CTRM AC

SUPPLIER

QUALITY REQUIREMENTS

-GENERAL-

SQR 001

Approved by,

Zahirah Shaik Dawood	Hisham Marjohan
Head of Department	Head of Division
Supplier Quality Assurance	Vendor Management

REVISION HISTORY

Revision	Date	Description of Changes
NC	13- August 15	Initial Release
A	17- October 16	Completely re-written and re-formatted – All paragraph
B	06- Nov – 2017	**Add 1.3 – SQR 001 availability at CTRM website** **Add 3.0 – Communication/ Interaction** **Add 12.4 – NADCAP M & I for CMS** **Add 17.0 – Obsolescence Notification** **Add 18.0 – Calibration Services Requirements** **Add 20.2 & 20.3 – Counterfeit Part** **Add 21.3 – Delegation Verification Activity** **Add 21.4 – Design Responsible Supplier** **Add 22.3 – Metallic Raw Material Validation** **Add 32.1 till 32.5 – Training and Staffs Competencies** **Add 32.7 – Vision Requirements** **Add 35.0 – Foreign Object Damage (FOD)** **Add 45.1 & 45.2 – Escalation Process** **Add 46.2 – Verification And Validation Activities** **Add 48.0 – Critical Item And Key Characteristic Control**

TABLE 1: REFERENCED IN SQR 001

ISO 9001	Quality Management System Requirements
ISO 17025	Quality Management System Requirements (Testing and Calibration Lab)
ISO 14001	Environmental Management Standard
ISO 10012	Measurement management systems Requirements for measurement processes and measuring equipment
SAE AS 6174	Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel
AS9100	Quality Management System Requirements (Aerospace)
AS9015	Supplier Self Verification Process Delegation Programs
AS9120	Quality Management System Requirements (Stockiest / Distributor)
AS9102	Aerospace First Article Inspection Requirement
AS9103	Variation Management of Key Characteristics
PRI AC 7004	NADCAP Audit Criteria for Inspection and Test Quality system
OHSAS18001	Occupational Health and Safety System
ANSI/NCSL Z540.3	Requirements for Calibration of Measuring and Test Equipment
REACH	Registration , Evaluation, Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances Directive
ILAC	International Laboratory Accreditation Cooperation
IAQG	International Aerospace Quality Group
OASIS	Online Aerospace Supplier Information System http://www.sae.org/?PORTAL_CODE=IAQG

TABLE 2: FORMS REFERENCED IN SQR 001

Form 004	Good Discrepancy Report (GDR)
Form 045	Engineering Query Notes (EQN)
Form 138	Stop Note
Form 191	Change Note (CN)
Form 297	Service Discrepancy Report (SDR)
Form 329	Supplier Corrective Action Report (SCAR)
Form 479	Supplier Request for Change

TABLE 3: APPENDIX

APPENDIX A	Applicability Matrix
APPENDIX B	Supplier Notification Changes
APPENDIX C	Document Retention and Storage Matrix

1.0 INTRODUCTION

The purpose of this document is to communicate the quality, delivery and other general requirements that CTRM AC expects to all suppliers. This documents details the facilities and features of the supplier's quality system that will be assessed by CTRM AC representatives of the prior to the placing of new orders and the procedures to be followed by the supplier after orders have been placed.

It will also be used as a standard for the development of existing relationships between CTRM AC and its current approved supplier. This document is not intended to replace individual agreements or specifications, but is to be the minimum requirement upon which other requirements and expectations are built.

1.1. This document applies to all CTRM AC suppliers providing CTRM AC materials, raw materials, services and subcontractor parts. It is the supplier's responsibility to notify the Supplier Quality Assurance of any questions or concerns in meeting the requirements of this SQR-001. Refer **APPENDIX A**: Applicability Matrix as a guideline to help supplier to understand which requirements should be applicable to supplier activity.

1.2. Supplier shall confirm compliance by performing a documented gap analysis for each new revision of SQR-001 and ensure gap closure within 60 days of document publication unless otherwise specified by CTRM AC Notification. Supplier shall request and obtain approval from CTRM AC for any deviation from these requirements.

1.3. This document is available via the CTRM AC website https://www.ctrm.com.my and shall be reviewed regularly for issue changes.

2.0 QUALITY SYSTEM REQUIREMENTS

2.1. Suppliers shall maintain a Quality Management System suitable to the products and services provided to CTRM AC. QMS shall certified by an IAQG accredited certification body (CB) and registered in OASIS to the latest version. Also supplier shall meet applicable requirements as following:

ISO 9001	Quality Management System Requirements
ISO 17025 or NADCAP or ILAC accredited	Quality Management System Requirements (Testing Lab)
ISO 10012 or ISO 17025 or ANSI/NCSL Z540.3	Quality Management System Requirements (Calibration Lab)
AS/EN9100	Quality Management System Requirements (Aerospace)
AS/EN9120	Quality Management System Requirements (Stockiest / Distributor)

2.2. Supplier shall have documented evidence (e.g. Compliance Matrices, Supplier Audits) that members of its supply chain are compliant to the applicable QMS and SQR-001as define in APPENDIX A.

2.3. It is recommended that supplier gain and maintains ISO14001 or as a minimum, appropriate Local and Environmental International and OHSAS18001 or as a minimum, appropriate Local & International Health and Safety Standards.

2.4. For non ISO 9001 certified suppliers will be expected to demonstrate adequate management and controls of their processes that satisfies CTRM AC's minimum requirements.

2.5. Suppliers are required to submit CTRM AC the most recent copy of its certification and any re-certifications. Supplier is responsible to provide CTRM AC with notification of any changes in the certification / registration / accreditation or major audit findings within 48 hours of receiving notification of the change or finding. Examples of changes in registration include new certification, suspension, or expiration.

2.6. If supplier or its subtier is involved in one of the PRI/NADCAP AC7004 families of special processes recognized by CTRM AC, the supplier or subtier shall gain and maintain the PRI/NADCAP AC7004 accreditation. In addition, supplier's subtier shall end customer approved and complies with end customer requirement depending on the program. Any exception must be specifically agreed by CTRM AC. Suppliers shall also ensure sub-tier's accreditations are current and valid.

3.0 COMMUNICATION/ INTERACTION

The supplier shall appoint points of contact having organizational authorities to resolve any point related to supply chain. Names and positions of these points of contacts shall be communicated to the CTRM AC Buyer.

4.0 RIGHT OF ACCESS

Suppliers shall provide right of access for CTRM AC, CTRM AC's customer, statutory and regulatory authorities to the applicable areas of all facilities, at any level of the supply chain for the purpose of verifying parts, processes, documents (i.e., FMEA, Control Plan, Instructions, records....), methodologies and systems used in manufacturing of CTRM parts. CTRM AC and CTRM AC's customer will perform audit at supplier's facilities to establish conformance to validate supplier quality systems.

5.0 APPROVED SUPPLIER LIST

CTRM AC requires all suppliers to be approved prior to the issuance of contracts. All suppliers must be approved by CTRM AC, regardless of approvals by customers or other entities. Suppliers are required to furnish CTRM AC with updated documents when necessary including current QMS certification and customer approval (eg Airbus, Spirit, UTAS etc.

6.0 QUALITY REQUIREMENTS FOR RESPECTIVE CUSTOMERS

6.1. Suppliers shall comply with the latest revisions of SQR 001, and customer's quality requirements as referenced herein based on purchase order awarded. The supplier is required to access and review CTRM AC Customer Portal for the latest revision. If supplier having difficulty to retrieve documents from CTRM AC Customer Portals, supplier shall inform and request from SQA personnel.

AIRBUS DEFENCE AND SPACE (ADS)	CASA 1033 - Quality System Requirements For Suppliers
AIRBUS HELICOPTERS	EP 06-12 - GFRS: General Requirements For Suppliers ER 070 06-01 - GFRS: General Requirements for Suppliers Quality Assurance General Requirements
AIRBUS OPERATIONS LIMITED (AOL)	AP2190 (GRAMS) - General Requirements for Aerostructure & Material Suppliers *Available at Airbus Supply at* : https://w3.airbus.com/
GKN	SQA01 - Quality Requirements for Suppliers *Available at* https://www.gkncowes.co.uk/store.asp?f=general,QUALITY
KOREAN AIR LTD (KAL)	SQAR-BQF-002 - Supplier Quality Assurance Requirements
SONACA	QRS 00.0 - Quality Requirements for Suppliers
SPIRIT AEROSYSTEMS (EUROPE) LIMITED	AERO-ALL-QU-SC-ALL-125 - SPIRIT AEROSYSTEMS LIMITED Quality Requirements for Suppliers
SPIRIT US	MAA1-10042 –1 Supplier Quality Assurance Manual
UTC AEROSPACE SYSTEMS	ASQR-01 - Supplier Quality Systems Requirements ASQR-01-AA - Supplier Quality Systems Requirements Aerospace Addendum *Available at* http://materiel.goodrich.com/ UTCQR - *http://www.utc.com/Suppliers/Pages/Aerospace-Supplier-Quality-Requirement-Documents.aspx*

7.0 COMPLIANCE TO CONTRACTUAL REQUIREMENTS

7.1. The supplier shall adhere for compliance to all contract (e.g., engineering drawing, specification, SQR-001, SoW, purchase order) requirements. The supplier shall review the CTRM AC requirement stated on purchase order to ensure supplier has the capability and resources to comply with the requirement. Supplier to acknowledge acceptance of CTRM AC Purchase Order via attached Form PO Acceptance within 3 working days.

7.2. The supplier shall identify and notify CTRM AC immediately if they unable to comply with the requirements. Any discrepancies or queries shall be resolved before the order or contract is accepted. Amendments to orders or contracts shall be formally reviewed. Records of contract review shall be maintained and documented.

7.3. Supplier shall only accept agreements and instruction in writing (eg, PO, drawing, specification). Verbal agreements/instruction and email authorization are not acceptable as approval and authorization.

8.0 LANGUAGE

The supplier shall ensure all written and oral communication must be in English, as well as supplier's procedure, specification, or reports. Any entry on the supplier's documentation which requires correction shall be lined through, initialled, and dated by the supplier and leaving the item in a readable condition. Use of liquid paper is not acceptable.

9.0 CODE OF CONDUCT

Suppliers must comply with all national and other applicable laws and regulations relating to the respective country of operation. This includes ensuring that business transactions with CTRM AC are fully reported /recorded, ensuring that their employees are aware and properly trained to meet the requirements. CTRM AC expects its suppliers to make proper provision for the health, safety and welfare of its people, visitors, contractors, customers and those in the community who may be affected by their activities.

10.0 CONTRACT

Both parties are obliged to adhere strictly to the contents of contract signed. CTRM .By accepting the contract or purchase order, the supplier agrees to comply with all the applicable clauses contained in this document.

11.0 PROTECTION OF PROPRIETARY INFORMATION

Any information the suppliers received from CTRM AC must be kept confidential and never disclosed to any third party without the prior written agreement of CTRM AC. The proprietary information can include, but is not restricted to all versions of electronic data, drawings and documentation, tooling and materials. Under no circumstance is the supplier to make a direct approach to CTRM AC's customers in relation to agreed business dealings.

12.0 DIGITAL PRODUCT DEFINITION PROCEDURES (DPD) / MODEL PRODUCT DEFINITION (MBD)

Datasets will be provided in the CATIA V5 format to supplier by CTRM AC via CD or FTP server. Data will be dispatched together with Engineering Dispatch Note (EDN) for the receiver to sign as an acknowledgement of receipt and the EDN shall be returned to the sender as mentioned within the EDN form.

12.1. The supplier shall comply with the latest and flow down the requirements of applicable document to their subtier when data sets and data set derivatives are used based on workpackage reward by CTRM AC. Subtier supplier shall be audited and approved to DPD/MBD by the supplier prior to use of data for production

CUSTOMER	RELATED DOCUMENT
CTRM AC	CAP-06-014 - Digital Product Definition (DPD) for Suppliers
SPIRIT US	MAA1-10009-1 - Quality Assurance Standard for Digital Product Definition at Spirit AeroSystems, Inc. Suppliers
UTAS	ASQR-01-AA – Aerospace Supplier Quality Requirements Aerostructures Addendum
KAL	Q-0600-01 - DPD SQAR for DPD

12.2. The supplier shall develop and maintain comprehensive documented DPD /MBD processes and/or procedures that assure integrity of the product engineering and/or tooling and configuration is maintained throughout the supplier's DPD/MBD system from receipt of CTRM AC data through creation of derivatives to product acceptance and process improvement.

12.3. CTRM AC shall be notified within 30 days of any changes to a suppliers' DPD/MBD process. CTRM AC reserves the right to survey and/ or review the supplier's DPD/MBD system to verify effectiveness of the supplier's DPD/MBD Quality Assurance Plan and procedures.

12.4. All DPD suppliers required to attain NADCAP M&I accreditation (Measurement & Inspection) for below CMS equipment:

- **AC7130, AC7130/1 – CMM**
- **AC7130, AC7130/2 – LASER TRACKER**
- **AC7130, AC7130/3 – ARTICULATING ARMS**

13.0 NOTIFICATION OF COMPANY CHANGES

Changes to the supplier's company that may affect quality, delivery and / or finance, shall be communicated in writing to CTRM AC prior incorporation of such changes. These changes may include; company ownership, company name, manufacturing facility location, quality approvals, changes in product and/or process, changes of subtiers and where required obtain CTRM AC approval.

Please refer to **APPENDIX B:** Supplier Notification Changes Process. The change must be preceded by a completed Form 479. The form shall be complete and submitted to CTRM AC.

14.0 ENVIRONMENTAL REGULATIONS

Products or parts supply by CTRM AC suppliers, shall not contain any product, material or substance prohibited by the legislation or regulations applicable in the suppliers' countries, national and global.eg REACH, RoHS, etc. The supplier is responsible for ensuring that CTRM AC is informed of presence in the product of substances to ensure a high level of protection of human health and the environment from chemical substances.

15.0 CONFLICT MINERAL

Supplier shall provide CTRM AC with a written certification as to the presence of "Conflict Minerals" contained in or used in the production of the items purchased by CTRM AC and the country of origin of such "Conflict Minerals" as defined by the **Dodd-Frank Wall Street Reform and Consumer Protection Act**. "Conflict minerals," or 3TG as defined in Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act, are:

- Coltan for tantalum
- Cassiterite for tin
- Wolframite for tungsten
- Gold

Any other derivatives or any other mineral or its derivatives determined by the Secretary of State to be financing conflict in the Democratic Republic of the Congo or an adjoining country. Suppliers are recommended to include a statement of compliance on Certificates of Conformance delivered to CTRM AC.

16.0 RETENTION AND CONTROL OF RECORDS /DOCUMENTS

The supplier is responsible for the retention of quality record (eg, inspection records, contracts, purchase orders, test reports, nonconforming material reports) following **APPENDIX C**: Document Retention and Storage Matrix.

16.1. Correction to records shall be recorded, dated, and traceable to the respective person making the change using a permanent marking method with the original data being legible and retrievable after the change.

16.2. Supplier shall set up archiving system for quality-related records and the records must be archived in a fire-resistant, weather proof and theft-proof area. The archive will be organized that all records can be made available and readily retrievable for CTRM AC, CTRM AC's customers or regulatory authorities. In case of termination of contract or bankruptcy between CTRM AC and the supplier, the archives shall remain accessible to CTRM AC representatives or transferred with prior authorization to CTRM AC.

17.0 OBSOLESCENCE NOTIFICATION

The Supplier shall be responsible for managing obsolescence over the entire period of the contract, and notwithstanding any obsolescence issues or problems, the supplier remains responsible for meeting all performance and other requirements of the contract. This obsolescence management responsibility includes an ongoing review and identification of actual and potential obsolescence issues, systematically and immediately inform the CTRM of any obsolescence notification and/or modification notification notified by supplier subtier concerning any of components, assemblies, sub-assemblies, piece parts, and material. Any configuration changes due to obsolescence shall be approved via the FAI process.

18.0 CALIBRATION SERVICES REQUIREMENTS

18.1. Supplier test equipment calibration services must have a calibration system conforming to ANSI/NCSL Z540-3 or ISO 10012, or ISO 17025. Calibration procedures must be maintained that provide sufficient information for periodic calibration of measuring and test equipment (M&TE). Calibration reports, as a minimum, shall include the following information:

- **Name of Calibration Organisation**
- **Certificate Serial Number**
- **Date of calibration**
- **Description of the equipment**
- **Equipment identification number**

- **Result of calibration**
- **Master/Standard used**

18.2. Calibration certificate issued by supplier shall clearly state measurements traceability to National or International standard and shall be signed by the supplier responsible person.

19.0 QUALITY ASSURANCE PLAN

Suppliers shall establish a Quality Plan which identifies any deviations from the Quality Manual and any mandatory requirements which are necessary to fulfill the contract terms and conditions. The Quality Plan introduction shall include a statement that clearly describes the supplier's commitment to comply with the requirements of this SQR. Where the Quality Plan relates to the supply of parts, the Quality Plan shall define all items to be supplied (including part numbers and description). The Quality Plan must be approved by CTRM AC.

20.0 COUNTERFEIT PART

20.1. Supplier shall prevent and mitigate the use of counterfeit parts to ensure counterfeit part not delivered to CTRM AC. Supplier must be compliant to the SAE AS 6174 for non-electronic product. If the supplier becomes aware or suspects that it has furnished counterfeit part to CTRM, the supplier shall notify CTRM immediately.

20.2. Counterfeit parts delivered or furnished to CTRM are deemed nonconforming. If the supplier becomes aware or suspects that it has furnished counterfeit parts to CTRM AC, the supplier shall promptly replace, at Supplier's expense, such counterfeit parts with OEM or buyer-approved conforming parts.

20.3. The Supplier shall be liable for costs related to the replacement of counterfeit parts and any testing or validation necessitated by the installation of authentic parts after counterfeit parts have been replaced. The Supplier bears responsibility for procuring authentic parts or items from its subcontractors and shall ensure that such subcontractors comply with these requirements.

21.0 CONTROL OF SUBTIER SUPPLIERS

21.1. The supplier is responsible for evaluate, selecting, monitoring and maintained an up to date List of The Suppliers and the Supplier Subtier (including Distributor and Manufacturer) used on CTRM AC Workpackage and submit upon request. List shall include at minimum:

- Name of Supplier
- Address

- 3rd party Approval (Customer, CB)
- Part Description, Specification, Special Process & NADCAP

21.2. The supplier and supplier's subtier shall established and demonstrate requirements defined in this SQR-001.The supplier shall flow down to its subtier all the applicable CTRM AC technical (such as P/N drawing, spec) and quality requirements including this SQR-001.CTRM AC and its customer reserve the right of entry to subtiers facilities.

21.3. Where the supplier delegate inspection activities to the sub-tier supplier, the requirement for delegation shall be defined and a register of delegations maintained. Delegation verification activity is a process whereby a supplier is delegated the authority to act on behalf of the delegating organization to verify and release products/services. Supplier shall notify CTRM AC prior to the implementation of a delegation inspection program. Supplier delegation verification program shall comply with the requirements of AS9015.

21.4. Design responsible supplier shall have a comprehensive special process management program in place for the special processes. The program shall include maintaining a list of qualified special process suppliers along with their NADCAP approval status. If special process suppliers do not hold NADCAP certification, design responsible supplier shall maintain appropriate oversight of internal and supplier processes including, but not limited to, onsite special process audits, periodic testing of product, and other means to validate product integrity.

Note: Design Responsible Supplier /supplier of products defined by a design/drawing proprietary to that supplier and linked to a customer part number through the use of a customer reference drawing and/or other purchase order requirements.

22.0 VERIFICATION ON PURCHASED PRODUCTS

22.1. For raw material acceptance, Test Report shall 100% checked against applicable specification. Supplier shall ensure raw material is procured to the latest revision unless requested by engineering.

22.2. Supplier shall periodically validate test reports for raw material accepted on the basis of test reports. That validation shall be accomplished by supplier or other independent party through periodic, scheduled tests of raw material samples. Supplier shall retain test reports provided by the raw material supplier, as well as supplier's validation test results as quality records traceable to the conformance of goods.

22.3. **Metallic manufacturer / Distributor shall periodically validate selected physical and chemical properties documented on mill certification test reports in accordance with internally established requirements for metallic raw materials. Such validation will be documented and retained for record purposes and will be provided when requested**.

22.4. AGS & Material distributor shall carry out periodical verification of fasteners and materials against the manufacturer's Mechanical/Chemical Test Certification. AGS Distributor must also carry out dimensional checks on supply parts.

22.5. Supplier shall have defined lighting requirements and environmental control for consistent visual inspection (e.g. appropriate lighting intensity, define work station parameters and verification frequency, distance to product being inspected.) Where visual acceptance is performed, lighting intensity shall be verified with calibrated instruments. Record of verification and control shall be maintained with a minimum verification frequency of 2 times per year.

23.0 CONTROL OF TOOLS/EQUIPMENTS

23.1. Suppliers shall have a process in place to monitor the condition of CTRM AC supplied tooling/equipment on a regular basis to ensure that items remain in a serviceable condition. Tools shall be used to carry out or when authorized by CTRM AC/ CTRM AC customer only. Supplier is responsible to perform calibration, maintenance and cycle check inspection on all tooling listed and declared to CTRM AC.

23.2. An exhaustive list of the whole tooling sequence shall be updated by supplier. This list shall be given each year to CTRM AC Supplier Quality Assurance department before the end of January in case of modification, in EXCEL format. Content of information is an up-to-date status of all tooling available and used for supplier to manufacture the package (reference, status, condition, applicability, compliancy). Any change on the tool, that may affect part form, fit and function must result in FAI submission to CTRM AC.

24.0 FIRST ARTICLE INSPECTION REPORT (FAI)

24.1. First Article Inspection shall be conducted on every part prior to delivery to CTRM AC or any other defined delivery point, in accordance with AS/EN9102. Responsibility for verification of the items against such requirement lies with the supplier.

24.2. The FAI part shall be identified distinctly and if possible separately conditioned. CTRM AC and CTRM customer has the right to participate the FAI activity and verification process if necessary. No serial deliveries are possible before acceptance of FAI by CTRM AC unless otherwise agreed by CTRM AC. Standard catalogue parts and raw materials are

exempted from FAI. Supplier shall be responsible of the review and approval of subtier 's FAIR.

25.0 ENGINEERING QUERY NOTES, EQN

The supplier shall use Form 045 for any design queries if supplier may encounter. The supplier shall register and track each EQN issued and replied.

26.0 CHANGE NOTE, CN

In the event there is modification required to the design, process or etc., CTRM AC will notify supplier using Form 191 in order for the Supplier to review the changes and its impact.

27.0 STOP NOTE

If for any reason, CTRM AC requires the supplier to cease working on a particular part or operation, Form 138 will be issued.

28.0 DESIGN AND DEVELOPMENT CONTROL

Supplier shall have design and development procedure that defines a process for identifying, recording, verifying, validating and approving design changes. The review of design and development changes includes an evaluation of the effect of the changes on constituent parts and delivered product. Records are maintained to show the results of the review and any necessary actions identified during the review.

29.0 MANUFACTURING ROUTE (MR)

The supplier, who supplies fabricated part for Airbus Package, should prepare and submit the Supplier Manufacturing Route to CTRM AC in accordance with Airbus instruction. The MR should consist of all manufacturing process and information of any subcontracted activities for the manufactured part. The supplier shall updates and submits the MR if there is any change to the process or sub tiers for CTRM AC acknowledgement. For other package, MR may be imposed in accordance with CTRM AC requirement.

30.0 INSPECTION PLAN

30.1. Supplier manufacture part with drawing characteristic shall perform 100% inspection on all dimensions/characteristics specified on drawing and specification.

30.2. Supplier shall establish Inspection Plan which will be a summary of the inspection process, and describe who carries out each activity, when and how it is conducted, and at what frequency. It shall not replace the information contained in detailed work instructions. The Inspection Plan must be approved by CTRM AC prior it is being use as a reference.

30.3. Where supplier wish to use sampling plans or Statistical Process Control (SPC) techniques, the Inspection Plan shall be used to inform CTRM AC of this and also as a method for obtaining CTRM AC approval.

31.0 INSPECTION AND ACCEPTANCE BY CTRM AC AND CTRM'S CUSTOMER / END CUSTOMER

CTRM AC reserves the right to carry out any inspection for acceptance of products manufactured by supplier, either at the supplier's facility, or at the CTRM AC's receiving inspection. Whatever the case, CTRM AC will not signify its final acceptance until the whole of the product has been accepted by CTRM AC's customer/end customer.

CTRM AC may refuse acceptance and reject delivery of any supplies which are not conformance with the Purchase Order requirements and return such non-conforming product to supplier at supplier's cost.

32.0 TRAINING AND STAFF COMPETENCIES

32.1. The supplier shall ensure that all activities regarding contract or purchase order fulfilment are performed by skilled and trained staff including temporary staff and contract staff.

32.2. The supplier shall identify critical skills to undertaking work for CTRM are qualified and experienced to deliver the assigned work and shall maintain associated competencies. A cross reference list of critical skills by product or activity shall be implemented and updated.

32.3. Final test, inspection, and release shall be carried out by operators authorized by the Supplier's Quality Department.

32.4. If special processes are carried out (NDT tests, Welding, Painting) operators shall be certified / qualified in accordance with requirements established on drawings, specifications and contract or purchase order. These provisions also apply to sub-tier suppliers.

32.5. The Supplier shall ensure its personnel are aware of:

- **Their contribution to product or service conformity**
- **Their contribution to product safety**
- **The importance of ethical behaviour**

32.6. Eye Test is applicable to personnel conducting product verification / inspection that require visual acuity. The supplier shall:

a) Perform a vision assessment (eye examination) on commencement of employment and intervals not exceed one (1) year for personnel engaged in product verification / inspection activities to ensure visual acuity.
b) Ensure that the vision assessment (optometric examination) is performed by a trained / qualified person.
c) Ensure that optical aids used during the vision assessment to ensure visual acuity are also used during product verification / inspection activities.
d) Perform a (one time only) colour perception test to ensure that personnel are capable of distinguishing and differentiating colours where colour perception is required for product verification / inspection activities.
e) Maintain records of vision standards for the period that the relevant employee remains within the supplier's organisation.

32.7. Vision requirements:

- **Visual and dimensional Inspection (i.e Calibration, Non Weld, In-Process, Layout, Dimensional, Final) shall be compliant with Near Vision Requirements of Snellen 14/18 (20/25) or Jaeger 2**
- **Visual inspection of Welds – Shall be compliant with American Welding Society Standard (AWS) D17.1**
- **Nondestructive Testing (NDT) – Shall be compliant with Aerospace Industries Association National Aerospace Standard (AIA/NAS) 410.**

Note: Vision tests may be substituted for the options listed above providing the equivalence is verified and documented by a licensed optometrist or ophthalmologist.

33.0 SHELF-LIFE CONTROL

33.1. With each delivery of materials or products that have a limited or specified shelf life, the supplier shall provide data that shows the manufacture date, expiration date or shelf life, lot or batch number, and applicable special handling and storage requirements. Supplier to ensure that products delivered to CTRM AC with at least 75% remaining shelf life upon received unless authorize by CTRM AC. (Not applicable for consignment / ad hoc ordering).

33.2. The Supplier shall identify the material and the Certificate of Conformance with the date of expiration, including out-times requirements (if applicable). Dates on certification should be in the **DD/MM/YYYY** or format the month spelled out. Example: January 01, 2018.

34.0 PACKAGING

34.1. Parts/products to be delivered to CTRM AC, shall package sufficiently to ensure they delivered in good condition, optimal protection and free from damage – commensurate with the mode of transport; air, land and sea.

Packaging of the products/parts shall be accomplished in such a manner as to prevent physical damage to, or degradation of, the packaged products during delivery to the shipping destination. It shall be the prerogative of CTRM AC to return damaged products, at supplier's expense, when such damage is attributable from improper packaging or inadequate protection.

34.2. Supplier who supply chemicals to CTRM is required to provide a current Safety Data Sheet (SDS), developed in accordance with the requirements of the Occupational Safety and Health (Classification, Labeling and Safety Sheet) Regulation 2013 at the time of every delivery of the hazardous chemical to CTRM .Packaging and label must be in compliance with the GHS (Globally Harmonized System of Classification and Labelling of Chemicals)

For Airbus package suppliers, it is recommended to adhere with Document M20144-Supplier Packaging Design Manual.

35.0 FOREIGN OBJECT DAMAGE (FOD)

The supplier shall implement and maintain a Foreign Object Debris (FOD) Prevention Program during handling, storage, preservation, packaging, and delivered to CTRM AC.

The supplier shall comply with the latest and flow down the requirements of applicable document to their subtier.

PROGRAM	RELATED DOCUMENT
AIRBUS ADS	CASA-1451-50-FT – FOD Prevention Program
BOEING PROGRAM	D6-85622 - Foreign Object Debris/Foreign Object Damage (FOD) Prevention Requirements for Boeing Suppliers
UTAS PROGRAM	ASQR-15.1 for Foreign Object Damage/Debris Prevention, Handling, Storage, Packaging, Preservation and Delivery

36.0 DELIVERY AND RELEASE DOCUMENTs

36.1. Supplier shall deliver to CTRM AC conforming, non-defective products in the quantities set forth in the Purchase Order and on, or no earlier than three (3) business days before, the delivery date specified. In the event of early delivery, CTRM AC at its discretion may either refuse delivery or store products at supplier's expense and CTRM AC's obligation to pay is based on the Purchase Order defined delivery date, unless delivery in advance

of the contractual commitment date is expressly authorized by CTRM AC. +/-5% quantity tolerance for all materials inclusive chemical except prepreg & adhesive which is +/-10%.

In the event of any anticipated or actual delivery delays, supplier shall: (a) promptly notify CTRM in writing of the reasons for the delay and the actions being taken to overcome or minimize the delay; and (b) provide CTRM with a written recovery schedule. Without limiting any of CTRM's rights and remedies with respect thereto, supplier shall take such actions as are reasonably necessary to meet CTRM's schedule.

36.2. At CTRM's request, supplier shall, at supplier's expense, ship via air or other expedited routing to avoid or minimize the delay. Supplier responsible to acknowledge CTRM buyer once shipment is ready to pick up within +/-3 days from agreed date. Release documentation shall be furnished with each shipment according to the following list:

- Certificate of Conformance (Original CoC from manufacturer is mandatory and shall traceable throughout the supply chain)
- Inspection records e.g. Dimensional Report if required
- Material Test Reports (Raw Material example chemical, prepreg, core)
- Concession, if applicable and accepted by CTRM AC
- Job Card if required

.

36.3. The supplier shall provide a Certificate of Conformance (C of C) that shall include at minimum the following information:

- Supplier CoC Unique Number
- CTRM AC Purchase Order
- Manufacturer Name & Address
- Part Number, description, Serial No/Lot No/Batch No, Quantity
- Drawing / Specification Revision No
- Date of Manufacture / expiration (if applicable)
- Signature of authorized representative, and date (Electronic signature is acceptable)
- Statement of certification example, *"I hereby certify the materials/service supplied was produced in accordance with the Purchase Order, applicable drawings and specifications.*

36.4. Supplier shall maintain a list of Authorized Signatures for the product Release with:

- Name
- Function
- Signature (May be Replaced by Stamp)

A list of Authorized Signatures shall be provided to CTRM AC annually or upon request.

37.0 MONITORING TEMPERATURE AND HUMIDITY CONTROL MATERIAL

37.1. Supplier shall ensure all temperature recorders are in good working condition until delivered to CTRM. The reading of the temperature recorders will be used to check the temperature during transportation. Supplier responsible to check temperature setting on freezer container is at -24°C before release to forwarder. In order to maintain temperature throughout the journey, supplier shall advise forwarder on the dry ice requirement (for air freight shipments).

37.2. Supplier shall pack, load and count the temperature recorder before pick up by appointed forwarder to ensure quantity shipped as per requirements. Minimum temperature recorder quantity per container required is 2 and maximum is 4.

TOTAL QUANTITY OF ROLLS PER CONTAINER	QUANTITY OF TEMPERATURE RECORDER REQUIRED
1-9	2
More than 10	4

38.0 CONCESSION

No concession is allowed unless stated and agreed otherwise by CTRM AC. Upon agreement by CTRM AC, supplier have to ensure only completed application with sufficient data and correct format submitted otherwise CTRM AC will not entertain the concession and return back for amendment or total rejection.

39.0 DIRECT SHIPMENT REQUIREMENT

This requirement applies to all FAI and non FAI products that shipped directly from CTRM AC supplier to customer as agreed between CTRM AC and customer.

No direct shipment to CTRM AC's customer is allowed unless agreement and arrangement have been made by CTRM AC. Upon agreement between CTRM AC and customer, instruction will be given to supplier to arrange the part for direct shipment to CTRM AC's customer premises. All related documentations should be forwarded to CTRM AC team for verification and issuance of CTRM AC's Certificates of Conformity.

In cases where CTRM AC decides not to inspect the part physically, CTRM AC will arrange for 3rd party inspection or Delegated Supplier Quality Representative (DSQR) to inspect on behalf of CTRM AC prior agreement with the customer.

40.0 TRANSFER OF WORK

40.1. Suppliers shall not transfer any work awarded by CTRM AC without the prior written approval from CTRM AC, including changing route after FAI. When transfer approval is granted, the supplier shall ensure only approved sub-contractors by CTRM AC or customer is utilized. The supplier shall ensure that sub-contractors are evaluated and

selected on their ability to meet specified requirements. A list of approved subcontractors/sub tiers shall be maintained.

40.2. The supplier responsible for the quality of product delivered by sub-contractor and responsible to notify CTRM AC if their sub-contractor has loss of its approval or less in performance quality that can affect the conformity parts. Supplier shall notify CTRM AC with any changes on its subcontractors/sub tiers that having product impact.

41.0 LAST ARTICLE INSPECTION (LAI)

In any case there is Transfer of Work activity, Last Article Inspection (LAI) process shall be performed to minimize risk and ensure that there is no gap between as-designed and as-built. The aim of the LAI is to identify such gaps for the work package to be transferred and to close them through relevant actions.

42.0 CONTROL OF NON- CONFORMING PRODUCT

42.1. The supplier shall ensure that products, which do not conform to product requirement, are identified and controlled to prevent its unintended use or delivery. The controls and related responsibilities and authorities for dealing with non-conforming product shall be defined in a documented procedure including recall method. Nonconforming products that are received by CTRM AC will be processed by our rejection procedure and suppliers must cover all costs to correct the conformance. In addition, nonconforming products may be returned to the supplier at supplier expenses.

In case of non-conforming products detected by the Supplier prior to delivery, the Supplier shall obtain CTRM AC authorization and approval for nonconforming product disposition.

42.2. In addition to any contract or regulatory authority reporting requirements, supplier shall notify CTRM in 24 hours of delivered nonconforming product that may affect reliability or safety. Notification of escape (NOE) shall be raised by supplier. Company Letter Head to be used and Management Representative must sign the NOE including a clear description of the nonconformity, with information of affected parts, customer and/or supplier's part numbers, Lot numbers, quantity and delivery dates.

43.0 GOODS DISCREPANCY REPORT (GDR) /SERVICE DISCREPANCY REPORT (SDR)

Form 297 will be issued to suppliers as a result of, but not limited to the following, documentation issue, late/early delivery, communication, shortage, and defect. Form 004 will be issued to suppliers on any quality discrepancies encountered during Incoming Quality Inspection. Suppliers are responsible to note for replacement/reworked/GDR part in their CoC, Invoice, etc (where applicable).

43.1. Containment action shall be completed and submitted to CTRM AC within 24 hours. Suppliers are required to respond to the GDR/SDR within seven (7) working days indicating their agreement to the recommended disposition and corrective action taken.

43.2. Supplier shall have documented process in place that 100% inspection to be perform on the deviated characteristic for the minimum next three (3) shipments after implementation of the corrective action to ensure detected non-conformance has been eliminated. CTRM AC reserves the right to review the verification data at Supplier's Site or have the data submitted to CTRM AC for review.

44.0 SUPPLIER CORRECTIVE ACTION REPORT (SCAR)

The SCAR process shall be initiated whenever a condition warrants an investigation to determine if corrective or preventive action is required by the supplier. Corrective or preventive actions requests shall be documented using Form 329 and processed electronically or via hard copy in accordance with this document. Supplier to use appropriate quality tools (e.g. 7QC Tools, 8D) for robust RCCA. The supplier shall return the SCAR form to the SCAR originator within 10 working days of the SCAR issue date.

45.0 SUPPLIER RATING SYSTEM

Supplier Performance Measure and Rating is a vehicle to provide performance and rating to all suppliers listed in CTRM AC ASL. The summary and / or report will be issued to supplier every 1st half and 2nd half of the year. The Supplier undertakes to achieve the Quality targets set by CTRM AC, notably:

- 100% on On Time Delivery (OTD)
  'On Time' cannot be more than 3 days early and cannot be more 3 days late.
- 99% on Lot Acceptance Rate (LAR)

Performance ratings will be based on the following criteria;

Rating Category	**Green**	**Amber**	**Red**
Score	3.6 - 4.0	3.0 - 3.5	<=2.9
Rating Criteria			

QUALITY		**DELIVERY**	**SERVICE/ RESPONSIVENESS**	**COST OF QUALITY/ ACCOUBTABILITY**
Lot Acceptance Rate (LAR)	**Written Report**			
(Inspected - Rejected/Total Inspected Goods) X 100	*Number of NCR issued includes GDR, SDR and SCAR*	*OTD % =Number of Schedule line completely received/ Total number of planned schedule*	*Determine on time and accurate response to quality issue through NCR, external document distribution, PO acceptance and performance report*	*Based on accountability scrap, rework, inventory and storage cost, shipping fees*

Supplier performance with total score >=3.0 (Green and Amber) is considered well performed and acceptable.

Supplier performance with total score <=2.9 (red) indicates poor performance and not acceptable.

45.1. Red suppliers for 3 months consecutively, Head of Supplier Quality Assurance will issue a Notification Letter and request supplier corrective action copied to the Supplier's Quality Manager, the Supplier's Senior Manager and CTRM Head of Supply Chain. This Notification Letter will inform supplier that they have been place on the CTRM Supplier Watch List and improvement plan/ recovery plan is required.

45.2. CTRM may assign supplier to engage 3rd party inspection for CTRM package for verification or consult and seeking advice from CTRM customer too. Besides, CTRM may request an extra audit from the supplier's registrar in cases of on-going performance issues. The cost of the audit will be the responsibility of the supplier.

46.0 AUDIT ON SUPPLIER

46.1. Audit will be performed on selected supplier according to CTRM AC Audit Master Schedule, or upon any major findings or customer request. CTRM AC Supplier Quality Assurance shall notify supplier and ensure customer audit requirement is achieved. CTRM AC Supplier Quality Assurance shall do the follow-up with the respective suppliers on all recorded findings that require corrective action.

46.2. CTRM AC Representatives and CTRM AC's customers shall have the right to carry out verification and validation activities at the Supplier's premises (and if necessary at sub-contractors supplier premises) in order to check:

- **Witness / verify FAI Part**
- **Supplier conformity to requirements specified in this document**
- **Supplier's Quality Management System (QMS)**
- **Product conformity to specified requirements**
- **Conformity of processes to specified requirements**
- **Implementation of any corrective action required.**

47.0 CONTINUAL IMPROVEMENT

Suppliers with product /parts shall develop a Failure Mode and Effects Analysis (FMEA) in accordance with CTRM AC specified requirements. The supplier shall have a Control Plan that takes into account the output from the FMEA and defines all methods used for process monitoring and control of special process characteristics.

Suppliers also to support CI based on CTRM AC requirements. This exercise is beneficial and has mutual gain for both parties. For example Quality Clinic, LWW (Lean Waste Way), SQIP (Supply Chain and Quality Improvement Programmer) or any other tools.

48.0 CRITICAL ITEM AND KEY CHARACTERISTIC CONTROL

The supplier shall establish, implement and maintain appropriate methods to control critical items, including process controls and/or inspections, where key characteristics have been identified in the engineering documentation. The Supplier shall formalize and record actions implemented in order to reduce, mitigate or monitor critical risk. On request, these actions should be reviewed with the CTRM AC.

Note: Critical Risk is defined as a process having significant effect on quality product and delivery. Process Failure Mode and Effect Analysis (PFMEA) is a recommended tool used to identify Key Process Characteristics. See for guideline, IAQG Standard 9103 - Variation Management of Key Characteristics.

Appendix A: Applicability Matrix

SQR 001 Clause	Manufacturer for parts/ assembly *(without design authority, tooling)*	Design Responsible Supplier / Supplier Owned Design	Manufacturer for materials *(direct/indirect e.g. chemical, AGS)*	Distributors/ Stockist *(Any Product Type)*	Service *(Calibration, Testing, Forwarder)*
1.2 – 2.5	√	√	√	√	√
2.6	√	√	√	NA	√
3.0 – 11.0	√	√	√	√	√
12.1 – 12.4	√	N/A	N/A	N/A	N/A
13.0	√	√	√	√	√
14.0 – 15.0	√	√	√	√	NA
16.0 – 16.2	√	√	√	√	√
17.0	√	√	√	√	NA
18.1 – 18.2	N/A	N/A	N/A	N/A	√
19.0	√	N/A	N/A	N/A	NA
20.1 – 20.3	√	√	√	√	NA
21.1	√	N/A	√	√	NA
21.2	√	N/A	√	√	√
21.3	√	N/A	√	N/A	N/A
21.4	N/A	√	N/A	N/A	N/A
22.1 – 22.3	√	√	√	√	NA
22.4	N/A	N/A	NA	√	NA
22.5	√	√	√	√	√
23.1 – 23.2	√	N/A	N/A	N/A	N/A
24.1 – 24.2	√	√	N/A	N/A	N/A
25.0 – 27.0	√	N/A	N/A	N/A	N/A
28.0	√	√	N/A	N/A	N/A
29.0	√	N/A	N/A	N/A	N/A
30.1	√	√	√	N/A	N/A
30.2	√	N/A	√	N/A	N/A
30.3	√	√	√	N/A	N/A
31.0 – 32.3	√	√	√	√	√
32.4	√	√	√	N/A	N/A
32.5 – 32.7	√	√	√	√	√
33.1 – 33.2	√	√	√	√	N/A
34.1	√	√	√	√	√
34.2	√	√	√	√	N/A
35.0 – 38.0	√	√	√	√	√
39.0	√	√	√	√	N/A
40.1	√	N/A	√	√	√
40.2	√	√	√	√	√
41.0	√	√	√	N/A	N/A
42.1 – 47.0	√	√	√	√	√

Remark: √ **- Supplier shall comply**
N/A - Not Applicable

Appendix B: Supplier Notification Changes

The purpose of this process is to define the procedure suppliers must follow when requesting a change to location, product, process, equipment or any other component which may directly or indirectly impact cost, delivery, performance, appearance or otherwise alters the condition of the material as agreed in the original standard, print, specification or purchase order.

This policy protects and strengthens the partnership between CTRM Aero Composite and its suppliers. Significant changes may appear, on the surface, to have no effect on the product, but may affect CTRM Aero Composite.

Changes to any of the item listed in table below that required CTRM Aero Composites approval must be communicated to and approved by CTRM Aero Composite in advance of the change:

CHANGE CATEGORY	EXAMPLE	CTRM AC APPOVAL REQUIRED
Manufacturing Plant Environmental Conditions	Change to or addition of production plant / sites that will be manufacturing CTRM AC products	Yes
	Changes in the work environment that could affect the manufacturing or storage condition of CTRM AC products. Example: excessive humidity	Yes
	Changes in the work environment that do not affect CTRM AC product Example : lighting change	No
Manufacturing Processes, Equipment & Tooling	Change of production line layouts. Example : physically moving a packaging machine	No
	Shift changes	No
	Maintenance of work standards Preventive Maintenance	No
	Change of production method	Yes
	Adding , deleting , changing to / from automated manufacturing processes	Yes
	Addition, modification, repair / transfer or jigs, tools or fixtures	Yes
	Changes to processing conditions or methods	Yes

	Lapse in production for two years or more	Yes
	Adding new equipment that will be used to manufacture CTRM AC product	Yes
Materials / Supply Base	Change or addition of subtier supplier, for critical material / controlled and special process	Yes
	Any changes that will affect the fit, form, function or appearance of a material that is or is not specified on a drawing	Yes
Inspection / Calibrated Devices	Changes to the in-process or raw material sampling methods, number of inspection points, inspection items or ratios	No
	Changes to final inspection sampling plans, number of inspection points, inspection items or ratios without having data to substantiate the changes	Yes
	Changes to or the inability to recalibrate gages or equipment used to validate CTRM AC products prior shipment	Yes
Packaging / Warehouse conditions	Changes to packaging	No
	Physical location change of warehouse / storage area	Yes
Certification / Approval	Any certification and/or customer approval that expired, revoked or discontinue	Yes

Supplier change category that required CTRM AC approval

For some changes, the product may need to go through the full / partial First Article Inspection process, if instructed by CTRM Aero Composite.

Once approval has been given to make the requested change(s) to any of these conditions, ***the first production shipment of goods after the change has been made shall be marked with labels that clearly show that the shipment is the first produced under the altered conditions*.**

In all cases, a change must be preceded by a completed Supplier Request for Change Form. (Form 479).The form shall be completed and submitted to SQA personnel

Appendix C: Document Retention and Storage Matrix

Electronic imaging/microfilming of records in lieu of storing actual inspection records is permissible. All records shall be retained, retrievable and readable on storage media capable of maintaining the data integrity for the full retention period.

No	Customer	Reference Document	Longest archive time (years)/Filing/ Storage	Type of Document
1	A400M CASA	CASA 1033	• Shall keep on file during the period required by FAA or EASA, whichever is greater (and at least 7 years) • Shall be retained during the operational life of the product plus three years	• All the documents certifications concerning the product supplied • First Article Report and Qualification Reports
2	Spirit US		All completed Manufacturing Plan (Process Records) and software for each part shall be maintained by the manufacturer for 7 years beyond the end of the contract	All First Part Qualification records Approved Manufacturing Plans including revisions Material Review Board disposition
3	Airbus	A1001.0 & A1001.0 Appendix A	Length of Product Operational Life + 6 years	- Design definition - Design records - Production planning documents and data - records generated during the Production phase - Inspection and test records - Products life records - Certification documentation
4	Airbus Helicopters	ER070 16-01	Permanent throughout the life of the helicopter concerned	Critical Parts Record compiled in accordance with EP 04-06 (original and derived layout)
5	GKN DE	QSV0034	Minimum period of 30 years and after the sale of the last Aircraft of the A350 model for another 5 years	All contract related documentation including (production plans, heat treatment charts, inspection protocols including test results and shipping documents)
6	UTAS	ASQR-01	Min of 10 years after the last delivery, and are not to be destroyed unless written approval is first obtained from Goodrich Supply Chain Quality Assurance.	All documentation (e.g. inspection records, contracts, purchase order, process and material certifications, test reports, nonconforming material records)
7	KAL A320 Sharklet & KAL Boeing 737	SQAR-BQF-002	Min (11) ten years from the end of contract	All types of Quality Records documents
			11 years past final delivery of the last product	FAI Records
8	Spirit UK / Malaysia (Airbus Projects)	A1001.0 & A1001.0 Appendix A	Length of Product Operational Life + 6 years	- Design definition - Design records - Production planning documents and data - records generated during the Production phase - Inspection and test records - Products life records - Certification documentation

9	Spirit US (Airbus Projects)	A1001.0 & A1001.0 Appendix A	Length of Product Operational Life + 6 years	- Design definition - Design records - Production planning documents and data - records generated during the Production phase - Inspection and test records - Products life records - Certification documentation