



# QM003

## Quality Requirements for Suppliers

Issue 9

Lockheed Martin UK Ampthill Ltd



# Quality Requirements for Suppliers

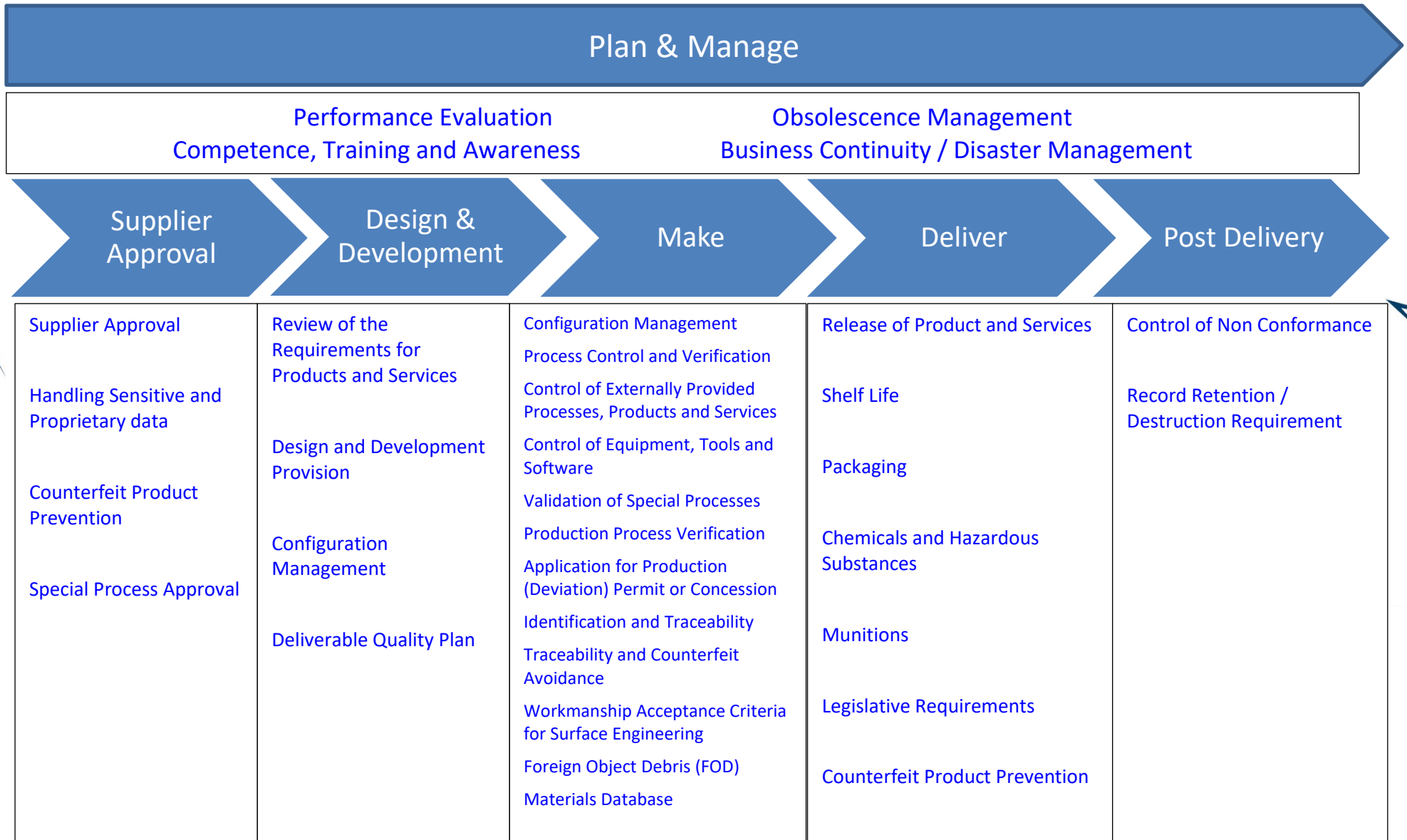
Doc No.	QM003
Issue	9
Date	21/12/2020
Page	2 of 42

## QM003 Contents

<b>1. Foreword</b>	<b>6</b>
1.1 Traceability and Counterfeit Avoidance	6
1.2 Sustainable Supply Chain	6
1.3 Conflict Minerals	6
1.4 Zero Concession Policy	6
<b>2. Scope</b>	<b>7</b>
2.1 Definitions and Terms	7
<b>3. Order of Precedence</b>	<b>7</b>
<b>4. Quality Conditions (Q Code)</b>	<b>7</b>
<b>Diagram 1 - Additional Flow-down requirement selection flowchart</b>	<b>8</b>
<b>5. Sensitive and LMUK-A Proprietary Data</b>	<b>9</b>
5.1 Handling Sensitive and Proprietary data	9
5.2 Record Retention / Destruction Requirement	9
<b>6. Supplier Approval</b>	<b>10</b>
6.1 Supplier Approval Minimum Requirements	10
6.1.1 Exceptions	10
6.1.2 Supporting Documentation	10
6.1.3 Security Assessment	10
6.1.4 Exceptional Circumstances	11
6.1.5 Scope of Approval	11
6.2 Maintenance of Approved Status	11
6.2.1 Site Visits and Supplier Audits	11
6.2.2 Approval updates – Supplier Responsibilities	11
6.2.3 Right of Access	12
<b>7. Special Processes</b>	<b>13</b>
7.1 Special Process Approval	13
7.2 Validation of Special Processes	14
<b>8. Quality Management Requirements</b>	<b>15</b>
8.1 Review of the Requirements for Products and Services	15
8.2 Deliverable Quality Plan	15
8.3 Design and Development Provision	16
8.4 Configuration Management	16
8.5 Process Control and Verification	16
8.6 Control of Externally Provided Processes, Products and Services	17
8.7 Control of Equipment, Tools and Software	17
8.8 Competence, Training and Awareness	18
8.9 Production Process Verification	18
8.10 Performance Evaluation	18
8.10.1 Monitoring, Measurement, Analysis and Evaluation	18
8.10.2 Internal Audit	19
8.10.3 Management Review	19
<b>9. Identification and Traceability</b>	<b>20</b>
9.1 Serialisation and Part Marking	20
9.2 Traceability to Source/Origin of Raw Material	20

<b>10. Counterfeit Product Prevention</b>	<b>21</b>
<b>11. Preservation of Product</b>	<b>22</b>
11.1 Workmanship Acceptance Criteria for Surface Engineering	22
11.1.1 Paint System Performance	22
11.2 Foreign Object Debris (FOD)	22
11.3 Shelf Life	23
11.4 Packaging	23
11.4.1 Moisture Sensitive Level (MSL)	23
11.4.2 Electrostatic Discharge (ESD)	23
<b>12. Materials Database</b>	<b>24</b>
<b>13. Control of Non Conformance</b>	<b>25</b>
13.1 Root Cause Analysis (RCA)	25
<b>14. Application for Production (Deviation) Permit or Concession</b>	<b>26</b>
14.1 Production Permit	26
14.2 Concessions	26
<b>15. Release of Product and Services</b>	<b>27</b>
15.1 Supplier Documentation (Certificate of Conformity Requirements)	27
15.1.1 Certificate of Conformity	27
15.1.2 Delivery Advice Note	28
15.1.3 Calibration and Test Certification	28
15.1.4 Completeness of Supplied Documentation	28
15.1.5 Late Deliveries / Short Deliveries	28
<b>Diagram 2 – Delivery documentation requirement flowchart</b>	<b>29</b>
<b>16. Legislative Requirements</b>	<b>30</b>
<b>17. Chemicals and Hazardous Substances</b>	<b>31</b>
17.1 Safety Data Sheets	31
17.2 Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	31
17.3 Lead, Asbestos and Radioactive Substances	31
17.4 Restriction of Hazardous Substances (RoHS)	32
<b>18. Munitions</b>	<b>33</b>
18.1 Weapons	33
18.2 Explosives	33
<b>19. Obsolescence Management</b>	<b>34</b>
<b>20. Business Continuity / Disaster Management</b>	<b>34</b>
<b>21. Useful Resources</b>	<b>35</b>
21.1 International Aerospace Quality Group	35
21.2 Lockheed Martin Support	35
21.3 Lockheed Guidance Documents & Templates	35
<b>Appendix 1 – Additional AQAP Guidance notes</b>	<b>36</b>
<b>Appendix 2 – Glossary of Abbreviations</b>	<b>38</b>
<b>Appendix 3 – Standards Referenced</b>	<b>39</b>
<b>22. QM003 Document Changes</b>	<b>41</b>

## QM003 Lifecycle Overview



## 1. Foreword

Lockheed Martin's 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, conforming to LMUK-A (Lockheed Martin UK Ampthill) requirements, 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 working in a zero-defect culture from our supply chain.

QM003 may be distributed to sub-contractors, suppliers and the sub-tier supply chain.

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

### 1.1 Traceability and Counterfeit Avoidance

Traceability and counterfeit avoidance are of paramount importance to Lockheed Martin to avoid safety and operational effectiveness of our products being compromised by defective items. Lockheed Martin rely on suppliers' stringent controls to ensure traceability is maintained as per requirements and counterfeit risks mitigated. Refer to sections 9 & 10 of this document for detailed requirements.

### 1.2 Sustainable Supply Chain

LMUK-A 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 Ampthill Ltd Quality Policy can be obtained upon request.

### 1.3 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](#).

### 1.4 Zero Concession Policy.

LMUK-A expects quality to be built into the Design and Production of our product and this is also the expectation of the supply chain. Conformity first is key to the delivery of world class product to our customers and this culture and mindset needs to be within the supply chain delivering to LMUK-A. As a company LMUK-A relies on the supply chain to deliver product conforming to requirements, free from defects with zero concessions or deviations.

Requests for concession applications will only be accepted under exceptional circumstances. Concession submissions will impact the supplier performance rating.

## 2. Scope

LMUK-A are required by AS9100 to apply appropriate controls to their direct and sub tier external providers to ensure that requirements are met.

The aim of this document is to formally communicate the Lockheed Martin UK Ltd (LMUK-A) quality requirements to the supply chain.

The supplier **must** refer to the Contract between LMUK-A and the supplier to identify the applicable version of QM003.

Suppliers **shall** plan, implement, and control the processes needed to meet the requirements for the provision of products and services to LMUK-A in accordance with this document and the suppliers' QMS.

### 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-A Supply Chain representative or Supplier Quality Engineer (SQE).

The term "Contract" refers to the legal agreement between LMUK-A and the Supplier for the provision of goods and/or services in which the requirement to comply with a version of QM003 has been incorporated.

## 3. Order of Precedence

Any inconsistencies in this document **shall** be resolved in accordance with the following descending order of precedence: (1) the Contract including any special terms and conditions; (2) the drawing, design data and any approved concession deviation (3) QM003.

## 4. Quality Conditions (Q Code)



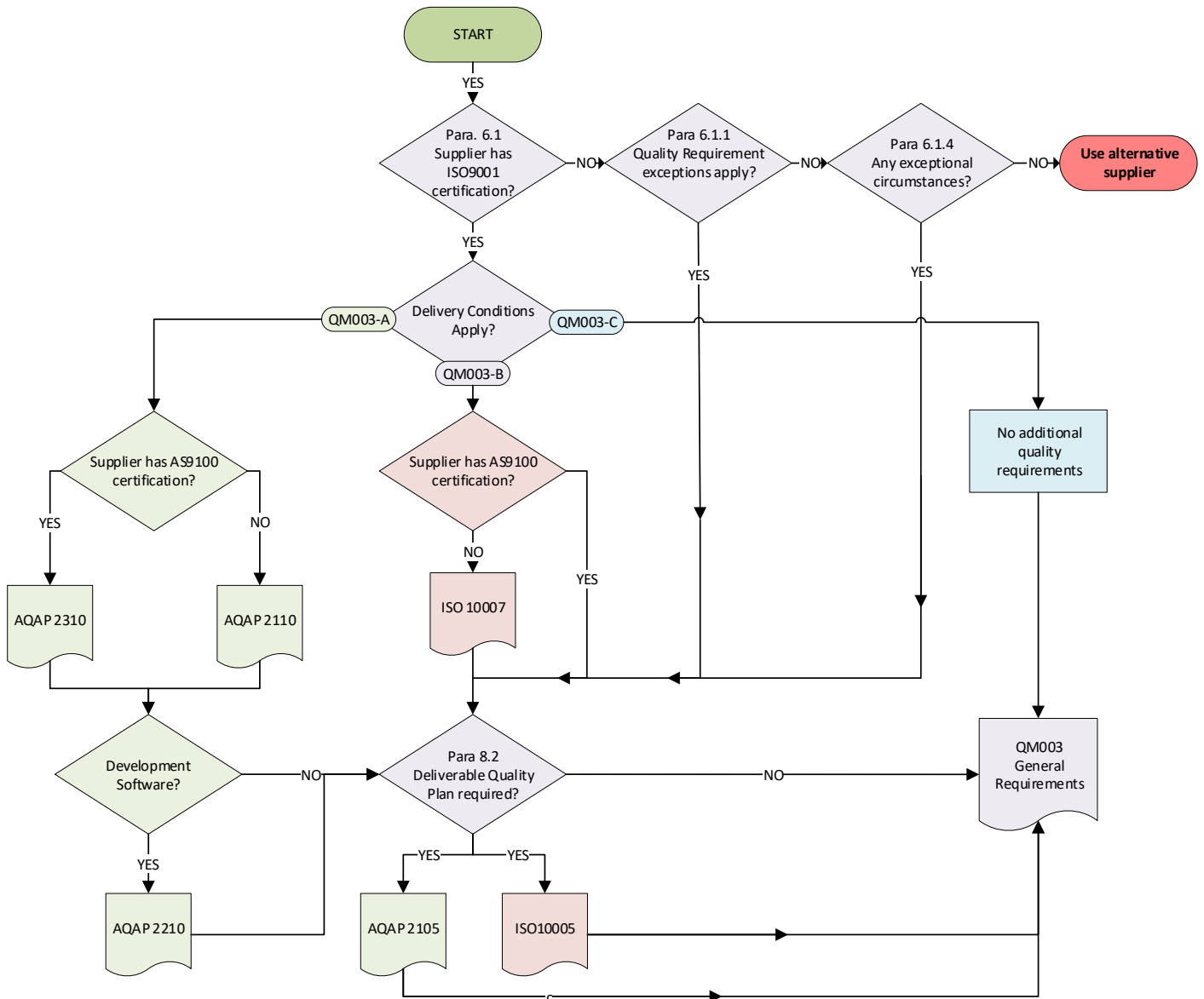
Additional Quality Conditions required by NATO & Military contracts above those detailed within QM003 basic requirements and ISO9001 are defined by quality condition (Q code) QM003-A & QM003-B which will be stated on LM's purchase order and/or Sub-Contract.

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 [Diagram 1 - Additional Flow-down requirement selection flowchart](#) and [Appendix 1 – Additional AQAP Guidance notes](#).

Q Code	Description	Flow-Down Requirement in Addition to ISO9001 & QM003
QM003-A	Quality Requirements for NATO Contracts	AQAP 2110 / 2105 Applies
QM003-B	Quality Requirements for Non-Military Contracts	ISO 10005 / 10007 Applies
QM003-C	Quality Requirements for Business Supplies	No additional requirement

Diagram 1 - Additional Flow-down requirement selection flowchart

- ALL
- QM003-A Quality Requirements for NATO Contracts
- QM003-B Quality Requirements for Non-Military Contracts
- QM003-C Quality Requirements for Business Supplies





## 5. Sensitive and LMUK-A Proprietary Data

### 5.1 Handling Sensitive and Proprietary data



Sub-tier suppliers and sub-contractors used by the supplier that have access to any sensitive or LMUK-A proprietary data **must** be authorised with a Non-Disclosure Agreement (NDA) in place with LMUK-A.

LMUK-A proprietary and customer technical data **must** only be shared with 3<sup>rd</sup> party suppliers who have:

- Been approved by LMUK-A 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
- 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. Any loss or potential compromise of any classified material must be reported to LMUK-A without delay.

Lockheed Martin Proprietary Information (LMPI) **shall** be handled in accordance with the LMUK-A 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-A and **shall** continue to maintain access controls in accordance with the NDA and any Technology Control Plan (TCP) that LMUK-A and the organisation enter into.

LMUK-A reserve the right to issue an NDA where LMUK-A deem sensitive information will be shared with the supplier.

### 5.2 Record Retention / Destruction Requirement

Suppliers **shall** retain records relating to processing, testing, calibration, manufacture, supply, traceability and certification for a minimum of **7 years** from end of Contract date unless otherwise stated by Contract or statutory requirements (i.e. 10 years for EU declaration of Conformity & CE Marking as defined in Journal 2016/C 272/01).

**All OFFICIAL + LMPI** documents must be returned to Lockheed Martin UK Ampt Hill either:

- When they are no-longer required as part of the sub-contract; or
- 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, Ampt Hill Programme/Project Manager and Lockheed Martin UK Ampt Hill, Security Office for authorisation in accordance with LMUK-A 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 originating Authority.

## 6. Supplier Approval

### 6.1 Supplier Approval Minimum Requirements

The minimum quality requirement for suppliers of goods supplied, work performed and services provided to LMUK-A **shall** be Quality Management System (QMS) certification to [ISO9001](#) by a [UKAS](#) (or national equivalent) accredited certification body.

Suppliers that provide goods and services that are used in projects for aviation and space applications **should** be certified to [AS9100](#) for QM003-A & QM003-B Contracts.

Distributors **shall** be certified to AS9120 and Calibration Laboratories **shall** be certified to ISO 17025 or equivalent for QM003- A & QM003-B Contracts.

#### 6.1.1 Exceptions

LMUK-A may approve exceptions to the above requirements if any of the following criteria are met:

- 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

#### 6.1.2 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
- Deliverable Quality Plan (See section [8.2](#))

(Form F0189 is available on the Lockheed Martin UK website.)

#### 6.1.3 Security Assessment

Suppliers working at OFFICIAL-SENSITIVE/LEGACY RESTRICTED, will be required to undergo a Security Assurance visit and Risk Assessment by LM Security personnel prior to the exchange of any sensitive information.

Following the initial Security Assurance visit, the supplier will be required to complete an Annual Security Questionnaire which will be evaluated to ensure that there has been no change to the Risk Assessment.

Suppliers may be subject to subsequent, follow up Security Assurance visits where required.

## 6.1.4 Exceptional Circumstances

Where the supplier approval criteria or listed 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-A audit to a set of alternative quality requirements.

## 6.1.5 Scope of Approval

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

## 6.2 Maintenance of Approved Status

### 6.2.1 Site Visits and Supplier Audits

- Where appropriate, suppliers **shall** be subject to on-site audit and / or site visit by Lockheed Martin
- In some instances, LMUK-A will be unable to raise a contract until completion of successful supplier audit
- Scheduled verification audits, site visits and business to business meetings **shall** be supported when required
- If specified on the Contract, Verification at Source acceptance inspection and witness testing by Buyer Quality Assurance representative **shall** be required prior to shipment of product from your facility. The Seller **shall** provide a notice period of 7 days prior to which components will be available for source inspection. To notify and arrange email [sqa\\_amphill.fc-amphill@lmco.com](mailto:sqa_amphill.fc-amphill@lmco.com) and the nominated supply chain representative identified on the Contract

### 6.2.2 Approval updates – Supplier Responsibilities

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

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

To notify LMUK-A of any updates email [sqa\\_amphill.fc-amphill@lmco.com](mailto:sqa_amphill.fc-amphill@lmco.com) or the nominated LMUK-A supply chain representative identified on the Contract.

## 6.2.3 Right of Access

Suppliers and their sub-suppliers **shall** provide to LMUK-A, 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

## 7. Special Processes

### 7.1 Special Process Approval

The use of Special Processes at suppliers and sub-tier suppliers requires approval by one of the following methods:

- Third party accreditations (e.g. NADCAP)
- Prior Lockheed Martin Special Process Approval (specific to Special Process)

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

Lockheed Martin reserve the right to audit suppliers Special Processes completed in house and at sub-tier suppliers / sub-contractors.

- If there are 0 non-conformances during LMUK-A audit approval is valid for 3 years.
- If non-conformances are identified approval is valid for 2 years once non-conformances are resolved before re-audit is required

**Refer to section 7.2 for Special Process Validation requirements that suppliers shall complete.**

Special processes include but are not limited to the following table: -

Coatings	Elastomer Seals	Electronics	Fluid Distribution Systems	Non-Metallic Materials	Sealants
Thermal Spray	Plate Seals	Printed Circuit Board (PCB) Manufacture	Hose Manufacturing	Resin Manufacturing	Hole / Slot Sealing
Vapour Deposited Coatings	Fabric / Textile Reinforced Seals	PCB Assembly (Incl. Soldering)	Tube Manufacturing	Prepreg Manufacturing	Wire Bundle Sealing
Diffusion Coatings	O-Rings	Cable and Harness Assemblies	Fitting and Coupling Manufacturing	Adhesive Film Manufacturing	Joggle Sealing (Pre – Packed and Injection)
-	Moulded Shapes	Conformal Coating	-	Carbon Fibre Manufacturing	Liquid displacement or drain path sealing
Composites	Heat Treating	Materials Testing	Nonconventional Machining	Non-Metallic Materials Testing	Electrical Bonding
Prepreg	Brazing	Chemical Analysis	Electrochemical Machining	Mechanical Testing	EMI Seal Caps
Adhesive Bonding	Aluminium Heat Treating	Mechanical Testing	Electrochemical Grinding	Physical Testing	PMF Seal Caps
Resin Film Infusion (RFI)	Carburizing	Metallography	Electrical Discharge Machining	Chemical Testing	Sealing with Seal Caps
Metal Bonding	Gas/Ion/Plasma Nitriding	Micro Indentation Hardness Testing	Laser Beam Machining	Thermal Testing	Fillet or Bead Sealing
Core Processing	Hot Isostatic Pressing	Corrosion Testing	Laser Part Marking	Flammability Testing	Fay or Interfay Surface Sealing
Liquid Resin Processing	Induction Hardening	Fastener Testing	Spark Erosion Grinding	-	Brush or Spray Coat Sealing
Compression Moulding	Sintering	-	-	-	Aerodynamic Smoothing and Fairing
Chemical Processing	Welding	Non-destructive Testing	Measurement & Inspection	Surface Enhancement	Form-in-Place Sealing
Electroplating	Rotational Friction / Inertia Welding	Penetrant Flaw Detect	Coordinate Measuring Machines (CMM)	Shot Peening	Wet Installation of Fasteners
Electroless Plating	Torch / Induction Brazing	Anodise Flaw Detect	Laser Tracker	Peen Forming	Fastener Overcoat or Encapsulation
Anodising	Flash Welding & Laser Welding	Magnetic Particle Inspection	Articulating Arm	Glass Bead Peening	Bushing/Bearing/Nutplates Sealing
Chemical Conversion Coatings	Electron Beam Welding	Ultrasonic Testing	Mass Airflow Measurement of Turbine Parts	Automated Peening	Nutplates Sealing
Passivation	Resistance Welding	Radiographic Inspection Testing	Energy Storage	Flapper Peening	Edge Sealing of Composites
Painting & Dry-Film	Fusion Welding	Eddy Current Inspection Testing	Battery Cell Manufacture	Manual Peening	Metallic Materials Manufacturing
Etching & Chemical Cleaning	Evaluation of Welds	-	Battery Cell Array Assemblies	-	Forging

## 7.2 Validation of Special Processes

Validation of a special process is critical and allows suppliers to demonstrate that the process provides a repeatable and reproducible output conforming to requirements.

A special process is a process that generates outputs that cannot be measured, monitored, or verified non-destructively or cost effectively. Therefore, deficiencies cannot be detected until after products are in use.

- 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
- Suppliers **shall** ensure validation of sub-contracted Special Processes
- Refer to section [11.1.1](#) for paint system adhesion testing requirements

## 8. Quality Management Requirements

### 8.1 Review of the Requirements for Products and Services

The supplier **shall** ensure that they have the ability to meet LMUK-A's requirements for products and services.



**The supplier shall conduct a review before committing to supply products and services (commonly known as contract review).**

If the review identifies any anomalies that could jeopardise the quality conformance or delivery of the Contract the supplier **shall** inform the nominated supply chain representative identified on the RFQ/ contract.

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-A, understand the conditions of the Contract as highlighted in para [8.3](#)
- Reference documentation - it is the responsibility of suppliers to obtain, review, work to and maintain current or contracted issues of specifications and standards from appropriate sources
- Additional Resources –should the requirement for fixturing, hard gauging, specialist test equipment, specialised training etc be identified this must be communicated to LMUK-A 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. LMUK-A must be informed if sections of work are to be subcontracted. LMUK-A reserve the right to audit that supplier if it is deemed a perceived risk to contractual requirements (see [8.6](#)). Special Processes are covered in section [7](#).

### 8.2 Deliverable Quality Plan

The quality plan is considered the key document which **shall** define all relevant standards and procedures to ensure that work is completed with zero defects 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.

Suppliers **shall** submit a Deliverable Quality Plan (DQP) to LMUK-A in accordance with [AQAP 2105](#) for QM003-A & ISO 10005 for QM003-B Contracts which describes the framework in which the Contract will be accomplished and is subject to approval by LMUK-A quality department.

- The DQP submission date **shall** be agreed with the LMUK-A Supplier Quality Representative post Contract award but **shall** be prior to manufacture of products
- A revised DQP **shall** be submitted to LMUK-A when significant changes occur that invalidate the original submission
- LMUK-A form [F0389](#) Deliverable Quality Plan template **may** be used

If only providing COTS/MOTS items to LMUK-A, review the application & extent of the DQP with your LMUK-A Supplier Quality Representative.

### 8.3 Design and Development Provision

If undertaking design and development work for LMUK-A, the supplier **shall** conform to the requirements defined within ISO9001 as a minimum, and AS9100 or AQAP 2110 for quality condition QM003-A.

### 8.4 Configuration Management

A disciplined Configuration Management process ensures that products conform to their requirements and are identified and documented in sufficient detail to support the product life cycle.

Configuration Management is critical to ensure the product and system interfaces remain compatible.

For Quality Conditions QM003-A and QM003-B the supplier **shall** plan, implement, and control a process for configuration management as appropriate to the products and services supplied to ensure the identification and control of physical and functional attributes through the product life cycle. This **shall** be in accordance with DEF STAN 05-57 for QM003-A & ISO 10007 for QM003-B Contracts.

For suppliers outside the United Kingdom configuration management in accordance with ACMP 2100 is acceptable for Quality Condition QM003-A.

### 8.5 Process Control and Verification

Suppliers **shall** demonstrate confidence that their processes have been carried out as planned and the conformity of those products and services can be demonstrated.

For QM003-A & QM003-B Contracts Process Control & Verification activities **shall** be detailed in the Deliverable Quality Plan (see [8.2](#)) and agreed with both parties. The requirements **shall** be flowed down the supply chain as necessary (see [8.6](#)).

Examples of how to demonstrate process control include:

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



- 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 process monitoring, inspection and special process controls 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
- Use of controlled fixtures and hard gauging

If Key Characteristics are specified, suppliers **shall** demonstrate the control of variation in the process by the use of process capability measurement, statistical process control, Measurement Systems Analysis studies i.e. Gauge Repeatability and Reproducibility (R&R) and Machine Capability Report (CmK).

## 8.6 Control of Externally Provided Processes, Products and Services

The supplier, as the recipient of the Contract, **shall** be responsible for meeting all requirements, including goods supplied, work performed, and services provided 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-A 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 for goods supplied, work performed and services provided for LMUK-A, the supplier **shall** flow down to its sub-tier sources all of the applicable technical and quality requirements contained in the LMUK-A 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-A 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.

For QM003-A & QM003-B Contracts suppliers **shall** confirm that Sub-Tier suppliers have QMS certification to ISO 9001 by a UKAS (or national equivalent) accredited certification body.

In exceptions where Sub-Tier suppliers do not hold ISO 9001 accreditation, the supplier **shall** liaise with their LMUK-A Supplier Quality Contact to evaluate where evidence of compliance can be provided.

## 8.7 Control of Equipment, Tools and Software

Equipment, tools and software programs used to monitor, measure, automate or control production processes **shall** be validated by the supplier prior to release for production and **shall** be maintained and calibrated (where applicable).

Traceability **shall** be maintained to national standards by supplier 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 **shall** be detailed in a risk avoidance document that will detail the supplier's disaster recovery plan in such an event – see section 20.

## 8.8 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-A Contracts and associated documentation.

The supplier **shall** as a minimum produce a skills matrix which details the training undertaken by suppliers' staff/operators in relation to the processes specific to LMUK-A 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 staff 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.

## 8.9 Production Process Verification



When indicated on the purchase order or Contract 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 **FAIR shall** be produced in accordance with AS9102
- A revised full FAI or partial FAI **shall** be completed when changes occur that invalidate the original results as per AS9102 section 4.6 requirements
- FAIRs **shall** be submitted electronically prior to delivery of goods to [fai.fc-amphill@lmco.com](mailto:fai.fc-amphill@lmco.com)

The FAIRs **shall** include all certification indicating conformity of materials (including raw material mill test certificates), special processes, calibration, testing and personnel training qualification where applicable.

Guidance on how LM require First Articles to be completed is detailed in LM's [First Article Inspection Guidebook](#). It is strongly advised this is reviewed and its requirements understood.

## 8.10 Performance Evaluation

Performance evaluation **shall** be in accordance with ISO 9001 paragraph 9.

The supplier **shall** evaluate the performance and the effectiveness of the quality management system and retain appropriate documented information as evidence of the results. This information **shall** be accessible to LMUK-A upon request.

### 8.10.1 Monitoring, Measurement, Analysis and Evaluation

#### 8.10.1.1 General

Comply with ISO 9001:2015 clause 9.1.1 requirements.

#### 8.10.1.2 Customer Satisfaction

Comply with ISO 9001:2015 clause 9.1.2.

For QM003-A & QM003-B Contracts suppliers **shall**:

- Create production process performance metrics that monitor the following as a minimum unless otherwise agreed:
  - 1) Process yield rates (% scrap, % rework)
  - 2) Right First Time
  - 3) Statistical Process Control (if applicable on items with Key Characteristics)
- Implement appropriate Key Performance Indicators for quality and delivery performance
- Monitor performance metrics and use to drive process improvement initiatives

#### 8.10.1.3 Analysis and Evaluation

Comply with the requirements defined in ISO 9001:2015 clause 9.1.3

#### 8.10.2 Internal Audit

Comply with the requirements defined in ISO 9001:2015 clause 9.2

#### 8.10.3 Management Review

Comply with the requirements defined in ISO 9001:2015 clause 9.3

## 9. Identification and Traceability

Traceability of the entire supply chain is of paramount importance to LMUK-A, including traceability to Original Equipment Manufacturer (OEM) where requirement applies for QM003-A & QM003-B Contracts.

### 9.1 Serialisation and Part Marking

Serialisation and part marking identification **shall** be in accordance with the Contract, design data, drawing or any contractually agreed specification or standard.

### 9.2 Traceability to Source/Origin of Raw Material

Where the delivery quality conditions are QM003-A or QM003-B and/or 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.



Where QM003-A or QM003-B has been incorporated into the Contract, the supplier **shall** ensure that 'Full Traceability' is maintained within their own activities and throughout their sub-tier supply chain. The Supplier **must** provide traceability evidence to LMUK-A on request.

'Full Traceability' requirements for QM003-A & QM003-B Contracts are as follows:

Category	Traceability Requirements
Raw Material	Lot traceable to manufacturers part no, lot no, date code <u>with</u> Certified Mill Test Report or Material Test Report
Manufactured Parts	Traceability <b>shall</b> be maintained for all product throughout production from raw material to finished product (including product quantities, split orders, nonconforming product etc.)  Raw material used <b>shall</b> be Lot traceable to manufacturers part no, lot no, date code <u>with</u> Certified Mill Test Report or Material Test Report  Requirements specified for COTS, MOTS & Mechanical/Electrical parts also apply where applicable.
Commercial off the Shelf (COTS)	Traceability through supply chain to Original Equipment Manufacturer (OEM)
Modified off the Shelf (MOTS)	Traceability <b>shall</b> be maintained for all product modifications throughout production from material to finished product (including product quantities, split orders, nonconforming product etc.)  The originating COTS item(s) <b>shall</b> have Traceability through supply chain to Original Equipment Manufacturer (OEM)  Requirements specified for Raw Material & Mechanical/Electrical parts also apply where applicable for item modifications.
Mechanical / Electrical Parts	Lot traceable to Original Equipment Manufacturers part no, lot no, date code

## 10. Counterfeit Product Prevention

The supplier **shall** not deliver counterfeit or suspected counterfeit parts. The supplier **shall** inform LMUK-A of any suspected counterfeit parts immediately on discovery within the supplier's supply chain.



The supplier **shall** have a defined and documented policy for the avoidance of counterfeit materiel, including an Anti-Counterfeiting Management Plan (ACMP) in accordance with DEF STAN 05-135.

The purpose of the supplier's policy **shall** be to develop a robust process to prevent the delivery of counterfeit commodities and to control commodities identified as counterfeit.

Policies to AS5553 or AS6174 are also deemed acceptable providing the requirements of DEF STAN 05-135 are met. Semi-conductor distributors **shall** be certified to AS6081.

Product delivered by the Supplier that is subsequently identified as counterfeit by LMUK-A will be scrapped by LMUK-A and will not be returned to the Supplier. The Supplier **shall** replace any delivered counterfeit items at the Suppliers own cost.

## 11. Preservation of Product

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

### 11.1 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 i.e. 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.

#### 11.1.1 Paint System Performance

Where products are painted, sufficient conditions **shall** be met to ensure effective adhesion is maintained.

For QM003-A & QM003-B Contracts this **shall** comply with one of the following acceptance criteria:

- ISO 2409 Table 1 Class 0
- ASTM 3359 Test Method A (X-Cut): 5A (No Peeling or removal)
- ASTM 3359 Test Method B (Cross Cut): 5B (0% Removed).

Adhesion testing **shall** be performed on test coupons representative of product substrate and process. Frequency of testing **shall** be adequate to validate the paint process output. Test records **must** be maintained traceable to the product.

Test reports **shall** be submitted in FAI packs when FAI is requested (ref. section [8.9](#)) in accordance with the standard used for testing, and also be available upon request.

Refer to ISO 2409 paragraph 12 and ASTM 3359 paragraphs 9 & 14 for test report requirements relative to testing criteria.

### 11.2 Foreign Object Debris (FOD)

The supplier **shall** establish a process to detect and prevent Foreign Object Debris for QM003-A & QM003-B Contracts. This **shall** be in accordance with AS9146 or NAS412.

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

The supplier **shall** review and apply FOD controls where appropriate for QM003-C Contracts.

## 11.3 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.

## 11.4 Packaging

The supplier **shall** adequately plan and ensure that products are protected, packaged and labelled to a standard that will provide adequate protection against damage, deterioration, corrosion, contamination and loss.

The supplier **shall** ensure that the product packaging is labelled to a standard that provides adequate identification and traceability of the product.

The use of approved industry standard labelling and bar-coding **shall** be in accordance with any contractually agreed packaging specification.

If the contract specifies specific packaging requirements or standards these **shall** be complied with.

### 11.4.1 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.

### 11.4.2 Electrostatic Discharge (ESD)

Where appropriate, suppliers **shall** provide adequate protection measures against ESD damage to goods and LMUK-A property. This **shall** 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 LMUK-A.

## 12. Materials Database

LMUK-A maintain a Materials Database that specifies approved material grades for use based on a classification code system.

Where a material classification code is specified on drawing or specification, the Supplier **must** refer to the Lockheed Martin UK Amptill Materials Database on the [Lockheed Martin UK website](#) to identify acceptable material grades for use.

When relevant, a specific Materials Database version reference **shall** be referenced within the Contract. Only the specific Materials Database version referenced on the Contract **shall** be used by the Supplier.

The materials database **shall** only be used where a related material classification code is specified on the drawing or contracted specification. It **shall not** be used for legacy drawings that specify a specific material specification.

All historical versions of the Materials Database version are available on the Lockheed Martin UK website.



## 13. Control of Non Conformance

### 13.1 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.

LMUK-A recommends that the suppliers Improvement teams use industry standard root cause analysis tools to aid in identifying these issues i.e. 5 why methodology, 8D & Cause and Effect Diagram (Ishikawa or fishbone). Refer to AS13000 & ARP9136 for guidance.



**Nonconformances on delivered hardware to Lockheed Martin are viewed as escapes by the Supplier, and as such will impact the Supplier's performance rating. The Suppliers performance rating *may* influence LMUK-A's future source selection decisions.**

It is imperative that suppliers react to nonconformances and provide responses within agreed timeframes. Where timescales cannot be met the supplier **shall** inform the LMUK-A Supplier Quality Representative identified on the Supplier Corrective Action Report (**SCAR**) form immediately.

LMUK-A will inform the supplier of nonconformities that are highlighted at any stage of LMUK-A's process flow including, but not limited to, trials and subsequent service. The supplier **shall** respond to the **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
- Corrective Action
- Implement Corrective Action
- Define and Plan Preventative action to prevent recurrence
- Review of Implementation or actions

Unless otherwise communicated by your LMUK-A Supplier Quality representative, SCARs **shall** be processed to the following timescales by the supplier.

- Supplier has **5 working days** to acknowledge receipt, undertake containment action and provide containment response to LMUK-A
- Supplier then has a further **25 calendar days** to respond with a detailed corrective action plan on the LM Supplier Corrective Action Form A-0108
- Supplier will submit on or before the agreed verification date, evidence of the implemented corrective & preventive action. This evidence will allow the LMUK-A Supplier Quality Engineer to close the SCAR
- Should the SCAR be rejected by LMUK-A the supplier will have a further **5 working days** to re-submit for approval and closure

## 14. Application for Production (Deviation) Permit or Concession

Suppliers **shall** generate the Production Permit or Concession in accordance with LMUK-A Form F0045, or their own form provided it incorporates the requirements listed in DEF STAN 05-61 Part 1.

This **shall** include the proposed corrective action to eliminate the cause and prevent recurrence.

### 14.1 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.

- Completed production permits **shall** be submitted to the supply chain representative indicated on the Contract / purchase order
- **All Production permits must be referenced on the applicable certificate of conformity** quoting the permit approval number provided by LMUK-A
- Any production prior to production permit approval is entirely at the supplier's own risk
- Products delivered against a LMUK-A approved permit are considered as conforming.

### 14.2 Concessions



Requests for concession applications will only be accepted under exceptional circumstances.  
Concession submissions will impact the supplier performance rating.

Prior to submission of concession application mitigation actions **shall** be reviewed by the supplier to remove the need for non-conformance and be available upon request by LMUK-A. If concession is still viewed as necessary, a discussion **shall** be held with the LMUK-A supply chain representative indicated on the Contract / purchase order before submission.

- \* The concession **must** quote the LMUK-A Contract / purchase order(s) reference, serial numbers or batch affected or, if required, the time span applicable. The concession will NOT be considered for acceptance by LMUK-A if these conditions are not met
- \* Completed concession request forms **shall** be submitted to the LMUK-A supply chain representative indicated on the Contract
- \* 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 concession approval number provided by LMUK-A.

## 15. 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 contract 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 contract requirements. **A signed copy or digital signature will be acceptable**, but Certificates **must** be traceable to a certifying supplier quality representative or authorised supplier company official.

### 15.1 Supplier Documentation (Certificate of Conformity Requirements)

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 / contract number
- \* Drawing number and / or part number and revision (as stated on Purchase Order or Sub-Contract)
- \* 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-A Reference numbers for all approved Production Permits / Concessions applicable
- \* Reference to current First Article Inspection Report (where applicable)
- \* Reference to the Quality Management System release

Suppliers **shall** ensure the correct documentation is supplied with products and services. This is further illustrated in Diagram 2 – Delivery documentation requirement flowchart.

#### 15.1.1 Certificate of Conformity

For deliveries that apply quality condition QM003-A & QM003-B (see section 4 - Quality Conditions (Q Code) a certificate of conformity **shall** be supplied with delivered goods or services that meet the above Certificate of Conformity requirements. Please read section 17 which further expands the requirements for Chemicals and Hazardous Substances.



## 15.1.2 Delivery Advice Note

The following data/information **shall** be included on each Delivery Advice Note when required:

- \* Delivery Advice Note number
- \* Release date
- \* Purchase order / contract number
- \* Quantity
- \* Supplier Name and Address
- \* Drawing number and / or part number (as stated on Purchase Order or Sub-Contract)
- \* Batch unique identifier (Batch number / Lot number / Date code / Serial number) if applicable. This is not mandated if detail captured on supporting C of C provided for QM003-A/B Contracts.

## 15.1.3 Calibration and Test Certification

Where calibration and test certification are issued to LMUK-A 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 to include tolerances and criteria
- \* Items outside specified limits will be identified, especially if the item has undergone authorised repair to bring it into specification

Calibration and test certification **shall** be submitted electronically prior to shipment of item to [calibration.fc-amphill@lmco.com](mailto:calibration.fc-amphill@lmco.com). Delivery note **shall** be provided with physical delivery.

## 15.1.4 Completeness of Supplied Documentation

Certification documentation supplied to the requirements of any LMUK-A contract 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-A.

## 15.1.5 Late Deliveries / Short Deliveries

If non-delivery, short or late deliveries are anticipated, suppliers **shall** immediately notify the LMUK-A supply chain representative indicated on the Contract.

Diagram 2 – Delivery documentation requirement flowchart



\* First Article Inspection Reports **shall** be submitted electronically prior to shipment of goods to [fai.fc-amphill@lmco.com](mailto:fai.fc-amphill@lmco.com)

\* Calibration and test certification **shall** be submitted electronically prior to shipment of item(s) to [calibration.fc-amphill@lmco.com](mailto:calibration.fc-amphill@lmco.com)

## 16. Legislative Requirements

Suppliers **shall** conform to all applicable Environmental, Health and Safety legislation as applicable to the Contract and retain appropriate compliance data as defined by legislation.

Where specified in legislation or Contract appropriate compliance data **shall** be supplied to customer (LMUK-A).

## 17. Chemicals and Hazardous Substances

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

### 17.1 Safety Data Sheets

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 a list of those hazardous materials or substances with a subsequent Safety Data Sheet.

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](#).

### 17.2 Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

REACH is a European Union regulation concerning the Registration, Evaluation, Authorisation and restriction of Chemicals. The European Community Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization and restriction of Chemicals (REACH) entered into force on June 1, 2007.

The regulation aims to better protect human health and the environment by ensuring the risks associated with chemicals are measured and understood. REACH calls for registration of chemicals above specific thresholds that are imported and/or manufactured within the European Economic Area (EEA), chemical disclosure requirements for articles that are imported and/or manufactured within the EEA, and the complete restriction of some chemicals from the EEA altogether.

[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-A for the purpose of compliance with the REACH regulation and comply with the requirements of Regulation (EC) No 1907/2006.

Lockheed Martin has established a Corporate REACH Program Office within its Global Supply Chain Operations organisation that is fully conversant with the requirements of REACH to ensure compliance throughout the Corporation and within our supply chain.

For more information please contact the Lockheed Martin REACH Program Office at [reach.info@lmco.com](mailto:reach.info@lmco.com).

### 17.3 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 LMUK-A staff to these substances in accordance with the relevant [Health and Safety Executive](#) (HSE) Approved code of practice (ACOP).

#### 17.4 Restriction of Hazardous Substances (RoHS)

RoHS stands for Restriction of Hazardous Substances. RoHS originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products (known as EEE). All applicable products in the EU market after July 1, 2006 **must** pass RoHS compliance.

Directive 2011/65/EU lays down rules on the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) with a view to contributing to the protection of human health and the environment, including the environmentally sound recovery and disposal of waste EEE.

RoHS is a CE-marking directive. As such, all manufacturers of electrical/electronic products **must** comply with RoHS before the CE mark can be applied on their products and introduced to the EU market.

Manufacturers of electrical and electronic equipment **shall** be fully cognisant of the requirements and comply with EU Directives 2011/65/EU, 2017/2102 & 2015/863.

Importers & Distributors of electrical and electronic equipment **shall** be fully cognisant of the requirements and comply with EU Directives 2011/65/EU, 2017/2102 & 2015/863.



## 18. Munitions

### 18.1 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](#).

### 18.2 Explosives

For explosive items, the supplier **shall** contact Head of Safety Services at LMUK-A, 3 business days prior to delivery.

Any delivery & storage of explosives **must** be confirmed by LMUK-A that it is covered by LMUK-A explosives licence 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.

## 19. Obsolescence Management

Obsolescence Management is 'the co-ordinated activities to direct and control an organisation with regard to obsolescence'. Obsolescence Management seeks to reduce the risk of obsolescence through undertaking planned activities to reduce the frequency of obsolescence issues and/or reduce the impact when an item becomes obsolete.

Suppliers **shall** notify LMUK-A 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 refer to IEC 62402 for further guidance on Obsolescence Management.

## 20. Business Continuity / Disaster Management

For QM003-A & QM003-B contracts suppliers **shall** have in place a business continuity plan. This **should** be 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 LMUK-A 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.

## 21. Useful Resources

### 21.1 International Aerospace Quality Group

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.

### 21.2 Lockheed Martin Support

If there are any questions in relation to this document or requirements the applicable LMUK-A Supplier Quality representative **shall** be contacted.

Alternatively contact [sga\\_ampthill.fc@lmco.com](mailto:sga_ampthill.fc@lmco.com).

### 21.3 Lockheed Guidance Documents & Templates

Guidance documentation & templates (including First Article Inspection Guide & Deliverable Quality Plan Template) are available on the [Lockheed Martin UK Suppliers webpage](#).

## Appendix 1 – 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-A 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 **shall** 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 2110 Edition D supersedes AQAP 2120 Edition 3.**

### [AQAP 2130 Quality Requirements for Inspection and Test](#)

**AQAP 2110 Edition D supersedes AQAP 2130 Edition 3.**

### [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-A 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-A 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.

## Appendix 2 – Glossary of Abbreviations

Abbreviation / Acronym	Definition
A-0108	Supplier Corrective Action Report Form – structured report to suppliers informing them of nonconformities that have been highlighted
ACMP	Anti-Counterfeiting Management Plan
COTS	Commercial Off the Shelf
DEF-STAN	Defence Standards
DQP	Deliverable Quality Plan
F0045	LMUK-A form for Application for a Deviation Permit or Concession – complies with DEF-STAN 05-61 iss.6
F0183	Supplier Assessment Questionnaire – required to complete supplier approval
F0189	Supplier Assessment Report – may be required to complete supplier approval
F0389	Deliverable Quality Plan Template – optional template that suppliers may use
FAI	First Article Inspection
FAIR	First Article Inspection Report
FOD	Foreign Object Debris
GQAR	Government Quality Assurance Representative
LM	Lockheed Martin
LMPI	Lockheed Martin Proprietary Information
LMUK-A	Lockheed Martin UK Ampthill Limited
MLA	Manufacturing Licence Agreement
MOTS	Modified Off the Shelf
MSL	Moisture Sensitive Level
NDA	Non-Disclosure Agreement
OEM	Original Equipment Manufacturer
PCD	Process Control Document
PCFC	Process Control Flow Chart
PFMEA	Process Failure Mode Effect Analysis
QM003	This document – LMUK-A's Quality Requirements for Suppliers
QMS	Quality Management System
RCA	Root Cause Analysis
SQE	Supplier Quality Engineer
SSCM	Sustainable Supply Chain Management
Supplier	Vendor, supplier of goods and services, sub-contractor and distributor
TAA	Technical Assistance Agreement
TCP	Technology Control Plan
UKAS	The UK's National Accreditation Body, responsible for determining, in the public interest, the technical competence and integrity of organisations such as those offering testing, calibration and certification services

## Appendix 3 – Standards Referenced

Standard Number	Title
ACMP 2100	Configuration Management Contractual Requirements
ANSI/ESD S20.20	Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
AQAP 2105	NATO Requirements for Quality Plans
AQAP 2110	NATO Quality Assurance Requirements for Design, Development and Production
AQAP 2120	NATO Quality Assurance Requirements for Production – Superseded by AQAP 2110 Edition D (2016)
AQAP 2130	NATO Quality Assurance Requirements for Inspection and Test - Superseded by AQAP 2110 Edition D (2016)
AQAP 2131	NATO Quality Assurance Requirements for Final Inspection
AQAP 2210	NATO Supplementary Software Quality Assurance Requirements to AQAP-2110 or AQAP-2310
AQAP 2310	NATO Quality Assurance Requirements for Aviation, Space and Defence Suppliers
ARP9136	Aerospace Series – Root Cause Analysis and Problem Solving (9S Methodology)
ARP9137	Guidance for the Application of AQAP 2110 within a 9100 Quality Management System
AS13000	Problem Solving Requirements for Suppliers
AS5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
AS6081	Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Distributors
AS6174	Counterfeit Materiel; Assuring, Acquisition of Authentic and Conforming Materiel
AS9100	Quality Management Systems – Requirements for Aviation, Space and Defense Organizations
AS9102	Aerospace First Article Inspection Requirement
AS9120	Quality Management Systems - Aerospace Requirements for Stockist Distributors
AS9146	Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space, and Defense Organizations
ASTM3359	Standard Test Methods for Rating Adhesion by Tape Test
BS EN 61340-5-1	Electrostatics. Protection of Electronic Devices from Electrostatic Phenomena. General Requirements
BS EN 9100	Quality Management Systems. Requirements for Aviation, Space and Defence Organizations
BS EN 9137	Quality Management Systems: Guidance for the Application of AQAP 2110 within and EN 9100 Quality Management System

DEF STAN 05-135	Avoidance of Counterfeit Materiel
DEF STAN 05-57	Configuration Management of Defence Materiel
DEF STAN 05-61 Part 1	Quality Assurance Procedural Requirements Part 1: Concessions
IPC/JEDEC J-STD 033	Standard for Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices
ISO2409	Paints and Varnishes – Cross-cut test
ISO 10005	Quality Management – Guidelines for Quality Plans
ISO 10007	Quality Management – Guidelines for Configuration Management
ISO 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO 22301	Security and Resilience – Business Continuity Management Systems - Requirements
ISO 9001	Quality Management Systems - Requirements
MIL-STD-1686	Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
NAS412	Foreign Object Damage (FOD) Prevention Guidance Document



## 22. QM003 Document Changes

Date	Iss	Clause(s)	Changes	Change by
22 June 2016	2	All	Complete re-write of Quality Requirements for Suppliers	Konrad Burgoyne
13/03/2017	3	1.2	Order of Precedence added	Konrad Burgoyne
		4.7	Delivery Quality Condition descriptions changed	
		All	ISO 9001:2008 References removed	
		5	Figure 1 Additional Flow-Down Requirement Selection Flowchart amended in line with AQAP 2110 Edition D	
		5.1,5.2,5.3 & 5.6	AQAP 2110 Edition D (2016) supersedes AQAP 2110 Ed 3, 2120 and 2130	
		10.1	Part marking as per purchase order, design data or drawing added	
		10.2	The supplier shall ensure that full traceability is maintained and can be provided on request throughout the sub-tier supply chain added	
		11	Certificates must be traceable to the certifying quality representative or company official on request added	
		11.1	Reference to raw material certification where applicable and name of authorised certifying quality representative or company official removed	
		13.2	Deviation from design data generalised	
		13.6	Shelf life requirement increase to 80% unless otherwise specified	
		14.2	Lockheed Martin conflict minerals policy hyperlink added	
		18.1	Figure 2 Delivery Documentation Requirement Flowchart added	
19	Requests for deviation permit or application for concession amended in line with current process			
31/10/2017	4	All	Restructure of Document to align with ISO 9001 and AS9100 requirements	Craig White
05/01/2018	5	3.6	Addition of Regulatory Authority to 'right of access'	Craig White
30/05/2018	6	4.9.1	Change to C of C requirements (FAI)	Craig White
		4.11.2	Addition of Production Permit term	Craig White
		Appendix 2	First Article Requirement clarification on flowchart	Craig White
03/07/2018	7	Appendix 3	New section added to Appendix 3 to include Special Process Document References & update to Appendix 2	Craig White
27/02/2019	8	3.2 & Appendix 3,	Re-write of Special Process Approvals and amendment to table	Craig White
		Multiple	Hyperlinks to LM web resources updated and obsolete hyperlinks removed	
21/12/2020	9	Multiple	Substantially re-written and restructured. 15/02/2021- Clause 6.1 typo corrected - stated AS9102 not AS9120 for distributors certification. AS9120 added to appendix 3 table.	Jon Hood / Will Cullen

## Quality Matters



Start Right – Keep Right – Finish Right

QM003 Quality Requirements for Suppliers is a non-classified Lockheed Martin UK Ampt Hill 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](http://www.lockheedmartin.com/en-gb/suppliers.html)

Lockheed Martin UK Ampt Hill Ltd.  
Reddings Wood  
Ampt Hill  
Bedfordshire  
MK45 2HD

supply.lmuk@lmco.com  
+44 (0) 1525 841000

Registered in England & Wales  
Company No. 00585852

# QM003

## Quality Requirements for Suppliers