

The Object Performance Specification

A template proposal

1. Introduction

1.1. Primary function

A description of the main function of the product.

1.2. Application description

A description of the way in which the product should be applied.
 - External equipment that has to be used
 - Interaction with its environment
 - etc.

1.3. Overview of functions and interfaces

A block diagram of the functions and interfaces that should be included. These functions and interfaces (ports) will be described in more detail in a separate section of the document.

2. Overall requirements

2.1. Environmental conditions

Life-cycle process

	Manufacturing	Testing	Certification	Transport	Storage	Installation	Operation	Service	Demolishment
Temperature									
Shock									
Vibration									
Humidity									
Air pressure									
Cleanroom standard									
Optical									
ESD									
EMI									

whatever is relevant | during any of the life-cycle processes Give values or refer to standards

2.2. Reliability

MTTD diagnose	MTTR repair	MTTF normal operation
MTBF		

2.3. Safety

2.3.1. Human safety

- Injury
 - Accessibility
 - Fire
 - Pollution
 Refer to standards:
 CE, UL

2.3.2. Product safety

- Short circuit protection
 - Overload
 - Over voltage
 - Mechanical damage

2.3.3. FMEA: Failure Mode Effect Analysis

RPN: Risk Priority Number > 300 Critical
 < 125 No action required
 Severity x Occurrence x Detection
 S = 1 ... 10: 1: no problem, 10: dangerous
 O = 1 ... 10: 1: never, 10: very often
 D = 1 ... 10: 1: sure, 10: impossible

2.3.4. Single-point failure:

- Failure does not propagate (cause more failures)
 - Failure does not cause a hazardous situation

2.4. Cost factors

Life-cycle process

	Design	Manufacturing	Testing	Certification	Transport	Storage	Installation	Operation	Service	Demolishment
2.4.1. Methods										
2.4.2. Means										

Methods/tools required | during any of the life-cycle processes Give values or refer to standards Examples: Test tools, IPC standards, PCB classes, tools for repairing and services, etc.

2.4.3. Dimensions Dimensions of the product, referring to a mechanical drawing

2.4.4. Mass Mass of the product

2.4.5. Output to the environment
 Might be relevant during different life-cycle processes
 - Power dissipation
 - Emission (EMI, light, radiation, etc.)
 - Waste

2.4.6. Price Target costs price of the product

3. Physical interface requirements

3.1. Mechanical drawing with physical interfaces

- Connectors
 - Mounting holes
 - Other interfaces to the environment, such as , optical indicators

3.2. Description of physical interfaces

3.2.1. Description of the connectors
 - Type
 - Part number
 - BCB mount / panel mount
 - Description of the pins
 - Number
 - Name
 - Schematic reference RefDes
 - Signal type

3.2.2. Description of display/indicators

- LED indicators
 - Displays

3.2.3. Description of other interfaces

- Jumpers
 - DIP switches
 - Whatever is relevant

3.3. Grounding and shielding concept

Drawing and description of the way of interconnection of the signal reference, the shields and the safety ground with other system parts.

4. Power supply requirements

Description of the required power suppl(y)(ies)

- Voltage range
 - Noise and ripple voltage
 - Over voltage
 - Source/sink current rating
 - Short circuit current
 - Isolation voltage w.r.t. safety ground
 - Additional requirements

5. Functional requirements

Functions that are listed in the introduction will be described in separate sub sections.

5.x. Specification of function x

5.x.1. Description of the function

- A diagram with text explaining the desired behavior of the function.
 - Expressions for input-output relations of the function or of sub functions
 - Performance measures and test methods with pass/fail criteria of the function or of sub functions

5.x.2. Interfaces connected to this function

5.x.2.x. Different interfaces can be described in separate sub sections

- References to interfaces to this function that have been described in (3).
 - Specification of the signals to these interfaces:
 - Voltage / current / impedance / noise level / bandwidth / rise time / fall time / equivalent network / test conditions
 - For indicator use specific descriptions:
 LED: color, display: rows / columns / menu, etc



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