

Quality Assurance Programs

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A. SUMMARY

United Technologies Corporation (UTC) will establish and maintain proactive quality assurance programs designed to prevent product and process defects and to assure that its customers receive products and services that meet or exceed all of its commitments.

B. APPLICABILITY

This Policy applies to UTC and its subsidiaries, divisions and other business entities it controls worldwide. “Controls” applies to any business location that is more than 50% owned by UTC and consolidated on UTC’s financial statements. This Policy applies to all activities.

C. POLICY

The UTC Vice President, Operations, in consultation with the UTC Presidents Council, is responsible for developing, implementing and maintaining quality assurance programs throughout UTC. Operating unit Chief Executives, UTC Quality Council members, and Corporate Office department heads are responsible for implementing and administering quality assurance programs within their respective organizations. The Chairperson of the UTC Quality Council has the authority, in consultation with the UTC Quality Council, to coordinate quality assurance programs, policies and procedures among operating units and to coordinate with the Global Ethics and Compliance and Legal organizations. Senior management must take a leading and visible role in defining, implementing, and administering the quality system to meet all commitments to customer requirements.

D. PROCEDURES

Quality assurance programs will meet applicable Quality Assurance Program Requirements ([Exhibit 1](#)).

EXHIBIT 1

Quality Assurance Program Requirements

1. UTC has adopted various programs that prescribe quality standards, metrics, and quality concepts designed to provide reasonable assurance that every product and service fulfills its performance requirements. All UTC operating units shall have a documented quality system that ensures compliance to regulatory, customer, and industry requirements and utilizes the ACE (Achieving Competitive Excellence) Operating System. Aerospace operating units shall be compliant to ISO9001 and to AS/EN/JISQ 9100 (Aerospace Quality Management System QMS), AS/EN/JISQ 9110 (Aerospace Maintenance Organization QMS), or AS/EN/JISQ 9120 (Aerospace Stockist Distributors QMS), as applicable, and other industry standards as appropriate or as committed to the customer. Commercial Operating Units shall ensure compliance to ISO9001 at all manufacturing sites and ensure compliance to other industry standards as appropriate or as required by regulation. ISO compliance shall be evident through ISO registration or internal audit, and registration is required if committed to the customer. ACE is our overall operating system that sites shall implement to drive robust processes, data driven decisions, customer focus, and the performance of relentless root cause analysis and corrective action to drive continuous improvement.
2. Quality systems shall address the following requirements:
 - a) Operating unit chief executives and Corporate Office department heads are responsible to assure that the requirements of this Policy and the ACE Operating System are communicated to their employees.
 - b) In order to assure that suppliers' products and services meet specifications, UTC operating unit management shall evaluate and select suppliers on the basis of the supplier's ability to meet contract requirements, including requirements for a quality system and any specific quality assurance requirements. Supply chain quality measurements must include, as a minimum, "parts per million defective" (PPM), number of escapes, on-time delivery, and cost. These metrics and the total cost approach (cost, quality, schedule, as well as hidden costs) must be considered when selecting suppliers. Senior management is expected to review supply chain metrics at least quarterly. UTC operating units shall continually drive key and critical suppliers to sustain a performance level of "Gold" or "Performing" as defined in the Supplier Gold Program. At no time will UTC require suppliers to implement quality systems or standards that are not already implemented or in the process of implementation at UTC.
 - c) Each operating unit must have a documented process implementing a Production Part Approval Process (PPAP) as part of its Integrated Program/Product Development (IPD) process for production intended programs and as part of its Source/Work Transition process.

PPAP must be applied to both purchased and internally produced new parts, Class 1 Engineering Changes (ECs), and source transition parts meeting any of the following criteria:

- Critical-to-Quality (including Flight or Product Safety)
- New design technologies or new manufacturing technologies
- Complex manufacturing processes (including part families with high historical cost and quality issues) as defined in each operating unit's respective IPD or Source/Work Transition procedure.

It is recommended that PPAP be applied on all new purchased parts, new internally produced parts, Class 1 ECs, and Source/Work Transition parts.

PPAP requirements, status of deliverables, highlighted risks, and corresponding mitigation and corrective action plans shall be reviewed at the appropriate phases of the IPD or Source/Work Transition process for each operating unit as defined in their respective IPD or Source/Work Transition procedure.

PPAP shall also be applied on Significant Customer Escapes (as defined by the operating unit and/or its Quality Council). The scope of application following an escape shall be defined by the operating unit.

Each operating unit shall have an internal approval process for any exceptions to the above PPAP requirements.

Note: Aerospace operating units reference ASQR-09.2 UTC PPAP, Commercial operating units reference Automotive Industry Action Group PPAP Manual

- d) Each operating unit must implement a documented Integrated Program/Product Development (IPD) process that utilizes a Passport gated review to control and verify the design of products in order to provide reasonable assurance that specified requirements are met. All new products designed and developed by UTC (including under collaborative arrangements), and any substantial engineering changes to existing products, shall use the IPD process.
- e) Each operating unit's management must hold Passport reviews with cross-functional senior management participation and representatives of all functions concerned. At a minimum, Passport reviews shall be conducted and documented in the program/product planning, definition, validation, delivery, and support phases of the business process.
- f) Each operating unit's management, as required, shall submit quarterly quality metrics to the UTC Vice President, Operations. These metrics include escapes to customers, on-time delivery %, and cost of quality (SRR, warranty and post-certification engineering).

3. Compliance to defined UTC Quality Policy and Procedures

- a) Each operating unit's Quality Vice President must certify annually that its operating unit has implemented a quality policy and quality procedures that comply with this Policy and all applicable UTC quality procedures.

If an operating unit has not implemented a quality policy and quality procedures that comply with this Policy and all applicable UTC quality procedures, the operating unit must disclose the same to the Chairperson of the Quality Council and obtain the Chairperson of the Quality Council's approval of a plan to become compliant.