

Environmental Report 2014



FUJITSU GENERAL LIMITED

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◆ Period covered

Report centered on the activities of FY2013 (April 1, 2013 – March 31, 2014) including a part of contents in other period.

◆ Sites covered

Report covering activities of Fujitsu General Group (Fujitsu General Limited, 10 domestic subsidiaries, 5 overseas manufacturing subsidiaries and 13 overseas sales subsidiaries: Total 29 companies)

◆ Preferences Guidelines

•“Environmental Guidelines 2012” by The Ministry of Environment

•“Environmental Accounting Guidelines 2005” by The Ministry of Environment

Message from Management

In 2103, various forms of unusual weather occurred worldwide and caused extensive damages in many places. In Japan as well, record heat wave continued and we were exposed to the menace of natural disasters such as typhoon, tornado, flooding by torrential rainstorm, and while the relevance with global warming was argued about, we recognized anew the importance of the activity for “environmental issue”.

Fujitsu General Group aims to pursue excellent technology and provide comfortable, secure, safe and environmentally-friendly products and services in all business fields recognizing that the activity for global environmental protection is an important management issue. To be concrete, we think it our mission to aim at “Contribution to the reduction of environmental burden for customers and society” and “Reduction of environmental burden generated by our own business activities” through the provision of products and services.

To promote these activities, Fujitsu General Group worked on the Environmental Protection Program Stage VII (FY2013 – 2015) and started the activity in FY2013. In this activity, we are setting 5 key challenges, “Development of environmental protection products and technologies and expansion of supply to the market”, “Reduction of CO₂ emission”, “Suppression of emission of wastes and specific chemical substances”, “Level-up and operation efficiency improvement of Environmental Management System” and “Concrete activities for biodiversity conservation” and promoting total 20 individual themes, We have mostly achieved favorable results for the goals of the first year and will strive to further improve and achieve better results up to the end of FY2015.

Also, as part of environmental activity, Fujitsu General Group is promoting the activities to cooperate with regional society and working on the improvement of environmental communication such as maintenance of Biotope in Hamamatsu Business Office, invitation of visitors to the home electric appliance recycling plant and “delivery lecture on energy saving” at the local primary schools in addition to the cleaning and greening activities around all the company offices.

In the future, we will further strengthen and promote these environmental activities while pursuing the integration of business and environmental activities.

In this report, we summarized the activities for global environmental protection and actual results of environmental activities for FY2013 of Fujitsu General Group. We hope that you will understand our environmental activities through this report and give us your candid comments and advices for us to further enhance the environmental activities.

Junichi Murashima

**President and Representative Director
Fujitsu General Limited**



Corporate Overview

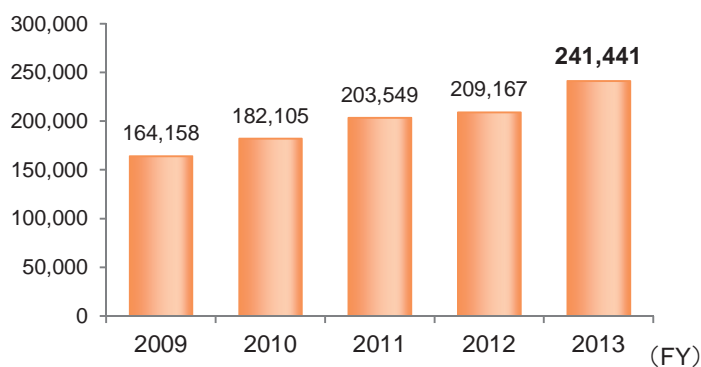
Name:	FUJITSU GENERAL LIMITED
Head office location:	1116, Suenaga, Takatsu-ku, Kawasaki, Kanagawa 213-8502, Japan Tel: 044-866-1111
Established:	January 15, 1936
Main business:	Development, production, sales and service of products and parts in the fields of air conditioner, information and communication systems and electronic devices
Capital:	18,089 million yen as of March 31, 2014
Employees:	1,491 (Fujitsu General Limited) as of March 31, 2014 5,766 (Fujitsu General Group) as of March 31, 2014



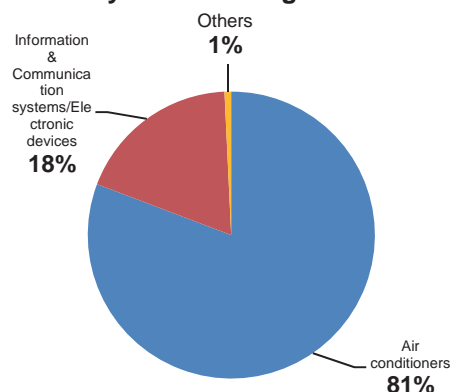
Consolidated Management Index (FY2013)

◆ Net sales

(Million yen)

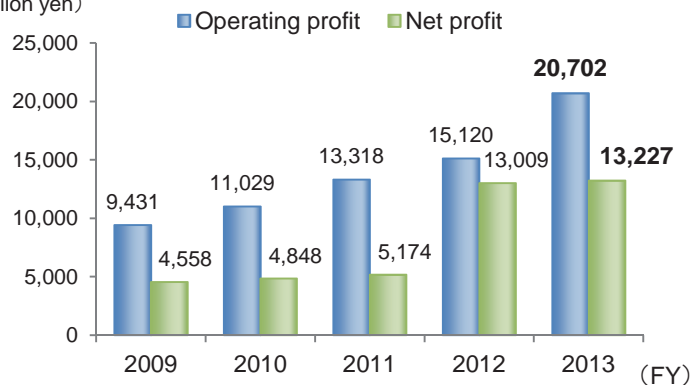


◆ Sales by business segment

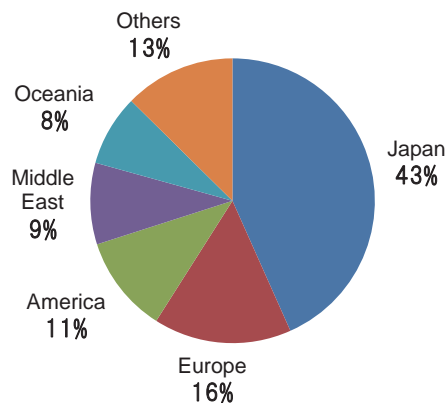


◆ Operating profit/Net profit

(Million yen)



◆ Sales by area



Main products, systems and services:

Air conditioners	Room air conditioners, multi air conditioning system for buildings, heat-pump type hot water heating system, air conditioning-related products
Information & Communication systems/Electronic devices	Fire-fighting system, disaster prevention system, POS system ^(*) , video system, in-vehicle camera, electronic parts, unit products
Others	Recycling of electric home appliances, radio interference measurements and consulting

*1 : Point of sale system

■ FUJITSU GENERAL Way

The FUJITSU GENERAL Way expresses the common practice of action that all Fujitsu General Group employees should share and implement.

United by a common philosophy and guidelines, the Fujitsu General Group aims to contribute to the creation of a comfortable and safe society.

Corporate Vision	Through our constant pursuit of innovation, the Fujitsu General Group contributes to the creation of a comfortable and safe society and brings about a prosperous future that fulfils the dreams of people throughout the world.	
	Fujitsu General Group business goals	<ul style="list-style-type: none"> Global business development. Harmonious coexistence with the world's people. Business operation with open communication.

Corporate Values	《 What we strive for 》	
	Society and Environment	In all our actions, we protect the environment and contribute to the society.
	Profit and Growth	We strive to meet the expectation of customers, employees and shareholders.
	Shareholders and Investors	We seek to continuously increase our corporate value.
	Global Perspective	We think and act from a global perspective.
	《 What we value 》	
	Employees	We respect diversity and support individual growth.
	Customers	We seek to be their valued and trusted partner.
	Business Partners	We build mutually beneficial relationships.
	Technology	We seek to create new value through innovation.
	Quality	We support the reputation of our customers and the reliability of society.

Principles	Global Citizenship	We act as good global citizens, attuned to the needs of society and the environment.
	Customer-centric Perspective	We think from the customer's perspective and act with sincerity.
	Firsthand Understanding	We act based on a firsthand understanding of the actual situation.
	Spirit of Challenge	We strive to achieve our highest goals.
	Speed and Agility	We act flexibly and promptly to achieve objectives.
	Teamwork	We share common objectives across organizations, work as a team and act as responsible members of the team.

Code of Conduct	◆ We respect human rights.
	◆ We act with fairness in our business dealings.
	◆ We maintain confidentiality.
	◆ We comply with all laws and regulations.
	◆ We protect and respect intellectual property.
	◆ We do not use our position in our organization for personal gain.

Introduction of Business Centers

Introduction of business centers in Fujitsu General Group which had new facilities.



Fujitsu General Electronics Limited

(Ichinoseki, Iwate)

【New factory started operation】

The new factory of Fujitsu General Electronics Limited which is a production center of electronic devices and information and communication system appliances started full-fledged operation in June, 2013.

In the new factory, flexible production process layout to cope with “Production of many models in small quantities” with the concept of “MONOZUKURI focusing safety, security and energy saving” is possible and also, high degree of cleanness with dust-proof measures is secured. Furthermore, the energy-saving consideration is paid by adopting LED lighting apparatus and high efficient multi air conditioning system for building.



External view of new factory



Energy-saving lighting and air conditioning considering system

Main production item :	In-vehicle camera, unit products for industrial use, fire-fighting and disaster prevention system, various electronic parts
Building scale :	Total floor space 10,800m ² (two-story reinforced construction)

Matsubara Business Office

(Matsubara, Osaka)

【New office building completed】

The premises of Matsubara Business Office was completed in October, 2013 as integrated base assuming a central role for West Japan business.

The new Matsubara Business Office will assume a role of sales base in Kansai area in addition to the conventional logistics center and service center of Kansai area.

The buildings which were scattered in the premises were integrated into one two-storied building and wide space was secured for parking. Also, as the surrounding area of the business office is mostly residential district, we secured the green space with newly laid lawn considering the surrounding environment.



External view of new office building



Entrance hall

Main sales item :	Air conditioners, air conditioning related products (deodorizing equipment, etc.), information & communication system (fire-fighting system, disaster prevention system, POS system, video system)
Building scale :	Total floor space 5,784m ² (two-story reinforced construction)

Fujitsu General (Shanghai) Co., Ltd.

(Shanghai, China)

【New building of technical center completed】

Fujitsu General (Shanghai) Co., Ltd. reinforced the development center of small-size air conditioners for home use in China and started full-scale operation in April, 2013.

The new technical center has the space of about 2.5 times wider compared with the conventional engineering building and is equipped with latest technical and evaluation facility accommodating Japanese and local engineering staff engaged in the designing, production engineering, parts procurement, quality control, etc..

The air conditioners developed and produced here are shipped to Japan, Europe, China and various other countries of the world.

Main facility : Office rooms, business negotiation rooms, meeting rooms, test facility (environmental test room, anechoic room, continuous operation test room, constant temperature and humidity room, calorie meter, etc.)

Building scale : Total floor space 4,795m² (three-story construction)



New building of technical center



Office area

Fujitsu General America, Inc.

(New Jersey, U.S.A.)

【Technical centers set up in various areas】

Fujitsu General America, Inc. (FGAI), a sales subsidiary of air conditioners in North America, is setting up training centers for distributors and installers in various areas in North America aiming to expand sales.

In the past, in North America, central air conditioning system and all-in-one unit window type air conditioners were prevailing, but in recent years, due to the environmental regulations by government and public administrations and heightening consciousness for environment, the market of ductless type air conditioners with high energy-saving performance is growing.

FGAI started to sell multi air conditioning system for buildings (VRF) from 2012 and has delivered to churches, schools and other public facilities, and for further sales expansion, set up new training centers in Hawaii (June, 2013), California (August), Arizona (September) for enhancing quality and quantity of training in addition to the training facilities (New Jersey and Alabama)



Office building of FGAJ



Training session

Basic Stance on Environment

Fujitsu General Group established "Fujitsu General Environmental Chapter" in 1993 and systemized the environmental activities by the group, and at present, is administrating all companies of the group based on the "Fujitsu General Group Environmental Policy" which is applied to all companies of the group by the Environmental Management System conforming to ISO14001^(*1) centered on the Environmental Promotion Committee.

■ Fujitsu General Group Environmental Policy

The Fujitsu General Group Environmental Policy expresses the philosophy and action plan for practicing the environmental activities continually in all business domains based on the Fujitsu General Way.

Philosophy

The Fujitsu General Group believes that working to preserve the environment is an important part of doing business. Based on this philosophy, we contribute to building a comfortable and safe society and developing a sustainable society by bringing about a prosperous future that fulfills the dreams of people throughout the world. Besides observing environmental laws and norms in the course of doing business, we carry out environmental activities on our own initiative. Moreover, the entire organization and all employees remain committed to continuing past efforts to ensure that future generation will enjoy a rich and diverse environment.

Action Plan

- Contribute to the reduction of environmental burden for our customers and society and the enhancement of environmental efficiency by pursuing excellent technology and providing comfortable and safe products and services.
- Reduce environmental burden throughout every stage of the product life cycle.
- Introduce Top Runner products with even better energy and resource efficiency and 3R (reduce, reuse, recycle) compliancy.
- Prevent environmental risks that cause environmental pollution and health hazards caused as a result of using toxic chemicals and waste.
- Disclose business activities, products and solutions related to the environment, acknowledge feedback concerning them, and apply what we learn to improving our environmental activities.
- Every employee is committed to contribute to the global environmental protection including climate change control and biodiversity protection from the perspective of their own work role and as a member of the community and aims to further spread it to the society.

*1 : International standard about EMS (Environmental Management System).

Environmental Management System

In order to promote voluntary and continued environmental protection activities, Fujitsu General Group established the Environmental Management System (EMS) based on ISO14001 and is promoting the environmental activities. In 1998, Aomori Fujitsu General Limited (current Aomori Business Office) acquired ISO14001 certification for the first time as Fujitsu General Group and in 1999, all production subsidiaries in Japan including head office completed the acquisition of certification. Furthermore, overseas production subsidiaries completed the acquisition by 2006 and in 2008, head office and domestic consolidated subsidiaries acquired integrated certification. In 2013, the scope of integrated certification was extended to main overseas sales subsidiaries, and thereby, the acquisition of certification at main business centers of Fujitsu General Group was completed. We aim to further strengthen the company-wide environmental activities.

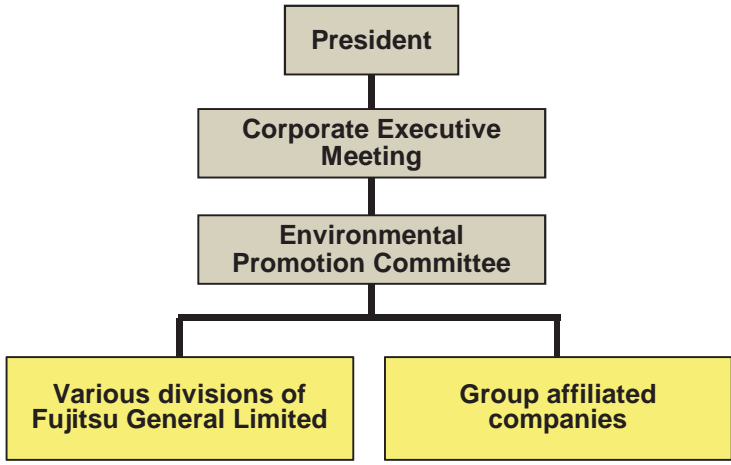
Situations of ISO14001 Environmental Management System certification

Company name (abbreviated name)	Environmental Management System Third Party Certification									< Contents of main business >
		Head office administration	Designing	Production	IT & solution	Distribution/Sales	Construction/Repairing/Inspection	Electric home appliance recycling	Others	
Fujitsu General Limited	Final integration (2013)	●	●	●	●	●	●	●	●	Development, manufacturing, sales and service of products and parts of air conditioners and information and communication system
Fujitsu General Limited head office		●	●	●	●	●	●	●	●	Head office function, development, designing, sales, maintenance
Fujitsu General Limited sales branches/service centers						●	●	●	●	Sales, maintenance of air conditioners
Fujitsu General Limited Hamamatsu Business Office							●			Repair of air conditioners
Fujitsu General Limited Aomori Business Office			●	●						Designing, development and production of key component for air conditioners
Fujitsu General Limited Matsubara Business Office					●	●	●			Sales and maintenance of air conditioners and information and communication solution
< Domestic subsidiaries >										
Fujitsu General Electronics Limited (FGEL)			●	●		●				Designing, development and sales of electronic devices and information and communication appliances
Fujitsu General Institute of Air-Conditioning Technology Ltd. (FGIT)			●							Research, development, designing and consulting relating to air conditioning and refrigerating system
Fujitsu General Residential Equipment Ltd.						●	●			Sales, installation and repair of air conditioners
Fujitsu General Information System Ltd. (FGIS)			●			●				Development of software and sales and maintenance of office equipment
Fujitsu General Career Promoting Co., Ltd. (FGPRO)									●	Human resources dispatching business, office work on contract and consulting
Fuji Eco Cycle Co., Ltd.								●		Recycling business of home electric appliances
Fujitsu General EMC Laboratory Limited (EMC)								●		Measurement and consulting relating to radio wave
Fujitsu General Heartware Ltd.								●		Contract work of office equipment management
Seiwakai Ltd.								●		Operation of in-company sales outlets, agent for insurance
FES Ltd. (FES)								●		Office equipment, vehicle and other leasing, real estate
< Overseas sales subsidiaries >										
Fujitsu General America, Inc.						●				Sales of air conditioners
Fujitsu General do Brasil Ltda.						●				Sales of air conditioners
Fujitsu General (U.K.) Co., Ltd.						●				Sales of air conditioners
FG Eurofred Limited						●				Sales of air conditioners
Fujitsu General (Euro) GmbH						●				Sales of air conditioners
Fujitsu General (Middle East) Fze						●				Sales of air conditioners
Fujitsu General (Asia) Pte. Ltd.						●				Sales of air conditioners
Fujitsu General (Aust.) Pty Ltd.						●				Sales of air conditioners
Fujitsu General New Zealand Ltd.						●				Sales of air conditioners
Fujitsu General Orient International Electronics Sales (Shanghai) Co., Ltd.						●				Sales of air conditioners
Fujitsu General (Taiwan) Co., Ltd.						●				Sales of air conditioners
< Overseas manufacturing subsidiaries >										
Fujitsu General (Thailand) Co., Ltd.	1990		●						Manufacturing of air conditioners	
Fujitsu General Engineering (Thailand) Co., Ltd.			●						Designing and development of air conditioners	
FGA (Thailand) Co., Ltd.	2002		●						Manufacturing of key components for air conditioners	
Fujitsu General (Shanghai) Co., Ltd.	1998		●	●					Designing, development and manufacturing of air conditioners	
Fujitsu General Central Air-Conditioner (Wuxi) Co., Ltd.	2007		●	●					Manufacturing and sales of air conditioners	
F.G.L.S. Electronic Co., Ltd.	2006		●						Manufacturing of key components for air conditioners	

Environmental Promotion Framework

To promote the environmental activities according to “Fujitsu General Group Environmental Policy”, “Environmental Promotion Committee” is held periodically and the concrete plans about problems and counter-measures are discussed and the evaluation of implementation is made.

The results of discussions at the committee meeting is reported to the Corporate Executive Meeting for the approval of plans and actual results.

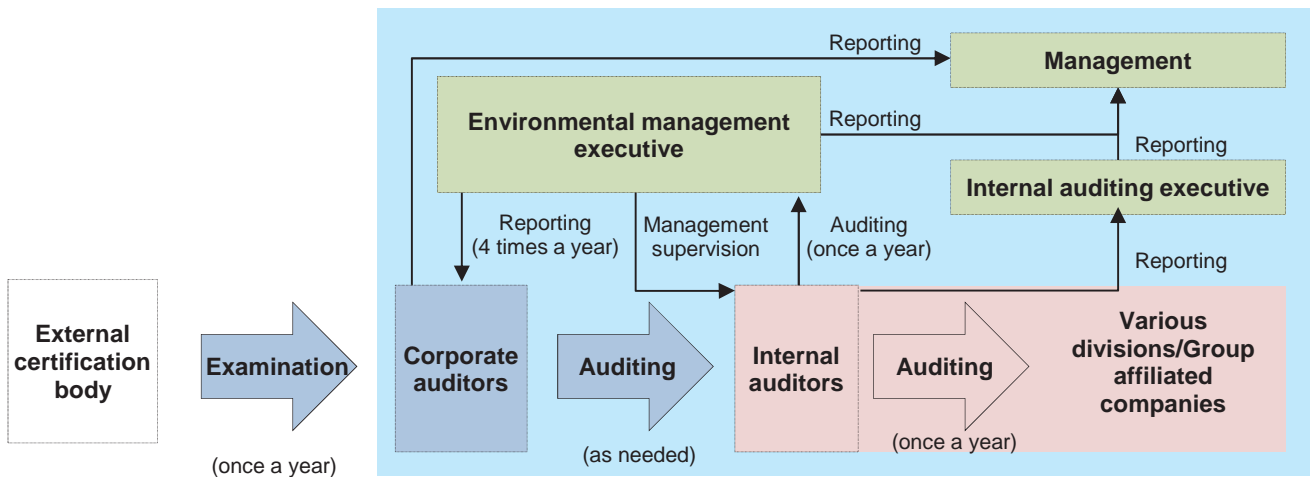


Environmental Promotion Committee

Environmental Auditing Framework

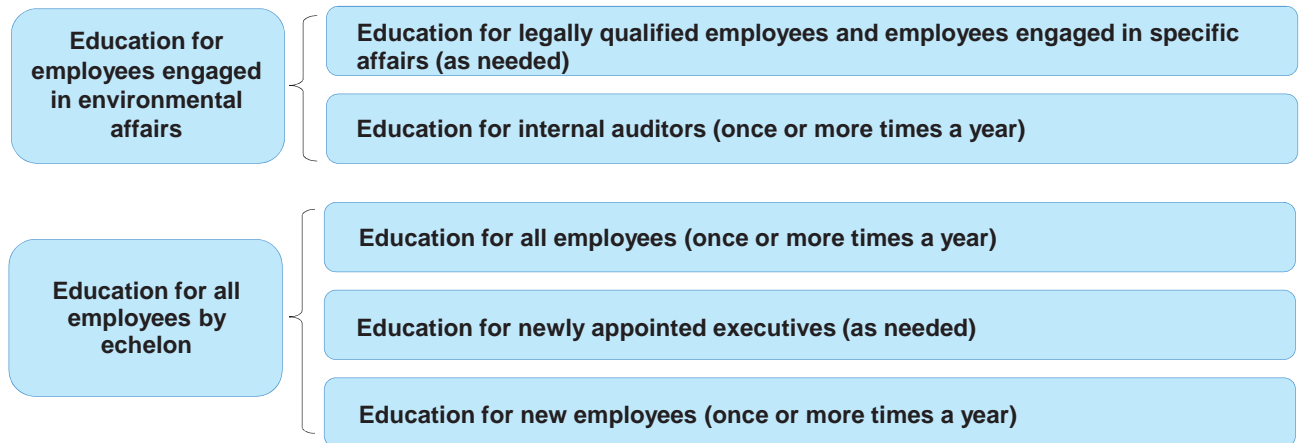
As an auditing framework of the environmental management system, we are implementing the examination by external certification body and internal auditing by internal auditors once a year. Also, the strengthening of auditing framework is pursued by reporting on the environmental activities 4 times a year from environmental management executives to corporate auditors from FY2010.

In the internal auditing in FY2013, 109 cases including 33 cases of minor nonconformity were pointed out. Also, in the examination by external certification body, 12 cases including 2 cases of nonconformity were pointed out. For all the cases, correction measures were already taken and the status of correction will be confirmed in the internal auditing of FY2014.



■ Environmental Education

Fujitsu General Group is conducting a systematic environmental education for all the employees to realize deeply the relation between corporate activities and environment and practice the environmentally productive activities.



Education for new employees



Education for internal auditors

Activities for Reducing Environmental Burden

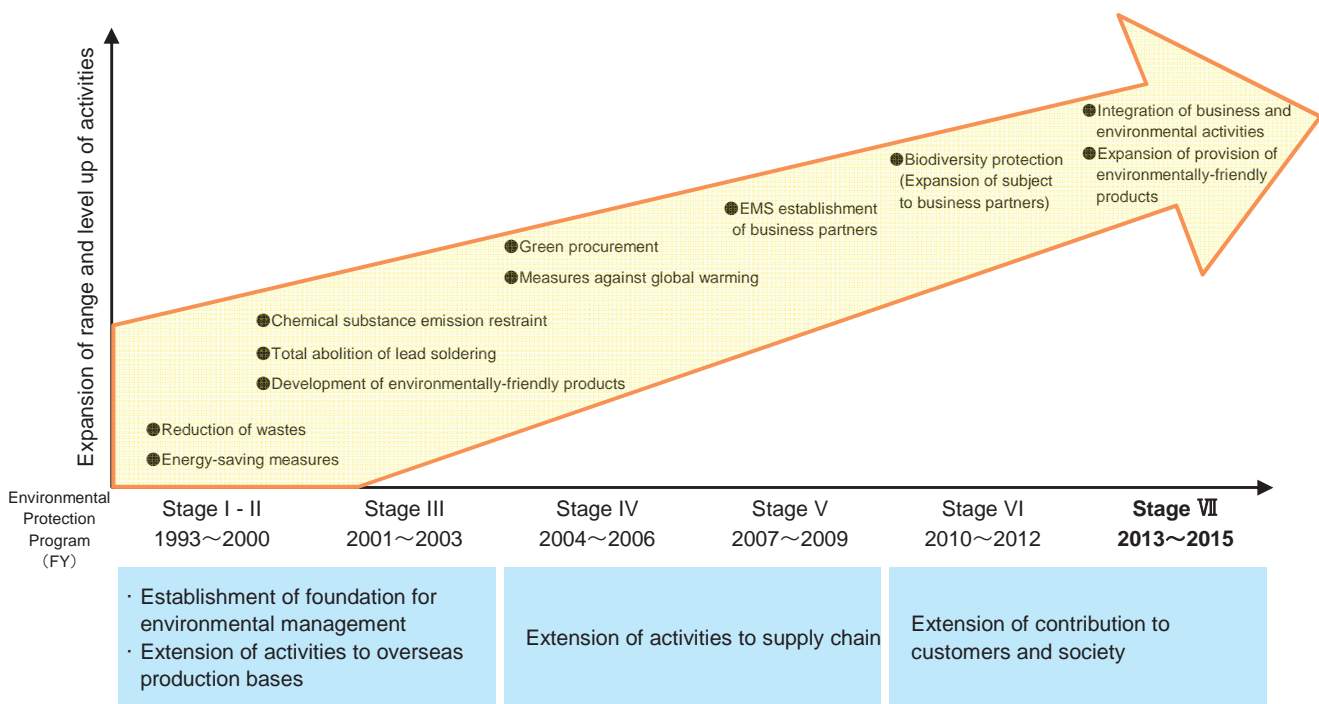
Recognizing that the activity for global environment protection is one of the important management themes, Fujitsu General Group is continually promoting the environmental activities according to the plan based on the “FUJITSU GENERAL Way” and “Fujitsu General Group Environmental Policy” for the reduction of environmental burden for customers and society as well as for the reduction of environmental burden within our business activities.



Environmental Protection Program

As the plan to practice based on the corporate vision and principles of the “Fujitsu General Group Environmental Policy”, the “Environmental Protection Program” is stipulated setting the important themes and numerical goals for every three years. In the Stage I – III (FY1993 - 2003), the reduction of environmental burden for our own business activities was pursued with the aim to establish the environmental management foundation. In the Stage IV – V (FY2004 – 2009), the scope of activity was extended to suppliers and the reduction of environmental burden in the supply chain was worked on. In the Stage VI (FY2010 – 2012), we promoted the activities aiming at the contribution to the reduction of environmental burden for customers and society by providing environmentally-friendly products and services, and from Stage VII (FY2013 – 2015), we are working on the activities aiming at the unification of business and environmental activity such as sales expansion of green products and CO₂ conversion of negative cost.

History of Environmental Protection Program



Environmental Protection Program Stage VII

The targets up to the end of FY2015 and the activity results for FY2013 are as follows. In FY2013, the first year, we achieved the targets in 14 themes out of 20 themes except 1 theme which was cancelled. With regard to the unachieved 5 themes, we will strengthen the activity in FY2014.

Environmental Protection Program Stage VII (End of FY2015)		FY2013		Achievement ^(*)	Related pages
		Targets	Results		
Reduction of environmental burden for customers and society	1. Environmentally-friendly products to reduce the burden of global environment through lifecycle of products.				
	1) Designate all the newly developed products as "Green Products" ^{(*)2}	100 %	100 %	○	P12~ P13
	2) Increase the sales of "Green Products" to more than 4 times of FY2012 by the end of FY2015.	200 %	192.7 %	△	
	3) Designate more than 30% of development models in each fiscal year as "Super Green Products" ^{(*)3} .	30 %	80.8 %	○	
	4) Develop "Industry's top level technology in environmental performance"	Air conditioner: Development of models adopting new refrigerant		Development completed	
Information & Communication: Reduction by 15% in volume			In progress	△	
In-vehicle camera: Improvement of sensor performance			In progress	△	
	Deodorizer: Efficiency improvement of filter cleaning		Cancelled	—	
Reduction of environmental burden for our own business activities	2. Reduction of energy consumption CO ₂ emission in the domestic business centers, overseas business centers and domestic product logistics				
	1) Reduction of energy consumption CO ₂ emission				P18
	· Reducing energy consumption CO ₂ emission in sales basic unit globally to less than 95% of FY2012 by the end of FY2015	98 %	84.5 %	○	
	· Domestic: Reducing in energy basic unit to less than 95% of FY2012 by the end of FY2015	99 %	97.6 %	○	
	· Overseas: Reducing in energy basic unit to less than 92% of FY2012 by the end of FY2015	99 %	94.6 %	○	
	2) Reduction of CO ₂ emission in domestic logistics				P19
	· Reducing in sales quantity basic unit to less than 97% of FY2012 by the end of FY2015	99 %	108.1 %	△	
	3. Promotion of environmentally-friendly MONOZUKURI and suppression of emission of wastes and specific chemical substances ^{(*)4} .				
	1) Reduction of waste emission				P23
	· Reducing waste emission in sales basic unit globally to less than 80% of FY2012 by the end of FY2015	92 %	61.8 %	○	
	· Domestic: Reducing in basic unit of each area to less than 76% of FY2012 by the end of FY2015	86 %	75.5 %	○	
	· Overseas: Reducing in output basic unit to less than 90% of FY2012 by the end of FY2015	95 %	70.5 %	○	
	2) Reduction of specific chemical substances				P24
· Reducing emission of specific chemical substances used in production	Specify specific chemical substances	Specified subject substances and completed target setting up to FY2015	○		
4. Operation efficiency improvement and level-up of Environmental Management System (EMS) ^{(*)5} in all domestic and overseas business centers					
1) Improving company-wide environmental promotion framework and enhancing the efficiency by the end of FY2015.				P20~ P21	
· Indexing negative cost (waste generated in performing work) converting to CO ₂	CO ₂ conversion according to reduction target and visualization and penetration to related departments	Decided the subject scope of evaluation and implemented data establishment and CO ₂	△		
2) Establishment and level-up of EMS at all overseas parts/material suppliers	80 %	84 %	○		
3) Strengthening chemical substance management system (CMS) ^{(*)6} at suppliers	80 %	81 %	○		
5. Concrete activities for biodiversity conservation					
1) Tackling biodiversity conservation activity through biotope ^{(*)7}				P25~ P26	
	Setting contents and targets of monitoring	Continuously Implemented monitoring and protection measures	○		
2) Promoting biodiversity conservation activity to business offices and suppliers					
	Working on measures	Set contents of measures	○		

*1 : ○: Achieved △: Rate of achievement more than 80% X: Less than 80% (Except technical development theme)

*2 : Products which enhanced performance such as energy saving, resource saving, reduction of hazardous substances from conventional products

*3 : Products which have industry's top level of environmental performance among "Green Products" or the products which were commended by the third party in the environmental performance. However, if there are no comparable products in the market, the products which improved environmental burden by more than 15% compared with conventional products of own company or the products which are designated as "Super Green Products" by the internal Environmental Promotion Committee.

*4 : Specified based on the Fujitsu General Group's own standard based on the impact to human and environment and yearly usage volume

*5 : EMS (Environmental Management System). System such as framework and procedures relating to environmental protection activity, e.g. International Standard ISO14001

*6 : CMS (Chemical Management System). System such as establishment and receiving control of chemical substance control system of suppliers

*7 : Biodiversity is the status balanced between various species existing on earth and various ecosystems composed by the species.

Reduction of Environmental Burden for Customers and Society

Green Products

“Green Products” are the newly developed products which conform to the standard (overall evaluation more than 70 points) and further, overall evaluation more than 80 points and there is no “0” point evaluation in 43 assessment items regarding 43 assessment items basing “Product Environment Assessment Judgment Standard”, which is Fujitsu General technical standard. From FY2010, we are aiming to make all the developed products of development level^(*) is “1” or “2” Green Products.

Super Green Products

The particularly excellent products in the environmental performance such as the industry’ top level⁽²⁾ in environmental performance or commended by third party in the environmental performance are designated as “Super Green Products”.



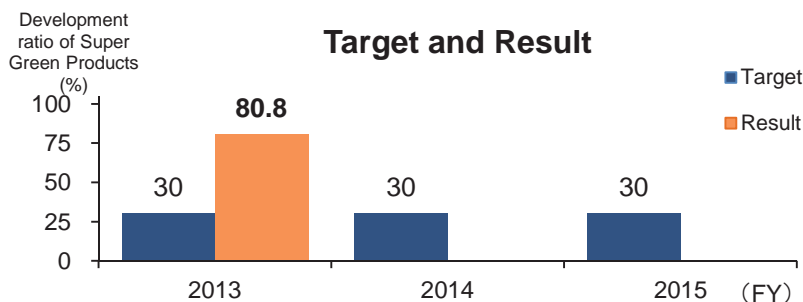
Judgment by “Super Green Products Conforming Assessment Standard”

< Judgment Standard >

- Environmental performance is Industry’s top level⁽²⁾ or commended by third party in the environmental performance
- In case there is no comparable products in the market, the environmental burden is reduced by over 15% from our conventional models.
- Products which are designated as “Super Green Products” in the Environmental Promotion Committee.

Activities in FY2013

We are developing new products aiming that out of the Green Products newly developed every year, more than 30% are designated as Super Green Products. In FY2013, 80.8% of newly developed products were designated as Super Green Products.



Development of Environmentally-friendly Technologies

To provide the products to contribute to the reduction of environmental burden for customers and society, we are working on the development of technologies to realize the excellent energy conservation performance and resource saving.

Targets and results in FY2013:

Product	Development theme	Targets	Results
Air conditioner	Refrigerant saving and resource saving by refrigerant conversion to R32	Development of models with converted refrigerant	Development and shipment of models for Japan and Oceania
Information & Communication	Resource saving of fire-fighting digital wireless system	Reduction of more than 15% in volume	Development in progress (progressing 90%)
In-vehicle camera	Development of energy-saving technology	Improvement of sensor performance	Development in progress (progressing 60%)
Deodorizer (Plazion)	Power saving of filter cleaning	Efficiency improvement of filter cleaning	Cancelled due to change of development plan

*1 : Definition of development considering new feature and difficultness of development models

Level 1: Full model change Level 2: Change in main parts Level 3: Less change in performance and structure
Level 4: Without change in performance and structure

*2 : Based on the Home Electric Appliances Fair Trade Conference “Use standard indicating ‘No.1’ (defined as industry’s top level in case of No.1, equivalent to No.1 or very slight difference from No.1)”.

Introduction of Main “Super Green Products”

Room air conditioner for Japan

New refrigerant

Model : “nocria” X series
AS-X28D-W, AS-X45D2W, AS-X56D2W, AS-X63D2W, AS-X71D2W

Reason for recognition :

Conversion from conventional refrigerant to new refrigerant^{(*)1}

Feature :

Air current of pleasant temperature, “Side air current”, creates optimum air current reacting to the heating and cooling air current, “Center air current”.



Room air conditioner for Oceania

Energy saving

Model : ASTG09KMCA, ASTG12KMCA, ASTG18KMCA, ASTG22KMCA, ASTG24KMCA

Reason for recognition :

Industry’s top level energy consumption efficiency

Feature :

High energy-saving performance and power saving function by human sensor



Multi air conditioning system for buildings for North America

Energy saving

Model : “AIRSTAGE” VR-II series
AOUA72TLBV, AOUA96TLBV, AOUA120TLBV

Reason for recognition :

Industry’s top level simultaneous heating and cooling performance

Feature :

- ① Conforming to building energy saving standard in North America (ASHRAE^{(*)2} Standard
- ② New “Touch panel type remote controller” realizing optimum energy-saving operation



Sales expansion of Green Products

We are promoting the activity to increase the sales of “Green Products” by four times by the end of FY2015 toward the reduction of environmental burden for customers and society.

FY2013 targets and actual results:

Area covered	Management index	FY2012	FY2013	
		Base year	Target	Actual result
Global	Sales of Green Products	100%	More than 200%	192.7%

FY2013 activities

In FY2013, we aimed to make all newly developed models “Green Products” and enhance the ratio of “Super Green Products” but the increase of the sales of “Green Products” remained to 192.7% compared to FY2012.

*1 : Refrigerant considering the environment in which global warming index is about 1/3 of conventional refrigerant (R410A)

*2 : American Society of Heating, Refrigerating and Air Conditioning Engineers

Air conditioners

Realizing higher energy-saving performance by adoption of environmentally-considered new refrigerant and new designing of key component

The efficiency of heat exchanging and air blowing was enhanced by adopting new refrigerant R32 which has global warming index of about 1/3^(*) compared with conventional refrigerant R410A and reviewing the structure of fan motor and air blowing path, and in the outdoor unit, energy-saving performance was improved by newly developing key components such as compressor, inverter, propeller fan.



“nocria” Z series



High efficiency compressor



Interleave PAM inverter



High efficiency propeller fan

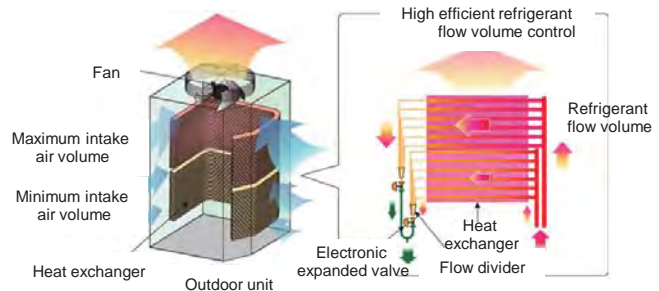
Realizing industry’s top class^(**) energy-saving performance

By dividing heat exchange to upper side and lower side and adopting our original function to properly control the volume of refrigerant flowing according to the air volume inhaled into heat exchanger in addition to the round-corner type high density multi-path heat exchanger” (φ7mm thin copper pipe, round corner shape), the performance of heat exchanger is drawn to the maximum realizing the efficient operation.

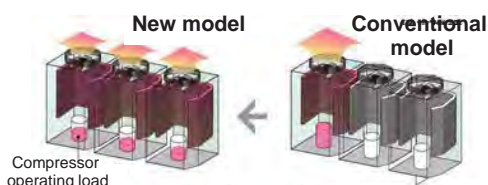
Also, the heat exchanging efficiency has drastically enhanced by making “distributed operation control” in the heat exchanger of each outdoor unit according to the operating status of indoor unit. The compressor is not operated at the maximum load and most efficient and stable operation can be continued and the reliability of the equipment has enhanced as the operation is not concentrated on one outdoor unit. Furthermore, the high efficient operation in cooling and heating simultaneous operation was realized as exhausted heat can be suppressed and utilized by coupling and controlling compressor and fan motor to the optimum controlling minutely the volume of refrigerant flowing into the heat exchanger.



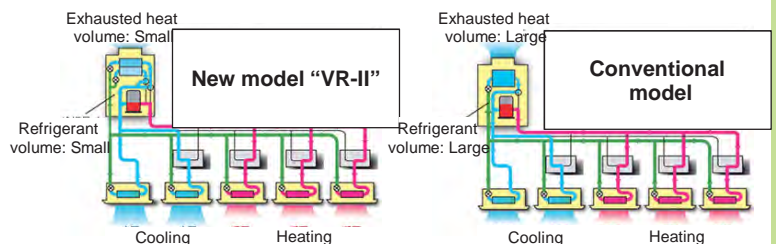
“AIRSTAGE” VR-II series (Outdoor unit)



“Round-corner type high density multi-path heat exchanger”



“Distributed operation control”



Refrigerant flow volume control utilizing exhausted heat generated in cooling operation without wasting

*1 : Source: “IPPC Fourth Assessment Report” Global Warming Index (GWI) comparison in 100 year value. 675(R32) and 2090 (R410a)

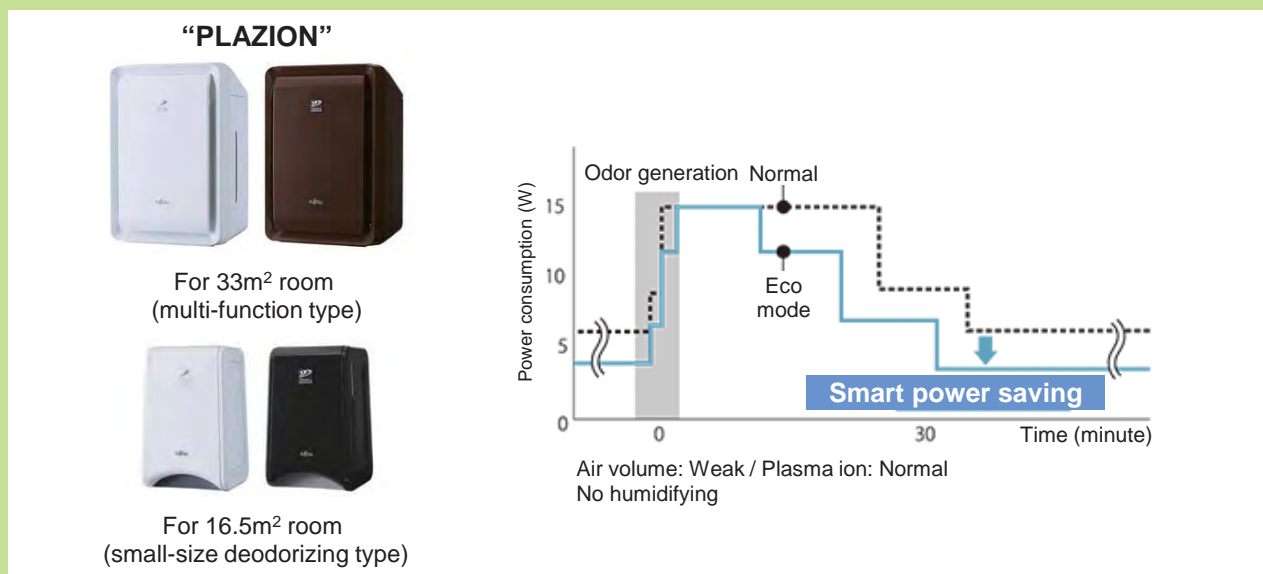
*2 : As of December 6, 2013. According to our company’s survey. 72,000Btu (21.1kW) class of heat pump type in the U.S. market

Deodorizers

Reduction of power consumption by “eco mode”

About 25% energy saving ^(*) was realized compared with ordinary operation by suppressing air volume according to the strength of odor and reducing the lighting of all indication lamps.

By this, it helps saving power when the odor is not strong and while people are going out.



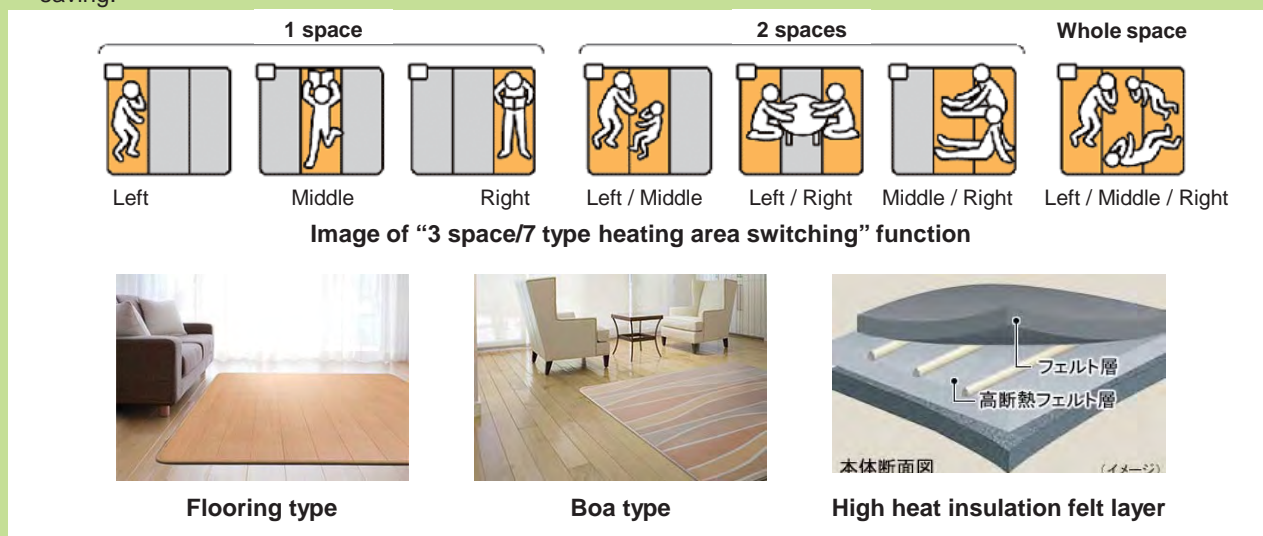
Electric carpets

Power saving support function

The waste of electricity can be suppressed by adopting “3 spaces/7 types heating area switching” function able to select the space to heat as you can select the heating area frequently according to where you are and heat efficiently only the area you want to heat.

Also, it can prevent the excessive heating as the “moderate mode” to adjust the surface temperature automatically by the sensor to detect the temperature increase due to common use with other heating appliance.

Furthermore, high heat insulation felt layer to suppress the heat release to the floor can support the power saving.



*1 : [Test condition] Room: About 13m² Air volume: Automatic Plasma ion: Normal (without humidifying) Operation time: 10 hours
Generate ammonia odor immediately after operation start and 5 hours later and compare power consumption for deodorizing.

Ofunato Fire Department (Case example)

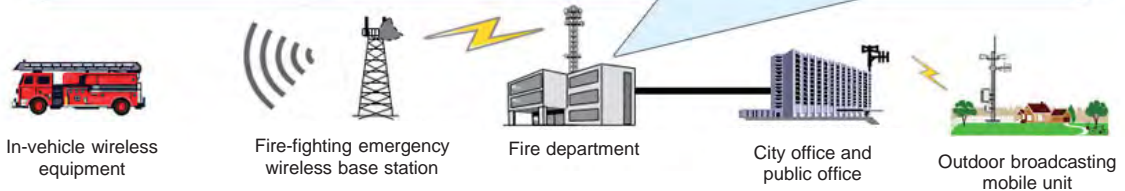
High-function communication command center is the system to be able to make centralized control from receiving of call for emergency to disaster measures at fire department.

Compared with conventional analog system, higher-grade communication has become possible by digitalized system and the support for quick and accurate fire-fighting activity is realized contributing to the establishment of secure and safe social infrastructure.

【Main features】

- Receiving call by e-mail and FAX besides voice is possible.
- Support system to store data of dangerous articles, fire prevention objects
- Quickly providing information of disaster situations to area residents through the coordination with disaster-prevention wireless equipment installed in government disaster prevention wireless system
- Real-time checking of disaster area and sea surface by high-altitude surveillance camera

Ofunato Fire Department System outline



【Facility composition】

Networking: Multiple radio line and wired line
In-vehicle wireless equipment: 100 sets (77 sets for fire-fighting corps vehicles)
Mobile wireless equipment: 49 sets
Transportable wireless equipment: 5 sets
Desk-top wireless equipment: 7 sets
High-function communication command center



High-function communication command center in the Ofunato Fire Department

1. Quick direction to disaster site

The navigation is made automatically until arriving at the site by the dedicated terminals equipped in the vehicle connecting the position of the vehicle with disaster site by the optimum route. Furthermore, information of water availability, hospital, people in need of care, etc. and the position of the own vehicle and other vehicles can be checked for quick preparation of fire-fighting activity.

2. Coordination with fire-fighting corps

Quick and accurate fire-fighting activity became possible by installing simplified operation terminals to the vehicles of fire-fighting corps and adopting the system to check the position of vehicles of fire-fighting corps by fire-fighting headquarters and strengthening the activity in coordination with fire-fighting corps.

Rikuzentakata City (Case example)

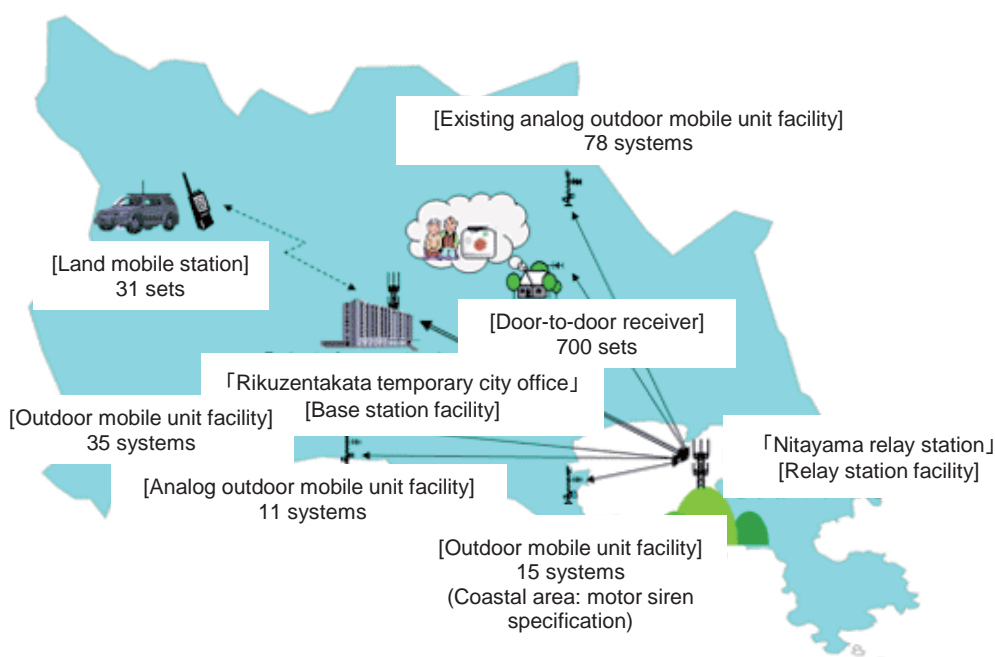
The disaster prevention administration wireless system is a means for municipal government to transmit the disaster alert directly to the local residents to protect the life of residents at the time of big disaster such as earthquake notifying promptly and simultaneously and prompting the evacuation. Also, at the normal time, various administration information such as fire prevention, traffic information, weather information, crime prevention alert information are provided.

By adopting the disaster digital prevention administration wireless system, the provision of information for securing the safety of local residents has become more certain and it contributes to the prompt restoration at the time of disaster and the enhancement of service for residents.

【Main features】

- Preventing isolated village at the time of disaster through two-way communication between city office and each evacuation shelter by making use of the dedicated line
- Utilizing the system by solar system during power failure
- Forming network throughout the city by integrating existing outdoor mobile units in the mountain area
- Monitoring rivers with surveillance camera by data transmission such as still picture from outdoor mobile units

Overview of disaster prevention digital wireless system of Rikuzentakata City



【Facility composition】

Base station	Center of system. Installed in the city office
Relay station	Forming network throughout the city
Digital outdoor mobile unit (50 places)	Notifying information from base station
Door-to-door receiver (700 sets)	Notifying information from base station
Land mobile station (31 sets)	In-vehicle wireless equipment, Mobile wireless equipment

Reduction of Environmental Burden for Our Own Business Activities

Reduction of Energy Consumption CO₂ Emission

Toward the reduction of energy consumption CO₂ emission in the business activities, we are promoting the activities to enhance energy consumption efficiency by implementing measures to save energy for facility, improve logistics efficiency and sale power

【Activities at business centers】

To enhance the consistency between business and environmental activity, we reviewed the basic year to “FY2012” from FY2013 and changed the management index of activity to “Sales amount basic unit” in global area and to “Energy basic unit” corresponding to each business characteristics in domestic and overseas area.

FY2013 targets and actual results:

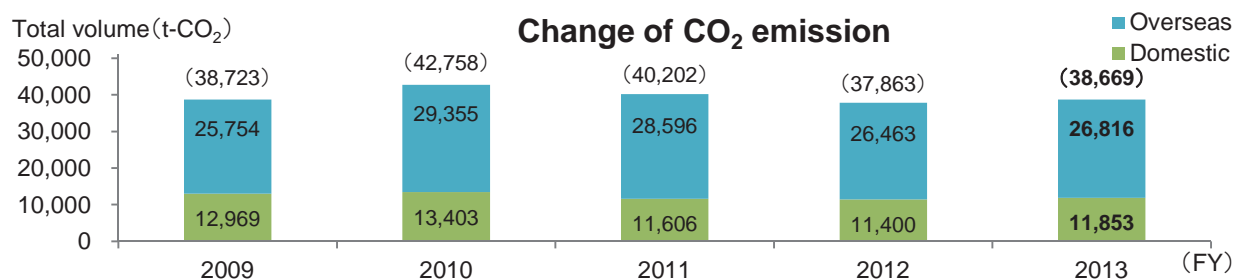
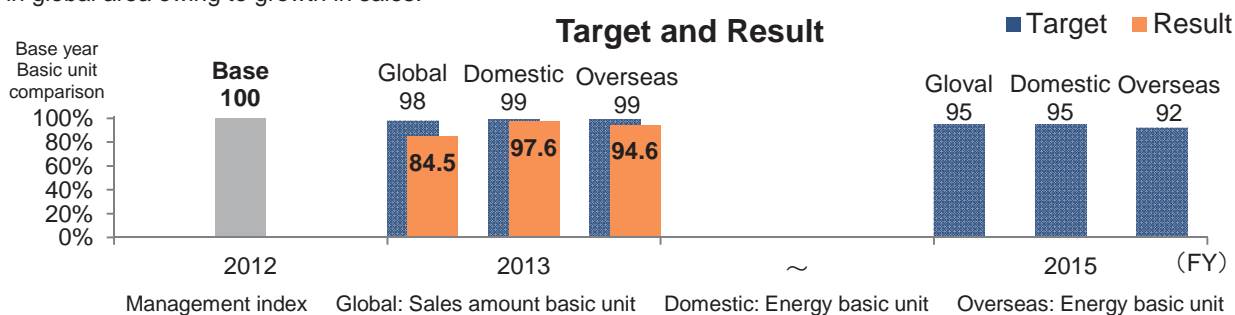
Area covered	Management index	FY2012	FY2013	
		Base year	Target	Actual results
Global	Sales amount basic unit	100%	Less than 98%	84.5%
	(CO ₂ emission)	(39,637 t)	(41,150 t)	(38,669 t)
Domestic	Energy basic unit	100%	Less than 99%	97.6%
	(CO ₂ emission)	(11,400 t)	(12,600 t)	(11,853 t)
Overseas ^(*)	Energy basic unit	100%	Less than 99%	94.6%
	(CO ₂ emission)	(26,463 t)	(26,936 t)	(25,203 t)

<Measures of activity>

- Development division: Energy saving renovation of test facility (reduction of power usage by reusing heat emission) and further efficient operation
- Production division: Adoption of inverter type facility, conversion of boiler fuel, introduction of LED lighting, adoption of energy-saving type air conditioners
- Office area: Shortening of lighting hours by using human sensor, centralized control of air conditioning set temperature, improvement of cooling efficiency by co-using electric fans

FY2013 activities

In FY2013, there were changes in business centers along with the reinforcement of development and production capacity and strengthening of sales force for business expansion. Under the circumstances, as a result of all business centers aiming to improve the efficiency of energy usage and implementing the activities for reduction of CO₂ emission, the basic unit emission was restrained to 97.6% (-2.4%) in domestic area, 94.6% (-5.4%) in overseas area and 84.5% (-15.5%) in global area owing to growth in sales.



Calculation base of CO₂ emission: Electricity: Domestic (0.407t-CO₂/MWh), Overseas ((0.410t-CO₂/MWh)

Fuel: “Greenhouse Gas Total Emission Calculation Guideline (March 2007)” The Ministry of Environment

*1 : Using one of the number of development/shipment models, total working hours, production output or production quantity according to the business characteristics of business centers.

*2 : Not including overseas sales subsidiaries

【Activities in logistics of products】

To enhance the consistency between business and environmental activity, we reviewed the base year to “FY2012” from FY2013 and changed the management index of activity to “sales quantity basic unit”.

FY2013 targets and actual results:

Area covered	Management index	FY2012	FY2013	
		Base year	Target	Actual result
Domestic logistics	Sales quantity basic unit	100%	Less than 99%	108.1%
	(CO ₂ emission)	(1,730 t)	(1,892 t)	(2,251 t)

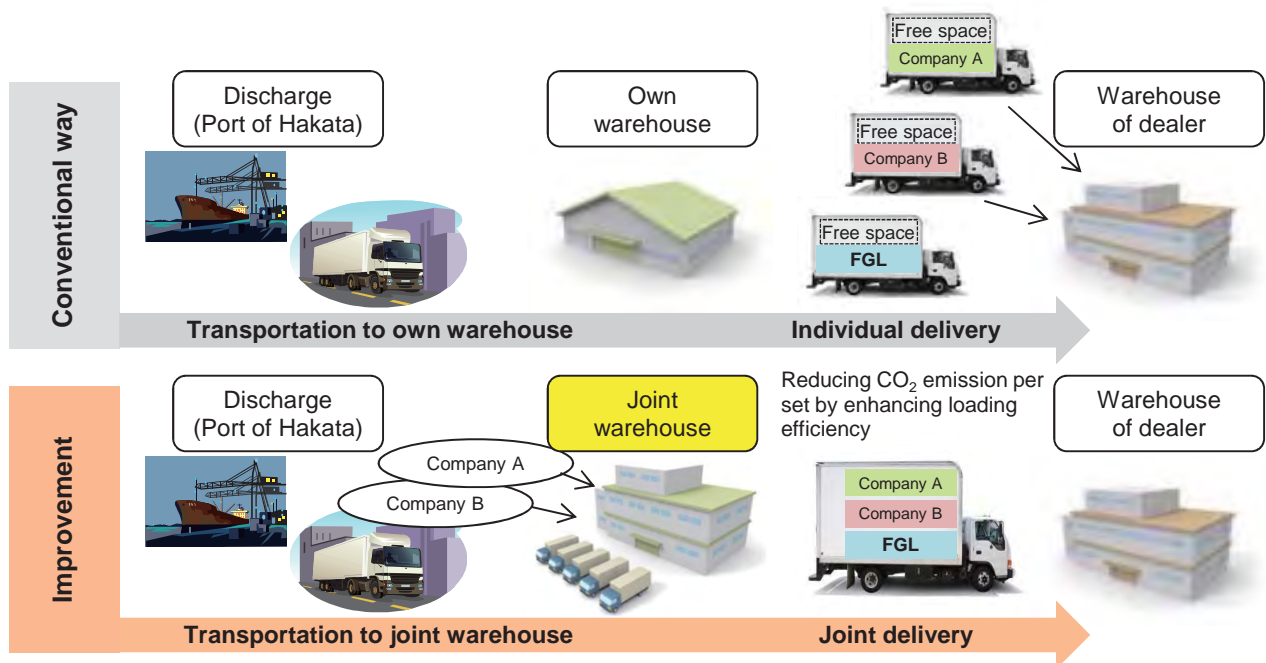
<Measures for activities>

- Shortening of transportation distance: Shortening of truck transportation distance by reviewing product landing ports (in Hokkaido)
- Improvement of loading efficiency: Improvement of truck loading ratio by joint transportation with other companies (In Kyushu)
- Reduction of transportation between warehouse: Reduction of product re-transportation between warehouses by enhancing sales forecast accuracy

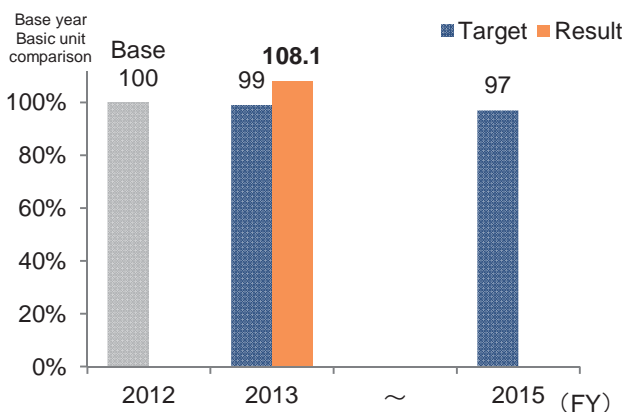
FY2013 Activities

In FY2013, we worked on the continuation of modal shift in Hokkaido which started in July, 2012 and the improvement of loading efficiency by joint transportation with other companies which started in Kyushu in June. However, as the sales of air conditioners sharply grew due to the heat wave and the transportation of products between warehouses increased, the CO₂ emission increased. The result in FY2013 deducting the result of activity of joint transportation was 108.1% (+8.1%) of FY2012. Regarding the unachieved portion, we will improve the efficiency by expanding the area of joint transportation and reducing the transportation between warehouses.

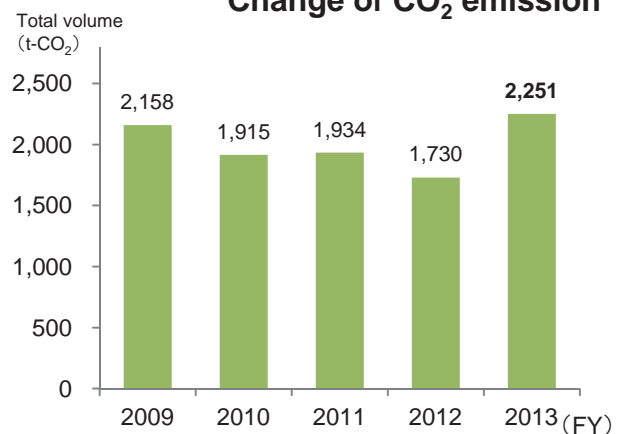
Example of joint transportation in Kyushu



Target and Result



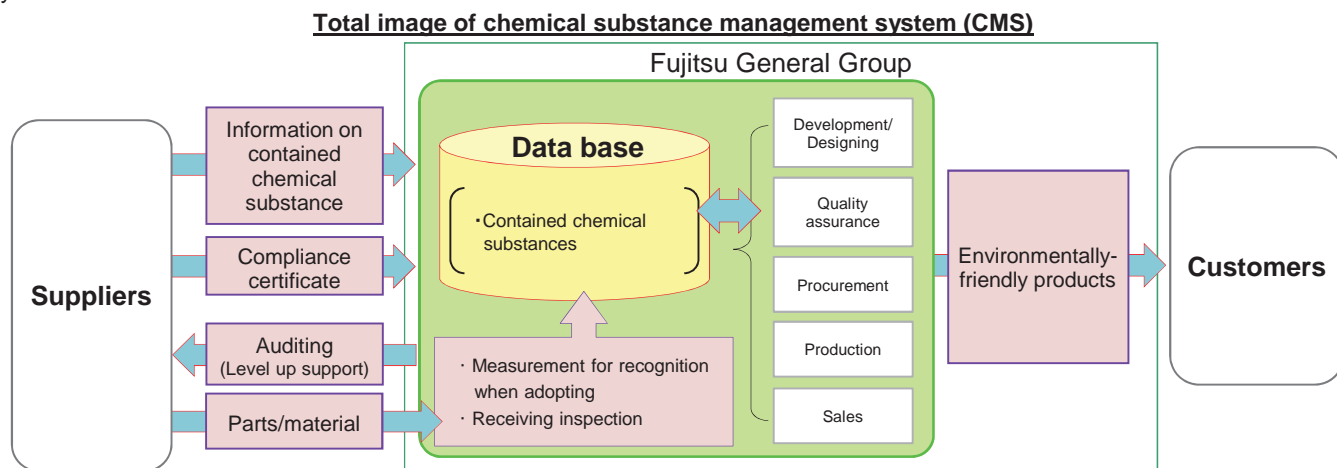
Change of CO₂ emission



Measures for Chemical Substance Emission Restriction

To comply with the laws and regulations, industry's standard and customers' requests relating to chemical substances contained in the products in Japan and overseas, We are establishing and operating Fujitsu General Group's own chemical substance management system.

With regard to the specified banned substances whose use is prohibited by law, we carry out our own measurement and recognize non-containment when adopting new parts/material exchanging compliance agreement with suppliers. Also, at the production, we verify that the specified banned substances are not used by conducting the receiving inspection of the supplied parts/material. Furthermore, we collect information of the chemical substances contained in the supplied parts/material from suppliers to comply with the law and regulation in advance and manage the information of containment centrally by internal system.



FY2013 Activities

【Strengthening of management setup】

Based on the concept that the measures against the chemical substance contained in the products are “the issue of the whole supply chain”, we are working on the establishment and operation of the chemical substance management system together with suppliers.

In FY2013, to establish and strengthen the chemical substance management system (CMS) at suppliers, we conducted briefings for and visiting suppliers of our overseas factories and implemented guidance, education examination suitable for the actual situations of the suppliers. As a result, we could establish the management standard of Rank B^(*) or better for more than 80% of all suppliers of parts/material.

【Enhancement of efficiency of survey activity】

To comply in advance with the regulations against the chemical substance contained in the products such as the substance of very high concern (SVHC)^(**) of the REACH Regulations^(**) of Europe, we are asking suppliers' cooperation for the survey of chemical substance contained in the parts/material supplied.

In FY2013, we held briefings using “AIS Tool^(***)”, which has been held from FY2012, five times in Thailand and China (Shanghai) and collected information on chemical substance contained in the parts/material.



Briefing of CMS
(Factory in Thailand in November)



Briefing of AIS tool
(Factory in China in February)

*1 : Ranking by our own standard based on JIS Z7201 (Guidelines for the Management of Chemical Substances in Products – Principle and Guidance)

Rank A: The management system of chemical substances according to JIS Z7201 is established and the management is properly implemented and there is continuous business.

Rank B: The management system of chemical substances according to JIS Z7201 is established and the management is properly implemented but there is no continuous business.

Rank C: The management system of chemical substances according to JIS Z7201 is established but the management is not sufficient and continuous auditing is necessary.

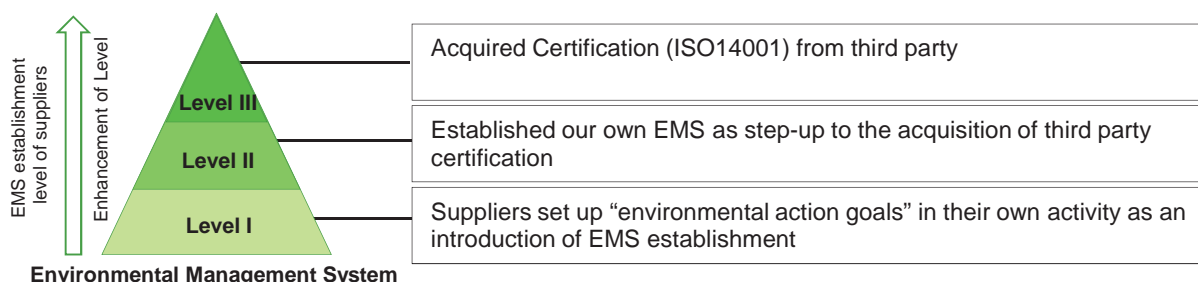
*2 : Chemical substance regulations in European Union

*3 : Authorization subject candidate substances for which registration is required in the European REACH Regulations

*4 : Survey tool recommended by Joint Article Management Promotion-consortium (JAMP)

■ EMS Establishment at all Overseas Parts & Material Suppliers

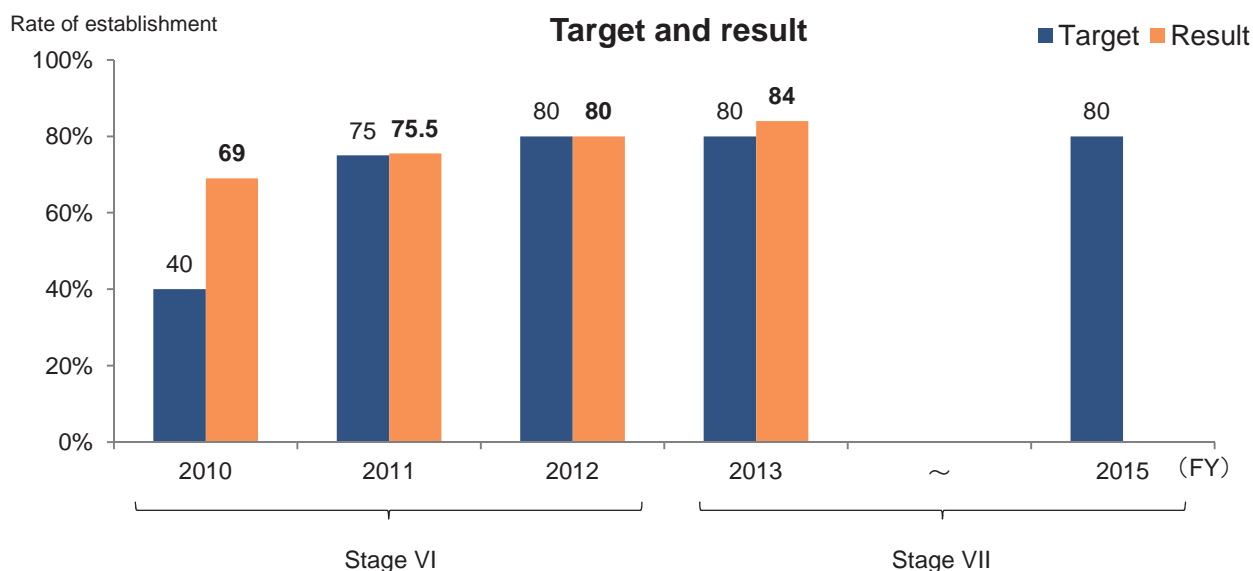
We are asking all our suppliers for their cooperation regarding the establishment of Environmental Management System (EMS) and the enhancement of level of their activities. To that end, we implement various supporting activities.



FY2013 Activities

We are conducting the guidance and auditing for establishment of EMS and level up of suppliers^(*) mainly by the purchasing department and quality assurance department of overseas production bases. As a result, 84% of the suppliers established Level II or higher Level exceeding the target.

Rate of Level II or higher of EMS establishment in overseas parts & material suppliers



■ Improvement and Efficiency Enhancement of Company-wide Environmental Promotion Framework

As a new trial from FY2013, we adopted the new environmental index to convert negative cost (work-related wastes) to CO₂ and started the activity to enhance the environmental consciousness of employees by visualizing the impact given to the environment by work-related wastes.

FY2013 Activities

In FY2013, we worked on the calculation method to convert the environmental burden to CO₂ for the "unsound wastes" of products and maintenance parts and the "charge-free repair" of products in the market. To be concrete, we worked on the CO₂ conversion of negative cost for FY2012 by the calculation of CO₂ emission of products and maintenance parts using LCA automatic calculation system^(*) and the index of CO₂ emission per one charge-free repair from fuel cost of company cars used for visiting repairs and average moving distance.

In the future, we will work on the scrutiny and verification of calculation result for FY2012 and the calculation for FY2013 and materialize the scheme to reflect the "visualized" result into the business activities.

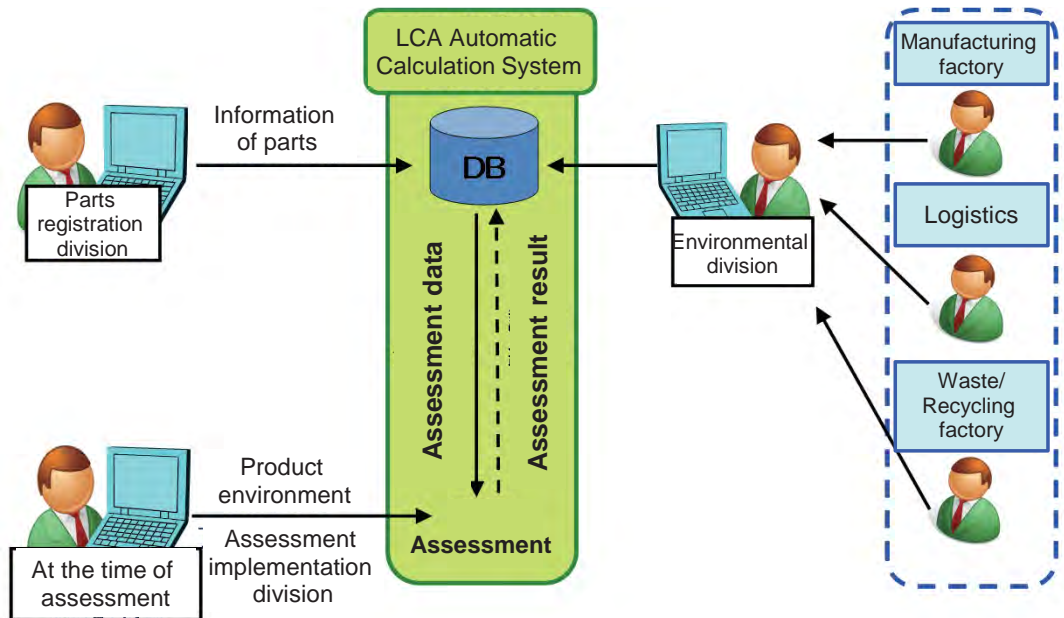
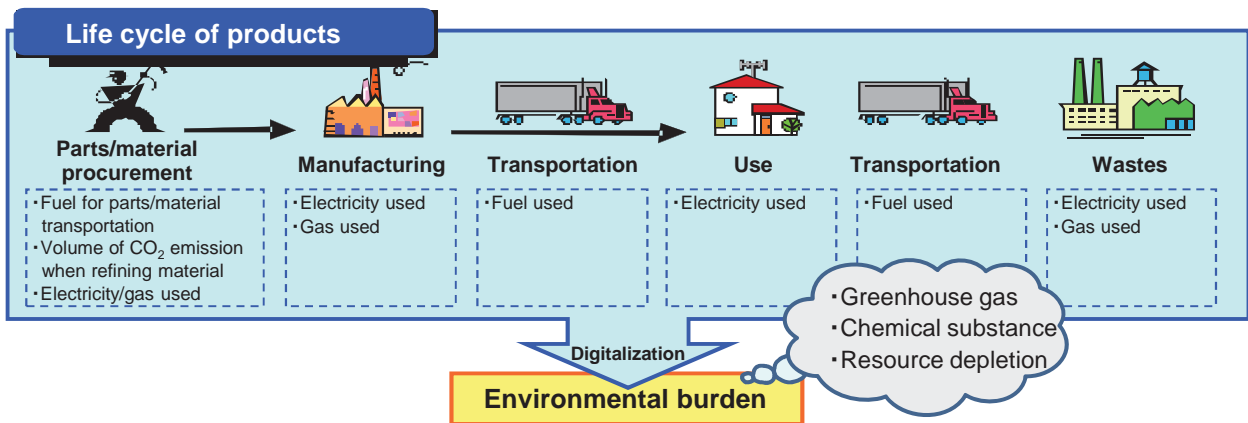
*1 : Parts/material suppliers

*2 : Fujitsu General Group's own calculation system to calculate the environmental burden in the lifecycle of products from parts/material procurement to product waste.

■ Implementation of Life Cycle Assessment (LCA)

We are assessing the environmental burden of the whole life cycle of the products from parts/material procurement to the disposal/recycle of products and, in the future, we will work on the reduction of environmental burden at each stage of product life cycle.

Whole picture of LCA system



FY2013 Topics

【Accredited for Low CO₂ Kawasaki Brand '13^(*)】

All 5 models of “nocria” X series air conditioner adopting new air current control released in January, 2013 were accredited for “Low CO₂ Kawasaki Brand ‘13” of Kawasaki City in January, 2014.

Main reason for accreditation is that “nocria” X series has improved in environmental efficiency in lifecycle compared with conventional models and excels in innovativeness and originality.



“Low CO₂ Kawasaki Brand” logo mark



“nocria” X series
(AS-X28C / AS-X45C2 / AS-X56C2 / AS-X63C2 / AS-X71C2)

*1 : Environment-related business aiming at the prevention of global warming and environmental consciousness/improvement of skill by assessing the products, technology and service made in Kawasaki which contributes to the reduction of CO₂ and through the broad transmission to citizen.

Reduction of Wastes Emission

To enhance the consistency between business and environmental activity, we reviewed the base year from FY2013 to “FY2012” and changed the management index of activity to “sales amount basic unit” for global and “basic unit of each area⁽¹⁾” according to each business characteristics for domestic and overseas.

FY2013 targets and actual results:

Area covered	Management index	FY2012	FY2013	
		Base year	Target	Actual results
Global	Sales amount basic unit	100%	Less than 92%	61.8%
	(waste volume)	(1,033 t)	(895 t)	(737 t)
Domestic	Basic unit of each area	100%	Less than 86%	75.5%
	(waste volume)	(373 t)	(318 t)	(269 t)
Overseas ⁽²⁾	Production output basic unit	100%	Less than 95%	70.5%
	(waste volume)	(659 t)	(577 t)	(468 t)

< Activity measures >

- Head office Division: Recycling of confidential documents and paperless office by using shredder
- Production Division: Reduction of wastes by reviewing production process, quality improvement and packaging of parts delivery (change of material/use of returnable boxes)
- Sales Division: Promotion of recycling of metal/plastic wastes redundant due to parts change

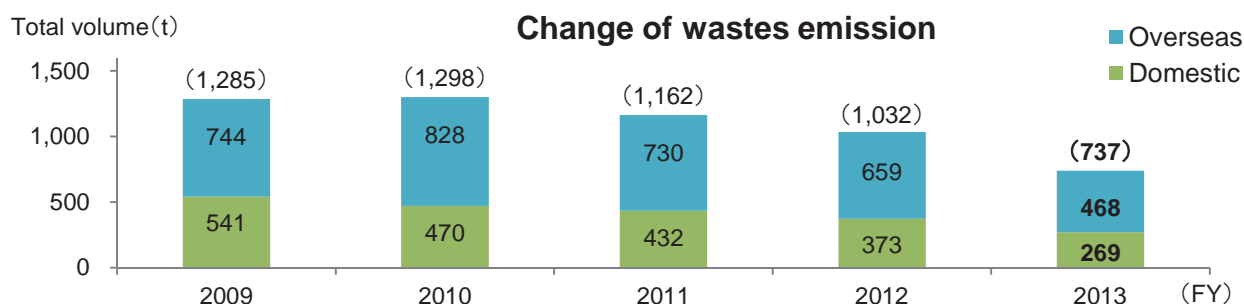
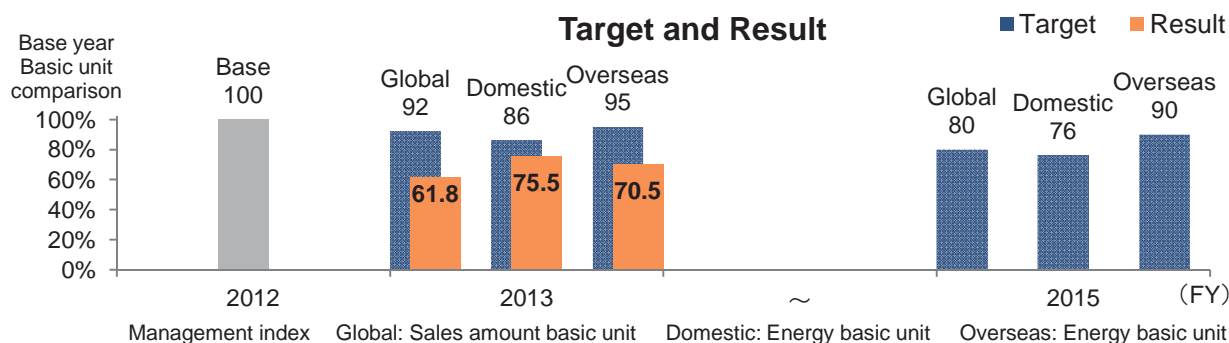
FY2013 Activities

In FY2013, we worked on the promotion of recycling of waste articles and reduction of wastes by improving production process and quality.

Head office division made recycling of confidential documents which used to be disposed as waste by using shredder. The production division suppressed the generation of wastes by reducing assembling defects by production process improvement and reduced the volume of waste liquid by filtering the cooling water used for the facility suppressing the generation of bacteria for long life.

The sales division worked on the development of disposal outlet and the sharing of the information regarding the disposal outlet among sales branches for recycling the replacement parts due to the product maintenance and mockups for display used by dealers.

As a result of these activities, the basic unit emission was restrained to 75.5% (-24.5%) in domestic area, 70.5% (-29.5%) in overseas area and 61.8% (-38.2%) in global area owing to growth in sales.



*1 : Used one of total working hours, production output or production quantity according to the business characteristics of business centers.

*2 : Not including overseas sales subsidiaries

■ Reduction of Specific Chemical Substance

Among chemical substances used in our business activities, the substance which has high impact on the environment is positioned as “Specific chemical substance^(*)” in our own definition, and we are working on the reduction of its emission volume.

FY2013 Activities

【Specifying specific chemical substance】

Among all chemical substances used in the production process, based on the degree of Impact on human and environment and yearly volume of use, we specified 3 substances of “xylene”, “toluene” and “2-Ethoxyethyl acetate” as the specific chemical substance to work on the reduction by Fujitsu General Group. For these chemical substances, we established the activity measures and reduction plan at the business centers to use them and started the activity to reduce the emission. At the overseas manufacturing centers, the emission was drastically reduced by changing the solvent used in the production process of motors to the replacement solvent containing less specific chemical substance. At the domestic manufacturing centers, the volume of solvent was reduced by enhancing the productivity and the emission was restrained. In FY2014 and thereafter, we will reduce the emission by changing to replacement substance containing less specific chemical substance.

Fujitsu General Group Specific Chemical Substance

Substance	Production process using the substance
Xylene	Painting process
Toluene	Painting process, Printing process, Molding process
2-Ethoxyethyl acetate	Painting process

FY2013 Actual results and FY2015 targets

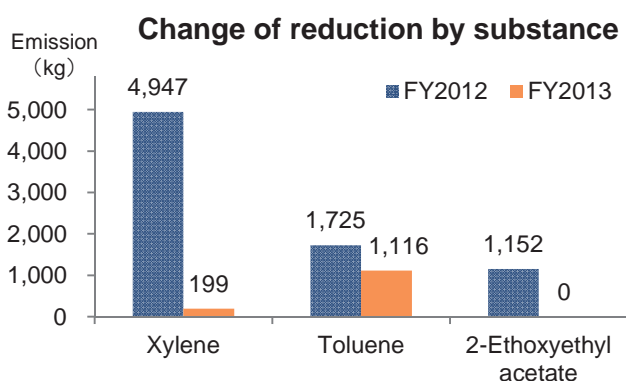
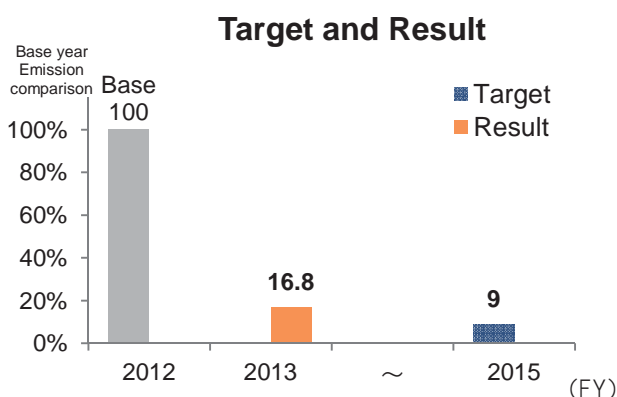
Area covered	Management index	FY2012	FY2013	FY2015
		Base year	Actual result	Target
Global	Total volume	100%	16.8%	Less than 9%
	(Emission)	(7,824 kg)	(1,315 kg) (Overseas : 1,157 kg) (Domestic : 158 kg)	(700 kg)

< Activity center >

Aomori Business Office, Fujitsu General Electronics Limited, Fujitsu General (Thailand) Co., Ltd., FGA (Thailand) Co., Ltd.

< Activity measures >

Shifting to replacement substance containing less hazardous chemical substance and restraining emission in the production process



*1 : Specified according to Fujitsu General Group own standard based on the degree of impact on human and environment and yearly volume of use.

■ Protection of Biodiversity

Fujitsu General Group established “Fujitsu General Group Biodiversity Action Principles” in 2012 and is promoting the activities.

Fujitsu General Group Biodiversity Action Principles

Recognizing that corporate activities benefit from the riches of the Earth's biodiversity while at the same time impacting it, the Fujitsu General Group strives for a sustainable, prosperous global society. At the same time, the company endeavors to harness its technological and creative capabilities as a global company to pursue, together with society, an optimal relationship between nature and humankind.

Concept of activities

1. Practice of biodiversity conservation and sustainable use of natural resources in our own business activities

We aim at the biodiversity conservation and sustainable use by analyzing and assessing the impact to the biodiversity in all stages of business activities and reducing the impact on biodiversity in whole lifecycle of products and services.

2. Contribution to the establishment of society to realize biodiversity conservation and sustainable use

We will contribute to the biodiversity conservation and sustainable use for customers and whole society through the technology of Fujitsu General Group, know-how of activity for the biodiversity by the practice in our own business activities and the social contribution activities.

Key activities

1. Biodiversity-considerate MONOZUKURI

We will strive to develop the products to reduce the impact to biodiversity in the lifecycle of products.

2. Contribution to the spread of biodiversity to the society

We will contribute to the spread and enlightenment in the society recognizing that, to spread the biodiversity conservation and its sustainable use to the society, it is important to bring up the human resources to practice.

3. Development in global scale

We will strive to enhance the consciousness of each individual employee of Fujitsu General Group for biodiversity and promote the biodiversity in global scale.

FY2013 Activities

【Relevance of business with biodiversity】

[Fujitsu General Electronics]

As a preventive activity for the impact to the environment, Fujitsu General Electronics Limited which is a production center for electronic devices is working on the reduction of organotin compound (dibutyltin compound/dioctyltin compound) which are concerned about the impact to ecosystem in the parts level.

In the past, the measures for the adhesive agent for which replacement material is under development have been implemented through the picking up of the subject parts and the survey activity of replacement parts. In the future, we will promote the replacement of parts considering the themes of quality, technology and supply. Also, to specify in more details the impact to the biodiversity by business activities, we will review the assessment method regarding the ecosystem of the current “Environment impact assessment”.

【Establishment of business office to coexist with nature】

[Head office/Kawasaki Business Office]

Kawasaki Business Office is located in the midstream area of Tama River and at the midpoint of Kawasaki City Special Green Space Conservation Area of Tama River green space and Tama River terrace. When the office was constructed in 1955, the whole surrounding area was agricultural land but now as it is surrounded by housing and schools, it is an important issue to keep green space in assuming the role of forming the precious ecological networking in the urban district.

In FY2013, in order to actualize the items to improve from the viewpoint of biodiversity protection, we are striving to maintain the green space properly by selecting the check items from “Guideline for Business Innovation in harmony with Nature and Community” prepared by JBIB^(*) and conducting assessment trial.

Check sheet

[Hamamatsu Business Office]

Hamamatsu Business Office is located at the downstream area of Miyakota River emptying into the Pacific Ocean through Lake Hamana and surrounded by Mikatahara plateau and Yumihari mountain land with abundant natural environment.

As there is habitat of *mortonagrion hirosei* (four-spot midget) which is endangered species in the neighborhood of the business office, the consideration for ambient environment is particularly important.

Fuji Ecocycle which moved into the business office premises is running the business conscious of the coexistence with nature such as collecting properly the chemical substance contained in the products in addition to making “disposal without using water” in disposing the used electric home appliances. Also, in 2012, biotope of 1,500m² was developed on the green space of the office premises and the conservation of fauna and flora is being implemented, but as the change of biota is big for about 3 years, monitoring is conducted continually.



Biotope

[Aomori Business Office]

There are meadows and campus of agricultural college around Aomori Business Office with abundant natural environment. The local railway running nearby was abolished (suspended in 1997), but in 2010, Tohoku Shinkansen was extended and recently, the peripheral environment has drastically changed as Shichinohe-Towada Station was opened in the neighborhood.

Aomori Business Office is implementing the measures to protect the regional natural environment such as replacing the soil in the office premises with clayey soil.



Work to replace the soil

[Matsubara Business Office]

In Matsubara Business Office, new green space was secured in the premises along with the renovation of the office building in 2013. There is residential area around the business office but as it is at the watershed area of Yamato River and there are many reservoirs and ancient tombs (keyhole-shaped tomb mound), it is expected to become a part of ecological networking in the future.



New office building and part of green space

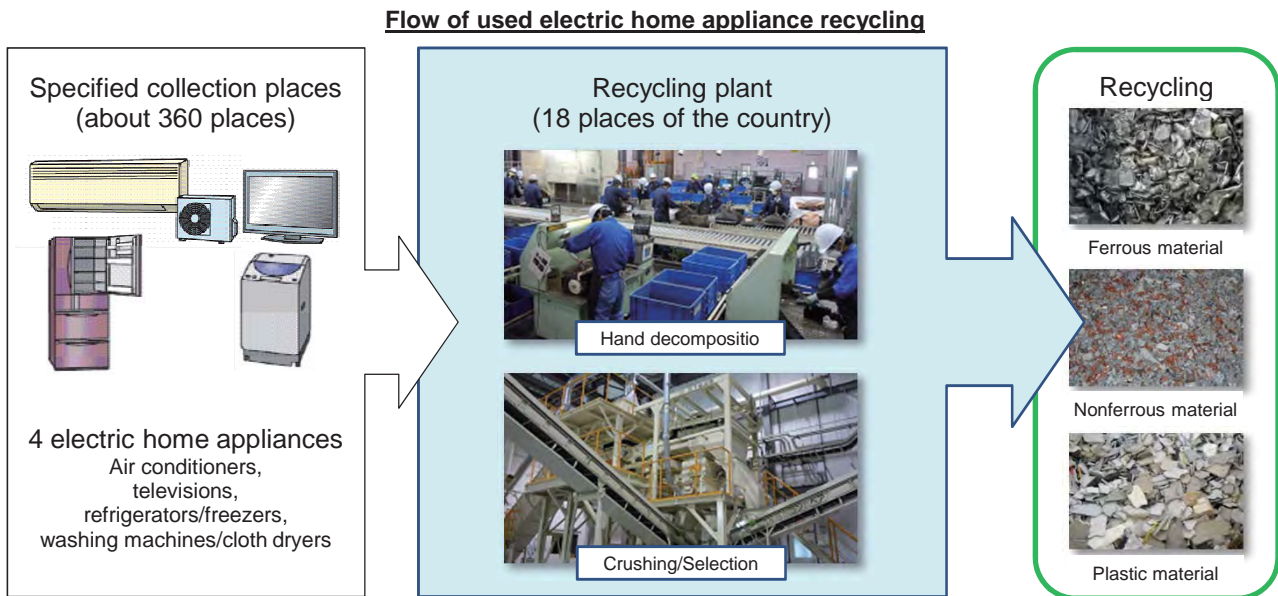
*1 Japan Business Initiative for Biodiversity

*2 Biota are the floristic composition of creatures inhabiting and growing in a particular region and integrated concept of “Flora” (floristic composition of plants growing in a particular region) and “Fauna” (floristic composition of animals inhabiting in a particular region).

Electric Home Appliance Recycling Activities

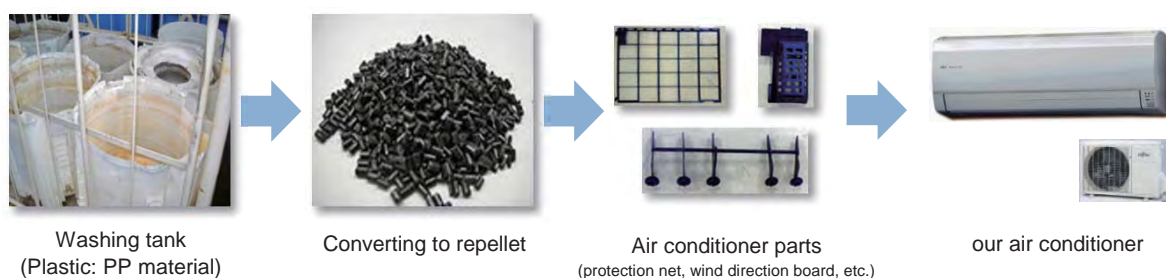
In Japan, in accordance with the “Law of Recycling of Specified Kinds of Home Appliances (Electric Home Appliance Recycling Law)” enforced in April, 2001, all manufacturers are obliged to make recycling regarding 4 items of electric home appliances, i.e. home-use air conditioners, televisions (CRT, LCD, Plasma type) refrigerators/freezers and washing machines/cloth dryers. Fujitsu General established about 360 specified collection places all over the country jointly with other electric home appliance makers and is collecting the used appliances of our company and implementing the recycling and collection of CFC by subcontracting to recycling plants at 18 places of the country.

The actual result of recycling of our company’s products up to FY2013 is disposal of about 3.37 million sets and generation of valuable items of about 130 thousand tons (product recycling weight).



【Closed recycling activity】

Fujitsu General Group is recycling plastic polypropylene collected by its subsidiary Fuji Ecocycle Ltd. (recycling plant) and implementing closed recycling to reuse for our company’s products. At present, we are reusing recycled materials for mechanical parts of our air conditioners and have reused accumulated total about 704 tons of plastics since the activity started in 2008. We will promote the activity for further enhancement of recycling in the future.



Flow of closed recycling of resources

FY2013 Activities

【Product recycling results】

According to the Electric Home Appliance Recycling Law, we publicize our recycling results in our website(*1). In FY2013, total quantity of disposal was 346,000 sets and total recycling weight was 15,500 tons.

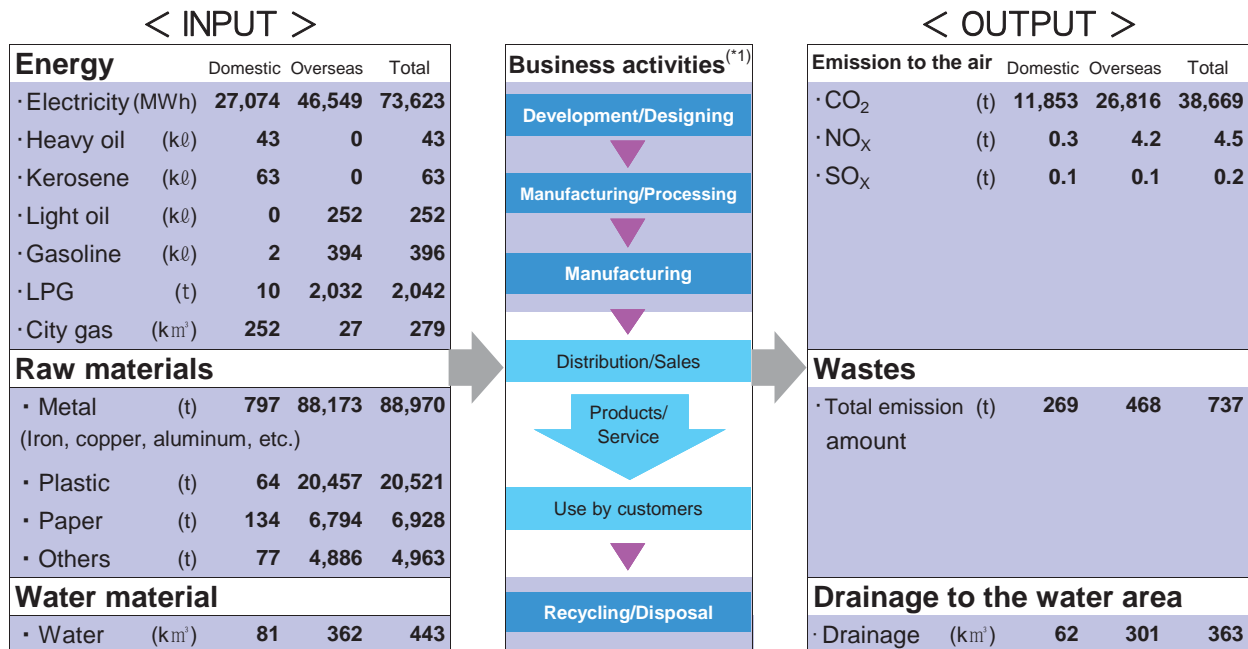
Item	Air conditioner	TV		Refrigerator/ Freezer	Washing machine/ Cloth dryer	Total
		CRT type	LCD/Plasma type			
Product recycling disposed quantity	177,088 set	3,025 set	277 set	156,259 set	8,900 set	345,549 set
Product recycling weight	6,894 ton	63 ton	4 ton	8,203 ton	299 ton	15,463 ton

*1 : Product recycling results report: <http://www.fujitsu-general.com/jp/corporate/eco/recycle/recycle.html>

Environmental Performance and Environmental Accounting

Business Activities and Environmental Burden

Fujitsu General Group is working on the enhancement of energy consumption efficiency and resource consumption efficiency in all business domains. The amount of resources consumed (INPUT) and the amount of environmental burden emitted (OUTPUT) in FY2013 were as below. The improvement of the environmental burden amount was confirmed every year on the basic unit bases of consolidated sales.



Calculation method:

< INPUT >

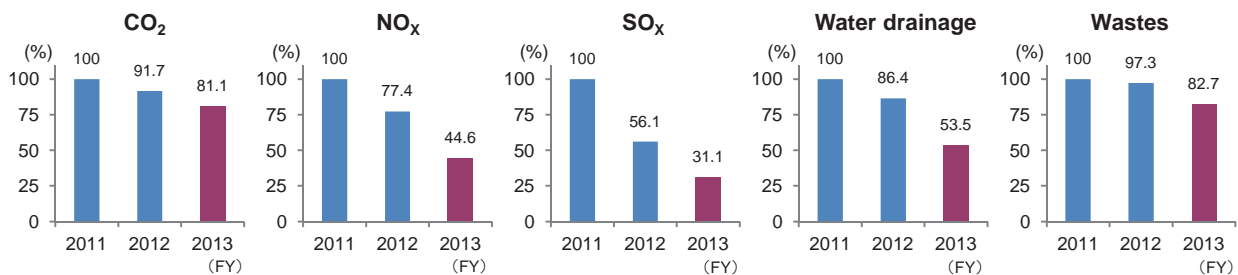
- Energy : Consumption of electricity and fuel in factories and business offices
- Raw materials : Input to the products
- Water material : Amount of water used in factories and business offices

< OUTPUT >

- CO₂ : CO₂ emission generated by energy consumption in factories and business offices (Energy consumption x CO₂ conversion factor)
- NO_x, SO_x : Calculated based on the result of measuring the substance density of exhaust gas emitted from smoke generating facility in the factories and business offices.
Amount emitted by fuel consumption of vehicles used in the factory premises (Fuel amount used x emission coefficient)
- Wastes : Amount of wastes generated in factories and business offices
- Water drainage : Amount of water drained into sewage system or rivers from factories and business offices

Status of improvement of environmental burden

As a result of comparing the environmental burden amounts from FY2011 to 2013 in the basic unit based on the result of business activities (consolidated sales), the improvement was confirmed on all the items.^(*)



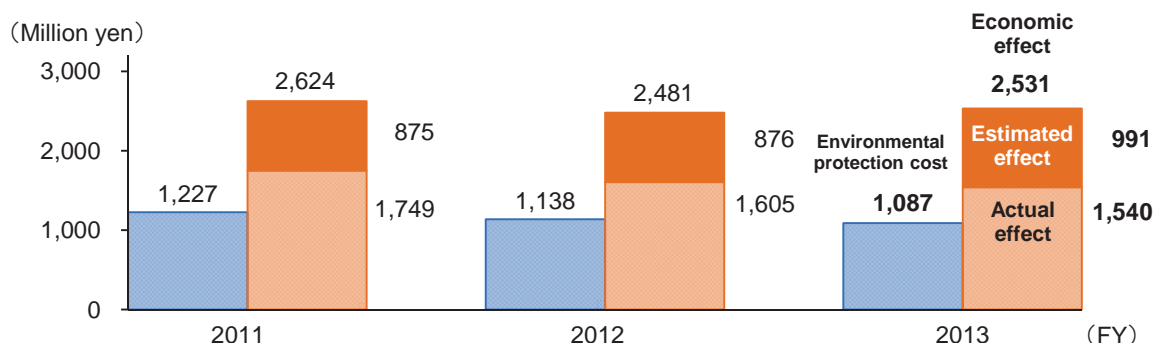
*1 : The shaded parts in the business activities are included in the resource amount and environmental burden amount.

*2 : Compared with consolidated sales basic unit of FY2011 as 100

■ Environmental Accounting

The environmental protection cost in FY2013 was 1,087 million yen (51 million yen down from the previous year) and the economic effect was 2,531 million yen (50 million yen up) and the capital investment^(*) was 975 million yen. The specific factors are the increase of investment for the conversion of new refrigerant and the expansion of estimated effect along with the sales expansion of Green products.

Cost and effect



Environmental protection cost (FY2013)^(*)

(million yen)

Item	Main contents	Investment amount	Cost amount
Pollution prevention	Air/water pollution protection, etc.	7	101
Environmental protection	Global warming prevention/Ozone layer depletion prevention	807	177
Resources recycling	Resources effective use, industrial waste disposal, etc.	0	434
Costs in business area		814	712
Production upstream/downstream activity cost	Recycling of used products, etc.	79	61
Management activity	EMS, environmental education, etc.	6	35
R&D	Development of environmentally-friendly products/technologies	76	278
Social activity	Protection of nature except business office	0	1
Environmental damage	Recovery of land pollution	0	0
Total		975	1,087

Economic effects relating to environmental protection (FY2013)

(million yen)

Item	Main contents	Amount
Estimated effect	Sales contribution value. ^(*) in Green products	991
Revenue	Sale amount of valued articles	1,002
Cost saving	Energy saving	538
Actual effect		1,540
Total		2,531

*1 : The investment amount was calculated, targeting the equipment aiming at environmental protection, by multiplying the ratio of "environment protection" out of the purpose of purchase of relevant equipment.

*2 : Environmental protection cost is calculated including various expenses, personnel cost and depreciation cost of capital investment relating to environmental activities. The depreciation cost is calculated by 5-year fixed amount depreciation method.

*3 : The value calculated by multiplying the sales amount of Green products by "research/designing ratio", "environmental design contribution rate" (both our company's standard).

Environmental Communication

■ Social and Regional Activities

Delivery lecture on energy conservation

We are conducting "Delivery lecture on energy saving" by Fujitsu General employees at the regional primary schools. In the lecture, we select the themes to feel familiar to energy saving such as quiz concerning energy saving and experiment using LED.

We will continue the activity to teach children the importance of energy and the necessity of energy saving.



Delivery lecture on energy saving
(Komae City, Tokyo)

Cleaning activity

Fujitsu General Group is continually implementing cleaning and greening activities around the company office aiming at global environment conservation and co-existence with community.



Cleaning activity around Aomori
Business Office



Cleaning activity around Hamamatsu
Business Office

Eco cap collection activit

Fujitsu General Heartware Ltd. started the plastic bottle cap collection activity from April, 2013 assenting to the purport of Eco Cap NPO Corporation. The plastic bottle caps collected by this activity are bought and recycled by the recycle business proprietor. By this, we had the effect of about 1,132kg CO2 reduction in 2013. Also, the profit on sale was used for sending polio vaccine for 180 children of developing countries through Authorized NPO^(*).

Aomori Business Office has been doing the activity to collect beverage container caps since 4 years ago jointly with life insurance company. The caps and pull tabs collected are used for purchasing polio vaccines and fixtures such as wheel chairs through the insurance company



Inviting visitors to home electric appliance recycling factory

In order to have home electric appliance recycling system understood more deeply, Fuji Eco Cycle Ltd. is positively inviting visitors from neighboring schools and local governments. The number of visitors in FY2013 was 821. The accumulated number of visitors up to now is 9,548.



Primary school children visiting
recycling factory

*1 : Authorized NPO Japan Committee "Vaccines for the World' Children" (JCV)

Exhibition and Lecture Meeting

Eco Product 2013

We exhibited our products at Fujitsu Group booth in the “Eco-Products 2013”, Japan’s biggest class environmental exhibition, held in December, 2013. This time, we appealed to the visitors by exhibiting “nocra” X series realizing both excellent energy-saving performance by adopting new refrigerant (R32) and new designing of key components and comfort by our air current control technology.



Actually experiencing side air current and center air current



Explaining the movement of air current by CG picture

Kawasaki International Eco-Tech Fair 2014

We made presentation to the visitors about assessment points and product features of “nocra” X series accredited for the brand at the accreditation booth of “Low CO₂ Kawasaki Brand ‘13” of “Kawasaki International Eco-Tech Fair 2014” (sponsored by Kawasaki City) held in February, 2014.



Explanation of enhancement of environmental efficiency in lifecycle



Panel to introduce “nocra” X series

Participation in Energy Saving Festival in Hamamatsu City

Fuji Ecocycle Ltd. exhibited at “Hamamatsu City Energy Saving Festival” held in July, 2013. In the exhibition booth, the explanation of home electric appliance recycling using video image and information of visit to the factory were introduced.



Venue of the exhibition in front of Shin-Hamamatsu Station of Ensyu Railway



Fuji Ecocycle's booth

Environmental Lecture Meeting

In June, 2013, as an environmental monthly event, a lecture meeting titled “Environmental Advanced Country Edo Period and Business” was held inviting Mr. Hirakawa of FUJITSU UNIVERSITY as a lecturer and many employees attended.



Life of Edo Period when recycling was advanced



Lecture meeting

Corporate Chronology and History of Environmental Activities

	Corporate chronology	Products	Environmental activities
1936	Established as Yaou Shoten Ltd. Started the manufacture and sales of home electric appliances	Manufacture and sales of radios, loud speakers, electric phonographs, etc.	
1942	Company name changed to Yaou Musen Ltd.		
1955	Company name changed to Yaou Denki Ltd. Kawasaki factory (now Company headquarters) built		
1960		14-inch TV (X-line) released	
1964	General Denshi Kogyo (now Fujitsu General Electronics Ltd.) established in Ichinoseki City, Iwate Prefecture		
1966	Company name changed to General Ltd.		
1967	Shinjo Denki Ltd. (now absorbed by our company) established (Shinjo City, Yamagata Prefecture)		
1971		Cassette type air conditioner nicknamed "min min" released Export of air conditioners started (for Middle East and Africa)	
1974	Air conditioner motor factory (now Aomori Business Office) constructed (Shichinoe-machi, Aomori Prefecture)		
1977	Chubu General (now Hamamatsu Business Office) air conditioner factory completed. (Hamamatsu City, Shizuoka Prefecture)		
1978			Pollution Control Committee established
1982		First wireless analog taxi dispatching system delivered	
1985	Company name changed to Fujitsu General Limited		
1986	Research laboratory building completed at head office premises	First electronic fire prevention emergency information system delivered	Green space garden established along with construction of research laboratory building
1987	Capital participation in Taisei Kogyo (now Fujitsu General (Taiwan) Co., Ltd)		
1991	Thailand air conditioner manufacturing company Fujitsu General (Thailand) Co., Ltd. established	The "Mighty Compact" mini air conditioner with lambda heat exchanger released	Environmental Protection Promotion Committee (now Environmental Promotion Committee) established
1993		World's first 21-inch full-color monitor with plasma display panel released	"Fujitsu General Environmental Chapter" established Fujitsu General Group "Environmental Protection Program Stage I" established
1994	Small-size air conditioner manufacturing company Fujitsu General (Shanghai) Co., Ltd. established		
1995			Operation of "Product Environmental Assessment" started
1996		World's first 42-inch color plasma display released	"Environmental Protection Program Stage II" established
1998	Air conditioner motor manufacturing company FGA (Thailand) Co., Ltd. established in Thailand		Establishment of Environmental Management System started Acquisition of ISO14001 Certification started (Aomori Fujitsu General Ltd.)
1999	Air conditioner designing/development company Fujitsu General Engineering (Thailand) Co., Ltd. established in Thailand.		Acquisition of ISO14001 Certification completed at all domestic manufacturing subsidiaries including head office
2000	Electric home appliance recycling business company Fuji Ecocycle Ltd. established (Fujinomiya City, Shizuoka Prefecture, moved to Hamamatsu City in 2010)	Air conditioner adopting industry's top energy-saving and air purifying function ("Advanced Respiration Plasma Aero V" series) released	Environment Administration Division established. Electric home appliance recycling business started. Environmental accounting introduced. Environmentally-friendly Products Promotion Conference started.
2001	Air conditioner production function of Hamamatsu Fujitsu General Ltd. (Hamamatsu) and Fujitsu General (Taiwan) Co., Ltd. integrated into Fujitsu General (Thailand) Co., Ltd. (Thailand) and Fujitsu General (Shanghai) Co., Ltd. (China)	Multi air conditioning system for buildings (AIRSTAGE S series) released	"Environmental Protection Program Stage III" established ISO 14001 Integrated Certification acquired at 5 domestic sites
2002	Air conditioner manufacturing company Fujitsu General (Taiwan) Co., Ltd. dissolved	First digital wireless disaster prevention administration (broadcast) system delivered	
2003	Motor business company F.G.L.S. Electric Co., Ltd. (China) established in partnership with China's Little Swan Group	"nocria" air conditioner with the world's first automatic self-cleaning filter system released	"Fujitsu General Group Environmental Policy established
2004	Refrigerator business terminated and Fujitsu General Refrigeration Co., Ltd. dissolved	World's first axial gap type fan motor for air conditioner (MFD-71PO) developed	"Environmental Protection Program Stage IV" established
2005	Multi air conditioning system for building manufacturing company in joint venture with China's Little Swan Group Fujitsu General Orient International Electronics Sales (Shanghai) Co., Ltd. (China) established	Home-use high performance air deodorizer (DAS-30P) released	
2006	Air conditioner motor manufacturing company Aomori Fujitsu General Ltd. dissolved and absorbed by Fujitsu General Limited as Aomori Business Office	Two-way information providing system (UBWALL) developed and started information service jointly with AEON MALL	Acquisition of ISO14001 Certification at all overseas manufacturing subsidiaries completed
2007	Air conditioner technology building completed at Kawasaki head office premises	Modular-type multi air conditioning system for overseas ("AIRSTAGE" V series) realizing industry's top cooling operation released	"Environmental Protection Program Stage V" established Green space garden expanded along with construction of air conditioner technology building
2008	Visual information business for consumers terminated New factory completed by Fujitsu General Central Air-conditioner (Wux) Co., Ltd. completed and started operation	Air conditioner ("nocria" Z series) realizing industry's top class energy saving and high power heating released Fire-fighting wireless system delivered to the venue of G8 Hokkaido Toyako Summit Meeting	ISO14001 Integrated Certification acquired at head office and domestic consolidated subsidiaries
2009	Operation of compressor factory in the premises of FGA (Thailand) Co., Ltd. started Shinjo Fujitsu General Ltd. dissolved and absorbed by Fujitsu General Limited	Modular-type multi air conditioning system for overseas ("AIRSTAGE" V-II series) released Plasma ion UV air deodorizer ("PLAZION" DAS-301V) released	Fujitsu General Electronics Ltd. received "Tohoku Seven Prefecture Electricity Utilization Promotion Committee Chairman Award"
2010	Operation of new factory of Fuji Ecocycle Ltd. started (Hamamatsu City, Shizuoka Prefecture)	Introduction of Japan's first digital fire-fighting emergency wireless system (SCPC method) to Okayama City Fire Department decided	"Environmental Protection Program Stage VI" established
2011	Part of product designing function of head office transferred to Fujitsu General (Shanghai) Co., Ltd and Fujitsu General Engineering (Thailand) Co., Ltd.	Air conditioner adopting industry's first radio frequency (RF) remote control ("nocria" Z series/S series) released	Participated in "Keidanren's Commitment to a Low Carbon Society"
2012	TCFG Compressor (Thailand) Co., Ltd. established as a joint venture with Toshiba Carrier Corporation to which compressor factory of FGA (Thailand) Co., Ltd. transferred	Heating and cooling simultaneous operation type multi air conditioning system for buildings ("AIRSTAGE" VR-II series) released	"Fujitsu General Group Biodiversity Action Principles" established Biotope constructed in the premises of Hamamatsu Business Office
2013	Operation of new factory of Fujitsu General Electronics Ltd. started New office building of Matsubara Business Office completed	New air current air conditioner ("nocria" X series) released Small-size wall-mounted air conditioners (ASTG09KMCA/ASTG12KMCA) for Australia adopting new refrigerant (R32) released	"Environmental Protection Program Stage VII" established ISO14001 Integrated Certification acquired at overseas sales subsidiaries (11 companies) and all domestic business centers

Nakatajima Sand Dunes (Hamamatsu City, Shizuoka Prefecture)



Nakatajima Sand Dunes which are 4km in width from east to west and a part of Great Enshu Dunes were created by sediment deposits carried by the Tenryu River on the west of the river mouth.

This is a precious spawning ground for the green turtles which are restricted in transaction by the Washington Convention and designated as endangered species category II (VU) by The Ministry of Environment of Japan. But in recent years, the dunes are being lost by the decrease of sand due to the flood control of the Tenryu River, and the impact on the environment and landscape is concerned.

In April, 2014, the green turtles were newly designated as “Shizuoka Prefecture Designated Rare Wild Plants and Animals”. At present, total 8 species were designated but the green turtle is the first species among animals. By this designation, the capture, picking, killing are banned and the protection measures were more strengthened. (about 18km south-southeast from Hamamatsu Business Office)

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