

Environment

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Mitigation of Climate Change (Prevention of Global Warming)

We will strive to reduce GHG emissions by providing green products and innovating in our business processes in order to fulfill our corporate mission to control global warming as per the ESG Initiatives Basic Policy. Having declared support for the TCFD Recommendations, we will proactively continue to clarify risks and opportunities associated with climate change and implement information disclosure.

Approach to Climate Change

Based on "The Advantest Way," Advantest continuously engages in long-term initiatives to alleviate and adapt to climate change in order to contribute to tackling important social challenges related to environmental issues.

For [disclosures related to climate change based on the TCFD Recommendations](#), please refer to "Risk Management" on the "Governance" page.

International initiatives and Advantest's efforts on climate change

Name of institution	Advantest's efforts
TCFD The Task Force on Climate-Related Financial Disclosures	As part of our efforts to ensure information disclosure, we analyze the impacts of climate change on business continuity as well as management risks and opportunities associated with laws and regulations based on the temperature increase scenarios outlined by the IPCC.
SBTi Science-based Targets Initiative	We formulate CO ₂ emissions reduction goals based on scientific insights and implement relevant measures as we work to achieve the goal of limiting temperature increases adopted in the Paris Agreement. In November 2021, Advantest obtained certification from the Science Based Targets initiative (SBTi), which recognized that Advantest's greenhouse gas reduction goals will contribute to achieving the target. (Scope1,2 : 1.5-degrees Celsius, Scope3 : 2-degrees Celsius)
RE100 Renewable Energy 100%	We formulate and implement plans for transitioning to renewable energy sources for the electricity consumed upstream and downstream in our business operations and in our supply chain.
CDP Carbon Disclosure Project	We proactively disclose information on initiatives for risks associated with climate change, such as the TCFD Recommendations, SBTi, and RE100. In December 2021, Advantest was promoted to A- rank from 2020 in the CDP corporate evaluation results. In February 2022, Advantest was selected as the highest-rated Supplier Engagement Leaderboard in the Supplier Engagement Rating (SER).
IPCC Intergovernmental Panel on Climate Change	The IPCC is an intergovernmental organization established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). With the contributions of scientists from all over the world, it regularly produces reports and provides evaluations of the latest scientific findings on climate change. Advantest also leverages these evaluation reports and scenarios published by the IPCC as a basis for analysis of physical and transition risks.
The Paris Agreement (COP21) An international agreement adopted in 2015 with the goal of limiting the global average increase in temperature to 1.5-degrees Celsius, a level that is well below 2-degrees Celsius, compared to pre-industrial levels.	

Initiatives Through Industry Groups

Japan Climate Initiative

Japan Climate Initiative (JCI) is a network of non-state actors who make serious efforts towards the 1.5-degrees Celsius target and the realization of a decarbonized society.

Advantest supports the declaration of the JCI, "Joining the front line of the global push for decarbonization from Japan," and participated in the initiative to support the transition to a decarbonized society by 2050.

We will contribute to the realization of a decarbonized society by voluntarily and proactively taking actions on climate change and by working together with local governments and private companies, which are actively engaged in climate change countermeasures.

Semiconductor Climate Consortium

The Semiconductor Climate Consortium (SCC) is a consortium established by the Semiconductor Equipment and Materials International (SEMI) to speed industry value chain efforts to reduce greenhouse gas emissions from the semiconductor ecosystem. Advantest joined the SCC, as one of the founding members, bolstering climate change measures along with member companies to achieve the 1.5-degrees Celsius target.

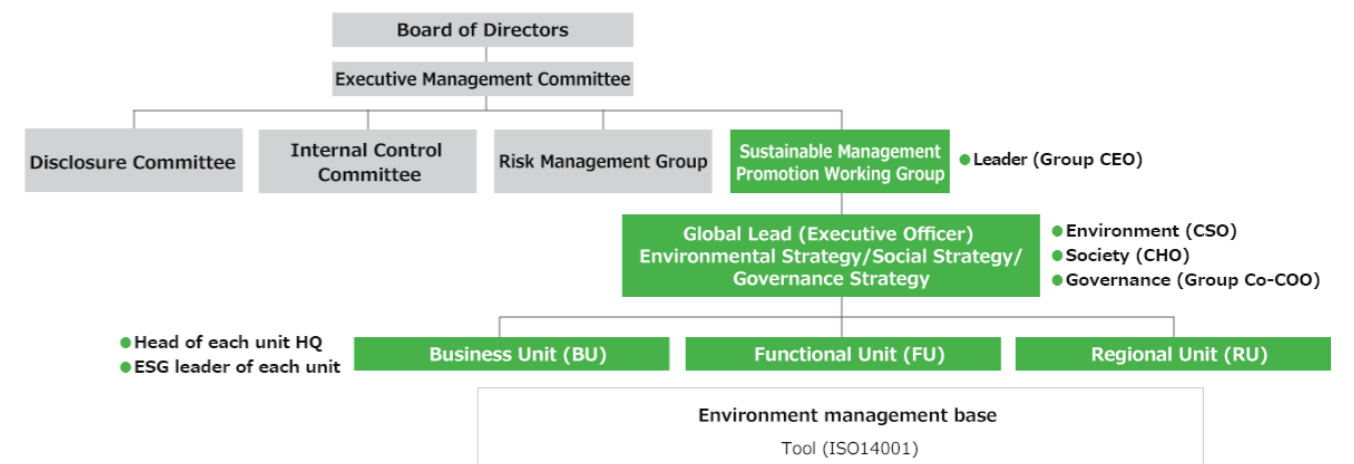


[Involvement with External Initiatives](#)

Environmental Management

Advantest has formulated an ESG Action Plan 2021-2023 to aim for the sustainability of the company and humanity through the enhancement of ESG initiatives. Environmental initiatives are managed under the "E (Environment)" category of the ESG Action Plan 2021-2023. Specific targets and indicator settings are based on international standards for climate change countermeasures. The ISO14001 management program is used as the basis for the commitment to our goals. The results are reported to and discussed with the Sustainable Management Promotion Working Group twice a year. The Working Group will then report them to the Executive Management Committee and the Board of Directors in accordance with the ESG Promotion Basic Policy.

For the details of international recommendations based on scientific evidence, please refer to "[Approach to Climate Change](#)".



Acquisition of ISO14001 Certification

The Advantest Group has acquired the integrated ISO14001 certification for its offices, as well as its research, development, and production facilities in Japan. The Group has acquired ISO14001:2015 certification for its environmental management system, which is based on relevant laws and regulations in each country where it operates. Under the uniform standards provided by ISO14001:2015, we are promoting initiatives to reduce energy use, control waste generation, develop and provide environmentally friendly products (green products), and reduce the environmental impact of our business activities.

Acquisition of ISO14001 certification



As of April 3, 2023

Company	(Base)	First acquisition of ISO14001 certification
ADVANTEST CORPORATION (Including business affiliates)		Aug. 2000 (Integrated certification)
	Head Office	2009/11
	Sendai Laboratory	2000/2
	Gunma R&D Center	2002/4
	Saitama R&D Center	2003/10
	Kitakyushu R&D Center	2003/3
	Gunma Factory	1998/4
Advantest America, Inc.		2008/10
	San Jose, U.S.A.	
Advantest Europe GmbH		2008/4
	Munich, Germany	
	Amerang, Germany	
	Boeblingen, Germany	
Advantest (Singapore) Pte. Ltd.		2008/6
Advantest (M) Sdn. Bhd. (Penang - Malaysia)		2008/9
Advantest Korea Co., Ltd.		2008/7
Advantest Taiwan Inc.		2006/12
Advantest (China) Co., Ltd. (Certification includes the following subsidiaries)		2008/5
	Advantest (Suzhou) Co., Ltd.	
	Advantest Technology (Shanghai) Co., Ltd.	



Bureau Veritas Certification (copy)

Advantest Corporation ISO14001 certifications scope

As of April 3, 2023

Applicable standards	ISO14001:2015
Certification number	15841998
Certification scope	Research, development, design, manufacture and services of semiconductor and component test systems and mechatronics systems
Certifying body	Bureau Veritas Certification Holding SAS
Date of first certification	December 8, 2000 (Acquisition of ISO14001:1996 certification at the Gunma Factory on April 21, 1998)
Date of integrated certification	Integrated as Advantest Group as of December 8, 2000.
Applicable business locations	Gunma R&D Center, Head Office, Saitama R&D Center, Gunma Factory, Kitakyushu R&D Center, Sendai Laboratory (Including each business affiliate)

Implementation of Internal Environmental Audits

The Advantest Group is always implementing regular internal audits on environmental burden reduction activities at each business location in order to confirm internal and external compliance with the operation of the environmental management system (EMS). We have been striving to build an efficient system by training internal auditors in some sections of the company since fiscal 2018. Corrective measures are being executed for all items toward any issues raised by regular internal audits and no serious defects were found in the operation of the environmental management system. In the future, we will continue to make ongoing efforts to improve our environmental management system, and will focus on improving our environmental performance.

Environmental Policies

Advantest has established our environmental policies as an entire group and promotes environmental conservation in view of realizing a sustainable society. Based on the ESG Initiatives Basic Policy, Advantest continuously makes efforts to set long-term goals for environmental priority issues through our business. We have clarified KPIs for the three-year period of our second mid-term management plan (MTP2) (2021 to 2023), with the goal of contributing to the climate change mitigation and a decarbonized society.

Please refer to "Materiality and ESG Action Plan" and "Our Activities in FY2022" for the ESG Action Plan and fiscal 2022 results, respectively.

Environmental policies of the Advantest Group

The Advantest Group contributes to the sustainable development of society through our business activities. Moreover, we are committed to protecting the environment through climate change countermeasures, preservation of biological diversity, etc. as well as ensuring sustainable use of energy, water resources, etc. All our employees actively engage in the following environmental conservation activities so that our company can earn the trust of society.

1. Promoting Environmental Management

By maintaining our environmental management system, we promote global environmental conservation efforts that achieve a balance between business activities and environmental concerns.

2. Reduction of Customers' Environmental Burden

We promote energy conservation, improved recyclability, and the elimination of hazardous substances to provide environmentally friendly products and services that contribute to our customers' reduction of their environmental burdens while considering the life cycle of our products from material procurement to waste disposal.

3. Better Workplace Procedures

We reform work procedures to continually improve our environmental performance by creating environmentally friendly products.

4. Environmental Protection and Sustainable Use of Resources

By being alert to the environmental impact of our business activities, we strive to protect the environment from measures against climate change to the conservation of biodiversity, as well as sustainable use of resources such as energy and water.

5. Complying with Environmental Laws and Regulations and Preventing Pollution

Upholding all environmental laws and regulations and voluntary standards, we protect nature and shield our neighbors from environmental pollution and health hazards caused by chemical substances, waste and other contaminations.

Environmental Education (ESG Education)

The contents of the education, which had been conducted as general environmental education under the certification of ISO14001, was renewed as ESG education in fiscal 2022, with the aim of understanding "sustainability through promotion of ESG" as stipulated in our corporate philosophical system, The Advantest Way. The education is being addressed within the larger framework of ESG promotion as well as the environment.

Basic Stance on Environmental Education

The Advantest Group believes that it is essential for our employees to understand ESG issues in view of realizing a sustainable society. We promote global awareness-raising activities while holding the following two matters in mind.

1. Each and every employee needs to always feel that ESG is an issue close to their heart; and
2. Think about what they can and should do both at work and in the home, and transform these ideas into action.

The Advantest Group addresses "1" not only by providing environmental education but also in terms of ESG education in general and "2" by using our in-house social networking platform, "My LIFE. ON.", to provide a place for sharing individual employees' efforts.

Major Environmental Education Programs

We use the ISO14001 standard to promote our efforts to reduce the environmental impact.

Program name	Educational Contents
Training for new employees	Education for new employees on the Advantest Group's approach to ESG
ESG Education	Understanding of "sustainability through promotion of ESG" as stipulated in The Advantest Way and the Advantest Group's environmental policy, as well as general ISO14001 environmental education
Education for internal environmental auditors	Cultivation and further education of ISO14001 internal environmental auditors
Management of chemical substances	Education on the handling and safety management of chemical substances
Capability training for specific tasks	Education to maintain and improve the skills that are needed by those engaged in specific tasks such as energy management, pollution control and waste management

[Environmental Management](#)

ESG Education (e-learning)

The Advantest Group provides ESG education program globally with the aim of encouraging all of our employees to understand the "sustainability through promotion of ESG" as stipulated in The Advantest Way and the Advantest Group's environmental policy. Educational materials are created in video format and are available in either Japanese or English. The video provides a basic understanding of ESG and sustainability initiatives in an easy-to-understand manner using animations and voice-over, allowing employees to understand ESG and experience a hands-on fun learning.



ESG Education Video

Environment	Includes general environmental education as an element of ISO14001, and covers the five activities based on the Advantest Group's environmental policy. We also promote environmental awareness through understanding of the SDGs and global warming.
Society	Explains Advantest's relationship with various stakeholders, as well as diversity and social issues in the entire supply chain.
Governance	Risk management and compliance adherence are also covered in this area, explaining how addressing ESG as a company enhances corporate value from a long-term perspective.

At the end of the video, several questions about what was learned are asked to check each employee's level of understanding. We achieved 84.3% attendance rate in FY2022.

Participation in General Environmental Education for fiscal 2022

	Target employees	Number of participants	Participation ratio (%)
Japan	2,767	2,567	92.8
Overseas	3,556	2,761	77.6
Overall	6,323	5,328	84.3

Other ESG Educational Activities

Usage of The Interactive Digital Globe

We purchased an [interactive digital globe](#), that reflects real-time Earth data, and installed it in our Gunma R&D Center, our research and development base. This tool, which allows us to learn about global temperature changes and the past, present, and future of the Earth, is used to promote environmental education on a global scale.



Interactive digital globe

ESG Education in China

In line with one of our strategic issues, "Further Enhancement of ESG Initiatives," we conducted ESG training in China in FY2022, which included ESG development and practice in companies. During the training for managers, we invited the founder and CEO of a company that provides solutions related to decarbonization to participate in a lively discussion on the topic of "Development and practice of ESG in the context of carbon neutrality".



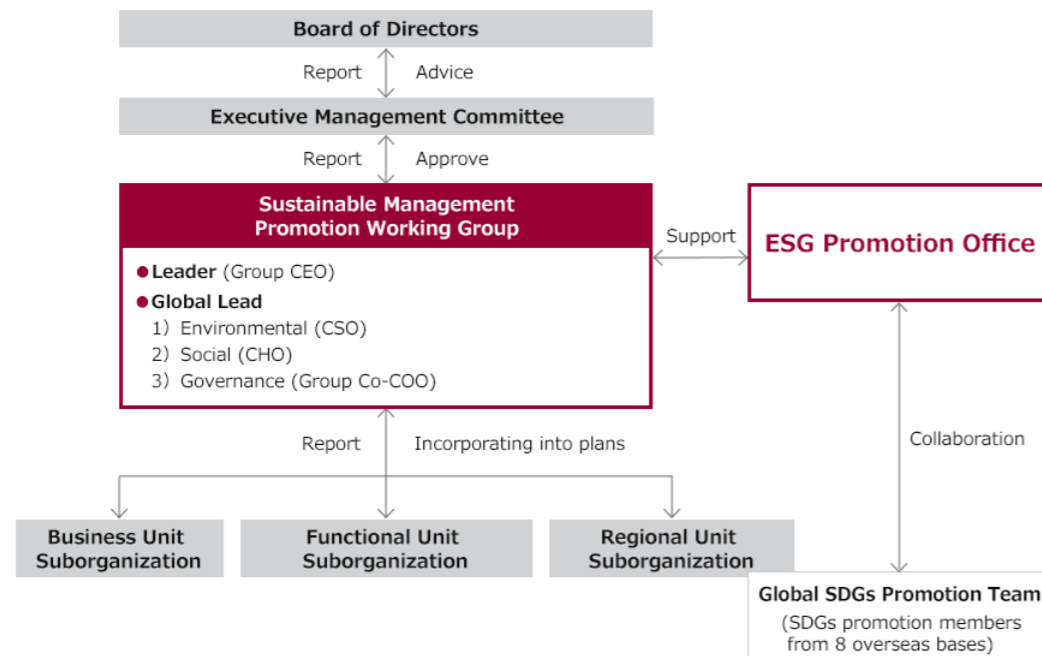
Participants in the ESG training

Global Educational Activities on Our Internal Social Networking Platform "My LIFE. ON."

The Advantest Group runs an internal social networking platform, "My LIFE. ON.". This social networking platform enables our employees to enjoy contributing to the SDGs by posting activities that are beneficial for people, the environment, and society and "liking" and commenting on each other's posts to demonstrate their support for such activities.

Establishment of a Global Promotion System and Encouraging Environment Awareness Events

The Advantest Group has built a global system to encourage employee participation. SDGs promotion members from eight global locations hold online meetings three times a year to report on their own activities and plan and manage joint global events.

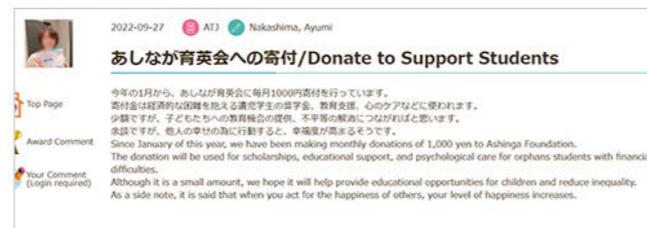


A moving post about an employee in China who is supporting a young girl with a dream of becoming a doctor received impressive response. A sequel was also posted to the account in which the girl grew up, became an intern at the hospital, and got even closer to achieving her dream. The in-house social networking platform "My LIFE. ON." surely has become more than just a place to share information; it has become a tool that provokes great inspiration.



Girl sponsored by Advantest China's employee

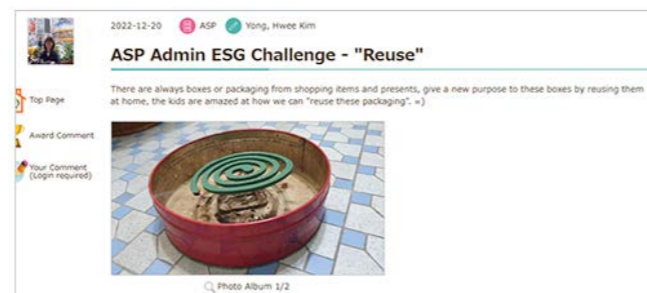
In FY2022, employees at our sites around the world conducted many social contribution activities under the theme of giving back/return to society. In Japan, we held an online event entitled "Let's share your social contributions" and made effective use of the in-house social networking platform "My LIFE. ON."



Introducing a portion of a post (donation)

Employees and their families participated in social activities such as beach clean-ups, posted their activities on My LIFE. ON., and readily introduced many domestic and international activities. This helped in creating a good exchange of information and interaction by communicating with people from other departments with whom we normally do not interact with.

We received many posts from employees in Singapore who enjoyed engaging in the 3Rs (reduce, reused, recycle). The ability to exchange information easily across borders is one of the strengths of My LIFE. ON.



Introducing a portion of a post (reusing the container as a mosquito coil holder)

Climate Change Initiatives in Our Business Activities

We understand the impacts our business activities have on the planet's environment and we carry out activities to reduce our environmental impact. This page introduces our initiatives for environmental conservation.

Green Products

Basic Stance

Contributing to the sustainable development of society and conducting environmentally friendly business operations are essential issues that need to be addressed in modern business management. The Advantest Group works to develop products from the perspective of environmental conservation while prioritizing high precision and high quality, and certifies as green products those products that are environmentally friendly in terms of the three key aspects of energy and resource saving, improving recyclability, and elimination of hazardous substances. There is demand in society for the supply of green products because they provide both a reduction in the environmental footprint and an improvement in economic value. The Advantest Group has been promoting business activities based on the belief that providing green products will be in response to these demands and beneficial for its customers since 2005.

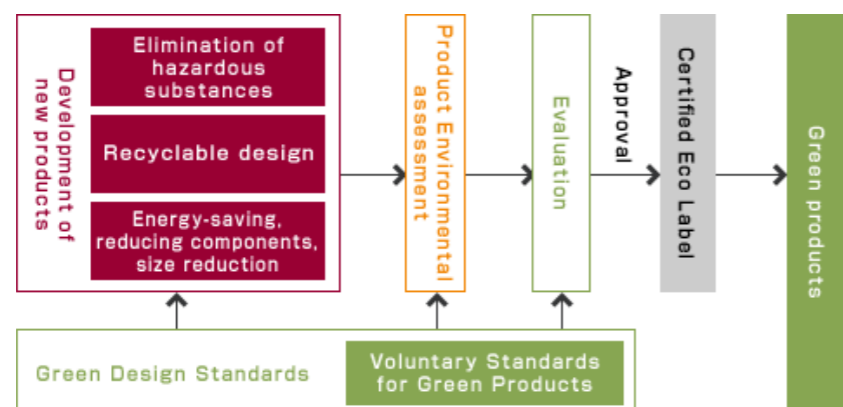
Development Flow of Green Products

At the Advantest Group, all products undergo a product environmental assessment.

During the product environmental assessment, products are assessed from various aspects, including energy-saving, reduction of the number of components, size reduction, recyclable design, and elimination of hazardous substances.

New products that meet the Voluntary Standards for Green Products defined by Advantest are certified as green products and are awarded with an Eco Label (type II), in addition to the product environmental assessment. We design new products to be 100% green products.

Development flow of green products



Advantest Group Eco Label

The Advantest Group Eco Label features an original three-color design representing energy and resource saving, recyclable design, and elimination of hazardous substances through green procurement.

Energy and Resource Saving

Voluntary Standards

- Energy saving design
- Reducing component design
- Size reduction design



Recyclable Design

Voluntary Standards

- Design with recyclable plastic materials
- Design for ease of dismantling
- Release of information on disposal

Elimination of hazardous substances (Green Procurement)

Voluntary Standards

- Improved rates of green procurement
- Elimination of banned substances

Energy and Resource Saving

We aim to reduce the environmental impact of our products through product designs that save energy, reduce components, and reduce size.

The reduction rate of energy against conventional products has been set to a standard of at least 20% for semiconductor test systems and measurement instruments, and at least 10% for other products such as handlers and nanotech products.

We have also set a reduction rate of at least 10% in the same way for components and the miniaturization for all of our products.

Recyclable Design

In recyclable design, we release information on parts that will require special attention during disposal, and plastic parts designed in-house use 90% or more recyclable materials. Moreover, we make sure that products are easy to dismantle with standard tools, and we use rechargeable batteries displaying a recycle symbol.

Elimination of Hazardous Substances (Green Procurement)

To eliminate hazardous substances from our products, we have established Group standards on banned substances based on the IEC62474 standard, and we conduct surveys of hazardous substances contained in parts and materials used in our products. Advantest is building a response system for some of its products and eliminating relevant chemical substances using the results of this survey because these chemical substances are regulated by the RoHS directive as of July 2017.

Our main products are semiconductor examining devices, which are not manufactured products. Therefore, our main products do not cause emissions of gases such as PFASs.

Green Products Certified During Fiscal 2022

We supplied the following product, which was certified as a green product in fiscal 2022.

- Test Systems Series: One Product

Product Recycling

Advantest has been recycling products through Advantest Pre-Owned Solutions Co., Ltd. since January 2022. In response to changes in the business environment, we work with the Field Service Group to respond to a variety of customer requests, with the support for products that have been shipped to the market at the core, until the shipped products are no longer in use.

Recycling is one solution that we provide for customer inquiries for products they no longer need. Currently, recycling is a domestic Japan-only solution, but we will continue consider its global applications and expand our activities.

Basic Stance

It is the Advantest Group's basic policy to take active steps to ensure that the products we sell are reused and recycled after they are retired, and to buy back products that are not expected to be reused so that the resources can be recycled.

Recycling policy

1. Achieve 100% collection of recyclables through manual dismantling.
2. Clarify to whom recycling is to be commissioned, and ensure traceability.
3. Promote the conservation of the global environment in collaboration with customers.
4. Properly dispose of harmful substances.

(Hazardous substances: mercury relay, ion type smoke detector, internal cooling water, and Fluorinert)

Efforts to Eliminate Plastic

For more than 15 years, Advantest Gunma Factory has used reinforced cardboard packaging to transport our products, such as test systems, contributing to the elimination of plastics and the reduction of waste. In addition, reinforced cardboards are also used for the pallets on which the products are mounted, thus achieving a reduction in plastics.

The cardboard boxes are manufactured in appropriate sizes with the cooperation of our cardboard suppliers, which serve vital roles in providing safe and efficient deliveries. Moreover, the cardboard boxes are about half the weight of the wooden boxes used in the past, not only contributing to reducing CO₂ emissions during product delivery but also reducing the burden on employees since they are not just easy to pack, but are also easy to unpack at the shipping destination. A single cardboard packaging material is used only once for transporting a single product, and is recycled based on the rules of the customer.

Results Achieved in Fiscal 2022

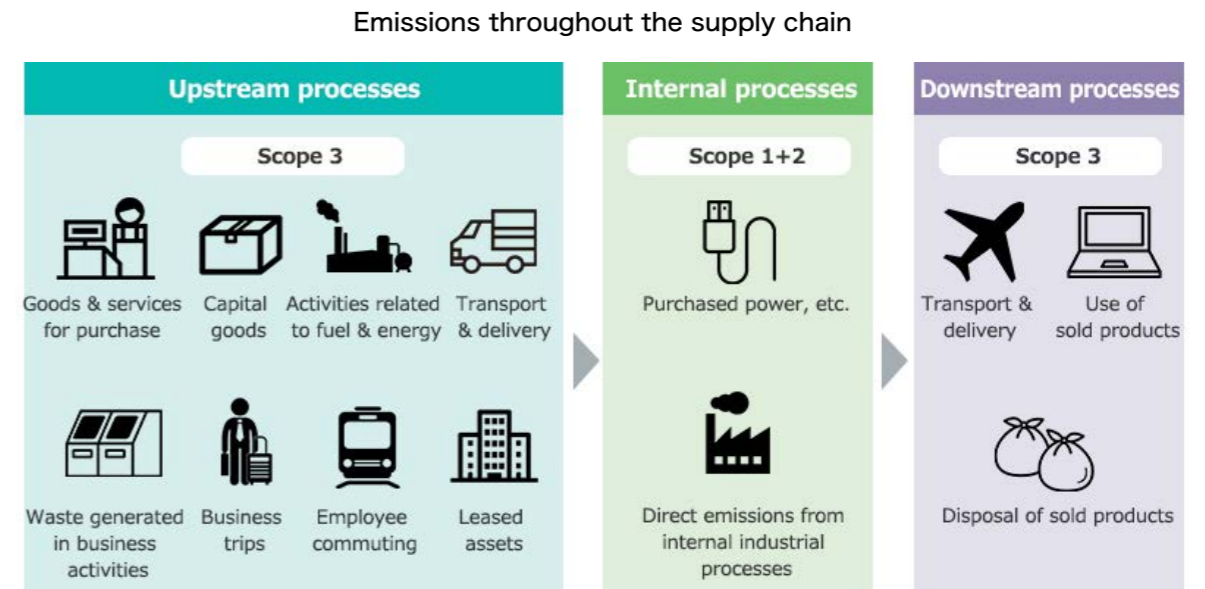
In fiscal 2022, there was no recycling result due to the high operating rate of our customers under the tight market environment for semiconductors resulting from the global chip shortage.

Product recycling flow in practice



Initiatives to Address Supply Chain Emissions

Efforts by individual companies alone to address climate change will have only a limited effect, which prompts us to engage in initiatives involving the entire supply chain and industry associations. The Advantest Group will proactively work to reduce our environmental footprint over the medium to long term through our supply chain in order to achieve our CO₂ emissions reduction targets.



Task Force to Promote Supply Chain Emissions Reduction Activities

In our entire supply chain, Scope 3 "Category 1: Purchased goods/services" and "Category 11: Usage of products" account for a large portion of our total CO₂ emissions. In addition to the reduction of CO₂ emissions in Scope 1+2, we have identified the reduction of CO₂ emissions in Category 1 and 11 as priority items in our ESG Action Plan 2021-2023. To achieve the SBTi certification targets for Scope 1+2 and 3, we are accelerating CO₂ reduction activities throughout our supply chain. As a priority measure, we have established task forces to promote these CO₂ reduction activities from FY2021, and are accelerating such activities throughout the supply chain to achieve the SBTi certification targets for Scope 1+2 and 3.

(1) Task Force 1: CO₂ Emissions Reduction in Product Development (Scope3 Category11)

ESG Action Plan 2021-2023

Key Issue	Objective	KPI		2021	2022	2023	2030
Value chain (Scope3)	Reduce CO ₂ -equivalent emissions (basic unit) per test by 50% by 2030	Reduction rate in basic units (vs. FY2018)	Target	Set basic unit calculation definition		20%	50%
			Result	Set basic unit calculation definition	Defined basic unit calculation definition	NA	NA

Task Force 1 will promote the reduction of CO₂ emissions through the development of next-generation products with low power consumption and high efficiency in collaboration with our global R&D departments worldwide. Specifically, we aim to reduce CO₂ emissions per test (basic unit) in the use phase of our main products by 50% by FY2030. Our Scope 3 "Category 11: Usage of products" has the largest amount of CO₂ emissions, accounting for 65% of the entire value chain. Lowering this CO₂ emission is crucial in reducing CO₂ emissions throughout our value chain. CO₂ emissions from the use of products sold are significantly affected by market fluctuations such as product sales. For this reason, we will set targets for reducing emissions per unit of production in conjunction with our mid- to long-term business plan, and review them annually so as to contribute to CO₂ emissions reduction through our products.

(2) Task Force 2: CO₂ Emissions Reduction Through Cooperation with Business Partners (Scope 3 Category 1)

ESG Action Plan 2021-2023

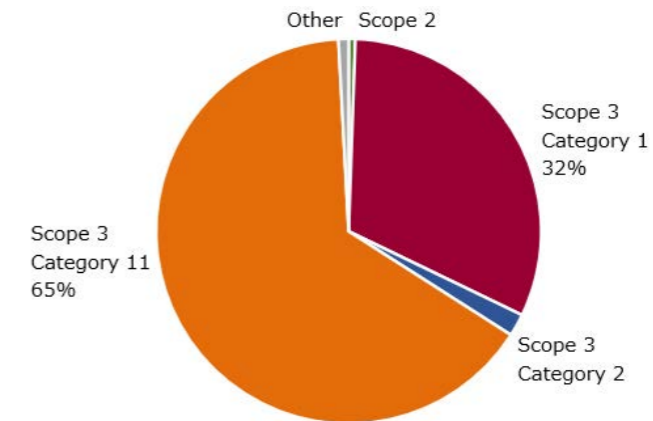
Key Issue	Objective	KPI		2021	2022	2023	2030
Value chain (Scope3)	Promote the use of renewable energy by suppliers and contractors	Number of suppliers who use renewable energy	Target	10	20	40	TBD
			Result	12	22	NA	NA

Task Force 2 will work with the procurement department to support the reduction of CO₂ emissions by promoting the use of renewable energy among our suppliers. Specifically, we aim to increase the number of our suppliers who have adopted renewable energy to 40 by FY2023. We conduct an annual "Supply Chain CSR Survey" among our major suppliers, to which we have added questions on the implementation status of renewable energy and greenhouse gas emissions since FY2021, thereby enhancing the questionnaire on our suppliers' climate change initiatives. Through this questionnaire, we have ascertained the status of our suppliers' implementation of renewable energy, provided individual feedback based on analysis and evaluation of the questionnaire results, and offered basic seminars on climate change. By means of these activities, we will promote suppliers' use of renewable energy and contribute to the reduction of CO₂ emissions throughout the supply chain by gaining an understanding of the necessity and importance of reducing greenhouse gas emissions.

(3) Task Force 3: CO₂ Emissions Reduction Through Collaboration with Our Customers

Task Force 3 will work together with the sales department to promote the reduction of CO₂ emissions through collaboration with our customers. We conducted a survey of our major customers to explain our desires and expectations to suppliers, as well as their policies and goals regarding climate change. While considering our desires and expectations for their suppliers, we will distill and incorporate them into the roles we ought to play and the issues we ought to tackle through our strategies, and will reflect them in our ESG activities. We will also aim to understand our customers' climate change policies and targets, and contribute to CO₂ reduction through collaboration with our customers as a member of the supply chain.

CO₂ Emissions Percentage



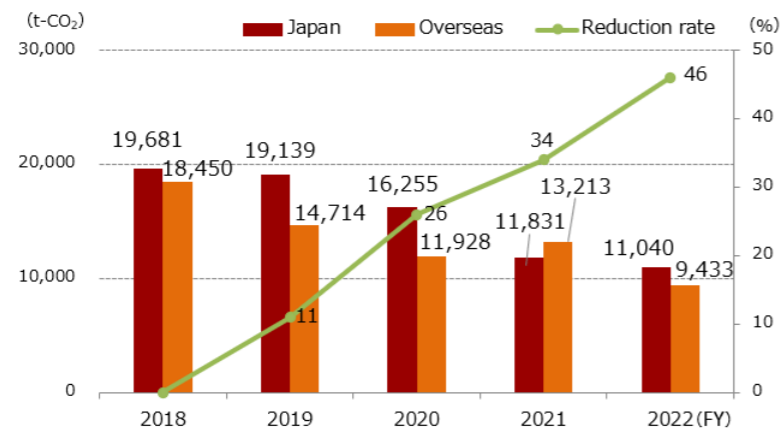
(4) Task Force 4: Reduction of Greenhouse Gas Emissions in Business Activities (Scope1+2)

ESG Action Plan 2021-2023

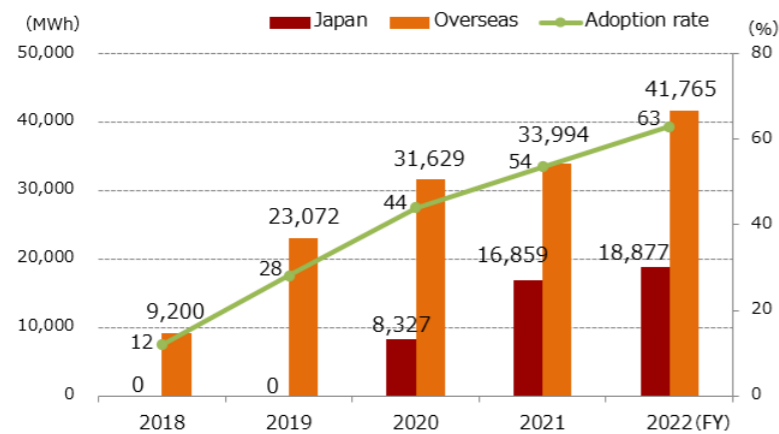
Key Issue	Objective	KPI		2021	2022	2023	2030
Climate change (Scope1+2)	Reduce GHG emissions from business activities by 60% (vs. FY2018)	GHG emissions reduction amount/rate	Target	35%	38%	40%	60%
			Result	34%	46%	NA	NA
	Raise renewable energy usage to 70% by 2030, Group-wide	Coverage rate by renewable energy	Target	50%	53%	55%	70%
			Result	54%	63%	NA	NA

Task Force 4 aims to reduce CO₂ emissions from the Advantest Group's business activities by 60% by FY2030 (compared to FY2018) through the introduction of energy-saving equipment and renewable energy, and to achieve a renewable energy ratio of 70% by FY2030. In FY2022, we newly installed renewable energy at our sites in China and Taiwan, as well as at our headquarters, Sendai Laboratories (ATL), and Advantest Components in Japan. We will continue to contribute to the reduction of CO₂ emissions generated by our operations by reducing greenhouse gas emissions from our business activities and promoting the introduction of renewable energy.

CO₂ emissions and reduction rate over time (Scope 1+2)



Renewable energy volume and renewable energy introduction rate over time



Climate change initiatives at our domestic locations

The Gunma Factory switched to renewable energy sources for all electricity use in April 2021

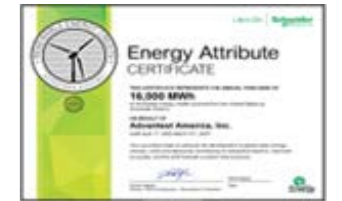
From 2021, 100% of the electricity used at the Gunma Factory is powered by renewable energy sources. Generated by the hydroelectricity facilities on the factory premises, this CO₂-emissions-free renewable energy is produced and consumed locally. The electricity fees for the environmental added value (the increase in fees) will be utilized in future creation initiatives by Gunma Prefecture.



Climate change initiatives at our overseas locations

Offices that utilize 100% renewable energy

In an effort to reduce environmental impacts associated with electricity use, Advantest America, Inc. (AAI) has purchased Green Electricity Certificates for wind power generation since 2012. AAI sources 100% of its electricity from renewable energy sources. Furthermore, in 2012, AAI joined the Green Power Partnership of the United States Environmental Protection Agency (EPA), which is an initiative to promote renewable energy, and has contributed to expansion of green electricity.



Tradable Green Certificate (United States)

Advantest Europe GmbH (AEG) has been implementing renewable energy since 2019. AEG has introduced renewable energy sources such as solar power generation, and sourced 100% of its electricity used from renewable energy sources ever since.



Tradable Green Certificate (Germany)

Advantest (China) Co., Ltd. (ATC) has been implementing renewable energy since 2022. ATC has purchased a Green Electricity Certificate for solar power generation, and sourced 100% of its electricity used at the business sites from renewable energy sources.



Tradable Green Certificate (China)

Recycling Resources

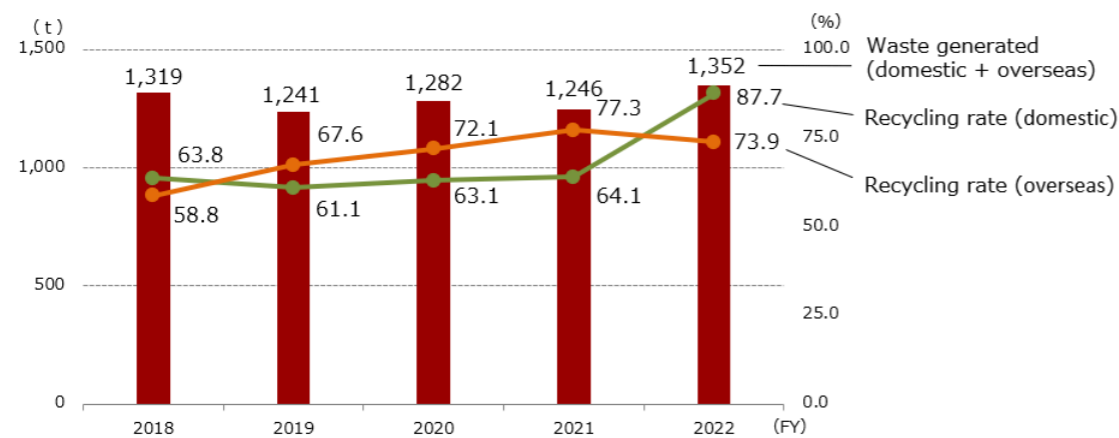
The Advantest Group pursues operations encompassing the "3Rs" (reduce, reuse, and recycle) with the aim of realizing a recycling society.

Waste recycle initiatives

The Advantest Group is committed to converting waste into valuables by reinforcing the initiative we launched in FY2009 to separate components. We ensure strict compliance in these activities.

In disposing of waste (including packaging materials) generated in our business activities, we clearly indicate to our outsourcing contractors the disposal method for each classification as per the relevant laws (including local laws and regulations) to ensure proper disposal and recycling by material type.

Trend in waste generated and recycling rate

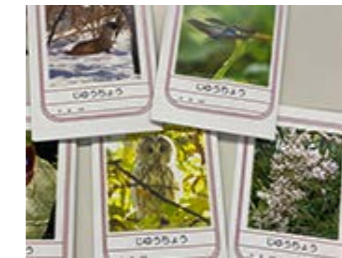


Data range for tabulation: Advantest Group data

- * The amount of waste generated, and the amount of waste recycled in Japan were calculated excluding valuable materials.
- * We found, through an inquiry to a waste disposal contractor, that some generated waste which had been allocated to the recycled quantity was not in fact recycled. We have recalculated and restated the past figures accordingly.
- * Due to the difficulty of totaling a single overseas office, we excluded it from the calculation of the waste generated and the amount waste recycled from FY2021, and recalculated it retroactively.

Realizing a New Circulation Cycle with the Introduction of a Recycling Equipment

Advantest has installed a recycled paper manufacturing machine from 2020, which can produce new paper from used paper such as rejected documents. With this machine, most of the confidential documents to be disposed, which were hitherto collected and sent to a contractor for disposal, will be processed in-house, and given "new life" by being recycled into paper and made use for various purposes, such as business cards.



Notebooks made from recycled paper



Operating the recycled paper manufacturing machine

We also made notebooks using recycled paper and gave them as gifts to local elementary school students who visited our biotope for nature observation events, as well as to special-needs school students and teachers who paid a visit during our company tours. These help in view of our social contributions by providing teaching materials for learning applications.

The equipment is operated by our employees with disabilities. It will also create more opportunities for people with disabilities to play an active role in the company. Once they embark upon their careers and showcasing their active roles as members of the Advantest Group will prove to be a way to repay their alma mater. With the introduction of the new paper manufacturing machines, Advantest has realized a new circulation cycle through various aspects such as environmental commitment, employment of people with disabilities, and educational support.

For more information on employment of the disabled, please refer to ["Employment and Diversity"](#).

Proper Disposal of Waste Plastics and Material Recycling

Advantest has been recycling all waste plastics at business locations in Japan.

At its Gunma Factory, trays and magazines, which are used as parts containers, are disposed of as waste plastics.

Individual employees check the recycling identification mark on each container to sort containers containing PVC.

This allows waste plastics to turn into the main raw material for RPF (Refuse Paper & Plastic Fuel), which is a high-quality solid fuel.

Waste plastics containing PVC are crushed, incinerated, and recycled as molten slag, which is used mainly as roadbed material.



Proper Disposal of Equipment Containing PCB

Advantest owned three capacitors, fluorescent lights, and stabilizers that contained polychlorinated biphenyls (PCBs), but all pieces of the equipment that contained PCBs were properly disposed of during FY2017.

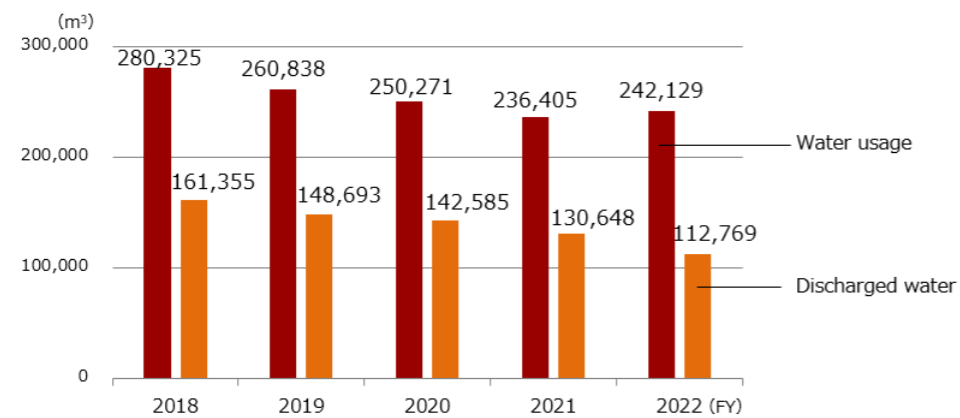
Effective Use of Water Resources

Advantest's main usage applications of its water resources are the operation of air conditioners, kitchen use, toilet cleaning, and drinking. At our main bases, we use water for industrial use efficiently. In addition to using this water for cleaning the toilets, we also use it with roof-mounted sprinklers to improve cooling in the summer. Advantest is also filtering drinking water and using ultra-pure water at some business establishments. It should be noted that approximately 90% of the discharged water produced by Advantest Group is classed as domestic sewage. Currently, domestic sewage and rain water cannot be recycled.

Advantest's development and manufacturing sites in Japan are located in Gunma Prefecture and Saitama Prefecture and use water resources from the Tonegawa River. In order to protect the Tonegawa River's water resources, we carry out forest protection activities in [the national forest in Gunma Prefecture](#), [the source of the river](#).

Of course, every member of our staff takes care not to waste water, and strives to make effective use of our water resources.

Trend in water usage/discharged water



Data range for tabulation: Advantest Group data

Initiatives on Environmental Risk Management

This page introduces our various initiatives for ensuring legal compliance in all our business activities, reducing their environmental impact, and so forth.

Management of Legal Compliance Regarding Environmental Impacts

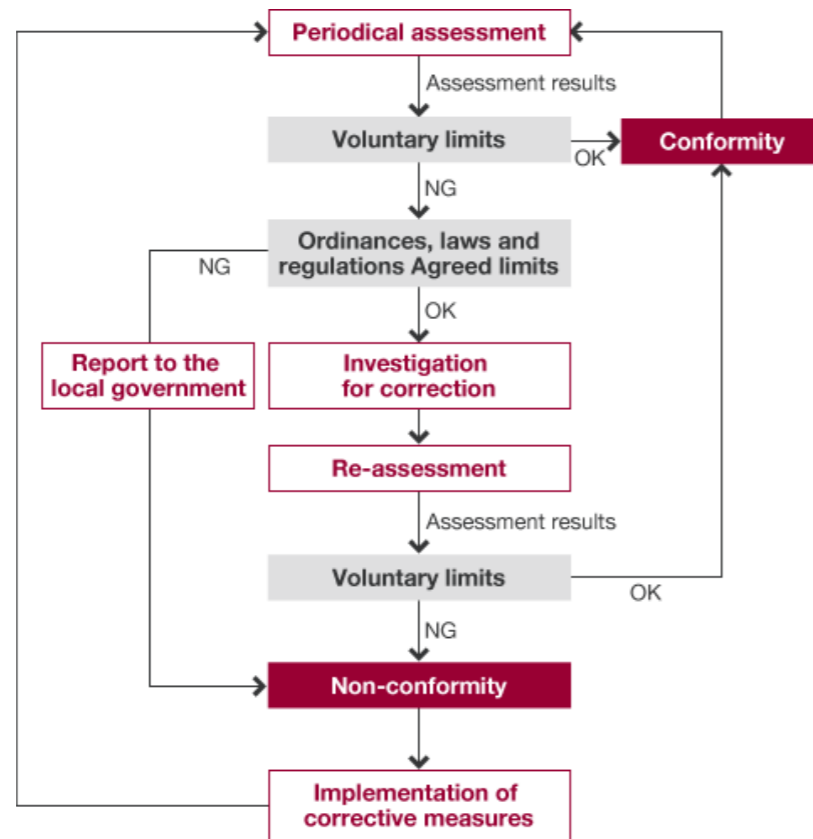
Basic Policy for Environmental Risk Management

The Advantest Group sets voluntary standards more stringent than prevailing environmental laws and regulations, and implements such standards in the course of operating equipment that could potentially impact the environment, and in monitoring and assessing those operations.

Furthermore, to ensure that we can respond without hesitation should an environment-related incident occur, we have established rules for addressing such risks, stipulated in documented operating procedures and chemical substance emergency-response procedures and other such guidelines, and have put management systems in place related to those rules.

Moreover, our employees and contractors handling particularly high-risk operations regularly take part in specialized training and emergency drills, which are conducted to ensure that they are able to act swiftly in the event of an emergency.

Compliance management at business sites



There were no cases which exceed our voluntary standards for air and water quality in fiscal 2022.

Items	Boundary	FY2018	FY2019	FY2020	FY2021	FY2022
Emissions into the atmosphere	Japan	0	0	0	0	0
Waste water to water area	Japan	0	0	0	0	0

Management of Chemical Substances

Basic Policy for Chemical Substance Management

We are working to ensure safety management and compliance with laws and regulations in the use and storage of chemical substances used at Advantest Group business locations.

To this end, we have adopted a chemical substance management system. This system facilitates chemical substance registration, safety reviews, input/output control, and the calculation of data required by relevant laws and regulations, as well as making the safety data sheets (SDS) that are necessary for the safe handling of chemical substances available at any time.

In addition, in order to realize strengthened risk management and chemicals substance management, we are constructing a safety training system, and are conducting audits and providing guidance through the corporate chemical management division to ensure the safety of stored chemical substances, so as to further enhance our safety control system.

Improving Chemical Substance Management: "Aiming for More Precise Management"

At Advantest Group, we manage the chemical substances that we use by container through our chemical substance management system. Based on the chemical substances management level specified under the PRTR Law, the Poisonous and Deleterious Substances Control Law, the Industrial Safety and Health Law and other laws and regulations, we have established a classification system of management ranks and set the management method according to each rank, with the aim of having a flexible system.

Furthermore, in response to the revision of laws and regulations, Advantest built and executed a system for the risk management of chemical substances which had become a requirement as of June 2016.



Strict chemical controls

Adopting the High-precision Management Methods in Line with the Different Level of Risks Posed by Different Chemical Substances

We implement training in chemical substance handling for Advantest Group employees, ensuring that employees understand how to handle particular types of chemical substances and are aware of the key points to note regarding their use. Management procedures are simplified for chemical substances that are less hazardous, and autonomous management is implemented with respect to commercially-available sprays, adhesives, etc.



Controls applied to each and every container

Chemical substance control ranks

Rank	Conditions for application	Locked storage	Dispensary control	Inventory checks
4	Some chemical substances are extremely toxic or have a profound social impact, so registration with the government, etc., is necessary to handle them. Examples: narcotics, stimulants, etc.	Yes	Yes	As required by law
3	Some chemical substances are highly toxic, so any loss must be reported. Examples: poisons, deleterious substances, etc.	Yes	Yes	Twice annually
2	Some chemical substances are inflammable, corrosive, or poisonous with prolonged exposure. Examples: organic solvents, acids, alkalis, etc.	Yes	Yes	Twice annually
1	Some chemical substances are not very harmful, but since a large amount is used, control is necessary. Examples: solder paste, PFAS, etc.	-	Yes	Twice annually
0	Some chemical substances are not very harmful and do not warrant special control. Examples: some adhesives, grease, lubricants, paint, lead-free solder, wire solder, bar solder, sprays (spray oil, cooling spray), etc.	-	-	-

In line with this management approach, proper after-use treatment will be followed, such as making a request to a waste treatment company.

Efforts to Eliminate PFAS Coolant in New Products

Advantest has set the "development of products that are free from polluting substances" as one of the goals of the ESG Action Plan. We upheld the total abolition of PFAS coolant by fiscal 2030 as our KPI, and instead adopt water as the coolant to be used in next-generation testers. In fiscal 2022, we confirmed the cooling performance and durability of the indirect cooling technology using water. New products incorporating this technology are scheduled to be shipped from fiscal 2024.

The Challenges of Supplying PFAS Cooling Fluid

While we aim to eliminate PFAS cooling fluid, we are tasked to address the challenges of supplying PFAS cooling fluid for our current models.

To this end, the following measures continue to be taken by working cross-sectionally throughout the organization.

- Evaluation of alternatives to PFAS cooling fluid currently in use
- Procurement risk measures by the Production Group for PFAS cooling fluid

* PFAS is not a name of a specific chemical substance, but an acronym for "Per- and PolyFluoroAlkyl Substances".

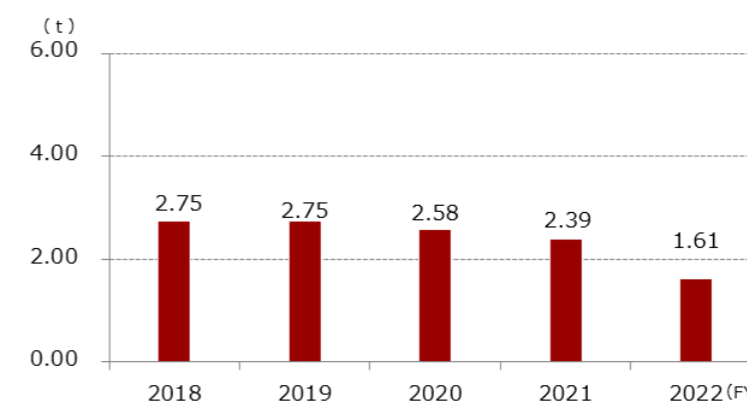
Efforts to Reduce VOC (Volatile Organic Compounds) Emissions

VOC substances are considered as substances that produce photochemical oxidants and suspended particulates. Facilities using a large amount of VOC are obligated by Article 17-13 of the Air Pollution Control Act to monitor VOC emissions into the atmosphere that are attributable to their business activities and take the measures that are necessary to reduce the emissions.

VOC is not used much in the electrical and electronic industry. However, the Ministry of Economy, Trade and Industry has requested companies to take voluntary measures to reduce VOC emissions, as we also cooperated in the survey from 2005 to 2020 representing the four electrical and electronic industry groups (JEMA, CIAJ, JEITA, and JBMIA).

These surveys cover 20 substances that are often used in the electrical and electronic industry. Advantest does not use them in large quantities, but has been conducting surveys on the consumption of these substances and report it as required.

VOC data

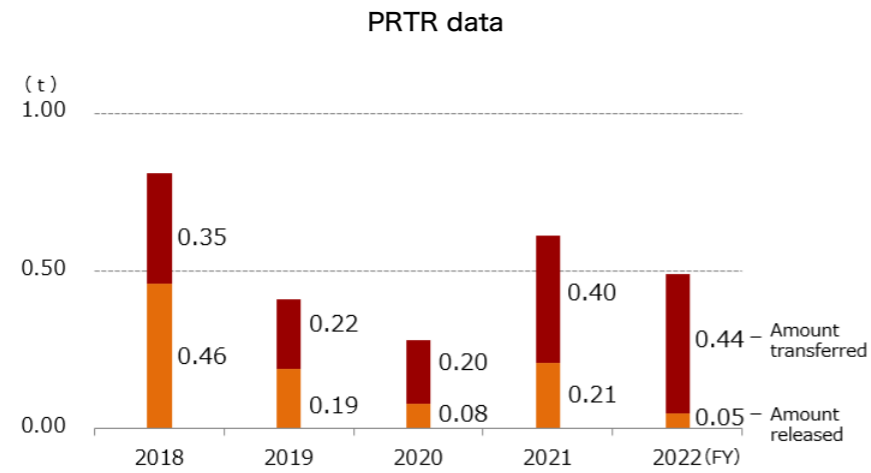


Data range for tabulation: Advantest Group (Japan) data

* Substances tabulated here are VOCs subject to surveys by Japan 4EE.

PRTR Report

According to the Law Concerning Pollutant Release and Transfer Register, Advantest has been submitting reports to the government under the Pollutant Release and Transfer Register (PRTR) system.



Data range for tabulation: Advantest Group (Japan) data

* The table includes PRTR controlled substances whose annual amount of use was below the amount required to be reported.

<Content>

- The danger of chemical substances (effects on the human body)
- The importance of safety training for chemical handlers
- The importance of wearing personal protective equipment (gloves, goggles, masks, etc.)
- Points to be observed according to the requirements of the law
Special medical diagnosis, selection of a work leader, environmental measurement, inspection of ventilation equipment, notification of designated hazardous materials specified under the Fire Services Law, etc.

Implementation of General and Specialist Chemical Substance e-learning Education

Used inappropriately, even familiar chemical substances may cause unexpected accidents and environmental pollution. We provide the general chemical substance education program to all our domestic employees in order to help them understand how to reduce such risks.

The specialist chemical substance education program is provided to employees who use chemical substances in their daily work. The purpose of this annual e-learning program is to raise awareness of the dangers and harmfulness of chemical substances as well as to promote the safe handling thereof through practical learning content.

In this program we explain things simply, using examples of accidents, regarding chemical substances regulated under the main laws such as poisons, deleterious substances, organic solvents, specific chemical substances, hazardous materials covered by the Fire Services Law, etc.

In fiscal 2022 we conducted general education for all new employees in Japan and specialist training for 684 employees who handle chemical substances.



Materials used in training on chemical substances

Involving Our Business Partners

Green Procurement/Initiatives Related to Regulations for Chemical Substances Contained in Product

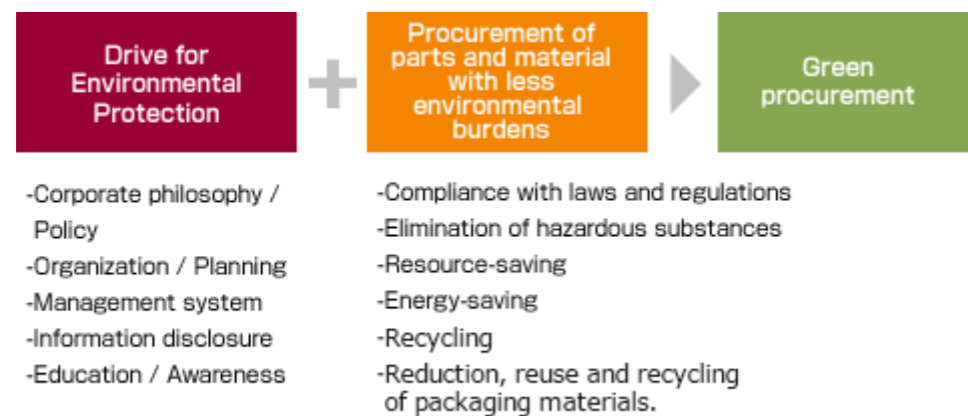
At Advantest we are striving to eliminate hazardous substances across our manufacturing activities including suppliers of components and assembly and processing partner companies, and wish to connect this to the development of green products. We engage in communication with our business partners, and formulated the Advantest Green Procurement Guidelines in fiscal 2002 to facilitate this process. We operate according to these guidelines in order to give consideration to the environmental aspects in addition to quality, cost, and delivery throughout the whole process of production, including the purchasing of components and materials that are used for our products. Changes to the guidelines, if any, are notified to our suppliers via the electronic transaction and technical information exchange system (portal site) seeking for their cooperation.

We have created a database from the environmental information we received from our suppliers, and are utilizing it to promote eco-friendly product manufacturing, along with the implementation of product environmental assessments.

Advantest has also concluded the General Specification for the Environment(GSE)* with our suppliers as a contract for the same measures even at overseas bases to eliminate the chemical substances contained in products.

* The GSE provides Advantest's general requirements for restricting or prohibiting certain substances as constituents of parts, components, and materials in products and packaging purchased by Advantest worldwide, including specific reporting and labeling requirements.

The Principles of the Green Procurement



[Advantest Green Procurement Guidelines \(PDF 169KB\)](#)

Component Registration in Green Procurement

Regarding component registration, we are conducting environmental surveys for procured components using our environmental survey questionnaire with cooperation from our suppliers, based on the operation standard for chemical substances used in Advantest products. We investigate the components to find out if they contain chemical substances that can burden the environment, and promote green procurement initiatives to reduce environmental impact.

Banned and Restricted Substances

We have established the aforementioned operation standard for chemical substances used in Advantest products based on IEC62474* and use it in surveys on the use of hazardous substances in components used and to determine whether or not to adopt the components.

* IEC62474: Material Declaration for Products of and for the Electrotechnical Industry
(See : <http://std.iec.ch/iec62474>)

Survey of Suppliers on Hazardous Substances

Starting with the RoHS Directive, there have recently been additions and revisions of electrical and electronic regulations. On February 6, 2023, Advantest, in line with the revised IEC62474, revised its questionnaire on hazardous substances and informed our business partners.

Compliance with the Laws and Regulations in Each Country

In complying with environmental laws and regulations, the Advantest Group is working towards eliminating the use of hazardous materials while also pursuing environmental conservation efforts that involve reducing the consumption of energy and resources.

More specifically, we have been working with our suppliers since the autumn 2003 on initiatives to investigate and eliminate the use of restricted hazardous materials.

We are in compliance with the European RoHS Directive*.

Collaboration with Overseas Subsidiaries

Advantest has organized a global team among those overseas bases that have R&D departments (Japan, Germany, USA) since the middle of 2020, and has built a system to work on compliance with laws and regulations related to environment, quality, and safety of our products.

Currently, we hold regular global meetings to agree to and unify our recognition as an Advantest Group. Based on this understanding, each subsidiaries promotes the drafting and implementation of environmental law education materials for local engineers according to the product groups.

The EU-RoHS Directive

Advantest's semiconductor Test system, Test handler are classified as Large-Scale Stationary Industrial Tools (LSSIT) under the EU-RoHS directive, and as such are exempt from the directive's provisions. Nevertheless, on the basis of our commitment to environmental conservation, we will continue to work towards continuing elimination of hazardous substances from these product lines.

* The European RoHS Directive and its revision stipulate ((EU) 2015/863) restrictions on the use of specified hazardous substances contained in electric and electrical devices in Europe; inclusion of the following substances (10 such substances are used for our products as of July 22, 2021) in excess of the maximum allowed limits is prohibited, except for exempted purposes.

- Lead (Pb)
- Hexavalent chromium (Cr VI)
- Mercury (Hg)
- Polybrominated biphenyl (PBB)
- Cadmium (Cd)
- Polybrominated diphenyl ether (PBDE)
- Bis phthalate (2-ethylhexyl) (DEHP)
- Dibutyl phthalate (DBP)
- Butyl benzyl phthalate (BBP)
- Diisobutyl phthalate (DIBP)

The Chinese RoHS Directive

The China RoHS directive outlines the following items for selling products, which contain the same 6 substances set out in the first EU RoHS directive, within China: (1) identification marks (on the product) of whether or not it contains specified hazardous substances; (2) indication of environment-friendly use period (on the product); (3) description of the type, region, and amount of hazardous substances contained (in the product manual); (4) labeling of packaging materials (on the packaging materials themselves); and (5) year and month of production.

Advantest has established a system to assure that these labels are reliably displayed in products to be shipped for China.

Chemical Substances Contained in Product

SVHC of the REACH Regulation

REACH is a regulation of the European Union, which stands for Registration, Evaluation, Authorization and Restriction of Chemicals. REACH places the burden of proof on companies, where they are obliged to register, submit documents, and report on the linked to the substances they manufacture or import in the EU with a total amount of 1 ton or more per year to the European Chemicals Agency. Advantest's products or "molded articles" are exempt from REACH's provisions as said; however, hazardous substances contained, its doses, and candidates for substances of very high concern (SVHC) must be reported upon request.

Advantest products may contain the following SVHC:

- Diarsenic pentaoxide
- Diarsenic trioxide
- Boric acid
- Hexavalent chromium compound
- Disodium tetraborate, anhydrous
- Lead chromate
- Bis (2-ethylhexyl) phthalate (DEHP)
- Dibutyl phthalate (DBP)
- Butyl benzyl phthalate (BBP)
- Diisobutyl phthalate (DIBP)
- 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)
- Trixylyl phosphate (2-chloroethyl) (TCEP)
- 4- (1,1,3,3-tetramethylbutyl) phenol
- Bis (2-ethylhexyl) phthalate (DEHP)
- Sulfurous acid, lead salt, dibasic
- 1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)
- Pentalead tetraoxide sulphate
- Boric anhydride
- N,N-dimethylformamide
- Diisopentyl phthalate (DIPP)

- N-pentyl-isipentyl phthalate
- Lead titanate, lead titanium trioxide
- Lead titanate zirconate
- Lead oxide sulfate
- (Phthalato (2-))dioxotrilead
- Di-n-hexyl phthalate (DnHP)
- Methylhexahydrophthalic anhydride
- Cadmium
- Cadmium oxide
- Dipentyl phthalate (DPP)
- 4-Nonylphenol, branched and linear, ethoxylated
- Cadmium sulfide
- Imidazolidine-2-thione, 2-imidazoline-2-thiol
- 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters, mixed decyl and hexyl and octyl diesters
- Benzo[def]chrysene (Benzo[a]pyrene)
- Dicyclohexyl phthalate (DCHP)
- 4,4'-isopropylidenediphenol (BPA)
- 1,6,7,8,9,14,15,16,17,17,18,18Dodecachloropentacyclo[12.2.1.16.9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™)
- Octamethylcyclotetrasiloxane (D4)
- Decamethylcyclopentasiloxane (D5)
- Dodecamethylcyclohexasiloxane (D6)
- Terphenyl, hydrogenated
- Lead
- 2,2-bis(4'-hydroxyphenyl)-4-methylpentane
- Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with >= 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)
- 4,4'-(1-methylpropylidene)bisphenol
- Medium-chain chlorinated paraffins (MCCP)
- 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol

Perchlorates

Businesses who manufacture, distribute, sell, use, dispose of perchlorate materials (containing 6 ppb perchlorate or more) for resale or use in California, and when exporting to California need to ensure that these perchlorate materials are properly labeled on their individual packaging boxes and carrier boxes (for shipping packaging). The majority of perchlorate materials are lithium-ion batteries, which are already labeled on our products.

<The following label or mark is necessary>

Perchlorate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate.

The following Advantest products may also contain perchlorate.

Test System	T Series, B Series, and H series
Test Handler	M Series
E-Beam Lithography and SEM Metrology/Review	F Series and E Series
Terahertz Analysis System	TAS7 Series and TS Series
Leading Edge Product	WM Series (AirLogger) and HA Series

Proposition 65

Proposition 65 is a law that protects the citizens of California from serious exposure to chemical substances that are known to trigger cancer, congenital anomalies or reproductive disorders.

The law requires companies and people conducting business in California to provide clear and reasonable warnings before knowingly and purposely exposing California's citizens to chemical substances on the Proposition 65 list.

Although Advantest products may contain chemical substances that are included in the Proposition 65 list, there is no risk of human exposure through skin contact, ingestion or inhalation if the products are used according to Advantest recommendations.

For this reason, Advantest has deemed that a warning label stating that a product contains chemical substances listed in Proposition 65 is unnecessary.

Based on customer requests, we can offer information on chemical substances included in Advantest products that are listed in Proposition 65.

Furthermore, as there is a risk of exposure to the chemical substances listed in Proposition 65 when handling Advantest products in a way that is not recommended by us, such as destroying or shattering the products, we recommend taking measures such as wearing dust masks, protective gloves, and ventilating to alleviate and reduce any risk of exposure.

Environmental Communication

This page introduces our environmental contributions and activities for biological diversity conservation.

Environmental Initiatives

Basic Policy on Environmental Information Disclosure

The Advantest Group discloses information on environmental burdens and environmental protection activities by including such information in our reports and website, holding exhibitions, and so forth.

We believe it is important to share environmental information with our stakeholders and to reflect such information in our environmental management in order to continuously grow as a company without compromising our integrity.

We also engage in communication with local communities through various environmental protection activities.

Number of environmental compliance initiatives

	FY2018	FY2019	FY2020	FY2021	FY2022
Complaints from stakeholders	0	0	0	0	0
Serious violations of environmental laws	0	0	0	0	0

* Aggregation scope: Advantest Group

Environmental Information Disclosure

[Publication of the Sustainability Data Book](#)

Environmental Contribution Activities

We endeavor to foster communication with a variety of stakeholders through environmental contribution activities.

Food recycling

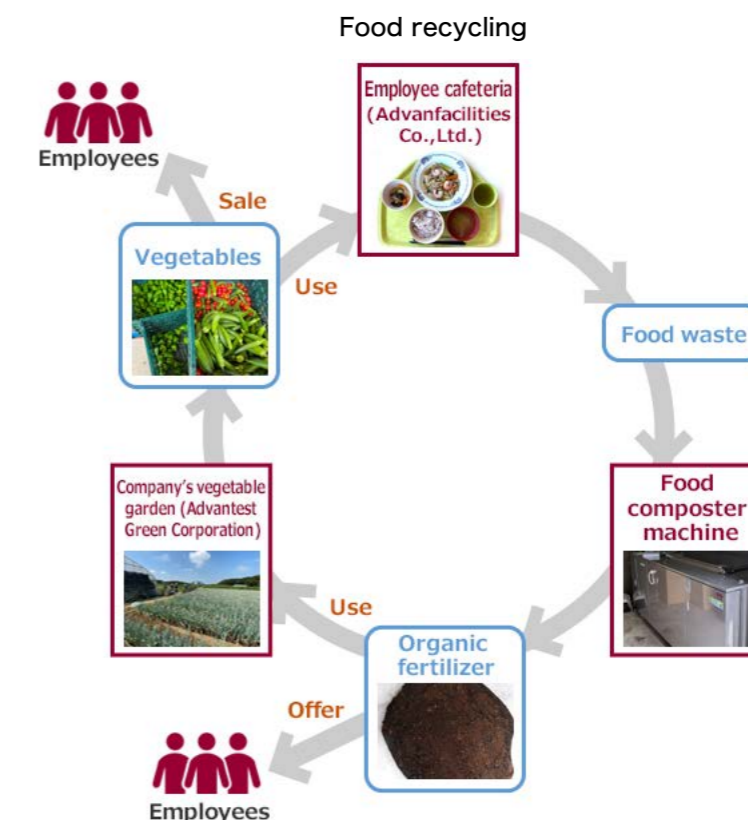
Having updated the food composter machines in September 2020, the Gunma R&D Center engages in food recycling by composting kitchen waste from the employee cafeterias of three facilities in Gunma and Saitama prefectures. Processed garbage is converted into compost, which is provided to



Our farm on the premises of the Gunma R&D Center

interested employees free of charge. After the compost matures, it is used to grow vegetables on our farm, which stretches over approximately 2,000m² of the premises of the Gunma R&D Center. On our farm, employees of Advantest Green grow pesticide-free vegetables throughout the year, and harvested vegetables are used in dishes served at the cafeterias run by Advanfacilities. We also make these vegetables available to our employees to purchase.

Advantest thus promotes employee health while reducing food waste and implementing food recycling in collaboration with affiliated companies.



MSC/ASC Certified Sustainable Seafood Served at Employee Cafeterias

In February 2021, Advantest joined a group which acquired Marine Stewardship Council (MSC) / Aquaculture Stewardship Council (ASC) Chain of Custody (CoC) certification for using MSC/ASC sustainable seafood at four of our bases: Advanfacilities Office, Gunma R&D Center, Gunma Factory, and Saitama R&D Center.

Currently, the employee cafeterias at our three offices in Gunma and Saitama regularly offer menus using sustainable seafood, contributing to the sustainability of fishery resources. In fiscal 2022, a total number of 1,462 employees ate sustainable seafood being offered. Being accustomed to sustainable seafood in the employee cafeteria has led our employees to make SDGs-conscious choices, such as purchasing marine products with the MSC / ASC certification label at supermarkets in our daily lives.



An example of a sustainable seafood menu



ASC-C-02276-075



MSC-C-57334-075

Forest conservation activity at the national forests of Mt. Akagi "Advantest Reiwa Woods"

Every year since 2007, Advantest has been conducting forest conservation activities. Advantest has research and development/production bases in Gunma Prefecture and Saitama Prefecture, where water resources withdrawn from the Tone River are used. For this reason, Advantest regularly carries out conservation activities in the national forests of Gunma Prefecture, in which the source of the Tone River is fed, and contributes to the conservation of the water resources of the Tone River.



Setting up nets

In 2019, Advantest concluded an agreement with the Gunma District Forest Office to set up an area in Mt. Akagi for conducting its activities and named the area "Advantest Reiwa Woods". Conservation activities include pruning unnecessary branches with saws to bring in more light into the forest, and installing nets on trees to prevent deer from eating tree barks. The activities for FY2022 were cancelled due to the COVID-19 pandemic.

[Contribution to the conservation of the water resources of the Tone River \(Recycling Resources\)](#)

Environmental Impact Assessment

Advantest records and assesses the environmental burden on the area surrounding its business establishments, such as office waste water, in accordance with ordinances and pollution control agreements. In addition, we are managing plants and cultivating biotope at our business establishments while considering biodiversity.

[Advantest's biotope](#)

Initiatives for Biodiversity

The Advantest Group's Guidelines of Action for Biodiversity

To show our gratitude for the gift of nature created by biodiversity, and to recognize the significance of biodiversity in supporting the prosperity and the wellness of our society, the Advantest Group will carry out initiatives in conserving biodiversity and in contributing to the sustainable use of biological resources.

1. Understanding Environmental Impact

We identify, evaluate and share information on any aspect that may have a significant impact on biodiversity in the entire lifecycle of our business activities.

2. Understanding Biodiversity

We increase awareness and understanding of biodiversity among all employees so that they are able to engage in activities that give consideration to biodiversity in their business activities and daily lives.

3. Reduction of Environmental Impact

By seeking highly effective measures, and by carrying them out continuously, we reduce the impact of our business activities on biodiversity.

4. Cooperation with Stakeholders

We cooperate with a variety of stakeholders such as the government, educational organizations, NPOs, local residents and our business partners to promote activities related to the conservation of biodiversity.

Participation in the 30by30 Alliance for Biodiversity

Since April 2022, Advantest has joined [the 30by30 Alliance for Biodiversity](#), a coalition of volunteer companies incorporated in the 30by30 Roadmap formulated by the Ministry of the Environment.



* 30by30 Alliance for Biodiversity: A coalition of volunteers established by 17 industry, private, and government organizations including the Ministry of the Environment to domestically achieve the "30by30" target, an outline of an international commitment and necessary actions which aims to conserve or protect at least 30% of land and sea areas by 2030.

[30by30, 30by30 Alliance](#)

[15th meeting of the Conference of the Parties to the UN Convention on Biological Diversity \(CBD-COP15\)](#)

Biotope

Reflecting our commitment to living in harmony with nature, Advantest established a biotope in Gunma R&D Center in 2001 with the aim of helping to recreate the original, natural landscape of the Kanto Plain, a landscape that is being lost to development. This biotope, with a total area of 17,000 m², is one of the largest of its kind established by any private company in Japan.



Front side of biotope



Biotope seen from the sky

Advantest's biotope provides a venue in which Advantest employees can learn about the importance of protecting the global environment; the biotope is also used as a way to foster communication with local residents. 21 years have passed since the establishment, and the biotope now has an optimal environment for preserving the local ecological system and is playing a great role in protecting and growing threatened species. In addition, Advantest's biotope provides an ideal environment for achieving an SDG target, "Goal 15: LIFE ON LAND".

* Biotope: This word combines the Greek words "Bio", which means life, and "Tope", which means a place.

[Advantest's biotope](#)

Biotope videos released

In fiscal 2022, Advantest produced four videos showcasing our biotope and releases them on our website. The videos introduce the biotope that is rich in nature, with beautiful aerial images taken by a drone of the indigenous flora and fauna that live there. These images help communicate the biodiversity of our biotope, that leads to securing a nature-positive world, to our stakeholders in an easy-to-understand manner.

Please click on the Biotope Quarterly link below to watch the biotope videos.

[Biotope Quarterly](#)

Place for the protection and cultivation of valuable plants

Since its establishment in 2001, our biotope has been dedicated to research on, protection of, and cultivation of the animals and plants that live there as well as the extermination of alien species under the guidance of Gunma University.

We also utilize our biotope in our efforts to protect and cultivate *Eupatorium japonicum* and floating heart, which are national near-threatened species and Gunma prefectural IA endangered species.

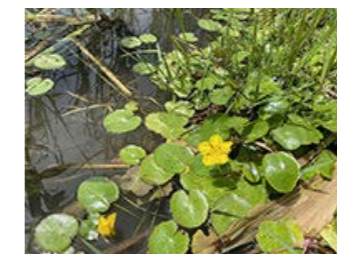
With regard to *Eupatorium japonicum*, there are only five places where it grows naturally in Gunma Prefecture, one of which is Advantest's biotope. Advantest has been continuing these protection and cultivation activities for many years, which have led to the creation of an environment that enables the stable natural cultivation of the native plant.

With regard to floating heart, there is only one place where it grows naturally in Gunma Prefecture, and Advantest's biotope has been used as an evacuation shelter since 2012, where floating hearts grow steadily.

Moreover, from fiscal 2019, Advantest implemented emergency protection measures for native *Amsonia elliptica*, which were specified as a threatened species (IA) in Gunma Prefecture, and started protection and cultivation activities for them.



Eupatorium japonicum



Floating hearts



Amsonia elliptica

The carbon fixation rate of the biotope forest is in almost similar range of the natural forests

For three years since fiscal 2020, Advantest has re-evaluated amount of carbon stock and carbon fixation rate of the biotope forest in Gunma R&D Center as one of the joint research projects with Gunma University.



Forest of the Biotope

We conducted again the tree census as to them by measuring height and diameter at breast height of about 600 mature trees, such as *Quercus serrata*, *Q. acutissima*, and *Q. myrsinaefolia*, etc.. We also measured the amount of annual leaf production by collecting the fallen leaves using leaf litter traps (netting for catching fallen leaves). Based on the results of these field census, we evaluated the amount of standing tree biomass of the biotope forest (carbon stocks), which was approximately double that of the previous survey conducted about 10 years ago. Given the good growth of the trees, it is estimated that the average carbon fixation rate of the biotope forest over the 10-year period is in almost similar range of the natural forests, and the forest, as a whole, is fixing about 2.9 ton carbon (about 10.3 ton of CO₂ equivalent) each year.

Ongoing floral monitoring also revealed that more than 100 native plant species is growing sustainably there, and the percentage of non-native species is continuously controlled better to be less than 30%.

A message from Professor Shin-ichi Ishikawa, Faculty of Informatics, Gunma University

Biotopes generally play an important role in the conservation of biodiversity, particularly in terms of restoration of regional natural environment, acting as a place for environmental education and a sanctuary for endangered species. Advantest's biotope is surrounded by a rich environment such as vast puddy fields with species-rich ecosystems, making it one of the ideal places for sustainable growth of endangered species such as *Eupatorium japonicum* and *Salvia plebeian*.

The floral monitoring performed in fiscal 2022 revealed that 108 native plant species, including "satoyama" (semirural area) plants and 43 exotic species were growing there. Thus, the Advantest's biotope is playing an important role in the conservation of regional biodiversity.

Field surveys and tree growth experiments conducted from fiscal 2020 to fiscal 2022 have shown that the biotope forest has been helpful to prevent global warming by fixing carbon at a rate in almost similar range of the natural forests over the past decade. However, the results also suggest that further global warming in the future will significantly inhibit the growth of the *Q. acutissima* trees planted in the biotope forest. Accordingly, planting more *Q. serrata* and *Q. myrsinaefolia* trees, which are less affected by global warming, may be good for adaptive management. We expect that Advantest's biotope will continue to play more important roles in the restoration of regional biodiversity and mitigation of global warming by conserving the native plant species and fixing more CO₂.

Biotope



In accordance with our theme of coexistence with nature, Advantest established one of the largest biotopes to be created by a company in Japan, at our Gunma R&D Center in 2001, aiming to bring back to life the traditional rural landscape of the Kanto Plain.

Focusing on ponds, wetlands and streams, we have planted aquatic plants and trees that blend with the surrounding natural environment, aiming to form a network with that environment. It has grown into an ecosystem supporting diverse species of insects, birds and so forth.

The Advantest biotope is used for environmental education, enabling employees to learn about the importance of the global environment, and also as a place for communication with the local community.

* Biotope: This word combines the Greek words "Bio", which means life, and "Tope", which means a place.

What's New in the Biotope

We share seasonal observations of flowers and organisms that live in the biotope through videos and photos.

The videos can be viewed from the link "Biotope Quarterly" below.

[Biotope Quarterly](#)

Biotope description

Location	336-1, Ohwa, Meiwa-machi, Ora-gun, Gunma Within the Gunma R&D Center site
Area	17,000m ² (100m × 170m)
Vegetation	<ul style="list-style-type: none"> ▷ Tall trees: about 30 species including kinds of oak (kunugi, konara, kashi) ▷ Medium-sized trees: about 5 species including camellia, Japanese privet, etc. ▷ Shrubs: about 15 species including kurume azalea, Japanese laurel, etc. ▷ Aquatic plants: about 10 species including common reed, cattail, Japanese parsley, calamus, etc. ▷ Landscape: Composed of ponds, streams, ecotones*, meadows, woodland

* Ecotone: An environmental transition zone bordering on a different environment, such as the water's edge, grasslands, woodlands etc.

Artificial insect habitats

We have put in place artificial insect habitats* within the biotope area, to support a variety of living creatures, and have kept track of how they are being used.

* Artificial insect habitats: piles of logs, stones etc.

Wooden artificial insect habitat

The surface is dry but it is moist inside, so reptiles and insects live and lay eggs there.

<Species observed>

Reptiles: snakes (eggs), Japanese grass lizard etc.

Insects: small stag beetle (larvae), assassin bug, seven-spotted lady beetle, etc.



Bamboo artificial insect habitat

Bundles of cut bamboo sticks were put on the ground and above ground. Insects live in the bamboo and in the gap between the bundles.

<Species observed>

Insects: a kind of wasp (*Isodontia nigella*), solitary wasp (*Anterhynchium flavomarginatum micado*), type of earwig (*Carcinophora marginalis*), etc.



Stone artificial insect habitat

A house in which large and small stones are arranged in a pile. Insects live under and in the gaps between the stones.

<Species observed>

Insects: Enma cricket, *Loxoblemmus campestris*, *Panagaeus japonicus* Chaudoir, etc.

