

## FAI Supplier

**REVISION 01**

**2024-12-16**

**P-100**

Revision Log

| REV. | DATE       | INITIATOR         | DESCRIPTION                                                                                                                                                                  | TRAINING REQUIREMENTS                                                                                                                                                                                                                                                                                                                                                   |
|------|------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01   | 2024-12-16 | Sébastien Monette | <p><b>DCO_2024-049 :</b></p> <ul style="list-style-type: none"><li>- Initial creation of the procedure.</li><li>• Reason: CAPA_2024-010 and Continuous improvement</li></ul> | <p>Pre-release training for :<br/>SMQA, Change Control,<br/>QC, Purchasing,<br/>Planner, Team Lead<br/>Engineering Liaison,<br/>PM, QA Managers,<br/>Team Lead Mechanical<br/>Engineering and Team<br/>Lead Electrical<br/>Engineering.</p> <p>Reading only for:<br/>Engineering Liaison,<br/>Mechanical Engineering,<br/>Electrical Engineering<br/>and Receiving.</p> |

Approvals

| APPROVED BY                                                  | NAME            | SIGNATURE                                                                                                                                                                               | DATE       |
|--------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Sr. Director, Operations,<br>Purchasing and Supplier Quality | Pierre Gibeault | <i>Pierre Gibeault</i><br><small>Signé électroniquement par : Pierre Gibeault<br/>Motif : J'atteste le contenu de ce document.<br/>Date : 5 déc. 2024 09:27 EST</small>                 | 2024-12-05 |
| Sr. Manager, Quality &<br>Conformity                         | Keven Fréchette | <i>Keven Fréchette</i><br><small>Signé électroniquement par : Keven Fréchette<br/>Motif : J'ai révisé et j'approuve le contenu de ce document.<br/>Date : 5 déc. 2024 10:52 EST</small> | 2024-12-05 |

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## **1 Purpose**

This document provides directions on how to identify, plan for and satisfy Kinova specific requirements for completing a compliant First Article Inspection (FAI). First Article Inspection process is a Kinova requirement.

A FAI is performed to provide objective evidence that: all engineering, design, contractual and specification requirements are correctly understood, respected for, verified and recorded. Materials, tooling, processes, documentation and personnel are capable of consistently producing compliant hardware. Part/assembly is 100% compliant, defined, base-lined and repeatable.

This document applies when a FAI is required by the Purchase Order (PO) and applies to all sub-tiers who produce design characteristics and/or subassemblies.

## **2 Scope**

The document is addressed to Kinova external Supplier. The scope of the FAI process is to ensure the first part meets technical specifications, identify and correct defects before mass production, and confirm process control for consistent production.

**3 Acronyms and References**

**3.1 List of Acronyms**

The table below contains the definitions of the acronyms used in this document.

| ACRONYMS | DEFINITION                                                           |
|----------|----------------------------------------------------------------------|
| CofC     | Certificate of Conformity                                            |
| FAI      | First Article Inspection                                             |
| PCBA     | Printed Circuit Board Assembly                                       |
| PO       | Purchase Order                                                       |
| REACH    | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| ROHS     | Restriction of Hazardous Substances                                  |
| SCAR     | Supplier Corrective Action Request                                   |
| SMQA     | Supplier Management Quality Assurance                                |

3.2 List of References

The table below contains all the referenced documents.

| REFERENCE | DESCRIPTION  |
|-----------|--------------|
| F-235     | Template FAI |

4 Responsibilities

4.1 List of Responsibilities

The table below contains all responsibilities for this procedure.

| FUNCTION / ROLE                   | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supplier                          | <p><b>Conduct FAI:</b> Perform the First Article Inspection on sample parts to verify all design and material specifications.</p> <p><b>Documentation:</b> Complete and submit detailed FAI documentation, including measurements, test results, and certifications.</p> <p><b>Non-Conformities Resolution:</b> Identify, address, and correct any non-conformities before moving to mass production.</p> <p><b>Communication:</b> Maintain clear communication with the client, addressing questions, issues, or deviations.</p> <p><b>Record Retention:</b> Keep FAI documentation and inspection records as required by standards or client agreements.</p> <p><b>Standards Compliance:</b> Ensure FAI process adheres to relevant standards (e.g., AS9102, ISO) or specific client requirements.</p> |
| Kinova supplier quality assurance | <p><b>Define Requirements:</b> Clearly specify design, quality, and FAI requirements for the supplier.</p> <p><b>Review and Approve FAI Report:</b> Examine and approve the FAI report to ensure it meets agreed-upon requirements.</p> <p><b>Provide Feedback:</b> Offer timely feedback on any issues, including non-conformities, and request corrective actions if needed.</p> <p><b>Collaborate on Non-Conformities:</b> Work with the supplier to address significant non-conformities or required design deviations.</p>                                                                                                                                                                                                                                                                          |

## 5 Procedure

### 5.1 Benefit

The benefit acquired from this document will result in improved first pass yield of first article document reviews in association with continuous deliveries of compliant material that enhance a supplier's reputation.

### 5.2 Required Form

Each supplier can use its own FAI template, as long as it meets Kinova's requirements. Take the requirements as a reference in the *F-235*. **Except for PCBAs, the *F-235* PCBA section will need to be completed and sent to Kinova by the supplier.**

Each supplier can use its own FAI TAG, as long as it meets Kinova's requirements.

Part Number Attestation: This form identifies and provides details about the part examined during the inspection of the first item. In addition, this form also details the various subassemblies and associated components.

Also identifies the manufacturer, the customer's purchase order, and the organization that performs the inspection. In addition, this form specifies the name of the inspector, his signature and the date of the inspection.

The customer also approves the FAI on this form, indicating the date of approval and signing off.

Product Responsibility: This section of the first item inspection report identifies the raw materials, special processes, and functional testing required for the product design.

Feature Reporting: Indicates drawing notes and contains bubble or balloon drawings for the part being inspected. Bubble drawings are used to verify the requirements of design features. The balloons are numbered and correspond to the characteristic numbers in the forms table.

### 5.3 Purchase Order FAI

In accordance with FAI Review PO Requirement an FAI shall be conducted by the seller and the documented results shall be accepted by a Kinova supplier quality assurance representative prior to any material shipment.

Questions regarding FAI requirements shall be directed to the buyer. Procurement supplier quality assurance representative team may have a requirement to conduct on-site FAI witnessing at supplier's facility.

### 5.4 FAI Planning

The following items shall be taken into consideration prior to manufacturing compliant hardware and completing a FAI:

### 5.4.1 Pre-planning Activities

Ensure that the process, planning, and tooling that will produce the part presented are repeatable enough to deliver consistent compliant material.

Make sure that the engineering documentation used is "Released" and that the revision is as per the requirement of the purchase order.

Make sure that all parts and materials included in the parts list are part of the FAI packaging and include a certificate of conformity for each.

Verify that 100% of drawing specifications, notes, integrated specifications, and subassemblies are feasible and supported by objective evidence.

Ensure that documented controls and processes are in place to meet drawing requirements such as:

- Quality management systems
- Documented production processes
- Inspection and acceptance tools
- Ensure that basic production process controls are in place to achieve and maintain compliance with control requirements as defined in the purchase order text notes.
- Kinova may re-inspect the specifications based on a sample or attend the inspection of the first item.

### 5.4.2 Documentation

Ensure all documentation associated with the special processes and materials used are provided for review. This should include a certificate of conformity (CofC), material certifications, special process certifications, test data and ROHS/REACH declaration.

### 5.4.3 Requirements

*Table 1: FAI requirements (before parts are received at Kinova)*

| PART TYPE<br>APPLICABILITY | CRITERIA'S                                 | FAI | PARTIAL<br>FAI |
|----------------------------|--------------------------------------------|-----|----------------|
| ALL                        | Supplier part CofC                         | X   | X              |
| ALL                        | FAI form (F-235) or supplier FAI form      | X   | X              |
| ALL                        | Functional Test Report (when required)     | X   | X              |
| ALL                        | RoHS CofC (when required)                  | X   | Y              |
| ALL                        | REACH Declaration (when required)          | X   | Y              |
| PCBA                       | Working Gerber & Stack-up files (supplier) | X   | Y              |

| PART TYPE<br>APPLICABILITY | CRITERIA'S                                               | FAI | PARTIAL<br>FAI |
|----------------------------|----------------------------------------------------------|-----|----------------|
| PCBA                       | Reflow curves/X-Ray report                               | X   | Y              |
| PCBA                       | CofC meets industry standards, i.e IPC 610 Class II, III | X   | Y              |

Y: Depending on the change

No part should leave the supplier's facility until all of this information is provided.

## 5.5 FAI Submission

The sending of the documentation related to point 5.4.2 and 5.4.3 of the previous section and F-235 requirements must be done electronically via the following address: [SMQA@kinova.ca](mailto:SMQA@kinova.ca)

The FAI documentation must be reviewed and approved by a Kinova supplier quality assurance representative before any material is sent.

Hardware/Part received without an approved FAI may be subject to immediate return and a formal Supplier Corrective Action Request (SCAR).

Authorization to ship must come from a member of the supplier's quality assurance team, after the FAI has been reviewed and approved.

All documents associated with the FAI must be submitted with the completed FAI report for review, verification and approval.

Questions regarding FAI submissions should be directed to the buyer listed on the purchase order.

In the event of a refusal, the Kinova supplier quality assurance representative will transmit the actions to be taken for the future.

### 5.5.1 PCBA Submittal

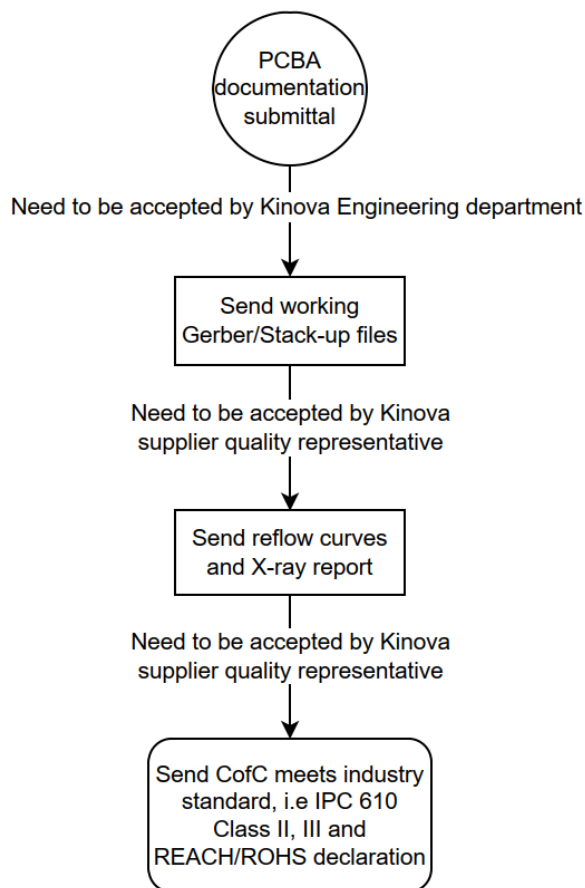


Figure 1: PCBA Submittal

### 5.6 Partial (delta) FAI

FAI requirements can be met by a partial FAI that addresses the differences between the current configuration and the previously approved figurations.

When a partial FAI is performed, the organization should only complete the affected fields in the FAI forms.

A partial (delta) FAI is required when:

- A change of component sourcing, manufacturing source(s), production process(es), inspection methods, tooling, material, production facilities, or any production relocation (from the original manufacturing location).
- An implementation of a corrective action required to supplement a previous FAI.
- A two-year production interruption, or as specified by the customer.