Process Improvement/Corrective Action

A failure reporting, analysis and corrective action system (FRACAS) is a closed-loop, actively managed process where failures are formally reported, analysis is performed to the extent that the failure cause is understood, and positive corrective actions are identified, implemented and verified to prevent further recurrence of the failure. Creating a FRACAS-based culture focused on eliminating systemic issues is a key element in improving product quality and bottom line results.

FRACAS Capabilities: Expectations

- Efficient use of FRACAS:
 - Data used to reduce product defects and eliminate quality escapes.
 - Data used for trends, correlations, defects per unit improvement, escape elimination/defect containment and test improvements.
- Implementation of systemic corrective action on processes and products.
- FRACAS deployed across the life cycles.
- Deployment of defect codes, cause codes and corrective action codes.
- ☐ Drive quality improvement across products and processes: define baseline, develop goals, establish metrics and monitor progress.

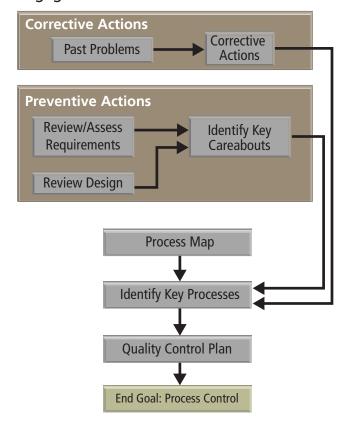


Supplier Engagement

Raytheon is committed to partnering to ensure that processes, procedures and activities produce the highest-performing, most cost-competitive products for our customer as follows:

- Performing supplier engagements by focusing on requirements, effective supplier management, assessments and closed-loop methods resulting in quality hardware being delivered on time.
- Methods and measures are in place to ensure process capability.
- ☐ Identifying and controlling methods to enable the elimination of quality escapes.

Engagement Structure



Supplier Partnerships

To win more, we expect more from each other





Continuous Improvement

Our commitment to our servicemen and servicewomen is to provide them an unfair advantage, ensuring that they come home safe to their families.

Raytheon

Customer Success Is Our Mission

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ZERO Initiative

ZERO
Zero Escapes to Raytheon Operations

Raytheon

Introduction

Raytheon Company

Raytheon Company, with 2012 sales of \$24 billion and 68,000 employees worldwide, is a technology and innovation leader specializing in defense, homeland security and other government markets throughout the world.

Raytheon Missile Systems

Raytheon Missile Systems (RMS) designs, develops and produces systems for U.S. and allied forces, including air-to-air, strike, naval weapons systems, land combat missiles, guided projectiles, missile defense systems and directed energy weapons.



ZERO Initiative

Suppliers are critical contributors in ensuring our product quality. We seek out suppliers who will not approve any defective parts (zero product escapes) that could result in putting the warfighter in harm's way. ZERO (Zero Escapes to Raytheon Operations) is the cornerstone initiative laying the foundational elements for the way of doing business with Raytheon Missile Systems.

Foundational Elements:

- Effective Quality Management System (QMS)
- Process improvement/corrective action effectiveness
- Supplier engagement

Performance Measures:

- Zero production recalls
- ☐ Zero escapes to Raytheon operations
- Demonstrated continuous improvement in product quality
- On-time deliveries
- Partnering on cost reduction initiatives
- Willingness to invest in infrastructure
- Management responsiveness

Business Growth Opportunity:

■ Rationalizing our supply base to include only the highest-performing, most cost-competitive suppliers.

Supplier Partnerships

To win more, we expect more from each other



Effective Quality Management System

The QMS must have perceptive verification methods that consistently result in predictable product and process performance measures critical toward ensuring zero escapes to Raytheon Missile Systems. An effective quality management system should encompass the standardized fundamental requirements of international standards, such as Flight ISO 9001, AS9100, TS16949 and AS9120, and should also include the following universal concepts: ■ People with the correct domain knowledge. ■ Metric indexes such as key performance measures to monitor, track and diagnose the system for stability. Production Defect containment

■ Demonstrated application of AS9103 principles.

Eliminate Escapes

- Statistical process control
- Defects per unit (DPU)
- Supplier assessments
- **FMEA**
- FRACAS
- Error proofing

Subsystems Manufacturing and Test

- Ensure requirements are understood
- Parametric data, RCCA analysis capability

Effective cause codes

Measure and control –

Quality Control Plan

Design Verification

- Margin validation
- Test requirements verification

Requirements

- Capture key careabouts
- Critical tech characteristics
- Key manufacturing tech
- DFMA, design to cost

Supplier partnerships developed with high-performing suppliers who demonstrate commitment to continuous improvement in quality, reliability, cost and delivery.

Capture lessons

learned

Effective Quality Management System