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**Optical Infrared Coordination Network for Astronomy**  
**Opticon**  
**Future Data Analysis Environment**

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**FASE-QMS**  
**Documentation Standards**

**FASE-QMS-TN-0001**

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**DOCUMENT APPROVAL**

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# 1 Introduction

## 1.1 Context

This document proposes some standard practices to produce and handle documentation in the context of the Project FASE...

Software development methods are not considered, however, the proposal is well adapted to iterative or incremental software development methodologies, in addition to the classical waterfall model.

The proposed standard addresses documentation needs of the overall project as well as documentation required by small software teams, for which a subset of the document list is foreseen.

The proposed standard practices are based on ECSS standards, tailored to fulfill the specific needs of the project, trying to minimize administrative workload without compromising the quality of the software products.

As a by-product of the proposed standard, a document identification mechanism is proposed, so that unique code numbers are given to the document to facilitate references and information retrieval. An underlying document system will take care of the proper assignation of the codes in an automated form.

The software envisaged is assumed to be developed in a distributed form, so that several groups participate in different phases of the development and in addition, specific software systems are fully implemented by concrete teams. A central body (TBD) coordinates these activities and look after the quality of the products delivered to the world-wide science community.

This standard has been tailored according to a minimalist principle, so that essential requirements are maintained while administrative overheads in the software development process are reduced, without necessarily reducing the quality of the software products.

With this minimalist principle in mind, it is understood that this guide is applied in parallel with new technologies, so that most of the documents are actually implemented as output products of design tools or are available as results of processing the functional description included as in-line comments in the source code. Test plans are actually procedures and associated input / output data files representing the test cases and test reports are actually generated from output logs of the corresponding test procedures.

Documents and manuals are assumed to be available on-line, via standard browsers accessing a convenient document management system to be identified.

## 1.2 Scope

The proposed standard practices will be applied to all documents generated in the context of the FASE project. The documents are under configuration control and follow a simple review and approval cycle.

Small software teams would require a small subset of the proposed document list. A document management system under the supervision of the central body fulfills the requirements on document tracking. This system does not preclude the usage of other systems for documentation archival and retrieval.

## 1.3 Reference Documents

**RD1** ECSS Software - Principles and requirements (ECSS-E-40).

**RD2** ECSS Software Product Assurance (ECSS-Q-80).

## 1.4 Acronyms

This section will include a reference to the project specific acronyms to be defined (required ?)

## 1.5 Terminology

To be written project-wide...(required ?)

## 1.6 Roles and Responsibilities

**The Project** Core team participating in the FASE project. They produce the complete set of documents as required by the funding organization(s). In addition they coordinate the document review process.

**The Developer** It is foreseen that a number of teams will develop or integrate specific software packages. Minimal requirements on documentation are foreseen in this case as indicated in the final section. Documents delivered by The Developer are submitted to The Project for review.

**The User** Final user accessing the document repository.

## 2 Software Lifecycle

As indicated above, it is expected that the software could be developed using different methodologies, depending of the specific context of the package. This proposal does not preclude the application of incremental, iterative or extreme programming methods.

For reference, we include below the main processes and associated reviews, relevant in the context of documentation (do we need it here ?).

### 2.1 Analysis of requirements

### 2.2 System design

### 2.3 Implementation

### 2.4 Validation

### 2.5 Integration

### 2.6 Acceptance

### 2.7 Distribution

### 2.8 Project Reviews

#### 2.8.1 Preliminary Design Review - PDR

#### 2.8.2 Critical Design Review - CDR

#### 2.8.3 Acceptance Review - AR

## **3 Documentation Deliverables**

### **3.1 Software Development Plan - SDP**

Describes the overall project plan, including schedule, work breakdown structure to the level of work-packages and associated responsibilities.

The document is mandatory for the complete FASE project.

Specific subsystems may require an specific Software Development Plan due to the complexity of the development or because funding / management reasons.

### **3.2 Software Requirements Specification - SRS**

The document describes functional and non functional software system requirements.

The document is mandatory for the complete FASE project. Specific subsystems may require an specific definition of the Software Requirements Specifications due to the complexity of the development or because funding / management reasons.

### **3.3 Interface Control Document - ICD**

Description of critical interfaces for major components of the overall subsystem and interfaces with external environments.

### **3.4 Software Design Document - SDD**

Description of the architectural and software Design. It is envisaged that the document will mainly contain the result of the software design tool used during the design engineering process.

Details of the algorithms and information on the performances are part of this document.

### **3.5 Software Validation and Test document - SVT**

Describes the test plan, as set of procedures to be performed and the result of the test identifying input and output data sets.

Main components of this documents are therefore test procedures and scripts, references to test input and output data sets and logs of the test procedures. It is assumed that this items are available on-line.

### **3.6 Software Users Manual - SUM**

Software users manual available on-line, including specific tutorials as set of procedures demonstrating the capabilities of the subsystem.

It is expected a Software Users Manual for each major component of the system. These manuals are integrated in the complete version as part of the software integration process.

### **3.7 Software Release Note - SRN**

Description of a software release including the identification, modifications and problem fixes, dependencies on other subsystems, installation instructions, etc.

It is expected a Release Note for each major component of the system. A full system release note is then compiled as part of the software integration process.

### 3.8 Technical Note - TN

Documents with technical descriptions, like complex algorithms, or with relevant information not included under the above documents.

## 4 Document Codes

Documents are identified by a code number as follows:

FASE-AAA-BBB-nnnn[-sss]  
(1) (2) (3) (4)

where each field has the following meaning:

- (1) Two or three letters identifying the **area/subsystem** within the project.
- (2) Two or three letters to identify the **type** of document.
- (3) Four digits with the sequential number assigned by the system. This number identified uniquely the document.
- (4) Originator's organization (optional ??).

### 4.1 Area/Subsystem codes

The list below indicates the areas/subsystem currently identified, other areas will be defined in the future, as required.

GEN	General, any other area not covered below.
CAL	Calibration.
INS	Instruments.
OPS	Operations.
xxx	Code xxx identifying a major software subsystem.
PMS	Project management
QMS	Quality management system.

### 4.2 Document types

Within the scope of this procedure, document types are:

SDP	Software Development Plan
SRS	Software Requirements Specification.
ICD	Interface Control Document.
SDD	Software Design Document.
SVT	Software Validation and Test document.
SUM	Software Users Manual
SRN	Software Release Note
TN	Technical Note.

## 5 Final remark on documentation

To emphasize the minimal requirements proposed in this standard it is worth to indicate the following points:

- It is foreseen that the complete set of documents are generated by **The Project**, as required by the funding organization(s).
- **Developers** are only required to produce the following documents:
  - Software Users Manual (SUM)
  - Software Validation and Test document (SVT).
  - Software Release Note (SRN)
- Developers of complex subsystems may need to produce additional documents like specific Technical Notes (TN) to describe algorithms, or Interface Control Documents (ICDs) to inter-operate with other subsystems.