Q1A
Advanced Product Quality Plan (APQP) & Production Part Approval Process (PPAP)

PURPOSE

A. The purpose of the Advanced Product Quality Plan (APQP) process is for Seller to produce a product quality plan to support development of a product and ensure on-time/on-quality delivery with zero defects to Buyer.

B. An output of APQP is the Production Part Approval Process (PPAP). PPAP provides evidence that all Buyer engineering design record and specification requirements are properly understood by Seller, and that Seller's manufacturing process has the potential to produce product that consistently meets all requirements during an actual production run at the quoted production rate.

NOTE*: This Quality Clause is modeled after AIAG's APQP/PPAP with distinctive requirements for The requirements of this Quality Clause are applicable in full to the PO and to all lower detail parts which comprise the part(s) on the PO. This includes parts/software/firmware manufactured, processed, assembled, tested, and/or inspected at sub-tier suppliers.*

B. This Quality Clause shall apply to new product development efforts and to products currently in production where changes are planned.

C. This Quality Clause shall also continue to apply when previously approved products and processes undergo changes that affect Fit, Form and/or Function (e.g., introduction of a new production process, change to existing production process, change of production source, addition to the existing production sources, etc.).

D. The following items do not require APQP / PPAP, unless otherwise directed by Buyer:

1. Standard hardware and electronic piece parts (e.g., AN, MS & NAS standards; C, M & P standards; 2GNA00001 standard parts; etc.)
2. Commercial off-the-shelf (COTS) items

E. In the case of a conflict between other industry standards and this Quality Clause, this Quality Clause takes precedence.

F. For the interpretation of requirements and guidance in this document:

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1. DEFINITIONS

The terms “Item”, “PO”, “Buyer” and “Seller” used herein have the same meaning as

NOTICE:

1. The goal of Phase 2 is to translate the product requirements, as determined in Phase I, into the product design. In this Phase the intended production processes, potential suppliers and production sources used to realize the product and to design key characteristics are identified.

2. Seller shall ensure that a design risk analysis related to performance (i.e., fit, form, and function), durability, service life, reliability, manufacturability, maintainability, and cost is performed, and that appropriate risk mitigation activities are identified, prioritized, and completed.

3.

NOTE: FMEA is a living document and should be updated accordingly, and reviewed periodically (periodic review at least annually).

4. Process Control Plan
   Seller shall develop a Process Control Plan that defines all methods used for process control and shall include a comprehensive reaction plan (reference AS9103).

NOTE: Process Control Plan is a living document and should be updated accordingly, and reviewed periodically (periodic review at least annually).

5. Process Key Characteristics (KC)
   Process KCs are attributes or features whose variation has a significant influence on product fit, performance, service life, or producibility; and that require specific action for the purpose of controlling variation (reference AS9103).

   Where there are no Buyer identified process KCs, then Seller shall identify process KCs using PFMEA or other sufficient methods in order to establish variation control of product KCs and CIs.

   Key product/process characteristics shall be traceable from their originating document through the process flow, PFMEA, and control plan.

   Seller shall establish the frequency of process KC review for elimination and/or KC addition.

6. Measurement Systems Analysis (MSA) Plan
   Seller shall develop a Measurement Systems Analysis (MSA) Plan. The plan shall establish the analytical methods and acceptance criteria for gages, checking aids, and inspection equipment that require the MSA and the frequency of the MSA to be performed.
7. Manufacturing Process Documenta-6.6 (he) rMS and

3. Preliminary Process Capability
   Seller shall perform initial process capability studies using industry recognized statistical methods. These studies shall be completed for product and process KCs identified within the design record and Seller Control Plan (reference AS9103).

NOTE: Where no KCseo52 Td[m)-6.1T(et)-6.7 (h6ds)qe 7 (e r - l)

C. Product shall be taken from a production run, which shall be conducted at the production site, using the production tooling, gaging, process, materials, and operators representing the quoted or committed production rate.

D. The specific production quantity shall be determined using information from industry standards.

5. PPAP FILE

A. Seller shall develop a PPAP file which consists of all the APQP elements.

B. The PPAP file shall:

1. Be part number specific.
2. Be retained by Seller at the manufacturing location.
3. Be retained and maintained with all applicable items up to date and represent the current production process.

6. APQP/PPAP EXIT CRITERIA

A. The APQP/PPAP will be considered complete when the following are met:

1. Completion of all the APQP/PPAP requirements contained in this Quality Clause, including the completion of the PPAP file containing all the supporting objective evidence.
2. Completion and validation of all sub-tier supplier APQP/PPAP on sub-components, sub-assemblies, and processing, as applicable. This includes documented objective evidence of compliance to PPAP elements as applicable.
3. Successful manufacture, process, test, and inspection of the FAI item, with no defects or nonconformances to Buyer's requirements.

7. RECORDS

A. Seller shall maintain complete records of all the APQP and PPAP documents for the life of the product or for longer periods if specified elsewhere in the PO.

B. Seller shall make such records available for review upon Buyer's request, and forward records to Buyer at no additional cost, price, or fee to Buyer.