



OKI GROUP ENVIRONMENTAL REPORT

2017

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Special Feature

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*In this report, "life-cycle" refers to each stage corresponding to the "lifetime of a product". The perspective considers the environmental burden in the process of procurement of raw materials and parts → production → transportation → use of product by customers and users → disposal / recycling of used products. The OKI Group promotes environmental management throughout the life-cycle, including reducing greenhouse gas emissions, controlling and reducing chemical substances, and recycling resources.

<For inquiries>
Oki Electric Industry Co., Ltd.
Global Environment
<http://www.oki.com/en/eco/ecoreport/2017/>

Editorial Policy

- The OKI Group "Environmental Report" is compiled and published to inform all our stakeholders of the concept, overview, major initiatives and data of the OKI Group environmental management. The report is compiled with particular emphasis on the following:
 - As an initial response to internal and external environmental management inquiries
 - Environmental management from a life-cycle perspective
 - Fusion of management and the environment
- Please see our website for detailed information including initiatives not appearing in this report.
<http://www.oki.com/en/eco/>

■ Reference Guidelines

- Sustainability Reporting Guidelines Version 4.0 (GRI)
- Environmental Reporting Guidelines 2012 (Ministry of the Environment)
- Environmental Accounting Guidelines 2005 (Ministry of the Environment)

* GRI (Global Reporting Initiative):
An international NGO that develops and disseminates globally applicable sustainability reporting guidelines.

■ Time Period

This report covers fiscal 2016 (the year from April 01, 2016 to March 31, 2017). However, the report also discusses some facts preceding this period, as well as policies and plans to be implemented in subsequent periods.

■ Organizations

The report covers the activities of Oki Electric Industry Co., Ltd. (OKI), and its 95 subsidiaries. However, the environmental accounting on P14 covers OKI's 21 locations in Japan and 7 locations in overseas.

■ Corporate Names / Names of Organizations

In this report, Oki Electric Industry Co., Ltd. itself is referred to as "OKI," and its corporate group, including its subsidiaries, as the "OKI Group." The names of the organizations referred to in this report, in principal, are those used as of April 2017.

* The listed corporate names and product names are trademarks or registered trade names.

■ Forecasts, Plans and Targets

This report also details forecasts, plans and targets. They reflect assumptions and judgments based on information available at the time of writing this report. Thus, readers are requested to understand that the future results of the company's activities could be different from what is described in this report.

■ Reliability of Disclosed Information

Experts within the OKI Group verify the data aggregated from technical knowledge to ensure the accuracy of disclosed information.

Basic Policy for the Environment

OKI Group Environmental Vision 2020

1. Realization of low-carbon societies

Maximize energy consumption efficiency in the business operations, and reduce energy consumption by 8% per nominal sales (corresponds to 12% reduction per real sales) from fiscal 2012. Contribute to the realization of low-carbon societies by continuously providing environmentally friendly products and services.

2. Prevention of pollution

Reduce emission of chemical substances, that can adversely affect people's health and environment, into the atmosphere and water system by 8% per nominal sales (corresponds to 15.5% reduction per real sales) from fiscal 2012.

3. Resource circulation

Increase the amount of recycling of used products by 25% from fiscal 2012. In addition, minimize the new input resources through expanded recycling of waste materials, reduced input of material during production and promotion of environmentally friendly designs.

4. Biodiversity conservation

Engage in conservation and sustainable use of biodiversity through prevention of global warming, prevention of air and water pollution caused by chemical substances, expansion of recycling processes and minimization of new input resources.

OKI Group Environmental Policy

The OKI Group realizes a better global environment by providing products and services that contribute to the development of the information society for the next generation, and passes this down within the group.

1. Work to prevent pollution and protect the environment by implementing the OKI Group environmental management.

- Take action to provide environment-friendly products and services in all business processes through product planning, manufacturing, and maintenance operations.
- In business activities, strive to save energy and resources and take action to reduce and recycle waste.
- Work on biodiversity conservation and sustainable use.

2. Comply with applicable environmental legal requirements and regulations, and with customer requirements and other requirements to which the OKI Group subscribes.

3. Adequately implement PDmCA (Plan-Do-multiple Check-Act) in the environmental management system, and take action to advance environmental performance and to continue improvement of its operation system.

4. Disclose environmental information, and make wide contributions to the society by supporting environmental activities.

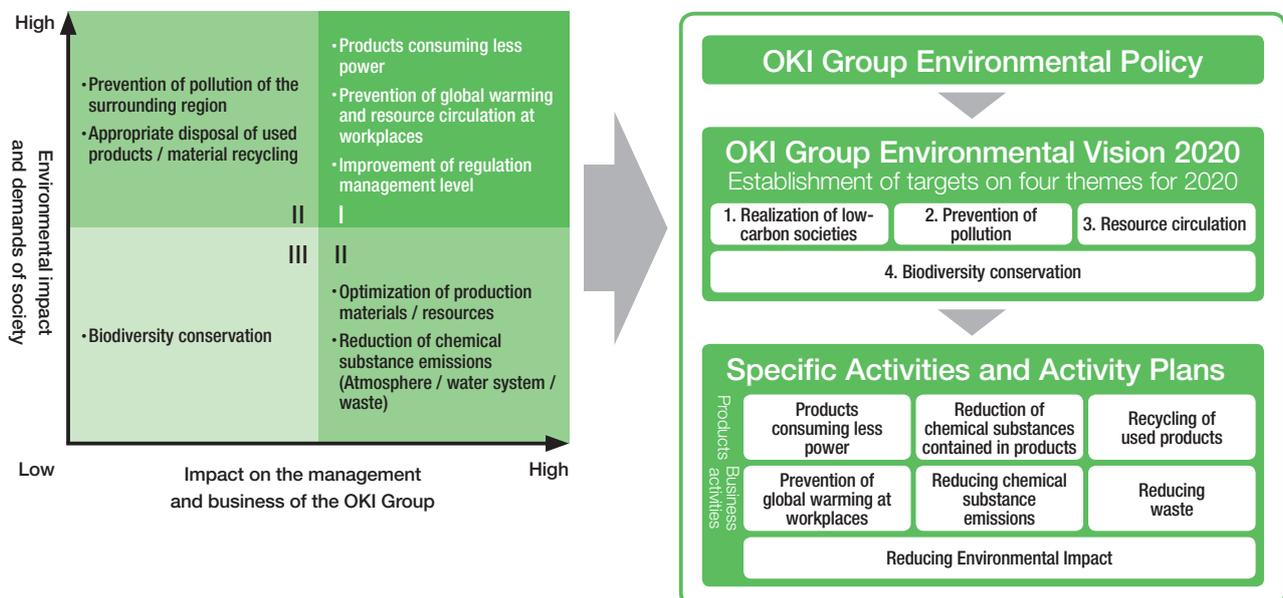


S. Kamagami

President
OKI Electric Industry Co., Ltd.

Policy—Vision—Activity Plan Relationship

The OKI Group has formulated the OKI Group Environmental Policy in consideration of environmental impacts and demands of society and impacts on management and business. The “Environmental Vision 2020” comprises four themes and is established as the mid- to long-term target of the Policy. We have planned and are implementing specific activities with respect to “Realization of low-carbon societies”, “Prevention of pollution”, “Resource circulation” and “Biodiversity conservation”, which have a particularly close relation to our core business.



Analysis of the Current State of Life-cycle Environmental Management

The OKI Group promotes environmental management from a life-cycle perspective across the supply chain in Japan and overseas. We ascertain the degree of environmental impact at each stage of the life-cycle, analyze the characteristics of products and business locations, and reflect these in environmental management.

In terms of product characteristics, we broadly classify products into those that cycle between standby and startup, such as ATM products and printers, and those that operate continually such as communication devices, and we promote energy-saving measures accordingly.

Our workplaces are classified as coating, plating and other processing plants; assembly plants for products such as component mounting; and large and small offices. We promote measures according to the respective characteristics of these.



Environmental Impact Reduction Activities and Benefits for Business in the Context of Life-cycle

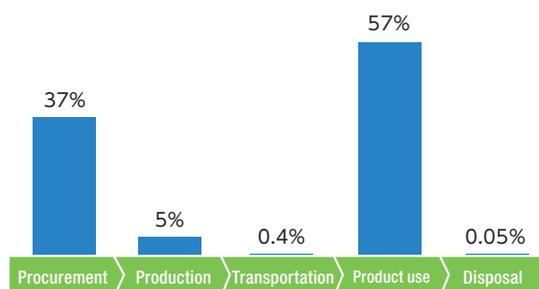
	Procurement	Production
Reduction of environmental impact	<ul style="list-style-type: none"> • Optimization of procurement volumes → Energy-saving / prevention of chemical pollution • Procurement of components that do not contain hazardous substances → Prevention of pollution / legal compliance 	<ul style="list-style-type: none"> • Improvement of production efficiency → Energy-saving / resource conservation • Reduction of chemical substance usage and emission → Prevention of pollution / legal compliance
Benefits for business	<ul style="list-style-type: none"> • Reduction of procurement costs and inventory • Prevention of loss of sales opportunities and business continuity by legal compliance 	<ul style="list-style-type: none"> • Reduction of production costs • Business continuity through legal compliance

Breakdown of Life-cycle CO₂ Emissions and the Product-centered Approach

Product use accounts for the largest proportion of life-cycle CO₂ emissions of the entire supply chain of the OKI Group.

In order to realize a reduction in energy consumption at the time of product use, measures in line with product characteristics are necessary. For example, for products that cycle between standby and startup and whose power consumption fluctuates according to the throughput, such as ATM products and printers, we have set the development theme as reducing power consumption during standby and startup. Meanwhile, for products that operate continuously with constant electric power consumption, such as communication equipment, we are taking measures to achieve a fixed reduction in electricity consumption.

We also contribute to customers' energy conservation measures while meeting their functional and performance needs.

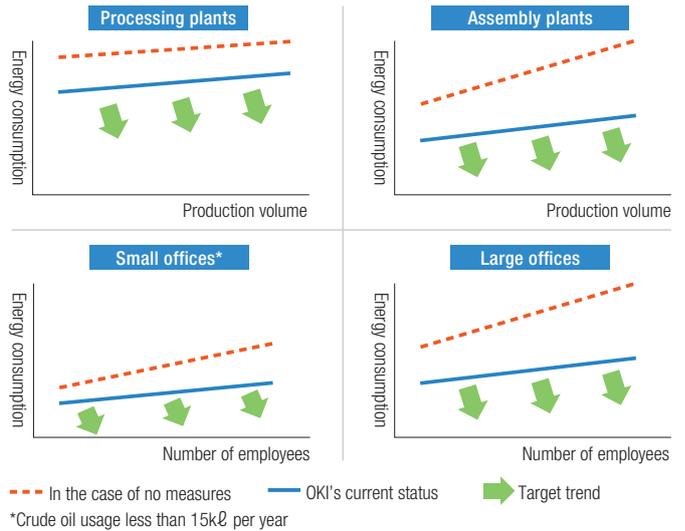


Environmental Measures According to Site Characteristics

Processing plants are characterized by continuous operation of production facilities and air conditioning equipment. For these we are working to achieve a fixed reduction in energy consumption. The assembly plant has the characteristic of energy consumption fluctuating according to production volume. Here we are promoting efficiency through measures such as flexible changes of layout and cell production in response to high-mix low-volume manufacturing. In our large offices, we are promoting the upgrade of air conditioning equipment and lighting fixtures, and in smaller offices we are making improvements centered on operational aspects.

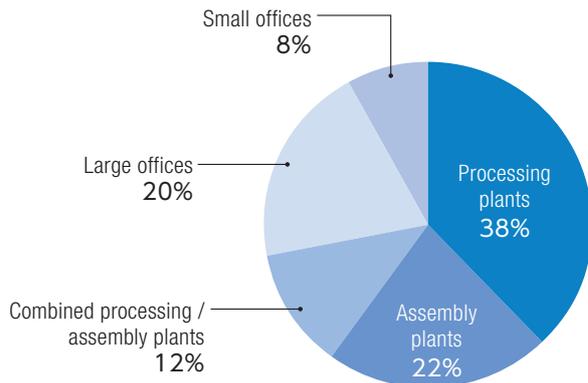
The OKI Group aims for optimization across the entire Group by implementing such measures according to site characteristics, conducting trials for common issues, and horizontally developing effective cases to other sites.

Characteristics of workplaces in terms of the relationship between energy consumption, production volume and number of employees



Transportation	Product use	Disposal
<ul style="list-style-type: none"> •Improvement of transportation efficiency → Prevention of global warming / resource depletion •Reduction of packaging materials → Resource cycling / reduction of waste 	<ul style="list-style-type: none"> •Power-saving / reduced size and weight of products → Prevention of global warming / resource depletion •Reduction of chemical substance content in products → Prevention of pollution 	<ul style="list-style-type: none"> •Recycling of used products → Improvement of recycling rate / reduction of final disposal volume / prevention of pollution by substances contained
<ul style="list-style-type: none"> •Reduction of transportation costs •Enhanced response to customer delivery dates •Improved efficiency of delivery / installation work 	<ul style="list-style-type: none"> •Improvement of customer satisfaction by streamlining of customer energy consumption / supporting customer compliance with the act on rationalizing energy use / reducing the size and weight of products 	<ul style="list-style-type: none"> •Elimination of third party products through collection of end-of-life products / improvement of corporate value by improved regulatory compliance

Percentage of energy usage in the OKI Group by site characteristic



OKI Circuit Technology plating equipment



OKI Electric Industry (Shenzhen) printer production

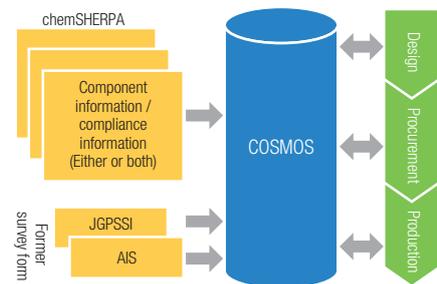
Chemical Substance Management and CO₂ Reduction

The OKI Group continually improves its internal systems and manages chemical substances contained in procured parts and products to be shipped. We have also promoted logistics reforms and realized a significant reduction in CO₂ emissions through intensive inventory reductions.

Elimination of Regulatory Risk by the Introduction of the New Chemical Substance Survey form “chemSHERPA”

The development of “chemSHERPA”, a new survey form for exchanging information on chemical substances contained in products and parts along the supply chain. Accordingly, we made our IT system “COSMOS” compatible with “chemSHERPA” in fiscal 2016.

“chemSHERPA” is a tool that enables comprehensive compliance with domestic and international laws and regulations on chemical substances in products. In the OKI Group, information surveyed with “chemSHERPA” is registered in “COSMOS”, and shared during the processes of design, procurement, production, etc. This realizes the management of information, regulatory compliance, and the streamlining of tabulation and reporting work.



Share chemical substance information of “chemSHERPA” and the former survey form by “COSMOS” to improve accuracy and management efficiency

74% Reduction of CO₂ by Logistics Reform

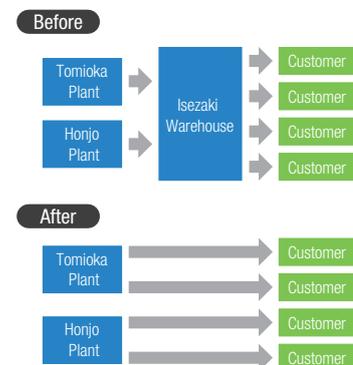
Aim and outline of Kitakanto logistics reform

To date, the products produced at the Honjo Plant*¹ and Tomioka Plant*² were shipped after storage for a certain period of time at the product warehouse located in Isezaki City in order to respond to the customer's designated delivery date. At this site, all the costs relating to the warehouse and inventory posed a challenge.

As a solution, we completed a logistics reform in March 2017, whereby the product warehouse was abolished and new shipping areas established by reviewing the production layout of the Honjo Plant and Tomioka Plant. Products are now transported directly to customers from the plants.

*1: ICT Systems Honjo Plant

*2: Mechatronics systems Plant



The Isezaki product warehouse was abolished and new shipping areas were established in the plants. This enables direct shipments to customers

Measures that enabled inventory reduction

In order to cope with a new and more compact shipping area, production at both plants was made significantly more efficient based on the concept of “not purchasing, making, placing or carrying anything that need not be.”

In order to realize these production site improvements, we committed to measures such as visualization of inventory including long-term stock items and future plans, production layout changes, delivery date management and shortened production times. Meanwhile, we also worked to improve the accuracy of information on order volumes received and production volumes. At meetings with the sales department where production volumes are decided, we conduct business reforms linking shipping, production and procurement by reviewing the production plan in anticipation of demand, promoting visualization of inventory volume, and enhancing the adjustment of receipt dates with suppliers, etc.

Environmental management through reduced stock

As a result of such logistics reforms, stock for the North Kanto area halved in comparison to 2014. This also directly led to an annual reduction in logistics and storage costs of 100 million, and financial improvements. On the environmental front, we realized a reduction of 272 tons of CO₂, equivalent to 74% of emissions before the reform, as well as energy-savings and a reduction of exhaust gas including nitrogen oxides from transport vehicles.



New shipping area completed at Honjo Plant



New truck bay at Tomioka Plant

Energy-savings by Improvement of Work Efficiency

The effect of efficiency improvements are easily demonstrated in the assembly and other manufacturing processes, and OKI Group plants are actively promoting improvement activities. We are making efforts to improve efficiency by reducing capital investment and improving operation, thereby reducing our environmental impact.

Energy-saving Using Projection Mapping

Issues with high-mix low-volume manufacturing / multiple parts

OKI's Mechatronics System Plant manufactures ATMs, cash handling equipment, check-in terminals and the like. The plant handles as many as 10,000 pieces, the largest number in the OKI Group. In order to produce a high-mix low-volume manufacturing in accordance with the specifications of each customer, the accurate picking of parts without omission by workers posed a challenge to raising the proficiency and efficiency of work.

A system to support the passing on of skilled techniques

Accordingly, we realized a parts picking system applying projection mapping technology to project images in 3D.

When starting work, this system projects a stipulated work procedure manual from a projector onto the workbench. If the worker moves to take the necessary parts from the shelf according to the procedure manual, a green arrow and a number projected from the projector indicate which shelf the part is on how many to take. The camera and sensor behind the worker detect when the worker places a hand on the wrong parts shelf, and the color of the shelf turns red. In addition to this, functions that inform of real-time improvements in work efficiency based on motion analysis are incorporated, accelerating the acquisition of skilled techniques and improvements on the shop floor.

1/4 the investment, 1.5 times the energy efficiency

In the previous system, detection LEDs and sensors were installed on each part shelf, making the apparatus complicated and costly.

The current system has improved the energy consumption rate, which expresses production efficiency, by 1.5 times while reducing capital investment to 1/4 of the previous system. This leads to energy-savings and cost improvements.



The stipulated work procedure document is projected onto the workbench by a projector installed behind the worker



The shelf containing the required part is indicated by the green arrow projected from the projector



The camera and sensor behind the worker detect when the worker tries to pick from the wrong parts shelf, and the projector illuminates the shelf in red

TOPIC

System Development Center Receives Award for Energy-saving

The OKI System Center located in Warabi city, Saitama Prefecture, is the center of our systems development with about 2,600 workers. A large number of servers and other information communication equipment are installed here, and since it is one of the leading consumers of energy within the OKI Group, we are constantly devising ways to improve the efficiency of air conditioning and lighting here.

Specifically, we have updated the gas-fired cold/hot water generator used for air conditioning to a heat pump type, proceeded with countermeasures such as quadrupling efficiency, and realized substantial energy reductions. In 2016, we received awards from Saitama Electric Power Association and the Saitama Prefecture Governor.



Heat pump type heat source equipment newly installed (left is external view)



Certificates received from the Saitama Prefecture Governor and Saitama Electric Power Association in 2016

Reduction of Impact by Improving Production Facilities and Processes

The OKI Group has several substrate manufacturing plants, which carry out processing such as material processing, plating and soldering. Due to the frequent use of chemicals and continuous operation of manufacturing equipment, a fixed environmental impact occurs. We are promoting reforms that take into consideration the characteristics of these processing plants.

Improvement of Energy Efficiency Through Review of Air Conditioning Balance

In the copper plating room of OKI Circuit Technology, the exhaust system used to operate at full power, but it produced a strong and unique odor, which was a problem. As a result of a survey, two reasons were identified concerning the dedicated exhaust system (local exhaust system) which evacuates the processing solution vapor emitted by the plating tank.

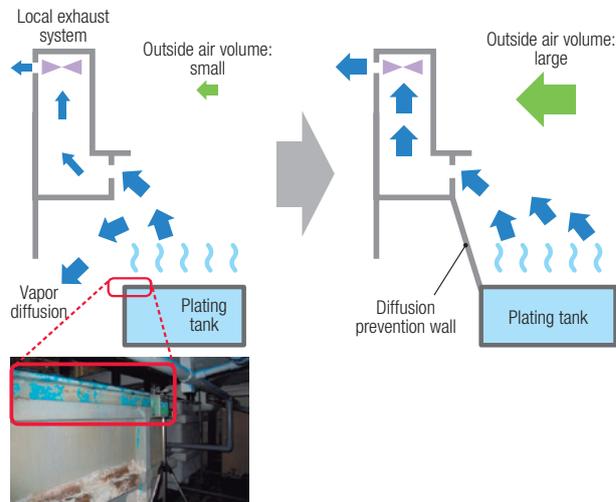
- (1) There was a large gap between the local exhaust system and the plating tank, through which the vapor of the processing solution escaped, and copper compound was precipitated around the plating tank.
- (2) While the local exhaust system air volume was set too high, the amount of outside air entering the room was small and sufficient ventilation was not achieved, resulting in vaporized chemical substances diffusing inside the room.

With respect to (1), a diffusion prevention wall was established as a countermeasure, and for (2), the balance between the volume of the local exhaust system and the amount of outside air entering the room was adjusted to achieve the proper flow of air to the local exhaust system.

Through these measures, we promoted an improvement in the work environment, a reduction in environmental impact, an improvement in energy efficiency of the local exhaust system etc., and a reduction in production costs.

There is a gap between the plating tank and the local exhaust system, and the processing solution vapor cannot be evacuated sufficiently. The processing fluid condenses around the plating tank, and the copper compound precipitates (blue).

In addition to closing the gaps, we reduced the air volume of the local exhaust system and made improvements to evacuate the vapor appropriately by the local exhaust system.



Trial to Eradicate a Source of Pollution

Issue arising from continuation of plating work

In the plating process, the parts are attached to hangers, put in a basket, and soaked in the plating solution. As this process is repeated, plating becomes attached to equipment other than the parts, such as the hangers and the basket, which affects the work. It is therefore necessary to periodically remove the plating adhered to the equipment with nitric acid.

Nitric acid has been designated as a deleterious substance in the Poisonous and Deleterious Substances Control Act and it was used at the Mechatronics System Plant in the volume of 8,000 liters per year, which has been an issue.

Trial application of Teflon technology

“If we can stop the equipment from becoming plated, then we won’t need nitric acid” - The Mechatronics System Plant has been implementing Teflon processing of the cage. If the plating fluid is repelled and does not adhere to the basket, the basket will not become plated and harmful nitric acid will be unnecessary. Against the background of the technical evolution of Teflon processing, the Mechatronics System Plant trialled several methods and is verifying the cost-effectiveness of the results. This technology is expected to be rolled out to other manufacturing sites as an effective method of eradicating a source of pollution.



The cage itself has become plated through repeated work



Teflon-processed plating basket

Contributing to Customers through Environment-friendly Design

The products of the OKI Group are developed from a life-cycle perspective. Here we introduce reductions in power consumption during product use and reductions in environmental impacts during transportation in the context of communication devices and printers.

Energy and Resource Conservation through Environment-friendly Design

“CrosCore2” supports communication in the office and is an “OKI Eco Products Double Plus” registered product. Products that reduce environmental impacts through energy-saving effects for the customer and weight reductions during product transportation are registered as particularly outstanding environment-friendly products.



The CrosCore2 main unit (above), which has an excellent energy-saving effect, and telephones

Energy-savings of up to 78% by prevention of power conversion loss

With regards to energy-saving, we have reduced our consumption by up to 78% over conventional products through standardizing the voltage within equipment*1. The high voltage supplied from outside the equipment enters the power supply section and is converted into multiple voltages suitable to each unit within the equipment. “CrosCore2” has minimized power consumption by reducing the types of voltage by 2/3 and preventing loss during conversion. In addition, we have made further improvements and achieved a significant reduction in power consumption, such as by adopting energy-efficient electronic parts (FET*2) in the unit that transforms the voltage.

34% reduction in weight through changes of layout and materials, and 62% reduction in packaging materials

In terms of weight reductions, we reviewed the internal layout and structure of the main unit and changed the housing material from conventional metal to reinforced resin. As a result, we have realized roughly a 34% lighter weight over conventional products. In addition, we reduced the amount of cardboard used during transportation by approximately 62% over conventional products, and were able to reduce the amount of foaming agent used for buffering to zero.



Registered as “OKI Eco Products Double Plus”, an environmentally friendly product of the OKI Group

*1 Main unit power consumption of each model in the CrosCore2 lineup and the old model (IPstage) with corresponding capacity
CrosCore2S: 11 W, CrosCore2M: 22 W / IPstageSX: 51 W, CrosCore2L: 36 W / IPstageEX300: 61 W

*2 Field effect transistor: A transistor that forms an electric field that enables or disables passage of electricity between two terminals through the voltage at another terminal. The circuit can be controlled by a small current and has excellent energy-saving performance.

A Life-cycle Perspective that Qualifies for the Eco Mark



The Eco Mark, which is established from a life-cycle perspective, and the “Teriostar LP-2060”, a wide format multifunction printer that conforms with the act on promoting green procurement

The “Teriostar LP-2060” is one of OKI Data Infotech’s Eco Mark products. Envisaging the design work of the manufacturing industry as a wide format multifunction printer, this product prints, copies and scans large drawings at high speed while clearing the strict Eco Mark environmental standards. In addition, it supports the design work of the customer, taking into account space-saving, maintenance, security and many other aspects.

There are over 100 types of eco-label that indicate the environmental performance of products in Japan, but the Eco Mark is the only “Type 1” that represents certification by a third party institution from a life-cycle perspective. The Eco Mark certification criteria are set from a life-cycle perspective and place particular emphasis on energy-saving performance at the time of product use. They are also compatible with the international ENERGY STAR® program.

Contributing to Customers through Environment-friendly Design

In product development, we are working to reduce the environmental impact of products during use while realizing customer requirements. Here, we introduce examples of mechatronics products.

The Pursuit of Customer Needs and Energy-savings

In the work of issuing tickets at train station counters, staff require speed, ease of use and space-savings. The staff-operated cybernetics ticketing*1 equipment responds to these needs.

Realization of speed, ease of use and space-savings

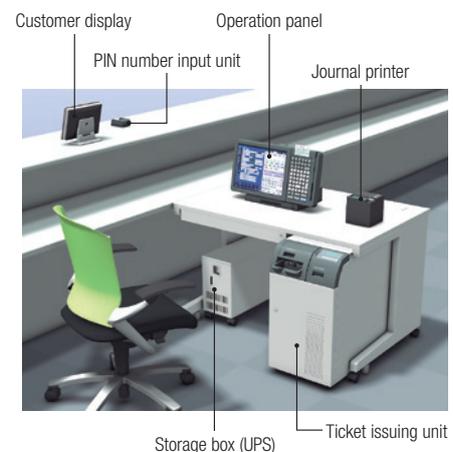
With regards to realization of speed, the ticket issuing machine achieves a 25% and 30% higher speed over conventional products in the magnetic ticket unit and IC card unit, respectively. This was achieved through repeated improvements in the firmware that controls the equipment, the print head, the conveyance parts, and other components

For ease of use, we solicited requests for improvements from employees working the counter from the initial stage of development, reflected mis-operation prevention and other functions in product development, and have received good feedback from the customer.

In terms of space savings, we focused on the operation panel, journal printer*2 and storage box, and improved tabletop and legroom by about 60%.

25% reduction in power consumption achieved

Miniaturization of each device contributes to energy-saving in addition to resource savings, and despite the improvement in ticketing speed, the power consumption of the entire issuing machine has been reduced by 25%.



The staff-operated cybernetics ticketing equipment pursues speed, ease of use and space savings

*1: Cybernetics tickets: Tickets that conform to the data standard (cybernetics standards) established by the Congress of Japan Railway Cybernetics are called "cybernetics tickets."

*2: Journal printer: A printer that prints the sales report managed by the station.

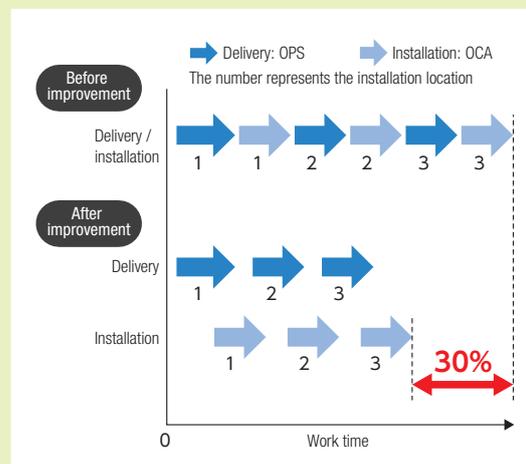
TOPIC Reduction of CO₂ Emissions by 40 tons when Delivering Equipment

OKI Proserve (OPS) and OKI Customer Adtech (OCA) jointly deliver and install ATMs and cash handling machines.

In the past, installation work by OCA was carried out in succession to delivery work by OPS. As a result, waiting time occurred in both operations, and both the shortage of vehicles and workers and the efficiency of vehicle allocation were an issue.

As a countermeasure, product delivery by OPS and installation work by OCA were carried out in parallel, enabling OPS to head to the next destination and start work once delivery was complete without waiting for OCA to finish installation.

As a result, waiting time and transportation efficiency has greatly improved at OPS, and the transportation of ATMs to multiple locations at once has become possible, reducing total work time by about 30% and CO₂ emissions by about 40t annually.



30% improvement in work efficiency by separating the delivery work by OPS and installation work by OCA

Consideration for the Environment – Detailed Data

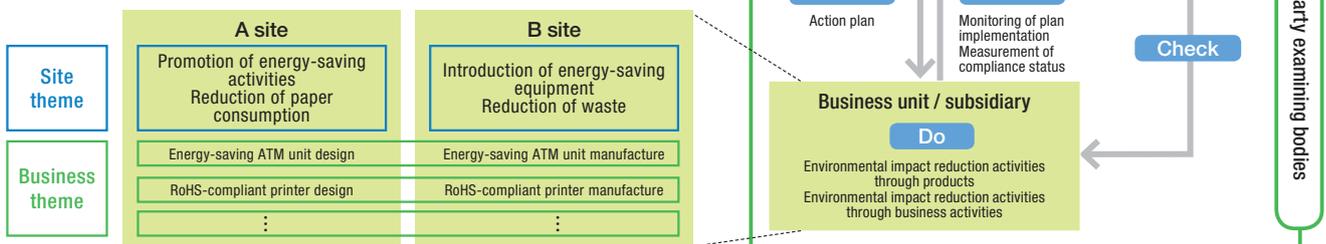
Environmental Management-related Information

The OKI Group acquired combined ISO14001 certification for all companies in fiscal 2004 from the perspective of the total optimization and the improvement of governance of the Group. We implement the PDCA cycle to share and adjust targets and measures, legal information, training, internal audits, external audits, and the like.

■ Structure of the Environmental Management System

The OKI Group environmental management system has built structures for themes relating to workplace (site themes) and themes relating to product development and business (business themes), and promotes a PDCA cycle. Information on the two themes is combined to efficiently promote the environmental management of the whole Group.

We are pursuing continuous improvements through the process of planning → execution → monitoring / measurement → problem analysis / evaluation → examination / trial of measures → development of measures within the Group, thereby obtaining a synergistic effect for the entire Group.



■ Specific Measures and Activities (Fiscal 2016 Results)

Category	Activity Content	Fiscal 2016 Targets→Outcome	Details
Realization of low-carbon societies			
Products	Development of energy-saving products	20% or more of developed products → 28% (energy saving of 21% or more over conventional products)	P5,9,10
Business activities	Energy-savings at workplaces (plants and offices)	Reduction of 8% or more → 1.1% reduction (consumption vs. FY2012*)	P4-8
Prevention of pollution			
Products	Development of products complying with regulations on chemical substances in products	40 or more products → 73 products	P4-6
	Ensuring legal compliance by supporting the new standard survey form (chemical substance management system / management procedure manual)	Support for ChemSHERPA: Start of operation → start in July	P4,6
Business activities	Reduction of chemical substance emissions from plants (atmosphere/water/soil)	Reduction of 22% or more → 10.9% increase (consumption vs. FY2012*)	P4,8,12
	Compliance with chemical substance related regulations (atmosphere/water/soil)	Compliance with legal audits; zero legal violations → achieved	P4,11
Resource circulation			
Products	Recycling of used products	Over 4,000t → 3,969t	P4,5,12,13
	Development of easily recyclable products	30 or more products → 32 products	P5,9
Business activities	Reduction and appropriate disposal of waste	Recycling rate 80% or more → 63%	P11
	Streamlining of resource input	Improvement of 17% or more → 8.8% improvement (consumption vs. FY2012*)	P4,6,9
Common			
Biodiversity conservation	Realization of low-carbon societies / prevention of pollution / resource circulation	Promotion of the above initiatives	Website*4

*1 Energy consumption (converted in crude oil: k2) / consolidated sales (100 million yen) *2 Chemical substance emissions (t) / output (100 million yen)

*3 Resource input (t) / output (100 million yen) *4 [Efforts for conserving biodiversity](http://www.oki.com/en/eco/management/biodiversity.html) <http://www.oki.com/en/eco/management/biodiversity.html>

■ Responses to Environmental Pollution, etc.

Pollution of groundwater and soil

The OKI Group installed observation wells at business locations, and is monitoring groundwater. Also, the results of a past survey found environmental pollution in the soil and groundwater at several business locations. This finding was reported to the government, and appropriate measures are currently being taken to prevent the contaminated soil and water from spreading into other areas and groundwater.

Subsequent and extraordinary events

There were no extraordinary events during the period of this report and no serious subsequent events after the period of this report.

Consideration for the Environment – Detailed Data

Overview of Environmental Impact through Business Activities

Material Balance

The material balance from the perspective of life-cycle is presented as an overview of the environmental impact of the OKI Group.

INPUT				Source	OUTPUT				
		Fiscal 2016	On Previous Year				Fiscal 2016	On Previous Year	
Energy				Business Activities (Development / Production, etc.)	Greenhouse Gases				
Electricity	[100 million kWh]	1.49	(-0.04)		Greenhouse gases due to business activities [10,000t-CO ₂] 9.39 (-0.31)				
Heavy oil	[kℓ]	646	(-19)		CO ₂ [10,000t-CO ₂] 8.86 (-0.45)				
Gasoline	[kℓ]	0.864	(+0.092)		Other greenhouse gases (PFC, etc.) [10,000t-CO ₂] 0.52 (+0.14)				
Kerosene	[kℓ]	47.5	(+0.1)		Smoke and Soot				
Light oil	[kℓ]	78.1	(-20.6)		NOx [t] 3.67 (-0.16)				
City gas	[km ³]	1,770	(+27)		SOx [t] 3.48 (-0.10)				
LPG/LNG	[t]	150	(-10)		Chemical Substances				
Crude oil equivalent total*1	[kℓ]	44,200	(-112)		PRTR (emitted) [t] 13.1 (-4.2)				
Water					Transportation	PRTR (transferred) [t] 21.3 (+2.8)			
Waterworks / industrial water	[10,000 t]	77.7	(-3.6)	Waste					
Groundwater / well water	[10,000 t]	68.8	(+16.8)	Product Use	Total generated [t] 11,400 (-100)				
Chemical Substances					Disposal	Recycled [t] 9,200 (+470)			
Substance subject to PRTR*2	[t]	331	(-49)			Final disposal [t] 511 (-62)			
Energy				Atmosphere					
Fuel (light oil, etc.)	[GJ]	191,000	(-39,000)	CO ₂ [10,000t-CO ₂] 1.29 (-0.27)					
Energy				Product Use	NOx [t] 449 (-17)				
Electricity	[100 million kWh]	17.9	(-7.2)		SOx [t] 0.164 (-0.006)				
Used Product Reclamation				Disposal	Atmosphere				
Amount handled	[t]	3,970	(+640)		CO ₂ [10,000t-CO ₂] 93.6 (-39.4)				
					Used Product Recycling				
					Material recycling rate [%] 99.2 (-0.4)				

*1 Changes in energy consumption (converted into crude oil) appear on our website. http://www.oki.com/en/eco/business/greenhouse_gas.html

*2 Details on substance covered by PRTR (a notification system for chemical substance emissions appear on our website.

<http://www.oki.com/en/eco/business/chemical.html>

*Initiatives to reduce environmental impact in each process are outlined on P4-10 of this report.

SCOPE3

CO₂ emissions for fiscal 2016 for the entire supply chain of the OKI Group in Japan and overseas are as follows.

SCOPE 1	Emissions: 16,000t	Ratio: 0.83%	SCOPE 2	Emissions: 80,000t	Ratio: 4.2%	SCOPE 3	Emissions: 1,800,000t	Ratio: 95%
Emissions directly resulting from the use of fuel and manufacturing processes at OKI			Indirect emissions consequent on the use of electricity and heat purchased by OKI			Indirect emissions in the supply chain		

CO₂ emissions by SCOPE 3

Category	Emissions in FY2016		Method of Calculation
	10,000 t CO ₂	Ratio (%)	
SCOPE 3, Upstream			
1 Purchased goods and services	60.9	33.7	Money values for goods and services purchased or acquired by the Group × Emissions unit value by item
2 Capital goods	4.40	2.44	Monetary values of investment for capital goods the Group purchased × Emissions unit value by them
3 Fuel and energy related activities not included by SCOPE 1 or 2	0.599	0.330	Amounts of usage of electricity, steam, cold water, and hot water × Emissions unit value
4 Transportation and delivery (upstream)	0.610	0.338	Ton-kilometers transported × Unit value by means of transport + Transport costs × Unit value by means of transport
5 Waste generated in operations	0.499	0.276	Amounts of processed/recycled waste × Emissions unit value
6 Business travel	0.253	0.140	Number of employees × Emissions unit value
7 Employees commuting	0.885	0.490	Number of employees × Working Days × Emissions unit value by Working arrangements and Urban classification
8 Leased assets (upstream)	1.15	0.636	Power consumption of the Data center we rent × Emissions unit value of Power company
SCOPE 3, Downstream			
9 Transportation and delivery (downstream)	-	-	Not covered.
10 Processing of sold products	17.6	9.75	Sales turnover of intermediate products × Emissions unit value
11 Use of sold products	93.6	51.8	Hypothetical durable years of products × Annual power consumption × Number of sales × Emissions unit value
12 End-of-life treatment of sold products	0.0873	0.0483	Amounts of processed/recycled waste, by types of waste and processing method × Emissions unit value
13 Leased assets (downstream)	-	-	Not covered. (The Group's business is not applicable.)
14 Franchises	-	-	Not covered. (The Group's business is not applicable.)
15 Investments	-	-	Not covered. (The Group's business is not applicable.)
Total	181	100	

Consideration for the Environment – Detailed Data

Reducing Environmental Impact of Business Activities and Products

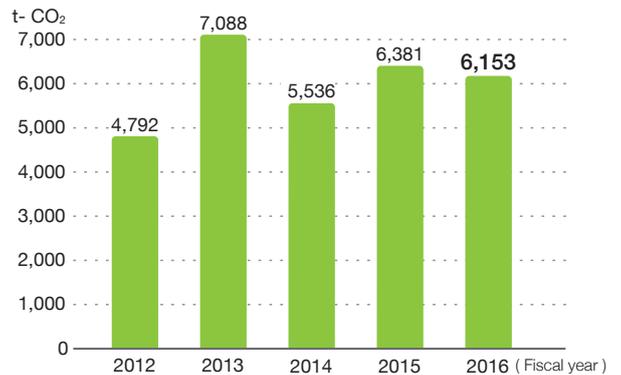
The OKI Group has been active in reducing environmental impact of its business activities and products in order to contribute to environmental conservation.

■ Reducing Environmental Impact of Physical Distribution

OKI Proserve, a company in charge of OKI's logistics operations, has promoted a modal shift since a very early stage in order to reduce CO₂ emissions during transportation, while creating a data base of transportation information to aggregate the data required by the Energy Saving Law. In fiscal 2016, it achieved a reduction of 652t-CO₂ emissions (a 9% decrease from the previous fiscal year) through the modal shift. CO₂ emissions from all transportation activities were 6,153t-CO₂ (a 4% decrease from the previous fiscal year).

Modal shift efforts:
http://www.oki.com/en/eco/business/greenhouse_gas.html

■ CO₂ Emissions from Transport Activities

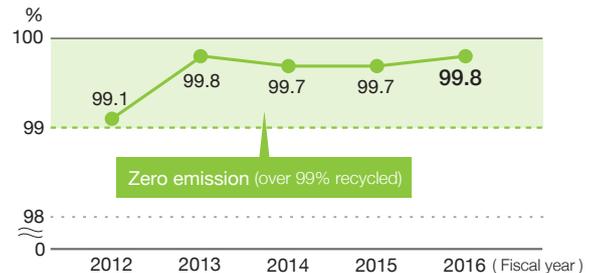


■ Promotion of Material Recycling (Zero Emissions)

The OKI Group appropriately recycles its waste generated at production sites and other locations, and has been active in improving our material recycling rate*¹. In 2002, we achieved "Zero Emissions"*² at our major production sites, and have been continuing our efforts since then. In fiscal 2016, the material recycling rate was 99.8%.

*¹ Material recycling rate: (quantity of material-recycled resources) / (quantity of material recycled resources + quantity of waste subject to final disposal) × 100
 *² Zero Emissions: defined by the OKI Group as a material recycling rate of 99% or more

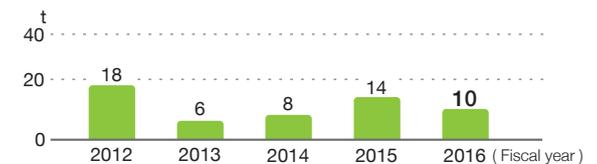
■ Material Recycling Rates of Main Production Sites



■ Amount of Waste Subject to Final Disposal

The amount of the general and industrial wastes emitted from the OKI Group's major production sites and subject to final disposal was 10 tons in fiscal 2016.

■ Amount of Waste Subject to Final Disposal Emitted from Main Production Sites

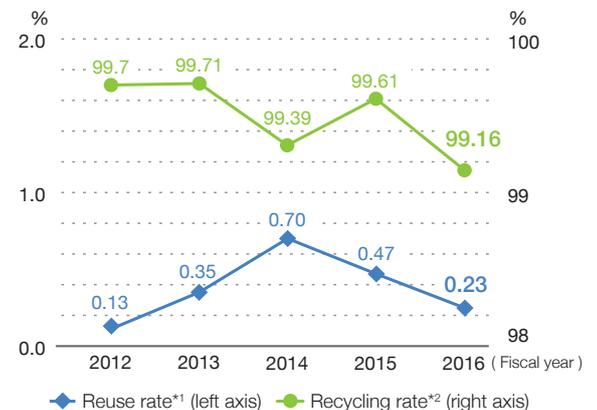


■ Recycling of Used Products

OKI, OKI Data, and OKI Customer Adtech actively utilize the Cross-jurisdictional Waste Treatment Manufacturer Scheme, which was granted by the Ministry of the Environment in June 2006, to promote the recycling of used products. The recycling rate reached 99.16% and the reused rate reached 0.23% in fiscal 2016.

Figures on other resources are listed on our website.
<http://www.oki.com/en/eco/business/recycle.html>

■ Recycling of Used Products



*¹ Reuse rate : the ratio of reused parts and materials to the collected used products (in mass)
 *² Recycling rate: the ratio of material recycling and reuse to the collected used products (in mass)

Consideration for the Environment – Detailed Data

Environmental Accounting

■ Environmental Conservation Costs

When the OKI Group makes capital investments to renew or introduce infrastructure, it selects equipment with low environmental impact. Capital investment in fiscal 2016 amounted to 0.387 billion yen while the amount of costs was 1.439 billion yen.

■ Investment / Costs

(Unit: million yen)

Category	Main Efforts	Investment		Costs	
		Fiscal 2016	On Previous Year	Fiscal 2016	On Previous Year
Cost in business areas	Prevention of pollution cost	12	(-1)	128	(-23)
	Global environmental conservation cost	341	(-157)	243	(+18)
	Resource recycling cost	26	(+2)	635	(+286)
Total		379	(-156)	1,006	(+281)
Upstream / downstream cost	Investment on manufacturing facilities and maintenance costs	6	(-94)	95	(-67)
Administration cost	Costs for obtaining environment management certifications, and maintenance and operation costs	0	(-11)	219	(-102)
R&D cost	R&D costs for creating energy-saving products	1	(0)	116	(+54)
Social activity cost	Costs for planting trees in production sites, costs for activities contributing to local communities	0	(0)	3	(0)
Environmental damage cost	Costs for reserves to respond to environmental damages, insurance costs and surcharges	0	(0)	0	(-1)
Other costs	—	0	(0)	0	(0)
Total		387	(-260)	1,439	(+166)

■ Benefits of Environmental Conservation

Economic effects marked 832 million yen, owing to the sales of waste as valuables.

■ Economic Effects

(Unit: million yen)

Category	Main Efforts	Effect	On Previous Year
Cost reduction effect	Effect of saving energy and resources	468	(+183)
	Effect of reducing treatment cost	97	(+120)
Real income effect	Sale of valuable waste generated from business activities	267	(-47)
Total		832	(+256)

■ Environmental Conservation Effects

(Unit: t)

Environmental Impact Indices	Impact	
	Fiscal 2016	On Previous Year
Greenhouse gas emissions	93,852	(-3,056)
Waste emissions (Final waste disposal)	522	(-51)

<Accounting conditions> ① When environmental conservation costs and other costs are used for a single activity, only the environment costs are calculated for environmental accounting.
 ② Personnel costs are calculated by prorating the personnel costs for the total time spent on environmental conservation activities.
 ③ The real income effect represents the value for the current fiscal year.

■ Major Environmental Conservation Efforts

The following tables show the main efforts with respect to investment, costs and economic effects that are calculated in our environmental accounting.

■ Main Efforts by OKI Group in Japan

(Unit : 1,000 yen)

Category	Main efforts	Amount	Site
Investment	Renewal of energy-saving elevators	93,960	Takasaki district
	Renewal of energy-saving air conditioners	57,630	Shibaura district
	Renewal of energy-saving air conditioners	40,400	Honjo district
	Renewal of energy-saving air conditioners	8,780	Takasaki district
	Conversion of lighting to LEDs	8,230	Honjo district
Costs	Asbestos removal work	233,609	Honjo district
	Development of energy-saving functions for products	85,200	OKI Data
	Waste disposal outsourcing costs	77,920	OKI Printed Circuit
	Monitoring the operation of electric / boiler facilities	77,674	Takasaki district
Economic Effects	Waste disposal outsourcing costs	19,657	Tomioka district
	Reduction of industrial steam costs	121,904	OKI Printed Circuit Ome Factory
	Reduction of packaging material costs	107,710	Honjo district
	Reduction of packaging material costs	85,144	Tomioka district
	Effects of selling waste as valuables	73,113	OKI Printed Circuit
	Reduction of gas purchase costs	50,220	OKI Data

■ Main Efforts by OKI Group Overseas

(Unit : 1,000 yen)

Category	Main Efforts	Amount	Site
Investment	Introduction of automatic equipment to improve production efficiency	8,906	OKI Micro Engineering (DG)
	Development of green areas in factory premises	1,225	OKI Data Manufacturing (Thailand)
	Assembly automation investment costs	840	OKI Electric Technology (Kunshan)
Costs	Waste disposal outsourcing costs	2,953	OKI Brasil
	Maintenance costs for waste water treatment equipment	2,311	OKI Data Manufacturing (Thailand)
	Waste disposal outsourcing costs	950	OKI Electric Industry (Shenzhen)

* Exchange rates: 16.75 yen/CNY 3.25 yen/THB 30.00 yen/BRL

Consideration for the Environment – Detailed Data

Corporate Information

■ Corporate Profile (As of March 31, 2017)

Corporate Name:	Oki Electric Industry Co., Ltd.
Founded in:	January 1881
Company Established:	November 1, 1949
Capital:	44 billion yen
Employees:	19,464 (Consolidated), 4,063 (Non-consolidated)
Head Office:	1-7-12 Toranomon, Minato-ku, Tokyo 105-8460, Japan TEL: +81-3-3501-3111

■ ISO14001 Credentials

Certification Organization:	Japan Audit and Certification Organization for Environment and Quality (JACO)
Registration Number:	EC99J2072
Date of Registration:	February 25, 1997
Expiration Date:	September 14, 2018
Organization Name:	OKI Group
Representative Office:	1-7-12 Toranomon, Minato-ku, Tokyo, Japan

■ Cross-jurisdictional Waste Treatment Manufacturer Scheme

1. Date of Certification: June 29, 2006
2. Certification Number: No. 93
3. Processing Areas: All Japan
4. Type of Industrial Waste:
Industrial waste comprising information processing equipment and communications equipment manufactured by Oki Electric Industry Co., Ltd., Oki Data Corporation, and Oki Customer Adtech Co.,Ltd.

■ History of the OKI Group Environmental Management

Nov. 1970	Organized a project team at the headquarters to address pollution problems
Jan. 1971	Established rules for countermeasures against pollution
Sep. 1973	Established a special WG for environmental conservation in the OES (OKI Engineering Standard) Committee
Jun. 1979	Started environmental audits by the headquarters
May. 1981	Started environmental audits at group companies
Apr. 1983	Established rules for environmental management
Apr. 1984	Established environmental management standards (OPES)
Mar. 1993	Formulated the OKI Environmental Protection Activity Plan
Mar. 1993	Abolished totally the use of designated chlorofluorocarbons
Sep. 1993	Abolished totally the use of 1, 1, 1-trichloroethane
May. 1995	Established an advanced evaluation system to assess the environmental impact of product designs and packagings
Dec. 1995	Announced at a press conference of a plan to acquire ISO14001 Certification
Aug. 1996	Formulated the "Basic Environmental Policy" and the "Environmental Protection Activity Plan"
Mar. 1997	Abolished totally the use of trichloroethylene and dichloromethane
Dec. 1998	The goal of OKI Group's all major production sites of acquiring ISO14001 was achieved.
Mar. 1999	Formulated the "Green Procurement Guidelines" as a corporate standard
Aug. 1999	Formulated the "OKI Eco Plan 21"
Sep. 1999	Published the first edition of "Environmental Report 1999"
Apr. 2000	Established Global Environment Division at the headquarters
Aug. 2000	Disclosed environmental accounting in the "Environmental Activity Report 2000"
Nov. 2000	Established a company to recycle used products
Dec. 2000	Established the "OKI Eco Product Registration Standards"
May. 2001	Formulated the "OKI Eco Plan 21 (2001 version)"
Mar. 2002	All production sites of the OKI Group in Japan acquired ISO14001 Certification.
Mar. 2003	All major production sites of the OKI Group in Japan achieved "zero emission" of industrial wastes.
Nov. 2003	Acquired designation as a "Cross-jurisdictional Waste Treatment Manufacturer" from the Ministry of the Environment
Mar. 2004	Integrated various systems for collecting information on chemical substance in products into a company-wide system
Mar. 2004	Achieved lead-free soldering in substrates newly designed in Japan for information equipment
Mar. 2005	Acquired ISO14001 Consolidated Certification
Dec. 2005	Completed transition to ISO14001:2004
Jun. 2006	Obtain the Ministry of Environment's approval as a "Cross-jurisdictional Waste Treatment Manufacturer"
Dec. 2006	The OKI Group in Thailand obtained ISO14001 Consolidated Certification.
Nov. 2007	Established the OKI Group standards for controlling chemical substances in products
Mar. 2008	Major production sites in China area started to obtain ISO14001 Consolidated Certification.
Mar. 2009	Developed AIS compatible functions for the COSMOS system
Mar. 2009	Major production sites in China area obtained ISO14001 Consolidated Certification.
Apr. 2012	Enactment of the OKI Group Environmental Vision 2020
Oct. 2015	Disclosed SCOPE 3
Jun. 2016	Disclosed life-cycle CO ₂ emissions
Jul. 2016	Developed chemSHERPA compatible functions for the COSMOS system

OKI

Oki Electric Industry Co., Ltd.

<For inquiries>

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