Optima Technology Associates, Inc.
515 Fishing Creek Road, Lewisberry, PA 17339
Phone 717 932 5877, Fax 717 932 5878
Optima@optimatech.net
Since 1995, Global Resources, Local Support!

Engineering Evaluation / Design Project Outline

Purpose

1. Define the role of Optima Technology Associates, Inc. (OTA) in the successful design and / or production of customer projects.
2. To explain the necessary interaction between all parties in the design and manufacturing process, including:
   a. The end-customer
   b. The designers (OTA)
   c. Purchasing
   d. Suppliers
   e. Compliance / testing

Process Overview

there are 4 major phases to consider with tasks required and ownership described below

1. Proof of Concept
2. Prototype
3. Design for Manufacture
4. Volume Production / Test

"Proof of Concept" - the goal is to establish if successful completion of the project can meet customer objectives and for OTA to provide an accurate price quote and project schedule. This enables the customer to determine project viability. The major tasks to be performed are:

Product Specification • Generally collaborative • Duration generally unknown so OTA's involvement charged at hourly rate	To enable all parties to agree on desired design results Define basic product functions • Performance criteria • Physical size • Connectors • Fault tolerance and protection • Target cost • Production quantity • Compliance standards required
Scope of Work	Defines role of OTA in project and assigns task responsibility • Component selection / procurement • Prototype costs • Responsibility for compliance testing • Documentation requirements • Test equipment
Design Project Costing	Product specification and definition of work scope enable OTA to provide a written quote / project plan
Feasibility Study	OTA examines the feasibility to achieve specification requirements
Circuit Simulation & Design	OTA devises circuit design to achieve desired functions and performance. Simulation and / or breadboard prototypes may be required and a complete circuit diagram is completed
Initial Bill of Materials	Once the circuit diagram is complete an approximate bill of materials can be generated and projected production costs can be developed

"Prototype Phase" - a small number of functional prototypes are built for evaluation. At the conclusion the customer is supplied with:

- Bill of materials
- PCB source files
- Required test / measurement information on performance
- Assembled prototypes
- List of additional requirements or open issues, if required.

Critical Component Selection	Based on electrical specifications components are selected to meet the mechanical & industrial design. Purchasing evaluates sources and verifies cost and availability
Printed Circuit Board	OTA completes PCB design, fabrication, and assembly. The designer tests and verifies performance of the prototype and makes adjustments or corrections.
Enclosures	If a housing or platform is required the mechanical design is completed and products sourced.

"Design for Manufacture" - OTA develops the product from prototype to readiness for mass production based on the expected annual production quantity. A moderate number of pre-production units should be built to debug / evaluate supply, assembly, handling, and logistic issues. The pre-production units should be fabricated with the final PCB layout, enclosures/metalwork and production tool equipment. These units should be subjected to full testing of all critical parameters for inclusion in your product specifications / marketing literature.

"Volume Production / Test" - Transfer via engineering controlled release to Manufacturing & implementation of production test process which may consist of simple test jigs or fixtures or sophisticated Automatic Test Equipment (ATE). A Scope of Work, similar in nature to the product design brief, must be defined first. This should include PCBA testing, finished system testing, requirements for incoming components, etc.

Summary

OTA's objective is to produce a complete, accurate and timely design for your project. It's our hope that this outline provides our customer's with a brief description of the general tasks required and suggested approach to follow to reach this goal. Please indicate by responding to the following to indicate the status / needs for your project.