SUPPLIER PRODUCTION PART APPROVAL PROCESS (PPAP) MANUAL
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1.0 Foreword

The purpose of this document is to communicate SLTN’s requirements with respect to the PPAP process to those companies that supply materials and components to SLTN. These requirements are fully compliant with the Automotive Industry Action Groups (AIAG) Production Part Approval Process (PPAP) standard revision 4 March, 2006. SLTN has specific requirements and additions to this standard that need to be fully understood before attempting to successfully submit a PPAP to SLTN for review and approval.

2.0 Purpose

The purpose of the Production Part Approval Process (PPAP) is:

To provide the evidence that all SLTN engineering design and specification requirements are properly understood and fulfilled by the Supplier.

To demonstrate that the Supplier’s manufacturing process has the potential to produce product that consistently meets all requirements during an actual production run at the quoted production rate.

3.0 When is PPAP Submission Required?

A PPAP is required anytime a new part or a change to an existing part or process is being planned. It is at the discretion of SLTN to determine when and if a PPAP submission will be required. In the event a PPAP submission is not requested, SLTN Supplier Quality reserves the right to request any of these documents at any time during the life of the product. SLTN Supplier Quality reserves the right to request a PPAP submission for a variety of reasons including all of the following.

New parts, process or Suppliers:

- New part or product
- New Supplier
- New process or technology

Changes to existing product

Change to material or component

- New, additional or modified tools
- Upgrade of existing tools
• Tooling, production, or equipment transferred to a different site
• Product when tooling has been inactive for 12 months
• Product or process changes on the components of the product
• Change in test or inspection method
• Bulk material: New source of raw material
• Change in product appearance attributes
• Change of sub-Supplier or material source

If the Supplier has additional questions concerning the need for a PPAP Submission, they should contact their designated SLTN Supplier Quality Engineer (SQE).

4.0 Supplier Request for Engineering Approval (SREA) Instructions

Whenever the Supplier is planning a change that affects a part or the process making that part, it is the Supplier’s responsible to get approval from SLTN prior to initiating that change. To request approval for the change, the Supplier should submit a Supplier Request for Engineering Approval (SREA).

The SREA is used to initiate a:

• Permeate print related change
• Temporary deviation from print
• Move of manufacturing to new facility
• Cost saving change
• Change of sub-supplier
• A change of material composition

• Manufacturing process change
• Packaging Change

The SREA must be approved by SLTN prior to implementation. Failure to have an approved SREA may affect future business opportunities.

SLTN assumes the Supplier will notify SLTN of any planned change(s) a minimum of 90 days prior to planned implementation (ref. SLTN’s Supplier Requirements Manual). The additional requirements section on the form can be used to document any additional testing, performance data or engineering changes that may be required to make the proposed change successful.
5.0 Elements of a PPAP Submission

The SLTN PPAP submission requirements are compliant with the existing AIAG standard. One or more of the following elements may be required depending upon the assigned submission level:

1. Part Submission Warrant (PSW)
2. Design Records & Ballooned Drawings
3. Approved Engineering Change Documents
4. Customer Engineering Approval
5. DFMEA
6. Process Flow Diagram
7. PFMEA
8. Control Plan
9. Measurement Systems Analysis (MSA)
10. Dimensional Results
11. Material, Performance Test Results
12. Initial Process Study (Cpk) Capability Studies
13. Qualified Laboratory Documentation
14. Appearance Approval
15. Sample Product Parts
16. Master Sample(s)
17. Checking Aids
18. SLTN - Specific Requirements
   - Tooling Loan Agreement
   - Packaging Form
   - Pre-Launch Control Plan
   - Launch Inspection Report
   - Specification Deviation
   - Supplier PPAP Worksheet

Unless otherwise noted, the Supplier should document their PPAP submission using SLTN’s Supplier PPAP Forms (Pack) or AIAG compliant Core Tools Forms. MS Excel templates for Core Tools Forms are available from AIAG.
6.0 Submission Levels

Submission levels define which elements are required for submission. The levels are used for different reasons and applications. The level to be submitted is determined by SLTN, and unless otherwise noted, always defaults to Level 3 which is a full PPAP submission.

There are five submission levels listed below, and each is typically applied to the specific areas listed.

- **Level 1: Warrant with Appearance Approval Report** - This level applies to ‘Non-critical’ parts, ‘non critical’ raw/bulk material or catalog/commodity parts for electrical applications and re-certification of existing parts previously approved by SLTN at levels 3, 4 or 5. Also used for self-certification.

- **Level 2: Warrant with product samples and limited supporting data** - This level applies to Critical Bulk products such as Plastic/Paint/Chemicals, critical fasteners, simple material changes, simple revision level only changes or simple print updates not affecting form-fit-function. This level can also be applied to low and medium risk parts within a product family.

- **Level 3: Warrant with product samples and complete supporting data** - This level applies to new parts on SLTN programs or changes effecting form-fit-function, reliability, or performance. All products resourced to new Suppliers, serial production parts, and existing high risk parts undergoing a part number change (default SLTN Submission Level).

- **Level 4: Warrant and other requirements as defined by the customer** - This level are reserved for special applications only.

- **Level 5: Warrant with product samples & complete supporting data reviewed @ Supplier’s location**

All submissions must be in English. Immediate rejection will result if not submitted in English.

Changes to existing parts will be handled on a case-by-case basis and submissions other than level 3 require prior approval from SLTN’s SQE.

IMDS is required for any PPAP submission (ref. Element 11). The IMDS module must be submitted to, and approved by, SLTN prior to PPAP submission. The IMDS module number and revision level must be recorded on the PSW. Failure to submit an approved IMDS prior to PPAP will delay approval of the PPAP package.

The level required for the Supplier’s PPAP submission is determined by SLTN. The Supplier should always verify the submission level required with their SLTN SQE.

If the Supplier has issues with one or more of the PPAP elements they should document those issues on the on the **Part Submission Warrant** (ref. Element 1). All issues must be documented at the time of submission.
7.0 Submission Method

The two methods of submission are:

1. Mailed hard copy in a divided binder (preferred).
2. Emailed copy to the appropriate SLTN SQE.

The Supplier should email a single PDF file consisting of the entire submission.

Important: All submissions must be received two weeks prior to the PPAP due date.

8.0 Significant Production Run

PPAP data must be generated from random samples of product taken from a 300 piece (minimum) consecutive run. The run should utilize production equipment, tooling, and production employees operating at the designed production rate.

The Supplier is should document the date, time and actual rate of production on the Part Submission Warrant.

9.0 Submission Status

The PPAP submission will be reviewed by SLTN and then either (1) approved, (2) rejected, or (3) given interim status.

1. Approve: formal acceptance of the submission by SLTN.
2. Reject: not accepted/requires resubmission for approval.
3. Interim: permits shipment of material for production for up to 90 days. The Supplier must submit, and SLTN must approve, a SREA that clearly documents the Supplier’s corrective action plan to achieve full approval within the 90 day period.

10.0 Annual Validation

Annual validation is required to be performed by the supplier and be documented in the control plan (see Element 8). Results shall be maintained by the supplier and be made available to SLTN upon request. Annual PPAP submissions are not required unless specifically requested by SLTN. Conformance to this requirement is subject to random audit by SL. Suppliers designated as high risk based on VW standard are required to submit annual D/TLD test certification as well as annual VDA audit requirement (ref. Supplier Requirements Manual).
11.0 Key Characteristics

11.1 Key Product Characteristic (KPC) Definitions

Fit/Function KPC: A product characteristic that does not affect safety or regulatory requirements but which, if exceeding specification, could create an unacceptably high warranty condition or significant Customer dissatisfaction. Product characteristics with a severity of 8 (ref. Element 5 and Element 7) or those mandated by SLTN are considered Fit/Function KPCs. All Fit/Function KPCs require a Process Capability Analysis, and the Cpk/Ppk index must be 1.33 or greater.

Safety/Critical KPC: A product characteristic which, if exceeding specification, could affect safe vehicle operation, compliance with government regulations or statutory requirements. Product characteristics with a severity 9-10 or those mandated by SLTN are considered Safety/Critical KPCs. All Safety/Critical KPCs require a Process Capability Analysis, and the Cpk/Ppk index must be 1.67 or greater.

11.2 Special Characteristic Approval Form (SCAF)

The supplier is required to document all special characteristics on the Special Characteristic Approval Form. The following characteristics are required to be included on the SCAF:

- Special Characteristic identified on the drawing
- Characteristics that SL TN has identified as critical
- Characteristic that the supplier identifies as critical based off of the PFMEA analysis.

The following information is required to be completed on the SCAF and must be approved by SL TN:

- Special characteristic symbol
- Characteristic Description. The Characteristic description must be detailed and match the description on the Control Plan, PFMEA and Process Flow.
- Specification / Tolerance
- Characteristic number from the Control Plan and PFMEA
- Control Measurement Method. The measuring device and number (if applicable) are required to be documented here and must match the control methods listed in the Control Plan.
- Frequency. The check frequency must match the check frequency on the Control Plan.
- PFMEA – RPN
The SCAF is required to be approved prior to PPAP and the signed copy is required to be submitted with the PPAP Package.

### 11.3 Key Control Characteristic Definition

A Key Control Characteristics (KCC) is a process parameter for which variation must be controlled to some target value to ensure that a KPC(s) is maintained to its nominal value during manufacturing. SLTN may require KCCs for some, or all, KPCs. The Supplier shall initiate SPC data collection, monitoring, and control of all KCCs identified. SLTN’s expectation is that the Supplier will address all KPCs in their Control Plan (ref. Element 8). SLTN requires capability studies for all KPCs and any related KCCs.

### 12.0 PPAP Training

SLTN will offer Supplier PPAP training at several levels. The Supplier should contact their designate SLTN SQE for more information. Suppliers can also refer to the AIAG website (www.aiag.org) for additional information, training and materials on the PPAP standard 4th edition as well many of the various elements within the standard.

### 13.0 Instructions for completing a PPAP Submission

All submissions must be received two weeks prior to the PPAP due date. The review and approval process will be facilitated by the applicable SLTN SQE.

#### 13.1 Part Submission Warrant (PSW)

The purpose of the Part Submission Warrant (PSW) is to document the submission prior to production. A PSW is required regardless of submission level.

**Completing the Part Submission Warrant**

The Part Submission Warrant is included in the Supplier PPAP Forms Pack. It must be filled out and signed by the Supplier. The part number must match the part number on the Purchase Order provided by SLTN Purchasing.

The PSW must be submitted with correct part number, revision and submission level. All fields must be completed. Fields that do not apply to the Supplier’s submission should be answered with ‘N/A’ (Not Applicable).

#### 13.2 Design Records

The purpose of Design Records is to provide a copy of the formal part print and to document any additional engineering records for reference. Every characteristic on the drawing must be “ballooned” to correspond with the inspection results (see Element 10). Engineering Records should also include any functional / material / test specifications that SLTN requires (see Element 11).
A Ballooned Drawing shows the parts or assemblies in a part print with a numbered “balloon” that point to individual dimensions and/or requirements. The numbers on the ballooned drawing should correlate with the Item # found on the Dimensional Data Sheet. A ballooned drawing must be submitted as part of PPAP for every submission level when there are dimensional results.

<table>
<thead>
<tr>
<th>ITEM #</th>
<th>Required</th>
<th>Description of Check</th>
<th>Measurement Method</th>
<th>Target</th>
<th>Bonus Applied (0%)</th>
<th>Min</th>
<th>Max</th>
<th>Data for Sample Number...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N</td>
<td>hole</td>
<td>C/V</td>
<td>4.5</td>
<td>N</td>
<td>4.400</td>
<td>4.510</td>
<td>4.400 4.500 4.600 4.700 4.800</td>
</tr>
<tr>
<td>2</td>
<td>N</td>
<td>Radius</td>
<td>Radias Gauge</td>
<td>0.75</td>
<td>N</td>
<td>0.730</td>
<td>0.755</td>
<td>0.745 0.743 0.730 0.720 0.722</td>
</tr>
<tr>
<td>3</td>
<td>N</td>
<td>Hole-to-Hole</td>
<td>C/V</td>
<td>0.275</td>
<td>N</td>
<td>0.271</td>
<td>0.274</td>
<td>0.276 0.273 0.274 0.273 0.273</td>
</tr>
</tbody>
</table>

An example of a Dimensional Data Sheet with Item Number.

Every dimension and/or requirement must be ballooned and numbered for reference and measurement, including:

- Dimensions and tolerances of parts
- Electrical requirements (performance data, functional tests, etc.)
- Visual features (color, texture, etc.)
- Material characteristics (cure time, etc.)
- Physical and mechanical properties (tensile strength, plating thickness, heat-treat hardness, etc.)
- Any other specified requirement that the Supplier has the capability to measure or that is described in print notes or referenced specifications.

When dimensions are specified at multiple locations on the drawing, the data for each location should be numbered separately.

13.3 Approved Engineering Change Documentation

This Element is used to document items not addressed in a part print such as emails, SREAs, and Feasibility Studies.

- SL Engineering Change Notice (ECNs) must be approved, not pending.
- Print change submissions must have current prints.
- Emails can only clarify requirements, not define them
- Emails cannot re-define a requirement in lieu of a print change.
• All Supplier-requested changes must be documented via a SREA.

The SREA must be approved by SLTN prior to making the proposed change(s).

13.4 Customer Engineering Approvals

Customer Engineering Approvals are used to demonstrate pre-approval of a design by SLTN’s Customer. Customer Engineering Approvals are not required for Supplier submissions.

13.5 Design FMEA (DFMEA)

*Design Failure Mode and Effects Analysis* (DFMEAs) provide evidence to SLTN that potential failure modes and their associated risks have been addressed through product design changes and improvements. A DFMEA is only required when the part is designed by the Supplier.

The date on the DFMEA should show release prior to print release. Severity, Occurrence and Detection ratings must be compliant with the AIAG guidelines for FMEA (4th edition).

Any potential failure mode with a severity ranking of 8, 9 or 10 must be addressed with a corrective action plan. Furthermore, potential failure items in the top 25 percent RPN ranking should have corrective action items addressing their potential failure mode.

13.6 Process Flow Diagrams

The purpose of a *Process Flow Diagram* is to document the sequence of events required to manufacture the part. The process steps must match both the *Control Plan* and the *PFMEA*. Process flows must include the entire manufacturing process (receiving through shipping).

The Process Flow Diagram must also include all key steps in the process and all offline activities (such as measurement, inspection and handling). The flow of nonconforming material such as scrap parts, non-conforming parts and rework parts should also be included.

13.7 Process FMEA (PFMEA)

The *Process Failure Mode and Effects Analysis* (PFMEA) provide evidence to SLTN that potential failure modes and their associated risks have been addressed through prevention of controls at the manufacturing process level.

A PFMEA should be performed for every part, piece of equipment or process involved in manufacturing. Severity, occurrence and detection ranking values should be developed in alignment with AIAG’s *FMEA Manual* 4th Ed.

SLTN requires that any severity ranking of 8, 9 or 10 be addressed with a corrective action plan. Furthermore, potential failure items in the top 25 percent of the high RPN ranking items must have action items addressing the potential failure mode.
FMEA is a cross-functional activity that can lead to inconsistency if team members are not properly trained. It is highly recommended that the supplier purchase a copy of the AIAG’s *FMEA Manual* 4th Ed. In addition, AIAG also offers additional training that the Supplier can attend. SLTN’s SQE can also assist with any questions concerning FMEA.

13.8 Production Control Plan

A Production Control Plan is a documented summary of the steps needed to control a process and the variations in a process within the acceptable limits. It describes actions required to maintain the ‘desired state’ of the process and minimize process and product variation. A Control Plan provides a single point of reference for understanding process characteristics, specifications, and standard operation procedures.

Specifically, a Control Plan should address the following:

- Identification of KPC characteristics
- Identification of KPC characteristics controls
- Identification of any measuring and monitoring devices. If the device is identify by a specific number (i.e. gage number, etc.) the gage number is required to be included on the Control Plan.
- Secondary/outsourced operations
- Materials and their properties
- Process equipment at each operation
- Test equipment used to measure each characteristic
- Specifications, sampling strategy, control and reaction methods used
- Periodic conformance testing and product verification

The Control Plan must clearly state each step in the process and the applicable specification or standard. It should describe the function of the process in terms that can be measured. Measurable include all end product and in-process requirements. These requirements must be verified or validated and include additional constraints or design parameters such as

- reliability and serviceability specifications,
- special conditions,
- weight
- size
- location
- accessibility
- Part characteristics being created or modified including position, depth, diameter and hardness.
Completing the Control Plan

The Supplier should document, in sequence, all materials and processes involved in the manufacturing process. The process flow diagram and ballooned drawing provide inputs to the Control Plan. All KPCs & any related KCCs must be listed in the Control Plan. Each characteristic must have a unique characteristic number. This number must also be carried over to the Process Flow Diagram, PFMEA and SCAF.

The Control Plans should address all testing requirements, inspection and measurement that are required to make a quality product.

Every step in the process requiring disposition should have a defined “Control Method” and “Reaction Plan” outlined on the Control Plan.

The Supplier’s team that creates the control plan should include the process owner and representation from all areas involved in the process. After submission, as the process changes and the control methods are improved, the plan should be continually updated. Updates due to corrective actions should be noted in the Control Plan and the corrective action number should be included.

13.9 Measurement System Analysis Studies (MSA)

Measurement system analysis (MSA) is a method of determining how much the variation within the measurement process contributes to overall process variability. MSA is used to ensure the use of a valid and reliable measurement system. Detail on MSA is found in the AIAG manual which defines guidelines for stability, bias, linearity, repeatability and reproducibility.

A Gage Repeatability and Reproducibility Study (GR&R) is used to ensure that measurements used in the manufacturing process are reasonably consistent regardless of how many times they are performed, or by who they are performed by.

SLTN requires a GR&R analysis of all measurement systems identified in the Control Plan. The minimum requirements for SLTN Suppliers are:

- % R&R should be at 15% or less for KPCs/KCCs
- Marginal gages (between 15% and 30%) need an action plan to address and improve the method of measurement
- Gages with R&R above 30% cannot be used

There are several many methods for performing and evaluating a GR&R. The Supplier can use any method/format/software as long as it is compatible with the practices prescribed by AIAG.
13.10 Dimensional Results

Dimensional results should be documented on the *Dimensional Data Sheet* form. The measurements on this form should correlate with the Supplier’s balloon drawing from Element 2.

The purpose of this element is to show conformance to the SLTN part print on dimensions and all other requirements. Non-dimensional requirements should be addressed in the Material and Performance section of the PPAP submission. SLTN requires a full dimensional layout of the part on all PPAP submissions except level 1.
The dimensional report must address all of the following:

- All dimensions
- All applicable notes that have variable dimensions (example: tensile test)
- Any dimensions contained on reference prints
- Tolerances that include bonus points for Geometric Dimensioning & Tolerance (GDT) callouts.

**Important:** The sample parts measured for Element 10 should be the same parts submitted as samples in Element 15.

**Single Cavity Mold:** The Supplier is required to measure a minimum of 3 parts. These must be the same 3 parts that are submitted as Samples in Element 15. All 3 parts should be identified with the corresponding number on the part or the tag.

**Multiple Cavity Molds:** The minimum number of parts to measure for the dimensional element is 1 part from each cavity. A minimum of 1 part from each cavity should be submitted as Samples in Element 15 and these must be the same parts measured for dimensional data. All parts should be identified with the corresponding number on the part or the tag.

All dimensional requirements on the ballooned drawing must be listed on the **Dimensional Data Sheet** form. If multiple pages are required to complete a full inspection, all copies of the **Dimensional Data Sheet** form must include completed headers. When requirements are referenced at multiple locations on the print the data must be recorded for each individual location. All callouts and notes must be included.

**Example of Dimensional Data Sheet**

All sections of the **Dimensional Data Sheet** form must be filled out completely. The Measurement Method must be documented for every line item set of data. In addition, on GD&T tolerances, the specification and any bonus tolerance must be added to the minimum and maximum tolerances.
Example:

This call out would require 3 lines of separate data on the dimensional report.

1. Hole diameter (.25 ± 0.2)
2. True Hole Position (0.05 MMC on Datum A,B,C)
3. Cylindricity (0.1)

Any out of specification conditions should be brought to the attention of SLTN’s Supplier SQE before submitting the PPAP submission. Depending on the circumstances, a temporary deviation can be requested by the Supplier via a **Specification Deviation** (ref. **13.18 SLTN Specific Requirements**).

**13.11 Material and Performance Test Results**

**Material/Performance Test Results** is a general category for all test/measurement results other than dimensional. Any AIAG compliant forms may be used for test results. The Supplier must document that the material is confirmed and acceptable performance is demonstrated.

**13.111 Material Test Results**

Material Test Results should be provided in the form of a material composition report typically called a **Certificate of Analysis** (COA) from an accredited lab. It is the Supplier’s responsibility to confirm the conformance of their material to applicable standards for PPAP submission. It is also the Supplier’s responsibility to plan for ongoing material conformance testing and identify this as a separate requirement (line item) in the Control Plan. This ensures that the Supplier has a plan for continual conformance to the material standard.

SLTN’s expectation is that the Supplier have a designated lab (internally or externally) that is capable of confirming their raw material on a periodic basis. The interval of inspection is recommended by the Supplier however SLTN reserves the right to request a change in the frequency of inspection at any time throughout the life of the part.

**13.112 Performance Test Results**

Performance Test Results should meet the specifications. Performance results may include data confirming any referenced specifications in the part print or specific testing required by SLTN. SLTN will communicate specific material, performance, and testing requirements either the in part print, reference specifications or by specific request prior to PPAP approval. It is the responsibility of the Supplier to confirm the data and format for this requirement with their SLTN SQE.
13.113 International Material Data System (IMDS)

Every SLTN Supplier, because of national and international environmental legislation, is required to provide information about the material used in their product.

The Supplier is responsible for creating an IMDS module on every part that supplied to SLTN. The IMDS module must be submitted via the IMDS website (www.mdsystem.com) to SLTN recipient code of 119519.

All material and components must be included in the submission. In addition, all plastic parts must be identified with appropriate ISO marking codes. The Supplier is also required to complete the Restricted Materials and Recyclability Reporting Certification.

It is the responsibility of all Suppliers to submit the necessary information into the IMDS database. As a result, the Supplier must require their Sub-Suppliers to submit IMDS to their appropriate recipient code. The Supplier is required to review their Sub-Supplier IMDS submission for compliance then disposition (approve or reject) the IMDS submission. Once the Supplier approves the appropriate Sub-Supplier submissions, the Supplier must use the approved Sub-Suppliers IMDS modules to build their own IMDS module to prior to submission to SLTN.

Once submitted, SLTN will review, then disposition, the IMDS module:

**IMDS Approval** - If SLTN approves the Supplier’s IMDS submission, the Supplier may then add the IMDS module number and revision number to the PSW and may submit for PPAP.

**IMDS Rejection** - If SLTN rejects the Supplier’s IMDS submission, the Supplier will receive the reason for the rejection. It is the Supplier’s responsibility to correct the IMDS module and resubmit it to SLTN. Common causes for rejection include:

- **Incomplete part number** - The part number submitted in the IMDS must match the part number that is on the PSW and Purchase Order.

- **Warnings in the IMDS Module** - It is SLTN preference to reconcile the IMDS modules so that warnings are eliminated.

- **Error messages in the IMDS Module** - Errors in the IMDS module will result in automatic rejection.

- **Incorrect material classification** - The Supplier should reference GADSL (Global Automotive Declarable Substance List) for more information

If the Supplier has any questions regarding a rejection of an IMDS module, the SLTN SQE should be contacted.
13.12 Initial Process Study (Cpk, Ppk)

The purpose of the **Initial Process Study** (Cpk or Ppk) is to determine if the manufacturing process is capable of producing parts that will meet SLTN requirements. Initial process studies (capability) are mandatory for all KPCs. Studies performed on KPCs are performed per AIAG guidelines (i.e., actual production parts randomly sampled from a significant production run).

All Fit/Function KPCs require a Cpk index of 1.33 or greater or a Ppk index of 1.67 or greater. All Safety/Critical KPCs require a Cpk/Ppk index of 1.67 or greater.

**Reporting Ppk vs. Cpk**

Whether Ppk or Cpk index is used depends on the reason for the PPAP submission:

(Cpk)
- a. New part
- b. Part with revised specifications
- c. Part in which the material, process, location, or equipment has changed
- d. Part in which the material supplier has changed

(Ppk)
- a. Supplier is currently manufacturing the part but is a new supplier to SLTN
- b. Current supplier to SLTN that has supplied a large number of nonconforming parts

If the process that produces the parts involves multi-cavity tooling, the Cpk/Ppk index must reflect a process study from each individual cavity.

13.13 Qualified Laboratory Documentation

The purpose of Qualified Laboratory Documentation is to ensure that the testing for PPAP has been performed by a qualified lab.

All Suppliers that have testing or measurement performed on site must provide the following in this section of the PPAP submission.

Record/Scope that identifies the testing to be done and it must include:

- List of the Supplier personnel’s competency and training to perform the testing
- List of all test equipment used in process and offline
- List of methods and standards used to calibrate the equipment
If the Supplier is using an external lab for measurement and testing, the Supplier must use an accredited lab and provide proof of that accreditation. SLTN requires external labs be accredited to known lab accreditation standards such as A2LA and ISO 17025.

1. Provide a copy of the lab company’s 3rd Party accreditation certificate.

2. Results must be on company letterhead and includes:
   - The name of the Lab
   - Date of testing
   - Standards used for testing have to be identified.

13.14 Appearance Approval

(Where applicable) The supplier shall submit a completed Appearance Approval Worksheet (AAW) and random cosmetic samples from the PPAP run to SLTN for review, approval and sign off. Upon approval, SLTN will send the signed form AAR back to the supplier for inclusion in the PPAP package. If cosmetic samples are rejected, the supplier will need to make process corrections per feedback provided. A PPAP submission will not be approved unless full cosmetic approval has been achieved.

13.15 Sample Parts

Sample Parts submitted to SLTN should be the actual samples measured in the dimensional element-element 10. Sample parts should be delivered with or before the submission.

If the product the Supplier is providing comes from a multi-cavity tool then the Supplier should provide two (2) parts from each cavity. A minimum of 6 samples should be included with the PPAP submission. Contact SLTN’s Supplier SQE to determine the proper department(s) to which to address the parts. Each sample part must be properly tagged and identified as a PPAP sample part with information listed below.

The box that ships the parts should also be clearly labeled as ‘Unapproved PPAP Sample Parts’ in order to avoid being misplaced or inadvertently mixed with approved production parts.

The Supplier’s sample part tag must contain the following information:

- Supplier Name
- SLTN Part Number
- Revision Level
- SLTN Part Description
- Date of Manufacture
- Sample # ( _ of _ )
- SLTN Contact
13.16 Master Samples

The supplier must retain at least 1 Master Sample part per cavity, mold, tool, etc., that is representative of the PPAP production run. Master samples should be identified with approval date. The master sample shall be held by the supplier over the entire life of the program. Master samples must be held for each cavity, mold, tool, etc. that has been PPAP approved. The supplier’s master sample should be available for review or to reference when part concerns arise.

13.17 Checking Aids

Examples of checking aids include but are not limited to check fixtures, templates and custom gauges. The checking aid must be referenced on the warrant and in the Control Plan. If there is an associated number assigned to the checking device i.e. gage, it must be included on the Control Plan and SCAF. The following checking aids documentation must be submitted with the PPAP:

- Conformance to the design print (layout to print)
- Evidence of repeatability (GR&R study) for all KPC related features
- Evidence of calibration (Calibration Report)

The Checking Aid form is included in the Supplier PPAP Pack Forms.

Special Processes

Suppliers with internal or outsourced “special processes,” as identified by AIAG are required to show conformance with relevant AIAG Special Process document:

- CQI-9 - Heat Treat Assessment,
- CQI-11 - Plating System Assessment,
- CQI-12 - Coating System Assessment,
- CQI-15 - Welding System Assessment
- CQI-17 - Soldering System Assessment.
- CQI-23 - Molding System Assessment

A 3rd Party or self-audit is required to be performed annually by the supplier or their outsourced sub-suppliers using the applicable AIAG CQI Assessment, as part of their PPAP submission (ref. SLTN’s Supplier Quality Manual).

SL TN requires detailed auditor credentials that meet each standard requirement. Evidence of auditor credentials must include both:

- Experienced quality Management system (QMS) auditor and
Five years of specialized process knowledge (this will vary based on which assessment is required)

The supplier and/or their sub-suppliers are required to submit a current Assessment of each applicable special assessment include auditor credentials, with the PPAP package. Failure to do so will result in a delay of obtaining PPAP approval.

13.18 SLTN Specific Requirements

SLTN has four designated Customer Specific requirements. Each PPAP level requires a different combination of these specific requirements. The customer specific requirements for SLTN are:

- Tooling Loan Agreement
- Packaging Form
- Pre-Launch Control Plan
- Launch Inspection Report
- Special Process Assessment

SLTN reserves the right to request any of these at the time of PPAP submission or to request updates to these documents anytime during the life of the part. The Supplier should actively communicate with their SLTN SQE to facilitate the completion of these specific requirements prior to submitting PPAP for approval.

A signed Tooling Loan Agreement is mandatory for Suppliers using SLTN owned tools and must be completed prior to PPAP approval.
The **Tooling Loan Agreement** documents critical information including:

- Supplier’s acknowledgement of ownership of the tool(s)
- SLTN’s requirement for tool identification
- Supplier’s maintenance and repair responsibilities
- SLTN’s and Supplier’s tool damage liability
- Confidentiality / patent rights requirements

It is critical that all information on the **Tooling Loan Agreement** document and related attachments be filled out completely and for both the Supplier’s and SLTN Purchasing’s Representative to have signed and dated the Tooling Loan Agreement document.

Suppliers are required to submit a **Packaging Form** that defines a pack that meets all SLTN related requirements and ensures the prevention of shipping and handling defects. The Supplier’s proposed packaging design should be documented in SLTN’s **Packaging Form**.

The **Packaging Form** must be filled out in detail and all questions answered. It is important that there be clear pictures of the pack in all of the four areas specified:

- A picture of the part in packaging position
- A picture of the outside container with label
- A picture of any dunnage for the container
- A picture of the final unit (loaded)

Suppliers are required to implement a formal **Launch Inspection Program** for all products requiring PPAP. The purpose of a **Launch Inspection Program** is to provide additional controls, at launch, to ensure that new (or new to SLTN) products, when shipped, will meet SLTN’s requirements (ref. **Supplier Requirements Manual**).

A **Launch Inspection Program** requires, at a minimum, off line - 100% inspection of product (Launch Inspection). Launch Inspection controls can be documented on the **Control Plan Special Characteristics** form (AIAG APQP Manual - Supplement K) or in the Supplier’s preferred format.

**Special Processes**

Suppliers with internal or outsourced “special processes,” as identified by AIAG are required to show conformance with relevant AIAG Special Process document: CQI-9 Heat Treat Assessment, CQI-11 Plating System Assessment, CQI-12 Coating System Assessment, CQI-15 Welding System Assessment, or CQI-17 Soldering Assessment. Suppliers or their outsourced sub-suppliers are required to submit a self-audit of the applicable special process(s), using the applicable AIAG **CQI Assessment**, as part of their PPAP submission (ref. SLTN’s **Supplier Requirements Manual**).