



# Supplier Quality Assurance Requirements

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# 1. Introduction

This document is a general reference to define UNICOM Engineering's Quality Assurance Expectations with our supplier base. It contains the information you will need to understand UNICOM Engineering's commitment to Quality and work with UNICOM Engineering more efficiently to be an integral part of our continuous Quality improvement plans. Please keep it handy as we collaborate with you on daily business activity. This document is regularly reviewed and modified in order to keep pace with changing business needs. If you should ever find an error or omission in this document, or if you would like to make a suggestion for improvement, please send an e-mail to the Director of Quality [john.gauthier@UNICOMEngineering.com](mailto:john.gauthier@UNICOMEngineering.com).

## About UNICOM Engineering

UNICOM Engineering is an innovative developer of software application deployment platforms and appliances for data, storage, security, telecom and enterprise communications applications. We offer a complete range of hardware, software and support services designed to minimize TCO and increase ROI. We market the broadest portfolio of hardware reference platforms and software management utilities – everything needed to build high-performance delivery platforms for critical network applications. As a high value-add engineering and service partner to our customers, UNICOM Engineering delivers the services and expertise needed to go to market faster – with minimal integration challenges. We bring comprehensive technology expertise and proven, best-practice lifecycle methodologies to the development and deployment of our platforms and appliances. Our heritage of providing solution and service technologies that support and enhance the lifecycle of customer's products has made us a trusted partner for software market leaders worldwide. Please visit our website at [www.UNICOMEngineering.com](http://www.UNICOMEngineering.com) for more information about UNICOM Engineering.

## Our Commitment to Quality

All of UNICOM Engineering's products conform to industry-standard compliance and regulatory specifications. Through rigorous adherence to ISO 9001 and TL 9000 processes, UNICOM Engineering assures its customers of the highest quality systems possible – using components that comply with international regulations.

We monitor and standardize our engineering and manufacturing processes to ensure that every platform we build meets the industry's highest quality standards. Every one of our products is under strict quality and revision control management, which ensures greater control over designs as the means to trim complexities, reduce engineering and incidental development costs and speed development time. Quality isn't just a goal at UNICOM Engineering; it is a way of life.

## **2. Supplier Quality Commitment**

Our supplier's process is a critical part of our commitment to quality to our customers. UNICOM Engineering relies on our supplier's quality design, product qualification, manufacturing process controls, continuous improvement programs and reliability improvement programs to provide our customers with the best products and performance. UNICOM Engineering requires continuous communication and coordination from our suppliers to meet our customer's expectations.

### **Manufacturing Quality Reporting**

UNICOM Engineering expects our suppliers will deploy an internal manufacturing data collection and reporting process that monitors all manufacturing process steps, provides immediate feedback to the process supervisors and operators to maintain processes under control and enables timely reports to managers to indentify when product lines are within goals or identify trends for continuous improvement. The reporting process must alert manufacturing managers when the process is out of control to enable quick reaction and understanding of what is causing the out of control condition and implement immediate containment and/or corrective action.

UNICOM Engineering needs the ability to review internal quality reports to understand supplier's process maintenance is sustained and to correlate observations to UNICOM Engineering's own manufacturing quality experiences.

## **3. Continuous Improvement**

UNICOM Engineering expects supplier has set goals for manufacturing processes that determine expectations of process control and are used to trigger necessary response actions. Top pareto failure modes should drive continuous improvement analysis and involve sub suppliers as necessary to understand root cause and ultimately provide continuous improvement that enables improved cycle time and cost.

### **Goals, Trends, Action Plans**

Goals should be monitored for effectiveness in managing process control and reaction for continuous improvement and corrective action. Top trends should be analyzed to drive proactive action plans to maintain product quality and reliability and drive continuous improvement.

#### **Line Stop Criteria:**

Supplier's Quality Assurance reviews all WIP process steps, field return rate, and field failure rate with the sustaining support team to reveal trends and identify failure modes that may affect product quality. Yield alone does not determine a line stop as defect severity and volume must be considered. Quality Assurances' reviews of reports determine when a line stoppage is necessary to ensure containment. Failures classified as Minor are reviewed for continuous improvement if the risk assessment determines they are satisfactorily contained by the test process. Failure conditions determined to have a

risk of escape to the customer are classified as Major or Critical. Major or Critical defects initiate a stop ship and a drive corrective action plan and are communicated to UNICOM Engineering.

Defect Classification:

Minor Defect: A minor defect is not likely to reduce the usability of the product for its intended purpose, or is a departure from established standards which have little or no impairment on the effective use or operation of the end product.

Major Defect: A major defect has likelihood to result in a failure, or reduces the usability of the product for its intended purpose.

Critical Defect: A critical defect is a defect that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using, maintaining, or utilizing the product, or a defect that judgment and experience indicate is likely to prevent performance or the effective function of the product.

## **4. Customer Failure Analysis Expectations**

UNICOM Engineering will be monitoring our manufacturing process quality and our product field quality to determine when we see trends that need to be reviewed for continuous improvement and/or corrective action. UNICOM Engineering will request Failure Analysis or Root Cause Corrective Action depending on the critical nature of the defect to UNICOM Engineering and/or our customer. UNICOM Engineering follows the same Line Stop and Defect Classification methodology as defined above.

### **Customer Returns**

Customer failure returns are treated with the highest level of urgency. If UNICOM Engineering observes a trend or identifies a major or critical defect mode UNICOM Engineering will ask for a detailed root cause analysis. UNICOM Engineering's expectation is that customer escalations will be treated with the utmost urgency to understand the failure mode and root cause of the failure mode and drive analysis and/or corrective action back to the manufacturing process, the sub supplier or the design authority as necessary to determine the root cause.

### **Failure Analysis**

A request for general failure analysis requires the product or component is debugged sufficiently to determine if the failure can be duplicated, if the failure cause can be determined to be materials, process, or design; and if there is any trend identified that may require further root cause analysis. No Trouble Found (NTF) results require consulting the Quality Engineer at UNICOM Engineering to determine if special test information can be provided to help duplicate the specific application or test situation.

## Turnaround Expectations

UNICOM Engineering requires Failure Analysis to be treated with a level of urgency as the result is needed to drive a decision on risk analysis, customer action, potential service and support action plans and/or a potential product hold.

UNICOM Engineering's standard turn around expectations are (work days):

2 days	General status update
5 days	Failure Analysis repair determination
10 days	Containment Plan in place if determined necessary
30 days	Root Cause Analysis is understood and action plan defined

**Note:** Customer escalations for critical or major failure modes may require more significant urgency. These will be determined on an as needed basis based on the critical nature of the failure mode and the risk assessment of the deployed population.

## Root Cause Corrective Action

When a significant trend or a major or critical defect mode requires root cause analysis a formal quality report needs to be completed. Root cause should include Cause and Effect Analysis, use problem solving techniques and apply Risk Assessment when necessary to drive to a complete understand of the cause and what corrective action can be implemented to contain the root cause from escaping the supplier's process or more effectively resolve the root cause to prevent reoccurrence.

**Root Cause** is defined as a fundamental breakdown or failure of a process which, when resolved, prevents a recurrence of the problem.

- Root Cause Analysis
  - Systematic approach to get to the true root causes
  - The “true” problem must be understood before action is taken
  - Asking why the problem occurred, and then continuing to ask why that happened until we reach the fundamental process element that failed
- Root Cause Analysis Process:
  - Avoid jumping to conclusions, analyze the problem
  - Use a fishbone diagram while brainstorming possible causes
  - Define Materials, People, Instructions, Environment, Machines, Design
  - Verify the validity of each case and rule out or continue analysis
  - Use Statistical Analysis to understand each possible cause
  - Apply containment plan to prevent problem from escaping until root cause is resolved
  - Involve suppliers to work through to the true root cause
  - Confirm effectiveness

## **Containment Plans**

During root cause analyses when the full solution is not known or a corrective action requires time to be implemented then containment plans are an acceptable means to protect UNICOM Engineering from continuing to experience failure escapes from the supplier's process. Containment plans need to be monitored for effectiveness with the intent to implement long term corrective action as soon as possible.

## **Risk Assessment**

Risk assessment is necessary when failure mode can affect product safety, result in a high probability of failure, or can affect the customer/end user. Risk estimation may include but is not limited to Expert opinion, Usability testing, Failure Modes Effects Analysis (FMEA), and a Risk Map.

### **Risk Classification:**

Minor Risk: A minor risk is a risk that is not likely to reduce materially the usability of the product or process for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the product or process.

Major Risk: A major risk is a risk, other than critical, that is likely to result in failure, or to reduce materially the usability of the product or process for its intended purpose.

Critical Risk: A critical risk is a risk that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the product or process, or a risk that judgment and experience indicate is likely to prevent performance of the tactical function of the end item.

## **Product Holds and Recalls**

Based on the critical nature of the problem reported UNICOM Engineering may place the customer's product and the supplier's product on hold pending the outcome of the failure analysis and a risk assessment of the findings. A formal report is required that defines the findings and subsequent containment plan and/or corrective action plan sufficiently to determine an appropriate action plan. If a product is on hold then the supplier is expected to expend the highest level of urgency to complete the analysis and resulting report as soon as possible.

## **5. Non-conforming Reports (NCR)**

UNICOM Engineering personnel managing our Materials Review Board (MRB) will complete an NCR form and/or enter all pertinent information into a supplier's on line RMA request system. The NCR report will identify the serial number of the item, failure description, area of failure, and request failure analysis when necessary. The NCR will identify the UNICOM Engineering contact, UNICOM Engineering location to return the product and the return location for the repaired or replaced product. UNICOM Engineering may request a Cross-Shipment RMA where UNICOM Engineering will

receive credit for the item returned while in parallel placing a replacement PO for the item to be returned to UNICOM Engineering.

### **UNICOM Engineering RMA Request**

UNICOM Engineering personnel managing our Materials Review Board (MRB) will call in a request for an RMA. UNICOM Engineering's expectation is that an RMA number will be returned back to UNICOM Engineering within 24 hours.

### **UNICOM Engineering Manufacturing Sites and Contractors**

UNICOM Engineering has manufacturing sites around the globe. UNICOM Engineering may also set up manufacturing or repair contractors to build or repair UNICOM Engineering products. These contractors may need to return supplier product under UNICOM Engineering contracts. UNICOM Engineering Quality will monitor manufacturing and RMA reports from these sites the same as for all UNICOM Engineering locations.

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#### **Development Center**

Parkmore Business Park  
Galway, Ireland  
Phone: +353 91 381 550  
Fax: +353 91 757 548

## **6. Safety Critical Components and RoHS Process**

### **Safety Critical Components**

Critical safety components are identified in product safety reports by UL, CSA, TUV, CCC etc. Supplier verifies Safety Critical and RoHS compliance of the end product, maintains verification documents in a documentation management system and provides UNICOM Engineering Compliance Engineer with reference documents. Supplier maintains any required safety testing identified by the test agencies such as hi-pot and ground continuity testing for power supplies and finished products. Conformance is verified by supplier and communicated to UNICOM Engineering using a Certificate of Compliance when required by a Source Control Drawing or contract requirement.

## **RoHS Components**

RoHS component compliance is required for all components and rolled up to the completed assembly being shipped. Supplier verifies RoHS compliance of the end product and provides UNICOM Engineering Compliance Engineer verification via a Declaration of Compliance. Conformance is verified by supplier and processes are maintained to assure only registered components are used. Declaration of conformity is updated as RoHS and REACH requirements evolve.

## **Certificates of Compliance**

A Certificate of Conformance (CoC) requirement is documented by a Source Control Drawing or contract requirement. Certificate of Conformance certifies the supplier meets all documented test, quality, safety critical and RoHS requirements identified in the Source Control Drawing and/or contract. A CofC is required with each shipment and accompanies the packing list. The CofC is dated and identifies the serial number and/or lot for traceability to supplier documented process control system. UNICOM Engineering requires the ability to trace a lot back to the test process and related purchasing from critical suppliers to provide clear correlation and traceability.

## **7. Process Audits**

UNICOM Engineering requires the supplier conduct audits of the quality system and the Safety and RoHS compliance process. First article verification should be conducted on critical components and assemblies and include verification of Safety and RoHS requirements. Audits shall be maintained in supplier's documentation quality record system.