

**Supplier First Article Inspection Form Completion
(SQR-001)
Revision B – 26 October 2018**

Approved by:

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Supplier may view this document on the ALATUS Aerosystems website
at: alatusaero.com

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1. Process Owner

ALATUS Aerosystems Supplier Quality Assurance

2. Applies To

All ALATUS supply chain partners when:

- 2.1. There is a lapse in production that exceeds two (2) years;
- 2.2. Any process, facility, or methods of manufacture or inspection method are changed;
- 2.3. A change in the design affecting the form, fit, or function of the part;
- 2.4. A First Article Inspection (FAI) is required as part of a corrective action for a part number with repetitive rejection history (typically a part with three repeated rejections or as required by the customer);
- 2.5. A natural or man-made occurrence which may adversely affect the manufacturing process; or
- 2.6. A FAI requirement is specifically invoked on the Purchase Order (PO).

In certain cases, such as revisions of governing documentation, partial (or “delta”) FAI reports may be required. All of this is required to be in accordance with AS9102 *Aerospace First Article Inspection Requirement*.

3. Purpose

The purpose of this document is to clarify ALATUS requirements for meeting the intent of AS9102B and to provide a consistent requirement for ALATUS supplier First Article Inspections. The purpose of the First Article Inspection is to give objective evidence that all engineering, design, and specification requirements are correctly understood, accounted for, verified, and recorded.

4. Scope

This document is applicable to ALATUS sub-tier suppliers. Any deviations from this document shall be based on contractual agreements and addressed by specific customer documentation.

Internal ALATUS processes and procedures will be governed through its appropriate Business Management System.

5. References

AS9100C, *Quality Management Systems – Requirements for Aviation, Space and Defense Organizations*

AS9102B, *Aerospace First Article Inspection Requirement*

Net Inspect User’s Guide (<https://www.net-inspect.com/>)

SQRM, ALATUS Aerosystems Supplier Quality Requirements Manual

6. Definitions and Acronyms

Engineering	An engineering drawing (type design authority data) or digital model file(s) that discloses, by means of graphic or textual presentation, or by combinations of both, the physical or functional requirements of an item.
Bubbled Engineering Media	A visual representation (i.e., drawing, Digital Product Definition (DPD), or DPD screen shots) with each characteristic or requirement marked with a unique identifier number. The number may be circled or boxed for easy visual identification.
DPD	Digital Product Definition – The electronic data elements that specify the geometry, functional requirements and all design requirements for a product (including notation and parts lists), and the use of this data throughout an integrated CAD/CAM and coordinate measurement system.
Multiple Characteristics	Identical characteristics that occur at more than one location (e.g., “4 places”), but are established by a single set of drawing or DPD requirements (e.g., hole diameters, corner radii, wall thickness).
Qualified Tooling	Universal (not part specific) calibrated monitoring and measuring equipment (e.g., go/no go gauges, Coordinate Measuring Machine (CMM), radius gauges) used to validate product design characteristics, that are uniquely identified and traceable to their calibration records.
Special Process	Any process for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and as a consequence deficiencies become apparent only after the product is in use or the service has been delivered. Refer to specification custodian and/or Nadcap criteria for special process classification.
Specification Custodian	The organization which authored the specification and is responsible for managing approved sources.
Standard Catalog Hardware	A part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description, National/Military Standard Drawing, or catalog item.
Verify	To prove to be true by demonstration, evidence, etc.; confirm.
ATP	Acceptance Test Procedure
BoM	Bill of Material
CAD	Computer-Aided Design
CAM	Computer-Aided Manufacturing

CoC	Certificate of Conformance
CMS	Configuration Manufacturing Specification
CMM	Coordinate Measuring Machine and/or other forms of automated inspection methods (i.e., articulating arms, laser trackers, etc.)
COTS	Commercial-Off-the-Shelf
DPD	Digital Product Definition
DQN	Design Query Note
E-SIR	Electronic Supplier Information Request
ECN	Engineering Change Notification
EWI	Electronic Work Instructions
FAI	First Article Inspection
FAIR	First Article Inspection Report
FTP	Functional Test Plan
GD&T	Geometric Dimensioning and Tolerancing
MBD	Model Based Definition
MRB	Material Review Board
N/A	Not Available / Not Applicable
N/C	No Change
NDI	Non-destructive Inspections
OEM	Original Equipment Manufacturer
PCM	Photo Contact Master
PL	Parts List
PO	Purchase Order
PSDL	Picture Sheet Data List
QA	Quality Assurance
SDR	Supplier Deviation Request
TN	Technical Notes

7. Responsibilities

Suppliers are required to accomplish FAI in accordance with AS9102B, purchase order requirements and this document. The following sections provide a ALATUS Aerosystems standard instruction for executing this requirement and will ensure consistency across the supply base for a deliverable First Article Inspection Report (FAIR). All items described in this manual are mandatory unless specifically noted as “optional” or “not required”.

8. AS9102 Form Completion

8.1. Form 1 – Part Number Accountability

The function of Form 1 is used to identify the part that is being first-article inspected and the associated subassemblies or detail parts.

8.1.1. Field 1 – Part Number

This field contains the number of the FAI part (e.g., part number listed on the purchasing documents, part number from the Bill of Material (BoM) or the manufacturing part number for internal parts when customer part number is not available.

Note: This may not match the part mark. For example, Airbus requires a 14-digit part mark, but the 12-digit engineering part number is what will be entered in Field 1.

8.1.2. Field 2 – Part Name

This field contains the name of the FAI part as identified in the engineering definition or purchase documents. (Note: This could be found in the BoM.) The Part Name **MUST** be as per engineering.

8.1.3. Field 3 – Serial Number

This field contains the serial number of the product. Indicate Not Available / Applicable (N/A) in the Field if the serial number is not available or not applicable.

Note: Verification of the serialization requirement may come from different sources and may vary from customer to customer. (Example, Parts List, BoM, Digital Product Definition (DPD) / Model Based Definition (MBD) Notes Tree).

8.1.4. Field 4 – FAI Report Number

This field contains the FAIR number that identifies the FAI; this may be an internal number.

8.1.5. Field 5 – Part Revision Level

This field contains the part revision level of the FAI part.

Note: The engineering revision listed in Field 7 does not always affect all parts contained in the engineering or DPD.

8.1.6. Field 6 – Drawing Number

This field contains the Drawing number(s) or Digital Product Definition (DPD) dataset(s) associated with the FAI part. Note: If information is from digital data, include the file extension (i.e., part number. CATPart or CAT.Product).

8.1.7. Field 7 – Drawing Revision Level

This field contains the revision level of the drawing(s) and/or DPD dataset(s) associated with the FAI part. The revision should be in the same format as depicted in the engineering. (Example: Rev (No Change)(NC), - , -A-, etc.).

8.1.8. Field 8 – Additional Changes

This field contains the reference numbers of any document that authorizes a deviation from Drawing/DPD or engineering applicable to the part including the associated Rev Status/Date control associated with the document. These are changes that are incorporated in the product by the customer, but not reflected in the referenced drawing/DPD/part revision level. Example: change in design, engineering changes, manufacturing changes, deviation or exclusion from certain drawing requirements, etc.

These documents include Technical Notes (TN), Configuration Manufacturing Specification (CMS), Engineering Change Notification (ECN), and more. The field should be marked N/A where no authorized deviation document exists.

Note: Electronic Supplier Information Requests (E-SIR) or email responses to questions from the supplier are not to be considered authorization to deviate from documented requirements.

8.1.9. Field 9 – Manufacturing Process Reference

This field contains the reference number that provides traceability to the Manufacturing Record of the FAI part. Examples: Production Order, Router, Work Order, Traveler, and Electronic Work Instructions (EWI).

Note: Additional information such as revisions, lot number, batch number, date code, or line number may be included, as needed, to provide traceability to the specific manufacturing lot.

8.1.10. Field 10 – Organization Name

This field contains the name of the Organization that is performing the FAI.

8.1.11. Field 11 – Supplier Code

This field contains the Supplier Code assigned to the supplier by ALATUS.

8.1.12. Field 12 – Purchase Order (P.O.) Number

This field contains the Purchase Order number. Provide line number when applicable.

8.1.13. Field 13 – Detail FAI / Assembly FAI

This field contains the appropriate check box that associates the product.

8.1.14. Field 14 – Full FAI / Partial FAI

This field contains the appropriate check box to identify a full FAI or partial FAI. For a partial FAI, provide the baseline part number (including the revision level) to which the partial FAI is performed and the reason. Examples: changes in

design, process, manufacturing location, re-inspection of nonconforming characteristics from a previous FAI.

Note: Partial FAIs that accommodate part families including opposites must be managed in accordance with end item customer requirements. Refer to AS9102B; § 4.6 for further guidance.

8.1.15. Field 15 – Part Number

This field contains the part number included in the assembly and items from the BoM included in the drawing, DPD, or next level assembly. Typically these are the part numbers, standard catalog items, or sub-assembly numbers required to complete the product noted in field 1.

Note: Fields 15-18 are required if the part number if Field 1 is an assembly requiring lower-level details, sub-assemblies, or standard catalog items to be installed into the assembly or to identify prior approved FAI/configuration performed on similar characteristics/identical means. For partial FAIs on assemblies, list only those details, sub-assemblies, or standard catalog items affected by the change.

8.1.16. Field 16 – Part Name

This field contains the part name of the details, sub-assemblies, or standard catalog items.

8.1.17. Field 17 – Part Serial Number

This field contains the serial number of the detail or sub-assembly.

Net Inspect Secondary Field: Supplier

This field contains the applicable supplier that made the detail, sub-assemblies, or who the standard catalog hardware was procured from.

Note: If a supplier is not listed, a manual entry is required including supplier name, city and state or country.

8.1.18. Field 18 – FAI Report Number

This field contains the FAIR number that is associated with the FAI details or sub-assemblies; this may be an internal report number.

Note: For Net Inspect only, this information annotated in fields 15-17 (including Supplier Field) must be exactly as defined on the detail or sub-assembly FAIR to ensure successful hyperlinking.

Note: For standard catalog items, this field is reserved for the Certificate of Conformance (CoC) number (e.g., raw material test report number, compliance report number, traceability number) assigned by the

manufacturer of the standard catalog item. Distributor certifications must contain this number as assigned by the raw Material manufacturer.

8.1.19. Field 19 – Signature

This field contains the printed name and signature of the person who prepared the FAIR. Check “FAI Complete” if all characteristics are conforming. Check “FAI Not Complete” if nonconforming characteristics are documented in accordance with AS9102B, § 4.4.

Note: Electronic identifications and signatures are both acceptable.

Net Inspect Specific Field: Pass/Fail

This field contains the selection for Pass or Fail. Select “Pass” if there are no non-conformances listed in Form 3. Select “Fail” if there are non-conformances written against any design characteristics listed in Form 3.

Note: Verify that non-conformances have been accepted by ALATUS.

8.1.20. Field 20 – Date

This field contains the date when the FAI Form 1 was prepared.

8.1.21. Field 21 – Reviewed By

This field contains the printed name and signature of the person who reviewed and approved the FAIR for the organization performing the FAI. The reviewer **MUST** be someone independent of the compiler.

Note: Electronic identifications and signatures are both acceptable.

8.1.22. Field 22 – Date

This field contains the approval date of the FAIR.

8.1.23. Field 23 – Customer Approval

This field is reserved for the Customer’s approval of the FAIR when required by the purchase order or contract. For the purposes of this document, “Customer” is the organization receiving the FAI hardware.

Note: Electronic identifications or signatures are both acceptable.

8.1.24. Field 24 – Date

This field contains the Customer’s approval date of the FAIR.

Net Inspect Feature: Documents:

This feature provides for uploading required supporting documentation. See Appendix A for the list of required documents.

8.2. Form 2 – Product Accountability – Raw Material, Specifications and Special Processes, Functional Testing

The function of Form 2 is used when material, special processes or functional testing is defined as a design requirement.

8.2.1. Field 1 – Part Number

This field contains the number of the FAI part (e.g., part number listed on the purchasing documents, part number from the Bill of Material (BoM) or the manufacturing part number for internal parts when customer part number is not available.

Note: This **MUST** be the same as Form 1, Field 1.

8.2.2. Field 2 – Part Name

This field contains the name of the FAI part as identified in the engineering definition or purchase documents.

Note: This **MUST** be the same as Form 1, Field 2.

8.2.3. Field 3 – Serial Number

This field contains the serial number of the product. Indicate Not Available / Applicable (N/A) in the Field if the serial number is not available or not applicable.

Note: This **MUST** be the same as Form 1, Field 3.

8.2.4. Field 4 – FAI Report Number

This field contains the FAIR number that identifies the FAI; this may be an internal number.

Note: This **MUST** be the same as Form 1, Field 4.

8.2.5. Field 5 – Material or Process Name

This field contains the name of the material, including special processes as identified by the title of the specification. Leave blank if none.

Example: TITANIUM ALLOY (TI-6AL-4V) ANNEALED PLATE 6,0mm < a ≤ 100mm
ULTRASONIC INSPECTION, WROUGHT PRODUCTS

Note: For processes, list only those processes that are identified as “special” by the specification custodian.

8.2.6. Field 6 – Specification Number

This field contains the following:

1. Material specification and material form (e.g., sheet, bar) for all materials incorporated into the FAI part (e.g., weld or braze filler).
2. Special process specifications including class, if applicable, and permitted substitutions. Include all “Make From” materials that are incorporated into

the FAI part (weld/braze filler materials, balls for ball brazing, etc.), but do not include processing materials such as acid etchants, solvents, or tape.

3. If standard catalog items or Commercial-Off-the-Shelf (COTS) are modified, then list that standard hardware or COST item.

Note: Non-modified standard catalog items shall be listed on Form 1, "Part Number Accountability".

4. For processes and materials, the specification numbers are defined within the engineering/drawing/DPD. Specification numbers shall correspond to the actual specification name.

Examples: BACB10JV16GM, AITM6-1001, AMS 4911, AIPS05-02-009

8.2.7. Field 7 – Code

Not required, leave blank.

8.2.8. Field 8 – Supplier

This field contains the Supplier code, Supplier name, full address and supplier code of the organization performing the special processes or supplying material. Supplier name and address may be used when supplier code is not available or not adequate for identification.

Note: Use the supplier code assigned to the supplier by the customer of the FAI part. Include all leading zeros.

Note: If a supplier outsources a special process, list the information of the company that performs the special process including the applicable supplier code, company name, and full address.

8.2.9. Field 9 – Customer Approval Verification

Indicate if the special process(es) or material sources are approved by the customer. Enter "Yes" if approved, "No" if approval is required but the process source is not approved, or "N/A" if customer approval is not required.

8.2.10. Field 10 – Certificate of Conformance Number

This field contains the Certificate of Conformance (CoC) number (e.g., special process completion certification, raw material test report number, compliance report number, traceability or heat lot number).

Note: A PO number is not sufficient to satisfy this requirement unless additional supporting documents are provided as noted above.

Note: For items required to be listed on Form 2, this field is reserved for the CoC number (e.g., special process completion certification, raw material test report number, compliance report number, traceability or heat lot number) assigned by the manufacturer or processor of the item.

Distributor certifications must contain this number as assigned by the manufacturer.

8.2.11. Field 11 – Functional Test Procedure Number

This field contains the functional test procedure number that is identified as a design requirement.

Note: Functional test procedures are not an in-process check. The Functional Test Plan (FTP) or Acceptance Test Procedure (ATP) is clearly defined as a test procedure and is typically found in the drawing notes, Part List, BoM, or DPD.

8.2.12. Field 12 – Acceptance Report Number

This field contains the functional test certification report number that indicates the test requirements have been met.

Note: If no report number is generated, refer to the production order for evidence of acceptance.

8.2.13. Field 13 – Comments

Optional – This field contains any comments as warranted.

8.2.14. Field 14 – Prepared By

This field contains the printed name and signature of the person who prepared and approved this form. Signature indicates that all applicable materials, special processes, and functional testing are accounted for, meet requirements, are properly documented, and all associated nonconformances are documented on AS9102B Form 3 “Characteristic Accountability, Verification, and Compatibility Evaluation”.

Note: Electronic identifications or signatures are both acceptable.

8.2.15. Field 15 – Date

This field contains the completion date of the form.

8.3. Form 3 – Characteristic Accountability, Verification and Compatibility Evaluation

This form is used to record inspection results for the design characteristics and to document any applicable nonconformance (reference AS9102B, § 4.4).

8.3.1. Field 1 – Part Number

This field contains the number of the FAI part (e.g., part number listed on the purchasing documents, part number from the Bill of Material (BoM) or the manufacturing part number for internal parts when customer part number is not available.

Note: This **MUST** be the same as Form 1, Field 1.

8.3.2. Field 2 – Part Name

This field contains the name of the FAI part as identified in the engineering definition or purchase documents.

Note: This **MUST** be the same as Form 1, Field 2.

8.3.3. Field 3 – Serial Number

This field contains the serial number of the product. Indicate Not Available / Applicable (N/A) in the Field if the serial number is not available or not applicable.

Note: This **MUST** be the same as Form 1, Field 3.

8.3.4. Field 4 – FAI Report Number

This field contains the FAIR number that identifies the FAI; this may be an internal number.

Note: This **MUST** be the same as Form 1, Field 4.

8.3.5. Field 5 – Characteristic Number

This field contains the unique assigned number for each design characteristic and corresponds with the “bubbled” characteristic on the engineering media, screen shots, etc.

Note: A single design callout that applies to multiple characteristics may be recorded as once characteristic number.

Note: Datasets derived from MBD engineering may be used for characteristic mapping as described in SQRM.

8.3.6. Field 6 – Reference Location

This field contains the location of the specific design characteristic (drawing zone, page number and section, DPD/MBD model location, specification callout, etc.) being verified.

Note: The reference location must match where the identifier is found in the attached “bubbled” engineering media, screen shots, etc.

8.3.7. Field 7 – Characteristic Designator

This field contains the characteristic type. Record characteristic type e.g., critical items (see AS9100C § 3.3), key characteristics (see AS9100C § 3.4), flight safety, and/or defined by the customer.

Note: The designator is feature specific and is typically identified in the engineering definition. It does not include standard measuring equipment or feature type.

8.3.8. Field 8 – Requirement

This field contains the specified requirement for the design characteristic (e.g., drawing dimensional characteristics with associated nominal dimensions and tolerances included, drawing notes, specification requirements, etc.).

Note: All results shall be recorded in the units specified on the Engineering Definition (drawing, DPD file or specification) unless otherwise approved by ALATUS.

8.3.9. Field 9 – Results

List the obtained measurements for the design characteristics. This field contains:

1. For multiple characteristics, list each characteristic as individual values or list once with the minimum and maximum of measured values attained.

Note: All results shall be recorded in the units specified on the Engineering Definition (drawing, DPD file or specification) unless otherwise approved by ALATUS.

Note: When a characteristic is found to be nonconforming, that characteristic shall be listed separately with the measured value noted. The supplier shall then submit a Supplier Deviation Request (SDR).

2. Attribute Data (e.g., pass/fail) may be used in lieu of Variables Data when:
 - a. No inspection technique resulting in Variable Data is feasible,
 - b. The design characteristic does not specify numerical limits,
 - c. Quality tooling (e.g., radius gauges) or Designed tooling is used as a go/no-go gauge (reference AS9102B, § 4.7.3.b), or
 - d. The characteristics verified by attribute inspection include statement of conformance (e.g., accept).
3. Parts that are validated by DPD datasets (coordinate measuring systems, point cloud, Faro Arm, scanning, etc.) must have the inspection results recorded on Form 3. The results on the reports must correlate directly with the characteristic identifiers on Form 3.

Note: Coordinate Measurement Machine (CMM) data alone would not be acceptable for a positional tolerance; the results shall show the actual positional value.

Note: The CMM report does not need to be bubbled but does need to correspond to the engineering feature listed on Form 3 (i.e. when Bubble #17 is a profile of .020" and the actual result is .013", the CMM report must corroborate the actual results).

When a design requirement requires verification testing, the actual results will be recorded on the form. Record the process checks (Rockwell Hardness and conductivity, edge break or tape test results, etc.) when required by the end-item customer.

Note: When a laboratory report or certificate of test is included in the FAIR, those results need not be written on the form. The laboratory report or certificate of test must be attached and show specific values for requirements and actual results.

4. For characteristics with visual verification requirements that are rated against standard photographs, list the photo number of the closest comparison.

Note: A statement of conformance is acceptable (record the reference number in this field).

5. For part marking, ensure that the marking is legible, correct in content and size, and properly located in accordance with the applicable specification.
6. For processes that require verification per design characteristics, include a statement of conformance (e.g., CoC, verification indicator – Accept).

8.3.10. Field 10 – Designed Tooling / Qualified Tooling

When Designed tooling is used for attribute acceptance of the characteristic, this field shall contain the tool identification number/program number.

Designed tooling is product specific tooling (e.g., check fixtures, CMM program, Numerically Controlled Programming) specifically made to verify the design characteristics of a product.

When Qualified tooling (e.g., radius gauges) is used for attribute acceptance, record the gauge value or range (e.g., minimum/maximum value) as applicable.

8.3.11. Field 11 – Nonconformance Number

This field contains the nonconformance number as assigned by the customer if the characteristic is found to be discrepant.

8.3.12. Field 12 – Prepared By

This field contains the printed name and signature of the person who prepared and approved this form. Signature indicates that all applicable materials, special processes, and functional testing are accounted for, meet requirements, are properly documented, and all associated nonconformances are documented on AS9102B Form 3 “Characteristic Accountability, Verification, and Compatibility Evaluation”.

Note: Electronic identifications or signatures are both acceptable.

8.3.13. Field 13 – Date

This field contains the completion date of the form.

8.3.14. Field 14 – Additional Data / Comments

This field is reserved for optional fields. Add columns as required by the purchase order or contract.

9. Appendix A – FAI Supporting Documentation

The following supporting documentation is required in addition to any customer specified requirements as per SQRM:

- The First Article Inspection Report completed as per this manual,
- A copy of the Purchase Order,
- Bill of Material (additional examples include PL and PSDL),
- Bubbled Engineering Media (Bubble Drawing/Screen shot, etc.) per AS9102B
- Material Certifications from the original manufacturer (including standards, sealants, paints, metals, plastics, etc.). With the exception of catalog or standard hardware, raw materials CoC's are not an acceptable substitute for full chemical and physical certification (mill certifications) on First Article Units.

Note: If using a distributor, full certification trail shall be included back to the original processor and/or manufacturer of material. CoC's must reference traceability number (e.g., raw material test report number, compliance report number, CoC) as assigned by the original manufacturer.

- Acceptance Test Reports
- Service Procured Non-destructive Inspections (NDI) reports
- Production Planning / Shot Traveler
- Contractual Amendments
- Supporting Inspection Documentation (examples include CMM or Mylar) with mapping
- Copy of Nonconformance (must have engineering disposition and Quality Assurance (QA) approval)
- For assembly FAIs: Approved Detail part FAI reports must be included, if not linked in Net Inspect, in accordance with Purchase Order requirements
- Supplier-to-ALATUS CoC
- Documentation supporting additional changes (as applicable to Form 1 Field 8)

Note: For documents that contain supplier proprietary data, the proprietary data may be blackened out before the document is attached.

Revision History

Revision Level	Date	Modified By	Reason for Revision
Original	12/21/16	Jeff Harmon	Initial Revision
A	5/22/18	Jeff Harmon	Change in name to legal name, Triumph Structures – Los Angeles (TSLA)
B	10/26/18	Jeff Harmon	Change in name to ALATUS Aerosystems