Eco-Products

Goal 3

Eco-Product Development

Anritsu is promoting environmental efforts across the product life cycle from parts/materials procurement and manufacturing to shipment, customer use, and recycling/disposal. We conduct product assessments to check and assess the effects of environmental impact reduction from the early design stage of every product's development. We also comply with environmental regulations around the world. We are vigorously promoting to provide energy- and resource-saving products and products that do not contain hazardous substances as a primary theme of the mid-term plan of our GLP2017 Environmental Initiative.

Complying with Product Environmental Regulations

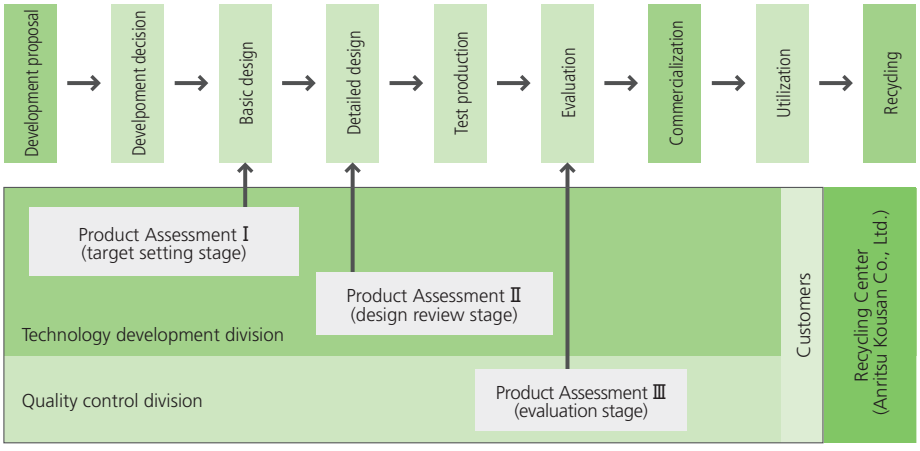
The European Union (EU) enacted the WEEE Directive in 2005, the RoHS Directive in 2006, the REACH regulations in 2007 and the ErP Directive in 2009. Environmental regulation of products centered on the EU has been expanding throughout the world. Moreover, product environmental regulations now require a prompt response. Communication, information sharing and the unified response of Group companies outside Japan are facilitated by the Global Environment Management Meeting, for example.

Global Product Assessment

To develop environmentally friendly products on a global scale, we sought to ensure consistency between product assessment carried out by Anritsu Group companies in Japan and the assessment criteria of Design for Environment (DfE) followed by Anritsu Company (U.S.A.). We have been conducting global product assessments since fiscal 2014 by adding the function of calculating assessment points that had not been a part of DfE.

Operational Procedure

Global product assessments are conducted in three stages that must be concluded prior to commercialization: Product Assessment I (target setting), in which targets for the product development process are clarified; Product Assessment II (design review), in which progress on attaining the targets is reviewed; and Product Assessment III (evaluations), in which a final assessment on the product is conducted. During Product Assessment III, a third-party evaluation is conducted by the Quality Management Department and other entities.



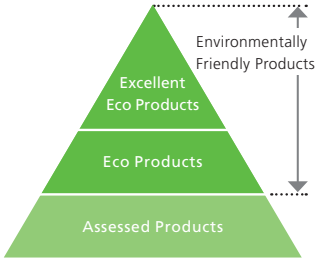
※ Follow-ups are conducted as needed at each stage of product assessment.

Evaluation Items

Evaluation items in the global product assessment cover basic factors such as improvements in volume, mass and power consumption against a reference product. Additional items for evaluation include resource savings and the reduction of harmful substances and overall environmental impact throughout production, physical distribution, use and disposal. A reference product is an existing product that is similar in function and performance to the product being assessed.

Resource saving, reduced load during manufacturing	■ Reduced volume and mass ■ Adoption of reusable or recyclable components ■ Expanded functionality and longer operating life	■ Use of recycled paper for operation manuals ■ Reduction of consumable supplies ■ Reduction of surface treatment ■ Reduction of difficult-to-process materials
Reduced substances with environmental impact	■ Elimination of banned substances inproducts ■ Reduction of substances subject to RoHS Directive	■ Compliance with RoHS Directive ■ Reduction of other harmful substances
Reduced load in physical distribution	■ Reduction of packing materials ■ Use of recycled paper for packing materials	■ Ease of transport after collection
Reduced load during use	■ Reduced power consumption duringoperation ■ Inclusion of a standby mode	■ Designed to lower power consumption ■ Clear instructions on power-saving functions
Reduced load at time of disposal	■ Fewer parts ■ Reduced use of difficult-to-recycle materials ■ Designed for easy dismantling and disassembly ■ Identification of the material on resin components	■ Reduced variety of materials and use of common materials ■ Recycle labeling on batteries ■ Response to WEEE Directive ■ Response to Chinese RoHS

Environmentally Friendly Product Program



Environmentally Friendly Products

The Anritsu Group certifies Excellent Eco-Products and Eco-Products as environmentally friendly products based on the results of global product assessment.

- Excellent Eco-Product: A product that meets Excellent Eco-Product requirements
- Eco-Product: A product that meets Eco-Product requirements
- Assessed Product: A product that meets Assessed Product requirements

Environmentally friendly products accounted for about 76% and Excellent Eco-Products for about 71% of Anritsu's sales of measuring instruments for fiscal 2016.

Major Environmentally Friendly Criteria for Excellent Eco Products

- Top industry ranking for environmentally Friendly properties
- Environmental information ready for disclosure
- CO_2 emission evaluated by Life Cycle Assessment (LCA)*
- Environmental management system in place at the relevant business entity and main production site.

Excellent Eco Product

For Excellent Eco Product, "Excellent Eco Product " mark and environmental information of the product is described in the catalog and elsewhere. The mark is categorized as Type II labeling (self-declared environmental claims) under the international standard ISO 14021.

* Life Cycle Assessment: A method for quantitatively assessing environmental impact across a product's entire life cycle, encompassing the extraction of raw materials, manufacturing, use, collection and disposal.

WEB
Excellent Eco Product

Excellent Eco-Products Recognized in Fiscal 2016

Signal Analyzer MS2840A

Signal Analyzer MS2840A

Toru Otani
Product Development Department,
IoT Test Solutions Division,
Measurement Business Division,
Anritsu Corporation

The Signal Analyzer MS2840A is a spectrum analyzer/signal analyzer with significantly improved SSB phase noise performance owing to its internal oscillators and a maximum measuring frequency range of 9 kHz to 44.5 GHz.

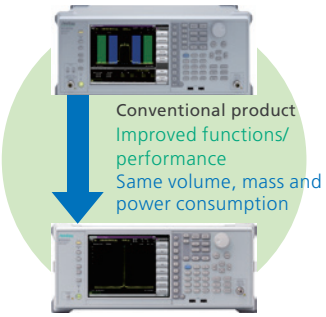
Our new MS2840A model has sufficient margin for evaluating the close-in spurious of narrowband communications equipment, which until now was only possible using large-scale, high-end spectrum analyzers.

The MS2840A is also supported by the high-performance waveguide mixer, allowing for spectrum measurement in the millimeter-wave band. The unit can be widely used for development and manufacturing devices requiring close-in SSB phase noise performance, such as micro/millimeter-wave wireless band wireless equipment, 79 GHz band automotive radars, and various oscillators.

In addition, built-in signal analyzer functions are effective for instantaneous signal analysis of the transmitter. Various measurement software are optional, and allow for detailed analysis and evaluation of transmitter modulation signals and noise figure measurement.

These functions can be used to instantaneously analyze any defect in wireless equipment, such as unnecessary spurious emissions and noise, and for evaluating the performance required by wireless equipment with digital or analogue modulation, which will dramatically increase the development and manufacturing efficiency of wireless equipment.

After integrating all these functions into the MS2840A, we reviewed the new synthesizer's capability for maintaining the volume, mass and power consumption levels of our conventional product. Using the conventional design would increase circuit scale, which in turn increases the volume and power consumption of the unit. And so we adopted the latest devices with low-power consumption and high-density mounting by using small parts. As a result, we were able to maintain the same volume, mass and power consumption levels as our conventional product, despite the substantial improvements in phase noise performance.



MS2840A

Signaling Tester MD8475B

Signaling Tester MD8475B

Excellent Eco Product

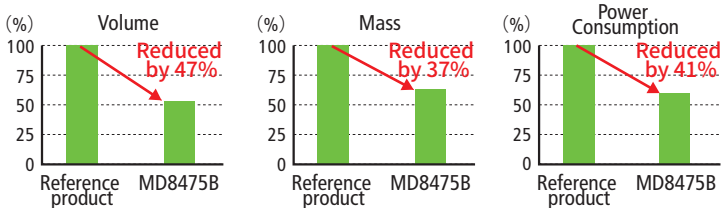
Tsuyoshi Sato
Product Development Department,
IoT Test Solutions Division, Measurement
Business Division, Anritsu Corporation

The Signaling Tester MD8475B is a measuring instrument used for the development of mobile devices (UE), such as smartphones. This all-in-one tester supports the evaluation of various communication technologies ranging from LTE-Advanced to 3G/2G. It also facilitates the efficient performance of various tests, such as call connection, data transfer, current consumption and multiple cell tests as well as various IMS (IP Multimedia Subsystem) based service tests, such as VoLTE (Voice over LTE).

For LTE-Advanced systems, there is demand for a high-speed data transfer test supporting carrier aggregation (CA) technology, which aggregates multiple carriers, and multiple-input multiple-output (MIMO) technology, a spatial multiplexing transmission technology. To offer an all-in-one solution for performing tests of LTE-Advanced CA, which had previously required multiple testing instruments, we developed and mounted a built-in unit that is small, light and low power consumption, while incorporating the latest technology.

We were able to achieve these features by aggregating functional blocks and reducing power consumption through adopting the latest field-programmable gate array (FPGA), high density mounting and increasing the efficiency of the power supply through distributed power supply. As a result, we reduced volume by 47%, mass by 37% and power consumption by 41%, compared to a conventional product at the same level of functionality and performance.

With its compact size and low power consumption, testing can be performed in a compact test environment, such as on an office desk, and with a single outlet, contributing to the use of efficient space- and energy-saving test environments.



BERTWave MP2110A

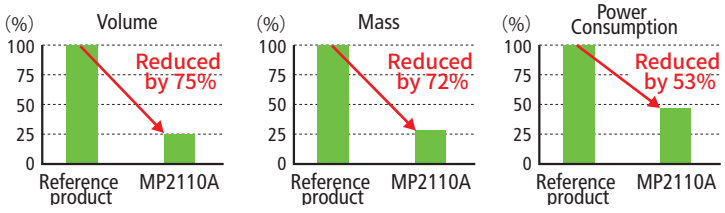
BERTWave MP2110A

Excellent Eco Product

Hiroyuki Kawate
Solution Marketing Department, Service Infrastructure Solutions Division, Measurement Business Division, Anritsu Corporation

The MP2110A BERTWave is an all-in-one test set integrated with a bit error rate tester (BERT) and sampling oscilloscope (eye pattern analysis) suitable for the manufacturing of 25G band optical modules and devices. Although the BERT and sampling oscilloscope testers are normally both required to evaluate optical modules and devices, we integrated the two instruments into the MP2110A BERTWave to offer an all-in-one solution. Also, the unit is capable of simultaneously BER measuring four channels and high-speed eye pattern analysis, contributing to a shorter measurement time and consequently improving production efficiency while reducing the manufacturing cost of optical modules.

By integrating the BERT, sampling oscilloscope and a personal computer, we created a compact, lightweight instrument that consumes less power. Unnecessary energy consumption was further reduced by removing a display, which may not be used in the production line. As a result, we reduced volume by 75%, mass by 72% and power consumption by 53%, compared to a conventional product at the same level of functionality and performance.



Wireless Connectivity Test Set MT8862A

Wireless Connectivity Test Set MT8862A

Excellent Eco Product

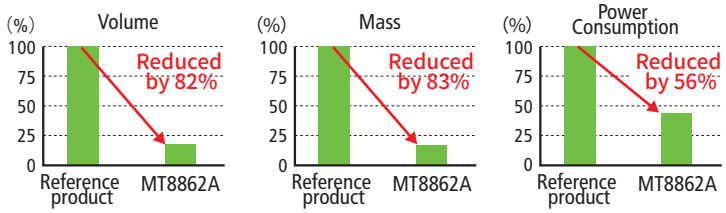
Go Inoue
Product Development Department,
IoT Test Solutions Division,
Measurement Business Division,
Anritsu Corporation

Wireless Connectivity Test Set MT8862A is measurement instrument for the RF TRx Characteristics of WLAN IEEE802.11a/b/g/n/ac (2.4 GHz and 5 GHz Bands) devices.

This instrument features a built-in network mode for measuring RF TRx characteristics, such as transmission power, modulation accuracy and receiver sensitivity, in various WLAN devices under actual operating conditions.

The MT8862A simulates access points and establishes the network connection with the device being tested using the standard WLAN protocol message conforming to IEEE802.11a/b/g/n/ac. Once the connection is established, RF measurements can be made using general WLAN communication procedures without requiring special tools or control procedures.

We created a compact, lightweight instrument that consumes less power by narrowing down the necessary and sufficient functions during product planning and concept development stage, reviewing the circuit configuration during design stage, and reducing the number of parts and modules by aggregating functions that had generally been handled by multiple modules. As a result, we reduced volume by 82%, mass by 83% and power consumption by 56%, compared to a conventional product with the same level of functionality and performance.



Eco-Products Recognized in Fiscal 2016

SSV Series Multi-lane Checkweigher KWS6233FP06

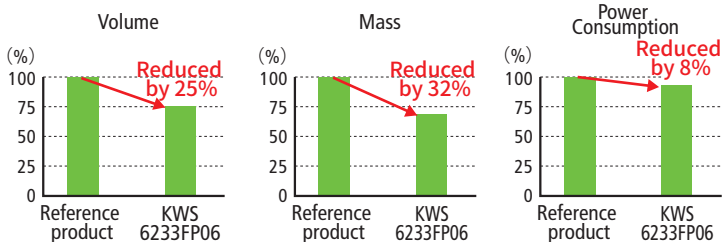
Atsushi Iida
1st Development Department,
Development Division,
Anritsu Infivis Co., LTD

SSV Series Multi-lane Checkweigher
KWS6233FP06

Checkweighers quickly and accurately measure the weight of products such as food items and sort the weighed items into three levels: correct, under-weight and over-weight. They are used for controlling filling machines and quantitative weighing machines, data recording and monitoring of abnormalities in production lines. And they also respond to various needs during the weighing and packaging process, such as ensuring the effective use of raw materials, preventing waste in packaging and enhancing quality improvement. Checkweighers have become indispensable for food industry production lines.The KWS6233FP06 SSV Series Multi-lane Checkweigher can weigh and sort up to 12 lines with one indicator unit, suitable for production lines that handle multiple rows of products with one unit of machines, such as filling/packaging and tube filling equipment.

One of our conventional products consisted of a measuring unit and a separate indication/control unit, the latter of which was equipped with multiple rows of control boards (six rows for the reference product). For the KWS6233FP06, we installed only one control board for control of six rows to reduce the number of mounted components. Consequently, we were able to reduce power consumption by 8%, compared to a conventional product. We also integrated the measuring unit with the indication/control unit, conventionally a separate unit, and reduced volume by 25% and mass by 32%, compared to a conventional product.

Since the production lines of our customers are typically filled with a variety of production equipment and facilities, installing a separate indication/control unit (as a conventional product) can cramp the work space for routine maintenance, obstruct the view of the entire production line, and hinder walking safety due to the relay cables. Our approach to integrating multiple pieces of equipment and downsizing contributes to creating compact production lines that allow for more flexible work spaces in our customers' factories.



Unified Network Controller NF7603A/NF7604A/NF7605A

Unified Network Controller
NF7603A/NF7604A/NF7605A

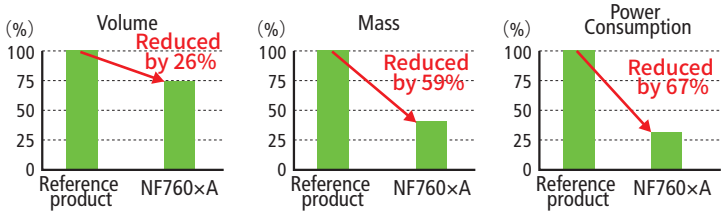
Ayuchi Kurosu
Development Department, Anritsu Networks Co., Ltd.

The unified network controller PureFlow WSX Series, which supports 10 Gbit/s lines, significantly improves the communication performance of the global network. PureFlow WSX facilitates high-speed transfer of large data by TCP acceleration function which suppresses the deceleration of TCP communication speed due to transmission delays that occur in long distance. Furthermore Traffic shaping function can control burst traffic.

The NF7603A/NF7604A/NF7605A also supports a bypass function that allows communications to continue in the event of an unexpected power outage or internal failure.

The compact, lightweight and low power product can not be realized by simply incorporating software functions in general-purpose hardware, such as a personal computer and server, so we avoided implementing excessive interfaces and developed high-performance hardware specialized for communication. We were able to reduce volume by 26% and power consumption by 67%, compared to a reference product, by adopting and optimally arranging electronic components that were small and low power. We also reduced mass by 59% through an optimized housing design that replaced the steel plate of the housing with an aluminum plate.

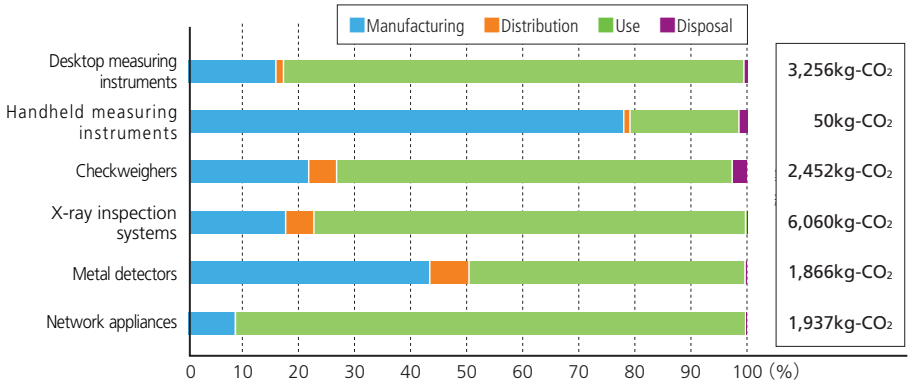
In addition, the compact, low power consumption and lightweight makes flexible and easy to install.



CO_2 Emissions across Product Life Cycles

The Anritsu Group in Japan expanded its LCA, previously applied to a limited number of products, to all of its products beginning in fiscal 2013, and is aware of CO_2 emissions at each stage of the product life cycle.

CO_2 Emissions and Breakdown across the Life Cycle of Product Groups



Reduced CO_2 Emissions during Product Use

Anritsu is working to reduce the volume of CO_2 emissions generated during product use, which has a particularly high ratio of CO_2 emissions across the entire value chain as well as the product life cycle, by identifying this as a priority theme for the GLP2017 Environmental Initiative.

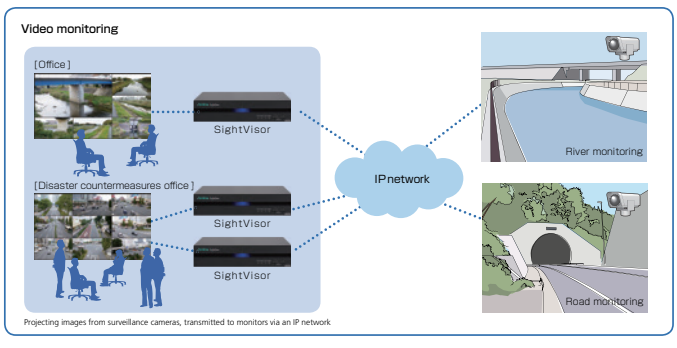
Under our global product assessment, Anritsu Group companies in Japan calculate the estimated reduction in electric power consumption of their products against the electric power consumption of the reference product. In fiscal 2016, we reduced electric power consumption by 3,682 MWh, equivalent to 1,955 tons of CO_2 emissions.

COLUMN Assisting Adaptation to Climate Change

Anritsu endeavors to promote environmental activities on a daily basis through efforts such as conserving energy and water, sorting waste and developing environmentally friendly products. Through these activities, we work to mitigate the impact of climate change, which will lead to reducing CO_2 emissions.

At the same time, we see adaptation to climate change as just as important and urgent, as it will allow us to reduce, avoid and disperse the impacts and risks of climate change already underway.

Japan's Ministry of Land, Infrastructure, Transport and Tourism monitors fluctuations in water levels and abnormalities with structures following localized heavy rainfall after installing roughly 20,000 surveillance cameras at Class A rivers and national highways. The SightVisor Series, developed by Anritsu Networks, has been introduced in the nationwide offices of river and national highway services as a monitoring device that can simultaneously broadcast images of various regions and information under severe weather conditions on up to nine windows on a screen. Through these video surveillance projects, we are helping to resolve social issues such as public safety and security while contributing to climate change adaptation.



Promotion of Supply Chain Management

Detail
Supply Chain Management

The provision of environmentally friendly products requires the use of parts and materials that reduce environmental impact. The Anritsu Group upholds environmentally friendly supply chain management through green procurement and conducts research on the chemical substances in the parts it purchases, in accordance with the Basic Rules of Procurement. For more information, please see "Supply Chain Management" on page 37.

Management of Chemical Substances Contained in Products

WEB
The Anritsu Group Global Green Procurement Specification

Ensuring no harmful substances are in our products requires proper and continuous chemical substance management by suppliers and companies further upstream. The Anritsu Group seeks to procure appropriate parts and materials by investigating chemical substances contained in purchased goods in accordance with the Anritsu Group Global Green Procurement Specification and entering the results into a database.