storage units and modular chillers, frequently cleaning air filters, and undertaking heat insulation work on the walls of buildings. We have also sought to conserve energy by replacing equipment with energy-saving models, such as inverters for fluorescent lighting equipment, LED lighting and low-loss transformers. We have taken part in Cool Biz and Warm Biz activities for the past ten years. We have consequently been able to reduce electric power consumption over the past decade by 23.8% compared to levels in 2005.

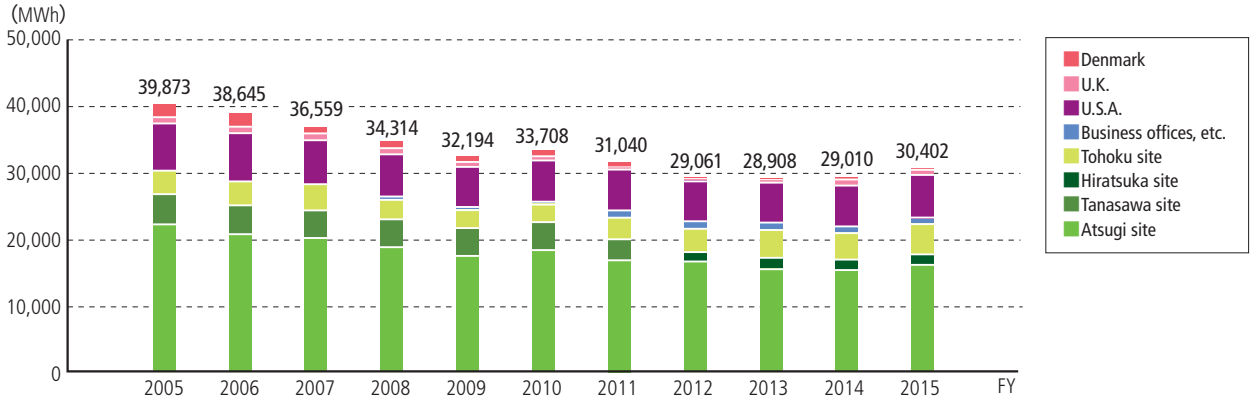
In 2015, we sought to enhance operational efficiency and promote energy conservation by significantly modifying the layout of our site, including our global headquarters building, equipped with the latest environmentally friendly technology. This building features light shelves and skylights to take in natural light, LED lighting, a natural ventilation system that circulates outside air, and a highly-efficient, multi-split air conditioning and ventilation system. The building qualifies for the S-rank, the highest recognition given by Kanagawa Prefecture under its "CASBEE Kanagawa" assessment system for global warming countermeasures in building plans. However, delays in changing the layout of some floors of our buildings led to an increase in the total floor area in which we conduct our business activities, consequently raising the electric power consumption of the Atsugi site by 5.2%.

In addition to these activities, the Anritsu Group in Japan participates in a program promoted by the electric and electronics-related industries in Japan for establishing a carbon-free society by achieving the common goal of improving the basic unit of energy by 1% every year toward 2020. In fiscal 2015, the basic unit rose by 1.8% compared to the benchmark year of 2012. We are also seeking a 1% annual reduction in the base unit under the Act on the Rational Use of Energy.

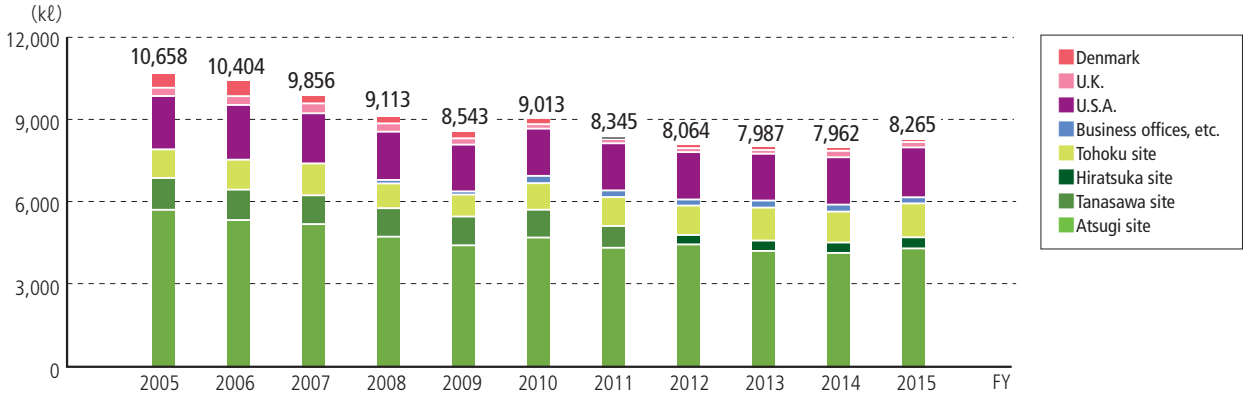
In other regions, Anritsu Company (U.S.A.) installed storage batteries to lower peak power demand, effectively using nighttime power.

Under the mid-term plan of our GLP2017 Environmental Initiatives, we are striving to attain our global goal of reducing electric power consumption by 1% every year compared to fiscal 2014 levels for the Anritsu Group worldwide. However, energy consumption rose by 3.8% in fiscal 2015 due to an increase at the Atsugi site, which accounts for over half of all energy consumption of the Anritsu Group, and to the effects of overnight operations of air conditioning on some floors of the Tohoku site to maintain the necessary indoor environment for adjustments and inspections.

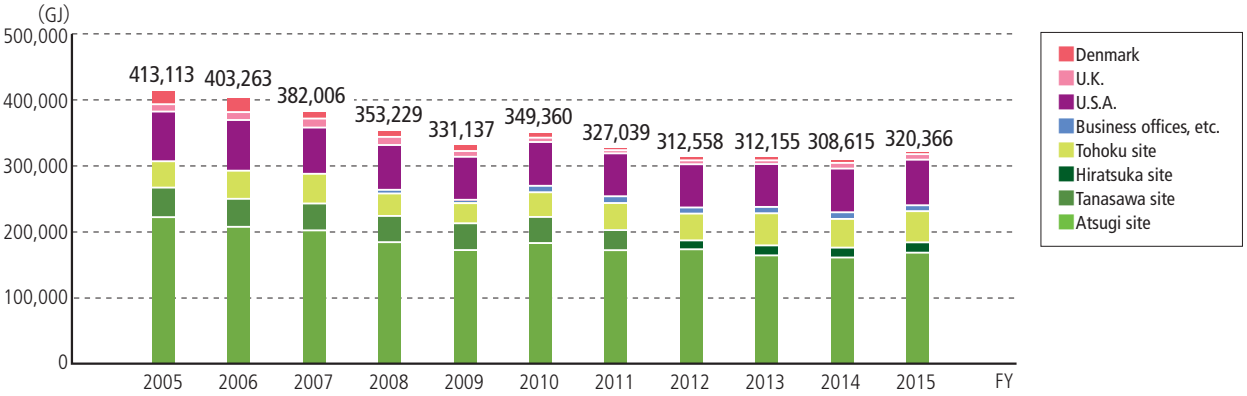
Change in Energy Use



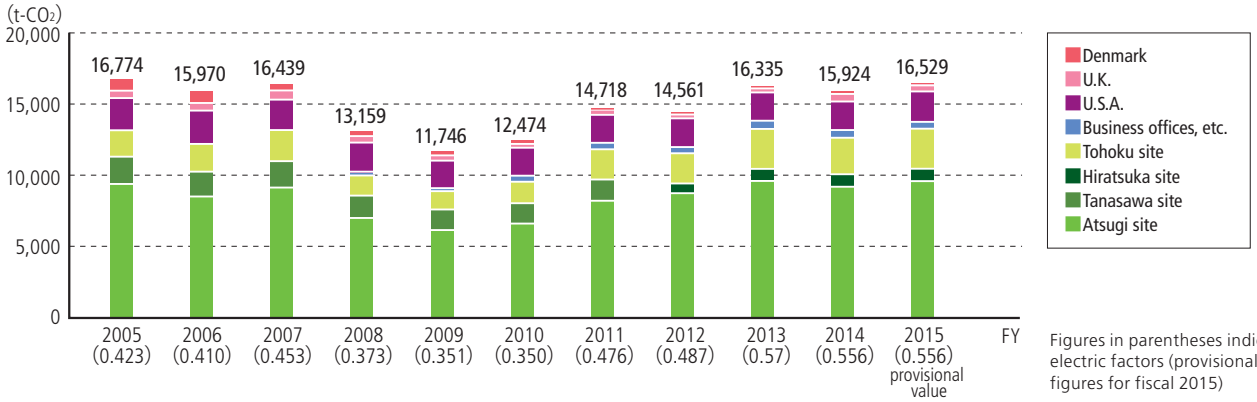
Energy Use (crude oil conversion)



Energy Use (Joule heat conversion)



CO_2 Emissions from Energy Use



Figures in parentheses indicate electric factors (provisional figures for fiscal 2015)

Reference

We calculated CO_2 emissions resulting from the use of energy other than electricity at Anritsu sites inside and outside Japan using the emission factor adopted by the Law Concerning the Promotion of the Measures to Cope with Global Warming. CO_2 emissions associated with electricity power in the United States are calculated using the CO_2 emission factor 0.285 (t-CO_2/MWh). CO_2 emissions associated with electricity in countries other than the United States are calculated using the emission factor published by the Federation of Electric Power Companies of Japan for each fiscal year (the actual figure for fiscal 2014 was temporarily used as the emission factor for fiscal 2015).

The CO_2 emission factor varies each fiscal year according to the supply situation of each electric power company. Therefore, some fiscal years show an increase in CO_2 emmisions, despite reductions in electric energy consumption. (Example: In fiscal 2011, electric power consumption decreased in fiscal 2010, while CO_2 emissions increased year-on-year.)

* CO_2 emission factor (t-CO_2/MWh) :
Until fiscal 2012, we had been using the adjusted CO_2 emission factor including the Kyoto Mechanism Credit, etc. However, following the revision of the Act on Promotion of Global Warming Countermeasures, we decided to start using the actual emission factor in fiscal 2013.

Renewable Energy

Anritsu has solar power generators with maximum output capacity of 200 kW installed at the Koriyama Second Business Office. In fiscal 2015, we installed solar power generators with maximum output capacity of 15 kW at the global headquarters building. That year, the Koriyama Second Business Office used 220 MWh of renewable energy generated by solar power, representing about 18% of its total electricity needs, and the global headquarters building used 19 MWh of solar power, representing about 0.5% of its total electricity needs. Surplus electricity generated at the Koriyama Second Business Office is supplied at no cost to Tohoku Electric Power Company.

Solar power generators at the global headquarters building

Water Resources

Reduced Water Consumption

The Anritsu Group in Japan has reduced water use through efforts such as leakage inspections, upgrading to water-saving toilets and using circulated water in facilities. In fiscal 2015, we reduced water use at the Atsugi site by nearly 12% from fiscal 2014 by using water-saving toilets, body detection sensors for men's toilets and automatic faucets at the global headquarters building.

Anritsu Company (U.S.A.) has been facing worsening droughts in the state of California, where it is located, and has reduced water use by nearly 50% compared to fiscal 2013, amid requests for stringent restrictions in the use of water.

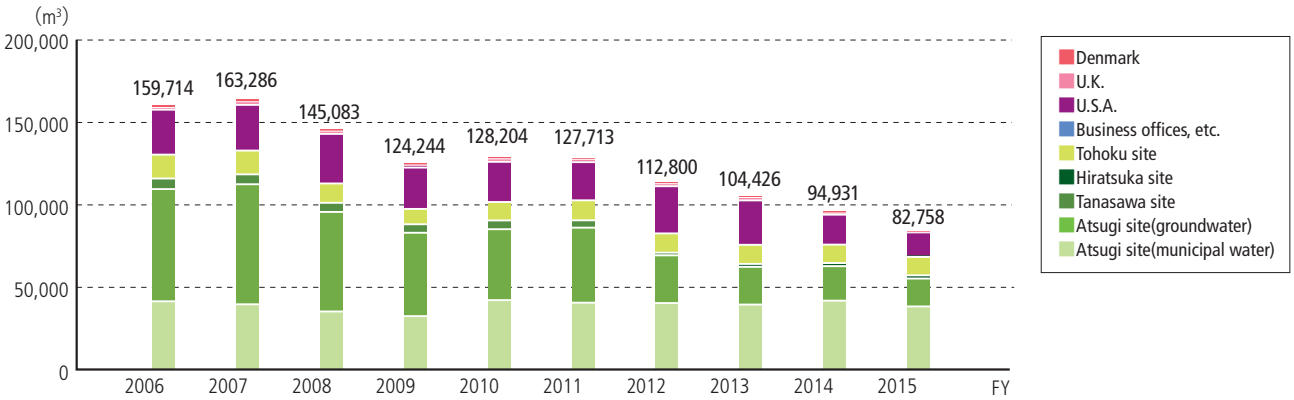
Under the mid-term plan of our GLP2017 Environmental Initiatives, we plan to reduce water use by 1% every year compared to fiscal 2014 levels for the Anritsu Group worldwide. In fiscal 2015, we were able to cut water use by 12.8%.

Consideration for Water Resources

At the Atsugi site, where we use groundwater to flush toilets, we have reduced our use of groundwater to about a quarter of the volume of that in fiscal 2004. And considering the possibility of groundwater depletion and flooding caused by heavy rainfall, we installed a rainwater permeation basin at the global headquarters building to facilitate the penetration of rainwater into the ground.

Efforts to Preserve Resources		
Introduced a body detection sensor for men's toilets	Reuse of rinse water from the metal degreasing unit	Conducted leakage inspections
Introduced water-saving toilets	Installed a rainwater permeation basin	Participated in Mt. Fuji Green Fund Afforestation Efforts (participated in a tree planting activity)
Introduced automatic faucets	Installed water-saving valves for faucets	Participated in a cleanup of the Sagami River
Used groundwater for flushing toilets	Installed a sound emulator, "Otohime," for toilets	

Water consumption



Column Reducing Water Use at Anritsu Company (U.S.A.)

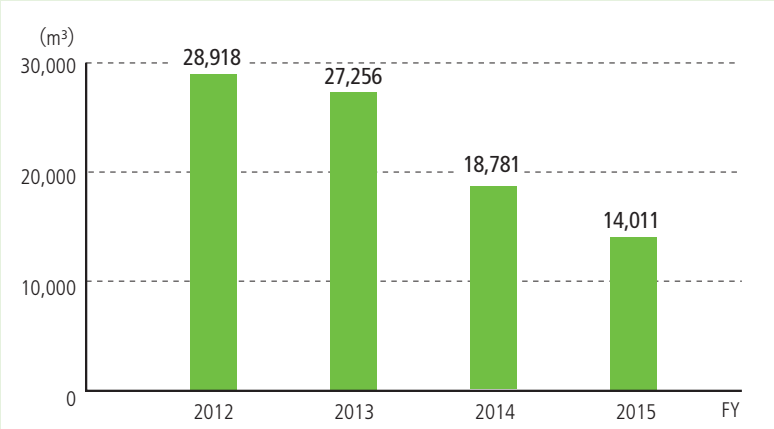
The state of California is one of the largest vegetable and fruit producing regions in the United States, and its population is on the rise. Clean water is essential for plant growth as well as for people's daily lives. However, California is a region subject to frequent droughts and has suffered severe droughts since 2012. The worst drought on record occurred in fiscal 2015, forcing the governor to request that all residents in California reduce water use by 20%.

Based in California, Anritsu Company (U.S.A.) has responded by promoting activities to preserve water resources. The following actions were taken.

1.Upgraded to high-efficiency water heaters
2.Repaired leakage in a water supply facility
3.Raised the efficiency of the water supply
4.Replaced a water-intensive lawn with plants that can withstand dehydration
5.Introduced water-saving toilets
6.Replaced watering sprinklers with a drip water supply system
7.Introduced a waterless method for cleaning windows
8.Arranged an inspection of a water supply facility by external institutions

The Anritsu Company has significantly reduced its water use as a result of these efforts.

▶ **Water comsumption of Anritsu Corporation (U.S.A.)**



Groundwater Management

We have a groundwater well and an observation well at the Atsugi site, where we continue to voluntarily analyze and monitor the six designated organochlorine substances in groundwater. With regard to organochlorine substances, we completely eliminated the use of trichloroethylene in 1970 and 1,1,1-trichloroethane in 1993. As in previous years, levels of tetrachloroethylene were higher than permitted under environmental standards in fiscal 2015. Anritsu, however, has never used this substance, and the local government is also aware that the source of contamination lies upstream from Anritsu. We will nevertheless continue to monitor the site.

Item	Environmental standard level [mg/l]	Measured value [mg/l]
Trichloroethylene	0.01	0.009
Tetrachloroethylene*1	0.01	0.056
1,1,1-trichloroethane	1	<0.0005
1,1-dichloroethylene	0.1	<0.002
Cis-1,2-dichloroethylene	0.04	0.018

*1 Tetrachloroethylene surpassed the acceptable level, but the Atsugi site has never used it.

Excel Environmental Data of Each Site

Wastewater

The Atsugi site operates an industrial wastewater treatment facility to detoxify industrial wastewater containing acids and alkali and wastewater discharged from small boilers used to adjust humidity inside cleanrooms. In fiscal 2013, we upgraded the facility, partly to address the wear and tear of existing facilities but also because of changes in our business structure (the discontinuation in 2002 of industrial processes that use large volumes of water, such as manufacturing printed wiring boards, coating and plating). This has led to a significant decrease in the volume of wastewater as well as a change in its quality. Moreover, intermediate treatment liquids stored in large tanks posed a major risk of leakage in the event of a contingency such as an earthquake. To eliminate this risk, we upgraded the facilities by modifying the structure to incorporate a breakwater to prevent any leaks of raw water, intermediary wastewater or chemicals used for treatment from the tanks. We further reduced the risk by adding a second monitoring system to ensure that water exceeding the permitted pH limit would not be discharged into the surrounding environment.

The Hiratsuka site uses alkaline washing agents to degrease metallic materials but does not discharge industrial wastewater. The rinsing water used by the facility is reused by circulation through filters and ion-exchange resins, which reduces annual water use by approximately 40 m^3.

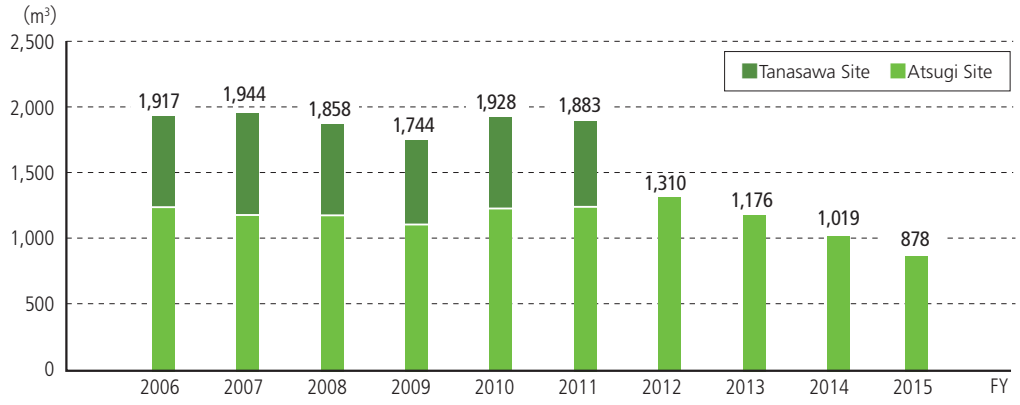
While there are no facilities that discharge industrial wastewater at the Tohoku site, we have installed a pH monitor and emergency cutoff valve to address the risk of water being discharged from boilers and septic tanks in the event of malfunction, which could cause the pH level to exceed regulatory standards.

Each site has developed response procedures to address the potential leakage of chemical substances due to human error or natural disaster. Regular equipment inspections and training are also conducted, and necessary revisions are made to prepare for unexpected accidents.

The industrial wastewater treatment facility

Neutralization segment of the industrial wastewater treatment facility

▶ Wastewater discharge from operations



▶ Atsugi Site : Laws and regulations of Atsugi City regarding discharge into public sewage systems

Item	Emission standard [mg/l]		Measured value [mg/l]		
	Regulation value	Voluntary control value	Average	Min.	Max.
pH	5.0-9.0	5.7-8.7	7.4	6.8	8.0
SS	600	300	6.4	<1.0	16.0
BOD	600	300	18.1	0.8	96.0
Normal hexane extracts Mineral oil	5	3	0.8	<0.5	1
Normal hexane extracts Organic oil	30	18	0.8	<0.5	1
Iodine consumption	220	90	2.4	<1.0	3.3
Fluorine	8	4.8	0.5	0.26	0.78
Total cyanide	1	0.4	<0.01	<0.01	<0.01
Nitrogen	380	125	0.8	<0.2	1.77
Boron	–	–	–	–	–
Chromium	–	–	–	–	–
Chromium Dissolveiron	10	4	0.07	0.03	0.13
Copper	3	1.2	0.04	0.006	0.08
Zinc	2	1.2	0.07	<0.05	0.14
Dissolved manganese	–	–	–	–	–
Nickel	1	0.6	0.03	<0.001	0.05
Lead	0.1	0.06	0.01	<0.001	0.05

※ Items subject to the laws and regulations but excluded from this list were not used as raw materials and therefore not measured.

▶ Tohoku Site (Koriyama First Business Office): Fukushima Prefecture Government regulations

Item	Emission standard [mg/l]		Measured value [mg/l]		
	Regulation value	Voluntary control value	Average	Min.	Max.
pH	5.8-8.6	6.0-8.4	7.1	6.6	7.6
SS	70	30	3.15	1.2	9.3
BOD	40	20	2.45	0.5	6.5
Dissolved iron	10	4	0.21	(*1)	(*1)
Copper	2	0.8	0.03	(*1)	(*1)
Zinc	2	1.2	0.08	(*1)	(*1)
Nickel	2	0.8	Below the detection limit [0.01mg/l]	(*1)	(*1)
Lead	0.1	0.08	Below the detection limit [0.01mg/l]	(*1)	(*1)
Number of colon bacillus (piece/m³)	3000	2400	0	0	0

※ Items subject to the laws and regulations but excluded from this list were not used as raw materials and therefore not measured.
*1 There is no max. or min. records as survey is conducted only once a year.

▶ Tohoku Site (Koriyama Second Business Office): Fukushima Prefecture Government regulations

Item	Emission standard [mg/l]		Measured value [mg/l]		
	Regulation value	Voluntary control value	Average	Min.	Max.
pH	5.8-8.6	6.0-8.4	7.3	6.6	7.4
SS	70	30	2.5	1.1	4.1
BOD	40	20	2.9	0.7	5.8
Dissolved iron	10	4	0.15	(*1)	(*1)
Copper	2	0.8	Below the detection limit [0.01mg/l]	(*1)	(*1)
Zinc	2	1.2	0.01	(*1)	(*1)
Nickel	2	0.8	Below the detection limit [0.01mg/l]	(*1)	(*1)
Lead	0.1	0.08	Below the detection limit [0.01mg/l]	(*1)	(*1)
Number of colon bacillus (piece/m^3)	3000	2400	0.1	0	1.0

※ Items subject to the laws and regulations but excluded from this list were not used as raw materials and therefore not measured.
*1 There is no max. or min. records as survey is conducted only once a year.

Excel Environmental Data of Each Site

Prevention of Air Pollution

Having eliminated the coating process in 2000, no facility at the Atsugi site generates air pollution subject to legal regulations. The Tohoku site operates heavy oil boilers subject to the Air Pollution Control Law.

The boilers are operated on a voluntary management standard to control air quality. No facility at the Hiratsuka site generates air pollution subject to legal regulations.

▶ **Tohoku Site (Koriyama First Business Office): Air Pollution Control Law**

Item	Emission standard		Measured value
	Regulation value	Voluntary control value	
Smuts [g/m^3N]	0.3	0.18	below the detection limit<(0.005mg/l)
Sulfur oxide [m^3N/h]	4.37	2.63	0.07
Nitrogen oxide [ppm]	180	170	95.5

Excel Environmental Data of Each Site

Noise

We are implementing a variety of efforts to detect abnormalities at an early stage, including a system of prior examination before introducing equipment, equipment inspections at the beginning of every operation and regular patrols on the premises. We also regularly monitor noise levels at borders every year.

At the Hiratsuka site, a location with many types of machining equipment, we are working to reduce risks by moving particularly noisy equipment to a soundproofed room and placing noise reducing covers over exhaust vents. Results show that measured noise levels not only meet legal standards but fall below our own voluntary standards as well.

Soundproofed room

Exhaust vent with a noise reduction cover

▶ **Atsugi Site : Kanagawa Prefecture Government regulations**

Measured point	Regulation value [dB][daytime]	Voluntary control value [dB][daytime]	Measured value [dB][daytime]
At the eastern border line	70	68	63
At the western border line	70	68	59
At the southern border line	70	68	58
At the northern border line	70	68	64

▶ **Tohoku Site (Koriyama First Business Office) : Fukushima Prefecture Government regulations**

Measured point	Regulation value [dB][daytime]	Voluntary control value [dB][daytime]	Measured value [dB][daytime]
At the eastern border line	75	73	42
At the western border line	75	73	47
At the southern border line 1	75	73	60
At the southern border line 2	75	73	51

▶ **Tohoku Site (Koriyama Second Business Office) : Fukushima Prefecture Government regulations**

Measured point	Regulation value [dB][daytime]	Voluntary control value [dB][daytime]	Measured value [dB][daytime]
At the eastern border line	75	73	49
At the western border line	75	73	48
At the western border line 2	75	73	44
At the northern border line	75	73	47

▶ **Hiratsuka Site : Kanagawa Prefecture Government regulations**

Measured point	Regulation value [dB][daytime]	Voluntary control value [dB] [daytime]	Measured value [dB][daytime]
At the eastern border line	65	64	57
At the western border line	65	64	59
At the southern border line	75	73	63
At the northern border line	75	73	52

Excel Environmental Data of Each Site

Column Strengthening Environmental Activities at Overseas Production Sites

Since Anritsu's production sites outside Japan are governed under different laws and regulations than those in Japan, we have been conducting environmental audits of overseas bases with particularly high environmental risks since 2012. In fiscal 2015, we carried out an audit at Anritsu Industrial Solutions (Thailand) Co., Ltd.

Despite initial predictions of high environmental risks, we were able to confirm that operations were being controlled under standards similar to those in Japan. Production lines for products requiring compliance with the RoHS Directive were also under appropriate control. In addition to the audit, we provided training on the management of chemical substances and waste.

We will continue to carry out regular environmental audits and activities to raise environmental awareness at our production bases outside Japan.

Chemical Substances Management

Utilization of chemical substances by the Anritsu Group companies in Japan is determined by designating banned or restricted substances from the standpoints of environmental regulations, hazardousness, safety and health, and disaster prevention, and having expert evaluators with knowledge of each criterion conduct prior assessments.

In addition, the amounts of chemical substances purchased, used and disposed of within a three-month period are entered into a chemical substances management system. We use this database to compile the amount of substances subject to the Pollutant Release and Transfer Register (PRTR) Law, calculate the total stored amount of hazardous materials as designated by the Fire Service Act as well as the emission of greenhouse gases, and monitor chemical substances designated by revisions in laws and regulations. We also consider replacing substances with safer alternatives as necessary.

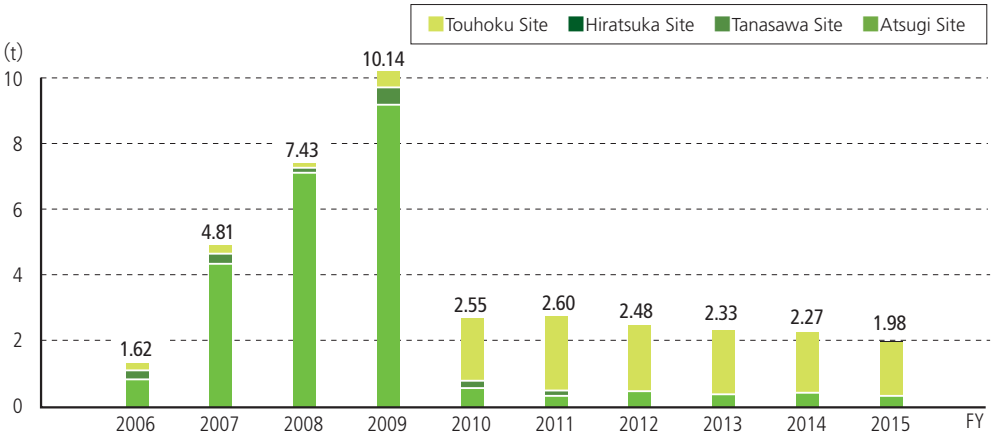
In fiscal 2013, we raised the efficiency of our chemical substances management operations by upgrading the chemical substances management system used for prior assessment and registration of the above-mentioned substances and for monitoring their use. We also sought to visualize our internal efforts in chemical substances management through measures such as expanding the checklist for environmental regulations related to the use of chemical substances.

With respect to substances designated by the PRTR Law, the volume we handle at our sites changed significantly due to a revision of the law in 2010 that excluded from the list liquid bisphenol A epoxy resin, an ingredient used at the Atsugi site, while adding methylnaphthalene, an additive for heavy oil used as fuel at the Tohoku site. In fiscal 2015, more than one ton of methylnaphthalene was handled at the Tohoku site and duly reported to the regulatory authorities. Because it is burned in a boiler, very little methylnaphthalene is externally released; nevertheless, we plan to continue reducing the amount we handle.

With respect to Methylenebis (4,1-phenylene) diisocyanate, which is contained in the liquid concentrate of urethane foam used as shock-absorbing material for packaging, efforts are underway to completely discontinue its use by fiscal 2017.

Regulated Chemical Substances Used by the Anritsu Group	
Banned substances	Class of 7 substances: CFC (chlorofluorocarbons), halon, carbon tetrachloride, 1,1,1-trichloroethane, HBFC (hydrobromofluorocarbons), bromochloroethane, methyl bromide
Limited-use substances	Class of 7 substances: HCFC (hydrochlorofluorocarbons), trichloroethylene, tetrachloroethylene, dichloromethane, HFC (hydrofluorocarbons), PFC (perfluorocarbons)

Chemical substances management under PRTR Law



PCB Management

At the Atsugi site, we tightly control used electric devices such as condensers, transponders and fluorescent ballasts, and pressure sensitive copying paper that contain polychlorinated biphenyl (PCB) within the storage standards for specially controlled industrial waste. Storage status is reported annually to the prefecture under the Law concerning Special Measures for Promotion of Proper Treatment of PCB Waste. In 2006, analysis conducted while upgrading an extra high-voltage transformation installation identified a small amount of PCB in two large transformers. In the course of replacing transformers in 2010, we identified a small amount of PCB in the insulation oil of decrepit equipment and issued an additional notification in June 2011. With respect to condensers, which constitute a portion of high concentration PCB waste, we filed an early request in 2005 for the treatment of PCBs with the Japan Environmental Safety Corporation (JESCO), an interim storage and environmental safety company, and had been awaiting our turn. Our turn for treatment of devices registered with JESCO Tokyo will come in fiscal 2016, and we are currently preparing for appropriate treatment. With respect to ballasts, we are preparing to submit packaging details to JESCO Hokkaido. We are also moving ahead with preparations for the early treatment of waste contaminated with trace amounts of PCB in view of the recent rise in the number of licensed processing companies.

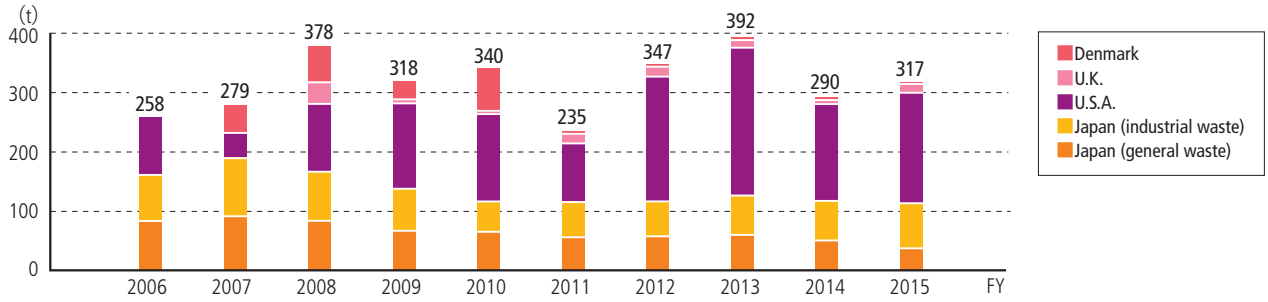
Waste Reduction

The Anritsu Group in Japan has achieved and maintained zero emissions* since 2004 by promoting 3R activities and separation of waste in our offices and production lines.

In our efforts on general waste, we began separating paper containers used for food in fiscal 2013 and have sought to enhance the quality of our recycling activities by shifting from thermal recycling to material recycling. We have also been successful at reducing raw garbage generated by the employee cafeteria. In fiscal 2015, we sought further reductions by installing a new raw garbage disposal tank that led to a decrease of approximately 7 tons of general waste. As for industrial waste, we replaced special wooden frames used to ship components produced abroad to Japan with rented plastic frames to reuse waste and reduce the amount of waste wood. We will continue our efforts to reduce waste.

* Zero emissions: Recycling all waste. Anritsu defines this as achieving a final landfill disposal rate of less than 0.5%

▶ Change in volume of waste



Examples of separate collection of waste

By thorough classification collection, we are working to reduce waste.

Column Introducing the Raw Garbage Disposal Tank

Yoshiro Kenmochi
Environment Team, Facility Management Center, Facility Management Group, Anritsu Kousan Co., Ltd.

Atsugi City's revised ordinance on waste disposal was enacted on April 1, 2013. Under this revision, companies that annually discharged more than 36 tons of general waste from business activities (120 tons before the revision) were designated as business operators generating large volume waste and were required to formulate a reduction plan.

Anritsu became subject to the revised designation with annual general waste totaling 41 tons in fiscal 2012. Following a three-year plan for reducing this waste to less than 36 tons, we began material recycling of paper cups and brick pack cartons and implemented detailed reduction measures in our cafeteria and kitchen. However, significant reductions proved difficult. This led to our installing and starting operations of a new raw waste treatment tank beginning in June 2015 to reduce raw garbage that accounted for about 70% of our general waste.

Raw garbage disposal facilities utilize various decomposition methods. We have been collecting information for more than five years at trade shows and through tours of companies that had already introduced such facilities. None of the options we discovered were entirely convincing. Some were too expensive or emitted an overwhelming odor while others required costly, time-consuming ongoing maintenance, such as replacing woodchips and other decomposition media or removing residues, and still others required considerable electric power. We also considered reusing garbage as feed for livestock, as in pig farms, although this option would require securing a volume above a certain level, passing stringent criteria for garbage quality, or paying a significant amount of the costs, which made it impractical.

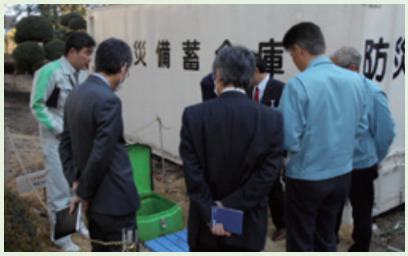
During this process of consideration, we were able to discover the raw garbage disposal tank we recently installed. The tank requires a landfill method for which all we needed to do was store the garbage underground where temperatures are steady and let anaerobic and aerobic bacteria in the tank naturally decompose and disintegrate the garbage, as if it were an enormous compost bin. We had been told that it would ultimately be possible to reduce the volume of garbage to about one-tenth of the input through the decomposition of organic matter and reduced moisture. Daily maintenance would simply involve administering a spoonful of specialized decomposition accelerator to stimulate certain bacteria and suppress odor. This outstanding facility did not require any mechanical parts for mixing or heating the garbage and did not depend on any energy source, such as electricity or gas, and it would not require repairs.

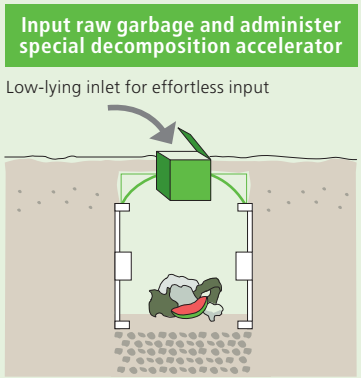
According to the manufacturer, the tanks have been introduced at sites throughout Japan for over 25 years, with more than a thousand units installed to date. However, Anritsu was the first in Kanagawa Prefecture to install a unit.

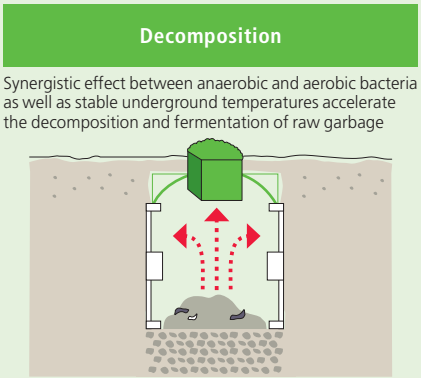
Now, roughly a year after we installed the facility, the tank is nearly full, and we are maintaining operations by balancing the decomposition and disintegration volume and the input volume. In fiscal 2015, we were able to reduce raw waste by a little over 7 tons during the ten-month period from June 2015 to March 2016.

Local government staffs has taken an interest in our efforts. Members of the Atsugi City Council and top officials in environmental administration visited Anritsu in March 2016 for an inspection tour of the raw garbage disposal tank. This offered an excellent opportunity to provide the local government with a useful example and for demonstrating Anritsu's environmental protection capabilities.

We will seek to maintain stable operations by controlling the volume of input, and although we would need to consider our future response when further input becomes impossible, we hope to make good use of the facility, reduce waste at Anritsu and contribute to addressing local environmental concerns.







Certified Business Site Promoting Environmental Consideration

The headquarters (Atsugi site) of Anritsu Corporation, located in Kanagawa Prefecture, is certified and registered both as a business site practicing environmental management and as a business site promoting environmental consideration.*

* Kanagawa Prefecture recognizes companies that meet its requirements for reducing environmental impact, properly controlling chemical substances and establishing organizational frameworks for the environment, and registers them as certified business sites that promote environmental considerations.

Environmental Considerations in Packaging

The Anritsu Group in Japan seeks to reduce the volume of packaging materials. We are also taking steps to completely discontinue the use of shock-absorbing material for packaging, made of urethane foam, which is produced by using a liquid concentrate containing Methylenebis (4,1-phenylene) diisocyanate, designated as a Class I Designated Chemical Substance under the PRTR Law.

Eco-Logistics

Overview of Eco-Logistics

Delivery

The carrier takes out the product from a returnable box and delivers it to a place the customer has designated. After delivery, the returnable box is brought back by the carrier.

Pick up

The carrier arrives at the customer's location with packaging materials and picks up the product after packaging.

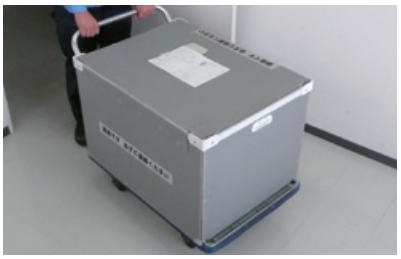
Response to carrier

We maintain transport quality by conducting in-depth discussions between carrier and Anritsu to build a safety system on transport.

Comparison of conventional cardboard packaging with Eco-Logistics

	Conventional cardboard packaging	Eco-Logistics
At delivery	Customer needs to dispose a lot of packaging materials. ➡ A large amount of waste. ➡ Cost of waste disposal will be expensive.	Customer needs to dispose only a few packaging materials. ➡ Small amount of waste. ➡ Enable to reduce the cost of waste disposal.
At pick up	Customers package by themselves with the packaging materials sent by Anritsu. ➡ Customer's product packaging operation occurs. ➡ New packaging materials are required. = Waste occurs.	Carrier picks up the product after wrapping it with their packaging materials. ➡ Customer's product packaging operation becomes unnecessary. ➡ New packaging materials are unnecessary. ＝Waste reduction.

An example of delivery



The product is first covered with a polyethylene bag to prevent scratches and dust and then packaged in a returnable box. The product and attached equipment box are packaged, as shown in the picture to the left. Carrier removes the product from the returnable box.

The carrier removes the product from the returnable box.

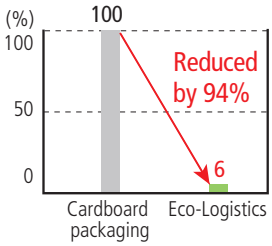
The product and attached equipment box are delivered to the customer, covered with a polyethylene bag for protection. An invoice is attached to the product. After delivery, the carrier brings back the returnable box and packaging materials.

Reduction of packaging material waste.

For the returnable box, the customer only needs to dispose the polyethylene bag that covers the product.

Comparing the traditional cardboard packaging with returnable containers, the waste emissions caused by packaging materials for the customer will be greatly improved, which is about 94% reduction by weight (assuming that the returnable box is used 20 times).

Reduction of packaging material waste



Environmentally Conscious Export Packaging

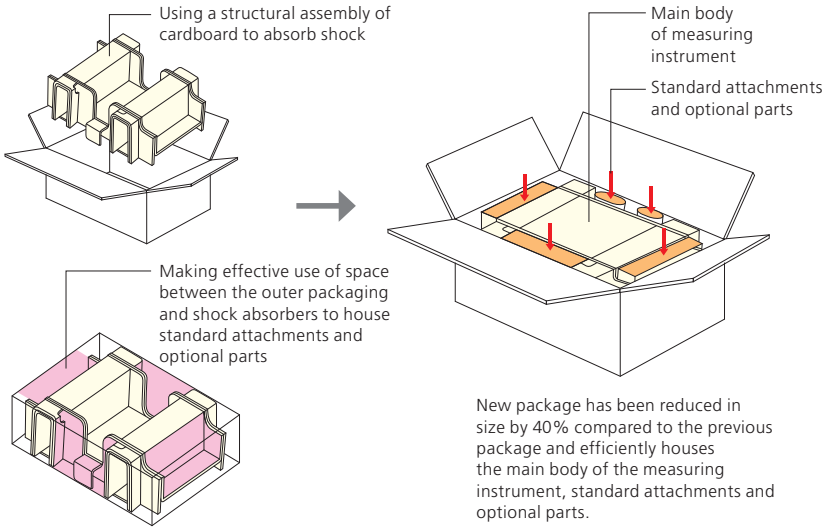
For transporting handheld measuring instruments that are relatively light, Anritsu uses a shock-absorbent material made of a structural assembly of cardboard, combined with an efficient method for housing standard attachments and optional parts. We use environmentally friendly export packaging that does not involve urethane foam. Although 40% smaller than conventional packaging, it provides the same level of protection for products against vibration and shock during transport.

(1) Reducing package size

The new cardboard package is smaller than the previous package.

Left: New cardboard package
Right: Previous package with urethane foam as a shock-absorbing material

(2) New cardboard package without urethane foam as a shock-absorbing material



New package has been reduced in size by 40% compared to the previous package and efficiently houses the main body of the measuring instrument, standard attachments and optional parts.

Column Environmentally Conscious Packaging for Desktop Measuring Instruments

Koichi Fujisaki
Management Group. Logistics Center
Anritsu Kousan Co., Ltd.

Measuring instruments, which constitute Anritsu's core products, are delicate and require protection against vibration and shock during transport. In the past, we applied the two types of packaging for desktop measuring instruments. One is the urethane form packaging, and the other is the film packaging. In the urethane form packaging, the product is wrapped in shock-absorbing urethane foam, and in the film packaging, the product is placed between two sheets of elastic film to absorb shock by maintaining the product inside a hollow structure.

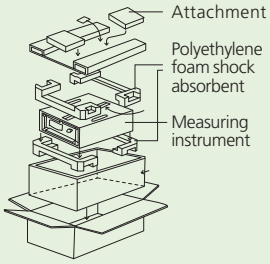
Urethane foam used in shock-absorbing packaging is made of a liquid concentrate containing a substance regulated under the PRTR Law. Although we chose film packaging as an alternative, it requires space around the product for the film to deflect, increasing the distance between the product and the packaging box. The volume of packaging is greater than that using urethane foam as shock absorbent, which reduces the efficiency of transport.

This led us to develop a new, environmentally conscious packaging method. We chose polyethylene foam, which exerts less environmental impact, to absorb shock. We also categorized the mass of the measuring instrument components into large and small in order to create two types of shock absorbing material. Selective use of the material enabled us to develop the Polyethylene Foam Packaging (PEF) method, which offers the same level of resistance to falling shock as film packaging, but is 40% smaller in volume. In fiscal 2015, we applied the method to seven models, transporting approximately 8% of all shipments of measuring instruments in PEF packaging. Efforts are currently underway to apply the method to five more models in fiscal 2016.

Urethane foam shock absorbent

Film packaging shock absorbent

Polyethylene foam shock absorbent



polyethylene foam packaging

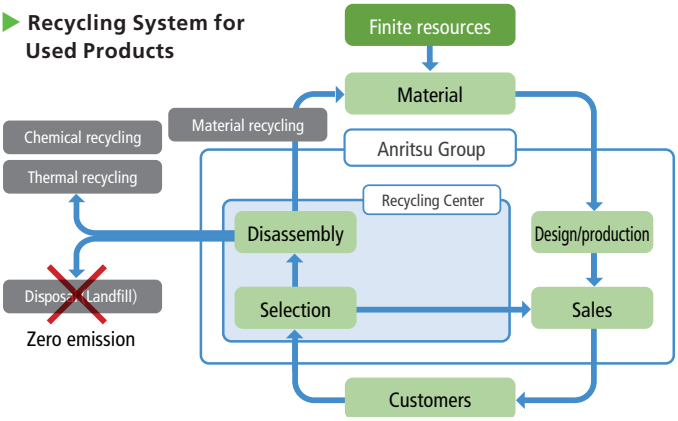
Top: polyethylene foam packaging
Bottom: film packaging
Obvious reduction in size

Recycling Used Products

Anritsu led the measuring instrument industry in establishing the Recycling Center at Anritsu Kousan Co., Ltd., in 2000. Anritsu Kousan obtained a license to engage in the industrial waste disposal business in September 2002 and started operating in fiscal 2003. The center is primarily engaged in treating products used by customers.

In fiscal 2015, the center received 134 tons of used products and equipment generated by the Anritsu Group and recycled nearly 100% of the waste after disassembling and sorting, shipping 96.5% of the resultant material as valuable resources.

The center promotes the refurbishment of used products.

A selection of equipment used in demonstrations is reconditioned and calibrated by Anritsu and then delivered with a one-year guarantee, thus extending the lives of the products.

Recycling System for Used Products