October 31, 2024

To Panasonic Industry Co., Ltd.

Investigation Report

(Summary Version)

External Investigation Committee

I. Background Leading up to Investigation and Overview of Investigation

Part 1 Background Leading up to Investigation

In April 2023, the Electromechanical Control Business Division of Panasonic Industry Co., Ltd. ("**PID**") learned that products it manufactured for and sold to certain customers did not satisfy the required specifications at the development stage, but without notifying the customers to that effect, the Electromechanical Control Business Division started mass production of the products.

PID reported the information to the relevant customers and consulted with them about making corrections, and at the same time, determined it was necessary to carry out company-wide inspections to eliminate quality irregularities. Subsequently, with support from Nishimura & Asahi (*Gaikokuho Kyodo Jigyo*) and Nishimura & Asahi Osaka Office (collectively, "**Nishimura & Asahi**"), PID commenced company-wide inspections in October 2023.

Specifically, it was decided that under the supervision of the Quality Center (also referred as the "**headquarters quality department**"), which is a part of the headquarters and is not involved in the development and manufacture of individual products, the investigation team internal to the company (the "**Internal Investigation Team**") would compile customer-required specifications for all part numbers of products manufactured by PID, and make sure that such products satisfied the required specifications. It was also decided that Nishimura & Asahi attorneys would take the initiative in carrying out a comprehensive questionnaire survey with respect to the employees of PID. In order to encourage candid reports in that survey, it was decided to introduce so-called "internal company leniency", under which, when where an employee voluntarily reported an irregularity in the questionnaire, if that employee became the subject of internal company disciplinary action, maximum consideration would be given to the fact that the employee voluntarily reported the irregularity. On the other hand, if an employee, despite being involved in a quality irregularity, did not voluntarily make a report to that effect, the employee would be strictly punished. This was clearly explained in the introduction of the questionnaire.

As such company-wide inspections were going on, in November 2023, during the inspection conducted by the Internal Investigation Team, irregularities in connection with registration of the UL Solutions ("**UL**")[1] certification were found regarding circuit board materials manufactured and sold by the Electronic Materials Business Division, and a subsequent additional investigation found irregularities in connection with registration of UL certification for a total of 52 part numbers of molding compound, encapsulation materials and electronic circuit boards.

PID took it seriously that quality irregularities relating to certification were found, and in January 2024, an external investigation committee (the "**Committee**") consisting

[1] UL is a nonprofit testing agency established by a US fire insurance agent in 1894, and for the purpose of protecting lives and properties against fire, theft and other accidents, sets safety standards, and tests, approves, registers, inspects, and carries out other services, for materials, components and products.

of external experts was established for the purpose of investigating the irregularities relating to UL certification, as well as other quality irregularities.

Part 2 Investigation System

The Committee consists of the following members:

- Kazumine Terawaki, attorney at Shin Bell Law Office, *chair*
- Masahiko Munechika, professor of quality management at Waseda University, *member*
- Haruka Matsuyama, attorney at Hibiya Park Law Offices, *member*

None of the Committee members has any interests in PID, and the Committee conducted investigations from an objective and impartial standpoint.

Given that the inspections conducted by PID were considered unobjectionable in terms of impartiality and fairness, and that internal company leniency was introduced into the questionnaire survey and other means to thoroughly reveal quality irregularities have been in place, the Committee decided to refrain from doing its own company-wide and comprehensive investigation and, instead, to conduct required investigations on cases that the Committee determined to be appropriate, on the basis of inspection results provided by PID, to scrutinize the details thereof and further investigate for purposes of a root cause analysis.

On the basis of the decision of the Committee to conduct investigations in close coordination with the inspections conducted by PID, from the perspective of securing continuous investigations, it was decided that 21 Nishimura & Asahi attorneys who were supporting PID's inspections would assist in such investigations.

Part 3 Overview of Investigation

The Committee scrutinized and considered the details of a variety of internal rules, meeting minutes, test performance reports and other materials provided by PID. Since January 31, 2024, the Committee conducted 318 interviews with 229 PID employees and others. Furthermore, with the assistance of FTI Consulting, the Committee preserved 594.92 GB of email data from mid-July 2021[2] until January 11, 2024, the day immediately preceding the date of establishment of the Committee, of any person who was an executive officer or executive director, such data being saved in the PID email server, and reviewed those emails after narrowing them down by keyword searches.

The Committee was established on January 12, 2024. The reference date for the report of the Committee's investigations is set to be October 24, 2024 ("**Reference**

[2] Because Industrial Solutions, the predecessor of PID, migrated email data to a cloud environment in mid-July 2021, the current email server stores only email data originating after the migration, and does not store any data prior thereto.

Date").

The following investigation results are a summary of facts, among other things, relating to quality irregularities found in the investigations conducted until the Reference Date that the Committee considers to be particularly important.

As of the Reference Date, PID is continuing its inspections. In view of the facts confirmed up to the date of this report, the Committee has taken the view that it would be useful for PID and its stakeholders if the Committee provided a root cause analysis and recommendations on measures to prevent reoccurrence. Therefore, the Committee has decided to make a public announcement of the investigation results at this point in time. It is noted that there is a possibility that new quality irregularities may be found in the inspections going forward. The Committee expects that PID will demonstrate a self-cleansing function on its own to reveal quality irregularities and take appropriate measures against the revealed quality irregularities.

II. Investigation Results

Part 1 Irregularities Relating to UL Certification Found in Investigations

1 Irregularities Found at Koriyama Plant, Circuit Board Materials Business Unit, Electronic Materials Business Division

The following irregularities have been found in Copper Clad Laminate developed at the Electronic Materials Business Division,[3] Circuit Board Materials Business Unit[4] at PID's Koriyama Plant.

First, for the products of 11-part numbers in total developed from 2010 to 2021, during the long term property evaluations, among other UL certification tests[5] conducted at the development stage, the target RTI[6] value was not achieved, and in order to avoid the discontinuation of the development, measurement data were changed, and consequently RTI values not based on the actual measurement data were registered with UL.

Next, for the products of two part numbers, one of which was developed from 2013 and the other of which was developed from 2016, during the flammability test, among other UL certification tests conducted at the development stage, the target flammability rating was not achieved, and in order to avoid the discontinuation of the development, the measurement data were rewritten and submitted to UL to obtain the registration of the

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3 Hereinafter, regardless of changes of organization names, the current Electronic Material Business Division and its predecessor organization are referred to as the "**Electronic Materials Business Division**".

4 Hereinafter, regardless of changes of organization names, the current Circuit Board Material Business Unit and its predecessor organization are referred to as the "**Circuit Board Material Business Unit**".

5 The Koriyama Plant was qualified to conduct long term property evaluations and other prescribed tests on its own on behalf.

6 RTI is an index that indicates the durability of plastic against heat applied for an extended period of time (thermal resistance).

flammability rating that was the development target for the products.

In addition, it was also found that in 2013, 2014, 2019 and 2020, during the bending test, the tensile test and other short-term tests, among other UL tests conducted at the development stage, the measurement data were rewritten and submitted to UL. The irregularities occurred on the products of five part numbers, each of which was also the subject of the above irregularities relating to the long term property evaluations.

Some of the persons involved in the changes stated that they thought there should be no quality issues, or that because such changes occurred continuously over the years, they were not aware of potential irregularities.

Around October 2020, investigations conducted in the wake of the intercom case[7] found that the long term property evaluations data of multiple Copper Clad Laminates were changed at the development stage, and that there were cases where special samples of the Copper Clad Laminate manufactured at the Ayutthaya Plant explained in 2 below were submitted to UL at the time of FUS[8].

On June 8, 2022, the investigation results above were reported to the director of the Electronic Materials Business Division, the director of the Circuit Board Materials Business Unit, and other Electronic Materials Business Division executives of that time.

Regarding the irregularities relating to RTI, it was decided to organize the relevant part numbers and the relevant customers and confirm the actual values, and not to revise data going forward. However, it was decided that whether or not, and what, to report to the headquarters would be determined depending on the result of confirming the actual values. How to report to UL and customers was not discussed. The directors of the Electronic Materials Business Division and the Circuit Board Materials Business Unit at that time explained the reason behind the decision by stating that even if a report was given without knowing the true actual values, customers would get confused, and thus, the first step was to confirm the true actual values. The Business Division Quality Departments General Manager at the time stated that because this was a case of irregularity, he suggested reporting to the headquarters. But the directors of the Electronic Materials Business Division and the Circuit Board Materials Business Unit at that time insisted on first understanding the true actual values, and at the same time, the General Manager was disturbed by the magnitude of the situation, and he ultimately acquiesced to those directors' opinion[9].

Regarding the irregularities that occurred during the periodic audit at the Ayutthaya

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7 This was a case where it was found in March 2020 that in connection with apartment intercoms manufactured and sold by then Life Solutions Company, estimated sound pressure values of fire and gas alarms, instead of actually measured values, were submitted to the Japan Intercom Industry Association.

8 FUS is "Follow-Up Services" provided by UL in which UL periodically conducts unannounced audits at the manufacturing sites to confirm whether UL certified products in mass production have the same performance as when they were certified..

9 The director of the Electronic Materials Business Division at the time stated that he could not recall that the Business Division Quality Departments General Manager at the time and others suggested reporting to the headquarters.

Plant explained in 2 below, reports to the headquarters, UL and customers and a course of action going forward or the like was not specially discussed, or included as an agenda item, at the follow-up meeting held on June 22, 2022. Each of the Business Division Quality Departments General Manager and the director of the Circuit Board Materials Business Unit of that time explained the reason therefore by stating that they understood that the irregularities had ended by the time of report, and they did not pay particular attention to them[10].

In December 2022, the director of the Electronic Materials Business Division was replaced, but information regarding the irregularities was not communicated to the new director, and the irregularities were not reported to the headquarters, UL or customers. In the wake of subsequent company-wide inspections on quality irregularities at PID, the Business Division Quality Departments General Manager reported the above irregularities relating to RTI to the director of the Electronic Materials Business Division. In response to the report, the director of the Electronic Materials Business Division decided to immediately report the irregularities to the headquarters, and instructed the possibility of similar irregularities to be investigated. The irregularities that occurred during the periodic audit at the Ayutthaya Plant explained in 2 below were also reported to the director of the Electronic Materials Business Division, and the business division director decided to report the irregularities to the headquarters. On November 27, 2023, both types of irregularities were reported to the headquarters' Compliance Response Committee, and the PID headquarters finally became aware of the irregularities.

2 Irregularities Found at Yokkaichi Plant and South Yokkaichi Plant, Plastic Materials Business Unit, Electronic Materials Business Division, and the Ayutthaya Plant, Circuit Board Materials Business Unit, Electronic Materials Business Division

The following irregularities were found at the Electronic Materials Business Division, Plastic Materials Business Unit[11] at the Yokkaichi Plant and South Yokkaichi Plant.

At the latest from the 1980s for molding compound[12] and encapsulation materials[13], and between 2011 and 2014 for circuit board materials, although raw material compounding ratios were modified after those materials were registered with UL certification, those materials were manufactured and sold as child part numbers linked to the parent part numbers without making an application to UL. Products that were the subject of the irregularities were products representing 60 part numbers of molding compound, 43 part numbers of encapsulation materials and two part numbers of circuit

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10 The director of the Electronic Materials Business Division at the time stated that he could not recall that he received a report on the irregularities at the time of the periodic audit at the Ayutthaya Plant.

11 Hereinafter, regardless of changes of organization names, the current Plastic Materials Business Unit and its predecessor organization are referred to as the "**Plastic Materials Business Unit**".

12 Molding compound are resin (plastic) molding compound used for on-board components, household electric appliances and the like.

13 Encapsulation materials are resin materials that protect semiconductor elements from heat, humidity, light, physical impact and other external stress.

board materials, of which 15 part numbers of molding compound and 22 part numbers of encapsulation materials did not achieve the UL-certified flammability rating.

No internal rules for whether or not to make an application to UL were put in place, and it was misunderstood that if a child part number of a newly developed product shared the same ID [14] as the parent part number and was determined to have the same flammability as the parent part number, it was unnecessary to change the registered part number, and said child part number could be manufactured and sold as a product linked to the parent part number. Thus, operations were continued on the basis of such misunderstanding.

Similar irregularities were also confirmed at the Ayutthaya Plant. Between around 1996 at the latest and April 2024, although raw material compounding ratios of two part numbers of Copper Clad Laminate were modified after those part numbers were registered with UL certification, those part numbers were manufactured and sold as child part numbers linked to the parent part numbers without making an application to UL. The product of one of the part numbers was found not to achieve the UL-certified anti-tracking property rating as a result of the internal investigation at the time the Committee's investigation was started.

Further, from the 1980s, during FUS, product samples of part numbers of molding compound and encapsulation materials different from the part numbers designated by UL inspectors for submission were submitted. Regarding circuit board materials, during FUS and the periodic audit conducted by CMJ[15] and BSI[16] at the latest from around 2007, if a product that was rarely manufactured was designated by each certification agency for submission, a product that had been manufactured in advance and stored was submitted as a sample.

Similar irregularities were also confirmed at the Ayutthaya Plant. Between 2014 at the latest and 2021, regarding Copper Clad Laminate, at the time of FUS by UL, the periodic audit of CMJ, and the renewal screening of BSI, a special sample different from that designated by the relevant certification agency for submission was submitted to the relevant certification agency in order to pass the relevant test.

By around 2005 at the latest, there were many cases where the preliminary inspections conducted by the factory quality department prior to sample submission found that a molding material or a semiconductor encapsulation material did not share the same ID or the same flammability as the parent part number.

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14 If a chart generated from an analysis of chemical composition could be determined to be the same as the REF chart of the UL-certified parent part number, it was considered that products before and after modification were substantially the same and could thus share the same ID.

15 CMJ is an abbreviation of the Certification Management Council for Electrical & Electronic Components & Materials of Japan, which is a certification agency that evaluates and registers components and materials in advance for economically and efficiently certifying electric appliances in accordance with the technical standards under the Electrical Appliance and Material Safety Act.

16 BSI is an abbreviation of the British Standard Institution, which is a body that sets quality and safety standards for products and services in a variety of fields.

The Factory Quality Department General Manager reported the above issues several times from FY2016, including at the state of improvement at the Plastic Materials Business Unit policy announcement meeting, which the director of the Plastic Materials Business Unit attends. But it was never discussed at this meeting that this fact should be reported to customers, UL or PID headquarters.

The Business Division Quality Departments General Manager also became aware of the above issue, and he reported such issue and the state of improvement at the business review meeting of the Electronic Materials Business Division held in September 2020. However, the Business Division Quality Departments General Manager thought it should be resolved within the Electronic Materials Business Division, and he did not report the issue to the headquarters. The director of the Electronic Materials Business Division at the time did not give instructions to report the issue to customers, UL or the headquarters.

From December 2021 to around February 2022, the director of the Plastic Materials Business Unit and others explained the situation to the director of the Electronic Materials Business Division, the Marketing & Sales Coordination Department Director and others. However, even thereafter, the fact of manufacturing and selling products having a compounding ratio different from the one registered with UL was not reported to customers or to PID headquarters.

3 Irregularities Found at Matsue Plant, Device Solutions Business Division Film Capacitor Business Unit

With respect to film capacitors[17] that were developed and manufactured at the Device Solutions Business Division,[18] Film Capacitor Business Unit[19] at the Matsue Plant, products that did not meet UL and other certification standards were shipped. Further, special samples were prepared and submitted to certification agencies in order to ensure that the samples would pass the tests conducted by the certification agencies during the audits and the renewal screening[20] for each certification.

The products that were subject to irregularities were three part numbers of film capacitors that were manufactured and sold between around 1985 and 2021 (hereafter, these three part numbers will be referred to collectively as "**conventional products**").

The plant manager of the Matsue Plant became aware of the foregoing irregularities in FY2016 at the latest when a company-wide quality compliance survey was conducted,

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17 A film capacitor is a type of capacitor (a component that stores electricity and discharges the stored electricity when necessary) that uses plastic film as a dielectric. The film capacitor with respect to which irregularities were found is a film capacitor for power circuits, which is attached to AC adapters and power cords to prevent electronic equipment from being damaged by sudden voltage changes by temporarily storing and discharging electricity.

18 Hereinafter, regardless of changes of organization names, the current Device Solutions Business Division and its predecessor organization are referred to as the "**Device Solutions Business Division**".

19 Hereinafter, regardless of changes of organization names, the current Film Capacitor Business Unit and its predecessor organization are referred to as the "**Film Capacitor Business Unit**".

20 When the standard for each certification is changed, it is necessary to undergo another screening to update the previously obtained certification.

but no decision was made to explain to the certification agency or customers that the conventional products did not meet the standards. In 2018, a new General Manager of the engineering department assumed the post, and it was reported to the business unit director and business division director at that time that the conventional products did not meet the standards. However, no decision was made to explain this fact to the certification agencies or customers.

The Quality Assurance Department General Manager at the time stated that since there were no market problems with the conventional products, it was unlikely that customers would experience safety problems while using the conventional products. However, there were a number of customers to whom the subject products were delivered, and he was concerned that if he reported the problems to the certification agencies or to customers, shipments of the conventional products would be stopped, which would cause confusion. The General Manager of the engineering department at the time also stated that he did not think it necessary to immediately end the sale of the conventional products because there were no market problems.

Subsequently, the sale of the conventional products ended in December 2021, and the fact that special samples were used for the conventional products and that products that did not meet the standards were shipped was reported to the Representative Director, President, Executive Vice President, and CLO Managing Executive Officer of PID and others around January 2022. However, no report was made to the certification agencies or customers on the grounds that the manufacture and sale of the products in question had already ended, there were no problems in terms of safety or actual use, and there was no information about market problems.

4 Irregularities Found at FA Device Business Unit, Industrial Device Business Division

Regarding the PLC products[21] that were being manufactured and sold by Panasonic Device SUNX Corporation, some parts of the power supply units of the PLC products that had been certified by UL were changed around October 2014 and the company continued to manufacture and sell the same power supply units without submitting the change application to UL.

The reason that the change application was not submitted to UL at the time of the 2014 change of parts appears to be that the engineers had forgotten about the internal procedure. In 2016, an engineer at the business division quality department noticed the omission of the above change application, but on the grounds that it did not cause any safety issues, it was decided to make the change application all at once when the UL procedure[22] needed to be changed for other reasons in the future, and such change

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21 PLC (Programmable Logic Controller) products are control devices (controllers) used to control equipment and facilities and are mainly used in plant lines that handle industrial robots. For example, for the process of filling a container with drinking water and closing the lid at a beverage manufacturer's plant, the controller plays the role of programming and automating the process of filling the container with water when a sensor detects the container and closing the lid when the container is filled with water.

22 UL procedure is a report issued by UL describing contents of certification.

application was not made until 2023.

Part 2 Incidents Identified in Inspection Activities by PID

1 Status of Company-Wide Inspection Activities

PID's company-wide inspection activities were conducted in parallel with inspections by the Internal Investigation Team and a comprehensive questionnaire survey led by Nishimura & Asahi attorneys.

As of the Reference Date, the inspections conducted by the Internal Investigation Team and the questionnaire survey have identified 93 quality irregularities, including the irregularities related to UL certification described above, for PID as a whole, broken down by business division as follows.

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

These quality irregularities can generally be categorized as follows: (1) cases where a change in "Man, Machine, Material, or Method" (a so-called 4M change) was made, and the company did not apply for or agree to the change with the customer despite being required to do so; (2) cases where the company did not conduct a test as agreed with a customer, or where a test result failed and the company made a report with a rewritten result to the customer; (3) cases where products were shipped even though they did not meet the specifications agreed upon with the customer; (4) cases in which a incorrect explanation was given to a customer, and (5) unintentional cases due to the negligence or misunderstanding of engineers.

Based on these quality irregularities, the Committee analyzed the root causes and considered measures to prevent reoccurrence as described in IV below. The following cases are those that the Committee considered particularly important from the viewpoint of root cause analysis and for which it conducted further in-depth investigations.

2 Irregularities Found at Yokkaichi Plant and South Yokkaichi Plant, Plastic Materials Business Unit, Electronic Materials Business Division

(1) Change of Inspection Results Sheets

At the Yokkaichi Plant and the South Yokkaichi Plant, from the 1980s at the latest until around March 2024, irregularities occurred in the inspection of encapsulation materials and molding compound, where inspections were not conducted or inspection results sheets were changed for multiple inspection items agreed upon with customers. The products and part numbers for which a change of inspection results sheets, etc., was found are as follows.

Products		Total Number of Part Numbers	Part Numbers with Irregularities Found
Encapsulation materials	Semiconductor encapsulation materials	243	127
	Liquid type encapsulation materials	181	51
Molding compound	Phenolic molding compounds	75	37
	Urea molding compounds and melamine molding compounds	239	114
	Unsaturated polyester molding compounds	52	8
	PBT/PP/LCP molding compounds	68	36

Some of the persons who were involved in the irregularities stated that they were involved because they had promised to conduct inspections as required by customers despite the lack of personnel and equipment, and that no quality issue would occur in relation to the customer's use.

(2) Change of Lot Numbers

The Yokkaichi Plant, the South Yokkaichi Plant, the Ayutthaya Plant, and the Shanghai Plant from the 1990s at the latest shipped products beyond the ship-by dates agreed upon with customers until around June 2024 for powder type encapsulation materials and until around January 2023 for liquid type encapsulation materials. In these cases, engineers at the manufacturing departments changed the lot numbers of the products in question.

The change of lot numbers described above occurred at the South Yokkaichi Plant for liquid type encapsulation materials, as well as at the South Yokkaichi Plant, the Ayutthaya Plant and the Shanghai Plant for powder type encapsulation materials. The numbers of affected customers and lots of products subject to the lot number change over the past three years are as follows.

	Yokkaichi Plant	Ayutthaya Plant	Shanghai Plant	Total
Number of Affected Customers	88/138 companies (64%)	43/70 companies (61%)	6/88 companies (7%)	137/296 companies (46%)
Number of Affected Lots	1662/15142 lots (11%)	527/21430 lots (2.5%)	11/16896 lots (0.07%)	2200/53468 lots (4.1%)

(3) Shipment of Products That Did Not Meet Standards

The Yokkaichi Plant and the Ayutthaya Plant shipped encapsulation materials and molding compound that deviated from the standards specified in the delivery specifications agreed upon with customers from the 1990s at the latest until around March 2024.

Although the cause of the above irregularities could not be confirmed, one of reasons for the failure to meet the specifications may have been that there was insufficient cross-departmental deliberation and confirmation as to whether data at the time of development of the newly developed products satisfied the customer's required specifications. Also, some of the respondents stated that this may have been due to the fact that management did not conduct sufficient checks due to personnel shortages, and product development was left to the engineers in charge.

(4) Response to Irregularities After Identification

The change of inspection results sheets, as described in (1) above, took place starting in the 1980s at the latest, and the change of lot numbers, as described in (2) above, starting in the 1990s at the latest. Despite the involvement of a wide range of employees, including managers, the issue was not addressed over the years.

Around 2018, irregularities such as change of inspection results sheets related to encapsulation materials were discovered at another company, which resulted in the development department manager, and Factory Quality Department General Manager to take the lead in launching corrective initiatives, and then reported the status of these initiatives to the Plastic Materials Business Unit director at that time at the policy presentations for FY2019 and FY2020. However, the business unit director did not issue instructions to report this issue to customers because it was confirmed that there were no problems in actual use by the customers.

Further, during the 2020 emergency quality compliance survey, the Plastic Materials Business Unit director and the Factory Quality Department General Manager at that time reported to the Electronic Materials Business Division director at the time the above change of the inspection results sheets, but the business division director did not issue instructions for reports to customers or to the headquarters.

In 2021, a similar case of change of inspection results sheets was discovered at the Koriyama Plant of the Electronic Materials Business Division, but again, the Electronic

Materials Business Division director and Plastic Materials Business Unit director did not report the issue to the customers or the headquarters.

3 Irregularities Found at Subsidiary Plant Under the Umbrella of the Electromechanical Control Business Division

(1) Incorrect Report on In-process Defective Rate and Inappropriate Handling During Process Validation

At a subsidiary plant under the umbrella of the Electromechanical Control Business Division[23], from the second half of the 2000s at the latest, under the executive officer supervising the engineering department of the subsidiary, the executive officer supervising the quality department and others, the in-process defective rate[24] in the manufacture of a relay product for a particular customer ("**Customer 1**") that was different from the actual in-process defective rate was incorrectly reported to the customer. Furthermore, at the subsidiary, between around the second half of the 2000s and 2022, in order to avoid the incorrect reports of the in-process defective rate being discovered during the process validation conducted by Customer 1, the inspection equipment settings were changed so that no defect would be found in the in-process inspection.

Some management of the subsidiary were aware of the above irregularities.

(2) Incorrect Report on Durability Test at Development Stage

At the subsidiary plant, although a relay product for a particular customer ("**Customer 2**"), who is different from Customer 1, did not achieve the standard insulation resistance value agreed upon with Customer 2 in the operation durability test conducted after a solenoid was connected and also caused deficiencies in the continuous current test, around September 2017, after consultation with the executive officers of the subsidiary, an incorrect report was provided to Customer 2 indicating that the insulation resistance value measured in the operation durability test conducted after a solenoid was connected had satisfied the standard value, and no particular deficiencies had occurred in the continuous current test.

The vice president of the subsidiary and the sales department manager of the Electromechanical Control Business Division were informed of deficiencies in the continuous current test, but they did not act upon such information.

4 Irregularities Found at Ise Plant, Relay Business Unit, Electromechanical Control Business Division

At the Electromechanical Control Business Division Relay Business Unit at the Ise

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[23] Hereinafter, regardless of changes of organization names, the current Electromechanical Control Business Division and its predecessor organization are referred to as the "**Electromechanical Control Business Division**".

[24] In-process defective rate collectively means production quantity, in-process defect quantity, in-process defect breakdown, and other information indicating the defect rate in the manufacturing process.

Plant, from 2009 at the latest, although multiple mechanical relay products failed the quality evaluation test conducted by the business division quality department, the products stayed in mass production and kept being shipped without undertaking any particular improvement measures. For some of these products, customers were given incorrect reports that the products passed the quality evaluation test above.

Persons who were involved in the irregularities thought that there should be no issues with product performance and safety, even in a case where the relevant products did not pass the quality evaluation test, for the reasons that similar quality and performance had been confirmed with test samples before and after the relocation of production, that, regarding products that had been mass produced and shipped theretofore, many customers placed priority on in-house test results, and that it was very rare to receive complaints from customers or the market.

It was confirmed that some of the department managers in charge and managers who were involved in or aware of the above irregularities had been promoted to the business unit director position.

5 Irregularities Found at Chitose Plant, Inductor Ceramic Business Unit, Device Solutions Business Division

At the Device Solutions Business Division Inductor Ceramic Business Unit at the Chitose Plant, between around June 2009 at the latest and around November 2023, although the resistance value of chip type Thermistor measured during an outgoing inspection deviated from the resistance value tolerance set forth in the delivery specification sheet, it was treated as having passed as long as the measured value satisfied the self-set internal shipment standards, and a value different from the actually measured value was entered in the outgoing inspection certificate.

6 Irregularities Found at Koriyama Plant and Guangzhou Plant, Circuit Board Materials Business Unit, Electronic Materials Business Division

From May 2015[25] at the latest to around April 2016, there were at least four cases[26] of irregularities at the Koriyama Plant that during the CAF[27] tests of multiple part numbers of the Copper Clad Laminate conducted upon request from customers, managerial staff of the engineering department instructed engineers in charge to rewrite measurement data, and the rewritten data were reported to the customers. The managerial staff of the engineering department at that time gave instructions to engineers in charge that if measurement data that did not meet the standard were reported to a customer, it might cause a delay in the customer's development schedule or otherwise cause trouble for the customer, and if it could be technically determined that there should be no problems with the performance of the Copper Clad Laminate, the measurement data

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25 There is one person who stated that there were irregularities before the 2010s, but because the Koriyama Plant does not keep the raw data of CAF tests before 2011 (inclusive), the existence of irregularities could not be confirmed.

26 Because the investigation is continuing, the number of cases may increase going forward.

27 CAF is an abbreviation of Conductive Anodic Filament.

should be revised before reporting to the customer.

Also, at the Guangzhou Plant to which the employee involved in the irregularities at the Koriyama Plant was seconded, between around March 2019 and around January 2024, there were at least 23 cases[28] of irregularities where, measurement data were revised, and the revised data were reported to customers.

Part 3 Quality Inspections in the Past

Since FY2016, PID has been conducting every fiscal year a survey of quality compliance ("**Quality Compliance Survey**") to validate whether the system to ensure quality compliance is working. In the Quality Compliance Survey, each business unit director is primarily responsible for the inspection, and it is stipulated that each Factory Quality Department General Manager shall carry out a self-inspection with a checklist and report the result to each business unit director for approval[29]. Then, each business unit director reports the self-inspection result to the business division directors, and after the inspection result is confirmed and approved by each business division director, it shall be reported to the headquarters quality department and Executive Officer in charge of Quality Management (CQO).

Taking the Electronic Materials Business Division as an example, among other business divisions with which UL certification-related irregularities were recently uncovered, below is the specific status of the Quality Compliance Survey.

In July 2020, in the wake of the intercom case, when an emergency Quality Compliance Survey was carried out, both of the Factory Quality Department General Managers of the Plastic Materials Business Unit and the Circuit Board Materials Business Unit at that time were indicated as being aware of the quality irregularities at the Yokkaichi Plant. However, concerned that revealing the problem would have serious consequences, and also thinking that it was unnecessary to describe the irregularities because corrective activities were ongoing, both managers answered that there were no issues.

The director of the Electronic Materials Business Division at that time was aware of the irregularities at the Yokkaichi Plant, but believed that a report to the headquarters would have serious consequences, cause issues for customers, and that it was unnecessary to report to the headquarters because the irregularities were being corrected, he submitted to the headquarters quality department a confirmation report indicating that no particular improvements or corrective measures were necessary.

In October 2020, the vice director of the Quality and Environment Division of Panasonic Corporation at that time and others carried out interviews with the director of the Electronic Materials Business Division, the business division quality department manager, the directors of the Plastic Materials Business Unit and the Circuit Board

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[28] Because the investigation is continuing, the number of cases may increase going forward.

[29] Until the FY2020 Quality Compliance Survey, it was stipulated that each department manager would conduct a self-inspection and report the inspection results to the business division director.

Materials Business Unit, the Factory Quality Department General Managers and others. Although some of these interviewees were aware of the existence of irregularities, none of them reported the irregularities.

The Quality Compliance Survey was carried out in FY2021 and FY2022, and some of the directors of business units and business divisions who complied with the survey were aware of the quality irregularities at the Yokkaichi Plant or other plants, but they did not report the quality irregularities for substantially similar reasons.

III. Quality Compliance Efforts at PID

Part 1 Organization of Quality Departments

In general, PID has a department engaged in quality assurance work (the "**quality department**") at each of the headquarters, business divisions and plants.

The headquarters quality department is responsible for directing quality management activities[30], improving quality management activities by business divisions[31], providing support to resolve product defects and other quality issues found at business divisions, and communicating the instructions of the president and officers in charge of quality to business divisions. The business division quality department is responsible, in view of the above quality management activities directed by the headquarters quality department, for directing quality management activities promoted by the business divisions, improving quality management activities at plants, providing support to resolve product defects and other quality issues found at plants, and communicating instructions of the business division director to plants. The factory quality department is responsible for implementing the quality management activities instructed by the business division quality department, and promoting quality management activities to support the development, production and sale of a products manufactured at the plant and to satisfy after-sales services and other customer requirements.

It is stipulated that a quality compliance case[32] found at a plant is to be reported by the factory quality department and the business division quality department to, and discussed with, the headquarters quality department, and subsequently, reported to the administrative office of the Compliance Response Committee. The headquarters quality department is responsible for providing support for root cause analysis and reoccurrence prevention of quality compliance cases carried out by a business division, and communicating the quality compliance case to the other business divisions to improve quality compliance. The business division quality department is responsible for investigating, analyzing the root causes of and preventing the reoccurrence of quality

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30 Quality management activity means taking measures to prevent the occurrence of product defects, carrying out root cause analysis and preventing reoccurrence when a product defect occurs, and the like.

31 This includes, for example, in a case where a certain business division is spending more time than the other business divisions on root cause analysis and reoccurrence prevention when a product defect occurs, validating the cause of the difference, providing support for improvement, and the like.

32 A quality compliance case means a case of actual or suspected breach of laws and regulations, internal rules or other requirements concerning the quality of products and services caused by an irregularity intentionally carried out by an individual or organization with a motive.

compliance cases, and reporting quality compliance cases to the business unit director, the business division director and the executives of the headquarters. It is also responsible for managing and supervising the investigation, root cause analysis and reoccurrence prevention of quality compliance cases carried out within the plant.

Part 2 Major Quality Assurance Efforts and Education

At PID, the headquarters quality department establishes a quality policy for each fiscal year. For the last 10 years, the headquarters quality department had consistently set "to achieve No. 1 quality in the industry with zero defects as the standard" as a policy, and aimed at "securing delivery of products free of quality issues to customers", with the number of critical quality issues and the amount of quality loss cost as indexes indicating the level of achievement of the target, and was promoting across the company the implementation of measures based on the policy via the business division quality department and the factory quality department.

In this regard, from FY2014, the headquarters quality department communicated policies, including promoting personnel rotations in the quality department and employing quality personnel as efforts to secure human resources, but it does not necessarily mean that business divisions fully carried out personnel rotations and employed quality personnel in accordance with such policies. For example, at the Electronic Materials Business Division, the quality department did not actively implement personnel rotations, and until FY2023, did not resort to mid-career recruitment, as a result of which the employment of quality personnel was not implemented at full scale.

In terms of education, until FY2020, PID was mainly making efforts to prevent the occurrence of deficiencies and to strengthen the system and educational activities in order to ascertain problems at an early stage, but made little effort to strengthen the system and educational activities to comply with laws and regulations, official standards and agreements with customers.

However, after the intercom case, from FY2021, as a quality policy, the headquarters quality department began clearly referring to compliance with a variety of regulations requiring compliance in the process of product production, requirements agreed upon with customers and the like.

It was around that point in time that at PID, the headquarters quality department and the business division quality departments began providing education on quality compliance. On the basis of quality management activities conducted by the headquarters quality department, the business division quality departments also began providing education on quality compliance.

However, taking the Electronic Materials Business Division as an example, at morning meetings of employees at each plant, managerial staff of each department called for quality compliance among their subordinates, but due to a shortage of human resources, awareness of quality compliance was not communicated through specific individual education and training programs for employees. The headquarters quality

department should have demanded reports on the state of education and training from the business division quality department and the factory quality departments, but it did not do so, and thus did not understand the state of education and training within business divisions, business units and plants.

Part 3. Status of Implementation of Quality Audits

1 Audits by Headquarters Quality Department

Until FY2020, the headquarters quality department managed the progress of audits called "Quality Diagnosis" conducted by the business division quality departments for the business units and plants of the divisions to which the quality departments belonged, by having each business division quality department formulate and submit an implementation plan, and also horizontally disseminated the quality issues identified as a result of the audits to other business units and plants.

From FY2021, the headquarters quality department had become more aware of the fact that irregularities in the production process could cause loss of trust from customers and society, and had decided to newly conduct a "Company Audit" with an awareness of quality compliance, such as process compliance.

Specifically, a Company Audit is conducted by the headquarters quality department by receiving and examining relevant materials from the plants subject to the audit and the business divisions to which the plants belong, or by conducting interviews with managerial staff and employees of the plants concerned. In a Company Audit, a check sheet is used to confirm that a system is in place to prevent irregularities and ensure the reliability of operations at the plant. However, in a Company Audit, such confirmation was not performed to find quality compliance issues as comparing raw data from inspections and data from inspection results sheets submitted to customers as samples or by other methods. In addition, the audit had not reviewed whether the business division quality departments or factory quality departments confirmed that there were no quality compliance issues at the relevant plants and whether the confirmation method was appropriate.

2 Audits by Business division Quality Departments

Audits conducted by the business division quality departments are also called "Quality Diagnosis." Audit items and implementation methods are not determined by the headquarters quality department, but are formulated on a voluntary basis by each business division quality department based on its actual situation.

Taking the Electronic Materials Business Division as an example, a check sheet is sent to several business units and plants under the control of the division every year, and the business units and plants are required to fill it out and submit it after confirmation by the business unit director. The business division quality department of the Electronic Materials Business Division visits some business units and plants among those that submitted the check sheet to conduct audits based on the answers to the check sheet. The main purpose of such audit was to confirm whether a system to prevent quality-related

problems from occurring at each business unit or plant was properly in place and to point out matters to be improved. Such audit did not directly aim to confirm whether there were any quality compliance issues. Therefore, in such audit, such confirmation was not performed to find quality compliance issues as comparing raw data from inspections and data from inspection results sheets submitted to customers as samples or by other methods. In addition, the audit did not check how the factory quality departments confirmed that there were no quality compliance issues at the relevant plants and whether the confirmation method was appropriate.

3 Audits by Factory Quality Departments (Voluntary Inspection)

At a given plant, the factory quality department controls and conducts audits (voluntary inspections) at such plant every year.

Taking the Koriyama Plant under the Circuit Board Materials Business Unit as an example, each department under the business unit conducts an audit once a year, and the Koriyama Plant also conducts such audit. The factory quality department at Koriyama Plant is in charge of these audits and formulates a plan for which departments are to audit which departments. Actual audits are conducted by one or more qualified internal auditors assigned to each department.

A factory quality department prepares a template of check items for the above-mentioned internal audit, and internal auditors conduct the audit according to the template. Check items related to quality included whether the plant had a quality control system in line with ISO standards or had evidence of quality control in accordance with the system, but did not include any check items to confirm whether irregularities were committed, such as whether the original data matched the figures on reports submitted to external parties.

Part 4 Internal Report System

The internal report system that is common to the Panasonic Group has also been applied to PID. Until July 2018, the system was called the “Panasonic Business Ethics Hotline”, but since August 2018, it has been called “EARS.” Since the introduction of EARS, the prior system using e-mail, fax, or letter as the reporting means has become more convenient, as it is now possible to report anytime, 24 hours a day, 365 days a year, through a dedicated website in addition to a telephone hotline. In addition, the internal report system is made known to employees within PID through a portal site on the company intranet that they can access, as well as posters and other means. EARS allows anonymous reporting and reporting to an outside law firm.

On the other hand, the number of reports of quality irregularities at PID was zero from FY2017 to FY2019, two in FY2020, one in FY2021, seven in FY2022, and 22 in FY2023. Although the number is increasing, it is not large.

As for the background of the insufficient number of reports of irregularities related to quality through the use of the internal report system, in interviews, several respondents stated that they were not aware of the internal report system in the first place, that they

were worried about being treated unfavorably if they made a report, that they did not think it was necessary to report irregularities because their supervisors and business division directors were aware of the irregularities, or that they would feel guilty if others were punished because of their report.

IV. Root Cause Analysis and Measures to Prevent Reoccurrence

Part 1 Root Cause Analysis

1 Insufficient Understanding of the Essence of Quality Assurance

The employees who were involved in quality irregularities stated that, as reasons for their involvement, they thought that they should not delay development, stop shipments, or cause confusion in the market. It can be seen that the pressure of development schedules and responsibility for supply was behind the quality irregularities. In many of the recently uncovered cases of quality irregularities, the employees, under such pressure, acted in ways that led to quality irregularities while justifying their conduct by saying "there are no safety or performance problems."

However, the focus of quality assurance is customer requirements, and the essence of quality assurance is to clearly state those requirements as a promise and provide evidence that the promise is being kept. In other words, quality assurance is an activity to prove the quality promised to the customer, and it is important to confirm the quality and present it to the customer according to a predetermined process.

The act of shipping safe products or shipping products with the performance required by the customer hardly captures the entire picture of quality assurance. Quality assurance can be said to have been achieved only when the quality agreed upon with the customer is verified through a predetermined process and the results are accurately reported to the customer.

If there had been no safety or performance problems in the first place, the company should have shown the basis for that fact to the customer and omitted testing or eliminated the need to register certification of the standards.

At PID, the essence of such quality assurance was not fully understood, and, therefore, it is believed that the quality irregularities occurred and continued for a long period of time under the easy justification, "there are no safety or performance problems."

In addition, in reviewing the series of quality irregularity cases uncovered at PID, the Committee has found that a characteristic feature of the cases is that in many cases, the existence of quality irregularities was known among employees, including those in higher positions but continued for many years. This may suggest that the employees involved had a low sense of guilt, and at the same time that the insufficient understanding about the essence of quality assurance is a significant problem.

2 Insufficient Education Concerning Quality Assurance

It is difficult to be convinced of the concept of quality assurance, which is to prove

quality through a defined process, and it is not necessarily consistent with the simple sense of ethics held by many employees. Because of this difficulty, companies need to repeatedly provide education that goes back to the essence of quality assurance. However, it is difficult to say that PID has sufficiently conducted educational activities on quality assurance.

For many years, quality has been one of the most important values at PID, but the emphasis has been on reducing loss cost, preventing product defects, and improving process capability. Process compliance, such as keeping promises to customers, has been emphasized since 2021.

For example, after the establishment of the Committee, the top management of PID explained to employees the importance of proving quality through established processes, but top management may not have adequately explained the importance of process compliance to employees before the establishment of the Committee.

In addition, it was not until 2021 or thereafter that the headquarters quality department provided specific education and training on the concept of quality assurance, including the process approach, for business division directors, business unit directors, business division quality department managers, and the Factory Quality Department General Managers. Taking the Electronic Materials Business Division as an example, no specific education or training on the concept of quality assurance, including the process approach, was provided within the division or the relevant plants even after 2021.

3 Attitudes of Certain Executives

The insufficient awareness of quality assurance stated above is not only a problem for frontline employees.

There were several cases found in which not only business unit directors but also business division directors were aware of quality irregularities, but many of the business division directors who were aware of the quality irregularities deemed it unnecessary to report such irregularities to the headquarters or to customers, and no facts have been found that they proactively gave instructions to correct such quality irregularities as soon as possible or to investigate whether similar quality irregularities had occurred.

The insufficient awareness of quality assurance is a problem that equally applies to these executives of business divisions. Moreover, underlying the judgment of the executives of business divisions was the desire to avoid any negative impact on business execution by revealing the existence of quality irregularities. They cannot be blameless for putting sales and profits ahead of quality.

4 Issues in Building an Organization to Do the Job Properly

Looking at the details of the irregularity cases, it is clear that they include a change of test data or inspection results sheets, sample switching, and other acts that could be

seen as inappropriate by a reasonable observer, even if he or she does not know the essence of quality assurance. In considering the root causes of the quality irregularities recently uncovered, it is also necessary to examine the issue from the perspective of why reasonable employees who should have social awareness would involve themselves in irregularities.

What should be kept in mind here is human weakness. As a company, it is difficult to work without any pressure from development schedules and deadlines because it needs to conduct business while ensuring competitiveness. Therefore, it is important to consider whether an organization or system to prevent irregularities has been created based on the existence of pressure and weakness.

It is legitimate to believe that "quality irregularities must not exist," but it is also necessary to keep in mind that it is a mistake if this leads to the idea that "quality irregularities should not exist." As is evident from the fact that quality irregularities similar to those recently uncovered have been discovered at a number of leading Japanese companies, quality irregularities can occur anywhere. Therefore, it is necessary to assume that quality irregularities will inevitably occur when considering the building of organizations and systems.

Based on the above statement, what is important when considering the causes of quality irregularities is how to establish a system of checks based on an understanding of the essence of quality assurance. It is a system to stop employees from taking the easy way out due to their weakness, and to halt quality irregularities that could occur at any time or to detect and correct them as early as possible.

PID had issues with the above system, as described below.

5 Limitations in the structure and operations of Quality Departments

(1) Headquarters Quality Department

Although some business divisions, for example, did not necessarily follow the established quality policy in terms of personnel rotation and the employing of quality personnel in the quality departments, the headquarters quality department did not have the authority to instruct the business divisions to implement the quality policy and was not always able to keep track of the implementation status of the quality policy.

In addition, the strong independence of each business division, which is a harmful effect of the divisional system adopted by PID, as well as the fact that the headquarters quality department did not sufficiently understand the specifications of individual products and the details of standards to which individual products conformed, made it difficult to assess whether or not business divisions or business units had a system to prevent quality irregularities in place. Given that some of the employees stated that it was difficult to conduct audits to detect irregularities, and, from the perspective of the function of the headquarters quality department, to audit whether business divisions had that system in place, it was difficult to say that the quality department fully performed its function.

(2) Business division Quality Departments

Audits by the business division quality departments were conducted only by sending check sheets to business units and receiving responses from the business units after confirmation by the business unit directors. The business units did not report the quality irregularities that were recently uncovered. In some cases, the business division quality departments, which were originally expected to prevent and check quality irregularities at plants, tacitly approved of the quality irregularities.

(3) Factory Quality Departments

Voluntary inspections by the factory quality departments focused on checking whether procedures were established in accordance with ISO standards, whether the procedures were followed, and whether evidence of following the procedures was stored. 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. In addition, in several quality irregularity cases, the factory quality departments were involved in or tacitly approved the quality irregularities. Moreover, in some of these cases, the factory quality departments were even involved in giving incorrect answers to the effect that there was no quality irregularity in the quality compliance questionnaire survey conducted by the headquarters quality department.

6 Inefficiencies in Quality Compliance System

(1) Inadequate Procedures Within Business Divisions and Business Units

There were several cases in which quality irregularities were partly caused by inadequate procedures to be followed, such as inadequate rules that clearly defined when an application for new registration should be filed with certification organizations, such as UL. It seems that appropriate systems to prevent quality irregularities were not sufficiently in place in business divisions and business units.

(2) Insufficient Collection of Information on Official Standards by Headquarters

Business divisions and business units did not sufficiently collect information and conduct educational activities related to quality, but it does not appear that the headquarters specifically checked and followed up on the status of information collection and educational activities by business divisions and business units.

In light of the significant impact on business activities, the collection of information and educational activities related to official standards, such as UL, should, going forward, be addressed by the headquarters with sufficient management resources. PID did not, however, sufficiently make such efforts. This is believed to have contributed to the inability to prevent quality irregularities and to have limited the early detection and correction of quality irregularities.

(3) Insufficient Checks by Headquarters

Revealing the existence of quality irregularities to customers means the threat of losing customers and causing business performance to deteriorate. It is not easy for business divisions and business units responsible for business performance to take such risks and reveal quality irregularities.

In fact, many of the quality irregularity cases found this time were known not only to the managerial staff of the development departments and quality departments, but also to business unit directors and business division directors. However, they did not report the quality irregularities to the headquarters as well as to customers, and it appears that they did not proactively give instructions to timely correct such irregularities or to investigate whether similar quality irregularities had occurred.

What is important here is the check by the headquarters. In these cases, if the check by the headquarters had fully worked, there would have been a possibility that the quality irregularities would have been reported to the headquarters and corrected as soon as possible.

(4) Inadequate Rules for Addressing Quality Irregularities

Quality irregularities not only have a significant impact on the profit and loss of the plant or business unit where the quality irregularities occurred, but also have a significant impact on PID as a whole, depending on the nature of the irregularities. Therefore, quality irregularities should not be addressed only at the plant or business unit where the quality irregularities occurred, but should be addressed from a company-wide perspective by sharing information with the business division to which the business unit belongs, and even with the headquarters. Currently, the Standards for Addressing Quality Compliance Incidents established in April 2022 stipulate that employees must consult with and report to their superiors and relevant departments when they become aware of any suspected quality irregularities, and that such suspected irregularities must be reported to the headquarters quality department and investigated and addressed with the involvement of the headquarters quality department.

Before that time, however, there the rules did not define the roles to be played by an organization equivalent to the headquarters quality department or business division quality department, nor did they define the reporting line from a factory quality department. The business unit that received a report of a suspected quality irregularity would decide whether to report it to the business division or not. In fact, several cases of quality irregularities were reported to business unit directors and even to business division directors, but, until quite recently, it does not appear that such instances were reported to the headquarters.

7 Organization Where Employees Were Not Incentivized Speak Up

Among the recently found irregularities, there were several cases in which irregularities were committed only by frontline employees, and the fact of such irregularities was not recognized by managers, such as business unit directors and

business division directors, for a long period of time. In some cases, even after business unit directors or business division directors became aware of the fact, they did not promptly inform management at the headquarters.

An organization in which problems and irregularities are promptly escalated is not automatically built. Such organization can be built only with conscious effort. It is important that management, including business unit directors, business division directors, and executive officers at the headquarters, make efforts to proactively identify issues on the frontline, and it is necessary to establish a system therefor.

In this regard, although there have been opportunities for management to engage in direct dialogue with frontline employees through workplace gatherings, these gatherings were held only a few times a year and only a limited number of employees could participate, which was not sufficient to enable management to identify issues.

8 Approach to Interacting with Customers

Some of the irregularities found this time could have been avoided if the company had engaged in more thorough discussions and negotiations with its customers.

However, it is not difficult to imagine that even if the company were to have more thorough discussion and negotiation with customers, such a discussion and negotiation could lead to loss of business, and thus it would be unreasonable to entrust such a discussion and negotiation to the frontline employees, especially the sales department, which stands in front of customers. If the company was going to engage in more thorough discussions and negotiations with customers, it should have been necessary for management at the helm of the business, to back up the frontlines, and to show that they are willing to get involved in discussions and negotiations as necessary.

It should be strongly recognized that a major prerequisite for preventing quality irregularities is to build a sound cooperative relationship with customers. If that is the case, management would need to take the lead in examining how to interact with customers in order to engage in fair and reasonable discussions and negotiations while respecting customers.

9 Management's Insufficient Awareness of Quality Compliance

At PID, there were widespread cases of insufficient understanding about the essence of quality assurance. Given the fact that there had been a series of quality irregularity cases at other companies since the mid-2010s, it would have been better for PID to have developed the cases of other companies horizontally at that time and to have provided quality education focusing on processes with the recognition that similar problems could also occur at PID.

Including the weakness of quality departments, PID's quality compliance system was dysfunctional in the headquarters, business divisions and business units.

It is the responsibility of management to consider how employees should be educated

and organize the quality departments. The lack of sufficient education and the weakness of quality departments clearly indicates management's insufficient awareness of quality.

It must be said that management's own lack of awareness of quality assurance was the remote cause and background of the quality irregularities this time.

Part 2 Measures to Prevent Reoccurrence

1 Measures to Address Insufficient Understanding and Education on the Essence of Quality Assurance

(1) Review of Education Content

It is necessary to be aware that education heretofore has not sufficiently penetrated the understanding of the essence of quality assurance throughout the organization, to devise education methods, and to periodically check the degree of penetration of such understanding.

In addition, 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 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. Moreover, given the need to ensure a check effect on business divisions, the headquarters (especially the headquarters quality department) should also be deeply involved in the examination of the contents and implementation methods of educational activities.

(2) Developing Prerequisites for Ensuring Compliance with Rules

Consideration should also be given to separating engineers in charge of development and testing from engineers in charge of collecting information on official standards and negotiating with certification bodies, and to dividing the roles so that the latter will be responsible for ensuring that the rules of official standards are fully disseminated. In addition, since frontline engineers cannot be expected to negotiate effectively with customers, negotiations with customers should not be left to frontline engineers, but should be conducted by high-level officers and employees, such as the management.

On the other hand, it should be checked whether there are any existing internal company procedures that deviate from current practice and are difficult to comply with; and, if necessary, such internal procedures should be revised or eliminated to facilitate compliance. This is not only because compliance with such internal company procedures by employees may cause work inefficiencies, but also because it may build an organizational culture in which the essence of quality assurance is difficult to penetrate due to factors like some employees mistakenly believing that they do not have to comply with such internal procedures.

2 Measures for Building an Organization To Do the Job Properly

In creating an organization for doing the job properly, it is considered, for example, to fully utilize IoT by having test data automatically input and stored in test equipment, thereby reducing the room for human intervention in the development and manufacturing processes as much as possible. In addition, from the viewpoint of exerting a checking effect among employees, it is also important to eliminate work that is known only to specific employees by ensuring that more than one person performs the work, and by devising the frequency of personnel changes and the status of supervision by managers. Furthermore, as discussed below, it is also necessary to strengthen the auditing and check functions of the quality departments.

It is also necessary to create an organization where new personnel can consult the appropriate department if they become aware of an irregularity. For example, new employees should be thoroughly educated on the essence of quality assurance and the proper way to do the job, and a department should be set up where they can feel free to consult if they find something wrong.

Furthermore, in order for employees to voluntarily report and consult with their superiors and others about problems they recognize, it is important for management to show that it welcomes reports and consultations from employees, and it is also important for frontline managerial staff to show that they are willing to pick up problems from their subordinates.

It is possible that the internal reporting hotline was not always well known within the company, as some employees were unaware of the hotline or were concerned that they would be treated disadvantageously if they made a report. Employees within the company should be made fully aware of the EARS, including how to use it, such as the fact that anonymous reporting and reporting to an outside law firm are permitted.

On the other hand, it should be noted that employees generally tend to be hesitant about making an internal report. In a sense, internal reporting is a system that requires positive and proactive responses by employees, and it is not necessarily capable of revealing all kinds of irregularities.

As a result of the questionnaire survey conducted by the Committee, a considerable number of reports was received. Likewise, it is believed that there is a considerable number of employees who would speak up if they are directly asked questions such as whether there is any quality irregularity. The burden of the questionnaire survey is extremely heavy, and it cannot be said that it is realistic to conduct a similar survey every year. However, the company may continue to take the initiative in encouraging employees to speak up by conducting compliance awareness surveys on a regular basis, and conducting special surveys similar to those for this case for departments that are considered high-risk.

In addition to the above, it is also necessary to have a system under which management directly gives instructions to activate communication between the sales and development departments, which serve as the contact points for customers, to avoid

situations in which the development department is overly burdened by the agreement with customers on specifications and delivery dates that are difficult to achieve.

3 Measures to Strengthen Quality Departments

As in the above measures, 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.

In addition, the quality departments should be made into robust organizations so that the company can achieve company-wide goals on quality compliance, through active personnel exchange among the quality departments at headquarters, business divisions, and plants.

Moreover, PID has decided to place the factory quality departments under the umbrella of the business division quality departments to increase their independence from the development and manufacturing departments at plants and to enhance the check function of the factory quality departments. However, it should be noted that if the check function of the business division quality departments is weak, the check function of the factory quality departments may not be improved no matter how much the independence of the factory quality departments from the development departments of plants is enhanced. At the same time, the check function of the business division quality departments should also be strengthened.

The division of roles and distribution of authority among the headquarters quality department, the business division quality departments, and the factory quality departments should be further clarified. Although the Committee believes that the headquarters quality department should play a significant role, especially from the viewpoint of quality compliance, it should be verified whether the headquarters quality department can adequately implement measures to prevent reoccurrence of irregularities with the existing division of roles and distribution of authority.

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.

For example, during audits by business divisions, confirming and making a sample check of what specific procedures the business units have their employees follow to prevent quality irregularities, when and who checks the status of compliance, how such checks are conducted, and how the results of such checks are stored, would also have a certain degree of checking effect.

In addition, when discussing points to be audited intensively with business units from

a risk-based perspective, the business divisions could take actions such as actively asking the business units questions about their internal work and requiring the business units to submit documents.

It is essential that audits of business divisions by the headquarters are also conducted from the above perspective. The headquarters should specifically verify how the business divisions are supervising the business units and whether the supervision is reasonable from a risk-based perspective.

5 Management's Commitment

For any of the above measures to prevent reoccurrence, a deep commitment by management is essential. Unless management demonstrates strong determination to eradicate quality irregularities, it will be impossible to change the mindset of employees. Management must also demonstrate such determination to employees on an ongoing basis by incorporating it into the ongoing implementation of the measures to prevent reoccurrence. Management needs to demonstrate its strong determination to eliminate quality irregularities, facing the reality that the lack of understanding about the essence of quality assurance is a deep-rooted problem.

In addition, problems such as excessive requirements from customers and unreasonable development schedules have been the background of many quality irregularity cases. In the first place, accepting excessive requirements from customers is a problem that leads to increased costs and lower profit margins for PID and is itself a management issue. From this perspective, management, especially top management, should resolve the problem by directly negotiating with customers, and in the future, management should switch to an operating system where they directly respond to excessive requirements from customers.

It is an important responsibility of management to correctly identify and assess the quality risks associated with each of PID's businesses. The measures to prevent reoccurrence described above are not exhaustive, and some of them should be revised in response to future changes in the business environment and other factors. The Committee hopes that management will continue to make constant efforts to develop and operate a more effective quality compliance system, taking into account changes in the business environment and other factors.

End