QM003
Quality Requirements for Suppliers
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1. Foreword

Lockheed Martin builds sustainable supplier capacity by partnering with our supply chain to reduce adverse environmental impacts, to promote human rights, health, safety and ethical behaviour, and to enable responsible supplier growth and raise standards.

We define Sustainable Supply Chain Management (SSCM) as “management of our supply base to drive affordability and innovation through social responsibility and environmental stewardship.” The objective of SSCM is to ensure alignment of our supply base’s social, ethical, environmental, safety and health responsibilities with Lockheed Martin’s sustainability commitments. The Lockheed Martin UK Ltd Quality Policy can be obtained upon request.

Our business depends on a reliable, global network of skilled suppliers that provide the materials, parts and services to make our products and deliver them to our customers mission-ready and on time. Goods and services provided by our suppliers have a key impact on the quality of the products, solutions and services we offer our customers. To maintain a high level of quality, we are determined to establish and maintain close and long-lasting relationships with our suppliers.

LMUK Terms and Conditions of trade shall apply to all contracts unless otherwise agreed.

Please note that indicates an item of high importance that is sometimes overlooked by suppliers and causes potential high risk to product conformance.

2. Scope

The aim of this document is to formally communicate the Lockheed Martin UK Ltd (LMUK) quality requirements to the supply chain. This document includes hyperlinks and is best read in its electronic form. This document supersedes any previously issued LMUK Quality Requirements for Suppliers QM003 document defining supplier requirements.

2.1 Definitions and Terms

In this Quality Requirements for Suppliers QM003 document, the terms "shall" and "must" mean that the described action is mandatory; "should" means that the described action is expected with some flexibility allowed in the method of compliance; and “may” means that the described action is permissible or discretionary.

The term “supplier” means vendor, supplier of goods and services, sub-contractor and distributor. Questions concerning this manual should be directed to your respective LMUK Buyer or Supplier Quality Engineer (SQE).

2.2 Order of Precedence

Any inconsistencies in this document shall be resolved in accordance with the following descending order of precedence: (1) the drawing, design data and any approved concession deviation (2) the Purchase Order, release document, as applicable, including any special terms and conditions; (3) any Statement of Work; (4) QM003.

As the world’s leading provider of Global Security Solutions, Lockheed Martin maintains the highest standards for ethical business practices and performance in every aspect of its business conduct.
3. Supplier Approval

3.1 Supplier Approval Requirements

The minimum quality requirement for suppliers of goods and services to LMUK shall be Quality Management System (QMS) certification to ISO9001 by a UKAS (or equivalent) accredited certification body. This requirement guarantees the supplier has put in place a consistent QMS able to satisfy our basic needs. Suppliers that provide goods and services that are used in projects for aviation, defence and space applications should be certified to AS9100 or equivalent and listed on the IAQG Online Aerospace Supplier Information System (OASIS).

3.1.1 Exceptions

Requirement exceptions for suppliers that do not meet the minimum quality certification shall be authorised on the basis of:

- The supplier is mandated by our customer.
- The supplier is the manufacturer of a single sourced product mandated by our customer.
- The supplier is the only distributor of a product mandated by our customer.
- The supplier provides goods or services that have no direct or indirect effect on the goods and services we provide our customer.

3.1.2 Supporting Documentation

Documents required to complete the supplier approval process are:

- Form F0189 Supplier Quality Assessment and / or F0183 Supplier Assessment Questionnaire
- QMS certification
- Confidentiality or non-disclosure agreement (NDA) if applicable
- Inclusion on a Technical Assistance Agreement (TAA) if applicable

3.1.3 Special Measures

Where the above criteria and exceptions cannot be met, depending on the product, its application, value and criticality, special authorisation may be granted where evidence of compliance can be provided.

This may include LMUK audit to a set of alternative basic quality requirements.

3.2 Special Processes

A special process is a process that generates outputs that cannot be measured, monitored, or verified non-destructively or cost effectively (see appendix 3). Therefore, deficiencies cannot be detected until after products are in use. In order to prevent output deficiencies, special processes must be periodically validated in order to prove that they can generate planned results.

Periodic validation is usually performed by the use of test coupons, verification tests, system accuracy tests or personnel qualification tests. Suppliers and supplier sub-contractors providing special processes shall have a documented process control schedule (Process Control Document (PCD), Process Control Flow Chart (PCFC), job card traveller or similar) suitable of meeting all requirements prior to the commencement of production including all preparatory treatments, post treatments, processing,
significant surfaces, tests and all other processes and treatments. In some instances, depending on the criticality of product the process control schedule shall be subject to LMUK approval.

Suppliers and supplier sub-contractors providing special processes may be Nadcap accredited for the special processes they provide. A list of special processes can be found in Appendix 3 of this document.

**Nadcap Welding approval requires additional scope coverage and as such must be audited by Lockheed Special Processes Supplier Quality Engineer (SQE).**

3.3 Site Visits and Supplier Audits

Where appropriate, suppliers **shall** be subject to on-site audit and / or site visit by the LMUK supplier quality engineer and / or supply chain representative. In some instances, LMUK will be unable to raise a purchase order until supplier approval has been granted. Scheduled verification audits, site visits and business to business meetings **shall** be supported when required.

3.4 Scope of Approval

Suppliers approved for use will be allocated to the LM Supplier database stating the scope detail on their approval. Suppliers shall not conduct work for LM outside their scope of approval unless authorised by LM Quality department through audit ie special process audits or LM specific approvals.

3.5 Approval updates – Supplier Responsibilities

**It is a requirement of the conditions of supply into LMUK that the contractor / supplier fully understands and adheres to the following. It is the supplier’s responsibility to ensure:**

- LMUK **shall** be provided up-to-date copies of Quality Management System certification including scope of certification.
- LMUK **shall** be informed by the approved supplier when approval bodies are changed, and certificates are re-issued or revoked.
- LMUK **shall** be informed by the approved supplier when certificates scopes are amended which would affect work currently undertaken or scheduled for future delivery. This would also include any change of address.
- LMUK **shall** be informed if due to any circumstance welder’s skill base alters ie coded welder’s certification lapses – **in this instance the Special Process Auditor must be informed**.

3.6 Right of Access

Suppliers and their sub-suppliers **shall** provide to LMUK, their customer, regulatory authorities and the Government Quality Assurance Representative (GQAR):

- The right of access to facilities where parts of the contracted activities are being performed including sub-suppliers’ premises
- Information pertaining to the fulfilment of requirements in the contract
- Unrestricted opportunity to evaluate supplier compliance with this document
- Unrestricted opportunity to conduct verification of product conformity to contract requirements
- Assistance for evaluation, verification, validation, testing, inspection or release of the product to verify that contract requirements have been accomplished at the supplier’s or sub-supplier’s premises
- Working area and facilities
- The necessary equipment available for reasonable use for performing verification
- Supplier and/or sub-supplier’s personnel for operation of verification equipment as required
- Access to information and communication facilities
- The necessary supplier documentation, to confirm product conformance to specification
- Copies of necessary documents, including those on electronic media
- Confirmation of capacity constraints

4. Quality Management Requirements

LMUK are required by AS9100 to apply appropriate controls to their direct and sub tier external providers to ensure that requirements are met (AS9100 para 8.4.1). The sections following detail the minimum controls that the supplier shall implement to meet those requirements.

Suppliers shall plan, implement, and control the processes needed to meet the requirements for the provision of products and services to LMUK. Specifically, this will be focused on the following:
- Review of the Requirements for Products and Services
- Design and Development provision (inputs, controls and outputs)
- Configuration Management
- Process Control
- Control of Externally provided Processes, Products and Services
- Control of Equipment’s, Tools and Software
- Validation of Special Process
- Production Process Verification
- Release of Product and Services
- Control of Non Conformance
- Performance Evaluation
- Improvement Activities

4.1 Review of the Requirements for Products and Services

The supplier shall ensure that they have the ability to meet LMUK’s requirements for products and services – formally known as contract review. This review will cover but not be limited to
- Scope of certified approval against what product or service is being requested
- Technical ability i.e. can equipment or employee skills meet the requirements of the drawings.
- Capacity constraints
- Statutory and regulatory requirements
- Contract or order requirements differing from those agreed at tender
- Drawing pack i.e. tolerance, datum’s and geometric tolerancing, material requirements (ensuring the material is available in size and condition stated), special processes, specific drawing notes including adherence to standards and specifications quoted within the context, destructive and non-destructive testing requirements i.e. mechanical, electrical, software etc.
- Design and verification – if undertaking this requirement for LMUK, understand the conditions of the contract as highlighted in para 4.2
- Reference documentation - it is the responsibility of suppliers to obtain, review, work to and maintain current issues of specifications and standards from appropriate sources.
- Additional Resources – when reviewing the process controls required to assure compliance to the Design data, should the requirement for fixturing, hard gauging, specialist test equipment, specialised training etc be identified this must be communicated to LM Supply Chain. It is not acceptable if risk is identified and no action is undertaken or communicated to LM due to timescales or financial constraints. This will also apply to sub-contractors undertaking work on the product.
- Supplier selection of sub-contractors. LM must be informed if sections of work are to be subcontracted. LM reserve the right to audit that supplier if it is deemed a perceived risk to contractual requirements (see 4.5). Special Processes are covered in section 3.2.

4.2 Design and Development Provision

If undertaking design and development work for LMUK, the subcontractor is bound by the requirements of ISO9001 as a minimum (and AS9100 or AQAP 2110 for quality condition QM003-A).

4.3 Configuration Management

For Quality Condition QM003-A, the Supplier shall manage configuration through the implementation of Configuration Management Planning, Configuration Identification, Change Control, Configuration Status Accounting and Configuration Audit in accordance with the requirements of ACMP 2100 / ISO 10007. (AS9100 certified suppliers already meet this requirement).

4.4 Process Control and Verification

LM require the supplier to demonstrate control through the production process. The supplier shall demonstrate confidence that the processes have been carried out as planned and therefore be able to demonstrate the conformity of those products and services. This can be undertaken by the flow of information associated in the following documentation.

The following is an example of how the supplier can incorporate these activities that will show the flow of information needed to control the process (similar processes and documentation that meet the requirement are acceptable):

- Value Stream Mapping
- Process Flow Diagrams (identifying key characteristics, inspection stages, processes, frozen operations if identified by LMUK (no changes allowed unless agreed by LMUK delegate), associated documentation. Examples of layouts can be requested.
Quality Requirements for Suppliers

- PFMEA – Process Failure Mode Effect Analysis. Critical in analysis of the process flow showing anticipation of risks and actions to nullify those risks to the process
- Control plans – detailing the stages of the process where inspection and our documenting of special process monitors are required
- Inspections plans – identifying by whom (level of trained operators), with what (equipment’s to be used), how (standard operation) and the frequency of how those checks/inspection will be carried out.

Further to this the supplier shall demonstrate the eradication of variability in the process (if required by LMUK on critical processes) by the use of process capability measurement, statistical process control and MSA studies i.e. Gauge R&R. When specified by LM these activities should be covered in a Quality Plan agreed with both parties and the requirements flowed down the supply chain if needed. A Quality Plan will be required when specific controls not covered by ISO9001, AS9100 certification or detailed in QM003 are required by LMUK.

4.5 Control of Externally Provided Processes, Products and Services

The supplier, as the recipient of the contract, shall be responsible for meeting all requirements, including work performed by the supplier’s sub-tier suppliers (also known as sub-suppliers or subcontract suppliers).

Where the supplier intends to sub-contract work or service normally undertaken by the supplier, a written agreement shall be in place between LMUK and the supplier indicating the reason for the sub-contract and the sub-tier sub-contractor to be used.

When the supplier uses sub-tier sources to perform work on products and/or services for LMUK, the supplier shall flow down to its sub-tier sources, all of the applicable technical and quality requirements contained in the LMUK contract. This will:

- ensure that externally provided processes remain within the control of their own quality management system
- define both the controls that it intends to apply to an external supplier and those it intends to apply to the delivered product.

LMUK representatives, customers and/or end users shall be allowed access to the sub-supplier’s plant and facilities for the purpose of surveillance and inspection.

4.6 Control of Equipment, Tools and Software

Equipment, tools and software programs used to automate, control, monitor or measure production processes shall be validated prior to release for production and shall be maintained. The supplier shall be responsible for maintaining traceability to national standards whether those items are calibrated internally or externally.

Storage requirements shall be defined for production equipment or tooling in storage including any necessary periodic preservation or condition checks. Items that have an extended replacement period (i.e. mould tools, die sets, software programs) are required to be detailed in a risk avoidance document that will detail the supplier’s disaster recovery plan in such an event – see section 12.
4.7 Validation of Special Processes

Refer to para 3.2 for special processes validation.

4.8 Production Process Verification

When indicated on the purchase order the supplier shall produce a First Article Inspection report (FAIR) to verify the manufacturing process using a representative item from the first manufacturing run of a new part or assembly. The purpose of the FAIR is to verify that the production processes, production documentation and tooling are capable of producing parts and assemblies that meet requirements. This process shall be repeated when changes occur that invalidate the original results (this will include transfer of work to another site, drawing changes, process changes etc.). The FAI requirement, once invoked, shall continue to apply even after initial acceptance.

The FAIR will be produced in accordance with AS9102 and shall be provided with the delivery of goods. Guidance on how LM require First Articles to be completed is detailed in LM’s ‘First Article Inspection Guidebook’. A copy can be supplied by your LM Supplier Quality Engineer. It is strongly advised this is reviewed and its requirements understood. Its content details when a Partial/delta FAI is required but as an aid:

**A Partial/Delta FAI is required to the original when:**

- A change in design potentially affects form, fit or function.
- A change in manufacturing source, process, inspection method, location of manufacturer, tooling, or material potentially affect form, fit or function

The FAIRs shall include all certification indicating conformity of materials, special processes, calibration, testing and personnel training qualification where applicable.

4.9 Release of Product and Services

Suppliers shall supply conforming goods and services on time in full (OTIF) including all required correct documentation and certification where applicable.

Certification refers to any document that states the goods or services meet or conform to specification or purchase order requirements. These include, but are not limited to; Certificate of Conformity, Certificate of Compliance, Certificate of Analysis, Certificate of Attestation and Certificate of Calibration.

The certifying document shall be deemed as an authorised contractual guarantee that the goods and services reference on the certificate meet drawing, specifications, technical data and purchase order requirements. **A signed copy or digital signature will be acceptable**, but Certificates must be traceable to a certifying quality representative or company official.

4.9.1 Supplier Documentation

The following data/information shall be included on each certification document (normally referred to as a CofC or Release Note)

- Certificate or delivery unique identifier / Certification / Delivery Note number
- Certificate Date
- Purchase order number
- Drawing number and / or part number and revision (as stated on Purchase Order)
- Batch unique identifier (Batch number / Lot number / Date code / Serial number)
- Quantity
- Supplier Name and Address
- Statement that goods and / or services conform to the specified requirements
- Original Manufacturer’s name, part number and lot / date code (when applicable)
- LMUK Reference to all approved concessions/Production permits applicable
  - A certificate of conformity that accompanies a FAIR does not need to include the FAIR reference. However, a reference to a current and valid FAIR (where applicable) is needed on certificates with repeat deliveries. See Appendix 2 - Delivery Documentation Requirement Flowchart.

- Reference to the Quality Management System release.

Suppliers shall ensure the correct documentation is supplied with products and services. This is further illustrated in appendix 1 - Delivery Documentation Requirement Flowchart below.

Additional Delivery Quality Conditions required by NATO & Military contracts will be stated on LM’s purchase order. These will define the requirements for traceability and certification above those detailed in QM003 and ISO9001. These will only apply when indicated by the delivery quality condition (Q Code) on the purchase order or other documentation associated with the contract. See appendix 2.

<table>
<thead>
<tr>
<th>Q Code</th>
<th>Description</th>
<th>Flow-Down Requirement in Addition to ISO9001 &amp; QM003</th>
</tr>
</thead>
<tbody>
<tr>
<td>QM003-A</td>
<td>Quality Requirements for NATO Contracts</td>
<td>AQAP 2110 / 2105 Applies</td>
</tr>
<tr>
<td>QM003-B</td>
<td>Quality Requirements for Non-Military Contracts</td>
<td>ISO 10005 / 10007 Applies</td>
</tr>
<tr>
<td>QM003-C</td>
<td>Quality Requirements for Business Supplies</td>
<td>No additional requirement</td>
</tr>
</tbody>
</table>

4.9.2 Certificate of Conformance

For deliveries that apply quality condition QM003-A & QM003-B (see appendix 1) a certificate of conformity shall be supplied with delivered goods or services that meet the above traceability requirements. Please read section 13 which further expands the requirements for Chemicals and Hazardous Substances

4.9.3 Calibration and Test Certification

In addition, where calibration and test certification are issued to LMUK information shall include:

- The calibrated test apparatus / instrument / standard used. These will be traceable to UKAS or the national equivalent from sources other than the UK.
- Calibration / test specification used including tolerances and criteria.
- Items outside specified limits will be identified, especially if the item has undergone authorised repair to bring it into specification.
4.9.4 Late Deliveries / Short Deliveries

If non-delivery, short or late deliveries are anticipated, suppliers shall immediately notify the buyer indicated on the purchase order.

4.9.5 Completeness of Supplied Documentation

Certification documentation supplied to the requirements of any LM purchase order will be rejected and deemed not complete should it transgress any of the following:

- Certification supplied with CofC is illegible i.e. faint, blurred or ambiguous
- Certification supplied with concession/production permit whose approval is outstanding
- Incorrect / different material or subcontracted special process certification being referenced that do not tie up with FAI documentation
- Alternative material and or subcontracted special processes – will be rejected if authorised certification is not attached to the CofC i.e. production permit or concession approved with the prior agreement of LMUK.

4.10 Control of Non Conformance

LM will inform the supplier of nonconformities that are highlighted at any stage of LM’s process flow including, but not limited to, trials and subsequent service. The supplier shall respond to the Supplier Corrective Action Report (SCAR) when raised. The SCAR is structured around the 8D process which details the requirement for the following:

- Problem statement
- Containment Action (in production, in stores, in transit, delivered product)
- Root Cause Analysis (see below)
- Corrective Action
- Implement Corrective Action
- Define and Plan Preventive action to prevent recurrence
- Review of implementation or actions

SCAR’s shall be processed to the following timescales by the supplier:

- Supplier has 5 working days to acknowledge receipt and undertake containment action
- Supplier then has a further 25 calendar days to respond with a detailed corrective action
- Supplier will submit on or before the agreed verification date, evidence of the implemented corrective/preventive action. This evidence will allow the LM Supplier Quality Engineer to close the SCAR.
- Should the SCAR be rejected by LMUK the supplier will have a further 10 working days to re-submit for approval and closure.
4.10.1 Root Cause Analysis (RCA)

When nonconformities occur, the supplier must perform Root Cause Analysis (RCA) and corrective action activities to prevent recurrence of the problem. LM recommend that the suppliers Improvement teams use industry standard root cause analysis tools to aid in identifying these issues i.e. 5 why methodology & Cause and Effect Diagram (Ishikawa or fishbone).

4.11 Application for Concession or Production (Deviation) Permit

Suppliers shall generate the Concession or Deviation Permit in accordance with LMUK Form F0045, or their own form provided it incorporates the requirements listed in Def-Stan 05-61 Part 1. This must include the proposed corrective action to eliminate the cause and prevent recurrence.

4.11.1 Production Permit

Production Permits (Deviations) are considered permission to produce an item that deviates from design data. This may be because of design anomalies, material availability issues or other unforeseen reasons prior to manufacture. Requirement for a production permit should be identified by the supplier at contract review or production planning.

Completed production permits shall be submitted to the procurement representative indicated on the purchase order. All Production permits must be referenced on the applicable certificate of conformity (using the LMUK approved concession number).

Any production prior to production permit approval shall not occur unless entirely at the supplier’s own risk. Products delivered against a LMUK approved deviation are considered as conforming.

4.11.2 Concessions

It is the policy of LMUK not to accept a product that fails to meet the required standard. In certain circumstances however, concessions will be considered by LMUK design authority through a materials review board (MRB). This will allow, when approved, the supplier to deliver product against agreed concession for a set number of product or parts. The concession must quote the LMUK purchase order(s) reference, serial numbers or batch affected or, if required, the time span applicable. The concession will NOT be accepted if these conditions are not met.

Completed concession request forms shall be submitted to the procurement representative indicated on the purchase order.

Delivery of nonconforming product shall not occur unless an approved concession is in place. All concessions must be referenced on the applicable certificate of conformity (using the LMUK approved number).

5. Record Retention / Destruction Requirement

Suppliers shall retain records relating to processing, testing, calibration, manufacture, supply, traceability and certification for a minimum of 7 years unless otherwise stated by contract.

Any loss or potential compromise of any classified material must be reported to LMUK without delay. All OFFICIAL + LMPI documents must be returned to Lockheed Martin UK Ampthill either:

a. When they are no-longer required as part of the sub-contract; or
b. At the end of the sub-contract.
Requests to destroy programme-related OFFICIAL information locally on the sub-contractor’s site must be passed to the Lockheed Martin UK, Ampthill Programme/Project Manager and Lockheed Martin UK Ampthill, Security Office for authorisation in accordance with LMUK contract conditions.

At a minimum, all OFFICIAL hard copy information must be destroyed using a cross-cut shredder which makes the reconstitution of the material highly unlikely. Unwanted OFFICIAL information/material that cannot be destroyed in such a way shall be returned to the Authority.

6. Performance Evaluation

LM requirements for suppliers monitoring, measurement, analysis and evaluation of internal performance is detailed in ISO 9001 para 9. No additional LMUK requirement is required.

7. Competence, Training and Awareness

The supplier shall ensure personnel processing orders or performing work affecting conformity to product or service are trained and aware of the relevance and importance of their activities in relation to meeting the requirements of LMUK purchase orders and associated documentation.

The supplier will as a minimum produce a skills matrix which details the training undertaken by suppliers’ staff/operators in relation to the processes specific to LMUK product. For example:

- Coded welders (refer to LM Special Process Auditor for preferred suppliers of approvals)
- IPC trained operatives in harnessing
- FOD awareness
- Internal procedures relevant to their scope of work on LM product

The skills matrix shall be maintained by supervisory/management level and demonstrate control of those activities. The skills matrix procedure shall also detail how risks associated with highly skilled operators are covered i.e. sickness, leave, succession planning etc. and the business decision on how that risk will be covered as well as capacity constraints.

It is highly recommended that the free resources provided by the Society of Automotive Engineers (SAE) International Aerospace Quality Group (IAQG) in the form of the Supply Chain Management Handbook (SCMH) is utilised to its full potential by all suppliers. This online document contains invaluable training and guidance material on every element of Aviation, Space and Defence (AS&D) requirements including first article inspection, configuration management, quality plans, counterfeit management and contract review.

8. Identification and Traceability

Traceability is an important factor in high end and safety critical products and is a basic requirement unless agreed in writing. Suppliers shall provide documentation that includes revision / issue nos., batch numbers, lot codes or where relevant date codes and serial numbers of goods provided.

8.1 Serialisation and Part Marking

Serialisation and part marking identification shall be in accordance with the purchase order, design data, drawing or any contractually agreed specification or standard.
8.2 Traceability to Source/Origin of Raw Material

Where the delivery quality conditions are QM003-A or QM003-B and any applicable Quality Plan requires demonstration of traceability and design provenance through the supply chain, the supplier shall include in any relevant sub-contract the requirement for certification from its sub-tier suppliers. The supplier shall ensure that full traceability is maintained throughout the sub-tier supply chain and can be provided on LM request. Material shall be identified and traceable to manufacturer’s part number, lot number, date code for all electronic and electrical parts, raw material, mechanical machined parts.

Please note: Commercial of the Shelf items (COTS) will only require traceability to original manufacturer unless otherwise stated on the Purchase Order.

9. Preservation of Product

The supplier shall preserve the product during internal processing, storage and delivery to the intended destination.

9.1 Workmanship Acceptance Criteria for Surface Engineering

Unless otherwise stated, the following workmanship acceptance criteria shall be used; Supplied product with surface finishes for functional or cosmetic applications shall meet the requirements of the drawing (or referenced specification) for surface conditions, uniform in appearance, free from blisters (adhesion), pits, nodules, scratches, stains. This includes but is not limited to electroplated, conversion coated, anodised, painted, mechanically finished and passivated surfaces.

9.2 Deviation from Design Data

Deviation from design data shall not occur unless an approved deviation permit from LMUK is obtained. See section 4.11.

9.3 Foreign Object Debris (FOD)

The supplier shall establish a process to detect and prevent Foreign Object Debris. This should be in accordance with NAS412 or AS9146. As a minimum the process shall include:

- FOD process review
- Training of FOD practices
- Material handling and product protection
- Tool / hardware accountability
- Lost items search and documentation process
- Physical entry control into FOD critical areas
- Inspection for foreign objects prior to closing apertures and compartments during assembly

9.4 Moisture Sensitive Level (MSL)

Moisture sensitive components shall be packaged in accordance with IPC/JEDEC J-STD 033. The Moisture Sensitivity Level (MSL) must be clearly identified on the outer packaging.

9.5 Electrostatic Discharge (ESD)

Where appropriate, suppliers shall provide adequate protection measures against ESD damage to goods and LMUK property. This should be in accordance with MIL-STD-1686 or ANSI/ESD S20.20.
Electronic Components shall be handled, packaged and supplied in accordance with BS EN 61340-5-1 or as specified in the contract conditions with LM.

9.6 Shelf Life

Goods and products containing items with finite shelf life shall have the expiry date identified on the product and the delivery documentation. The remaining shelf life must be a minimum of 80% of the total shelf life for the material at time of delivery unless otherwise specified.

9.7 Packaging

The supplier shall adequately plan for packaging designed to prevent product contamination, deterioration, damage or loss. Suppliers should provide expendable packaging or returnable containers, where appropriate, of sufficient density and protection from likely damage that could occur. The use of approved industry standard labelling and bar-coding shall be in accordance with any contractually agreed packaging specification.

10. Counterfeit Product Prevention and Conflict Minerals

10.1 Counterfeit Product Prevention

Where appropriate, the supplier shall establish and maintain a counterfeit parts / material prevention and control plan using AS5553 and/or AS6174 to ensure that counterfeit work is not delivered. The purpose of the supplier’s plan shall be to develop a robust process to prevent the delivery of counterfeit commodities and to control commodities identified as counterfeit. Where possible, semi-conductor distributors should be certified to AS6081.

10.2 Conflict Minerals

Conflict minerals are minerals mined in conditions of armed conflict and human rights abuses, and which are sold or traded by armed groups. Suppliers shall be aware of the OECD Due Diligence Guidance. Further information can be found at the Lockheed Martin Conflict Minerals webpage.

11. Obsolescence Management

Obsolescence Management is ‘the co-ordinated activities to direct and control an organisation with regard to obsolescence’. The suppliers shall notify LMUK of any pending obsolescence, the relevant last time buy date and last time ship date at least 6 months prior to the last time buy date.


Suppliers should have in place a business continuity plan in accordance with ISO 22301. This includes requirements to plan, establish, implement, operate, monitor, review, maintain and continually improve a documented management system to protect against, reduce the likelihood of occurrence, prepare for, respond to, and recover from disruptive incidents when they arise.

Essentially this is a management plan that ensures no disruption to the supply of goods to LM should the business fall foul of environmental circumstances such as fire, flood, power failure etc. This will include but not be limited to safety stocks of goods, fire protection of tooling/Jigs, safeguarding essential key machinery, off site holding of key software etc.

The extent of application of these requirements depends on the supplier’s operating environment and complexity.
13. Chemicals and Hazardous Substances

Nothing in this section shall reduce or limit any statutory duty or legal obligation of LMUK or the supplier.

13.1 Safety Data Sheets

Safety data sheets (SDS) provide information on chemical products that help users of those chemicals to make a risk assessment. They describe the hazards the chemical presents, and give information on handling, storage and emergency measures in case of accident. By law suppliers of chemicals must provide an up to date safety data sheet if a substance is classified as dangerous in accordance with the Classification, Labelling and Packaging (CLP) Regulation 1272/2008.

If the supplier is required, under, or in connection with the contract, to supply articles or components of articles that, in the course of their use, maintenance, disposal, or in the event of an accident, may release hazardous materials or substances, they shall provide to LMUK a list of those hazardous materials or substances with a subsequent SDS.

13.2 Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach)

REACH applies to substances manufactured or imported into the EU in quantities of 1 tonne or more per year. Generally, it applies to all individual chemical substances on their own, in preparations or in articles. The supplier shall disclose such information to LMUK for the purpose of compliance with the REACH regulation. For more information please contact the Lockheed Martin REACH Program Office at reach.info@lmco.com

13.3 Lead, Asbestos and Radioactive Substances

Special regulations apply to Lead, Asbestos and radioactive substances. In addition, refer to DEFCON 624 for Asbestos. Adequate packaging must be provided to prevent exposure of staff to these substances in accordance with the relevant Health and Safety Executive (HSE) Approved code of practise (ACOP)

14. Sensitive and LMUK Proprietary Data

LMUK proprietary and customer technical data must only be shared with 3rd party suppliers who have:

- Been approved by LMUK and the owner of the technical data.
- Confirmed in writing (e.g., hardcopy letter, email with return address header) that they are authorized to receive such data and they understand the implications of and requirements for handling sensitive and proprietary technical data.

Principally where data is identified as sensitive or LMUK Proprietary Data, restrictions apply to the control, handling and monitoring of such data. Only authorised personnel shall have access to restricted data and the data shall be controlled in such a way as to prevent unauthorized transmission or access.

Suppliers that require Restricted and Official Sensitive Classification data shall have a procedure in place for the control, handling and monitoring of such data. LMPI is always handled in accordance with the LM terms and conditions.

Where a supplier is identified on a Technical Assistance Agreement (TAA) or Manufacturing Licence Agreement (MLA), the organisation must complete a Non-Disclosure Agreement (NDA) when requested by LMUK and shall continue to maintain access controls in accordance with the NDA and
any Technology Control Plan (TCP) that LMUK and the organisation enter into. LM reserve the right to issue an NDA where LMN deem sensitive information will be shared with the supplier.

14.1 Sub-Tier Suppliers

Sub-tier suppliers and sub-contractors used by the supplier that have access to any sensitive or LMUK proprietary data must be authorized with an NDA in place.

14.2 Disposal of Sensitive and LMUK Proprietary Data

Refer to para 5 for disposal / destruction requirement.

15. Munitions

15.1 Weapons

Suppliers transporting weapons or weapon component parts must hold a current Home Office approval to transport goods controlled under the Firearms Act 1968, Section 5 (as amended). Home Office Guidance can be found here.

15.2 Explosives

For explosive items, the supplier shall contact Head of Safety Services at LMUK Ampthill, 3 business days prior to delivery. Release documentation for explosive items must include a copy of the National Competent Authority Classification and a Certificate of Correctness signed by the supplier’s authorised person. Release documentation must include the National Competent Authority Classification Number, United Nations (UN) Number, Hazard Division and Net Explosive Quantity. All packages must bear a UN Mark and be classified and labelled in accordance with UK Government Statutory Instrument 1994 No. 669 (The Carriage of Dangerous Goods by Road and Rail [Classification, Packaging and Labelling] Regulations 1994) UK Government Statutory Instrument 2014 No. 1638 (The Explosives Regulations 2014, Health and Safety) shall apply to all explosive items. Packaging shall be in accordance with DEFCON 130 Packaging for Explosives.
Appendix 2 – Delivery Documentation Requirement Flowchart

1. Is the FAI requirement stated on the PO?
   - Yes: Proceed to next step.
   - No: Raw material?
2. Raw material?
   - Yes: Does delivery contain Chemical or hazardous material?
     - Yes: Material Safety Data Sheet (MSDS)
     - No: Delivery Advice Note
3. Does delivery contain Chemical or hazardous material?
   - Yes: Material Safety Data Sheet (MSDS)
   - No: Delivery Advice Note
4. Part has been made within last 2 years?
   - Yes: Certificate of Conformity
   - No: Delivery Advice Note
5. Does FAIR exist with no changes to process?
   - Yes: Delivery Advice Note
   - No: AS9102 First Article Inspection Report
6. Product or Service?
   - Product: Test or calibration?
     - Yes: Test or Calibration Certificate
     - No: Delivery Advice Note
   - Service: Certificate of Conformity
     - Reference applicable FAIR No.
     - Delivery Advice Note
8. Service report or delivery note of service
   - Yes: Service report or delivery note of service
   - No: Delivery Advice Note
### Appendix 3 – Special Processes

As a guide to the requirements of Special Processes this section will allow suppliers to understand those deemed as Special Processes when associated with production of LMUK designed parts.

Special processes include but not limited to the following table:

<table>
<thead>
<tr>
<th>Coatings</th>
<th>Elastomer Seals</th>
<th>Electronics</th>
<th>Fluid Distribution Systems</th>
<th>Non Metallic Materials</th>
<th>Sealants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Spray</td>
<td>Plate Seals</td>
<td>Printed Circuit Board (PCB) Manufacture</td>
<td>Hose Manufacturing</td>
<td>Resin Manufacturing</td>
<td>Hole / Slot Sealing</td>
</tr>
<tr>
<td>Vapour Deposited Coatings</td>
<td>Fabric / Textile Reinforced Seals</td>
<td>PCB Assembly (Incl. Soldering)</td>
<td>Tube Manufacturing</td>
<td>Prepreg Manufacturing</td>
<td>Wire Bundle Sealing</td>
</tr>
<tr>
<td>Diffusion Coatings</td>
<td>O-Rings</td>
<td>Cable and Harness Assemblies</td>
<td>Fitting and Coupling Manufacturing</td>
<td>Adhesive Film Manufacturing</td>
<td>Joggle Sealing (Pre – Packed and Injection)</td>
</tr>
<tr>
<td>-</td>
<td>Moulded Shapes</td>
<td>Conformal Coating</td>
<td>-</td>
<td>Carbon Fibre Manufacturing</td>
<td>Liquid displacement or drain path sealing</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>Prepreg</td>
<td>Brazing</td>
<td>Chemical Analysis</td>
<td>Electrochemical Machining</td>
<td>Mechanical Testing</td>
<td>EMI Seal Caps</td>
</tr>
<tr>
<td>Adhesive Bonding</td>
<td>Aluminium Heat Treating</td>
<td>Mechanical Testing</td>
<td>Electrochemical Grinding</td>
<td>Physical Testing</td>
<td>PMF Seal Caps</td>
</tr>
<tr>
<td>Resin Film Infusion (RFI)</td>
<td>Carburizing</td>
<td>Metallography</td>
<td>Electrical Discharge Machining</td>
<td>Chemical Testing</td>
<td>Sealing with Seal Caps</td>
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<tr>
<td>Metal Bonding</td>
<td>Gas/Ion/Plasma Nitriding</td>
<td>Micro Indentation Hardness Testing</td>
<td>Laser Beam Machining</td>
<td>Thermal Testing</td>
<td>Fillet or Bead Sealing</td>
</tr>
<tr>
<td>Core Processing</td>
<td>Hot Isostatic Pressing</td>
<td>Corrosion Testing</td>
<td>Laser Part Marking</td>
<td>Flammability Testing</td>
<td>Fay or Interfay Surface Sealing</td>
</tr>
<tr>
<td>Liquid Resin Processing</td>
<td>Induction Hardening</td>
<td>Fastener Testing</td>
<td>Spark Erosion Grinding</td>
<td>-</td>
<td>Brush or Spray Coat Sealing</td>
</tr>
<tr>
<td>Compression Moulding</td>
<td>Sintering</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Aerodynamic Smoothing and Fairing</td>
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</table>

<table>
<thead>
<tr>
<th>Chemical Processing</th>
<th>Welding</th>
<th>Non-destructive Testing</th>
<th>Measurement &amp; Inspection</th>
<th>Surface Enhancement</th>
<th>Form-in-Place Sealing</th>
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<tbody>
<tr>
<td>Electroplating</td>
<td>Rotational Friction / Inertia Welding</td>
<td>Penetrant Flaw Detect</td>
<td>Coordinate Measuring Machines (CMM)</td>
<td>Shot Peening</td>
<td>Wet Installation of Fasteners</td>
</tr>
<tr>
<td>Electroless Plating</td>
<td>Torch / Induction Brazing</td>
<td>Anodise Flaw Detect</td>
<td>Laser Tracker</td>
<td>Peen Forming</td>
<td>Fastener Overcoat or Encapsulation</td>
</tr>
<tr>
<td>Anodising</td>
<td>Flash Welding &amp; Laser Welding</td>
<td>Magnetic Particle Inspection</td>
<td>Articulating Arm</td>
<td>Glass Bead Peening</td>
<td>Bushing/Bearing/Nutplates Sealing</td>
</tr>
<tr>
<td>Chemical Conversion Coatings</td>
<td>Electron Beam Welding</td>
<td>Ultrasonic Testing</td>
<td>Mass Airflow Measurement of Turbine Parts</td>
<td>Automated Peening</td>
<td>Nutplates Sealing</td>
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<tr>
<td>Passivation</td>
<td>Resistance Welding</td>
<td>Radiographic Inspection Testing</td>
<td>Energy Storage</td>
<td>Flapper Peening</td>
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<tr>
<td>Painting &amp; Dry-Film</td>
<td>Fusion Welding</td>
<td>Eddy Current Inspection Testing</td>
<td>Battery Cell Manufacture</td>
<td>Manual Peening</td>
<td>Metallic Materials Manufacturing</td>
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<tr>
<td>Etching &amp; Chemical Cleaning</td>
<td>Evaluation of Welds</td>
<td>-</td>
<td>Battery Cell Array Assemblies</td>
<td>-</td>
<td>Forging</td>
</tr>
</tbody>
</table>

Uncontrolled if downloaded or printed
Appendix 4 – Additional AQAP Guidance notes

AQAP 2110 EDITION D Quality Requirements for Design, Development and Production (ref QM003-A – Quality Requirements for NATO Contracts)

Allied Quality Assurance Publications (AQAP) are standards for quality assurance systems that have been developed by the North Atlantic Treaty Organization (NATO). AQAP 2110 Quality Assurance Requirements for Design, Development and Production defines requirements, which, if applied appropriately, provide confidence in the supplier's capability to deliver products that conform to LMUK contract requirements.

The common ISO 9001 baseline inherently makes AS9100 and AQAP 2110 appear almost identical. It is acceptable for a supplier to offer a QMS that complies with the provisions of AS9100 as a satisfactory response to the QMS requirements of AQAP 2110, under two conditions:

- The supplier formally states that, “All AS9100 requirements applicable to the organization are applicable to this contract”;
- The supplier formally states that, “No exclusions to AS9100 taken by the organization shall in any way diminish, alter, or relieve the AQAP 2110 requirements of this contract”.

These formal statements should be made in the Deliverable Quality Plan (DQP). See BS EN 9137 or ARP9137 Guidance for the Application of AQAP 2110 within a Quality Management System for further information.

AQAP 2120 Quality Requirements for Production

AQAP 2130 Quality Requirements for Inspection and Test

AQAP 2210 Supplementary Software Quality Assurance Requirements (as per QM003-A – Quality Requirements for NATO Contracts)

AQAP 2210 is intended for use with AQAP 2110 as a software specific and project oriented supplement, and defines the requirements for the Software Quality Management Activities as related to the Project to be documented in a Software Project Quality Plan. These activities are based on the supplier’s software quality system. The publication also requires the evaluation of the software quality management activities to ensure their effectiveness.

AQAP 2105 Deliverable Quality Plan
(as per QM003-A – Quality Requirements for NATO Contracts)

Where required suppliers shall submit a Deliverable Quality Plan (DQP) in accordance with AQAP 2105 which describes the framework in which the contract will be accomplished and is subject to approval by LMUK quality department.

The quality plan is considered as the key document which shall define all relevant standards and procedures to ensure that work is completed successfully to the required level of quality. The supplier must ensure that their own personnel are aware of the existence, purpose and content of the quality plan. Form F0389 Deliverable Quality Plan template may be used to meet this requirement.

AQAP 2131 Quality Requirements for Final Inspection
AQAP 2131 does not apply within the scope of this document.
AQAP 2310 Quality Requirements for Aviation, Space and Defence Suppliers
AQAP 2310 is invoked when suppliers hold AS9100 (or equivalent) certification where AQAP 2110 does not apply.

QUALITY PLAN (ISO 10005)
(as per QM003-B – Quality Requirements for non-military contracts)

Where required suppliers shall submit a (Deliverable) Quality Plan (DQP) in accordance with AQAP standards or as detailed with the contractual requirements which describes the framework in which the contract will be accomplished and is subject to approval by LMUK quality department.

The quality plan is considered as the key document which shall define all relevant standards, procedures and specific customer requirements to ensure conformance to requirements.

The supplier must ensure that their own personnel are aware of the existence, purpose and content of the quality plan. Form F0389 Deliverable Quality Plan template may be used to meet this requirement.

ISO 10007 CONFIGURATION MANAGEMENT PLAN
(as per QM003-B – Quality Requirements for non-military contracts)

Where required suppliers shall prepare and operate a Configuration Management Plan, which describes the application of configuration management to the contract in accordance with AQAP standards or as detailed with the contractual requirements.
# 16. QM003 Document Changes

<table>
<thead>
<tr>
<th>Date</th>
<th>Iss</th>
<th>Clause(s)</th>
<th>Changes</th>
<th>Change by</th>
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<td>22 June 2016</td>
<td>2</td>
<td>All</td>
<td>Complete re-write of Quality Requirements for Suppliers</td>
<td>Konrad Burgoyne</td>
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<td>13/03/2017</td>
<td>3</td>
<td>1.2, 4.7, 5, 5.1, 5.2, 5.3, 5.5, 5.6</td>
<td>Order of Precedence added, Delivery Quality Condition descriptions changed, ISO 9001:2008 References removed, Figure 1 Additional Flow-Down Requirement Selection Flowchart amended in line with AQAP 2110 Edition D, AQAP 2110 Edition D (2016) supersedes AQAP 2110 Ed 3, 2120 and 2130, Part marking as per purchase order, design data or drawing added, The supplier shall ensure that full traceability is maintained and can be provided on request throughout the sub-tier supply chain added, Certificates must be traceable to the certifying quality representative or company official on request added, Reference to raw material certification where applicable and name of authorised certifying quality representative or company official removed, Deviation from design data generalised, Shelf life requirement increase to 80% unless otherwise specified, Lockheed Martin conflict minerals policy hyperlink added, Figure 2 Delivery Documentation Requirement Flowchart added, Requests for deviation permit or application for concession amended in line with current process</td>
<td>Konrad Burgoyne</td>
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<td>31/10/2017</td>
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<td>Restructure of Document to align with ISO 9001 and AS9100 requirements</td>
<td>Craig White</td>
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<td>05/01/2018</td>
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<td>3.6</td>
<td>Addition of Regulatory Authority to ‘right of access’</td>
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<td>30/05/2018</td>
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<td>4.9.1, 4.11.2</td>
<td>Change to C of C requirements (FAI), Addition of Production Permit term</td>
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<td>First Article Requirement clarification on flowchart</td>
<td>Craig White</td>
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<tr>
<td>03/07/2018</td>
<td>7</td>
<td>Appendix 3</td>
<td>New section added to Appendix 3 to include Special Process Document References &amp; update to Appendix 2</td>
<td>Craig White</td>
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<td>27/02/2019</td>
<td>8</td>
<td>3.2 &amp; Appendix 3, Multiple</td>
<td>Re-write of Special Process Approvals and amendment to table, Hyperlinks to LM web resources updated and obsolete hyperlinks removed</td>
<td>Craig White</td>
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</table>
QM003 Quality Requirements for Suppliers is a non-classified Lockheed Martin UK Ampthill Ltd publication.

It is permissible to distribute copies of this publication to sub-contractors, suppliers and the sub-tier supply chain.

For more information visit: www.lockheedmartin.com/en-gb/suppliers.html