

Supplier Quality Requirements – AS9100 **DATE: 11/2024**

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1. General Quality Requirements

1.1. General

1.1.1. This document consists of general requirements related to quality assurance and inspection, as well as specific requirements by technology.

1.1.2. The general requirements are mandatory for all suppliers. The specific requirements are applicable according to the technologies implemented in the ordered product.

1.1.3. This document specifies the quality requirements for manufacturing by Aeronautics' subcontractors.

1.1.4. The requirements in this document are an integral part of the purchase order.

1.1.5. In case of contradiction between the inspection requirements in this document and the requirements appearing in the technical specification or SOW, the priority of requirements will be as follows: product file, SOW, technical specification, and this document. If there is a discrepancy between the documents, it is the supplier's responsibility to alert the customer to the difference between the documents so a decision can be made in advance, prior to starting production.

1.1.6. It is the supplier's responsibility to ensure that they meet the requirements in this document.

1.1.7. Validation – It is the supplier's responsibility to ensure and prove that the processes, systems, and products meet the requirements and standards.

1.1.8. It is the supplier's responsibility to cascade Aeronautics' quality requirements to subcontractors, including key characteristics relevant to the order, and verify them upon receiving products, including maintaining quality records from their subcontractor.

1.1.9. Items defined as "critical safety items" within the order or purchase requirements and marked with SP marking – The supplier commits to full traceability and 100% inspection of critical dimensions.

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1.1.10. Aeronautics' inspector will be entitled, at their discretion, to perform inspection at all stages of production at no additional cost:

- During ongoing production.
- When performing FAI.
- During in-process / acceptance inspection.

1.1.11. The supplier will ensure that they have the up-to-date documents in accordance with the order requirements. If there is any doubt regarding the revision of the documents, contact must be made through the questions/answers form.

1.2 Applicable Documents

The following documents, in their latest revision, are part of the requirements of this specification:

- 1.2.1. General purchase terms document as appearing in the order
- 1.2.2. AS9100 Quality Management System – Requirements for Aviation, Space, and Defense Organizations
- 1.2.3. AS9102 Requirements for First Article Inspection (FAI)
- 1.2.4. AS9103 Requirements for Key Characteristics Management
- 1.2.5. AS9146 Requirements for Foreign Object Damage (FOD) Prevention Program
- 1.2.6. Production Readiness Review (PRR)
- 1.2.7. ISO17025 – Requirements for accredited calibration laboratories
- 1.2.8. Counterfeit Parts Prevention
- 1.2.9. List of suppliers for special processes (Rev 0) – available on the Aeronautics website
- 1.2.10. List of suppliers for raw materials (Rev 0) – available on the Aeronautics website

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1.3 General Quality Requirements for Suppliers Manufacturing for Aeronautics

1.3.1. This document is in addition to the requirements appearing in the purchase order.

1.3.2. The supplier will conduct a contract review for each order at the quotation stage and before order approval.

1.3.3. In the contract review, the supplier will ensure that the requirements are clear and that they are able to implement them.

1.3.4. If and when required by the customer, the supplier commits to cooperate with the customer in process improvement activities affecting the quality of the product they supply. For this purpose, the supplier will allow customer representatives, upon request: access to production lines and subcontractors, information collected in relation to these production lines and in reference to: production files, work instructions and internal procedures, fault collection data and measurements, etc.

1.3.5. The supplier will report to purchasing in case of non-conformance from order requirements and using a **question/answer form** in the following areas: non-conformance from item requirements (post-production), request for an engineering waiver (pre-production), request to use an alternative raw material.

The request will include root cause analysis of the deviation and description of corrective action to prevent similar deviation in the future.

The signed question/answer form should be sent with the supporting reports and the product's COC.

1.3.6. According to the PRR summary, the supplier will manage the variation of key characteristics of the product manufactured by them in accordance with the AS9103 standard. Key characteristics will be identified in the customer's drawings/specifications or by the supplier themselves.

1.3.7. The supplier will maintain a Foreign Object Damage (FOD) prevention program in accordance with the PREN9146 standard.

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1.3.8. Changes to the product / product requirements will be made by Aeronautics only and the order will be updated accordingly. In BTS orders, no change to the product is allowed without customer approval after qualification completion.

1.3.9. Calibration of measuring and testing equipment – The supplier will use calibrated measuring and testing equipment with a calibration report demonstrating traceability to an accredited laboratory according to the ISO17025 standard.

1.3.10. The production file prepared by the supplier will comply with order requirements, be configuration controlled, and be approved within the Production Readiness Review (PRR) when required in the order.

1.3.11. The production file will include:

- Detailed production instructions.
- Detailed inspection reports defining the test method, measuring tools, and criteria for passing the test (Pass/Fail).
- Definition of key characteristics in the product.
- Instructions regarding Foreign Object Damage (FOD) prevention.
- Identification of items/materials requiring traceability and instructions for implementation.

1.4 Production Readiness Review (PRR)

1.4.1. Production Readiness Review will be performed when required in the order and its purpose is to verify the supplier's readiness to produce the item. Approval of review completion is a condition for initiating production.

1.4.2. The topics that will be raised in the review appear in the PRR checklist as part of the Production Readiness Review guide.

- In preparation, before the review, the supplier will fill out the checklist and submit it for review by Aeronautics representatives.
- During the review, the supplier will present the production flow chart including inspection points.
- During the review, inspection verification points will be defined where inspection by Aeronautics inspectors will be required.

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1.5 First Article Inspection (FAI)

1.5.1. FAI will be performed and documented by the supplier in accordance with AS9102 standard requirements.

1.5.2. FAI is required in the following cases:

- When manufacturing a product in series for the first time.
- After a break of 24 months or more in product manufacturing.
- When there is a change in the manufacturing site.
- Delta FAI – When there is a change in the manufacturing process or product, FAI is required only for the parts affected by the change.

1.5.3. Emphasis for FAI execution:

- The product that underwent FAI will be identified (serial/part number).
- FAI will include original COC documents for all purchased product components.
- FAI will include full documentation of the manufacturing process (for example, signed routing cards, laboratory reports, graphs and recorder output in various processes) and so on.

1.5.4. FAI documents will be submitted to Aeronautics inspectors along with the products that underwent FAI. Serial deliveries are contingent on FAI approval by the customer.

1.5.5. The supplier will report to the customer on any change in the manufacturing process after FAI approval, including changes in suppliers or major subcontractors. It is the supplier's responsibility to obtain customer approval to continue production after completing FAI activity as required.

1.6 Product Inspection

1.6.1. The supplier will coordinate inspection at least one week prior to the requested inspection date.

1.6.2. For each tested characteristic, compliance with requirements should be indicated; any deviation from requirements will be clearly marked on the test report.

1.6.3. When empirical measurements are performed, the results and measuring device must be documented.

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1.6.4. Products will be submitted for inspection according to the summary of inspection points in the PRR.

1.6.5. The supplier will present all required accompanying documentation to prove product serviceability (detailed in the technological sections in the submission for inspection section).

1.6.6. After completion of the customer's inspection by source inspection, a serviceable tag will be issued for the product signed by an inspector.

1.6.7. In the event that deviations are discovered during the inspection, the production batch submitted will be rejected. The supplier will be obligated to perform 100% sorting inspection of products before submission for re-inspection.

1.6.8. For suppliers with whom the interaction is without source inspection, the inspection will be performed at Aeronautics.

1.7 Packaging and Shipping Requirements

1.7.1. The supplier will provide each product in suitable and separate packaging to prevent damage to the product or as agreed in the PRR.

1.7.2. Product marking will be done according to the product file, or as defined in the drawing and as approved in the PRR.

1.7.3. The packaging will be accompanied by the source inspection approval records given by the inspector, the COC, the question/answer form if applicable, and all supporting reports for processes performed by the supplier.

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2. Specific Quality Requirements for PCB Manufacturing

2.1. General

This section specifies the unique quality requirements for the production and inspection of Printed Circuit Boards (PCBs). The section includes:

- Specific requirements for production and inspection by the supplier.
- Types of tests the supplier is obligated to perform.

2.2. Applicable Documents

The documents listed below in their latest version are an integral part of the production and inspection requirements in this section:

#	Description	Document Number
1	Acceptability of Printed Boards, Class 3	IPC-A-600
2	Microwave End Product Board Inspection and Test, Class 3	IPC-6018
3	Qualification and Performance Specification for Flexible Printed Boards, Class 3	IPC-6013
4	Qualification and Performance Specification for Rigid Printed Boards, Class 3	IPC-6012
5	Aeronautics drawing	-

2.3. Specific Requirements for Production and Inspection by the Supplier

This section specifies the requirements and types of tests the supplier is obligated to perform.

2.3.1 Requirements:

2.3.1.1 The production of circuits in the order will be carried out in accordance with the drawings and files attached to the order.

2.3.1.2 The supplier will perform in-process tests according to the standards appearing in the product file.

2.3.1.3 Final tests – Electrical and visual inspection will be checked at 100% for the entire batch, metallographic cross-section will be done on a PCB, one per manufacturing batch (inspection according to IPC6013, IPC6012 and IPC-A-600 Class 3).

2.3.1.4 Inspectors performing the visual inspection will be qualified to IPC-A-600.

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2.3.1.5 Diagonal test – The test will be performed for both sides (PS and CS) according to Aeronautics drawings.

2.3.1.6 The metallographic cross-sections will be kept by the supplier for at least 7 years.

3. Specific Quality Requirements for Circuit Board Assembly / Coatings

3.1. General

This section specifies the unique quality requirements for circuit board assemblies, including coatings and adhesives. The section includes:

- Types of tests the supplier is obligated to perform before transferring the product to Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should submit the product for inspection.

3.2. Applicable Documents

The following documents in their latest version at the date of the order are an integral part of the production and inspection requirements in this section:

#	Description	Document Number
1	Requirements for Soldered Electrical and Electronic Assemblies, Class 3	J-STD-001
2	Acceptability of Electronic Assemblies, Class 3	IPC-A-610
3	Rafael procedure – Quality requirements for electronic assemblies (printed circuits, cards, and wiring)	93.00.63
4	Sampling procedures and tables for inspection by attributes	Inspection: SQUEGLIA, AQL=1.5%

3.3. Specific Requirements for Production and Inspection by the Supplier

This section specifies the requirements the supplier is obligated to meet before transferring the product for inspection by Aeronautics.

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3.3.1 Component procurement will be from the original manufacturer or an authorized distributor of the original manufacturer from Aeronautics' approved supplier list (based on Rafael's list), available for review on the Aeronautics website, and will uphold regulations to avoid counterfeit components.

3.3.2 Quality requirements for circuit assemblies are detailed in Rafael's requirements document from procedure 93.00.63 section 5, latest edition.

3.3.3 The supplier must keep the original COC of the item manufacturer for all required components and materials, including electronic components, cleaning materials, coating materials, and adhesives.

3.3.4 The supplier must manage traceability for all materials and components used in circuit assembly.

3.3.5 Circuit assembly will be performed according to a detailed production file, including routing cards specifying all work stages, processes, and inspection, and will include detailed instructions.

3.3.6 The supplier must maintain an ESD protection system according to the following details:

3.3.6.1 For products including 'regular' components in terms of ESD sensitivity and sensitive to electrostatic voltage levels of more than 250V.

3.3.6.2 For products including components highly sensitive to ESD and sensitive to electrostatic voltage levels of less than 250V.

3.3.7 Workers involved in assembly, soldering, and inspection processes will be certified to the IPC-A-610, Class 3 standard.

3.3.8 The supplier is required to perform inspection at each stage of production (for example, removal of gold plating for components, feeding of placement machine, material validity, solder paste application, cleaning, AOI, x-ray, electrical tests, adhesives, and coating).

3.3.9 A sample of at least one circuit will undergo a cleanliness level test according to J-STD-001 requirements, section 8.3 Cleanliness Testing and ultraviolet inspection.

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3.3.10 Unless otherwise specified in the order, assembly and soldering inspection will be performed according to J-STD-001 and IPC-A-610 Class 3.

3.3.11 Adhesives on the circuit will be performed according to documentation in the production file.

3.4 Submission for Inspection at Aeronautics

3.4.1 General

The product will be submitted for inspection at Aeronautics according to the requirements in the order:

- After completion of visual inspection and before coating, ATP and ATR will be performed at Aeronautics.
- The product will be transferred for coating by the supplier.
- Final inspection by the supplier will be performed after completion of coating and adhesives.

3.4.2 The product will be returned to Aeronautics after successfully passing all tests, up to the submission stage, according to the applicable specifications and drawings.

3.4.3 Accompanying documentation for the batch will be submitted at the final inspection stage and will include:

No.	Accompanying Documentation
1	Routing sheet for the production process for the batch in the order
2	Supplier's COC certificate including a list of serial numbers of the batch
3	Question and answer reports (MRB) approved by Aeronautics
4	COC certificates for the coating process for each batch

4. Specific Quality Requirements for Electronic Kits

4.1. General

This section specifies the unique quality requirements for kitting and inspection of electronic kits. The section includes:

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- Specific requirements for kitting and inspection by the supplier – types of tests the supplier is obligated to perform.

4.2. Specific Requirements for Production and Inspection by the Supplier

This section specifies the requirements and types of tests the supplier is obligated to perform.

4.2.1 Requirements:

4.2.1.1 Kitting of items in the order will be performed according to the engineering documents attached to the order.

4.2.1.2 Quality requirements for electronic components are detailed in Rafael's requirements document from procedure 93.00.63 section 5, latest edition.

4.2.1.3 The supplier will ensure full documentation of components (COC, documentation of required tests).

4.2.1.4 The supplier will perform the inspection.

#	Topic	Requirement	Passing Criteria
1	Component Inventory	Verification that all components in the BOM were supplied as required	Approvals for discrepancies will be received via a question and answer form: <ul style="list-style-type: none"> • Approvals regarding component age at purchase – Components Engineering • Approvals regarding shortages – Procurement
		Box Marking Check	Non-static electricity generating box, correct marking of kit identification.
2	Component COC Check	Components were purchased from	The COC was issued by a supplier defined in Aeronautics' approved suppliers list

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		authorized procurement sources	(based on Rafael's list)
		COC Validity	<p>The COC will include the following details:</p> <ul style="list-style-type: none"> · Manufacturer name · Manufacturer part number · Date code · Batch number (if applicable) · Information on place of manufacture (if available) · Name + signature of COC issuer
		Component Age	<p>Each component type will be supplied from a single DATE CODE only. Plastic components and discrete components: Will be purchased by the kitter up to 12 months from their manufacturing date. Other components will be purchased by the kitter up to 24 months from their manufacturing date. At the time of supply, component age will not exceed 5 years (storage at the kitter's facility is allowed from time of purchase to time of supply).</p>
3	Quantity Check	The quantity of components supplied of each type is correct – according to the kitting company's records only	For passive components, an excess of 35 cm tape will be supplied.
4	Packaging and Identification Check	Visual inspection for the integrity and completeness of the packaging and its suitability for the product (such as size, ESD, or sealing for components sensitive to moisture and/or ESD, including appropriate marking on	No damage visible on the packaging.

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	the packaging).	
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5.

Specific Quality Requirements for Wiring and Harnesses

5.1. General

This section specifies the unique quality requirements for wiring and harnesses. The section includes:

- Types of inspections required of the supplier before transferring the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the manufacturer should submit the product for inspection.

5.2. Applicable Documents

The documents listed below in their latest version at the date of order constitute an integral part of the manufacturing and inspection requirements in this section:

#	Description	Document Number
1	Requirements and Acceptance for Cable and Wire Harness Assemblies	IPC-A-620, Class 3
2	Acceptability of Electronic Assemblies	IPC-A-610, Class 3
3	Sampling procedures and tables for inspection by attributes	Inspection: SQUEGLIA, AQL=1.5%

5.3. Specific Requirements for Manufacturing and Inspection by the Supplier

This section specifies the requirements and types of inspections that the supplier must perform before transferring the product for inspection by Aeronautics.

5.3.1. Requirements:

- 5.3.1.1. Cable manufacturing shall be performed according to IPC-A-620, Class 3 standard.
- 5.3.1.2. The supplier must maintain the original COC from the item manufacturer for all purchased items and raw materials.

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5.3.1.3. Employees involved in wiring and inspection processes shall be certified according to the IPC-A-620, Class 3 standard.

5.3.1.4. Cable manufacturing shall be performed according to Aeronautics' ****approved**** drawings and the detailed manufacturing file, including the supplier's routing cards specifying all work stages, processes, and inspections, including tools to be used according to types of connectors, wires, etc.

5.3.1.5. If working with electronic components, the supplier must maintain an ESD protection system in accordance with their ESD control procedure, based on international guidelines.

5.3.2. Types of Inspections to be Performed by the Supplier

5.3.2.1. The supplier must perform wiring inspection on 100% of the cables.

5.3.2.2. In-process cable inspection (before crimping boots/sleeves):

- Matching items to the harness product file.
- Visual inspection according to: IPC-A-620, class 3.
- Dimensions/lengths inspection.
- Markings inspection.
- Automatic test inspection (PTP and breakdown test).

5.4. Submission for Inspection by Aeronautics at the Supplier's Facility (if required)

5.4.1. General

The cables shall be submitted for inspection by an Aeronautics inspector in 2 stages:

- During the manufacturing process, before closures (boots/sleeves/potting).
- Final inspection.

5.4.2. The cables shall be submitted for inspection after successfully passing all tests up to the submission stage according to the applicable specifications and drawings.

5.4.3. The manufacturing file shall be submitted for the inspector's review.

5.4.4. Accompanying documentation for the batch shall be submitted at the final inspection stage and shall include:

No.	Accompanying Documentation
1	Supplier's COC certificate including list of serial numbers for the batch, managed REV, VER.
2	Aeronautics MRB (Material Review Board) reports, if there were deviations.
3	Final test results report filled and signed by the supplier's inspection,

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	including: <ul style="list-style-type: none"> • Visual inspection according to: IPC-A-620, class 3. • Dimensions/lengths inspection. • Markings inspection. • Automatic test inspection (P.T.P and breakdown test) managed REV, VER.
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5.5. Submission for Inspection at Aeronautics

5.5.1. The cables shall be submitted for inspection at Aeronautics after successfully passing all tests up to the submission stage according to the applicable specifications and drawings.

5.5.2. Accompanying documentation for the batch shall be submitted at the final inspection stage and shall include:

No.	Accompanying Documentation
1	Supplier's COC certificate including list of serial numbers for the batch, managed REV, VER.
2	Aeronautics MRB (Material Review Board) reports, if there were deviations.
3	Final test results report filled and signed by the supplier's inspection, including: <ul style="list-style-type: none"> • Automatic test inspection (PTP and breakdown test), managed REV, VER.
4	Additional emphasis in FAI production: AS9102 documents shall be sent to Aeronautics , managed REV, VER, including the serial number on which the FAI was performed. The FAI file shall be kept at the supplier and be available for review by the Aeronautics inspector.

6. Specific Quality Requirements for Manufacturing Metal Parts

6.1. General

This section specifies the unique quality requirements for manufacturing and inspection of metal parts.

The section applies to the following technologies:

- Machining
- Sheet metal processing
- Laser cutting
- Castings
- Forgings
- Extrusion

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- Spring manufacturing
- Identification labels / signs

The section includes:

- Types of inspections required of the supplier before transferring the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the manufacturer should submit the product for inspection.

6.2. Applicable Documents

The documents listed below in their latest version constitute an integral part of the manufacturing and inspection requirements in this section:

#	Description	Document Number
1	Sampling procedures and tables for inspection by attributes	Inspection: SQUEGLIA, AQL=1.5%

6.3. Specific Requirements for Manufacturing and Inspection by the Supplier

This section specifies the requirements and types of inspections that the supplier must perform before transferring the product for inspection by Aeronautics.

6.3.1. Requirements:

6.3.1.1. Manufacturing of items in the order shall be performed according to the models, drawings, and BOM attached to the order.

****Clarification****: The dimensions appearing in the drawings are final dimensions after coatings and paint.

6.3.1.2. The supplier shall ensure full documentation of raw materials (manufacturer's COC, special test documentation if required) and full documentation of special processes, including non-destructive testing (COC and test results).

6.3.2. Final Inspection – The supplier shall perform an inspection before submitting the items to the Aeronautics inspector.

The inspection shall include at least:

#	Type of Inspection	Sample Size	Pass Criteria / Emphasis
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1	Checking accompanying documentation for raw materials and special processes		Meets drawing and model requirements.
2	Receiving inspection after special processes at subcontractors		Compliance with drawing, emphasis on masking, checking accompanying samples for the product. In case of painting, check paint thickness and adhesion test.
3	Visual inspection of part painting		Compliance with drawing requirements (shade and masking areas).
4	Visual inspection for workmanship quality and deburring	100%	Compliance with requirements.
5	Inspection for compliance with engineering document requirements	SQUEGLIA, AQL=1.5%	Ensure that every engineering requirement is addressed in the inspection report. When CMM inspection is performed on a sample, print these reports.
6	Chemical analysis of casting material		Compliance with requirements and accompanying report.
7	Mechanical properties test for casting		Compliance with requirements and accompanying report.
8	Checking validity of materials with limited shelf life	-	Materials with limited shelf life shall have at least 75% of their shelf life remaining at the time of shipment.
9	Checking packaging and shelf life marking (expiration date)	-	Each package or container in the shipment must be clearly identified with the manufacturing date, expiration date, and required storage conditions.

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6.3.2.1. The inspection findings shall be recorded by the supplier on a results report containing the following data:

- Part description
- Part number + serial number + revision/version
- Order number + line number in the order
- Quantity in batch / production quantity
- Quantity in the inspected sample
- Production batch number
- Required dimension and tolerance
- Type of measuring tool used
- Resulting dimension (dimensions checked using GO and NO-GO gauges, mark OK or ✓)
- Clear marking of out-of-tolerance dimension with *

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- Recording of dimension results for each item in a separate column. A range of obtained results can also be recorded.
- Inspector's signature and stamp
- Date of inspection

6.4. Submission for Inspection by Aeronautics

6.4.1. The items shall be submitted for inspection by an Aeronautics inspector after successfully passing all required in-process tests and final inspections according to the applicable specifications and drawings.

6.4.2. The manufacturing file shall be submitted for the inspector's review upon request.

6.4.3. Accompanying documentation for the batch shall include:

No.	Accompanying Documentation
1	Product COC certificate and supplier's serviceable tag
2	Question and answer reports (MRB) approved by Aeronautics
3	Final test results report filled and signed by the supplier's inspection
4	Accompanying documentation according to section 6.3.1.2

7. Specific Quality Requirements for Manufacturing Rubber Parts

7.1 General

This section outlines the unique quality requirements for the production and inspection of rubber parts. It includes:

- Types of inspections the supplier must conduct before submitting the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should submit the product for inspection.

7.2 Applicable Documents

The documents listed below, in their latest version, are an integral part of the production and inspection requirements in this section:

#	Description	Document Number
1	Sampling procedures and tables for inspection by attributes	Inspection: SQUEGLIA, AQL=1.5%

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7.3 Unique Requirements for Production and Inspection by the Supplier

This section details the requirements and types of inspections the supplier must perform before submitting the product for inspection by Aeronautics.

7.3.1 Requirements

7.3.1.1. Production of the ordered items shall be carried out in accordance with the models, drawings, and attached models specified in the order.

7.3.1.2. Materials with a limited shelf life must have at least 75% of their shelf life remaining at the time of shipment.

7.3.1.3. The supplier shall ensure full documentation of the mixture (COT, COC, and required test records).

7.3.1.4. The supplier shall perform an inspection before submitting the items for final inspection by Aeronautics.

This inspection shall include at least:

#	Type of Inspection	Sample Size	Pass Criteria / Emphasis
1	Review of documentation related to the mixture, including required test results	-	Meets drawing requirements.
2	Inspection for compliance with requirements and engineering documents	Inspection: SQUEGLIA, AQL=1.5%	Compliance with requirements.

7.3.2. Inspection Findings

The supplier shall record inspection findings in a results report, which must contain the following data:

- Part description
- Part number, serial number, and revision/version
- Order number
- Batch quantity

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- Sample quantity inspected
- Production batch number
- Mixture batch number
- Required dimension/property and tolerance
- Measurement tool use
- Accepted dimension/property (for measurements using GO and NO-GO gauges, mark OK or ✓)
- Clear marking (*) of any non-conforming dimension/property
- Each item’s results shall be recorded in a separate column; alternatively, a range of acceptable results can be listed
- Inspector’s signature and stamp
- Date of inspection

7.4 Submission for Inspection by Aeronautics

7.4.1. Items shall be submitted to the Aeronautics inspector only after successfully passing all required in-process and final inspections according to applicable specifications and drawings.

7.4.2. Upon successful inspection, items shall be packaged to allow the inspector to examine the packaging.

7.4.3. The production file shall be submitted for the inspector’s review.

7.4.4. The accompanying documentation for the batch shall include:

No.	Accompanying Documentation
1	COC and COT certificates of the product and supplier's approval tag
2	MRB (Material Review Board) question-answer reports approved by Aeronautics
3	Final inspection report completed and signed by the supplier’s quality control
4	Supporting documentation as specified in Section 7.3.1.3

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8. Specific Quality Requirements for Manufacturing Electromechanical Assemblies and Customer Service Assemblies

8.1. General

This section specifies the unique quality requirements for manufacturing electromechanical assemblies and customer service assemblies, such as: operating consoles, RF assemblies, power supplies, pedestals, and carriages.

This section details the requirements for complete assemblies. Quality requirements for the primary components that make up the assembly, such as metal parts, electronic boards, and wire harnesses, are detailed in the relevant sections of this document.

The section includes:

- Types of tests the supplier is required to perform before submitting the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should present the product for inspection.

8.2. Applicable Documents

The documents detailed below in their latest version constitute an integral part of the manufacturing and inspection requirements in this section:

#	Description	Document Number
1	Acceptability of Electronic Assemblies, Class 3	IPC-A-610
2	Requirements and Acceptance for Cable and Wire Harness Assemblies, Class 3	IPC-A-620
3	Released ATP Specification	ATP product
4	Released ESS Specification	Product ESS Specification
5	Sampling procedures and tables for inspection by attributes	Inspection: SQUEGLIA, AQL=1.5%

8.3. Unique Quality Requirements for Manufacturing and Inspection by the Supplier

This section specifies the requirements that the supplier must fulfill before submitting the product for inspection by Aeronautics.

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- 8.3.1. The supplier must maintain the original COC (Certificate of Conformance) from the item supplier for all components assembled in the product and required materials, including electronic components, coating materials, and adhesives.
- 8.3.2. The supplier must maintain traceability for all materials and components used in the assembly.
- 8.3.3. Assembly of units shall be performed according to a detailed manufacturing file, including routing cards that specify all work stages, processes, and inspection steps, and shall include detailed instructions.
- 8.3.4. Inspection stages shall include, as necessary:
- 8.3.4.1. Verify existence of serviceable tags for sub-units/assemblies
 - 8.3.4.2. Verify completeness and correctness of assembly components
 - 8.3.4.3. Verify correct assembly according to drawing requirements
 - 8.3.4.4. Verify bolt torque as required in engineering documentation/manufacturing file
 - 8.3.4.5. Verify bolt locking as required in engineering documentation/manufacturing file
 - 8.3.4.6. Verify connector locking as required in engineering documentation/manufacturing file
 - 8.3.4.7. Verify coaxial connector torque as required in engineering documentation/manufacturing file
 - 8.3.4.8. Verify connector closure according to engineering documentation/manufacturing file requirements
 - 8.3.4.9. Welding inspection according to the process specification required in the drawing, including verification of valid and appropriate welder certification for the performed welding, NDT testing by certified inspector if required
 - 8.3.4.10. Visual inspection for workmanship quality
 - 8.3.4.11. FOD (Foreign Object Debris) inspection
 - 8.3.4.12. ESS (Environmental Stress Screening) testing
 - 8.3.4.13. Functional/electrical testing according to ATP
- 8.3.5. The supplier must maintain an ESD (Electrostatic Discharge) protection system
- 8.3.6. Workers involved in assembly, soldering, and inspection processes shall be certified to IPC-A-620 Class 3 and/or IPC-A-610 Class 3 standards respectively
- 8.3.7. The supplier is required to perform 100% inspection of all assemblies at each assembly stage according to the routing card and manufacturing file.

8.4. Submission for Inspection by Aeronautics

- 8.4.1. General

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The assembly shall be submitted for inspection after successfully passing all tests up to the submission stage according to the manufacturing file and applicable drawings.

8.4.2. The manufacturing file shall be submitted for the inspector's review.

8.4.3. Batch Documentation

Batch documentation shall be submitted during final inspection and shall include:

No.	Accompanying Documentation
1	Supplier's serviceable tag for the product
2	Supplier's COC including serial numbers list of the batch
3	MRB (Material Review Board) reports approved by Aeronautics
4	Test reports for each assembly (ATR and ESS)
5	Signed routing cards
6	Traceability reports for assembly components

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8.5. Additional Requirements for Customer Service / Repair:

- 8.5.1. The supplier shall perform expert analysis to identify the failure cause and propose a repair method.
- 8.5.2. The expert analysis document shall be submitted for approval to the project's quality engineer.
- 8.5.3. After approval of the expert analysis and repair method, the repair shall be performed, and only then shall the Aeronautics inspection be scheduled.

9. Specific Quality Requirements for Mechanical Assemblies

9.1. General

This section specifies the unique quality requirements for mechanical assemblies.

The section details requirements for complete assemblies. Quality requirements for primary components that make up the assembly such as: metal parts or composite materials, rubber items are detailed in the appropriate sections of this document.

Clarification: Dimensions shown in drawings are final dimensions after coatings and paint, unless explicitly stated otherwise in the drawing.

The section includes:

- Types of tests the supplier is required to perform before submitting the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should present the product for inspection.

9.2. Applicable Documents

The following documents in their latest version at the order date form an integral part of the manufacturing and inspection requirements in this section:

#	Description	Document Number
1	Sampling procedures and tables for inspection by attributes	Inspection Level: SQUEGLIA AQL=1.5%

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9.3. Specific Quality Requirements for Manufacturing and Inspection by the Supplier

This section specifies the requirements that the supplier must fulfill before submitting the product for inspection by Aeronautics.

9.3.1. The supplier must maintain the original COC from the item manufacturer for all components assembled in the product and required materials, including primary items, hardware, coating materials, and adhesives.

9.3.2. The supplier must maintain traceability for all materials and components used in the assembly.

9.3.3. Assembly of units shall be performed according to a detailed manufacturing file, including routing cards that specify all work stages, processes, and inspection steps, and shall include detailed instructions.

9.3.4. Inspection stages shall include, as necessary:

9.3.4.1. Verify completeness and correctness of assembly components including existence of serviceable tags for sub-units/assemblies.

9.3.4.2. Verify correct assembly according to drawing requirements.

9.3.4.3. Verify bolt torque as required in engineering documentation/manufacturing file.

9.3.4.4. Verify bolt locking as required in engineering documentation/manufacturing file.

9.3.4.5. Welding inspection according to the process specification required in the drawing (including verification of valid and appropriate welder certification for the performed welding, NDT tests performed by certified inspector, visual inspection for workmanship quality).

9.3.4.6. FOD inspection. (Visual inspection to verify the absence of foreign objects shall be performed when assembly is open, before final closure. Foreign objects include any item not integral to the assembly such as: chips, loose hardware, material residue, or work tools.)

9.3.4.7. Assembly painting inspection:

- Supplier shall verify that the part is painted according to drawing requirements (masking areas).
- Supplier shall verify that paint color matches drawing requirements.
- Supplier shall verify through paint shop accompanying documentation that paint thickness is correct and adhesion tests were successfully performed as defined in the painting specification.

9.3.4.8. Functional testing if required according to dedicated ATP or drawing requirements.

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9.3.5. The supplier is required to perform 100% inspection of all assemblies at each assembly stage according to the routing card and manufacturing file.

9.4. Submission for Inspection by Aeronautics

9.4.1. General

The assembly shall be submitted for inspection by an Aeronautics inspector after successfully passing all tests up to the submission stage according to the manufacturing file, specifications, and applicable drawings.

9.4.2. The manufacturing file shall be submitted for the inspector's review.

9.4.3. Batch Documentation

Batch documentation shall be submitted during final inspection and shall include:

- Supplier's serviceable tag for the product
- Supplier's COC including a list of serial numbers for the batch
- MRB (Material Review Board) reports approved by Aeronautics
- Test reports for each assembly
- Signed routing cards
- Traceability reports for assembly components when required

10. Specific Quality Requirements for Manufacturing Composite Material Parts

10.1. General

This section specifies the unique quality requirements for manufacturing and inspection of parts produced from composite materials.

The section includes:

- Types of tests the supplier is required to perform before submitting the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should present the product for inspection.

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10.2. Applicable Documents

The documents listed below in their latest version form an integral part of the manufacturing and inspection requirements in this section:

#	Description	Document Number
1	Sampling procedures and tables for inspection by attributes	Inspection Level: SQUEGLIA AQL=1.5%
2	Visual inspection for quality deburring	100%

***Note:** The binding process specifications shall be Aeronautics specifications detailed above and/or defined in the drawing or other engineering document, or alternative specifications approved by the Aeromechanics Engineering department (Aeronautics).

10.3. Specific Quality Requirements for Manufacturing and Inspection by the Supplier

This section specifies the requirements and types of tests the supplier must perform before submitting the product for inspection by Aeronautics. The inspection method and stages by the customer will be agreed upon during the PRR or in a dedicated discussion before starting serial production.

10.3.1. Requirements:

10.3.1.1. Manufacturing of ordered items shall be performed according to models, drawings, and/or NEXT files

10.3.1.2. As part of this, the manufacturing process shall be performed according to the requirements of process specifications mentioned in these engineering documents.

10.3.1.3. Manufacturing files shall be approved by Aeronautics during the PRR before production begins.

10.3.1.4. The supplier shall ensure complete documentation of raw materials (manufacturer's COC, receiving inspection test documentation or shelf-life extension if required, materials validity documentation)

10.3.1.5. The supplier shall ensure complete documentation of all process stages including layer placement direction, accompanying specimens such as adhesive coupons or accompanying specimens required in the process specification, documentation of start/end times for time-limited operations, temperature/pressure/vacuum graphs of the

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curing process. For any stage including measurement, the measured value shall be recorded.

10.3.1.6. For each part, a record shall be maintained containing the following information:

- Part number identification
- Process specification identification
- For each material type, document: production batch number, roll number, manufacturing date, material receiving date, material storage expiration date, in case of material shelf-life extension, maintain the approving reports
- Date and time of layup start, date and time of layup completion
- Accompanying specimen test results (if required)
- Non-destructive test results (if required)
- MRB (Material Review Board) reports documentation (if performed)
- Documentation of performed repairs

10.3.1.7. The supplier shall perform in-process inspection and final inspection before submitting items to the Aeronautics inspector for each unit at 100%, the inspection shall include at least:

#	Type of Inspection	Sample Size	Pass Criteria / Emphasis
1	Checking accompanying documentation for raw materials and special processes		Meets drawing requirements.
2	Receiving inspection after special processes at subcontractors		Compliance with drawing, emphasis on masking, checking accompanying samples for the product. In case of painting, verification that paint thickness and adhesion test comply with relevant drawing.
3	Visual inspection of part painting		Compliance with drawing requirements (shade and masking areas).
4	Visual inspection for workmanship quality and deburring	100%	Compliance with requirements.
5	Inspection for compliance with engineering document requirements	SQUEGLIA, AQL=1.5%	Compliance with requirements. Ensure that every engineering requirement is addressed in the inspection report. When CMM inspection is performed on a

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			sample, print these reports.
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10.3.1.8. Inspection findings including required test reports shall be documented by the supplier.

10.3.1.9. Inspection findings shall be recorded by the supplier on a results report.

10.3.2. Special Instruction Regarding FAI

10.3.2.1. Detailed plan for FAI execution shall be agreed upon during the PRR or in a dedicated discussion before starting serial production.

10.3.2.2. The supplier is responsible for providing test reports of production equipment (molds and jigs) during the PRR.

10.4. Submission for Inspection by Aeronautics

10.4.1. Items shall be submitted for inspection by an Aeronautics inspector after successfully passing all required process tests and final tests according to applicable specifications and drawings.

10.4.2. The manufacturing file shall be submitted for inspector review upon request.

10.4.3. Batch documentation shall include:

No.	Accompanying Documentation
1	Supplier's COC inspection
2	Part information record as defined in section 10.3.1.3
3	Curing process/processes graphs
4	Accompanying specimen test results (if required)
5	Non-destructive test results (if required)
6	Dimensional inspection report including for sub-items
7	Aeronautics' MRB (Material Review Board) reports
8	COC and accompanying documentation for painting process

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11. Specific Quality Requirements for Manufacturing 3D Printed Parts (Polymers / Metals)

11.1. General

This section specifies the unique quality requirements for manufacturing and inspection of items produced by 3D printing.

The section includes:

- Types of tests the supplier is required to perform before submitting the product for inspection by Aeronautics.
- Submission for inspection by Aeronautics – How the supplier should present the product for inspection.

11.2. Applicable Documents

The documents listed below in their latest version form an integral part of the manufacturing and inspection requirements in this section:

Description	Document Number
Sampling procedures and tables for inspection by attributes	Inspection Level: SQUEGLIA AQL=1.5%
Visual inspection for quality deburring	APS 10.0121

***Note:** The mandatory process specifications shall be those specified by Aeronautics as outlined above and/or as defined in the drawing or another engineering document, or alternative specifications approved by Aeromechanics Engineering (Aeronautics).

11.3. Unique Quality Requirements for Supplier Production and Inspection

This section specifies the requirements and types of inspections the supplier is obligated to conduct prior to transferring the product for inspection by Aeronautics. The inspection method and stages by the client will be determined in a dedicated discussion before the start of serial production.

11.3.1. Requirements:

11.3.1.1. The production of ordered items shall be executed in accordance with the models and drawings approved by Aeronautics.

11.3.1.2. The production process shall follow the process specifications referenced in these engineering documents.

11.3.1.3. The supplier shall ensure full documentation of raw materials, including the manufacturer's COC, COA, and COT, acceptance inspection records or extended validity documentation if required, and material validity records.

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11.3.1.4. The supplier shall verify compliance with standards and the mechanical properties of the item.

11.3.1.5. The supplier shall ensure complete documentation of all process stages, including raw material, technology, and print orientation, aligned with the drawing.

11.3.1.6. Part Conformity Check to Drawing – The supplier must ensure that the part is printed in the correct scale and orientation.

11.3.1.7. **FOD Requirements** – The supplier shall ensure that the finished product is free from any possible contamination, with an emphasis on contamination from the printing process, machining chips, and coating adhesion.

11.3.1.8. For parts defined as components for a fuel/oil system (FUEL/OIL SYSTEM PARTS), ensure production in accordance with relevant sections in APS 10.0121. A usable tag shall be attached, including the manufacturer’s name, item part number, order number, manufacturing date, and inspector’s name.

11.3.1.9. Documentation of special processes shall be conducted as required by the drawing, including painting, coating, and thermal treatments.

11.3.1.10. The supplier shall perform in-process inspection and final inspection before submitting the items to Aeronautics’ inspector. The inspection shall include at minimum:

#	Type of Inspection	Sample Size	Pass Criteria / Emphasis
1	Checking accompanying documentation for raw materials and special processes	-----	Meets drawing requirements.
2	Receiving inspection after special processes at subcontractors	100%	Conformance to the drawing with emphasis on masking details. (For coating and painting, verify coating and paint thickness as per the relevant drawing.)
3	Visual inspection of part painting	100%	Compliance with drawing requirements regarding color and masking areas.
4	Visual inspection for execution quality, part cleanliness, absence of thread damage, and burr removal (FOD)	100%	Compliance with drawing requirements.
5	Inspection of sealing and varnish coating quality:	100%	Compliance with drawing requirements.

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	(no leaks, peeling, or insufficient coverage)		
6	Inspection for compliance with engineering document requirements	SQUEGLIA, AQL=1.5%	Verification that all engineering requirements are addressed in the dimensional inspection report.
7	Packaging inspection	-----	The supplier is responsible for packaging and protecting the items to ensure their integrity during storage, handling, and transport to prevent shaking, scratches, and defects.

11.3.1.11. The inspection findings, including required test reports, shall be documented by the supplier.

11.3.1.12. The inspection findings shall be recorded by the supplier on a results report.

11.3.2. Special Instruction on FAI

11.3.2.1. FAI (First Article Inspection) shall be conducted in accordance with AS9102 Form 1, 2, and 3. It shall be performed at the beginning of the series, before the start of serial production, or after a production halt of two years, or as required.

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11.4. Submission for Inspection by Aeronautics

11.4.1.1. Items shall be submitted for inspection by an Aeronautics inspector only after successfully passing all required in-process and final inspections, according to applicable specifications and drawings.

11.4.1.2. The production file shall be submitted for the inspector's review upon request.

11.4.1.3. Accompanying documentation for the batch shall include:

No.	Accompanying Documentation
1	Supplier's COC inspection
2	Part information record as defined in section 11.3.1.3
3	Dimensional inspection report, including sub-parts as per the drawing
4	Aeronautics MRB (Material Review Board) question-answer reports
5	FAI form serving as the first item inspection report
6	COC/COA and supporting documentation for raw materials and the painting process

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12. Appendix – Question & Answer / NCR – Form

Form shall be populated by the supplier and shall be delivered to Aeronautics Quality Assurance and Procurement

(*) Reporting Classification: <input type="checkbox"/> Non-Conformance (MRB) <input type="checkbox"/> Question & Answer (QA)	Instructions for Form Completion The feedback shall be populated in a computerized form. Mandatory fields shall be populated by the Supplier.
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Purchase Order Details and Contacts

(*) Documentation Status	(*) Part Number	(*) Part Name / Description	(*) Revision	(*) Date of Ref.
Choose an item				Click here to enter a date

(*) Inspection Level	(*) PO Line	(*) Parts Quantity Acc. PO	Supplier QA/MRB Number
Choose an item			

(*)Supplier Name	Supplier Number	(*) Name of Responder	(*) Job Title / Description	(*) Email Address & Contact Number	
				✉	
				☎	

Non Conformance (MRB) – Finding(s) Description (*)

(*) Required	(*) Actual	Location in Drawing	Quantity of Manufactured parts	Quantity of Deviated Parts	Comments

Detailed Description of the Non-Conformance					
Serial Numbers (SNs) of the Deviated Parts (if applicable)					

(*) Repeated Non-Conformance? (Y/N)	Approval for Previous Non-Conformance? ²

² If there is an approval for the previous non-conformance, the supplier/ manufacturer must attach it to the Question & Answer / NCR – Form.

Root Cause of the Non-Conformance	Choose an item

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Corrective Action Required to Prevent Reoccurrence	Choose an item
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(*) Request For Engineering Permit (Waiver)

Supplier's Question		
Aeronautics' Answer		
Name:	Signature:	Date: Click here to enter a

Pictures for Clarification

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(*) Request for Use of an Alternative RM (Raw Material)

Required Raw Material According to the Drawing	
Suggested Alternative Raw Material	

Raw Material Supplier	
Raw Material Manufacturer	
Raw Material Country of Manufacture	
Comments	
Request Reason	Choose an item

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Attached Documentation ³	<input type="checkbox"/> COC	<input type="checkbox"/> COT	<input type="checkbox"/> COA	<input type="checkbox"/> Previous Approval
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³ For any request to use an alternative RM (Raw Material), a **Clear Readable Certificate** (COC / COA / COT) for the suggested Raw Material (from the original RM manufacturer) shall be attached.

----- **TO BE USED BY AERONAUTICS ONLY** -----

Broad Approval? (YES NO)

Aeronautics Engineering Instructions (Mandatory Field) In case of ECO application, please enter ECO number: _____		
Name:	Signature:	Date: Click here to enter a date

Additional professional reference (Not Mandatory) <input type="checkbox"/> Mechanical Designer <input type="checkbox"/> Material Engineer		
Name:	Signature:	Date: Click here to enter a date

For Broad Approval by Aeronautics Quality Assurance (Mandatory Field for Broad Approval)		
Name:	Signature:	Date: Click here to enter a date