

November 1, 2024

Investigation Results on Quality Irregularities by the External Investigation Committee and Endeavors Taken at PID

As Panasonic Industry Co., Ltd. (Headquarters: Minato-ku, Tokyo; Representative Director, President, and CEO: Shinji Sakamoto; “PID”) publicly announced in the release “Irregularities in third-party certification of electronic materials and establishment of the external investigation committee” on January 12, 2024, PID established the external investigation committee (the “Committee”) consisting of external experts and delegated to the Committee the task of investigation, carrying out a root cause analysis, and making recommendations on measures to prevent reoccurrence. Having now received on October 31, 2024 an investigation report from the Committee (the “Investigation Report”), PID hereby reports on the investigation results and recommendations by the Committee and endeavors taken at PID.

1. Background Leading Up to Investigation

Details and Procedures on Investigation

<1> Company-wide inspections (As part of the activities undertaken for individual customers, inspections started in October 2023.)

(i) Questionnaire survey conducted through introduction of internal leniency:

Nishimura & Asahi (*Gaikokuho Kyodo Jigyo*) attorneys took the lead in carrying out a comprehensive questionnaire survey with respect to PID employees. In order to encourage candid reports in that survey, “internal leniency” was introduced. If any answer suggesting a potential irregularity was submitted, evidence would be reviewed and attorneys would carry out interviews.

(ii) Part numbers inspections:

The internal investigation team led the implementation of the inspections by confirming evidence and conducting interviews at business units and plants under the umbrella of the business divisions to determine whether the customer-required specifications had been satisfied, and then reviewing and confirming the results with the business divisions, with final confirmation by the headquarters quality department. ((i) Questionnaire surveys and (ii) Company-wide inspections are currently underway.)

<2> Investigation by the Committee

As a result of the activities of company-wide inspections relating to third-party certification of PID’s electronic materials, irregularities were found (published January 12, 2024). Because of this, PID proceeded to verify the safety of its products and established the Committee, consisting of external experts, and delegated to such Committee the task of investigation, carrying out a root cause analysis, and making recommendations on measures to prevent reoccurrence.

2. Overview of Investigation Results by the Committee

<1> The Quality Irregularities Confirmed by the Committee

The number of quality irregularities confirmed by the Committee totaled 93, including 21 noncompliance with certification standards and 72 other irregularities relating to individual contracts with customers.

[Breakdown of 93 cases]

| Division | Number of Quality Irregularities | Intentional/Unintentional Irregularities | |
|---|----------------------------------|--|-----------------|
| | | Intentional | Unintentional |
| Electromechanical Control Business Division | 34 cases | 22 cases | 12 cases |
| Industrial Device Business Division | 13 cases | 4 cases | 9 cases |
| Device Solutions Business Division | 28 cases | 23 cases | 5 cases |
| Electronic Materials Business Division | 18 cases | 13 cases | 5 cases |
| Total | 93 cases | 62 cases | 31 cases |

The Investigation Report explains 32 cases, including “irregularities relating to UL certification (15 cases)” (including 12 cases publicly announced on January 12, 2024) prioritized by the Committee and “irregularities for which the Committee conducted further in-depth investigations from the viewpoint of root cause analysis (11 cases)”.

Irregularities Relating to UL Certification (15 Cases (*1))

1. Irregularities found at Koriyama Plant, Electronic Materials BD (3 cases) [Published]
2. Irregularities found at Yokkaichi and South Yokkaichi Plants, Electronic Materials BD (7 cases) [Published]
3. Irregularities found at Ayutthaya Plant, Electronic Materials BD (2 cases) [Published]
4. Irregularities found at Matsue Plant, Device Solutions BD (1 case)
5. Irregularities found at FA Device Business Unit, Industrial Device BD (1 case)

*1 Including one unintentional case (omission of procedures) mentioned in the note of the investigation report.

1. Irregularities found at Koriyama Plant, Electronic Materials BD: 3 cases [Published]

Data change for UL certification registration of copper plated multilayer boards. (Data change)

2. Irregularities found at Yokkaichi and South Yokkaichi Plants, Electronic Materials BD: 7 cases [Published]

- Molding materials, semiconductor encapsulation materials, and circuit board materials with compounding ratios different from those registered with UL were manufactured and sold without changing the registered part number.
- During periodic audits, samples with compounding ratios different from the products of the part numbers designated were prepared and submitted. (Sample alteration)

3. Irregularities found at Ayutthaya Plant, Electronic Materials BD: 2 cases [Published]

- Copper plated multilayer boards with compounding ratios different from those registered with UL were manufactured and sold without changing the registered part number.
- During periodic audits, samples with compounding ratios different from the products of the designated part numbers were prepared and submitted. (Sample alteration)

4. Irregularities found at Matsue Plant, Device Solutions BD: 1 case

With respect to film capacitors that were developed and manufactured at the Matsue Plant, products that did not meet certification standards (*1) were shipped. Further, special samples using materials other than those certified and registered were prepared and submitted to certification agencies to ensure that the samples would pass the sample tests conducted by the certification agencies during the audits by the certification agencies and the renewal screenings for certifications. The products in question were three types of film capacitors that were manufactured and sold between around 1985 and 2021. These facts were reported to PID management around January 2022; however, a report was not made to the certification agencies or customers for such reasons as the manufacture and sale of the products in question had already been stopped and there was no information about any market problems. (Sample alteration)

*1 UL certification and VDE certification

5. Irregularities found at FA Device Business Unit, Industrial Device BD: 1 case

Regarding the power supply units of PLC (*2) products that had obtained UL508 certification, around October 2014, when some components of some power supply units that had been registered, even though there were changes in what had been reported under the UL Procedure (*3), PID manufactured and sold power supply units using components different from the managed components reported in the UL Procedure without submitting the necessary change application to UL. Production of PLC products ended in 2022, but the power supply units continued to be manufactured and sold for maintenance use. (Noncompliance with certification)

*2 Programmable logic controllers, control devices used to control equipment and facilities.

*3 A report setting forth certification particulars issued by UL. The report describes the main characteristics of

managed components among the components constituting the product in question.

Irregularities the Committee Investigated In-depth (11 Cases)

1. Irregularities found at Yokkaichi and South Yokkaichi Plants, Electronic Materials BD (2 cases)
2. Irregularities found at a subsidiary plant under the umbrella of the Electromechanical Control BD (2 cases)
3. Irregularities found at Ise Plant, Electromechanical Control BD (1 case)
4. Irregularities found at Chitose Plant, Device Solutions BD (4 cases)
5. Irregularities found at Koriyama and Guangzhou Plants, Electronic Materials BD (2 cases)

1. Irregularities found at Yokkaichi and South Yokkaichi Plants, Electronic Materials BD: 2 cases

Regarding semiconductor encapsulation materials and molding materials, there was an alteration of inspection results sheets, alteration of lot numbers and shipment of products that did not meet standards. Regarding the alteration of inspection results, the irregularities took place from the 1980s until around March of 2024, but endeavors were not undertaken to remediate this. (Data change, non-attainment of customer specifications)

2. Irregularities found at a subsidiary plant under the umbrella of the Electromechanical Control BD: 2 cases

Regarding relay products, there was incorrect reporting of the in-process defect rate, inappropriate handling during process validation, and incorrect reporting of the durability test at the development stage. The incorrect reporting of the in-process defect rate started at the latest in the late 2000s. (Data change, non-attainment of customer-requested specifications).

3. Irregularities found at Ise Plant, Electromechanical Control BD: 1 case

Regarding multiple industrial relay products, from 2009 at the latest, even though products failed quality evaluation tests relating to electrical life, malfunctioning vibration or malfunctioning shock, the products remained in mass production and were sold, without any particular improvement measures being taken. (Non-attainment of customer specifications)

4. Irregularities found at Chitose Plant, Device Solutions BD: 4 cases

Regarding chip-type laminated thermistors, from around June 2009 at the latest until around November 2023, if the measured values for resistance values during outgoing inspections deviated from the allowed tolerance specified in the delivery specifications, the inspection was considered passed as long as internal shipping standards were

satisfied, and on the outgoing inspection results sheet, values differing from the measured values were entered. (Data change, non-attainment of customer specifications)

**5. Irregularities found at Koriyama and Guangzhou Plants, Electronic Materials
BD: 2 cases**

Regarding copper plated multilayer boards, at the Koriyama Plant, from May 2015 at the latest until around April 2016, there were irregularities where measurement data of the CAF test (a test of insulation performance life) was changed and reported to customers. At the Guangzhou Plant, there was data change from around March 2019 until around January 2024. (Data change)

**<2> Root cause analysis and recommended measures to prevent reoccurrence by the Committee
[Issues addressed in root cause analysis by the Committee]**

1. Insufficient understanding of the essence of quality assurance

The essence of quality assurance, “complying with promised procedures and ensuring quality”, was not fully understood, and it is believed that the quality irregularities occurred and continued for a period of time due to the misimpression that because, “there are no safety or performance problems,” the quality assurance oversights were acceptable.

2. Insufficient education concerning quality assurance

The education conducted by the business division quality departments and factory quality departments centered on technical education for reducing quality loss costs, based on the usual quality policy, and PID has not sufficiently conducted educational activities on quality assurance.

3. Attitudes of certain executives

The insufficient awareness of quality assurance is a problem that equally applies to the executives of business divisions. Such executives can be criticized for those shortcomings in not focusing on quality.

4. Issues in building an organization to do the job properly

It is important to consider whether an organization or system to prevent irregularities has been created based on the existence of pressure and weakness and that “quality irregularities will inevitably occur.”

5. Limitations in the structure and operations of the quality departments

✓ **Headquarters quality department:**

From the perspective of auditing whether a system to prevent irregularities was in place, the Headquarters-Controlled Quality Department did not fully perform its function.

✓ **Business division quality departments:**

Communication between the factory quality departments and the business division quality departments

was not smooth; and even if quality irregularities occurred, it was not an atmosphere where the factory quality department would consistently report such irregularities to the business division quality department.

✓ **Factory quality departments:**

The factory quality departments did not check what kind of tests were actually conducted and the actual test results, including whether the test results were recorded in the test report without change. The factory quality departments failed to detect quality irregularities through their voluntary inspections.

6. Inefficiencies in quality compliance system

Inadequate procedures within business divisions and business units

Insufficient collection of information on official standards by the headquarters

Insufficient checks by the headquarters

Inadequate rules for addressing quality irregularities

7. Individuals in the organization were not incentivized to speak up

The fact must be acknowledged that reporting problems and issues to upper management entails psychological resistance, and the need is strong to build an organization where problems and issues can be openly shared.

8. Approach to interacting with customers

A decision that could lead to the loss of important business at the discretion of the frontline staff is not easy to make. If the company is going to engage in more thorough discussions and negotiations with customers, then it should have been necessary for management to be at the helm of the business, to back up the frontline staff, and to show that they are willing to get involved in discussions and negotiations as necessary.

9. Management's insufficient awareness of quality compliance

Management's own lack of awareness of quality assurance appears to have been a potential factor in quality irregularities this time.

[Recommendations by the Committee for preventing reoccurrence]

1. Measures to address insufficient understanding and education on the essence of quality assurance

✓ **Review of education content:**

It is necessary to review the content and implementation methods of educational activities from a company-wide perspective, based on business policies and internal company systems, by confirming information collection on quality irregularity cases at other companies and determining how to respond to them based on the results of analysis, understanding domestic and foreign laws, regulations and official standards, and the methods to confirm compliance with them.

✓ **Developing prerequisites for ensuring compliance with rules:**

It is necessary to provide an environment where it is possible to comply with promised procedures by separating engineers in charge of development and testing from engineers in charge of collecting information on official standards and negotiating with certification bodies, and by not leaving negotiations with customers to the frontline engineers, but have high-level officers and employees, such as management, conduct negotiations with customers.

2. Measures for building an organization to do the job properly

In order to prevent quality improprieties, creating an organization based on the assumption that humans are inherently weak is essential. For example, devising the frequency of personnel changes and the status of supervision by managers to eliminate work that is known only to specific employees and strengthening the auditing and check functions of the quality departments are important. Further, in order for employees to voluntarily report and consult with their superiors about problems they identify, it is important for management to show that it welcomes reports and consultations from employees.

3. Measures to strengthen quality departments

It is necessary to strengthen the functions of the quality departments by expanding personnel in the quality departments, both in terms of quality and quantity; and the assignment of personnel capable of providing leadership in quality compliance to the quality departments in the headquarters, business divisions, and plants should be considered.

4. Enhancing and reinforcing the quality compliance system based on independence of business units

Based on the independence of business units, the existing way of supervision and auditing should be reviewed in order for business divisions and the headquarters to perform sufficient supervision over individual business units.

5. Management's commitment

Unless management demonstrates strong determination to eradicate quality irregularities, it will be impossible to change the mindset of employees. The determination of management must not be temporary. Management must demonstrate such determination to employees on an ongoing basis by incorporating it into the ongoing implementation of the measures to prevent reoccurrence.

3. Endeavors to Prevent Reoccurrence at PID

<1> Fostering a mindset focused on compliance and quality assurance

(1) Strong determination and unstinting effort on the part of management executives and ensuring that an understanding of the essence of quality assurance permeates the company

PID is aware of the need for management executives to serve as models for such behavior. Thus, management executives, by serving as role models, will prioritize not cost and deadlines but quality, will apply without wavering a policy of "Safety first, quality second, production third," will endeavor to eradicate quality irregularities, and will serve as models, thus promoting quality assurance activities with strong determination.

Additionally, in order to further deepen PID personnel’s understanding of the essence of quality assurance, under the headquarters’ leadership, education will be thoroughly conducted at each managerial level, from top management to the leaders of each department. Education on quality will be implemented for each level in accordance with the responsibilities and roles of the relevant level and positions, and periodic education (at least once a year) will be introduced, thereby strengthening the internal quality-related education systems.

<2> Mechanisms that reflect frontline voices and allow the job to be done properly

(1) Visualizing and sharing concerns and problems

Each work site will establish a Work In Progress (WIP) board to help visualize work delays and adopt a mechanism where problems are taken up. In addition, the WIP board will be utilized at morning/evening meetings, and thus mechanisms will be in place that promote face-to-face communication between supervisors and subordinates while they assist each other.

Through the establishment of HELP boards that share problems that require cooperation with other divisions and having management executives serve as models for departments across the company, and by making decisions that prioritize quality, PID aims for prompt and efficient solutions.

Further, assuming that there may be situations where it is difficult to speak up for whatever reason, PID will enhance mechanisms that make it easier for employees to speak up and continue with endeavors to take up employee voices, aiming to detect and remedy potentially inappropriate acts early.

(2) Transparency and strengthening of project management and gates to include management executives

At each decision point for planning, development, and mass production, PID will introduce objective determinations, such as expert reviews.

Further, the degree of development difficulty will be clearly defined based upon the difficulty levels of projects or safety-related matters, and such follow-ups will be implemented according to the degree of development difficulty as high-ranked development will be followed by the headquarters department.

<3> Strengthening quality departments and taking action during development steps to prevent irregularities from occurring or from reaching the customer

(1) Strengthening of check functions and ensuring effectiveness

Even though business units (the smallest management units at PID) have strong independence, in order to strengthen the oversight function so that the business divisions and the headquarters can adequately fulfill their audit responsibilities, as of October 2024, PID has undertaken to revamp its quality audit system to a system centered on the Audit Departments newly established within the headquarters quality departments.

(2) Quality personnel development and creation of systematic rotations

For quality control activities, in order for quality personnel to be able to fulfill the maximum potential

of their roles, PID will review the definitions of roles for each position.

Specifically, PID will establish regulations on the promotion of personnel and strengthen personnel development through education based on defined roles. Further, by defining the term of office for which a person in charge of quality can continue to serve as a person in charge of a department, PID will implement rotations of personnel that cross business division boundaries, endeavors to reform the closed-off nature of business divisions and revitalize the organization overall. Through this system, PID will promote the development of quality personnel and aims to contribute to improving the quality of the organization overall.

(3) Constructing a system to check conformity with customer-requested specifications and regulatory certification at each step

PID will objectively determine the feasibility of customer requirements in light of data and expert review. Adjustments will be made with customers regarding any customer requirements that are difficult to fulfill; and when such adjustments are difficult, the matter will be escalated to management executives who will then make adjustments directly with the customer.

Additionally, PID will manage the state of attainment of all customer requirements consistently, from placement of orders to mass production. By deploying IT systems for technical regulations as well as certification, PID will strengthen compliance with the many laws and regulations for each destination and product and will reduce the workload involved in the updating of laws and regulations and renewal of certifications.

(4) Preventing the reoccurrence of irregularities relating to official standards for UL certification

The factors behind the occurrence of irregularities in connection with UL certification and other official standards include the fact that, because the departments responsible for obtaining certification carried out management for the certification process, there was an opportunity for irregularities to occur.

Accordingly, as a mechanism for sample management that is designed to prevent opportunities for irregularities to occur at the new product development or mass production stages, PID will construct a mechanism for effective checks to be performed by three departments, where, when the sample production department, which is independent from the certification acquisition department, produces the sample based on the certification specifications, the quality department witnesses the production and immediately receives the samples. Further, for development of new products, PID will construct a mechanism that does not allow delivery of final products without obtaining certification that needs to be obtained for the products under development.

4. Voluntary Return of Remuneration

PID management takes the facts stated in the Investigation Report very seriously, and two senior officers have offered to voluntarily return of a part of their officer remuneration, with both returning 50% of their monthly base remuneration for four months.

- Panasonic Holdings Corporation, Representative Director, President, Group CEO and Panasonic Industry Co., Ltd., Director

Yuki Kusumi

50% of monthly base remuneration for four months

- Panasonic Industry Co., Ltd., Representative Director, President, and CEO

Shinji Sakamoto

50% of monthly base remuneration for four months

5. PID's Determination to Recover the Public's Trust

In light of the results of the investigation by the Committee, PID takes seriously the fact that the most significant factor behind the occurrence of the discovered irregularities was management's insufficient understanding of frontline developments. Going forward, PID will give top priority to the indicated measures to prevent reoccurrence, and the whole company will endeavor to prevent reoccurrence with the management executives leading endeavors and serving as models. PID is committed to making every effort to enhance the company's culture and will endeavor to regain the trust of its customers and the rest of society.

Attachments (links)

[Investigation Report \(Japanese Only\)](#): 1

[Investigation Report \(Summary Version\)](#): 1

[PID's Measures to Prevent Reoccurrence](#): 1

[Presentation Material](#): 1

For inquiries:

https://industrial.panasonic.com/cuif2/na/contact-us?field_contact_type=1203&field_contact_group=1797

About Panasonic Industry Co., Ltd.

Panasonic Industry Co., Ltd. is an operating company in charge of the device business within the Panasonic Group. The mission of the company states that "We will open the way to a better future and continue to contribute to an affluent society through a variety of device technologies." On a global basis, the company has about 41,000 employees and achieved net sales of 1,042.6 billion yen for the fiscal year ended March 31, 2024. Against this background of the explosion of data with the rise of the information-based society, and greater demands for the environment and safety for the mobility society, a labor shortage in manufacturing, the company will focus on areas where ongoing evolution is required and continue to provide

customer value with distinctive features of unique material and process technologies such as capacitors, EV relays, and electronic materials. Learn more about Panasonic Industry at <https://www.panasonic.com/global/industry>.