VEONEER STANDARD

Product Traceability

VS004

Distribution to:		
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Introduction

Veoneer is a world leader in automotive safety. Accordingly, traceability is a critical element in the overall Veoneer Product Development System (VPDS) and Veoneer Excellence System (VES). In the event of a Quality concern, Veoneer's reputation and future may be damaged. Thus, our traceability data must be accurate, readily available, and actionable. The best solution is for Veoneer and its suppliers to have comprehensive traceability systems that cover the entire supply chain for all of our product families.

Each Veoneer plant shall perform **precise containments quickly and accurately**. The speed and accuracy are critical to Veoneer and to our customers.

1   Purpose

The purpose of this standard is to define the minimum requirements of our traceability systems to assure control of our receiving/manufacturing/shipping/containment processes and the timely availability of data.

2   Scope

This standard defines the minimum requirements for Veoneer traceability, starting at our suppliers, through our prototype, serial production, and service (spares) production processes, and continuing through the distribution of products to our customers.

3   Responsibilities

- **The Plant Quality Manager (PQM)** for each local Veoneer facility is responsible that this standard, including all appendices, is understood, and applied within their location.

- **Other relevant functions** such as IE/Process engineering, IT, Logistics as well as Project/Production Quality must support the PQM in order to fulfil this standard.

- **The Plant Manager** is accountable to ensure that PQM have adequate resources to fulfil this standard.

- **Regional Quality Director** is responsible for definition and global alignment of product line traceability requirements.

- **Supplier Quality resources (CSQ, Project SQ)** within their respective ownership areas are responsible for ensuring that our suppliers are compliant with this standard per the Veoneer Supplier Manual (VSM).

- **Technical Centre Manager/Director** is responsible for assuring that full traceability is maintained per this standard for all prototype materials, components, and assemblies, after Tollgate 1 is completed in the Veoneer Product Development System (VPDS).

- **Product Line and Veoneer Management teams** are responsible for determining the minimum traceability levels for the materials, components, and assemblies that fall within their product family. They are responsible to maintain the VS004 Appendix 2 & VS004 Appendix 4 to this standard as their designs and as the production processes evolve.

4   *Definitions*

Traceability system documents the genealogy of a final product's raw materials, components, and sub-assemblies.

Traceability system includes not only "what" the product contains, but also "where" it was made, "who" made it, "how" it was made (process information), and "how many" were made during the same time period.

Traceability system shall have linkages between and ready access to data stored in line traceability systems, testing systems, maintenance systems, and ERP systems (& MES) (including the receiving and shipping systems).

Reconciliation is an accounting process used to compare two sets of records to ensure the figures are in agreement and are accurate. Within the scope of traceability, reconciliation is confirmation that the recorded product quantities (lot numbers and individual serial numbers) match with the physical quantities.

Raw material is defined as input material that is typically handled in bulk containers, sealant, potting, solder paste, coating etc.

Component is defined as discrete input material, such as housings, brackets, fasteners, electronic components, and embedded software.

Sub-assembly is a combination of raw materials and/or components that stays within a facility until it is further processed and becomes a finished product ready for shipment to the next customer. Examples, PCBA, include cradle assembly, generic camera module etc.

Finished goods are defined as a product shipped or ready to ship from the producing facility.

Lot is defined as a raw material, component, sub-assembly, and finished goods lots. Each lot comprises of items that share essentially the same process stream (the same production line, equipment, incoming materials/components, production date, and so on). Lot has the same meaning as batch, with lot the preferred term.

5 *Procedure*

5.1 <u>Traceability System Requirements</u>

Veoneer's traceability systems and our supplier's systems shall have the following minimum capabilities:

- Collect and store data from the manufacturing and prototype processes

- Retrieve data and reconcile (to the maximum extent possible) with other sources of data, such as scrap, testing, shipping, and returns.

- "Top-Down" traceability searches –
  - Input: Finish goods or sub assembly lot number, serial number, or shipping information.
  - Output: Lot or serial numbers of raw materials and components used in the finished product, regardless of if the product is manufactured as a prototype, serial production, or service (spare) part.

- "Bottom-Up" traceability searches –
  - Input: Lot, serial number, or shipping information of a raw material or component.
  - Output: Assembly lot or serial numbers of the produced finished goods or sub-assemblies, and information as to whether the items were tested, scrapped, warehoused, shipped, or returned.

- Containment, via electronic and/or manual means, to protect down-stream processes and customers from receiving suspect product.

- Serialized Level 1 final assemblies must be scanned prior to packing and the traceability record for each finished assembly must include (or be connected to) the finished good container number it was packed in.

- For Level 2 there has to be a robust system connecting the consumed component lot to the finished good packaging box number.

- Provide a robust system link between the manufacturing line traceability system, testing, and shipping systems, to assure that only product ready to ship is released to ship.

- The line traceability systems in Veoneer to be used as the system of choice is iTAC, if other systems in use are to be replaced it shall be replaced by iTAC.

5.2   Traceability Classification Levels

There are three levels of traceability classification, in order of preference, as follows:

Level 1 is the individual serialization (serial number) for each product produced. Supporting process information and component serial numbers or lot numbers are connected to the assemblies' serial number.

Level 2 is the lot numbering of a group of parts of raw material, component, or finished product. Mixing of material or component lots should be minimized but is allowed. Where mixing occurs, the overlap between lots must be recorded in the traceability records.

Level 3 No traceability required, the product or material has no effect on safety performance. Examples: Shipping boxes, plastic bags, blank bar code label stock, etc.

Apart from recording the component traceability information for each assembly, there will be other scanning and process control functions performed by the line traceability systems (Ref: VS004 Appendix 4).

Product Line and Veoneer Management will assign minimum traceability levels in the charts attached to this standard in Appendix 2. These levels are to be assigned for each of the generic descriptions of raw materials, components, sub–assemblies, and the final assemblies found in each of the Veoneer product families.

Veoneer drawing title blocks and Veoneer material specifications will contain the minimum traceability levels assigned as above. In case of a discrepancy between the applicable VS004 Appendix 2 and the drawing, the more stringent requirement takes precedence. If an Veoneer plant or supplier has a request to lower the traceability level on a specific component, Product Line and Veoneer Management has the responsibility to eliminate discrepancies by either causing revision to the drawing or to the chart in VS004 Appendix 2.

5.3   Lot Size Determination for Level 2 Products

For both Veoneer and its suppliers (refer to Veoneer Supplier Manual, VSM), serial production and prototype lot sizes shall not exceed 24 hours of production and shall not exceed 20,000 parts or equivalent measure (weight, length, volume units etc.) decided by Director Supplier Quality. Any deviation to this must be approved by Director Supplier Quality.

The recommended condition is that the product lot number changes with every change point when it occurs within the manufacturing work cell.

5.4   Product Marking/Labelling Requirements

Product marking/labelling should be visible without disassembly of the product, as practical. The final product marking/labeling shall include Level 1 serial number or Level 2 lot/batch number.

All packaging and transportation labels or RFID tags for raw materials, components, sub-assemblies, and final products must meet the label format and data content requirements defined in VS244 & MPS135 or in the customer-defined labelling requirements. All marking or labelling requirements and marking methods for components with lot or serial number, part number, and other date/shift marks are specified by the Veoneer drawing.

Within Veoneer production lines, temporary in-process labels are acceptable for assuring First In-First Out (FIFO) processing sequence and for confirming that the correct and complete operation has occurred at every process. However, it is mandatory that all of the in-process data gathered via in-process labels be connected to the final assembly lot or serial number traceability records.

5.5   Traceability Data Collection and Storage/Retention Requirements

Refer to Appendix 2, 3 & 4 (Traceability Data Requirements) for the minimum traceability data to be collected by Veoneer and its suppliers.

Traceability data is to be scanned as close as possible to the value-adding operation or the point & time of use, except where operator safety could be jeopardized. It is not acceptable to scan Level 2 components only in the warehouse or supermarket.

Scanning of traceability data or automatic uploads of data shall be used instead of manual recording. If abnormal conditions occur such that paper records are temporarily needed, the paper records must be updated into the system such that the paper records are no longer necessary for retention policy.

When the manufacturing line has product change over to a new build of materials, the original traceability must be maintained for the component inventory removed from the work cell. The original containers, labeled with the supplier lot and container number information, should be used to assure that traceability is maintained, and that future scanning of the material at the "point & time of use" is accurate. The use of unlabeled in-process containers or storage locations is not acceptable. Level 2 lot numbers are not to be mixed within a container.

There must be a link between the production traceability records and shipping records, that is also valid if the product is provided externally from another company or Veoneer facility (pass thru parts).

The Veoneer traceability system for each new product and associated work cells shall be defined as part of the Phase 1 Line and Design Workshop, VS100 Veoneer Product Development System (VPDS). Use checklists to perform within VS100 & VS403 to secure that Traceability for each line is setup according to VS004 including all appendixes.

Supplier traceability systems must be defined and reviewed by Veoneer Supplier Quality during the Supplier Advance Product Quality Planning (S-APQP) process and validated before Production Part Approval Process (PPAP). Any changes to the supplier traceability system are to be submitted and approved using the PPAP process.

When a decision for the storage of traceability data is made, consideration must be taken to future technologies in both hardware and software. Veoneer's backup standards for information technology shall be followed.

Traceability data must be stored according to Veoneer standards (ref: VS303) for retention of quality records.

The original traceability records must be maintained for any reworked and/or sorted products or materials.

5.6 Traceability Data Retrieval/Reconciliation Requirements

Traceability data must be available in a user-friendly interface without stopping or slowing of the production line or facility.

The facility's traceability system must allow use of standard software for data analysis.

The Plant Quality Manager is responsible to perform traceability "fire drills" minimum once per year at each facility to test for adherence to the requirements of this Standard.

These drills preferably involve more than one Veoneer facility to confirm the links between our traceability systems and are scheduled and managed by the Plant Quality Managers. They must include top-down and bottom-up traceability searches, as well as reconciliation of pseudo-suspect product versus the traceability system records. Results of the fire drills must be shared with the facility top management to assure corrective actions are promptly addressed. It is recommended to use Appendix 5, Fire Drills Protocol for this process.

To ensure traceability data is correct, use the traceability Data Accuracy Assessment protocol in Appendix 6.

Maximum times for the technical retrieval of routine traceability data from the Veoneer or supplier plant traceability systems, including all sub-suppliers, are as follows:

Products produced within the last:	Plant traceability data accessible within (maximum time):
30 days	1 hour
12 months	8 hours
12 months and older	24 hours

6   *References*

VS007	Veoneer Standard	Change Management
VS100	Veoneer Standard	VPDS
VS109	Veoneer Standard	CAD Drawing and Model Standard
VS244	Veoneer Standard	Package and Transport Label
VS303	Veoneer Standard	Records and Information Management
VS403	Veoneer Standard	Safe Launch Process
MPS135	MPS	Finished Product Labelling
VSM	Veoneer Supplier Manual	www.Veoneer.biz

7   *Appendices*

7.1   VS004 Appendix 2 – Traceability Classification Levels

7.2   VS004 Appendix 3 – Traceability Data Requirements Chart

7.3   VS004 Appendix 4 – Product Line Traceability Data Requirements:

7.4   VS004 Appendix 5 – Fire Drill Protocol

See also the supporting tools:
Fire Drill Containment Summary Worksheet
Fire Drill Action Register
Fire Drill Top Down Example

7.5   VS004 Appendix 6 – Data Accuracy Assessment Protocol

See also the supporting tools:
Data Accuracy Assessment - Calculation Worksheet
Data Accuracy Assessment - Example Data Accuracy Assessment

8   *Modification Index*

Version #	Date / Author	Modification	Purpose
1.0	*1-Apr-2018* *Fabio Zoia*	Initial Release of VS 004	
1.1	*12-Oct-2022-2022 /H. Johansson*	Introduction; Minor updates 4 Definition; Updated Raw material section 4 Definition; Updated Sub-assembly examples 5.1. Updated phrasing (not intent) about traceability of system of Choice being iTAC. 5.2 Removed section about "selected critical Level 2 material" 5.3 Update to fit current organization 5.5. Added clarification that externally provided parts are included in the traceability records. 5.6. Rearranged text to clarify requirement for fire drills. Changed use of Appendix 5 template from Shall to recommended.	Periodic review