Texas Instruments
Supplier General Quality Guidelines

Texas Instruments (TI) is dedicated to designing, manufacturing and marketing integrated circuits, systems, and high quality products that serve our customers' needs. SUPPLIERs should work closely with TI representatives to understand the specific quality requirements unique to their goods and services and to establish the appropriate processes & systems that support TI's quality needs. In addition, the SUPPLIER will identify Customer Quality Representatives who will be responsible for coordinating efforts and communicating with TI purchasing, manufacturing and quality teams regarding new product qualification, Process Change Notices (PCN's), timely resolution of issues and complaints, routine quality data requirements, product containment, and corrective action & quality improvement programs.

TI's commitment to customer satisfaction is communicated through our Quality Policy;

TI QUALITY POLICY

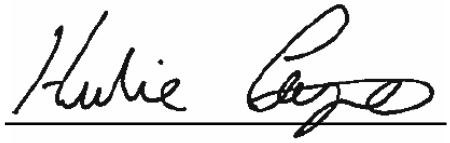
Quality is foundational to achieving our business objectives. We are committed to satisfying applicable requirements and providing quality products to customers around the world by:

- Encouraging and expecting the creative involvement of every TIer
- Listening to our customers
- Continuously improving and innovating our products, processes and services

With a thorough understanding of TI's requirements suppliers should challenge themselves to:

- Continuous improvement
- Alignment between their company's plans and activities and TI's priorities and objectives
- Monitor their own performance against TI expectations and requirements
- Compete for the TI Annual Supplier Excellence Award, which recognizes the very best performing suppliers of TI
- Earn more business from TI

This document is intended to provide SUPPLIERs with TI's expectations for excellence in quality and service. The ultimate goal is total customer satisfaction beginning with conformance to this document.



Hubie Payne

Vice President of Worldwide SC Quality

Rob Simpson

Vice President of Worldwide Purchasing & Logistics

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CHAPTER A

SCOPE

TI's quality goal is to ensure that its goods and services meet customer expectations and it is the responsibility of each SUPPLIER to fully support TI in achieving this objective. These Supplier General Quality Guidelines (SGQG) describe the provisions of quality assurance with respect to materials, products, equipment, services, software, manufacturing processes, tests, controls, handling, storage and transport measures as well as the management processes used and/or applied by SUPPLIERs to TI, in order to ensure compliance of TI components to the published and/or specifically agreed specifications of our customers.

SUPPLIERs are expected to fully comply with these guidelines. However, notwithstanding anything to the contrary, TI's standard Terms and Conditions of Purchase shall prevail over any contradictory provisions herein.

CHAPTER B – MANAGEMENT

1. QUALITY MANAGEMENT SYSTEM (QMS)

SUPPLIERs shall have an effective quality system to ensure that outgoing goods or services meet TI's requirements as defined in the applicable Terms and Conditions of Purchase, Master Service Agreement, Purchase Order and/or this document. SUPPLIERs shall meet applicable International and National Standards such as International Standardization Organization (ISO) 9001, or International Automotive Task Force (IATF) 16949, or equivalent, as appropriate. SUPPLIERs shall be certified by IAF MLA members (see IATF 16949:2016, 8.4.2.3 for ISO 9001 certification guidelines). The quality system shall be supported by documented information that define specific activities needed to implement the quality management system and the quality policy. This documentation describes the interaction between the processes of the SUPPLIERs quality management system.

2. MANAGEMENT RESPONSIBILITY

SUPPLIER top management shall ensure implementation and continual improvement of respective quality systems as a critical factor for outgoing quality. Top management, or other management as appropriate, shall regularly review the effectiveness and efficiency of the quality system, and make the necessary adjustments to meet planned objectives and TI's requirements.

3. AUDITS

Periodic SUPPLIER audits are performed to ensure compliance to stated QMS requirements, TI Customer Specific Requirements (CSR), and Product Requirements as defined in applicable Material Specifications. Additionally, SUPPLIER audits are intended to be a verification of how effectively the SUPPLIERs QMS has been implemented and to identify opportunities for continual improvement. SUPPLIER audits will be performed by TI according to business needs, quality performance and the criticality of the processes performed. Results of these audits shall be documented and communicated to the SUPPLIER. Corrective actions shall be executed in a timely manner and evaluated by both TI and the SUPPLIER for effectiveness. Review of audit results shall be part of the SUPPLIER's management review process.

Occasionally, customers may ask to verify goods at one of TI's SUPPLIER's sites. TI manages these requests on a case-by-case basis and coordinates with the SUPPLIER, as appropriate. Audits will be

conducted during normal operating hours. Requests for audits will be forwarded to the SUPPLIER at least 30 days before the requested audit date: audit schedules and agendas shall be jointly agreed upon by TI and the SUPPLIER. In the event of a critical quality issue, a request may be made to waive this time period.

4. ORDER FULFILLMENT AND SUPPLIER MANAGEMENT

The SUPPLIER order fulfillment process shall be documented and structured to meet the following requirements:

- ensure that the SUPPLIER understands TI's purchase order and specification requirements
- ensure that delivered goods and services conform to purchase requirements
- communicate to the SUPPLIER's supply chain the appropriate product, quality, and delivery requirements
- ensure that delivered materials and services meet government, safety, and environmental regulations
- ensure that finished goods (direct and indirect) and packing materials meet the provisions of regulatory and TI requirements
- ensure that product containing embedded software is implemented and maintained using a software quality assurance process

The SUPPLIER's purchasing personnel shall work with the established sub-SUPPLIER management organizations, as applicable, to ensure that the respective SUPPLIER management process in place is structured to cover the following:

- identify and select sub-SUPPLIERs with the capability to meet business needs
- establish criteria for selection, evaluation, qualification, and certification of sub-SUPPLIERs
- perform sub-SUPPLIER quality management system development
- ensure continuity of supply
- manage change
- ensure that critical materials and services are purchased only from approved sources
- monitor and provide performance feedback to sub-SUPPLIERs
- monitor product quality and delivery performance

The SUPPLIER shall conduct a quality system assessment of direct material sub-SUPPLIERs or, in lieu of an assessment, may accept third party registration to ISO 9001 or a plan for a third party registration. The SUPPLIER is expected to verify the quality of incoming materials and services by inspection of incoming material, review of sub- SUPPLIER provided data, verification at the SUPPLIER's premises, or receipt of successful third party assessment. The level of control applied is dependent on the criticality of the purchased material to the product realization process and the historical performance of the sub-SUPPLIER. When sub-SUPPLIERs have demonstrated their ability to provide the level of quality required, inspection and/or data review may be reduced or eliminated. Records shall be maintained of the evaluation and qualification of sub-SUPPLIERs. TI reserves the right to inspect records/evidence of a SUPPLIER's quality management systems at their facility. This may be included in the scope of a process assessment or a site audit.

CHAPTER C – PRODUCTION QUALITY

5. PRODUCT/MATERIAL/PROCESS DEVELOPMENT

All new product/material/process development at TI follows a structured new product development process such as Product Quality Planning, Advanced Product Quality Planning (APQP), and/or Product Realization as applicable.

TI expects its SUPPLIERs to use a similar approach, incorporating risk-based thinking and a phase review system as part of their development process. Included in this is a formal project review and approval by responsible management. The process should be designed to manage organizational interfaces, project risks, and communication between groups involved in the development process (Project management). As part of the setup process for materials, a control plan shall be defined and maintained that includes, at a minimum, critical process controls, sampling criteria, and response criteria to out of control and/or out of specification product or process conditions.

6. RISK-BASED THINKING

TI uses risk-based thinking as part of new product/material/process development and in developing manufacturing controls. For IATF 16949 certified manufacturing processes Failure Mode and Effects Analysis (FMEA) is an absolute requirement and shall be used as the primary risk management. In addition, TI expects ISO 9001 certified manufacturing processes to use the FMEA process as part of the PPAP process defined in paragraph 11.

TI also uses Supplier Assessment Survey (SAS) and Supplier Assessment Hierarchy Survey (SAHS) to help determine the factors that could cause a SUPPLIER's quality management system to deviate from planned results, and to help identify potential risks and opportunities inherent to the quality management system processes and procedures.

Other risk management considerations including but not limited to functional safety and safety critical applications may be utilized and will depend upon specific TI requirements. Applicable manufacturing risk management summaries, such as FMEAs, Control Plans, SPC, SAS and other related documentation shall be made available to TI upon request.

7. QUALIFICATION/RELIABILITY

TI qualification testing is a risk mitigation process that is engineered to assure device longevity in customer applications. SUPPLIERs are required to define what, if any, manufacturability and/or reliability testing is necessary to qualify new materials, sites, and changes to baseline. Manufacturability of the device is evaluated to verify a robust assembly flow and to assure continuity of supply to TI.

When SUPPLIER-run qualification testing is complete, test results shall be made available to TI in the form of a reliability report that documents the pass/fail status of the product/material/process. The SUPPLIER shall provide a process qualification package (SICF) that includes the following as defined by the respective TI personnel:

- Production Part Approval Process (PPAP), as necessary
- Specifications used
- Test or inspection plans
- Reliability test plans, analysis, audit plans, etc.

- Data that substantiates the decision to release the product/material/process from development to manufacturing
- Example of Certificate of Analysis (CoA)/Certificate of Conformance (CoC), as applicable

8. PRODUCT QUALITY

TI uses an Acceptance Quality Limit (AQL) of 0.04%, Level II for the majority of its outgoing product inspections. The most commonly used standards ANSI/ASQ Z1.4 -2003 (R2013) or ISO 2859-1:1999 (Sampling procedures for inspection by attributes -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection) are available for purchase from ANSI/ASQ or ISO, respectively. TI expects its SUPPLIERS to apply similar controls through Automated Visual Inspection (AVI) , preferred where applicable, or by operator inspection. For operator (manual) inspections, employees shall be aware of their impact on product quality.

9. PROCESS MONITORING

TI uses process measurement and monitoring for manufacturing process control and to minimize process and product variation with a goal to achieve zero defects. Important characteristics are identified, data is analyzed and statistical process control (SPC) is used in all phases of manufacturing with an emphasis on defect prevention versus detection. TI expects its SUPPLIERs to apply similar approaches wherever possible, using process capability measurements as a key component of process monitoring and control with a goal to achieve values of Cp > 2.00 and Cpk > 1.67. Key characteristics with a Cpk < 1.33 must have an identified action plan to improve the process capability and an identified containment plan to screen out product not meeting specifications if cost and/or technology prevent improvement. Measurement systems used for process monitoring shall be controlled using established qualification, verification and calibration procedures. Manufacturing operators and specialists shall be trained to use and employ statistical control processes and procedures as an additional component of process monitoring and control. It is Texas Instruments' expectation that SUPPLIERs are managing processes to control limits with an appropriate response spec to prevent aberrant material from shipping to TI. Product which is running outside typical control limits presents a risk which much be understood and managed by the SUPPLIER.

A test of outgoing products/materials shall be included as part of process and product monitoring typically reported in the form of a CoA or CoC. This monitoring may include inline parametric, functional, and visual verification utilizing statistical and product outlier control methods. Samples (such as "golden" samples) may also be used as references for the manufacturing process and final product. As appropriate, material SUPPLIERs are expected to apply statistical outlier controls to help drive continual improvement of processes that are high risk or that have a low CpK. Standards such as JESD50C.01 "SPECIAL REQUIREMENTS FOR MAVERICK PRODUCT ELIMINATION AND OUTLIER MANAGEMENT" should be used to set up these controls.

10. MEASUREMENT SYSTEM ANALYSIS (MSA)

Accurate and precise measurement systems shall be used to ensure that goods and materials are compliant to TI specification requirements. Measurement system Gauge Repeatability and Reproducibility (GRR) verification is an essential step to ensure measurement system performance meets expectations. All manufacturing sites certified in IATF 16949 shall have implemented a more comprehensive approach for measurement system analysis that includes bias, linearity, stability and %GRR measurements.

11. PRODUCTION PART APPROVAL PROCESS (PPAP)

TI supplies products to automotive customers who require PPAP submission per the Automotive Industry Action Group (AIAG) standard. The purpose of PPAP is to minimize product conformance risks by determining if all customer engineering design and specification requirements are properly understood by the SUPPLIER, and that the manufacturing process has the capability to deliver product that consistently meets these requirements during an actual production run.

SUPPLIER will be notified which products and materials require a PPAP or Part Submission Warrant (PSW).

12. ELECTROSTATIC DISCHARGE (ESD)

All SUPPLIERs that handle, test, or ship ESD sensitive devices, or assemblies containing such devices, shall implement electrostatic discharge prevention methods or procedures. SUPPLIER shall adhere to an industry standard ESD control program, JEDEC JESD625 where applicable.

13. SOFTWARE QUALITY ASSURANCE

All SUPPLIERs responsible for the development of software products or related services will document their activity requirements which include: the integrity of the development process, continuous compliance to TI requirements, base-lining software products and maintaining their revision status, and quality control activities.

CHAPTER D – QUALITY SYSTEMS

14. CONTINUAL IMPROVEMENT

Conducting periodic reviews of the effectiveness of the entire quality management system and changes that could affect the quality management system is an essential activity. These reviews should include monitoring trends in operational, business and quality performance of the processes that could impact TI.

Metrics should be defined for key performance areas and used to monitor ongoing progress to the following:

- Quality Objectives
- Critical Issues
- Improvement Activities
- Identification and Prioritization Opportunities for Quality
- Productivity Improvements
- Cost of Poor Quality

Organizational resources should be analyzed against quality objectives for suitability. Data and information from all sources of product and process problems, including analysis of field failures and other customer feedback as applicable, should also be reviewed to identify areas where action may need to be taken to reduce or eliminate nonconforming product and to prevent potential problems from occurring.

15. NONCONFORMING PRODUCTS/MATERIALS

If it becomes necessary to deliver product to TI which is not compliant with mutually agreed upon specifications, the SUPPLIER shall provide, in advance, a waiver request which documents this event

and requires TI approval prior to delivery. Whenever a SUPPLIER requests a waiver to a TI specification for a specific time period or defined quantity, this request must be documented via the PSW SharePoint site https://wpl.ext.ti.com/PPAP/psw.aspx using the Supplier Exception/Waiver Form in Appendix F or an equivalent document. Further details can be found in TI's WPL Supplier Production Part Approval Process (PPAP) Submission Process.
In the event that a SUPPLIER discovers that defective goods were delivered to TI, the SUPPLIER shall inform TI in a reasonable time of this issue, in writing, and shall take reasonable measures in order to avoid and/or minimize damages.

16. SUPPLIER QUALITY ISSUES

When non-conformances occur at a SUPPLIER in the process, product, quality management system, or when customer complaints or returns are received from TI, SUPPLIER personnel shall implement immediate and appropriate correction and corrective action according to the TI's requirements outlined below.

SUPPLIER shall follow an 8D process flow including the use of a 3x5 Why Analysis. Examples of the 8D process flow and a 3x5 Why Analysis is available at wpl.ext.ti.com. SUPPLIER response shall be completed within defined cycle times. For information on current cycle time expectations, please see Appendix A.

17. SUPPLIER CORRECTIVE AND PREVENTIVE ACTION PROCESS

Corrective Action - Action(s) taken to respond to the effect of a detected nonconformity and to eliminate the recurrence of the nonconformity through identifying and addressing the root cause of the nonconformity.

Preventive Action - A proactive approach to identify the most likely cause of a potential nonconformity to prevent it from initially occurring, or to initiate an improvement to the quality system.

SUPPLIER Corrective Action shall include:

- Reviewing and documenting the problem
- Where product is involved, preventing any additional defective product from being produced, and preventing any defective product from being shipped to TI
- Prompt notification when nonconforming product has been shipped to TI
- Investigating the root cause of the problem and recording the results of the investigation
- Utilizing problem solving and error proofing methods, as applicable, to determine appropriate corrective actions based on the root cause analysis
- Documenting and implementing the appropriate corrective actions
- Verifying that the corrective action is effective in eliminating the problem and preventing its recurrence
- Applying the corrective action to similar processes and products as appropriate

Additionally, data and information from quality management sources including product and process problems should be periodically analyzed to identify areas where action may be needed to prevent potential problems from occurring. According to documented procedures, appropriate actions shall be taken to initiate preventive actions and to ensure they are effective.

SUPPLIER Preventive Action shall include:

- Determining potential nonconformities and their causes

- Evaluating if action is required to prevent the occurrence of potential nonconformities
- Documenting and implementing the appropriate preventive actions
- Documenting the results of the preventive action, and
- Reviewing the effectiveness of the preventive action

18. CHANGE MANAGEMENT

In the event that a SUPPLIER needs to implement a change to a product, equipment or material delivered to TI, approval or permission has to be granted from the respective TI representative prior to implementation. A change management system shall be used to plan, qualify, and implement the change. Risk assessment shall be performed to determine potential impact to TI.

A formal documented change process shall be used to ensure that the appropriate validations are completed, and modifications documented, prior to implementing the change. When SUPPLIER has been notified by TI, all SUPPLIER changes shall be communicated to TI in a timely manner using the SUPPLIER Initiated Change Form (SICF). The following definition of a change shall be used unless an expanded definition has been previously communicated by TI to the SUPPLIER.

- The definition of a significant change are those product or process changes that are verified to affect form, fit , function or adversely affect the quality or reliability of the product based upon evaluations, qualifications, modeling, or analysis.
- The definition of a non-significant change are those product or process changes that are verified not to affect form, fit , function or adversely affect the quality or reliability of the product based upon evaluations, qualifications, modeling, or analysis.

Examples of changes that always require notification to TI include the following:

- Location
- SUPPLIER's SUPPLIER/Second Sourcing
- SUPPLIER’s Bill of Materials
- SUPPLIER’s Process Flow
- SUPPLIER’s Process Method
- SUPPLIER’s Tool/Equipment
- Changes that could affect SUPPLIER Lead Time/Delivery Time
- SUPPLIER's Packing Materials/Process/Labels
- Change in SUPPLIER process parameter that affects final material behavior such as moduli, interfacial adhesion, etc.

The SUPPLIER shall provide a process qualification package that includes the following as defined by the respective TI personnel:

- Production Part Approval Process (PPAP) as necessary,
- Specifications used,
- All test or inspection plans,
- Reliability plans (if applicable), analysis, audit plans, qualification data, modeling, etc.

19. PRODUCT WITHDRAWAL/DISCONTINUANCE

When a SUPPLIER plans to withdraw/discontinue a product being purchased by TI, including plant closure and/or product transfer to another production facility, notification shall be handled in accordance with JESD48, latest issue. SUPPLIER shall provide at least 12 months lead time for the last

order and an additional 6 months to take final delivery of obsolete items. In the event that it is deemed impossible to meet these lead times, SUPPLIER shall be willing to manufacture buffer stock(s) in support of forecasted demands and make every effort possible to reduce potential supply disruption to TI.

20. BUSINESS CONTINUITY PROGRAM

SUPPLIER shall have a Business Continuity Program that;

- Identifies and evaluates internal and external risks to all manufacturing processes and infrastructure equipment essential to maintain production output and to ensure that TI requirements are met;
- Defines contingency plans according to risk and impact to TI;
- Requires contingency plans for continuity of supply in the event of any of the following: key equipment failures; interruption from externally provided products, processes, and services; recurring natural disasters; fire; utility interruptions; labor shortages; or infrastructure disruptions;
- Includes a notification process to TI for the extent and duration of any situation impacting TI operations;
- Periodically tests the contingency plans for effectiveness;
- Requires contingency plan reviews be conducted (at a minimum annually) using a multidisciplinary team including top management;
- Documents the contingency plans and retains documented information describing any revision(s), including the person(s) who authorized the change(s).

The contingency plans shall include provisions to validate that the manufactured product continues to meet TI specifications after the re-start of production following an emergency in which production was stopped and if the regular shutdown processes were not followed.

CHAPTER E – LOGISTICS / RECORD RETENTION

21. IDENTIFICATION AND TRACEABILITY

SUPPLIER product shall be identified from raw materials through all stages of production and delivery to TI and the identification and traceability requirements are extended to externally provided products.

The SUPPLIER'S's tracking procedure shall include:

- assignment of a unique identifier to each lot or batch of material
- recording the completion of each process step and the inspection and test status recording of pass/fail quantities
- identification of key process information as defined in work instructions
- recording of key process parametric data as defined in work instructions
- traceability to key raw materials and the production process as needed
- segregation and identification of nonconforming and/or suspect material

The identification shall be recorded and information retained by the SUPPLIER for a minimum of 15 years.

22. PACKING

The packing design for products/components shipped to TI will be the SUPPLIER's responsibility and shall conform to Industry standards, unless otherwise communicated by TI. The packing material shall protect against damage during shipping, stacking and handling. If there are major changes affecting packing design, the SUPPLIER shall notify TI in advance for approval prior to implementation.

23. SHELF LIFE

The SUPPLIER shall maintain a First-Expired, First-Out (FEFO) procedure or First-In, First-Out (FIFO) procedure. If the product(s) items supplied are subject to age and/or temperature control, the SUPPLIER must maintain a FEFO/FIFO procedure. Shelf life will be based upon demonstrated performance and/or SUPPLIER recommendation as applicable.

24. ARCHIVING PERIOD

SUPPLIER shall have a comprehensive record retention strategy that meets industry standard practices or meets TI's requirements.

CHAPTER F – REGULATORY

25. RESTRICTED CHEMICALS AND MATERIALS (RCM)

SUPPLIERs shall comply with both TI's RCM policy, as outlined in TI 6453792 "TI Customer Material Specification Controlled Chemicals & Materials" and TI 6494169 "Restricted Chemicals and Materials List." This document can be accessed online at the WPL external website. Click on the "Controlled Chemicals" link. It applies to all SUPPLIERs who provide a chemical or material that becomes part of TI's final product, or packing materials used to ship TI products. SUPPLIERs must provide updates to their certificates of compliance to the latest TI RCM list, per TI document 6453792 including yearly third party test reports for the Restriction of Hazardous Substances (RoHS). TI also requires testing for Cl and Br for non-metal material sets to check for content of any BFR, CFRs or PVCs. All other restricted chemicals are verified through material declarations and/or compliance statements from SUPPLIERs.

26. CONFLICT MINERALS

SUPPLIER shall comply with TI's policy on conflict minerals (tungsten, tantalum, tin, and gold), as outli ned in the TI Conflict Minerals Policy Statement, which can be accessed online at theWPL external we bsite. Click on the "Supply Chain Responsibility/Corporate Citizenship/Supply Chain Management/Con flict Minerals" link. A "Conflict Minerals Due Diligence Guideline" is also provided at this same websit e. TI requires that SUPPLIERs whose products contain tantalum, tin, tungsten and gold submit this inf ormation to TI using the standardized Responsible Minerals Initiative (RMI) Conflict Minerals Reportin g Template (CMRT) that traces the metals back through the supply chain. TI also supports industry init iatives such as the Conflict Free Smelter (CFS) program to validate responsible and sustainable source s. If TI becomes aware of a SUPPLIER whose supply chain includes metals from a conflict source, TI wil l take the appropriate actions to remedy the situation in a timely manner, including reassessment of S UPPLIER relationships. TI expects our SUPPLIERs to take similar measures with their SUPPLIERs to ens ure alignment throughout the supply chain.

27. ENVIRONMENTAL SAFETY AND HEALTH (ESH)

SUPPLIERs shall have an ESH policy that is endorsed by their top management.

SUPPLIERs should comply with TI's ESH requirements, which can be accessed online at the WPL external website. Click on the "Supply Chain Responsibility" and then the "TI ESH Requirements" link. "Contract Requirements" have the language used in TI's general Terms & Conditions. "Supplier ESH Training" and "Supplier ESH Handbook" are specific for SUPPLIERs working at TI sites. The "TI ESH Standards" include a variety of documents for TI's overall ESH requirements and are provided as references.

28. RESPONSIBLE BUSINESS ALLIANCE

TI is a member of the Responsible Business Alliance (RBA) and has declared its support for the RBA Code of Conduct (Code) http://www.responsiblebusiness.org/code-of-conduct/. The Code establishes a set of social, environmental, and ethical industry standards to ensure that working conditions in the electronics industry supply chain are safe, that workers are treated with respect and dignity, and that business operations are environmentally responsible and conducted ethically. TI is actively working to implement the Code to its supply chain.

These same values provide the firm foundation for our success in SUPPLIER relationships. We expect SUPPLIERs to adhere to our ethical values so that responsible and fair business practices will permeate the supply chain. SUPPLIERs shall comply with TI's policies on environmental and social responsibility, which can be accessed online at theWPL external website. Click on "SUPPLIER Environmental and Social Responsibility Policy," and "SUPPLIER Code of Conduct".

APPENDIX A – CYCLE TIME EXPECTATIONS

In the event of a SUPPLIER-related issue where a TI representative has requested an 8D report to TI, the following cycle time goals shall be met:

SUPPLIER Responsiveness	Critical	Standard Issues
SUPPLIER 3D (w/ containment)	<24 hours	<2 days
Root Cause Identified (4D)	<2 days	<5 days
Final 8D (w/ 3x5 Why)	<5 days	<14 days

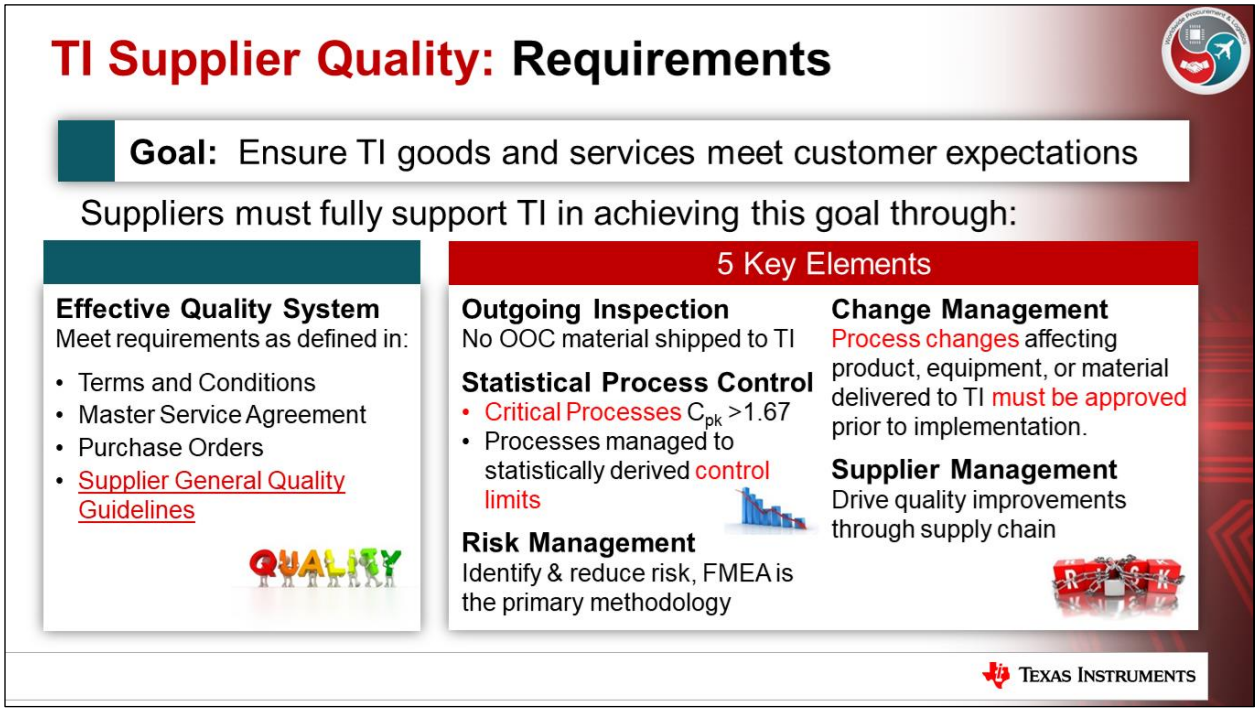
Critical Issues are those resulting in a TI factory line-down Situation or any event which impacts TI's customer. Cycle time requirements are defined in Calendar Days.

APPENDIX B – TI Supplier Quality: Requirements

The poster below is a general summary of TI's Supplier Quality Requirements.

An effective quality management system is the first requirement in any strong quality program at our suppliers.

TI views the 5 Key Elements as the basic building blocks to supplier quality. These elements are regularly verified during supplier audits and technical assessments.



Suppliers should feel free to use this poster in your communications of TI's expectations.

ABBREVIATIONS

AEC: Automotive Electronics Council

AIAG: Automotive International Action Group

APQP: Advanced Product Quality Planning

CoA: Certificate of Acceptance

CoC: Certificate of Conformance

CODE: EICC Code of Conduct

CSR: Customer Specific Requirement

ECHA: European Chemicals Agency

ESD: Electro-Static Discharge

ESH: Environmental, Safety & Health

EU: European Union

FMEA: Failure Mode and Effect Analysis

GRR: Gage Repeatability and Reproducibility

IAF: International Accreditation Forum

IATF: International Automotive Task Force

ISO: International Standardization Organization

JEDEC: Joint Electron Devices Engineering Council

MSA: Measurement System Analysis

NDA: Non-Disclosure Agreement

OHSAS: Occupational Health and Safety Assessment Series

OOC: Out of control

PCN: Product Change Notification

PPAP: Production Part Approval Process

PSW: Part Submission Warrant

RBA: Responsible Business Alliance

QMS: Quality Management System

RCM: Restricted Chemicals and Materials

RoHS: Restriction of Hazardous Substances

SAS: Supplier Assessment Survey

SBL: Standard Statistical Bin Outlier

SGQG: Supplier General Quality Guidelines

SICF: SUPPLIER Initiated Change Form

SPC: Statistical Process Control

SVHC: Substances of Very High Concern

SYL: Statistical Yield Outlier

REACH: Registration, Evaluation, Authorization and Restriction of Chemicals

WPL: World-wide Purchasing & Logistics

WW: World Wide

RECORD OF CHANGES

Date: 07/11/2013
Reason for change: Initial Release
Paragraph modified: Initial Release

Date: 08/01/2013
Reason for change: Expanded Product Development, Process Monitoring & Change Management and Conflict Minerals descriptions.

Date: 01/23/2014
Reason for change: Update references to TI Controlled Chemicals and Materials List.

Date: 02/11/2015
Reason for change: Update Change Management and Product Withdrawal/Discontinuance sections.

Date: 02/04/2016
Reason for change: Added section on Product Quality; modified Risk-based Thinking and minor editorial updates.

Date: 01/10/2017
Reason for change: Update to include specific requirements as outlined in IATF 16949.

Date: 08/13/2019 Phil Hecker WPL Supplier Quality Director
Reason for change: Update links to PPAP, SPC, MSA, JESD48
Update references to IATF 16949
Change signature from Robert Furtaw to Hubie Payne new VP of WW SC Quality
Correct ISO language in WPL external site – wpl.ext.ti.com
Update general formatting, index, and verbiage
Update information for TI's ESH Requirements in Section 27
Update Section 28 – Electronic Industry Citizen Coalition is now Responsible Business Alliance
Add Appendix B TI Supplier Quality: Requirements for general reference

Date: 02/20/2020 Willy Nisperos
Reason for change: Updates to Parag 26, Conflict Minerals by Terri Wright Updated Acronyms CoA, R MI, corrected link to Jedec

Date: 02/17/2021 Willy Nisperos
Reason for change: Update paragraph 25 to be align with ESH Edge Spec 6453792