Electronics Qualification Guideline

EDM-Q-200

Electronic Assembly Technology Qualification

“A White Box approach”

V1.1

February 2022

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The Electronics Design and Manufacturing Guidelines principles

The Electronics Design and Manufacturing Guidelines are designed to provide all electronic supply chain actors involved in the design, qualification, industrialization and production of electronics practical guidelines to master the multi-disciplinary hardware aspects of electronic module realization and operation in a cost-effective way. The Qualification Guidelines are intended to support the qualification of materials, substrate, components, assemblies to achieve reliable, cost-competitive electronics.
Some of the characteristics of the Qualification Guidelines are:

- The guidelines refer to the relevant industry standards that are predominantly used in the international electronics industry such as those published by organizations as IPC and JEDEC. The guidelines do not replace industrial standards but define or recommend what options in the standards to use and will fill-in gaps if necessary. They provide the basis on which a company/product/product-line or application specific approach for qualification can be defined.
- Scientific argumentation and physical models form the basis of a large part of the guidelines and of the associated tools. This allows the use of the guidelines beyond the boundary of the users' experience domain. Therefore, it provides a powerful product and process innovation aid.
- The Qualification Guidelines will not specify, recommend or exclude specific brands of materials, components, suppliers or products. They define the qualification best practice.
- The Qualification Guidelines are based on verifiable physical models, standards and empirical data.

Qualification Guideline Scope

- This guideline describes the basics of an Electronic Assembly Technology qualification program as defined in EDM-P-200.
- It defines different qualification techniques that are generally applicable to qualification of materials, parts, assemblies, technologies, etc. They are intended to set the basis of a pragmatic approach to qualification.

Acknowledgement

Funding organizations

Agentschap Ondernemen is acknowledged for funding the project VIS-traject InProVoL and the ICON-project Compact (Flanders Make) that provided the basis for this guideline.

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Contributing cEDM partners

Flanders Make – ICON project Compact
On Semiconductor – Daniel Vanderstraeten

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1. Applicable Documents

This Electronics Qualification Guideline refers to the most recent version of the following documents and standards:

2011/65/EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) (recast)
2000/53/EC	Directive on end-of life vehicles (ELV)
ISO/IEC/IEEE 15288	Systems and Software engineering – System life cycle processes
ISO/IEC/IEEE 24748-1	Systems and Software engineering – Life cycle management – Part 1: Guidelines for life cycle management.

EDM-D-001	Rigid Printed Circuit Board Specification
EDM-D-002	Electronic Component Specification for Printed Board Assembly
EDM-D-003	PBA Assembly Material Specification
EDM-D-004	Design-for-Assembly
EDM-D-007	Quality and Test Coverage Quantification. Design-for-Test
EDM-D-008	Technology and Manufacturing Capability Mapping of PBA Designs
EDM-D-012	Mechanical Integration
EDM-D-100	Reliability Quantification
EDM-O-100	Mission Profiling
EDM-P-200	Predictive Product Life Cycle Management
EDM-P-212	New Product Introduction of Electronics

2. Applicability of the Qualification Guideline EDM-Q-200

2.1. EDM-Q-200 describes a White Box approach to Electronic Assembly technology qualification as defined in EDM-P-200, see Fig. 1.

2.2. EDM-Q-200 applies to Electronic Assemblies and all technologies, materials, parts, components and processes it encompasses.

2.3. The main goal of the Technology Qualification is to reduce risk, cost and time-to-market of the New Product Introduction trajectory indicated by the blue arrow in Fig. 1.

2.4. EDM-Q-200 provides a top view on qualification. More detailed technical guidance on the qualification of specific assemblies, parts, etc. is the subject of complementary qualification guidelines.

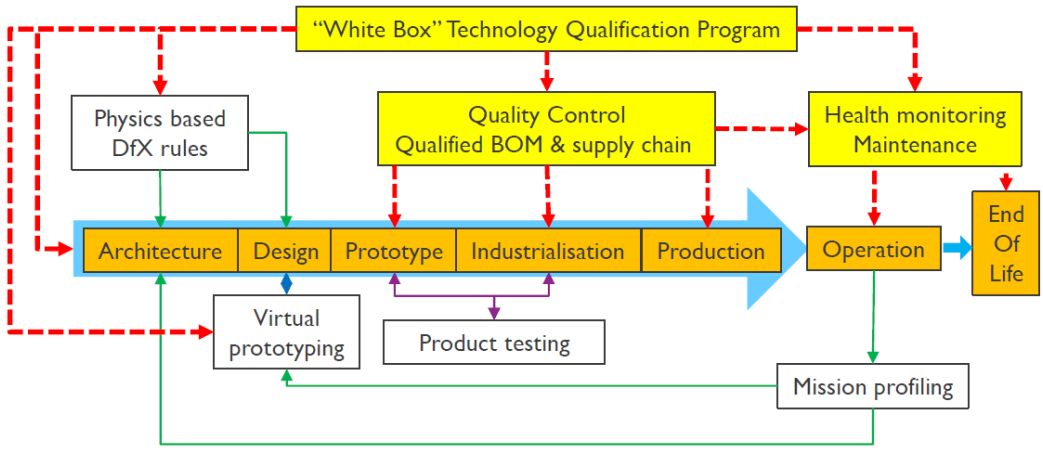

Figure 1: Schematic positioning of the Technology Qualification program with respect to the New Product Introduction flow per EDM-P-200. The Technology Qualification program provides the basis for Design-for-eXcellence rules, product design, product validation, quality control of the supply chain, product health monitoring and maintenance.