ZERO DEFECTS

SUPPLIER

QUALITY MANUAL

CONTENTS

I -ADVANCED QUALITY PLANNING for Product & Process (AQP.pp)

Advanced Quality Planning for product and process is a structured method of defining and establishing the necessary steps, which supplements supplier quality policy and rules implemented to ensure that a component will comply with U-SHIN requirements.

U-SHIN AQP.pp shall apply to all U-SHIN suppliers listed here below:

Category of supplier	Definition
Designer	Design components, which will be used for U-SHIN specific project and will meet U-SHIN specifications. The supplier-designer is responsible for the definition and as the case may be responsible for the supply of the components.
Manufacturer	Develop a manufacturing process and manufacture a component designed by U-SHIN
Sub-contractor	Manufacture a component designed by U-SHIN using raw material delivered by U-SHIN (only charging hours)
Pass Through Supplier (Handling Component)	Deliver a component directly to U-SHIN Customer or deliver U-SHIN Customer through a warehouse

I.1 AQP.pp Procedure

The Advanced Quality Planning procedure defines the process to be followed to run a supplier project and to go through validation of the design – product and process. This will ensure that the supplier will be in a position to deliver, as of the Start Of Production, the expected level of quality in line with U-SHIN requirements.

The Advanced Quality Planning procedure includes 8 stages (excluding the stage 0 consisting in the supplier pre-selection). Those stages apply to all customer application projects and to components already used in production (product process changes). However, depending of the scenario of the project (Specific, carry over, transfer…) the different documents/checks/validations to be performed will be adjusted to the associated risk.

Those 8 stages are monitored in the module "Product Quality Assurance" (PQA) of the U-SHIN Puma Portal.

The U-SHIN buyer creates the new PQA project (linked to the component number) into PUMA and assign its management responsibility to the identified supplier contacts.

Since then the supplier is required to submit on time the deliverables of each stage to U-SHIN through the PUMA Portal.

The 8 stages of Supplier AQP.pp are linked to the 5 phases of the U-SHIN project development process and are planned as shown below:

U-SHIN PROJECT PHASES AND SUPPLIER AQP.pp STAGES

U-SHIN PROJECT PHASES	**Phase 0**	**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4A**	**Phase 4B**
	Competition Phase	Product/Process Design	Detailed Design and Design Validation	Product/Process Validation	Launch and Process Stabilization	Volume Production

SUPPLIER AQP.pp STAGES	**Stage 0**	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**	**Stage 6**	**Stage 7 & 8**
	Supplier pre-selection	Supplier selection	Supplier nomination	Process Design Validation	Process Validation	Initial Sample validation	Start Of Production / Probationary period	PQA Management Yearly IS submission

However, depending of the product design, technology or project typology, the associated risk may vary. Due to this, the content of each AQP.pp stage will have to be aligned to the associated project risk.

In order to simplify the process, U-SHIN pre-selected 9 different scenarios of project; this will lead to an automatic set up of PUMA PQA project and so requesting only the optimized deliverables.

Scenario Names	Scenario descriptions
Specific	Used for all projects where a new part must be developed / manufactured under specific U-SHIN design / Specifications.
Carry-Over New Project	Used for pure Carry-over projects. This means reuse of one serial part for a new U-SHIN project: same part design, same serial process and same supplier. It can be used even if it is for a new U-SHIN factory.
Carry-Over new tool	Used for the development/ validation a new tool which will manufacture a serial product already validated and by the same supplier. If the new tool is linked to a product design change and/or supplier change, scenario “Specific” must be chosen.
Carry-over transfer	Used for the transfers of one serial product (with no design change) from a supplier A to a supplier B
Carry-over modification	Used as soon as a product design or process design change happen during the serial life.
Carry-Over refurbishment	Used for the validation of a tool refurbishment, with no product design change and no supplier change
Catalogue	Used for catalog products. Meaning product manufactured under supplier or generic specifications
Directed	Used for the validation of products developed and manufactured by supplier imposed by U-SHIN customer (A RASIC matrix shall be defined between U-SHIN –its Customer – Its supplier).
Delivery transfer	Used for the validation of the transfer of an assembly line from U-SHIN factory A to U-SHIN factory B. It will open for all components, from any external suppliers, which will be now delivered to U-SHIN factory B. Last yearly PPAP documentation can be re-used.

The scenario to be used will be chosen by the U-SHIN purchaser during the PUMA PQA creation.

Depending on the project PQA scenario, the associated/requested documents will be automatically listed into PUMA PQA.
If one document is not applicable for this specific project, the supplier must obtain a “Non Applicable” status from U-SHIN SQA. However, all documents with a “M” flag are mandatory.

The content / specificity of each AQP.pp stage is described in the following pages.

I.2 AQP.pp Stage 0 – Supplier pre selection

The purpose of this stage is to validate that the performance of a potential supplier complies with U-SHIN expectations and that the supplier:

- Guarantees the reliability of processes and keep records
- Has a process of continuous improvement
- Has a process to continuously capture what has been learned

This is based on :

- A clearly defined quality policy
- An organization capable to assure the quality at all stages of the component life and in line with U-SHIN project development phases
- The willingness to work with U-SHIN in a spirit of partnership and continuous improvement and problem solving attitude

U-SHIN requests each supplier to be IATF 16949 certified by an IATF recognized certification body.

Under specific circumstances (suppliers recommended by OEMs, existing suppliers within QCD targets, catalog components and standardized supplies), U-SHIN could accept ISO 9001 certification only when the supplier succeeds to pass our system and/or process assessments.

The supplier shall ensure that his sub-suppliers also meet the above-mentioned requirements.

Upon U-SHIN request, the supplier shall nominate a PSR (Product Safety Representative) who is in charge of product safety and compliance with statutory and regulatory requirements.

All potential suppliers or supplier intending to be part of U-SHIN Supplier panel for a given segment will be assessed. This assessment will be performed for each new supplier as well as for each new production site of a validated supplier and for a Supplier intending to deliver a component in a different segment than previously validated by U-SHIN.

During this assessment, the supplier shall comply with the following conditions:

- **EVAL audit** achieved with a minimum score of 80% and no red mandatory question. The purpose of the EVAL audit is to identify all risks linked to the process management. This EVAL audit is conducted by U-SHIN Purchasing and SQA engineer according to U-SHIN EVAL questionnaire during a full day audit. It will be based on the actual processes of the potential supplier.
A pre-EVAL questionnaire will be send out to the supplier prior to the EVAL audit in order to allow the supplier to be well prepared.

This EVAL assessment is not scheduled periodically with all U-SHIN panel suppliers – only new suppliers and suppliers belonging to the Top Worst Supplier Program will be assessed.

- **Commodity Check List (CCL) assessment** achieved with a minimum score of 80%. This CCL audit is conducted by U-SHIN SQA and based on the CCL applicable to supplier (one CCL per commodity and updated with the latest lessons learned faced in U-SHIN). Any supplier rated below than 100% will be requested to implement an action plan to achieve a full compliance within 3 months after the initial assessment.

This CCL assessment will be performed regularly on all U-SHIN panel suppliers, during usual PQA process audit, preventive audit or incident problem solving activities.

- **U-SHIN Generic Requirements File signed by the supplier**

►► For each supplier, U-SHIN Purchasing will create the supplier into PUMA portal, and all assessments and results will be recorded into the Puma supplier sheet.

Stage 0 Deliverables	**Suppliers validated into U-SHIN panel**

I.3 AQP.pp Stage 1 – Supplier selection

The purpose of this stage is to:

1. Define the U-SHIN requirements that shall be addressed to the suppliers
2. Pre-select the supplier to launch the RFQ (Request For Quotation)

Definition of U-SHIN requirements

In order to specify adequately the U-SHIN requirements to its suppliers – the U-SHIN project team under the responsibility of the U-SHIN buyer will establish the U-SHIN Specific Requirement Files (SRF). The SRF will include at least:

- Product specifications : set of functional, technical and general specifications including the SPPC list (Special Product and Process Characteristics)
- Project timing and PQA milestones
- Composition of Initial samples
- Tooling and packaging condition
- Quality and logistics targets
- Applicable terms and conditions.

Pre-selection of the supplier to launch the RFQ :

The pre-selection validation is perform during a Pre-SoCo meeting (U-SHIN multi-functional team), who will:

- Verify the pre-selected supplier is part of U-SHIN Panel
- Compare the preselected supplier's performance versus the project / SRF
- Analyze strengths and weaknesses of the suppliers
- Validate the list of Pre-selected supplier to launch the RFQ

►► For each PQA project and each component to be purchased, U-SHIN Purchasing will send the RFQ to the Pre-selected suppliers.

Stage 1 Deliverables	**U-SHIN Specific Requirement File (SRF) Defined** **Pre-selected supplier list validated and RFQ sent**

I.4 AQP.pp Stage 2 – Supplier nomination

The selection of the supplier is perform during a SoCo meeting (U-SHIN multi-functional team), who will:

- Compare pre-selected supplier's performance and answers versus the Requirement File
- Review quality of the answers and robustness of the quotation received
- Analyze strengths and weaknesses of the suppliers
- Select the supplier representing the best choice.

As soon as supplier selection is decided by U-SHIN, component specifications and drawings have to be updated if necessary and released, and Specific Requirement File (SRF) updated accordingly.

►► SRF has to be agreed and signed by supplier, including SPPC list.

►► THEN and ONLY after the SRF has been signed by the supplier, the Nomination Letter can be sent to the selected supplier.

Stage 2 Deliverables	**SRF signed by the selected supplier** **Nomination Letter sent**

I.5 AQP.pp Stage 3 – Design validation

The purpose of this stage is to ensure that product and process quality requirements are met before launching the tool.

►► A design review shall be conducted by U-SHIN SQA and R&D with the supplier following the U-SHIN standards (Sign Off or feasibility commitment documents).
This review shall ensure the robustness of the Design with regards to the Supplier manufacturing constraints, the U-SHIN & Customer interfaces, Customer specifications and SPPC requirements.

During that review, the measurement method shall be agreed between U-SHIN and the supplier.

►► The supplier shall perform a FMEA study and shall include all U-SHIN SPPC (Product characteristics which are either customer interfaces or characteristics affecting U-SHIN or / and OEM assembly – visual aspect – product performance and / or reliability) in the input data.

For each SPPC, whether it is a SPPC listed by U-SHIN or an internal SPPC identified by the supplier after FMEA review, the supplier shall define a relevant control to ensure product/process conformity.
Risk assessment through the SPPC list will define the frequency of those controls to be included in the supplier control plan as follows:

- Poka-Yoke or 100% control
- Statistical Process Control (SPC) follow-up
- At start & end of production + frequentiel checks
- Checks in case of an intervention in the tool or raw-material change
- Initial Samples once per year (Yearly IS)

For characteristics not measured by the supplier, such as raw material composition, inflammability …, they shall be checked at minimum through the sub-supplier's certificate of conformity prior any material release to production area.

The SPPC list must be updated by the supplier and must be approved and signed by U-SHIN.

►► The supplier shall define a validation plan based on the SRF requirements, the Lessons Learned and the DFMEA analysis in case of Designer Supplier. For Designer Supplier, the supplier shall conduct the design validation on prototypes.

The validation plan will list all the testing required on Initial Samples collected during the Full Day Production Run approved by U-SHIN in order to validate the process impacts on the product.

The validation results compliant with the approved plan will be reviewed and signed by:

- The Supplier Quality representative
- The Supplier engineering representative
- The Supplier project coordinator
- U-SHIN R&D

►► Upon validation of Stage 3 by the supplier and U-SHIN, the supplier shall be authorized to kick-off the tooling.

Stage 3 Deliverables	**SRF updated and signed by supplier** **All documents requested in stage 3 validated by U-SHIN** **Tooling launch**

I.6 AQP.pp Stage 4 – Process validation

The purpose of this stage is to ensure that the process developed by the supplier is capable to produce the defined components in compliance with U-SHIN requirements in term of Quality and capacity.

After the First Off Tool (FOT) activity/validation, the complete process of the supplier will be evaluated/validated through:

- Process documentation (Manufacturing, Maintenance plan, Quality checks)
- Measurement report on FOT
- Machine capability (Cm/Cmk) when required by U-SHIN
- Measurement System Analysis (MSA) for attribute and measuring gages.
- FDPR : Full Day Production Run
- Process audit and Commodity Check List audit
- Packaging sheet
- Validation of the product / process of sub-suppliers if applicable (Tier N validation)

- First-off tool: during stage 4, the component out of the off tool has to be evaluated and approved by U-SHIN in terms of dimensional and assembling. If the FOT component is approved at this stage, it is not a final approval of the component. The final approval will be given after Initial Samples submission (in stage 5), out of the Full Day Production Run in serial conditions.

- Product validation plan :
  The product validation plan (defined in stage 3) shall be started by the supplier as soon as the FOT are validated by U-SHIN. Most of the case this validation plan will take weeks and can pass over the date of stage 4 validation. In any case the results shall be available before Stage 5 validation, as mandatory for IS approval.

- Process readiness : The process is ready to be assessed in FDPR and Process audit after the following criteria are achieved :
  - Full and green dimensional reports on minimum 5 parts per cavity
  - A machine capability, when required by U-SHIN, on at least 30 following parts selected in sequence (Cm/Cmk ≥ 2).
  - All control devices are validated through an MSA study
  - All process documentation is validated and available at each workstation
  - All operators are trained and qualified

- Preparation of U-SHIN FDPR & process audit at supplier plant :
  The supplier is required to perform a self-FDPR and pass the Supplier Readiness Assessment (SRA) using for both the U-SHIN FDPR template. The evidence of self-FDPR and SRA must be uploaded in PUMA.
  The supplier shall pass the self-FDPR and comply with all requirements of the SRA prior requesting U-SHIN SQA to organize the U-SHIN FDPR.

- U-SHIN FDPR & process audit at the supplier plant :
  The audit and FDPR are valid only if the process audited is the one that will be used in mass production (equipment and conditions):
  - The FDPR duration must be sufficient to assess the stability of the process (minimum 3 hours of production and 300 components). However, depending on the nature of the component, U-SHIN reserve the right to require the supplier to run longer and more components than here referred.

- The quantity run during the FDPR shall be sufficient to ensure the above criteria in the downstream processes (i.e. surface treatment) which have different production rate.
- The FPDR must include one or several changeover of version (include change of production shift)
- The process audit and CCL audit are perform on the full process (from Incoming to delivery)
- For non-audited shift(s), supplier will have to provide training reports and evidence of compliance at run at rate target.

The process audit will follow U-SHIN questionnaire or VDA 6.3 questionnaire.
The CCL audit will follow the U-SHIN Commodity Check List associated to the supplier segment. Those check list are based on the state of art of the technology and the Lessons Learned by U-SHIN through the past supplier incidents management.

▸ The SPPC list, agreed between both parties in stage 3, identifies at-risk SPPCs based on product design constraints and the manufacturing process variability.

►► Each SPPC classified at risk will require a short-term capability study (Cp/Cpk) performed on at least 30 components selected randomly and not in sequence during the FDPR. Those Cp/Cpk results shall be equal or greater than 1,67 and will have to be submitted during stage 5 for IS validation.

- If the normality of the process distribution data cannot be demonstrated (Henry test – Khi2 – Kolmogorov test) the capability calculation result is therefore statistically not sound and the process has to be considered not capable
- In case capability is not demonstrated, supplier will have to adapt specific control plan, including Poka-Yoke, 100% automatic control... in order to put characteristics under control and meet specification.

▸ Following U-SHIN FDPR/Process audit, the following reports must be issued and uploaded in PUMA :

- FDPR report: conditions, capacity data, quantities produced and rejected, analysis of defects, speed of the production line and status of the global capacity.
- Process audit report
- CCL report

►► The FDPR is validated if the overall process utilization is below 100%. However if overall process utilization is between 85% and 100% a flag is raised and an action plan should be implemented to ensure adequate capacity.

►► The process audit is validated if the score achieved is above 80% without any critical CAR (Corrective Action Request). In case of VDA 6.3 audit, Classification A and overall level of compliance ≥ 90% are required.

►► The CCL is validated if the score achieved is above 80%. However if the score is between 80% and 90% an action plan shall be implemented.

If any of those 3 items failed, the supplier shall define and submit an action plan to U-SHIN SQA. This action plan must treat all the non-conformities (CAR) seen and listed in the 3 reports. This action plan must be implemented within 10 days and must be sponsored by the Top Management of the supplier.

U-SHIN SQA will conduct a new FDPR and/or Process audit and/or CCL audit after release of each supplier CAR.

►► Traceability: Supplier must have a traceability system to trace back any component to the original batch of material (raw-material / primary components) used.
The certificate of raw-material used during FDPR (and so for the Initial samples) shall be uploaded in PUMA by the supplier.

- Initial Samples: Initial samples must be taken during the FDPR and delivered in serial production packaging together with full documentation as specified in the U-SHIN SRF.
  At least 5 Initial Samples must be kept at the supplier for the entire life of the component plus one calendar year and must be accessible by the supplier and U-SHIN at any time.

- Validation of the packaging:
  The supplier shall define a packaging in accordance with the specification in the SRF. This packaging must preserve the quality of the product during handling, storage and transportation. A transportation test shall be perform by the supplier to ensure the packaging efficiency. The setting of the transportation test must be aligned with the real transport route and take into account all parameters (distance between supplier/U-SHIN, type of transport, number of layers…).
  The packaging will be validated by U-SHIN on the first packaging received and on the following document analysis:
  - Packaging sheet
  - Label
  - Substitution packaging definition
  - Test transportation report

Stage 4 **Deliverables**	**Supplier process validated** **Process Audit and FDPR validated by U-SHIN**

I.7 AQP.pp Stage 5 – Initial sample validation

The purpose of this stage is to validate that the component (performance, characteristics, reliability, capability…) comply with U-SHIN requirements and that the process developed by supplier is capable to produce the defined components in compliance with U-SHIN requirements.

Master samples and initial samples file will be archived at the supplier plant during 15 years after the end of lifetime of the manufactured product.
They will be used as reference for comparison on the YIS report.

The supplier will ship the Initial Samples to U-SHIN SQA and will upload his PSW and all requested documents in PUMA.

- Condition of initial sample acceptance
  The Initial sample file is validated by U-SHIN (SQA – Project Team) if all the items listed below are uploaded in PUMA and approved:
  - PSW signed by the supplier and compliant with U-SHIN requirement
  - Process audit – validated by U-SHIN
  - Full Day Production Run validation – validated by U-SHIN
  - Dimensional report – validated by U-SHIN
  - SPPC Characteristics capabilities – validated by U-SHIN
  - Raw material Conformity – validated by U-SHIN
    ►►Conformity of the raw material certificate with Receiving date / Inspection result / Material reference / Mother coil number (if applicable). The Raw material batch number used for the manufacturing of IS parts must be embedded into the Initial Sample Report. This shall allow a clear link between the IS file and the raw material certificate
  - Supplier validation test – validated by U-SHIN
  - U-SHIN assembly test – validated by U-SHIN
  - Functional tests and vehicle tests* – validated by U-SHIN
  - Packaging – validated by U-SHIN
  - Report on subjective requirements (appearance – aspect – Buzz Squeak and Rattle noise) if applicable – validated by U-SHIN
  - IMDS Database data entry completed – validated by U-SHIN
  - YIS frequency approved by U-SHIN SQA and recorded in the Control Plan.

  * The supplier validation plan is considered completely executed when U-SHIN has completed its validation respectively on U-SHIN product and on the vehicle. Therefore, the supplier validation is deemed to be successful when U-SHIN and U-SHIN customer have passed their own validation.

  When all the initial sample deliverables have been validated (internal IS report signed by all U-SHIN Project Team Members), U-SHIN SQA will release the PSW signed and send it to the supplier. This is the official IS approval decision.

Stage 5 **Deliverables**	**Initial Sample Report (ISR) validated** **PSW signed and sent to supplier**

I.8 AQP.pp Stage 6 – Start Of Production & probationary period

As soon as the Initial Samples have been approved by U-SHIN, the supplier is allowed to deliver the components to U-SHIN according to the needs and to the logistic protocol as well as to the requirements of this chapter. This is the serial production phase.

The supplier is fully responsible to deliver according the specifications and in line with the approved ISR.

All manufacturing records linked to the Control Plan execution on Safety & Regulation characteristics must be available & readable during 15 years after the end of lifetime of the manufactured product.

- Probationary period

U-SHIN requires in this stage the implementation of a Reinforced Control Plan by increasing the frequency of the control plan as validated in Stage 4.

In addition, a ramp up Control Shipment Level 1 (CSL1) at the supplier plant must be implemented during a 3 months-period following the Start of Production (SOP) and a 6 months-period in case of a pass-through component. This must be made out of the production line area in a dedicated zone following a specific CSL1 instruction approved by U-SHIN.

The conditions to exit the Probationary period are:

- **Zero** C1 / C2 incidents
- **Zero** defect detected in CSL1
- TLR (Total Line Rejects) performance is not increasing during the last 3 months
- Long term Capability results (Pp/Ppk) on each SPPC at risk equal or greater than 1,33
- All suppliers' action plans must be closed.

►► If the conditions above are achieved within a 3 months-period (6 months in the case of a pass-through component), the PQA status is granted and the validation of Stage 6 in PUMA portal formalizes the notification of PQA status achievement allowing the supplier to deliver to U-SHIN with the inspection agreed in the control plan for mass production.

►► If the conditions above are not achieved within a 3 months-period (6 months in the case of a pass-through component), U-SHIN will request to supplier to implement a Control Shipment Level 2 (CSL2) for 1 month renewable. This activity will be handled by a sorting company contracted by the supplier and approved by U-SHIN.

Stage 6 **Deliverables**	**Product Quality Assurance Status granted**

I.9 AQP.pp Stage 7 – Product Quality Assurance management

When a component is granted the Product Quality Assurance (PQA) status, the component is no longer subjected to a probationary control period.

Any Non-Conformity related with the delivery of parts without respecting the requirements agreed is subjected to a deviation request raised by the supplier prior to the shipment and approved by U-SHIN, using the Supplier Deviation Submission Request template.

All PQA component deliveries must be identified with a PQA label on each container box.

Upon request, the supplier must provide U-SHIN with the results of inspections carried out for each batch delivered.

►► Case of PQA status suspension (See chapter II.1)

After analysis of the causes, loss of PQA is confirmed for the component involved if a specific process and/or design is found to be at fault.

When PQA status is lost – the supplier must took off PQA identification and when applicable identify with a label on each box and container, the level of control shipment (1 or 2) requested.

If the conditions agreed to remove the PQA suspension are achieved, the PQA status is recovered. U-SHIN SQA authorize the Supplier to re identify boxes with the PQA label.

►► Case of a product, process modification or transfer of a supplier production line (see Chapter II.5) – the PQA status is therefore lost and a new PQA will be opened and will need to be re-granted going through the stages 2 to 6 of the AQP.pp.

Stage 7 **Deliverables**	**PQA status maintained**

I.10 AQP.pp Stage 8 – Yearly IS submission

As required in the IATF 16949 standard, full dimensional report and functional testing must be carried out on all products in accordance with customer specifications.

Note: the product requalification can be performed per product group (family) only with U-SHIN SQA agreement.

The Yearly IS content and frequency shall be defined in the supplier control plan and agreed with U-SHIN SQA at the initial IS validation stage.

If this has not been specified, by default, full dimensional report, capability studies and functional testing must be carried out once a year.

The sampling rules for full measurement and capability studies are the same as for the initial IS submission.
Where tooling has multiple cavities, the supplier shall carry out full measurements on at least one part from each cavity, with a minimum overall sample of 5 parts.

All documents shall be uploaded through PUMA portal in the stage Yearly IS submission of the relevant PQA, such as:

- Full dimensional report,
- Capability studies on relevant SPPC,
- Raw-material certificate,
- Performance test report when applicable.

Note: the quality data collected during the last 12 months for the purpose of SPPC checks during production can be used for capabilities calculation.

In case of deviations, all relevant U-SHIN sites must be informed immediately with a risk analysis and action plan to back on track to conformity.

Stage 8 **Deliverables**	**Product conformity sustainably achieved**

II -CONTINUOUS QUALITY IMPROVEMENT

The Generic Requirement File (GRF) and Specific Requirement file (SRF) are giving the details of suppliers' objectives in terms of Quality and Delivery Performances.

A Quality Improvement Plan (QIP) is required from suppliers to achieve the level of Quality and logistic required by the automotive industry.

The development of new business between U-SHIN and a supplier depends on the achievement of the Quality and Logistics targets and on the implementation of a formal Quality Improvement Plan (QIP) to meet the Zero incident in U-SHIN and U-SHIN customer.

In this chapter, focus is done on:

- Incident processing
- Quality and Logistic performance indicators
- Supplier Quality Improvement Plan
- Supplier development and follow up
- Product and process change management rules
- Audits and audit schedule.

II.1 Incident processing

The supplier shall notify all affected U-SHIN plants within 24 hours or sooner in the event non-conforming product has been shipped.

All incidents will be managed trough PUMA Claim management module. Automatic notification will be sent by the system to the supplier.

The suppliers shall exclusively use the U-SHIN 8D template and shall answer through the PUMA Portal (uploading the updated 8D template).

- Definition of Quality incidents:

Category	Signification	Definition
WR	The problem affects the car end-user	Any reject occurring "in the field" that is caused by a non-conformity on a component delivered by a supplier
C1	The problem affects U-SHIN external customer	Any line or end of line reject at the customer or customer complaint that is caused by a component delivered by a supplier
C2	The problem is discovered in U-SHIN plant	Any single component rejected from U-SHIN plant : Non-conformities identified in the manufacturing process or at incoming inspection
CP1	Same as C1 but issue occurring before Initial Sample approval	Issues identified during the development stages
CP2	Same as C2 but issue occurring before Initial Sample approval	Issues identified during the development stages

►► Reoccurrence definition:

- An incident is recurrent if, on the same supplier, same component, defect's root cause is the same as one other incident opened in the last 24 months.
- During the declaration in PUMA by U-SHIN, an incident can be opened as recurrent if the defect is the same defect as one other incident in the last 24 months. Once the root cause is known (PD step), the recurrence is confirmed or infirmed.
- For WR incident, the dates to be taken into account are the manufacturing date and implemented action plan date.

►► Administrative fees and charge back

The Generic Requirement File (GRF) specify the associated administrative fees of each incident category. This fee is to cover the administrative costs supported by U-SHIN in order to manage the supplier incident. This fee will be charged back to the supplier with all the other costs supported by U-SHIN (sorting, premium freight, customer penalties, etc…)

▸ Definition of Logistic incidents

Category	Definition	Location of the logistic perturbation and example of incidents
L1	The logistic incident affects the U-SHIN external customer or end-user	Customer Service Rate impacted due to shortage of part deliveries leading to have a risk of customer line shutdown
L2	The logistic incident affects the U-SHIN production lines	Production line shutdown at U-SHIN due to shortage of part deliveries
L3	The logistic incident affects the Incoming Logistics (Receiving/Warehouse) organization	Perturbation detected at U-SHIN receiving : • Delivery made by premium freight • Parts received at U-SHIN plant are not compliant with supplier's promise, according to U-SHIN pick-up order • No respect of delivery window. • Errors on delivery documents or missing (written or electronic information (ASN), handling unit identification • Damaged delivery

- Incident processing

When a defective component is identified, U-SHIN will notify the supplier responsible of the incident using the claim management module of PUMA Portal. The supplier will have to answer through the 8D template and upload it updated at each step (Puma page) of the incident.

The 4 solving steps of an incident are:

- **QR** : Quick response – from **D1 to D3** of 8D methodology : Problem description and containment
- **PD** : Plan Do – from **D4 to D6** of 8D methodology : Root cause analysis and action plan
- **CA**: Check Act – **D7** of 8D methodology : Corrective action effectiveness
- **CI** : Continuous improvement – **D8** of 8D methodology : Lessons Learned / closure

All suppliers are required to install broadband Internet and to systematically consult and make use of U-SHIN PUMA Portal and associated documents. The suppliers shall ensure that they have, at any time, a Quality contact with an access/Knowledge to U-SHIN PUMA Portal. New contact can be created directly in the PUMA Portal and training modules are available on line.

The supplier reactivity to answer the claims is measured and automatically recorded in PUMA. U-SHIN reactivity requirements are as following:

- **Quick Response** : Within **1 working days** of the notification
- **Plan Do** : Within **7 working days** of the notification
- **Check Act** : Within **14 working days** of the notification
- **CI** : Within **30 working days** of the notification (after **LLC stability rate** submission)

In the case of a C1 or WR incident category, the supplier is required to present to U-SHIN plant the analysis. Physical presence will be required when necessary. All answers (QR, PD, CA & CI) must be formalized in English.
A process audit could be conducted by U-SHIN SQA prior to incident closure.

In case of C1 or recurrent incident, the supplier shall perform a Reverse FMEA on the station where the defect is coming from.

Each category of incident must not be closed without submission of LLC Stability Rate.

►► Cancelled incident:
If the 8D analysis concludes the supplier non-responsibility then the supplier incident is cancelled.

For any sorting activity requiring a sub-contractor, the Supplier shall select a sorting company approved by U-SHIN. Supplier shall ensure that the organization of the sorting enable an immediate communication of any relevant information (including method, Quantity to be sorted, sorting results) to U-SHIN SQA at any time. All costs linked with the sorting, including sorting company costs, are chargeable to the Supplier.

►► Sorting at U-SHIN plant: the Supplier shall mandate a sorting company within the first 2 hours following the incident notification in order to ensure that U-SHIN is secured latest 4 hours following the incident notification to the Supplier. In case of delay, U-SHIN will contract directly a sorting company and shall charge back to the supplier all related costs.

NEW

- Field Failure Analysis / No Trouble Found (NTF):

  The supplier must implement a warranty management process to systematically analyze parts returned from the field.

  This process must comply with the requirements of VDA volume “Field Failure Analysis & Audit Standard”.

  Tests and its sequence (e.g. standard test, failure-oriented test, test under load) must be jointly agreed on.

  If NTF status is declared, the supplier must describe and document in the 8D report how did he come to this conclusion.

  Unreasonable number or ratio of OK based on parts analysis can lead to a NTF process upon U-SHIN or its customer request where all potential root causes must be investigated and eliminated.

II.2 Quality and Logistic performance indicators

All indicators are evaluated in PUMA and visible in each Supplier scorecard. All suppliers have access to their own scorecard directly in their PUMA supplier account. The supplier shall organize itself to visit regularly PUMA scorecard and follow its own performance regarding U-SHIN. U-SHIN will not send any scorecard to its suppliers.

- **Quality indicators**
  The Quality performance of the suppliers will be measured with the following indicators based on monthly and 3 rolling months:

	Quality overview
Quality	Supplier ranking : sum of all the claim weights on the last 3 months $Supplier\ Ranking = \sum_{Last\ 3\ months}^{All\ claims} (CW \times R + QNC \times 0,2)$ • The Claim Weight (CW) - **WR** claim, **CW = 10** - **C1** claim, **CW = 10** - **C2** claim, **CW = 5** • The Recurrence* (R) - **Recurrent** claim, **R = 2** - **Non recurrent** claim, **R = 1** • The number of bad parts (QNC) - Added with a factor of 0,2 limited to 50 QNC, all quantities above will be cut. – Ex 1000 parts will count only 50.
Quality	• C3M : Number of total incidents (C1+WR+C2) on the last 3 months • % of Reactivity : QR within 2 days , PD within 7 days & CA within 14 days

- **Logistic indicators**
  The Supplier Delivery Performance indicator reflects the non-performance level of the supplier regarding the Supply Chain efficiency.

	Logistic overview
Logistic	**L3M** : Number of total incidents (L1 + L2 + L3) on the last 3 months
Logistic	**Supplier Service Rate : SSR** It measures the ratio of the Number of "pick-up order" Lines On Time In Full against the Number of "pick-up order" Lines Requested; This indicator is measured in %, called SSR (Supplier Service Rate), and calculated as following: SSR = NLOTIF / NLR in % NLOTIF : Number of "pick-up order" Lines On Time In Full: • Right quantity : quantity delivered/picked-up = quantity ordered • Right time : at the time slot defined in the pick-up order • Right place : at the place defined in the pick-up order NLR : Number of pick-up order Lines Requested by U-SHIN • A pick-up order line is: 1 supplier, 1 pick-up order, 1 part number, 1 quantity ordered, 1 time (date/hour); This indicator is measured at each delivery, against each pick-up order; SSR consolidated = (Σ of all NLOTIF) / (Σ of all NLR) in %

II.3 Supplier Quality Improvement Plan (QIP & RFMEA)

QIP

In order to achieve the Targets defined in the Generic and Specific Requirements Files, the supplier shall define and deploy a formal Quality Improvement Plan (QIP) based on a continuous improvement strategy.

This plan shall be updated at least yearly.

The QIP shall address all performance tracking indicators defined and non-conformities (declared by U-SHIN and/or found internally as a risk to affect U-SHIN). The supplier shall analyze, with facts and data, the performance and situation on the previous period based on the following questions:

- What was the performance reached in the previous year compared to the target?
- What improvement actions were done and what efficiency has been obtained?
- What is the root cause explaining the gap between results and targets?
- What needs to be done in the next period to reach the targets?

This analysis shall take into account the Lessons Learned from the previous incidents as well as the weak points in the manufacturing process and in the management identified during all kind of audits (Internal or external).

Based on this analysis, the supplier shall define the strategy and the detailed action plan to be deployed for the coming year, specifying actions, lead-time and responsibilities.

U-SHIN can request this QIP at any time and will assess it during the different visit. This QIP will be particularly followed during the Top Worst Supplier program (see Chapter II.4)

RFMEA

In addition, U-SHIN requests its supplier to deploy the RFMEA method (Reverse FMEA). Each supplier shall deploy the RFMEA and perform at least one RFMEA on each part number delivered to U-SHIN every 3 years.

U-SHIN is offering a theoretical training on RFMEA to its suppliers through Supplier days or SQA engineer visits.

In order to perform this activity the suppliers shall define one or several RFMEA auditor teams and a RFMEA audit plan.

The suppliers shall share its RFMEA plan, RFMEA achievement status and the number of findings/action plan with U-SHIN SQA Engineers.

II.4 Supplier Development & Follow-up

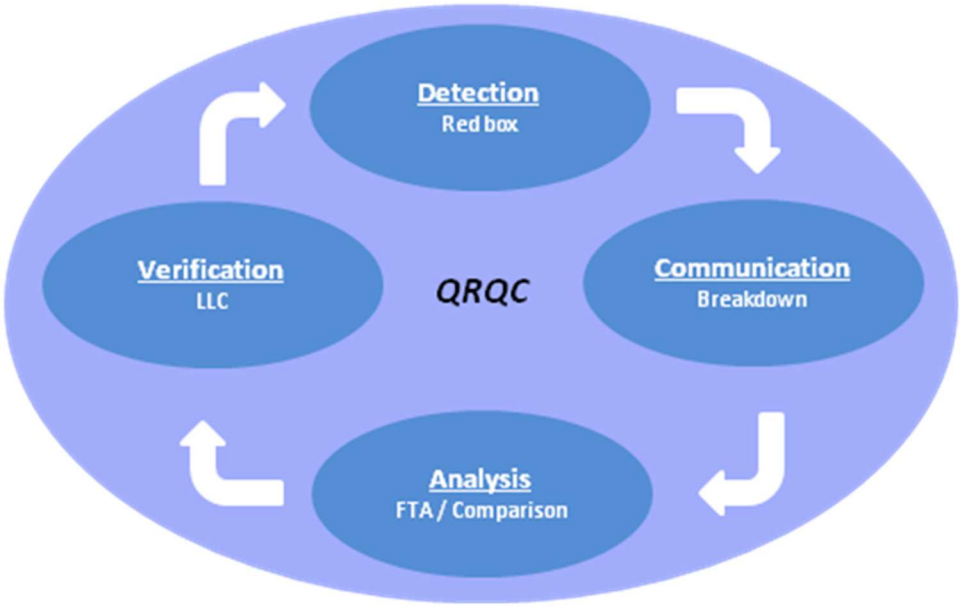
U-SHIN has set up a toolbox to develop and to follow-up the supplier according to their quality performance:

- When the supplier Quality performance is stagnating, the following activities (QRQC Deployment, Fundamentals of Quality) may be launched by U-SHIN.

- When the supplier Quality performance is worsening, the following activities (CLS1/ CSL2, Top Worst Suppliers program, NBOH Status, Phase out) may be launched by U-SHIN.

- **Quick Response Quality Control (QRQC) deployment :**
  U-SHIN may propose to support supplier improvement by sharing the QRQC / PDCA Methodology which is based on 4 principles:

  - Detection: ability to self-detect the problem.
  - Communication: ability to communicate in the right manner (simpler & quicker).
  - Analysis: ability to analyze the problems by comparing good & bad.



- **Control Shipment Level 1 and 2 (CSL1 and CSL2) :**

  CSL1 and CSL2 will be required to the supplier in order to ensure 100% conform deliveries. They will be required while the full recovery of the conformity on the production process or /and the product is not proven.

  ►► CSL1 – Following a request from U-SHIN, the supplier will implement a CSL1 in addition to the control plan of its production.

  The CSL1 will be operated out of the production line in a dedicated area and in accordance with a specific control instruction approved by U-SHIN – Supplier will make available the evidence that operators have been trained to the CSL1 Instructions.

  The performance of the activity will be monitored on a daily basis by the supplier (tally sheet and QRQC Loop). The supplier shall guarantee the conformity of the products delivered during the CSL1 implementation. The cost of CSL1 is at supplier charge.

  When the supplier fails to guarantee the deliveries after a 3 months period, a CSL2 is then required to be implemented.

  ►► CSL2 – the supplier is required to put in place a CSL2 sorting activity by an external company, validated by U-SHIN, in line with criteria defined in the CSL1. The cost of sorting will be at supplier charge. CSL2 sorting results will be communicated to both U-SHIN and the supplier.

  ►► Exit of CSL1 or CSL2: shall be granted by a formal acceptance from U-SHIN and based on achieved performance.

- **Top Worst Supplier Program (Quality or Logistic)**

  U-SHIN has developed a Supplier Quality Improvement Program to improve the Quality or logistic performance of the top offender Suppliers.

  For Quality it is based on the last 3 months Quality performance (Supplier Ranking indicator) and for Logistic it is a mixed of SSR ranking and L3M results.

  U-SHIN will identify the Top Worst Suppliers and will conduct following activities:

  - Invitation letter : U-SHIN will notify the Supplier Top Management to come to U-SHIN
  - Top Management meeting : Presentation of the QIP by the top management of the supplier to U-SHIN, in U-SHIN
  - U-SHIN will check and challenge the implementation and the efficiency of the QIP, verify the deployment of Quality basics (Quality System, Process, Product). This is done through Genba audits.

  The exit conditions of the Top Worst Supplier Program will be decided by U-SHIN and clearly set in the notification letter. To exit the program, the supplier shall achieve all targets agreed.

- **Alert NBOH and NBOH status (New Business On Hold) :**

U-SHIN can decide to raise an Alert NBOH to a supplier for the following reasons:

Quality
- Supplier is not successful to exit from TWS program after second central loop
- Loss of ISO/IATF certification

Logistics
- Supplier is not successful to exit from Logistic TWS program within 4 Quarters

Cost
- Contracted productivity not respected by supplier

Price increase management
- Some price increases are implemented with a unilateral way by the supplier

Project management
- Red launch project - supplier not in line with agreed schedule and other issues jeopardizing project planning

Finance
- Financial health control result shows high financial risk

If there is no improvement demonstrated in the 6 following months after the alert NBOH, a NBOH status can be decided by U-SHIN through the NBOH committee.

►► Supplier Alert NBOH or Supplier NBOH status will be subject to approval of the U-SHIN Purchasing Director and Supplier Quality Director.

- **Phase OUT :**

If the supplier is not showing any quality improvement in front of insufficient performances, U-SHIN may decide to phase the supplier out.

II.5 Product & Process Change Management

The supplier shall communicate to U-SHIN and in a written form, any product or process change intention (design, manufacturing process, material, color ...) **prior to** its implementation, in order to obtain a written approval from U-SHIN to proceed.

If a component subject to a change (previously approved by U-SHIN) is shipped to several U-SHIN sites – each of the sites shall be informed and each U-SHIN site will advise the supplier on the validation to be performed by the supplier to proceed with the change.

Only after reception of a written agreement from each U-SHIN site, the supplier is authorized to implement the change. This change will be managed/validated through a new PQA project (per part number) according APQ.pp process in chapter I.

The following chart lists some examples of product and process changes – this list is not exhaustive:

4M	Definition	Examples of Product Process Changes
Material	Changes on what is used in the components or raw materials or sub-component or raw material source	• Material change from Polyamide ➔ Polypropylene • Packaging material from 3 ply cardboard ➔ 2 plies • Shape of packaging • Label • Change supplier or sub-supplier
Method	Changes on manufacturing method or test/ control methods	• Packaging operation conducted at end of line ➔ packaging operation moved to the warehouse • Automatic process ➔ manual process • Single component processing ➔ batch processing • Temperature in heat treatment furnace • Control frequency change from 100% to 5 at start of production, or vice versa
Machine	Changes on machines, gauges or tools used to produce or test/measure the components	• Change layout of production line, but no change in equipment • Stop supplying U-SHIN from a production site in France, and start supplying from a production site in China • Purchase new press in order to increase capacity • Renovation of old mold • Purchase new test equipment
Man	Changes of the organizational workforce involved in the manufacturing process	• Hoshin activity rebalance from 4 operators to 3 operators • Lower skill set of the operators to reduce direct labor costs • New shift has to be constituted at the supplier to extend capacity

►► Implementation of a Product or Process change by a supplier with no U-SHIN written agreement will be reported to IATF recognized certification body by U-SHIN and the supplier can be put in NBOH status.

II.6 Audits & Audit schedule

During serial production, supplier sites will be re-evaluated by U-SHIN on a regular basis. The different audits performed by U-SHIN are listed in the chart below.

U-SHIN preventive audit plan will be updated every semester. The usual preventive audit frequencies are 1, 2 or 3 years depending of the following criteria:

- Delivery or not of safety or regulation related components
- The sales turnover with U-SHIN
- QMS certification level : IATF 16949 or ISO 9001
- The number of incidents generated by the suppliers during the last 24 months
- The date of the last audit done by U-SHIN at the supplier

A new process audit may be scheduled at any time by U-SHIN.

Type of Audit	Trigger	Leader	Where
EVAL	New suppliers and suppliers entering in Top Worst Management program	U-SHIN Purchasing and SQA	At supplier's plant
Process Audit	For the validation of a PQA stage 4, for Preventive audits or TWS program	U-SHIN SQA	At supplier's plant
Product Audit *	Yearly or according to supplier's control plan	Supplier	At supplier's plant
CCL	EVAL, Process audit, preventive audits and TWS	U-SHIN SQA	At supplier's plant
C1/WR Process Audit	For C1 or WR occurrence	U-SHIN SQA	At supplier's plant
AIAG Special Process Assessments ** CQI-9 Heat Treating CQI-11 Plating CQI-12 Coating	Yearly	Supplier or U-SHIN SQA	At supplier or sub-supplier's manufacturing location

* Supplier to provide results of Product Audit upon U-SHIN request.

** Self-assessment by the supplier or the sub-supplier with qualified assessors, including implementation of corrective actions as required, meets the requirement. U-SHIN reserves the right to audit the process at the sub-supplier on its own initiative in case of major problem or risk.

III -END OF MASS PRODUCTION LIFE MANAGEMENT (EMPL)

End of mass production life management cycle starts when the OEM production will be stopped and when OES production and Aftermarket remain still available.

All along the life of the component, supplier shall ensure that its process is able to manufacture components according to U-SHIN specifications. Whereas, the previous chapters of the manual deal with serial production, the purpose here is to define how supplier make sure that the process is still capable when (and after) switching from mass production to end of life production.

- **Evaluation of potential changes**
  6 months before the departure point of the 'End Of Life' period, the supplier has the responsibility to fill-in the EMPL changes evaluation checklist. This document shall list any process changes that are planned to be executed by the supplier before or while entering the 'End Of Life' period.

  This end of mass production life change evaluation checklist is then submitted by the supplier to U-SHIN. The supplier need a formal approval from U-SHIN to launch changes as defined in the Product and Process change management section.

- **Supplier self-process-assessment**
  One month before departure point of 'End Of Life' period, the supplier shall perform a self-assessment on its process through EMPL process assessment checklist.

  The EMPL process assessment checklist with an updated PPAP shall be then submitted to U-SHIN for approval. The associated PQA shall be managed in accordance with PQA management rules.

  Once End of Life has been validated by U-SHIN, no more systematic yearly initial sample submission is then requested and no more systematic periodical U-SHIN process audit will be performed.

  U-SHIN process audits and initial sample submission will be nevertheless required following a product or process changes occurring at the supplier.

IV- SUPPLIER QUALITY POLICY

The supplier, a professional in its field, is perfectly aware of the demands and requirements of the Automobile Industry, in particular in terms of quality. It is a supplier responsibility to define and implement a quality policy in compliance with this Industry's standards and customary practices, as well as with laws, regulations and standards in force. This U-SHIN Supplier Quality Manual (SQM) shall supplement the supplier quality policy.

Nothing under this SQM may be interpreted as relieving the Supplier from any of its obligations towards U-SHIN and especially its responsibility to deliver the Components in compliance with all documents that govern the relationship between U-SHIN and the Supplier.

Activities performed by each party and especially, inspections, audits, validations, testings and/or approvals made or granted by U-SHIN shall not affect the supplier responsibility concerning the quality and reliability of the components delivered, as well as the compliance with its contractual obligation.

V- ACRONYMS

	Definition
AQP.pp	ADVANCED QUALITY PLANNING for product and process: aim of AQP.pp is provide U-SHIN with all the guarantees concerning the means to achieve product quality. The AQP.pp includes: U-SHIN Requirements File (SRF), Quality Assurance File (QAF), Initial Samples File (ISF) and a Quality Monitoring File (QMF).
CAR	Corrective Action Request
CCL	Commodity Check List
CSL	CONTROLLED SHIPMENT LEVEL 1 and 2: CSL1 and CSL2 are temporary sorting implemented with a view to guarantee certified deliveries while awaiting the re-establishment of the conformity of the production process.
CSR	Customer Specific Requirements (interpretations of or supplemental requirements from OEM linked to a specific clause(s) of the IATF 16949 QMS Standard)
EVAL	U-SHIN supplier evaluation tool taking into account 8 key criteria concerning operational and strategic performances of the suppliers. This grid is used to select as well as to evaluate suppliers (present and potential suppliers).
FDPR	FULL DAY PRODUCTION RUN: Production run to validate the "full capacity / quoted rate" conditions. A sufficient quantity of components shall be manufactured during this day to be considered statistically significant. It shall extend for a period between 1 hour and 8 hours (one shift). At least 300 components shall be manufactured unless a specific quantity is specified in relation to the rate of manufacture.
FTA	Factor Three Analysis: Method to determine which factors influence the product/process and identify the root causes of an issue.
NBOH	New Business On Hold: Any supplier in NBOH cannot participate at U-SHIN RFQ.
PDCA	PDCA (PLAN, DO, CHECK, ACT): is a methodology to settle and solve problems effectively. Based on continuous improvement, PDCA comprises four different steps: Plan: grasp the problem, analyze causes and effects and set objectives. Do: investigate solutions, identify the most effective one and implement it. Check: check the result in comparison to the objectives. Act: set a new standard to consolidate the result and take action to prevent the re-occurrence of the problem.
CP	Control Plan
QCD	Quality Cost Delivery

QRQC	QUICK RESPONSE QUALITY CONTROL: It is a way of management of problems applicable in every area: Production, Projects, Logistics, Purchasing…
RFMEA	Reverse FMEA: A Reverse PFMEA is an on-station review of all failure modes included in the PFMEA conducted by cross-functional team, focused to verify that all failure modes have their proper controls (prevention/detection) and they are working properly. It is also called “Genba FMEA” or “Go and See FMEA”
SPPC	SPECIAL PRODUCT and PROCESS CHARACTERISTICS and measurable characteristics of a component, System or assembly which may have an adverse or degrading effect on the function, quality or reliability if an out of tolerance condition occurs, Measurable elements of the process used to manufacture or assemble a component that have significant impact on the function, quality or reliability of that components.
TOOLING LOAN AGREEMENT	A document attesting to U-SHIN ownership when tooling has been placed at supplier premises for the production of components. This document must be signed by the supplier receiving the tooling or equipment. This agreement addresses the following major aspects: Ownership of tooling, term and termination of the agreement, conditions on the use of the tooling, maintenance and insurance.
TWS	Top Worst Supplier : program to improve the most impacting suppliers

VI- SUPPLIER QUALITY MANUAL REVISION HISTORY

Rev	Date	Section Modified & Description of Change	Author
18	03-August-2022	II.1 : Add requirements for warranty management	B.HEINRICH
17	24-June-2021	I.6 : Add normality of distribution as a pre requisite for valid capability results + content revised in line with SPPC list I.10 : Add Yearly IS submission II.4 : Update of criteria for NBOH Alert & NBOH status II.6 : Cascade to suppliers of applicable OEM CSR (i.e. PSB role, AIAG CQI requirements) Appendix list removed	B.HEINRICH
16	15-July-2020	I.5 : content aligned according to the last SPPC list template II.2 : change of the claim weight for C2 incident in Supplier ranking calculation	B. HEINRICH
15	09-Jan-2019	II.1 : Add of RFMEA after a C1/Recurrent incident II.3 : Add of RFMEA requirement II.4 : Add of Logistic TWS program II.4 : Update of NBOH Logistic condition II.6 : Update of preventive audit frequencies V : Add of RFMEA definition	G. SCHMUCK
14	06-July-2018	Major update of the document : Supplier Ranking, Fire Wall, supplier KPI, PSW use, PUMA 2.0 and PQA Scenarios, claim management update (8D use and lead-time to answer), Capability target adjustment, IATF alignment, preventive audits and simplification of the document – All Sections updated	G. SCHMUCK
13	17-Febr-2016	Add Author & Manual Revision History – section VII	B. HEINRICH
12	12-Nov-2013	Integration of U-SHIN PUMA Portal – section II.1	B. HEINRICH

The last modifications are highlighted by the arrow: NEW

VII- SUPPLIER QUALITY MANUAL Approval

	Redaction	**Verification**	**Approval**
Name	B. HEINRICH	B. HEINRICH	Y. BEDOUET
Title	SQA Director	SQA Director	Head of Purchasing
Date	03/08/2022	03/08/2022	03/08/2022