Management Philosophy

Rightness • Life • Power

Nipron believes that our business should be based on rightness.

In order for the company to survive,

we need flexible abilities to adjust to society and

changes for the future.

We must strive to gain the healthy and vigorous mind (life),

outstanding abilities,

and strong power.

1. Reliability grade and scope

Nipron's power supplies are classified into four reliability grades-HFA, FA, HOA, and OA-in accordance with the environment in which the power supply is used as well as its use. The reliability grade helps differentiate design, production, service,and warranty.

1－1 Selection and classification of the reliability grade

Reliability grade is a factor that defines quality level and service; it does not limit the usage. For example, in cases where extremely strict quality management is required, even for the unit mounted to OA device used in the office, consider FA or HFA as the reliability grade

Fig. 1-1 Classification of reliability grade

Category	Main uses	Power supply condition
HFA (For advanced industrial equipment)	• Socially fundamental facilities (public utilities) with high social importance and long durable year (Ex.) Electric power, railroad, communication, unmanned environment, traffic light, emergency use power supply for important facilities	• Calculated lifetime : 10 yrs. min. (24 hrs. continuous operation at 25℃) • PCB : glass epoxy (FR-4), double-sided PWBs with through holes • Installation environment : without air-conditioning, installation condition is semi-static (operating vibration of the device is taken into consideration) • In the case of unmanned operation, it possesses alarm and self-diagnosis (battery lifetime) functions. • It possesses uninterruptible redundant operation if needed
FA (For general industrial equipment)	• Power supplies for general industrial facilities (steel, chemical plant, axle, machine) (Ex.) Power supply for machine tool, various vending machines, robot, financial system equipment, general shipping, business computer, unmanned environment, and other general industrial equipment used at factory	• Calculated lifetime : 7 yrs. min. (24 hrs. continuous operation at 25℃) • PCB : glass epoxy (FR-4) or composite material (CEM3) double-sided through hole • Installation environment : without air-conditioning, installation condition is semi-static (operating vibration of the device is taken into consideration)
HOA (For advanced business equipment)	• Power supplies used for fundamental facilities Power supply used for office facilities in the building and fundamental facilities of a similar environment	• Calculated lifetime : 5 yrs. min. (24 hrs. continuous operation at 25℃) • PCB : glass epoxy (FR-4) or composite material (CEM3) Single-sided board is also acceptable. • Installation environment : Temperature is controlled with air-conditioner and installation condition is static.
OA (For general purpose business equipment)	• Consumer products and power supplies for electrical appliances with low social influence and short durable year	• Calculated lifetime : 3 yrs. min. (24 hrs. continuous operation at 25℃) • PCB : Phenol material and single-sided board are also acceptable • Installation environment : Temperature is controlled with air-conditioner and installation condition is static.

(Note) For special purposes such as nuclear power, airplanes, military, space projects, and anything that directly involves human life, each case is classified into a corresponding grade individually.

1-2 Warranty period for each grade (Rule No. NNPM-S-004)

Fig. 1-2

	HFA	FA	HOA	OA
Warranty	5 years	3 years	1 year	1 year

※Refer to F-9 "5. Service" for details.

2. Attached documents

2-1 Scope of attached drawings and material

We can submit documents within the scope as listed in Fig. 2-1 when we receive a request from the customer. However, some documents require a "memorandum of confidentiality as "memorandum" below).

The following items need to be indicated clearly to issue a memorandum.

a) The object (name of product, model)
b) Type of drawing/material for submission
c) Purpose of drawing/material for submission

Fig. 2-1

Type of document	Public	Memorandum	Note
Product specification	○	–	
Outline drawing	○	–	
Circuit block diagram	○	–	
Main circuit diagram (for submission)	×	○	Partially black boxed (circuit symbols are deleted)
Circuit diagram (design diagram)	×	△	
Evaluation test data	○	–	Circuit derating and abnormal test are not included.
Circuit derating document, abnormal test document (for submission)	–	○	Content of circuit derating document corresponds to main circuit diagram for submission. Complete version cannot be submitted since it reveals the details listed in the component table.
Safety standard certification (copy)	○	–	C of A for UL
Result of safety standard test	×	○	Including circuit derating and abnormal test
CB report	×	○	Including circuit derating and abnormal test
CE declaration	○	–	CE declared model only
CE technical document	×	○	CE declared model only
Table for main circuit component	×	○	Main component rating is listed, for safety standard application
Component table (design diagram)	×	△	
Analysis of environmentally hazardous substances	×	○	
PCB drawing	×	○	Pattern for safety standard application, configuration drawing (except for 製作加工図)
Drawing of transformer structure	×	○	For safety standard application (except for 製作加工図)
Other component drawings	×	×	Sheet metal drawing, various processing diagram
Production drawing	×	×	Work order, work standard
QC process chart	×	△	Standard process chart (details shall not be submitted to outsiders)

×…Not available for submission ○…Available for submission
△…Available for submission (fully-customized part only)

3. Design management

Our basic principle is not to change design of a standard product approved for mass production. However, we may change design of a standard product for improvement when needed. If that is the case, we conduct design change after confirming its validity in accordance with our criteria provided that the content of design change maintains upper compatibility.

3-1 How to apply and report design change

Customers will be notified of design changes six months prior. For standard and semi-standard products, design change will be notified through homepage, etc.
Customers who have received a customer acceptance specification will be notified of the design change at first. After that, we will resubmit a customer acceptance specification.
For customers who need the supply of existing products, we would like to receive order at lease four months prior to the design change.
If we do not receive a reply within 20 days after submitting a notification for design change, we will consider that the notification has been accepted and will start delivering revised products after running out of the stock of existing products and orders.

3-2 Criteria for design change applicaton (and notification)

Fig. 3-1 Criteria for design change notification (application)

Reason for change, content		Recipient of customer acceptance specification: Customer	Application for change in safety standards such as UL and TUV	Change of Rev.
Circuit change	Changes to components dictated by safety standard (Ex.) Primary circuit; between primary and secondary; between primary and GND	○	○	△
	Changes to secondary circuit outside the area dictated by safety standard that do not affect electrical characteristics (listed in the specification); minor changes for improvement that maintain upper compatibility	×	△	△
Change of constant	Changes in the area dictated by safety standard in purpose of improvement and change of constant in the secondary circuit that affects electrical characteristics.	○	○ Safety parts only	△
		The area dictated by safety standard refers to component change specified in the report. If that is the case, if the constant (electrostatic capacity) of grounding capacitor, etc. changes, leakage current and conducted emission change as well. Even if that does not change the content of product specification, the change will be notified and rev. will be updated. However, if the change of constant listed in the report does not involve characteristic change, it will not be notified and rev. will not be updated.		
	Changes in the area dictated by safety standard that have no influence to electrical characteristics (listed in the specification) (Ex.) A change in purpose of revising disparity of the setting for OVP, OCP, or LV.	×	×	×
Component change without change of constant	Change of component in the area dictated by safety standard and change of environmentally hazardous component and material We take special care not to change from non-hazardous to hazardous material.	△	○ Change of environmentally hazardous material is excluded.	△
		In cases where components dictated by safety standard, such as grounding capacitor are replaced with other components with the same rating due to discontinuance, notification and update of rev. are not needed as long as change of safety standard is applied as a power supply as a whole. Change of components such as fan motor is not considered a complete alternative in the application for change of safety standard despite that the content of specification does not change. Since replacing the fan motor changes airflow as well as effects on device, update of rev. and application of design change are needed.		
	Change of component outside the dictation of safety standard or environmentally non-hazardous component that has no influence to electrical characteristics (listed in the specification). It is typically for cutting cost; however, the change has to contribute to improvement and and have upper compatibility.	×	×	×
Structural change	Structural change that does not alter the outline of the unit or interface (connector, etc.); a change that maintains upper compatibility in purpose of improvement, provided that hazardous material restricted by safety standard is not contained.	×	×	×

○…Notification needed ×…No need for notification or update of Rev. △…Depends on the condition

3－3　Changes to 4M (man, machine, material, and method)

For customers to whom we are obliged to notify any change to 4M, we will notify the following items:

- Change of production factory
- **Components (scope** of safety standard dictation, items related to environment, toxics, and danger
- Change of material that affects electrical characteristics (listed in the specification)

We are obliged to notify changes to the following customers:

- Customers to whom a customer acceptance specification is submitted
- Customers who have conducted inspection in our factory

3－4　Share of design change expenses

When we get a request to make design changes to a standard model, the customer will be asked to bear the expenses.

3－5　Quality assurance system

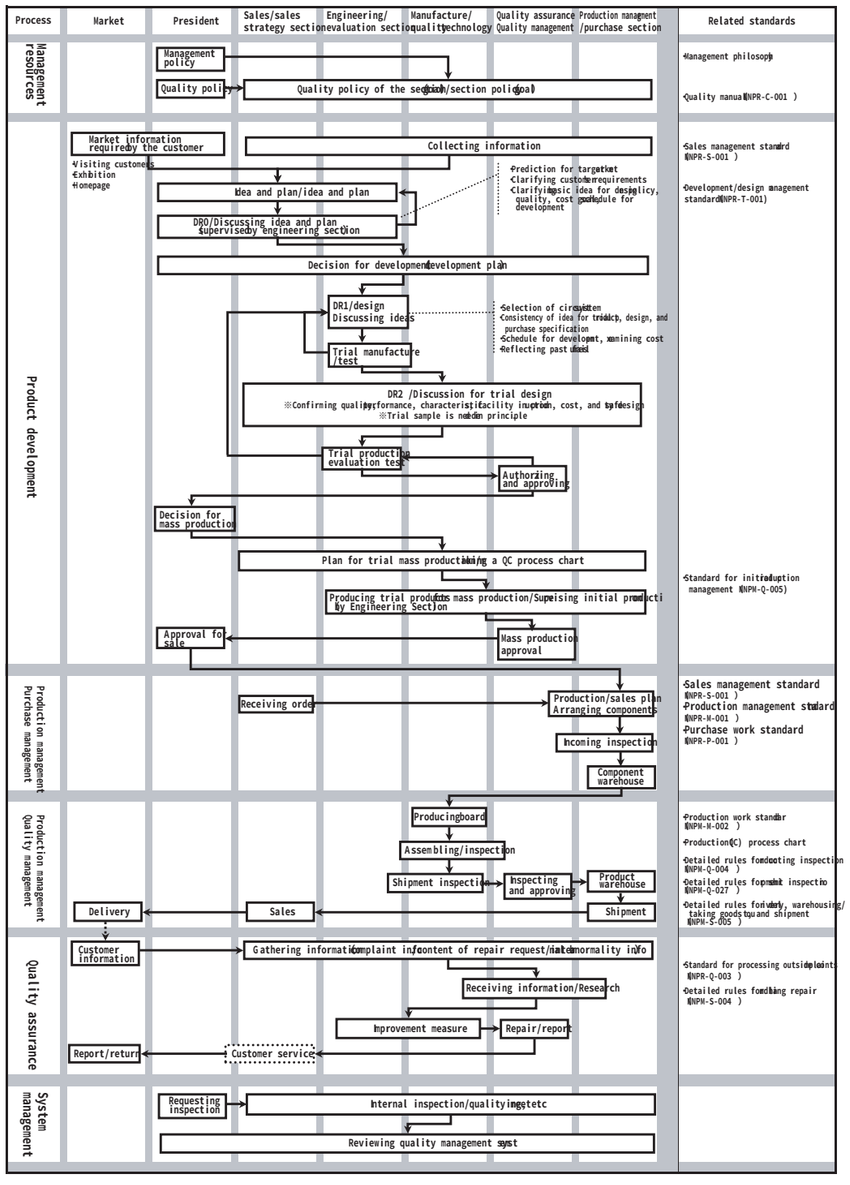


Fig. 3-2　Quality assurance system diagram

4. Inspection and test

4－1　Evaluation and authorization test

The evaluation and authorization test confirms the said product possesses characteristics and functions listed in the specification at the minimum, as well as the endurance of severer conditions (input, temperature, and load conditions) out of specification.

Product safety (fire, electric shock, damage) is also confirmed by internal test or authorization test conducted by the third party (UL, TUV, NEMKO, etc.). Content and items of the evaluation authorization test depend on the development class.

Fig. 4-1　Development Class

Development class	Content
Class A	Products that have not been commercialized, products with new circuits, or products with a different capacity brought by the expansion of the series
Class B	Partially improved products; expansion of the series without quality improvement or capacity change of input and output (no change in the basic content)

Fig. 4-2　List of Evaluation and Authorization Tests (extracts)

Item No.	Test item		Technical test/Evaluation authorization test level	
			Class A	Class B
1	Stress test (high temperature)		○ 48H	○ 12H
2	Input current/input power/total consumption electric power/power factor/efficiency test		○	△
3	Harmonic current test		○	△
4	Confirmation test for output voltage stability	(1) Test for output voltage variable range	○	○
		(2) Input regulation test	○	○
		(3) Load regulation test	○	○
		(4) Temperature regulation test	○	△
		(5) Total regulation test	○	△
		(6) Long-time drift test	○	×
5	Test for response characteristics of output voltage	(1) Rising/startup time (waveform) test	○	△ Confirmed
		(2) Falling/hold-up time (waveform) test	○	△ Confirmed
		(3) Test for sudden load change (waveform)	○	△ Confirmed
		(4) Instantaneous input failure (waveform) test	○	×
6	Ripple and spike voltage test		○ All temperature	○ Normal temperature
7	Protection circuit stability test	(1) Over voltage protection test	○ All temperature	△ All temperature
		(2) Low voltage protection test	○ All temperature	△ All temperature
		(3) Over current protection characteristics test	○ All temperature	△ All temperature
		(4) Overcurrent protection characteristic test (V-I characteristic graph)	○	△
8	Hot start/cold start test		○	△
9	Tests at power input	(1) Inrush current test	○	○
		(2) Reboot time test	○	×
		(3) Input overvoltage immunity test	○	×
10	Slow input voltage fluctuation test		○	△
11	Alarm signal output, logic/sequence test		○	○
12	Temperature rise test		○	△

13	Insulation resistance/dielectric strength test	○	○
14	Leakage current test	○	○
15	Line noise immunity test [noise migration (impulse noise) test]	○	△
16	Surge immunity test (lightning surge test)	○	△
17	Electrostatic discharge test	○	△
18	Input feedback noise test (conducted emission)	○	△
19	Vibration test	○	×
20	Surface dropping test	○	×
21	Appearance/dimension inspection	○	○
22	Drop test of a packed product	○	×
23	Heat cycle test	○ HFA only	×
24	Open/short test of semiconductor Confirmation test of rated derating of main components	○	×
25	Evaluation of new components Confirmation tests are conducted for FET, photo coupler, electrolytic capacitor, fun, relay, IC, and other components, with an evaluation standard set up for each	○	×
26	Applied safety standard, confirmation test for EMC standard	○	×
27	Evaluation test of new material or structure (Evaluation items are decided for each case.)	○	×

○ : A test conducted as an evaluation test
△ : A test that uses the result of evaluation test conducted in the past.
× : No test is conducted (using previous results or examining specification).

4−2 Inspection for completed products (100% inspection)

Item No.	Test item		Technical test/evaluation authorization test level HFA	FA	HOA	OA
1	Measuring input current		○	○	○	○
2	Confirmation test of output voltage stability	(1) Variable range for output voltage	○	○	×	×
		(2) Input regulation	○	○	○	○
		(3) Load regulation	○	○	○	○
3	Output ripple/spike		○	○	○	○
4	Performance test for protection circuit	(1) Operating point of OVP	○	○	○	○
		(2) Operating point of OCP	○	○	○	○
		(3) Operation point of voltage shortage protection	○	○	○	○
5	Performance test for alarm signal output and optional functions		○	○	○	○
6	Insulation resistance/dielectric strength test		○	○	○	○
7	Leakage current test		○	×	×	×
8	Appearance test (dimension test)		○	○	○	○
9	Shipment inspection (checking internal condition, electric test)		10 to 30 units	Initial sample only	Initial sample only	Initial sample only
10	Checking spares		○	○	○	○
11	Aging test (50 to 100% load)		8H	15m to 1H	15 min.	15 min.
12	Vibration test (30 min to 1h with a simple test device)		○	×	×	×
13	Test report attached		○	×	×	×

5. Service

5−1 Criteria for warranty period

Depending on reliability grade, warranty period is five years for HFA, three years for FA, one year for HOA and OA.※
The warranty period is counted starting from the next month of production date written on the production number label. Considering the storage period at the store, it shall be: warranty period + 6 months. However, if warranty is decided individually for a specific product, the provided warranty shall be given priority.
(If a production number label to prove the production date is not attached to the defective product, the customer shall be liable for the cost of repair in principle.) If warranty is listed in the customer acceptance specification,
Ex.1. If the storage period at the store is long, warranty period is counted starting from one year after the production date.
※ For details of reliability grade, refer to F-3 "1. Reliability Grade and Scope."

5−2 Warranty

We will repair or replace products within the warranty period. We will also repair or replace products after the warranty period when we decide that the defective part is caused by our errors in design or production. However, defects caused by operational mistake or disassembling by customer as well as natural disasters are not taken into account.

5−3 Repair with compensation

Defective products within or out of the warranty period can also be repaired if the customers. However, if the following cases apply to the defective product, it will be judged as "repair impossible" and the product will be returned to the customer.
① The PCB is burned or severely damaged.
② Components are extremely degraded due to long-time use.
③ Components are discontinued and are difficult to obtain.
④ Product quality cannot be assured even if the defective unit is repaired (Units that have been repaired for the same problem in the past are also taken into account.)
Warranty for the repaired part is one year after being repaired with compensation. We will accept repair for the product for seven years after discontinuance. Customers will be asked to sign on the "memorandum for repair" in order to receive this service.

5−4 Ideas for supplying products in a long run

We consider supplying products for long periods of time to be our special service. We devote our efforts to providing a stable supply of a product 10 years after the product goes on the market. In order to do that, we may take the following measures in future.
- Using alternative components
- Setting up a minimum volume in placing an order
- Reviewing unit price
- Introducing a succeeding model

Except for the introduction of a succeeding model, electric characteristics and interface shall remain the same.

5−5 Definition of discontinuance

Products will change from mass-produced products → phase-out → discontinued products.
Mass-produced products
- At least 10 years in principle; however, some products may become discontinued in less than 10 years for various reasons.

Phase-out
- The product can be supplied as long as components are available (including the use of alternative components).
- The product can be supplied if the price is reviewed (including management fee for safety standard)
- When a product changes from phase-out to discontinued, customers will be notified at least six months prior

Discontinued products
- When the measures listed above become difficult, the product will become discontinues.
- We will accept repair for a product for seven years after discontinuance at the cost of the customer.

5−6 Overhaul

When using a product such as HFA grade product in a long run, we can replace consumption components, such as electrolytic capacitor, as part of our service.

5−7 Recycling

Since battery packages contain hazardous substances, we encourage customers to recycle them in purpose of protecting the environment. When returning, the process is different for each product. Refer to Nipron's Web site.

6. Our ideas for protecting the environment

We devote our efforts to prohibit the use of substances listed in Fig. 6-1 to provide environmentally friendly products and corporate activities.

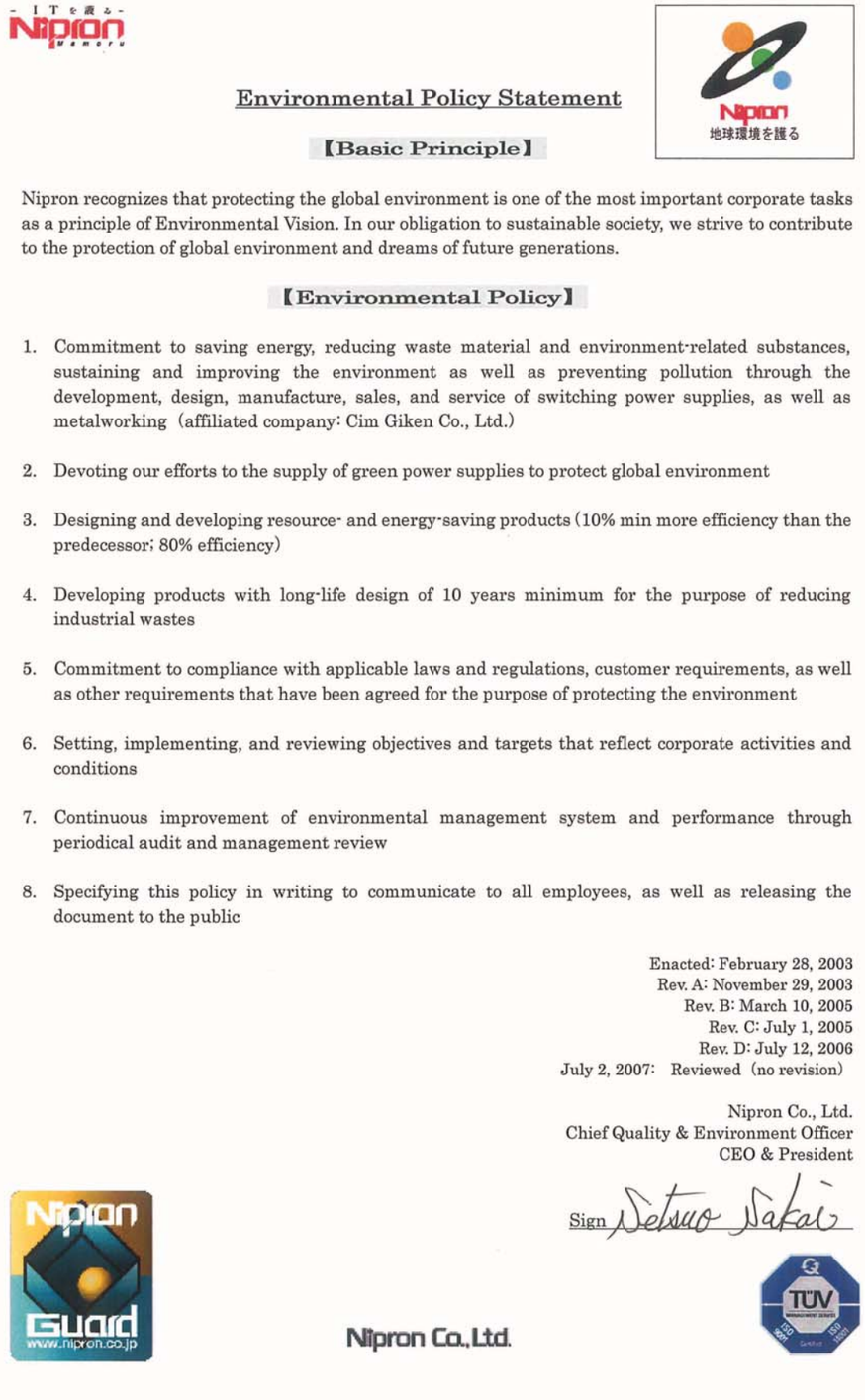
Fig. 6-1 List of environmental substances to be controlled

Name of substance	
Heavy metal	Cadmium and cadmium compounds *1, *5
	Lead and lead compounds *2, *5
	Mercury and mercury compounds *5
	Haxavalent chromium compounds *5
Chlorinated organic compounds	Polychlorinated biphenyl (PCB) Polychlorinated naphthalene (PCN) Polychlorinated terphenyl (PCT)
	Short-chain chlorinated paraffin (SCCP)
	Other chlorinated organic compounds
Brominated organic compounds	Polybrominated biphenyl (PBB)
	Decabromodiphenyl ether (DecaBDE) Polybromodiphenyl ether (PBDE)
	Other brominated organic compounds
Tributyltin compounds (TBT) Triphenyltin compounds (TPT)	
Asbestos	
Specific azo compounds	
Formaldehyde	
Poly vinyl chloride (PVC) and PVC mixture *3	
Beryllium oxide *4 Beryllium copper	
Specific phthalic acid ester(DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)	
Hydro fluoro carbon (HFC), perfluoro carbon(PFC)	

*1 Threshold limit value for the substance contained in resin, plastic (including rubber), paint, and ink shall be less than 5ppm.
*2 Threshold limit value for the substance contained in resin, plastic (including rubber), pain, and ink shall be less than 100ppm.
*3 Part of components or material
*4 It will be prohibited starting in April 1, 2008.
*5 The total threshold limit value of four substances contained in the packing material shall be less than 100ppm. It shall meet the threshold limit values of *1 and *2 as well.

A material safety data sheet (MSDS) is provided for each part that comprises a component, as well as subsidiary parts including a package. For cadmium and lead, in particular, a standard and condition is provided to manage the fraction content of each. For corporate activity, we have been certified and acquired ISO14000 for our commitment in the environmental policy.

We have adopted chemical substance analyzers : (EDX-720 [energy dispersive x-ray fluorescence spectrometer] and Uvmini-1240 [Hexavalent chromium measuring system] Shimadzu Corporation) in March 2007. This system allows us to analyze purchased material in the company as well as providing our customers with more reliable, RoHS compliant products. With this system, our environmental management system has been enhanced even more.



- IT を創る - Nipron

Environmental Policy Statement

Nipron 地球環境を護る

【Basic Principle】

Nipron recognizes that protecting the global environment is one of the most important corporate tasks as a principle of Environmental Vision. In our obligation to sustainable society, we strive to contribute to the protection of global environment and dreams of future generations.

【Environmental Policy】

1. Commitment to saving energy, reducing waste material and environment-related substances, sustaining and improving the environment as well as preventing pollution through the development, design, manufacture, sales, and service of switching power supplies, as well as metalworking (affiliated company: Cim Giken Co., Ltd.)
2. Devoting our efforts to the supply of green power supplies to protect global environment
3. Designing and developing resource- and energy-saving products (10% min more efficiency than the predecessor; 80% efficiency)
4. Developing products with long-life design of 10 years minimum for the purpose of reducing industrial wastes
5. Commitment to compliance with applicable laws and regulations, customer requirements, as well as other requirements that have been agreed for the purpose of protecting the environment
6. Setting, implementing, and reviewing objectives and targets that reflect corporate activities and conditions
7. Continuous improvement of environmental management system and performance through periodical audit and management review
8. Specifying this policy in writing to communicate to all employees, as well as releasing the document to the public

Enacted: February 28, 2003
Rev. A: November 29, 2003
Rev. B: March 10, 2005
Rev. C: July 1, 2005
Rev. D: July 12, 2006
July 2, 2007: Reviewed (no revision)

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