

# SUPPLIER QUALITY MANUAL

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## 1.0 Policy

It is MUSIC Semiconductors Philippines, Inc. (MSPI)'s policy to conduct business with suppliers that continually demonstrate the ability to provide products, processes and services that meet or exceed MUSIC's quality requirements. MUSIC requires:

- Defect free products and services
- 100% On time delivery
- Continual improvement
- Competitive pricing
- Responsive customer service

Advance notification of supplier proposed material or process changes shall be provided to MUSIC, including;

- Changes in product design/development specifications
- Changes in wafer fab and assembly material
- Changes in design, manufacturing processes
- Changes in manufacturing or service location

## 2.0 Purpose

- To communicate MUSIC's specific requirements and expectations to the supply base. The MUSIC Purchase Order Terms and Conditions, specific contractual provisions, and this manual all apply in defining the expectation for a supplier's relationship with MUSIC.
- To inform suppliers of requirements for notification and approval of proposed supplier changes.

## 3.0 Scope

This manual applies to all service and manufacturing suppliers of MSPI.

## 4.0 Responsibility

Suppliers are responsible for meeting the requirements of this manual. Suppliers shall ensure that their direct material / service suppliers comply with the requirements of ISO/TS 16949:2002 as applicable. Suppliers shall adopt the standards of zero Defects and 100% On Time Delivery to MUSIC.

## 5.0 Language

MUSIC's official language is English. All official communication with MUSIC shall be done in English. Documents may display the native language when integrated in parallel translation. In this instance, the English is the only valid version.

## 6.0 Government Regulatory Compliance

Suppliers shall comply with all applicable governmental regulations. These regulations relate to the health and safety of the workers, environment protection, toxic and hazardous materials, and free trade. Suppliers should recognize that the applicable government regulations might include those in the country of manufacture, as well the country of sale.

## 7.0 New Supplier/Location Qualification

New suppliers who wish to be added, as a supplier of MUSIC shall:

- Demonstrate compliance at a minimum to ISO9001: 2008
- Complete the MUSIC initial assessment form.
- Successfully pass the MUSIC New Supplier Audit.

## 8.0 Quality System Requirements

Third party registration to the latest version of ISO 9001/ TS16949, ISO14000 or industry equivalent environmental standards is required for wafer fabrication, assembly and product test suppliers. A copy of the supplier quality system certification shall be provided to MSPI.

- MUSIC reserves the right to verify conformance at any time through an on-site assessment.
- MUSIC's Head of Quality shall be notified in writing of any change in the supplier's quality system certification status.

## 9.0 New Supplier Assessment

During supplier selection and assessment, MUSIC will perform various audits to confirm supplier capability, beyond the certification level. The primary focus areas are:

- General Organization and Management Structure
- Advance Product Planning
- Product Realization, Measurement, Analysis & Improvement
- Material, Facilities, Logistics & Tooling

Suppliers that initially do not score acceptably may be allowed to develop action plans and timelines to correct any deficiencies and then request a re-audit to verify implementation of these actions.

## 10.0 Process Flow Diagram

Supplier shall provide MUSIC with a formalized and controlled process flow starting with Receiving Inspection and Finishing with Packaging and Shipping. Suppliers shall identify those operations linked to the manufacturing of features identified by special characteristics.

### 11.0 Process Potential Failure Modes & Effects Analysis (PFMEA)

Supplier's PFMEA shall follow an established Process Flow Diagram. The PFMEA shall be used as a continuous improvement tool. Suppliers shall have a process in place to internally understand and react to their highest Risk Priority Number (RPN). This report may be in the form of a Pareto chart, displaying the RPNs from highest to lowest or a similar approach. This system shall include documentation of recommended actions and verification of their implementation. Suppliers shall be able to document continuous improvement efforts derived from RPN rankings below their target value for improvement actions.

### 12.0 Control Plan (Quality Control Plan, Quality Plan)

The Control Plan shall appropriately reflect the same steps and flow established by the Process Flow diagram and PFMEA. The Control Plan shall include all features denoted in the Product Characteristic Matrix, characteristics and notes that are designated as special characteristics. The Control Plan shall include those features, characteristics and notes that are used to create the annual revalidation package.

### 13.0 Packaging and Labeling

MUSIC packaging and labeling requirements are defined in MU 04-02-0041. There shall be only one part number in a box or packaging unit. All packaging units shall be labeled and the label shall include:

- MUSIC part number with part description
- Quantity
- Supplier name
- Lot traceability number and datecode
- A Bar Coded label applied to each packaging unit.

### 14.0 Prototype Fabrication, Quality Evaluation, Pre-Production Process Changes

For the fabrication of prototype or pre-production products, suppliers shall imitate the planned production process as closely as feasible. For these prototypes, MUSIC may require that the suppliers provide material, dimensional, performance, or process data. Proprietary information may be withheld by prior agreement with MUSIC. Once a supplier starts providing products, as part of the process development and validation stage, any changes to the process require notification to MUSIC of those changes. These changes may include:

- Addition/deletion of capital equipment,
- Manufacturing methodology, and
- Internal secondary processing.

Suppliers of proto-type parts, when required, shall respond to material concerns and requests for Corrective Action.

## 15.0 Material/Process Change

Suppliers shall submit a written request for material or process change and obtain MUSIC approval prior to implementing the change. Suppliers are also required to submit all supporting validation data including necessary dimensional reports, performance testing, before/after process parameters, updated PFMEA/Control Plan and a detailed timeline demonstrating proper change control. If the nature of change requires MUSIC customer notification, change approval may take an extended period. Changes shall not be implemented prior to the receipt of written approval from MUSIC. VERBAL REQUESTS WILL NOT BE ACCEPTED.

## 16.0 Complaint Management

Upon receipt of a complaint from MUSIC for quality or delivery, suppliers shall upon acknowledgement of the complaint:

- Implement a containment action within 24 hours. This containment action shall include all affected material in the supplier's control, in transit to MUSIC, in the possession of MUSIC, or finished product shipped to MUSIC customers. The supplier shall notify MUSIC's Head of Quality of their containment actions and to discuss coordination of containment of material at MUSIC and or MUSIC customers.
- All shipments of affected material shall be 'compliant' (i.e. conforming with the containment actions) until corrective action issues are formally closed by MUSIC's Head of Quality.
- Initial Response: a written initial response shall be submitted to MUSIC's Head of Quality within 48 hours of formal notification of the complaint. This initial response with implementation dates and assigned responsibilities, at minimum, contain:
  - MUSIC Complaint Number and Date of Non-conformance
  - Problem Description
  - Containment action description
  - Containment action verification (quantitative results)
  - Compliant material shipment dates and identification
  - Root Cause analysis status
- Formal Corrective Action Report: a formal corrective action report shall be submitted to MUSIC within 7 working days (or otherwise specified time frame) of formal notification of the concern. The report shall include the appropriate documentations revised to reflect changes resulting from the complaint. These documents shall be maintained on file and provided to MUSIC for review as required.
- Suppliers shall use a systematic problem solving method such as the 8D or equivalent. The report with implementation/effective dates and assigned responsibilities shall contain, at a minimum, the items below:

- MUSIC Complaint Number
  - Description of the complaint
  - Containment action
  - Root Cause of the complaint with verification
  - Corrective action
  - Verification of containment and corrective action. This is a measure of the action's effectiveness utilizing appropriate statistical or process performance analysis methods.
  - Preventive actions. These are actions with a proactive and predictive intention with the focus on avoiding occurrences.
  - Affected changed documentations (i.e. Process Flow Diagrams, PFMEAs and Control Plans).
- Suppliers are responsible for all costs and expenses created by the defect on the material supplied .

## 17.0 Supplier Audits

MUSIC employs a number of audit tools in its Supplier Qualification Process. The Audit Hierarchy:

- ISO/TS16949:2002/ISO 9001:2008 standard criteria.
- New Supplier Assessment - An audit conducted with a potential supplier.
- Part and Process Audit – An audit conducted to assess a supplier's process and quality system specific to a mature product.

By prior notice, suppliers shall allow MUSIC and its customers access to both their facilities and those of their suppliers, for the purpose of evaluating materials, processes, documents (i.e., FMEA, Control Plan, Instructions, records), methodologies and systems used in manufacturing of MUSIC products

## 18.0 Sub-Supplier Management

MUSIC suppliers shall have capabilities to manage their respective suppliers. Supplier scoring/rating and as appropriate periodic auditing. MUSIC, when it deems necessary, will audit the critical processes of the sub-tier suppliers to assure that proper controls are in place throughout the entire supply stream.

## 19.0 Product Yield Reports

Suppliers shall submit resulting WAT data (wafer fab) or product yield ( assembly) as applicable on a per process lot basis. Reports shall be submitted to MUSIC prior to product shipment.

## 20.0 Reliability Reports

Suppliers shall have the capability to do a periodic generic reliability tests based on JEDEC / MIL Std. Applicable reports to MUSIC products on process/package configurations shall be made available to MUSIC immediately upon availability.

#### 21.0 Quality / Environmental Data Submissions

Suppliers may be required to submit Quality Data (i.e. SPC charts, process monitoring results, material certifications, material data sheet, REACH, ICP/RoHS tests data preventative & predictive maintenance data, etc.) upon request.

#### 22.0 Nonconforming Material

- The Supplier is responsible for all sorting, inspection, and other related costs incurred by MUSIC due to shipment of non-conforming material.
- The supplier is not permitted to ship nonconforming material until approved written waiver from MUSIC is obtained.

#### 22.0 Contingency Plan

Suppliers shall develop a contingency plan for potential catastrophes disrupting product flow to MUSIC and its customers, and advise MUSIC immediately in the event of an actual disaster.

REVISION SHEET

REV.	CHANGE NOTICE NO.	REVISED BY	DATE	DETAILS OF REVISION
Orig	100003	J Topacio	13 Feb 10	New Document . Implementation Date – 13 Feb. 10