TTF-06408

AIRBUS SPECIAL REQUIREMENTS

1. **General:** This module defines the general requirements for quality standards that are applicable to TTF Suppliers for this Equipment and System. This module describes also the structure of the TTF Procedure, clarifies terms, terminology and abbreviations.
   1.1. **Quality System and Aerospace Approvals**: The Supplier shall have a Quality System (QS) certified by a Certification Body accredited by IAQG Industry Controlled Other Party (ICOP) according to TTF mandating plan (this plan also covers Suppliers having already been approved by TTF or by Second Shared Party Scheme.)
      1.1.1. The Supplier shall have Production Organization Approval in compliance with:
         1.1.1.1. European Aviation Safety Agency (EASA) standard i.e. EC 1702/2003 Part-21,
         1.1.1.2. And/or Federal Aviation Administration (FAA) 14 CFR Part-21
         1.1.1.3. And/or equivalent.
      1.1.2. The Supplier shall inform the purchaser of any airworthiness directive affecting its equipment when fitted on Airbus Aircraft.
      1.1.3. The Supplier shall have a Maintenance Organization Approval in compliance with at least:
         1.1.3.1. European Aviation Safety Agency (EASA) standard ie. EC 2042/2003 Part-145,
         1.1.3.2. And/or Federal Aviation Administration (FAA) Standard i.e. 14 CFR Part-145.
   1.2. **Quality Information Required at the Call for Tender**:
      1.2.1. The Supplier encloses with its response:
         1.2.1.1. The "Supplier Quality Assurance" questionnaire, when provided by the Purchaser, duly completed and containing a brief description of their Total Quality Management approach implemented and Objectives.
         1.2.1.2. The copy of the summary of the last Quality system audit performed by and external organization (organization, date, conclusion, and rating.)
   1.3. **Export Licensing Requirements**: When the item is subject to export laws and regulations, and in addition to what is requested in the contract, the Supplier shall send the export form, for export control classification, at request for proposal answer and update it for CDR, LUAR, FFAR, CFAR and any time that PNR changes through development.
2. **Program Management:** This document sets the General Requirements for Program Management that is applicable to TTF Equipment and System Suppliers.
   2.1. **Supplier Development Plan**: The Supplier Development Plan (SDP) is the document used for defining managing and controlling the program. It gathers the planning for the program including all the breakdown structures, the Supplier development Schedule, the way the monitoring and control will be performed, the Program deliverables and all the activities, requirements, risks, assumptions, constraints, and strategies that the Program Leader and its team will coordinate and follow all along the life cycle for the success of the Program.
   2.2. **Breakdown Structure**: The supplier shall demonstrate consistency of all Breakdown Structures with each other.
      2.2.1. Product Breakdown Structure: The supplier shall compose a complete Product Breakdown Structure (PBS). The PBS is a breakdown of the Product (end product and enabling product) in different sub-products according to the technical requirements, including Key Contributing Parties' Product Breakdown. The PBS must be detailed enough in order to support definition of manageable work packages of the whole Work Breakdown Structure.
      2.2.2. Work Breakdown Structure: The Supplier shall compose a complete Work Breakdown Structure (WBS). The WBS is a breakdown of activities in manageable tasks to produce the deliverables. It includes key contributing parties WBS elements with the same level of details.
      2.2.3. Resource Breakdown Structure: The Supplier shall compose a complete Resource Breakdown Structure (RBS). The RBS establishes Supplier and Key Contributing Parties resource needs (quantity per skills, schedule). The RBS covers also shared tools, facilities that will be used for the Program (e.g. non-specific rigs/benches, CAD workstation, Simulation software, external laboratories…).
      2.2.4. Resource Assessment Report: The compliance of the resource need for the given Program with the overall company/corporate capacity shall be presented in a Resource Assessment Report (RAR).

2.2.5. Means and Methods Implementation Plan: The Supplier shall deliver a Means and Methods Implementation Plan. This document will show how to address significant resources (including human resources), facilities, tools, benches, training, and processes which are not in the current perimeter of the Supplier.

2.2.6. Organization Breakdown Structure: The Supplier shall formally nominate a Program Leader from the RFP phase to interface with the Purchaser and take over all the deliverables. The Supplier shall provide an Organization Breakdown Structure (OBS). This OBS is a breakdown of roles and responsibilities of the personnel identified, consistent with the PBS, WBS, and RBS.

2.3. **Supplier Development Schedule**: The Supplier shall assemble a detailed and complete development schedule. The Schedule is in accordance with each WBS element including key contributing parties. It contains Project deliverables, end products and enabling products, data and documentation as requested by the Purchaser.

2.3.1. Risk Management Process: The Supplier shall compose a detailed and complete document describing its Risk Management process. The Risk Management Process describes five major activities: risk identification, risk assessment, actions planning for mitigation, risks/actions monitoring, and risk reporting.

2.3.1.1. Risk Identification and Mitigation Status: The Risk Identification and Mitigation is a continuous activity. The Risk status is the project specific result of the application of the Risk Management process.

2.3.2. Supplier Support Plan: Supplier shall compose a Supplier Support Plan compliant with Supplier Support Conditions (SSC) requirements.

2.3.3. Project Record Sheet: The Supplier shall complete a Project Record Sheet after GRESS Reviews. These sheets will be generated throughout the Project life and contain at least: a description of main events, justification of main decisions, difficulties encountered and their possible solutions, and proposals for improvements.

2.3.4. Product Process Assurance: The Supplier shall describe and plan its Product/Process Assurance activities in a dedicated document.

2.4. **Supplier's Key Contributing Parties Monitoring and Control**:

2.4.1. Requirements towards Contributing Parties: The Supplier shall include and explain all activities deliverables of the Program transferred to key contributing parties in all relevant plans.

2.4.2. Monitoring and Control: The Supplier shall be responsible for the management and control of all of its key contributing parties.

2.4.3. Key Contributing Parties Status Reports and Milestones: The Supplier shall include in his regular reporting the reports of its key contributing parties. The Supplier shall ensure the participation and adequate contribution of its key contributing parties to Milestones with the Purchaser.

2.5. **Obsolescence Management**: The Supplier shall implement a process for preventing (design, component/tools selection, processes), predicting (survey…) and resolving (contingency plan) obsolescence.

3. **Engineering and Manufacturing**: This module defines the General Requirements for Engineering for Manufacturing that is applicable to TTF Suppliers for the Equipment and System.

3.1. **Engineering for Manufacturing**:

3.1.1. Industrial Quality Dossier (IQD): The Supplier shall compose an IQD specific to the Product (Equipment and/or System). The IQD shall be: reviewed during the Plan Review (PR), updated and examined at subsequent reviews, completed at the Critical Design Review (CDR), updated (in case of change) at least up to the IPCA.

3.1.2. Concurrent Engineering: The Supplier shall set up a concurrent design-industrialization policy enabling: early integration of manufacturing, testability, Environmental Stress Screening, supply chain, maintainability... constrains in the development, as well as early adaption of serial production to the Product.

3.1.3. Industrial Risk Analysis Method: The Supplier shall define its industrial risk analysis method. This method shall cover: product risks (with respect to industrialization), industrial process/sub-process risks, including processes related to critical Products, procurement and suppliers risks including all Supply Chain failure modes.

3.1.4. Industrial Risk Register (IRR): In application of the Industrial Risk Analysis the Supplier shall formalize the risk analysis in an Industrial Risk Register (IRR). The IRR shall contain all risks addressing Product, industrial process/sub-process, procurement, and suppliers.

3.1.5. Production of the Products by a Series Production Process: The Supplier shall plan all changes or additional dispositions needed in manufacturing prior to producing the Product in series (component or part changes, tools, means, process, operator's qualification, 2nd source qualification…)

3.1.6. Traceability and Configuration Management: The Supplier shall ensure Product traceability to material, component, and part level (batch level,…). The Supplier shall ensure operator/operation traceability and operation/means traceability. All Traceability requirements will be verified at the Critical Design Review (CDR) and subsequently.

3.1.7. Manufacturing and Inspection Dossier: The Product Manufacturing and Inspection Dossier is a set of data/documents which enable, with reference to the Definition Dossier, the purchase, production, assembly, and testing of a Product. The Supplier shall present the Product Manufacturing and Inspection Dossier at the Critical Design Review (CDR) and subsequently.

3.1.8. Industrial Process Flow Chart "Manufacturing": The Supplier shall establish, for the Product, the Industrial Process Flow Chart of the industrial production process (internal and external) up to shipment and delivery of the Product including: main manufacturing, inspection, and test phases of subassemblies and Product; procurement (related to Key contributing parties); identification of external activities; which and where quality metrics and key characteristics are recorded; the processes requiring qualified operator; a configuration management.

3.1.9. Quality Metrics: The Supplier shall define the Quality metrics which will be implemented in the manufacturing process and give their visibility in the Industrial Process Flow Chart "Manufacturing".

3.1.10. Product, Process and Sub-Process Major/Key Characteristics: The Supplier shall: define a mode of determination of Product, Process, and sub-process major/key characteristics; identify the Product, Process and sub-process major/key characteristics for production; define the monitoring measures of the Product, Process, and sub-process major/key characteristics and associated objectives.

3.1.11. Control of the Manufacturing/Inspection Process and Means: The Supplier shall: set up operator qualifications (specific to the Product); demonstrate that the manufacturing processes and means implemented for the Product are qualified; set up suitable maintenance for the manufacturing and inspection means.

3.1.12. Control of a Major Industrial Change: The Supplier shall inform the Purchaser prior to any major industrial change such as: plant or location layout; transportation method; major Enterprise Resource Planning (ERP) change; top level organization and personnel at key positions; major process (including main tools) changes; major suppliers (including subcontractors) changes.

3.1.13. Labelling, Handling, Storage, Packaging, Preservation and Delivery – Specificity Concerning the Product: The Supplier shall define the handling, storage, preservation, and delivery specificities concerning the Product, subassemblies, components, and parts. This requirement will be verified at the Critical Design Review (CDR) and subsequently.

3.1.14. Production Documentation Retention Time: The Supplier shall control the configuration and store all the documents/data prepared and issued during the Engineering for Manufacturing and Production phases (routing sheets, final acceptance reports, etc.)

3.1.15. Non-Conformities and Root Causes: The Supplier shall provide a detailed description of its method, applicable to the Product, for processing non-conformities root causes analysis. (i.e. 5 why, 8D methods…)

4. **Supply Chain**: This module defines the General Requirements for Supply Chain that is applicable to TTF Suppliers for Equipment and System.

4.1. **Supply Chain Dossier (SCD)**: The Supplier shall compose a Supply Chain Dossier (SCD) specific to the Product (Equipment and/or System).

4.1.1. Organization Specific to the Contract: The Supplier shall appoint a "Supply Chain Manager" per Project Development as defined in the Supplier Program Management Plan.

4.1.2. Industrial Process Flow Chart "Supply Chain": The Supplier shall establish, for the Product, the Industrial Process Flow Chart of the supply chain (internal and external) including: physical flow, information flow, and key contributing parties.

4.1.3. Industrial Process Layout: The Supplier shall compose, an Industrial Process Layout (Spaghetti Diagram), mapping the overall Product flow from the receiving area to the shipping area. This layout should encompass inputs and outputs.

4.1.4. Continuous Improvement: The Supplier shall define its continuous improvement policy. The Supplier shall illustrate this policy based on existing results already achieved.

4.2. **Materials Management**:

4.2.1. Production Management System: The Supplier shall demonstrate its policy and processes to manage the Product Production Planning activities including the following steps: Sales and Operation Planning (SOP); Master Production Schedule (MPS); Material Requirements Planning (MRP); Purchasing and Production Activity Control (PAC). These requirements will be verified at the Preliminary Design Review (PDR) and subsequently.

4.2.2. Use of Purchaser's Data: The Supplier shall verify for integrity and applicability the Procurement Plans sent by the Purchaser prior to manual or automatic input into its Production Management System. These requirements will be verified at the Preliminary Design Review (PDR) and subsequently.

4.2.3. Capacity Management: The Supplier shall demonstrate its policy and processes defined to manage its capacity, including the following steps: Resource Plan, Rough Cut Capacity planning, Capacity Requirement Plan.

4.2.4. Formal Notification of Delivery Schedule: The Supplier shall commit to meet the delivery schedule as per Purchaser requirements.

4.2.5. Backorder Management: The Supplier shall define its backorder management methodology.

4.2.6. Logistic Solutions: The Supplier shall put in place relevant logistics solutions (e.g. kit, Kanban, direct flow, VMI, etc.) to reduce costs and risks over the whole supply chain. This requirement will be verified at the Preliminary Design Review (PDR) and subsequently.

4.2.7. NATO Stock Number: For military programs, the Supplier shall describe its policy and processes to obtain and maintain a NCAGE and NATO stock number for each of its Products and applicable components. This requirement will be verified at the Plan Review (PR) and subsequently.

4.3. **Purchasing Control**

4.3.1. Selection of Supplier and Achievements: The Supplier shall not procure components or parts from brokers (distributors not authorized by the OEM to trade with components or parts). This requirement will be verified at the Preliminary Design Review (PDR) and subsequently.

4.3.2. Cascade of Requirements to the Suppliers: The Supplier shall ensure cascade of the Purchaser's requirements to the key contributing parties (i.e. suppliers, collaborating firms, sub-contractors, or sub-suppliers.)

4.3.3. Procurement/Suppliers Risk Analysis: In application of the industrial risk analysis method, the Supplier shall formalize the Procurement and suppliers risk analysis in an Industrial Risk Register (IRR).

4.3.4. Verification of the Requirements Assigned to the Suppliers: The Supplier shall: ensure that the Purchaser's requirements, assigned to their suppliers, are fulfilled; demonstrate the appropriate management of suppliers related to the Product; establish the associated verification measures (design reviews, industrialization reviews, Product evaluations, evaluation/qualification of special processes, etc.) throughout the Product life cycle. The Supplier shall describe how requirements assigned to its suppliers are verified.

4.3.5. Suppliers Monitoring: The Supplier shall describe its policy and processes in terms of supplier monitoring for Quality and Supply Chain. The Supplier shall provide their supplier's KPI's (quality, delivery,…) with associated objectives.

4.3.6. Recovery and Improvement Actions: The Supplier shall demonstrate that its supplier monitoring includes: recovery plan when needed and continuous improvement policy. This requirement will be verified at the Preliminary Design Review (PDR) and subsequently.

4.3.7. Procurement Triggering Mode: Based on its forecast through MPS and MRP calculation, the Supplier shall flow down their needs to their suppliers using purchase orders and Procurement Plan. This requirement will be verified at the Preliminary Design Review (PDR) and subsequently.

4.4. **Delays and Root Causes**: The Supplier shall give a detailed description of their method, applicable to the product for processing delays root causes analysis.

4.4.1. System/Equipment Management (Compliance Matrix): The System Supplier shall manage and monitor his own Suppliers network in order to secure a full Customer Support service quality level.