JABIL	RO-RG20-00011	Revision
		P
	Jabil Production Part Approval Process	

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Rev	Originator	Change Details
A to O	N/A	*To see history of changes please click **HERE**.*
P	George Zhou	Remove PMO from section 3, section 4.1 and section 4.6 Update the wording in section 4.6 Section 9: change paint to painting.

1. Purpose

1.1 To define the Jabil Production Part Approval Process for purchased components.

1.1.1 To ensure that supplier can meet the manufacturability and quality requirements for purchased parts / materials.

2. Scope

2.1 This procedure applies to all Jabil manufacturing sites except the Healthcare division.

2.2 This procedure applies to the direct parts / components that will be part of the product deliver to customer.

2.3 The scenarios that PPAP submission may be requested to supplier, refer to section 6.1.2.

2.4 Commodity coverage:

- For Non-Automotive (IATF) projects, PPAP is required for the commodities of Build to Print. Build to Print means parts / components are produced according to the drawing from customer or Jabil. The commodity categories in appendix A are examples but not limited to them.

- For Automotive (IATF) projects, PPAP is required for both the commodities of Build to Print and the standard catalog commodities. Unless there is a signed RACI with customer, or customer agreement, or customer deviation / waiver to relieve Jabil's responsibility for the PPAP from supplier.

- Bulk materials are not required for PPAP, unless there is a contractual agreement with customer.

2.5 If the purchasing parts / components provided by customer or purchased from customer directed supplier, PPAP could be exempted for the purchasing parts / components which used for Non-

Automotive (IATF) projects, unless customer requires Jabil to qualify the parts / components with PPAP.

Notes: For Automotive (IATF) project, the PPAP can't be exempted without a waiver or deviation.

2.6 If parts / commodities require PPAP based on the scope defined above, but site decide to exempt it, a deviation or waiver must be applied and approved.

2.7 The E-JPPAP process is required to follow for purchased parts / components qualification, except below scenarios:

- For custom mechanical parts / components qualification in A&T sector, they will follow the process in the PPAP Manager system with A&T sector specific requirements.
- Customer request to follow some other specific part qualification process.

3. Definitions/Terminology

3.1 **JPPAP -** Jabil Production Part Approval Process – A documentation package that is submitted to provide the evidence needed to show that all customer engineering design record and specification requirements are properly understood by the organization and that the designed process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate.

3.2 **E-JPPAP -** Electronic Jabil Production Part Approval Process.

3.3 **CAPA -** Corrective and Preventive Action. Method for the investigation and resolution of quality concerns.

3.4 **NPI -** New Product Introduction.

3.5 **Part Submission Warrant (PSW) -** It is an industry standard document required for all newly tooled or revised products which the organization confirms that inspections and test on production parts show conformance to customer requirements.

3.6 **DFMEA -** Design Failure Mode and Effects Analysis

3.7 **PFMEA -** Process Failure Mode and Effects Analysis

3.8 **AAR -** Appearance Approval Report

3.9 **Dimensional Results -** Evidence of dimensional verification required by the design record.

3.10 **DE -** Design Engineer

3.11 **SQE -** Supplier Quality Engineer

3.12 **SDE -** Supplier Development Engineer

3.13 **BU -** Business Unit

3.14 **QE** – Quality Engineer

3.15 **GCM -** Global Commodity Manager

3.16 **DCM -** Divisional Commodity Manager

3.17 **Jabil Representative -** The responsible people from Jabil who request and follow up supplier to submit the PPAP documentation and samples, and/or approve the PPAP, including PPAP requestor, PPAP owner and PPAP team members etc. It was assigned by Jabil site.

3.18 **Design Record -** It is the part drawing, specifications, and/or electronic (CAD) data used to convey information necessary to produce a product.

3.19 **Process Flow Diagram -** It is a schematic representation of the process flow.

3.20 **Control Plan -** A document through which a supplier succinctly defines the various means employed to control it's critical and non-critical manufacturing processes as spelled out in its process flow diagram. The Process Control Plan should follow the guidelines identified in the referenced JPPAP template document or an approved equivalent.

3.21 **Ppk Studies -** A mathematical method of proving that predefined critical manufacturing processes and component features are being maintained by the supplier to Jabil and Customer expectation.

3.22 **GR&R -** Gauge Repeatability and Reproducibility, this is a mathematical method used to determine if a gauging system, employed by a supplier, to measure critical dimensions or features, is robust enough to produce repeatable and reproducible data.

3.23 **CC´s -** Critical Characteristics shall be called out in the drawing by Customer and/or design owner. Otherwise, Customer, Jabil and Supplier need to define if Ppk values require to be calculated for some special characteristics based in Form, Fit and Function and its affectation to the performance of the part.

3.24 **Run at Rate -** A term used in the final qualification process which defines the approximate speed or production rate from which a process will be qualified, e.g., have samples taken for inspection purposes, Pp - Ppk studies run.

3.25 **RFQ -** Request for Quotation.

3.26 **RoHS -** Restriction of Hazardous Substances.

3.27 **IMDS -** International Material Data System, also known as Substances of Concern reporting. When it is required by customer that Jabil provide IMDS for the product delivered, suppliers may submit the required reporting data through the IMDS system. The submission I.D. number may be entered on JPPAP\PSW form. The Jabil IMDS corporate Identification number may be required for

submissions, or the customer corporate identification number, depending on agreed method with the customer.

3.28 **RBA -** Responsible Business Alliance

3.29 **MSDS -** Material Safety Data Sheets

3.30 **Feasibility Report -** A feasibility study/report is the output of the DFM (Design for Manufacturing) review. Supplier should review the capability to meet the requirements defined in the design record or specifications, and the capacity to meet the delivery demands, etc.

3.31 **BTP -** Build to Print means parts / components are produced according to the drawing which is supplied by Jabil or customer.

3.32 **RACI -** R=Responsible, A=Accountable, C=Consulted, I=Informed.

- Responsible: The role who carry out the work to achieve the task.
- Accountable: The role who is accountable for the results of the task.
- Consulted: The role who can be consulted when make the decision.
- Informed: The role who should be informed the progress and the results.

3.33 **A&T -** Automotive and Transportation.

3.34 **Automotive (IATF) -** It present all Automotive projects, and some specific Transportation projects which customer requires to follow IATF requirements.

3.35 **JPPAP SUBMISSION LEVELS**

- Level 1: Part Submission Warrant (PSW) only, and for designated appearance items, an Appearance Approval Report required.
- Level 2: PSW with product samples and limited supporting data.
- Level 3: PSW with product samples and complete supporting data.
- Level 4: PSW and other items requested.
- Level 5: PSW with product samples and complete supporting data available for review at the manufacturer.

Notes: Detailed submission requirements for each level refer to section 6.

3.36 **APPROVAL STATUS:** disposition status will be communicated to the supplier by electric notification sending by E-JPPAP system. If E-JPPAP system isn't used based on customer request, a signed PSW shall be sent to supplier.

3.36.1 **APPROVED**

It indicates that the part, including all sub-components, meets all Jabil requirements. The supplier is therefore authorized to ship production quantities of the product, subject to releases from the Jabil scheduling activity.

3.36.2 **REJECTED**

It means that the submission, the production lot from which was taken, and/or accompanying documentation do not meet Jabil requirements. Corrected product and/or documentation must be resubmitted and approved before qualification can be given.

NOTES: In case any urgent request for production build, Deviation and Waiver Management procedure EM-QS20-00012 can be used with condition: (1) root cause of

the non-conformities is identified and (2) a completed interim action plan is submitted and agreed to by FINAL CUSTOMER. Resubmission to obtain Approval status is required.

4. RESPONSIBILITIES

4.1 RACI of the PPAP process

	Function / Task	Requestor	Owner	Team Member	BU	SCPM SCDM	Supplier
1	Create PPAP request	R					
2	Assign the owner	R					
3	Assign the team member		R				
4	Define PPAP level and requirements		R	R			
5	Supplier communication	A	R	R		A	
6	Submit the PPAP as required	A				A	R
7	Review PPAP		R	R			
8	PPAP approval	I	R	R			
9	Get customer approval, if needed		A		R		
10	Upload customer approval evidence, if needed		R				
11	Sign PSW and upload to system		R				

4.2 Top Management of each Site (Ops Manager / Purchasing Manager / Quality Manager)

- Top Management of each site is responsible to allocate sufficient resources (SQE, Purchasing, Quality, Engineering, etc.) for the supplier PPAP process implementation.

4.3 PPAP Requestor

- Create the PPAP request for a specific Manufacturing Part Number.
- Enter supplier contact information.
- Define the Jabil JPPAP owner.
- Notes: The primary PPAP requester is site purchasing team unless there is a specific team assigned by management. (Such as: SCDM / SCPM / SQE / SDE, etc.)

4.4 PPAP Owner

- Define the team member(s) in Jabil who should support to review the PPAP.

- Define the PPAP submission level and elements required. Refer to section 6.4.
- Choose submission reason.
- Confirm supplier's contact window information.
- Establish the completion date that is required from the supplier.
- Review the PPAP general information and documentation that are submitted by the supplier.
- Sample product review and 3F (Form, Fit and Function) test implementation, if needed.
- Upload the PPAP customer approval evidence to E-JPPAP system, if needed.
- Sign the PSW and upload it to E-JPPAP system.
- Teach supplier on how to submit the PPAP in E-JPPAP system and trouble-shoot the problems that supplier meets in using the system.
- Notes: The primary PPAP owner is SQE team of the site that will receive the parts / components unless there is a specific team assigned by management (for example, in A&T division, SDE team is responsible to work as PPAP owner for custom mechanical parts, and SQE team at site will be responsible to work as PPAP owner for all other parts).

4.5 PPAP Team Member

- Review the PPAP general information and documentation that are submitted by the supplier.
- Sample product review and 3F (Form, Fit and Function) test implementation, if needed.
- Notes: Team members may include ME/IE/QE/TE/SDE/SCPM/SCDM/Design (if designed by Jabil), etc.

4.6 BU

- In the new project planning stage, get the requirements from customer whether PPAP is required for purchasing parts and materials.
  - For Automotive (IATF) projects, if PPAP is not required, must get the signed RACI, or customer agreement, or customer deviation / waiver to relieve Jabil's responsibility for PPAP from supplier.
- If customer requires that the PPAP submitted from supplier must be approved by customer, once the PPAP has been reviewed by the PPAP owner and team member, BU will submit the PPAP documents and samples to customer for approval and get the customer approval evidence.
  - Site or workcell has the discretion to determine/assign another function such as QE, etc., to submit the PPAP to customer.

4.7 Supply Chain Program Manager (SCPM) / Supply Chain Development Manager (SCDM)

- Communicate the PPAP submission requirements to supplier in the early NPI stage.
- Support the site PPAP team to push supplier to submit the PPAP.
- Follow up the PPAP progress to meet the project timeline.

4.8 Global Supplier Qualification team (Supplier Chain Partner Lifecycle team), Global Supplier Quality team and A&T SDE team

- Maintain the global JPPAP procedure and template
- Maintain the electronic PPAP tool.
- Provide consultant support while site PPAP team meet problem in carrying out the supplier PPAP creating, review and approval.

5. Documents

5.1 Reference Documents:

5.1.1 RO-RG60-00006 Jabil Supplier Manual

5.1.2 00-QS60-1000-003 Workmanship Standard for System Integration

5.2 Supporting Documents:

5.2.1 JPPAP Templates: RO-RG80-00031

5.2.2 A&T Jabil PPAP Checklist: RO-RG80-00067

6. Process

6.1 **General Guidelines**

6.1.1 PPAP can be kicked off when the part / component's design is locked down.

6.1.2 PPAP submission may be requested for, but not necessarily limited to, one or more of the following, based on customer, Jabil site or design requirements:

- Initial Submission
- Engineering Changes to design records
- Tooling Transfer, Replacement, Refurbishment
- Correction of Discrepancy
- Change to Optional Construction or Material
- Sub-supplier or Material Manufacturer Change
- Change in Part Processing
- Tooling Inactive > than 1 year
- Parts Produced at Different Location
- Other situations required by Jabil Representative

6.1.3 Approval is obtained through submission to Jabil, and Jabil Representative acceptance of the requested documentation and samples. PPAP must be completed and approved before the first mass production PO (purchasing Order) be placed to supplier. If mass production PO need to be issued before PPAP be approved, a site / work cell level waiver or deviation must be completed.

6.1.4 Customer approval, if required.

- PPAP owner and team members are responsible to review the PPAP documents and samples before submitting it to customer.
- BU is responsible to submit the PPAP documents and samples to customer for approval and get the customer approval evidence.

- Notes: 1). If customer requires that the PPAP submitted from supplier must be approved by customer, Jabil should follow it. Customer needs to sign on the PSW. Jabil PPAP owner needs to upload the customer approval evidence into the E-JPPAP system.
- 2). If customer doesn't have specific request to review the PPAP submitted from supplier, the approval from Jabil PPAP team is enough.

- 3). For Jabil design projects, PPAP activities defined by Jabil do not require customer approvals unless contractually agreed with the customer.

6.2 Level Assignment

6.2.1 Jabil default PPAP is level 3, but still Jabil PPAP owner can change the level assignment, based on customer requirement, part complexity, component risk evaluation, change level of part/process, tool, etc.

6.2.2 A request for submission at any level or any combination of elements in a level does not relieve the supplier of the responsibility of performing and keeping current all required elements.

6.3 Elements of Each Submission Levels

6.3.1 Figure 1 and Figure 2 identifies specific PPAP submission contents for each submission level. This forms the minimum level of elements that must be included in a PPAP submission. Additional elements may be requested / required and will be communicated at the time of notification of a request for submission.

6.3.2 FIGURE 1

Figure 1:

- Level 1 – Part Submission Warrant (PSW) only. For designated appearance items, an Appearance Approval Report (AAR), if applicable shall be submitted.
- Level 2 – PSW with product samples and limited supporting data.
- Level 3 – PSW with product samples and complete supporting data. (See figure 2 for most common Level 3 elements. Actual required elements to be determined by Jabil quality representative.)
- Level 4 – PSW and other requirements as defined by Jabil.
- Level 5 – PSW with product samples and complete supporting data for review at supplier's location.
- Notes: Actual required elements to be determined by Jabil representative. Jabil representative can add other additional requirements if needed but can't remove the default elements defined by chosen level where the requirement is applicable.

6.3.3 FIGURE 2

Figure 2: (Common elements of a JPPAP Submission)

		SUBMISSION LEVEL				
	Requirement	***Level 1***	***Level 2***	***Level 3***	***Level 4***	***Level 5***
1.	Design Record	R	S	S	*	R
2.	Authorized Engineering Change Documents, if any	R	S	S	*	R
3.	Customer Engineering Approval, if required	R	R	S	*	R
4.	Design FMEA	R	R	S	*	R
5.	Process Flow Diagrams	R	R	S	*	R
6.	Process FMEA	R	R	S	*	R

7.	Process Control Plan	R	R	S	*	R
8.	Gage Repeatability and Reproducibility Report	R	R	S	*	R
9.	Dimensional Results	R	S	S	*	R
10.	Material, Performance Test Results	R	S	S	*	R
11.	Initial Process Studies – Ppk	R	R	S	*	R
12.	Qualified Laboratory Documentation	R	S	S	*	R
13.	Appearance Approval Report (AAR), if applicable	S	S	S	*	R
14.	Sample Product	R	S	S	*	R
15.	Master Sample	R	R	R	*	R
16.	Checking Aids-Gauge List	R	R	R	*	R
17.	Record of Compliance with Jabil - Specific Requirements, if any	R	R	S	*	R
18.	Part Submission Warrant (PSW)	S	S	S	S	R

S = The supplier shall **submit** designated product approval activity and retain a copy of records or documentation items at appropriate locations including manufacturing.

R = Supplier shall **retain** at appropriate locations, including manufacturing, and make readily available to Jabil representative upon request.

* = If required or applicable.

6.4 ELEMENTS

Supplier shall meet all applicable PPAP elements listed in Section 6.4.1 through 6.4.18. For elements which supplier internal review / approval is required (as defined in Part Submission Warrant (PSW)), ownership for review / approval must be finished by supplier assigned representative before submission. Jabil ownership for approval is assigned by each Jabil site.

Notes:

1). Elements from 6.4.1 through 6.4.18 may not necessarily apply to every part number from every supplier, e.g., Design FMEA requirement only applies to the suppliers who have design responsibility/authority; Appearance Approval Report only applies to cosmetic items, etc. Refer to the detail of the elements' requirement in Figure 2 above for more information.

2). If customer requests to use their specific PPAP template for submission, customer requirements will take precedence. Otherwise use Jabil JPPAP template or equivalent supplier template that agreed by Jabil representative. If customer's template misses any elements defined in the JPPAP submission matrix in section 6.3.3. The PPAP owner should communicate it to the customer and add it into the submission requirements if needed.

6.4.1 Design Record

Supplier shall have the design record for the saleable product/part, including design record for components or details of the saleable product/part. Where the design record is

in electronic format, e.g., CAD/CAM math data, supplier shall produce a hard copy (e.g., pictorial, GD&T sheets, drawing) to identify measurements taken.

Typical design record include: 2D drawing (ballooned drawing), functional specification, etc.

Notes: 1). For any saleable product, part or component, there will be only one design record, regardless of who has design-responsibility. The design record may reference other documents making them part of the design record.

2). A single design record can represent multiple part or assembly configurations, e.g., a sub-frame assembly with various hole configurations for different applications.

3). For parts identified as catalog parts, the design record may consist only of a functional specification or a reference to a recognized industry standard.

4). For customer designed parts, if customer doesn't allow to show the design record in PPAP for security reason, a documented waiver should be included.

6.4.2 Authorized Engineering Change Documents.

Supplier shall have any authorized engineering change documents for those changes not yet recorded in the design record but incorporated in the product, part or tooling.

Notes: 1). The Engineering Change(s) must be approved by Customer/Jabil.

2). It only applies to the Engineering Change(s) which *have not been recorded in the design record.*

3). It is acceptable that customer approve it by email. In this scenario, supplier needs to upload the customer approval email to the "Authorized Engineering Change" tab as evidence.

6.4.3 Customer Engineering Approval

Where specified by Customer/Jabil, the supplier shall have evidence of Customer/Jabil engineering Approval. e.g.,

a). Supplier has design responsibility, and customer requires the design records, the supplier must get customer engineering approval before release.

b). For supplier raised ECN(s), the ECN(s) must get customer engineering approval before incorporation into product, part, or tooling. etc.

c). If there is any dimension or specification that can't meet the requirements defined in the design record, Customer or Jabil who has the design responsibility can accept it via the Customer Engineer Approval. Supplier needs to upload the approval records into the Customer Engineer Approval tab in the JPPAP template.

Notes: 1). This only applies to where designated by customer as required.

2). This will utilize the supplier specific format.

6.4.4 Design FMEA

The product design-responsible supplier shall develop a Design FMEA in accordance with, and compliant to, customer requirements.

- For Non-Automotive (IATF) project and Automotive (IATF) project without customer specific requirement to use the AIAG-VDA FMEA template, use the DFMEA template.
- For Automotive (IATF) projects which customer has specific requirement to use FMEA AIAG VDA template, the DFMEA AIAG VDA template (7 steps approach) must be used.

Detailed requirements refer to the instructions in the JPPAP template.

Notes: 1). This only applies to the suppliers who have design responsibility / authority.

2). This will utilize the Jabil template or equivalent format.

3). In E-JPPAP system, when defining the submission requirements, Jabil PPAP owner shall select this requirement manually.

6.4.5 Process Flow Diagram(s)

Supplier shall have a process flow diagram that clearly describe the production process steps and sequence. If there are any production process steps outsourced or subcontracted, they should be identified the process flow diagram. This process flow once submitted and accepted cannot be altered without Jabil approval and resubmission of JPPAP.

Notes: 1). This will utilize the supplier specific format.

2). Process flow diagrams for "families" of similar products are acceptable if the new parts have reviewed for commonalities by supplier.

6.4.6 Process FMEA

The organization shall develop a Process FMEA in accordance with, and accomplish to, customer-specified requirements. (e.g., Potential Failure Mode and Effects Analysis reference manual)

- For Non-Automotive (IATF) project and Automotive (IATF) project without customer specific requirement to use the AIAG-VDA FMEA template, use the PFMEA template.
- For Automotive (IATF) projects which customer has specific requirement to use FMEA AIAG VDA template, the PFMEA AIAG VDA template (7 steps approach) must be used.

Detailed requirements refer to the instructions in the JPPAP template.

Notes: 1). This will utilize the Jabil template or equivalent format.

2). A single Process FMEA may be applied to a process manufacturing a family of similar parts or components if reviewed for commonalities by supplier.

6.4.7 Control Plan

Supplier shall have a Control Plan that defines all methods used for process control and complies with customer-specified requirements.

Notes: 1). This will utilize the Jabil template or equivalent format.

2). Control Plans for "families" of parts are acceptable if the new parts have been reviewed for commonalities by supplier.

6.4.8 Gage Repeatability and Reproducibility Report

Supplier shall execute the GR&R analysis for the measurement instruments that used to measure the CTQ features which identified in the design record (typically the ballooned drawing). If no CTQ features were identified in the design record, but there are critical features that will impact the assembly fitting, Jabil PPAP owner should define the critical features for supplier to perform the GR&R analysis.

When an instrument will be used to measure more than one feature in the design record, supplier should select the feature with the tightest tolerance to performance the GR&R analysis.

The recommended level of study is 10 parts * 3 operators * 3 trials. The minimum level of study shall include 5 parts * 2 operators * 2 trials. See JPPAP Templates for additional information.

ANOVA is the recommended analysis method which is embedded in the JPPAP template. Other analysis methods contained in the AIAG MSA manual can be accepted if agreed by the Jabil PPAP owner.

6.4.8.1 Gage R&R System Acceptability

- % R&R<10% - Gage System is acceptable.
- 10%<% R&R<30% - Gage system is marginally acceptable. Base on customer requirement or control it not to be used for critical characteristics.
- % R&R>30% - Unacceptable, requiring action to improve the measurement system.

NOTE: 1). These are general values. An individual site may establish their own criteria.

2). This will utilize the Jabil template or equivalent format.

6.4.9 Dimensional Results

Supplier shall submit a minimum of three (3) samples of each part or assembly, from each production line, tool and/or cavity, for approval prior to producing production units. Samples shall be taken from normal settings or parameters established by the supplier to be used during normal production.

Supplier shall measure all dimensions (except reference dimensions) / characteristics and evaluate the compliance to all requirements that are stated as "Notes" in the design record (typically, ballooned drawing).

The submission shall include components and sub-assemblies supplied by supplier's own suppliers and/or sub-contractors and shall be produced by means following the referenced production Process Flow Diagram and Control Plan from the JPPAP.

Each sample must be numbered and supplied with data taken on each dimension (from each sample) identified on the print. In the case of multi-cavity tooling, samples must be segregated, and measurements recorded individually by cavity.

If the values identified in the Dimensional report do not meet the requirements as defined on the piece part print, the Supplier must notify Jabil Representative via the PSW's block titled "Submission Results" and the Deviation and Action tab.

If the parts fail to meet any JPPAP requirements, a waiver / deviation with cause analysis and corrective action must be applied and approved by customer.

Supplier shall identify one of the parts measured as the master sample.

Notes:

1). Actual sample size should follow customer or Jabil sites requirement.

2). This will utilize the Jabil template or equivalent format.

6.4.10 Material, Performance Test Results

Supplier shall submit the records of material and/or performance test results for tests specified on the design record, via supplier-specified format.

6.4.10.1 Material Test Results

Supplier shall perform tests for all parts and product materials when chemical, physical, metallurgical and/or surface finishing (plating, coating, painting, etc.) requirements are specified by the design record.

Material test results shall indicate and include:

- the design record change level of the parts tested.
- any authorized engineering change documents that have not yet been incorporated in the design record.
- the number, date, and change level of the specifications to which the part was tested.
- the date on which the testing took place.
- the quantity tested.
- the actual results.
- the material supplier's name.

6.4.10.2 Performance Test Results

Supplier shall perform tests for all parts or product materials when performance or functional requirements are specified by the design record or Control Plan.

Performance test results shall indicate and include:

- the design record change level of the parts tested.
- any authorized engineering change documents that have not yet been incorporated in the design record.
- the number, date, and change level of the specifications to which the part was tested.
- the date on which the testing took place.
- the quantity tested.
- the actual results.

Notes:

1). Lot # of material that manufacturer provided the material certification must be the same as the physical lot used for PPAP parts.

2). The material that supplier used for material certification, test report and Safety Datasheet must be the actual material that stated in PPAP, although drawing may allow alternative material(s).

3). Include details outlining every test, e.g., when it was performed, how it was performed and the result, if design record requires specific testing, such as hardness, coating adhesion, etc.

4). This will utilize the supplier specific format.

6.4.11 Initial Process Studies - Ppk

The critical process control and/or significant dimensions (characteristics) for the capability studies are identified and/or agreed between supplier and a Jabil/Customer representative on the engineering documentation such as drawings, specifications, specific requirements and others. The study shall be done on a minimum sample of 30 random pieces taken from a minimum population of 300 and should be submitted using the form in the JPPAP Template document or Jabil approved equivalent. In the case of multi-cavity tooling, samples submitted, Dimensional Result(s), and capability studies are to be ran and measurements identified as per each cavity or tool. If expected production or quantities of parts ordered do not lend themselves to the 300 pieces minimum sample population, then written authorization is required from Jabil Representative.

Cpk – The capability index for a stable process. The estimate sigma is based on *within subgroup variation* (R-bar/d2 or S-bar/c4). Cpk is an indicator of process capability based on process within each subgroup of a set of data. Cpk does not include the effort of process variability between subgroups. Cpk is an indicator of how good a process could be if all process variation was to be eliminated. Therefore, use of Cpk alone may be an incomplete indicator of process performance.

Ppk – The performance index. The estimate of sigma is based on total variation (all of individual data using the standard variation [root mean square equation], "s"). Ppk is an indicator of process performance based on process variation throughout the full set of data. Unlike Cpk, Ppk is not limited to the variation within subgroups.

Based on this, Jabil selects Ppk as the default initial process study indicator.

Jabil Ppk level requirement is: Ppk >/= 1.67 for A&T and Ppk >/= 1.33 for others. Division or site may set a different Ppk level requirement based on final customer requirements or internal PD (Product Design) requirements. If the statistical data on the capability study does not meet Jabil specified goals, supplier must notify Jabil Representative via the "Parts Submission Warrant". Additionally, supplier shall provide an explanation as to why the finished units do not meet the requirements with proposed solutions, which could include containment efforts (e.g., 100% sorting /screening) to enable the process to be classified as capable.

If the Customer requires, the results of Form, Fit & Function tests performed by supplier might drive drawing and/or tolerance adjustments to meet Ppk requirements. After dimensional adjustments, supplier is responsible to meet and maintain their process capability within specified ranges and re-submit JPPAP.

Notes: This will utilize the Jabil template or equivalent format.

6.4.12 Qualified Laboratory Documentation

Inspection and testing for PPAP shall be performed by a qualified laboratory as defined by customer (e.g., an accredited laboratory). The qualified laboratory shall have a laboratory scope and documentation showing that the laboratory is qualified for the type of measurements or tests conducted.

When an external/commercial laboratory is used, supplier shall submit the test results on the laboratory letterhead or the normal laboratory report format. The name of laboratory that performed the tests, the date of the tests, and the standards used to run the tests shall be identified.

Notes: This will utilize the supplier specific format.

6.4.13 Appearance Approval Report

For all submissions dealing with part cosmetics, samples should accompany or follow the warrant and PPAP data. Samples should be submitted to Jabil Design Engineering or Site SQE or other designated appropriate Jabil personnel for approval for initial product launches (NPI). Signed copies of the approval document(s) along with the sample(s) signed by Jabil Design Engineering / SQE, for which the document represents, shall be maintained on file at each of the supplier's sites which manufacture the part. Note: Samples are returned to the supplier for reference. Jabil site shall decide on any sample retention at site and its duration based on any customer or sector requirements, as applicable. Note: Sample size in such cases should not be less than 2

For guidance on the application of cosmetic standards, Jabil customer standards have priority. If no customer standards exist, reference Jabil Workmanship Standards For Systems Integration,00-QS60-1000-003.

Notes: This will utilize the Jabil template.

6.4.14 Sample Production parts

Supplier shall provide sample products as specified by Jabil. Refer to 6.4.9 and 6.4.13, and/or other sample products required by Jabil Representative. These samples must be produced with the same conditions as production, such as, same process / material / machine / tool / parameter setting, etc., unless Customer Waiver exists.

6.4.15 Master Sample

Supplier shall retain a master sample for the same period as the production part approval records, or a) until a new master sample is produced for the same customer part number for customer approval, or b) where a master sample is required by the design record, Control Plan or inspection criteria, as reference standard.

The master sample shall be identified as such and shall show the customer approval date on the sample. Supplier shall retain a master sample for each position of a multiple cavity die, mold, tool, or pattern, or production process, unless otherwise specified by Jabil.

Supplier shall submit the pictures of the master sample in the JPPAP template to Jabil as evidence.

6.4.16 Checking Aids - Gauge List

Supplier shall retain a master gauge list (or submit if required by Jabil), which include all checking aid gauges used for part inspection, measuring and test. Supplier shall certify

that all aspects of the checking aid agree with part dimensional requirements. And supplier shall document all released engineering design changes that have incorporated in the checking aid at the time of submission. GR&R shall be conducted in compliance with requirements defined in 6.4.8.

Notes: This will utilize the supplier specific format.

6.4.17 Jabil-Specific Requirements

Supplier shall submit all applicable Jabil-specific requirements which required by Jabil Representative.

Jabil Specific Requirements may include, but not limited to:

Section A - compulsory items when Jabil-Specific Requirements is required.

- Feasibility Report.
- Training Matrix
- Shipping Label and Barcodes
- Packaging Design.

Section B - optional items that PPAP team can select manually.

- RoHS report.
- UL report.
- MSDS.
- Form, fit, function test report.
- Yield report.
- MTD (Metrology Design)
- Attribute GR&R.
- Tooling life and PM plan
- Traceability
- Functional Safety (ISO-26262) – Automotive (IATF) only
- Other requirements defined by Jabil representative.

6.4.17.1 Feasibility Report

Supplier should set up a team to review can the manufacturing process meet all the design record requirements (GD&T, performance specification, etc.) and can the initial process study index meet Jabil/customer requirement.

6.4.17.2 Training Matrix

The training matrix form demonstrate the training / skill status for the personnel related with manufacturing process described in the quality documentation (Process Flow, Control Plan, etc.).

6.4.17.3 Shipping Label and Barcodes

In the shipping label form, supplier provides the outer shipping label, inner box shipping label and the barcode examples in the shipping label tab for Jabil representative review. The label should follow the requirements defined in the Jabil Supplier Manual.

All the barcodes must be verified by scanning, no matter they locate on the shipping label, user manual or elsewhere.

6.4.17.4 Packaging Design

In the packaging form, supplier provides the packaging design documentation for Jabil review. It will include the packaging design details, such as contain material, # of layers, partitions, part orientation, etc.

6.4.17.5 RoHS (Restriction of Hazardous Substances)

Document to prove the materials/parts/products are compliance to RoHS regulation.

6.4.17.6 UL (Underwriters Laboratories) report

A report from the safety organization to show electrical parts/products meet standard usage safety for consumers.

6.4.17.7 MSDS (Material Safety Data Sheet)

Document that contains information on the potential hazards (health, fire, chemical reaction and environmental) and how to work safely with the chemical product.

6.4.17.8 Form, Fit, Function test report

Test report to show parts / products meet identified characteristics without any form fit issue.

6.4.17.9 Yield

Yield report provided by supplier to show it meets the target yield in quotation to ensure no capacity constraint due to low yield.

6.4.17.10 MTD (Metrology Design)

Document illustrating measurement method, measurement equipment, holding fixture, datum, etc. for critical dimensions indicated in component/assembly 2D print/specification.

6.4.17.11 Attribute GR&R

The attribute GR&R form is used to evaluate can inspector make good evaluation to the selected samples (accept conforming or reject non-conforming sample) and the repeatability and reproducibility of the evaluation. It can be typically used for the scenarios:

- Cosmetic evaluation.
- Go/No go gauge evaluation.

6.4.17.12 Tooling Life

Tooling life span is the amount of time a tool can be used before it needs to be replaced.

6.4.17.13 Tooling PM Plan

Tooling preventive maintenance (PM) plan is a structured schedule that outlines regular inspections, cleaning, lubrication, and minor repairs to be performed to prevent failures and minimize unexpected downtime.

6.4.17.14 Traceability

Supplier to provide interpretation of the serial number/identifier.

6.4.17.15 Functional Safety (ISO-26262) – Automotive (IATF) only

When the part is requested (by Jabil or the customer) to meet the ISO-26262 functional safety requirements, the specific deliverables are agreed in the Development Interface Agreement (DIA) 00-OP80-00020 between the supplier and Jabil/customer. The supplier shall add the deliverables to the relevant PPAP elements.

Notes: In E-JPPAP system, when Jabil Specific Requirement required, Jabil PPAP owner shall manually select what specific requirements are required.

6.4.18 Part Submission Warrant (PSW)

Upon completion of all PPAP requirements, supplier shall complete the Part Submission Warrant (PSW). A separate PSW shall be completed for each Jabil part number unless agreed to by the authorized Jabil Representative. Supplier shall verify that all of the measurement and test results show conformance with Jabil requirements, otherwise, supplier must notify the Jabil Representative via the "Parts Submission Warrant" block titled: "Submission Results." And a responsible official of the supplier shall approve the PSW and provide contact information.

Notes: This will utilize the Jabil template, unless customer has special requirements.

6.5 Required Outputs

6.5.1 The required outputs include the PPAP request, submission, review and approval records.

6.5.2 When the E-JPPAP process is followed, all the PPAP request, submission, review and approval (include customer approval, if needed) records will be maintained in the E-JPPAP system.

6.5.3 When other PPAP process is followed, the PPAP records must be retained by the site PPAP team.

7. Risk & Control

7.1 The potential risk of not implementing this process:

7.1.1 Loss of revenue due to not preventing and eliminating potential quality risks at suppliers.

7.1.2 Loss of best problem-solving opportunities.

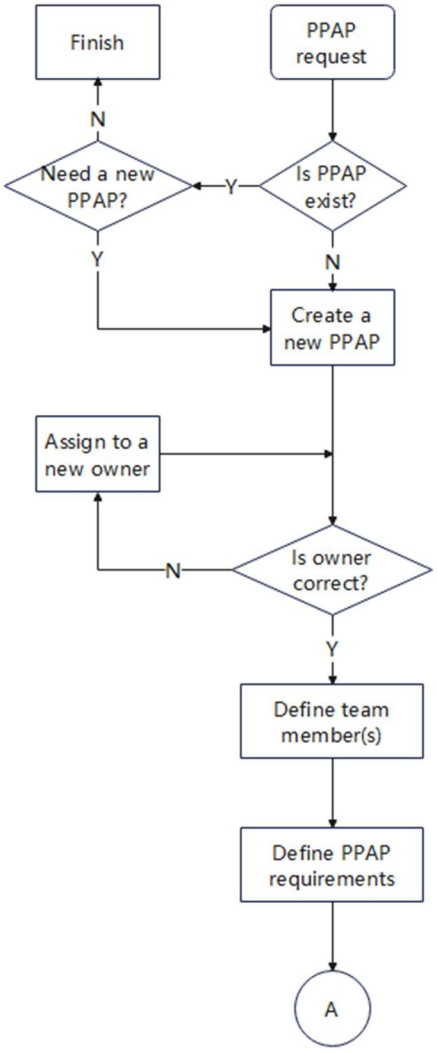
7.1.3 Loss of revenue and new business due to customer dissatisfaction.

7.2 The controls in place for ensuring this process is implemented:

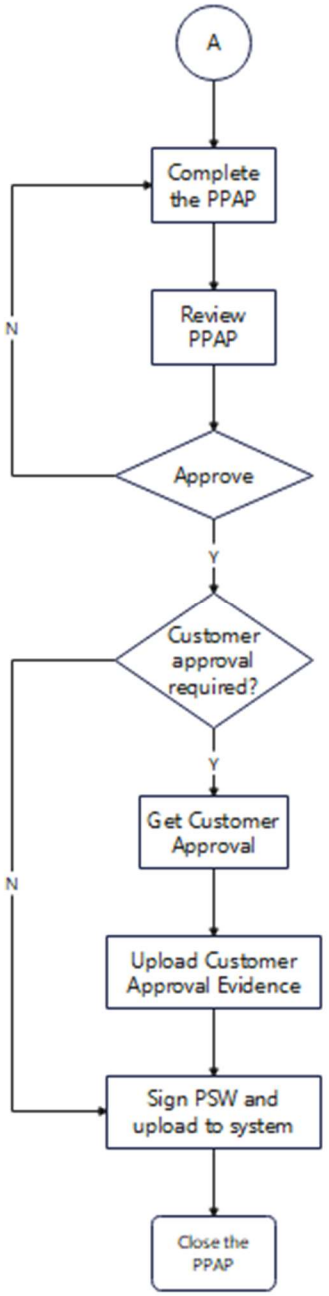
7.2.1 Develop the training course for PPAP requirements and the PPAP electronic system.

8. JPPAP Process Flow Chart

8.1 Process flow of completing PPAP in E-JPPAP system.



Resp.	Activities
Requester	1). Enter MPN. 2). Search existing PPAP.
Requester	Check if PPAP record exist.
Requester	1). Enter part's information. 2). Enter supplier's information. 3). Define owner.
Owner	
Owner	Confirm if the owner was assigned correctly
Owner	Define team member(s) who need to review the PPAP.
Owner	1). Define the PPAP level and submission elements. 2). Select the submission reason. 3). Confirm supplier's contact email. 4). Define the submission time.



Resp.	Activities
Supplier	Submit PPAP as required.
Owner and Team members	Review the PPAP documents and samples submitted by supplier.
Owner and Team member(s)	Approve or reject the PPAP.
Owner and BU	Determine if customer approval needed.
BU	Get the customer approval evidence.
Owner	Upload to system.
Owner	Sign and upload PSW
Owner	

9. Appendix

Appendix A: Examples of commodities require PPAP.

Commodity Names	PPAP Required?	Remark
Antenna	Y/N	BTP Only
Assembly - Finished	Y/N	BTP Only
Assembly - Sub	Y/N	BTP Only
Cable	Y/N	BTP Only
Camera Module	Y/N	BTP Only
Connector	Y/N	BTP Only
Custom Label	Y	
Die Cut Materials	Y	
Display	Y/N	BTP Only
Fan	Y/N	BTP Only
Filter Optical	Y	
Filter - Mechanical	Y	
FPC & FPCA	Y	
Hardware	Y/N	BTP Only
Heatsink	Y	
Keypad	Y	
Lens	Y	
Magnet	Y	
Mechanical Pending	Y	
Metal	Y/N	BTP Only
Misc Assembly	Y/N	BTP Only
Motor	Y/N	BTP Only
Packaging	Y/N	BTP Only
Painting	Y	
PCB	Y	
Photonic Bulk Optics	Y	
Photonic Fiber	Y/N	BTP Only
Photonic Hardware	Y/N	BTP Only
Photonic Jumber	Y/N	BTP Only
Photonic Lasers	Y/N	BTP Only
Photonic Packaging	Y/N	BTP Only
Photonic Subsystems	Y/N	BTP Only
Plastics	Y/N	BTP Only
Plumbing	Y/N	BTP Only
Power Supply	Y/N	BTP Only

Printing	Y/N	BTP Only
Pump	Y/N	BTP Only
PWA	Y/N	BTP Only
Rigid-Flex & Rigid-Flex Assy	Y	
Solar BUSBAR/Ribbon	Y	
Sound	Y/N	BTP Only
Textile	Y	

10. Revisions History & Change Details: *Go back to cover page – click **HERE***

Rev	Date	Originator(s)	Change Details
M	Jul-19-2024	George Zhou	Approvers: Removed Norhissam Hasbullah, William Toh and JH Tan from the approver list. Added Vasko Lingurovski and JianMei Xue to the approver list. Section 2: Updated the PPAP scope in section 2.2 and 2.5. Section 4.2: Defined the primary PPAP requester is site purchasing team. Section 4.3: Defined the primary PPAP owner is site SQE team. Section 4.6: Removed the deviation initiator statement. Section 5.5: Added reference document: A&T Jabil PPAP Checklist RO-RG80-00067. Section 6.4.5: Updated the requirements on process flow diagram to identify the outsourced or subcontract process steps.
N	Apr-22-2025	George Zhou	Section 2: Updated the scope in 2.3, 2.4, 2.5 and 2.6. Section 3: Added definition for SDE, Automotive (IATF), updated definition of feasibility report and RACI. Section 4: Updated the RACI chart. Section 5: Split it to reference documents and supporting documents. Section 6.1: Updated the wording for multiple clauses. Section 6.4: Updated multiple PPAP elements. Section 7: Added the "Risk & Control" section. Moved the original section 7 to be section 6.5.
O	Jun-30-2025	George Zhou	Updated section 2.4 and 2.6 on the scope. Added section 3.14 and 3.15. Updated section 4.1. Updated section 4.6. Removed the original section 4.7 and 4.10