Sustainable Product Design and Development

To ensure the sustainable development of environmental ecology and customer health and safety, Wistron establishes management system to integrate environmental protection, health, and safety operations and develops standard operating procedures (SOPs) for electromagnetic and safety regulation engineering to verify products. Therefore, Wistron ensures environmental protection, related health, and safety operations in the entire business process, from the initial development process to manufacturing, service rendering, and the final life cycle of a process. Related data are stored in management systems such as Product Development Management (PDM), Green Product Management System (GPMS), and information systems, for ensuring that the products comply with environmental protection and safety laws and regulations. Concurrently, we also review laws and regulations on a yearly basis, as well as update customer-related demands. In 2015, Wistron was not involved in any violations of voluntary regulations as well as laws and regulations concerning the health and safety impacts of products and services within their life cycle.

■ Impact on Health and Safety in Each Stage of the Product / Service Lifecycle

Stages in Product Lifecycle	Assessment Implemented
Development of Product Concept	Yes
R&D	Yes
Certification	Yes
Manufacturing and Production	Yes
Marketing and Promotion	N/A [Note]
Storage Distribution and Supply	N/A [Note]
Use and Service	Yes
Disposal, Reuse or Recycling	Yes

[Note] Wistron is an ODM company and not a branded company, so the impacts of these stages are not taken into consideration

At the product development stage, Wistron follows the Green Design Guideline, introducing the concept of sustainable design. Moreover, Wistron is able to achieve sustainability through raw material management (please refer to the chapter on raw material management), compliance with energy consumption regulations, adoption of environmentally friendly, recyclable, and easy-to-dismantle materials, and reduction of use of hazardous substances. The specific implementation practices are described in the following sections.

To shed light on the environmental protection grade products and the concept of product sustainability, we not only proactively integrated the concept of sustainability into our product designs, but also adhered to customer demands, environmental protection labeling regulations implemented by governments worldwide (e.g., China RoHS/ Japan RoHS) and voluntary environmental protection labeling regulations (e.g., China Compulsory Certificate, California Proposition 65, etc.), in applying for environmental protection and safety regulation labels from different regions (e.g., Energy Star, Lot 3/Lot 6 of the Energy-related Products (ErP), TCO Certification, Blue Angel, etc.). These labels are then labeled on the product exterior, packaging, instruction manuals, or on power supplies. Furthermore, a portion of product components are labeled with relevant information in accordance with ISO 1043 (concerning symbols and identification labeling regulations for plastic products) and UL94 flammable testing regulations to facilitate final disposal processing and provide clear indications of the best disposal methods. In 2015, Wistron was not involved in violations of voluntary regulations as well as laws and regulations concerning product and service information labeling.

Compliance with Energy Consumption Regulatory Requirements

Wistron follows customer demands in designing the energy requirements of a project. During product design development, energy labeling requirements of various regions are considered in designing products that meet these requirements. All of our products are certified by the Energy Star, with differing product lines having passed energy consumption regulations of different regions, such as the European Union's ErP Lot 3, South Korea's E-Standby, and China Energy Label, as requested by our customers.

Use of Green Materials

Wistron truly understands the importance of environmental issues and has therefore always been dedicated to producing green products. The raw materials used in Wistron products generally comply with RoHS requirements. Given the customers' requirements, cost consideration, laws and regulations, the company prefers to use specific green materials to reduce the impact to our environment.

We adopt the GPMS to evaluate the environmental protection specifications for environmental protection product parts to ensure that all parts comply with environmental protection and safety regulations. At the same time, we also adopt the check items in the Green Design Guide and Review Checklist of the product development procedure (C system 2005) to ascertain that

our product development designs have taken environmental protection elements (e.g., waste reduction and resource recycling and reuse) into consideration.

The company also uses green materials that meet the following requirements:

- All electronic components must comply with RoHs (with the exception of several special components).
- During the product design and development, materials that partly include post-consumer plastics will be selected.
- The paper used for the box or product manual should be partly made of renewable paper or comply with procurement standards of the U.S. Environmental Protection Agency and must be printed according to environmental requirements.
- The product and packaging should be partly made of recyclable materials as stipulated in the WEEE (Waste Electrical and Electronic Equipment) Directive.

Easy-Recycling, Easy-Dismantling

Wistron incorporates the design concept of recyclability and easy-dismantling in the development of product designs in accordance with the product development procedure (C system 2005).

- Modular design
- Uses less bolts
- Easy-to-disassemble: Only common tools are needed for product disassembly.
- The electronic components are easy to separate.
- The product design incorporates recyclable materials.
- The accessory box uses recycled corrugated paper.

Elimination of Hazardous Substances

Wistron is committed to avoiding the use of prohibited substances and raw materials during product design development. We adhere to IECQ QC080000 hazardous substance management system framework in developing a GPMS and formulating related requirements and operating regulations. Concurrently, we also request our suppliers to pass Wistron's green part ratification; through the GPMS, we manage and safe keep related information to ensure compliance with international environmental laws and regulations (e.g, RoHS Directive, Packaging Directive, Battery Directive, and the Registration, Evaluation, Authorization and Restriction of Chemical substances [REACH]). As requested by our customers, we also avoid using specific hazardous substances that are harmful to the human body or the environment (e.g., halogen-free perfluorooctanesulfonic acid and polycyclic aromatic hydrocarbons). In addition, we perform reviews to ensure that our suppliers fulfill our needs in mitigating the risk of electronic wastes on the environment and human health.

■ Diagram illustrating the relationship between product development cycle and GPMS

Concept ►►	Planning ►►	Design ►►	Prototype ►►	Engineering Sample ►►	Pilot Production ►►	Mass Production and End of Product Lifecycle
• MRS-Green Requirement	• Critical Green Parts • Green Design Guide and List	• Green Design • Select Green Parts • Preliminary Check of ROHS List	• Green Function Venfication • Green Parts Certification • RoHS Inspection	• Green Part Batch Certification and Qualified Suppliers List • Green Engineering P/R • Reliability Test of Green Design • Final check to Ensure Compliance with RoHS	• Green Supplier Management • Green Parts Incoming Inspection • Green Parts Management • Green Production • Green Product Services • ECR/N Procedure	

Development Green Product Development

Supplier Green Parts & Supplier Management

Production Green Production, Quality Control and Customer Service

Information Systems Green Information System & Application