Issue Date: 4/9/2007
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Change History Log

Issue	Date	Reason
Revision "P"	5/23/08	Documented as ISO work instruction
Revision "Q"	1/20/10	Add C of C changes 3.8
Revision "R"	12/15/11	Reviewed and expanded all sections
Revision "S"	5/31/2013	Clarified FAI documentation and inspection requirements, added producibility requirements. Added Rohs requirement
Revision "T"	9/9/2015	Added the word Oracle in 4.a.ii
Revision "U"	1/24/2018	Section 4- changed F.A.I.R. document number to FWD-QA-1026
Revision "V"	10-23-2019	Section 4 – Added 7 VTI Internal Approvals (Item 7 (A) and 7 (B): and 7(C)

1. Scope

Videojet Technologies Inc. has established a quality objective targeted at zero defects from its suppliers for material, components, and assemblies. This document supports the requirements set forth on all Videojet specifications and drawings.

It is expected that suppliers have/will incorporate the necessary systems and process controls to prevent defects prior to completion and delivery to Videojet.

Based on the zero defects objective, Videojet requires its suppliers to perform verifications on each new part(s) that is supplied to Videojet.

The purpose of the First article process is to ensure the supplier can meet all applicable requirements and develop process controls for continued production.

Videojet tracks first article first pass yield. If there is any uncertainty, please contact the respective buyer / planner or global procurement representative prior to first article submission.

Videojet allows three attempts to pass first article submission. Failure to pass first article on three attempts may result in a supplier disqualification. Videojet reserves the right to disqualify a supplier before three attempts.

2. Precedence of document

1. Videojet part drawing, BOM, extended description, regulatory listing report.

2. Videojet purchase order.
    a. A purchase order may supersede a drawing, BOM, extended description, regulatory listing report for special projects or prototype samples. If in doubt, contact your global procurement representative.

3. Purchase Order Submission

If a supplier wishes to deviate from drawing or other PO requirements, the deviations must be explicitly detailed and explained during the quoting process. Any deviation or engineering change requests must go through Videojet's ECO and deviation process prior to PO acceptance, First article submission, and production as detailed in section 6.4. Deviation approvals will be in the form of a signed deviation document or an official drawing change. Emails "approvals" are not official Videojet approvals. Failure to comply may result in rejected material. Videojet's PO acknowledgement must include deviation acceptance from Videojet.

4. First Article Inspection Report

An industry accepted First Article Inspection Report (F.A.I.R.) is required on all 1st time submissions for new product supplied to Videojet. The F.A.I.R. must be generated from actual production processes and cannot be developed from engineering samples. Full testing requirements must be in place prior to submission of first article samples. The supplier is free to document technical data on their own format; however, the supplier, at a minimum, provides the signed Videojet F.A.I.R. document FWD-QA-1026.

The Initial First Article Inspection Report (F.A.I.R.) submission shall include the following:

1. Valid purchase order number.
2. Current/latest revision drawing of the piece part or assembly.
3. Three pieces is the typical sample size for first article, Videojet reserves the right to request more based on commodity or testing requirements.
4. Dimensional verification and layout of actual measurements, notes and geometric dimensioning & tolerance (GDT) characteristics on three (3) pieces.
5. The three pieces (as specified in line 3) must be marked accordingly and correlate to the measurements provided.
6. Inspection method used.
7. Country of origin declaration with actual signature of authorized representative.
8. Process capability studies for critical to quality (CTQ) dimensions or features identified as critical.
9. Control Plan (industry accepted format) is recommended.
10. An original Certificate of Conformance (C of C) is required for each raw base material and outside processes and must be included with each F.A.I.R. submission, as called out on drawing, BOM, extended description, or regulatory listing report. This C of C must be from the source material manufacturer or process provider. See section 4.1.
11. When providing a complete component assembly, contact the procurement representative to determine part submission requirements.

4.1 Certificates of Conformance

Certificates of conformance is documentation verifying materials, products, and processes meet all applicable specifications as indicated on the drawing, BOM, extended description, or regulatory listing report. The certification must state the exact wording as stated on the drawing, BOM, extended

description, or regulatory listing report. Unless otherwise specified, the certificate of conformance is not required for each subsequent lot. The certificate of conformance must show traceability to the actual source as indicated in drawing, BOM, extended description, or regulatory listing report. If a drawing, BOM, extended description, or regulatory listing report calls out a supplier, brand, or part number; it is the responsibility of the supplier to purchase from this source. At any time, Videojet may audit and request certificates of conformance. The request may be to fulfill an external regulatory audit. Failure to comply may result in a Videojet production shutdown. It is the supplier's responsibility to maintain traceability to the raw material source.

Below are requirements for specific certificate of conformance requirement:

1. Raw Material Certification: (i.e. steels, aluminum, plastics) – Material certification must come from the raw material source. Material certification must list specific type, grade, condition, chemical properties, mechanical properties, batch and lot. (i.e., drawing indicates 316 stainless steel, FH temper per an ASTM specification.) The documentation must list the specific wording of the drawing, BOM, extended description, or regulatory listing report.

2. Outside process certifications: (i.e., plating, anodizing, electro-polish, heat treating). The certification must come from the service provider, list the specific process and specification as listed on the drawing, BOM, extended description, or regulatory listing report (i.e., drawing indicates anodizing of type 2 class 2 per mil-spec 8625f or heat treat to 60rc per ASTM specification). The document must list the specific wording of the drawing, BOM, extended description, or regulatory listing report. The document must have an authorized signature with title and service provider letterhead.

3. Off the shelf commercial hardware: (i.e. fasteners, inserts, washers).

3.1. Two types of documentation are acceptable:

3.1.1. Material certification from hardware manufacturer. The document must list specific part number as listed on the drawing, BOM, extended description, or regulatory listing report.

3.1.2. A packing slip from a distributor. The packing slip must list the specific manufacturer's part number as listed on the drawing, BOM, extended description, or regulatory listing report.

4. Off the shelf electronic hardware: (i.e., chips, boards, connectors, cables)

4.1. Two types of documentation are acceptable:

4.1.1. Material certification from hardware manufacturer. The document must list specific part number as listed on the drawing, BOM, extended description, or regulatory listing report.

4.1.2. A packing slip from a distributor. The packing slip must list the specific manufacturer's part number as listed on the drawing, BOM, extended (i.e.: Oracle) description, or regulatory listing report.

5. Material Data Sheets: Material data sheets are not certificates of conformance and are not acceptable.

6. RoHS Compliance: Suppliers are required to use all RoHS compliant materials and maintain evidence of RoHS compliance. These records may be audited by Videojet at any time.

7. VTI Internal Approvals

A. Raw Material: (If a raw Material will be shipping to VTI WD)

7.A.1 If the part has been purchasing by Zhuhai/ALLTEC under standard process, and we will use same supplier, they need to provide us copy of the formal FAI paperwork (Part Submission Warrant or First Article Inspection Form) of the current revision level approved in the system, with the documents attached as COO (Country of Origin), COC (Certificate of Conformance), Material Certification, RoHS Compliance, Drawing if it available, and test results (If apply).

B. Spares: (If Spare parts will be shipping to VTI WD)

For items that they are manufacturing as (Spare parts), we need a COO (Country of Origin), COC, and BOM with all new parts being added to WD, at a minimum. The items used to assembly the Spare Parts, or Raw Material use as spare items is understood that already passed FAI process in ZH/ALLTEC, and they have a copy the formal paperwork of the approval. They must send the internal COO (Country of Origin), COC, Drawing (If it is available), and BOM (If it is available) that we can use as support of the Spares parts that we will receive in house, and ship to the field.

For these items, is not necessary to request a normal sample size as the regular FAI, we can use the first shipment that should be set up as "Inspection requirement" to validate documentation, and requirements, then, we can approve and release from "Inspection requirement" and sign off an ECO if was opened.

C. Finish Good

7.C.1 For items that they are manufacturing as (Finish Good), the units should be shipped to VTI WD, Costumers or Warehouse with the normal paperwork that the Manufacturing site that is producing are adding as the other Products.

Item 7 (A) and 7 (B): Documents are requiring signing off ECO's., and it is part of our FAI process.
Item 7 (C): The Manufacturing site can sign off the ECO of finish good as soon as the complete process for a new product is done.

Failure to supply all requirements may result in first article rejection.

Certificates of conformance stating, "we certify to customer's purchase order" is not acceptable. The certification must list the specific wording of the drawing, BOM, extended description, or regulatory listing report.

First tier suppliers are expected to choose second tier suppliers who can meet and certify to Videojet's explicit specification. First tier suppliers are expected to have proper audit and control mechanisms in place.

For concerns over proprietary process or information, please submit concerns in writing to the respective Videojet global procurement representative. Videojet Quality will evaluate request and determine documentation requirements.

5. Process Capability Index (Cpk) as a formula

Videojet specifies the use of symbols to identify dimensions that are critical to quality (CTQ), safety, fit, form, function and appearance. These CTQ's must be identified on the drawing prior to quote and identified with unique symbols. Typically, critical dimensions are identified on the piece part drawing by the feature or dimension being enclosed in a circle or identified with a triangle symbol. Videojet may specify quality requirements not specifically indicated as a "CTQ" and may require CPK evaluation.
Discussions with the supplier shall be held early in the process to review, jointly discuss and agree on the specified CTQ's. Any concerns on the supplier's ability to meet the requirements should be communicated as early as possible.

Cpk = either (USL-Mean) / (3 x sigma) or (Mean-LSL) / (3 x sigma) whichever is the smaller (i.e. depending on whether the shift is up or down). Note this ignores the vanishingly small probability of defects at the opposite end of the tolerance range.
Unless otherwise specified, a Cpk index of ≥ 1.33 is required on dimensions considered critical.

Dimensions identified as "critical" must have measurements taken and data collected from no less than fifteen (15) to a recommended 30 production samples to calculate CPK for critical dimensions. For molded components, the CPK sample must be representative of each cavity / mold.

Assignment of critical dimensions does not reduce the significance of the other dimensions on the drawing. Every tolerance is absolute and shall not exceed regardless of the classification.

When performing the calculations, it is recommended that industry accepted SPC software be used. Software such as QI macros or mini-tab is preferred.

Note: Typically, critical dimensions are identified on the piece part drawing by the feature or dimension being enclosed in a circle or identified with a triangle symbol.

6. Failure to Meet Process Capability Requirements

If CPK study cannot be met or be performed, it is the supplier's responsibility to notify Videojet supplier quality assurance prior to part submission. Instances where a critical dimension or feature does not meet the CPK index of ≥1.33 but is within the specified tolerance range, 100% verification/inspection of the dimension or feature is required. The supplier must maintain record(s) of this verification through lot traceability.

7. Continued Production Sampling Plans

Supplier is expected to maintain an inspection control plan. The control plan must include sampling rates to perform lot inspections representative throughout the entire batch run. It is recommended to use an industry accepted sampling control plan (i.e. ASQ Z1.4, Mil Spec 1916). Videojet may require a tightened sampling plan as a result of non-conformances as part of corrective actions or indications of CPK drift.

8. Part Submission

The Initial First Article Inspection Report (F.A.I.R.) must be sent to Videojet inspection in the following format identified on the outside of the carton/box: Attention: Videojet Supplier Quality Assurance- F.A.I.R. submission

The relevant F.A.I.R. documentation must accompany the sample pieces. Failure to provide all required documentation as indicated in section 4.0 may result in first article rejection.

9. Commodity specific requirements

1. Printed Circuit Boards- All PCB's/Flex circuits must comply with applicable IPC standards and be dimensionally verified on a minimum of one panel. Continuity, in-circuit and functional test must be performed on part submissions 100%. Material certifications must be furnished for each component called out on the BOM. Each component must be as specified a conforming to regulatory requirements. If a drawing calls out a particular supplier, brand, and P/N, it is the responsibility of the supplier to purchase from this source.

2. Injection/Blow molded parts- Unless otherwise specified, all molded parts must have three (3) samples retained for measurement study from each cavity of the mold.

3. Wire harnesses and cable assemblies. Three (3) piece sample size shall be submitted w/first article inspection report. Continuity test(s) shall be performed 100%. Process capability is not required for these commodities.

4. Custom assemblies such as fluid pans and print heads/umbilical assemblies do not require process capability studies unless specified on the piece part drawing. Material certifications must be furnished for each component called out on the Drawing, BOM, extended description or regulatory listing report. Each component must be as specified and conforming to regulatory requirements. If a drawing

calls out a particular supplier, brand, and P/N, it is the responsibility of the supplier to purchase from this source.

10. First Article Field and Trial Testing

Videojet reserves the right to perform internal functional and field testing in lieu measurement data. This testing will be on a case by case basis with specific testing parameters for each part.

11. First Article Liability

Unless otherwise specified through PO requirement, Videojet is not liable for subsequent production of parts that have not been approved through the FAI process. If a part is rejected to failure of meeting specifications, the supplier is liable for the product.

12. First Article Acceptance

Videojet quality departments will audit the first article submission for completeness, documentation, and inspection data. Videojet quality departments may randomly audit the material certificates of conformance, mechanical measurements, and other specifications. Videojet quality will notify the applicable buyer / planner or global procurement representative with an acceptance.

It is the supplier's responsibility to ensure all applicable documentation and adherence to all specifications has been met. Any deviations, out of specification conditions, or material substitutions are only accepted with an official Videojet deviation or engineering change. Any first article approval without the official deviation or engineering changes is considered an "unknown deviation", Supplier may be held liable and material rejected at later dates.

13. First Article Rejection

If any sample fails the required first article testing, both measurement and functional, or material certifications the first article is rejected. New samples are to be submitted with new verification data. Dependent on the situation, Videojet reserves the right accept the parts under a temporary deviation. A new submission is still required and must pass all applicable verification and a functional test before first article is accepted. This will be considered on a case by case basis.

Videojet may reject an FAI if the subsequent Cpk analysis does not meet 1.33 or better and the supplier does not implement an acceptable control plan.

14. Producibility Review

Videojet follows a producibility process with a two-tiered stage first article inspection. This process is used for new product development and legacy items Videojet engineering has deemed as critical. Videojet procurement, quality, and engineering will conduct a series of producibility review meetings with suppliers on engineering deemed critical to quality. This process is the opportunity for suppliers to submit deviations or engineering change requests prior to first article submissions.

1. Alpha First Article Requirements: Dimensional layouts only. Only Videojet defined critical to quality parts.
2. Beta First Article Requirements: Full first article requirements per this procedure. All parts.
    a. Cpk analysis of critical to quality dimensions is due at the Beta submission. See section 5 and 6.