Gestion des exigences

Statut simplifié des documents d'exigences du ROC

D.Bagot – 13/06/2018 – v1.0
Scalian pour le CNES

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CENTRE NATIONAL D'ETUDES SPATIALES

ECSS-E-ST-10-06C
6 March 2009

EUROPEAN COOPERATION
ECSS
FOR SPACE STANDARDIZATION

Space engineering

Technical requirements specification

6.2 Identification of types of technical requirements

6.2.1 Introduction

The differing types of technical requirements contained in the TS are as follows

- functional requirements,
- mission requirements,
- interface requirements,
- environmental requirements,
- operational requirements,
- human factor requirements,
- (integrated) logistics support requirements,
- physical requirements,
- product assurance (PA) induced requirements,
- configuration requirements,
- design requirements,
- verification requirements.

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8 Requirements for formulating technical requirements 24

8.1 General 24

8.2 Requirements for the characteristics of a technical requirement of a TS 24

8.2.1 Performance 24

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8.2.3 Configuration management and traceability 25

8.2.4 Ambiguity 25

8.2.5 Uniqueness .....

8.2.6 Identifiability .....

8.2.7 Singularity .....

8.2.8 Completeness .....

8.2.9 Verification 26

8.2.10 Tolerance 26

8.2.9 Verification

a. A technical requirement shall be verifiable using one or more approved verification methods.

NOTE A technical requirement is verifiable when the means to evaluate if the proposed solution meets the requirement are known.

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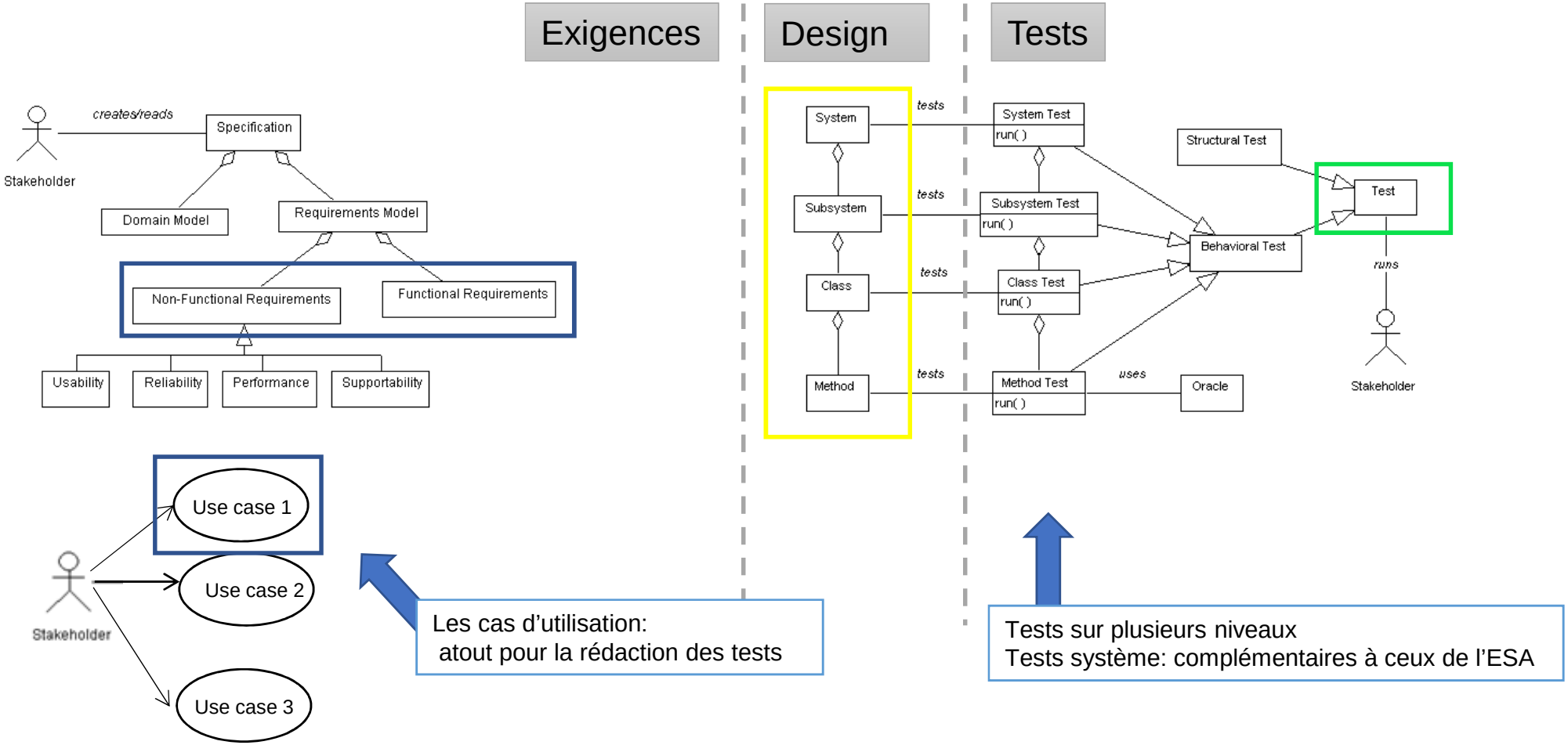
Exigences
Design
Tests
creates/reads
Stakeholder
Specification
Domain Model
Requirements Model
Non-Functional Requirements
Functional Requirements
Usability
Reliability
Performance
Supportability
System
Subsystem
Class
Method
tests
System Test
run( )
Subsystem Test
Class Test
Method Test
Structural Test
Behavioral Test
Test
runs
uses
Oracle
Use case 1
Use case 2
Use case 3
Les cas d'utilisation:
atout pour la rédaction des tests
Tests sur plusieurs niveaux
Tests système: complémentaires à ceux de l'ESA

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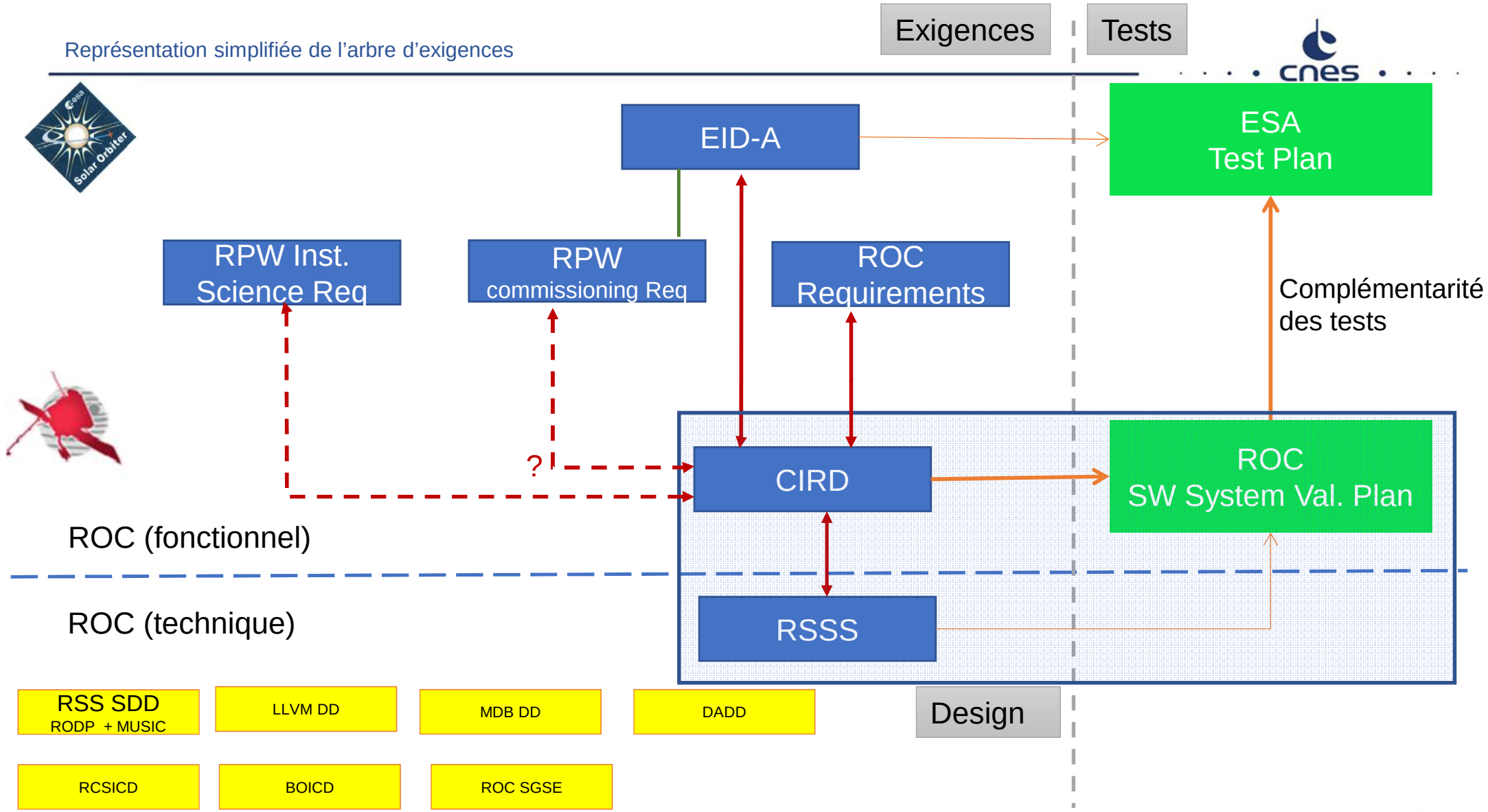
Représentation simplifiée de l'arbre d'exigences



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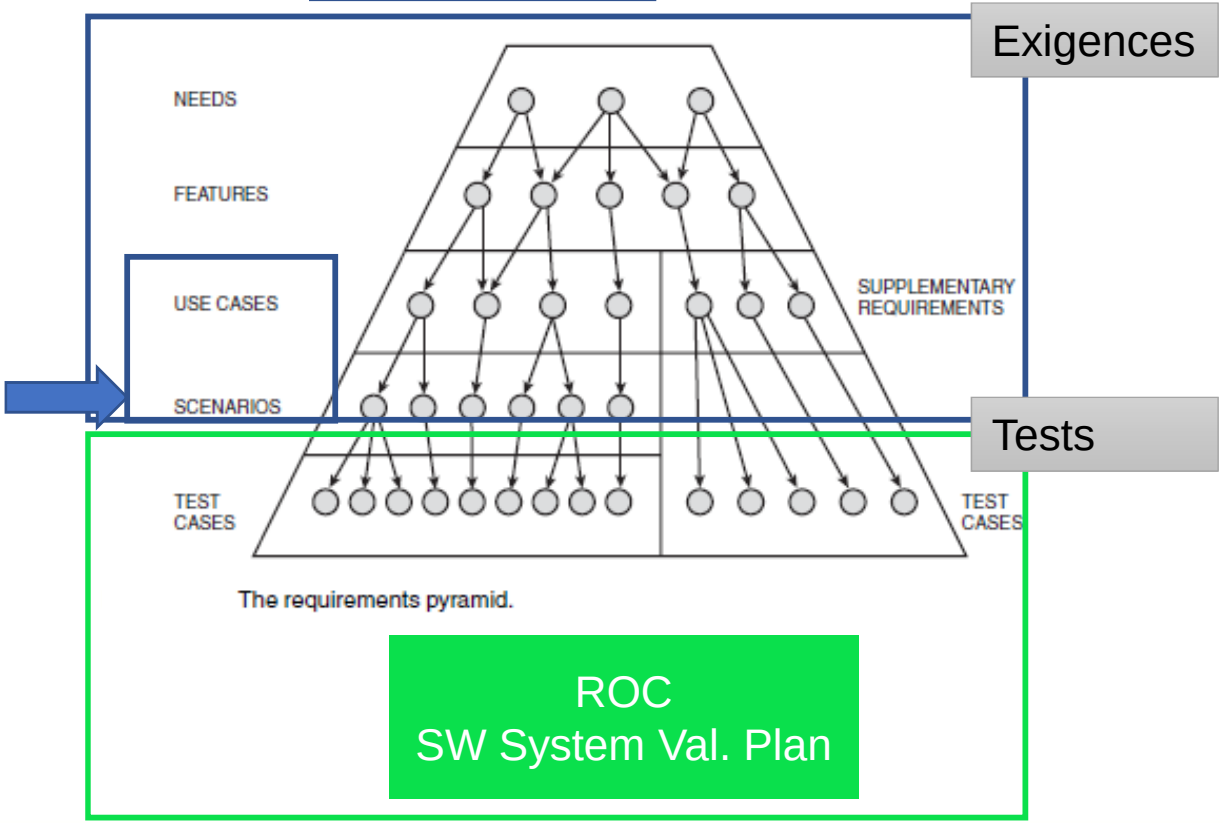
CIRD

RSSS

Exigences

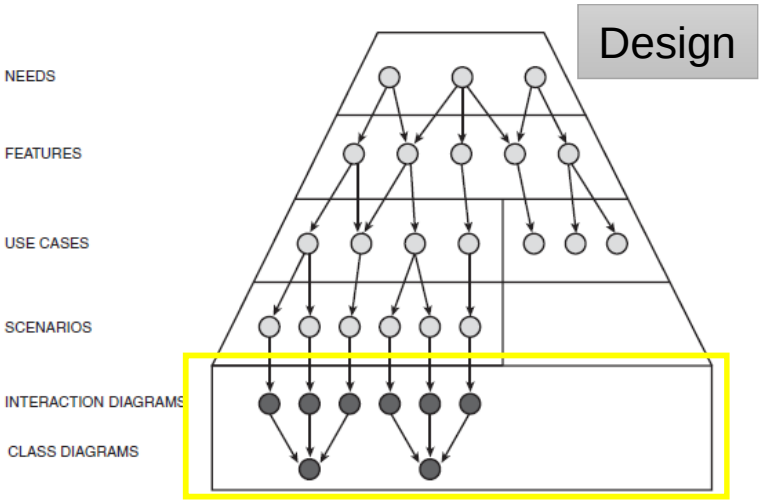


The requirements pyramid.

Tests

ROC
SW System Val. Plan

Design



System design.

RSS SDD
RODP + MUSIC

LLVM DD

MDB DD

DADD

RCSICD

BOICD

ROC SGSE

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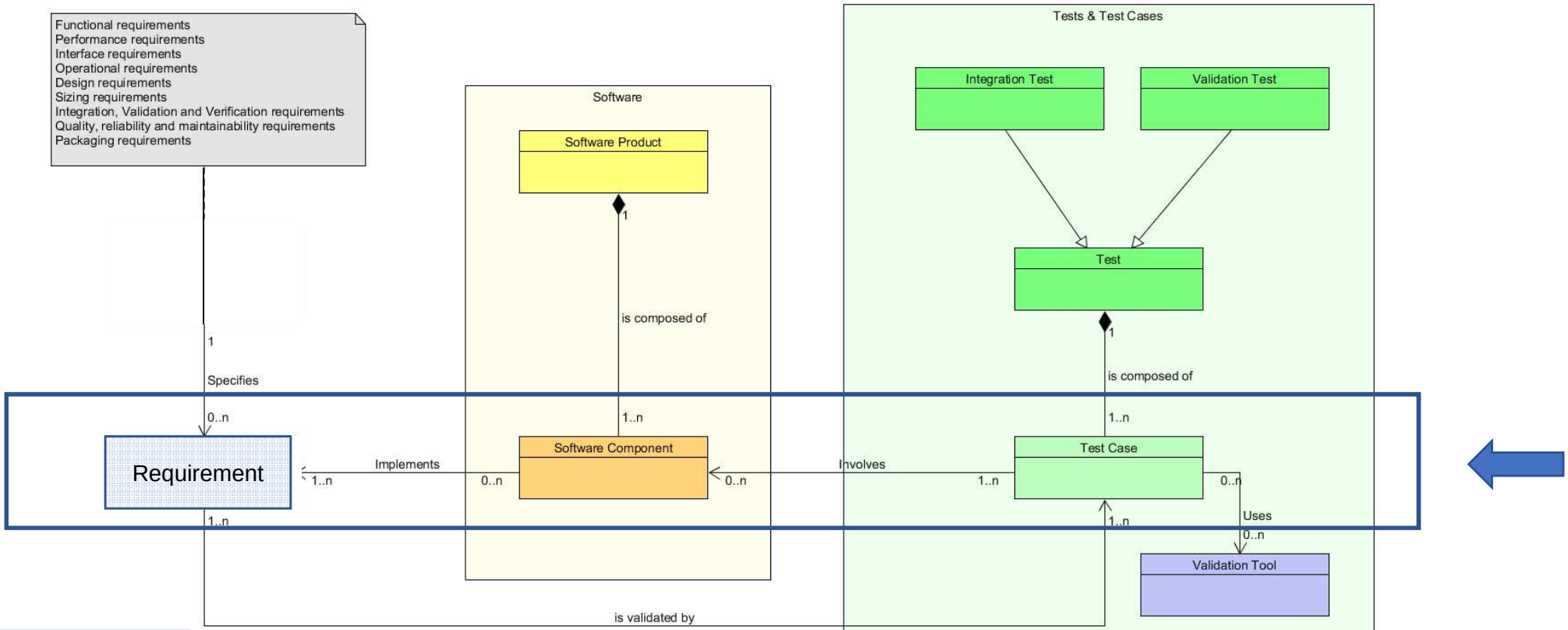

RSSS

CIRD

RSS SDD
RODP + MUSIC

LLVM DD

MDB DD

DADD

RCSICD

BOICD

ROC SGSE

ROC
SW System Val. Plan

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EID-A

SOLAR ORBITER

EXPERIMENT INTERFACE DOCUMENT - PART A

prepared by/*préparé par*	Solar Orbiter Team
book captain	Filippo Marliani, Solar Orbiter Payload System Manager
approved by/*approuvé par*	Philippe Kletzkine, Solar Orbiter Project Manager
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Filippo Marliani 20.03.2015

20-MAR-2015

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5.1.2 Science Ground Segment

D: The Solar Orbiter Science Ground Segment (SSGS) will consist of: 3297

1. A Solar Orbiter Science Operations Centre (SSOC), responsible for scientific mission planning and experiment command request preparation for consolidated submission to the SMOC. 3298

2. Pipeline processing of science telemetry in support of the PI teams and preparation of the ingestion of the scientific data products into the Solar Orbiter Archive. 3299

3300

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D: The science operations will be conducted from the SSOC in close collaboration with the PI teams and the SMOC. The SSGS will be responsible for the coordination, planning and execution of science operations and for data archiving, which includes establishing the Solar Orbiter Archive.

EIDA-3301//

EIDA R-354: *The PI shall make available the necessary resources to support the science operations conducted from the SSOC.*

D: The SDDS will process the input telemetry stream from the SMOC into the various data levels described below. 3302

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RPW Science Requirements

RPW Instrument

RPW Science Requirements

RPW-SYS-SRD-00040-LES
Iss. 02, Rev. 0

Prepared and approved after verification by:	Function:	Signature:	Date
Milan Maksimovic	PI		12/06/2015
Verified by:	**Function:**	**Signature:**	**Date**
Volodya Krasnosselskikh	Lead CoI		
Andris Vaivads	Lead CoI		
Thomas Chust	Lead CoI		
Jan Soucek	Lead CoI		

Figure 6.3

Requirement Number	Requirement Description	Priority
REQ-RPW-SCI-0012	RPW shall characterize, accordingly to its science objectives, the electric part of the waves that play a role in the solar wind physics in the 10 kHz to 16 MHz frequency range.	
REQ-RPW-SCI-0013	Each ANT monopole has to behave at high frequency, in terms of the emission diagram and impedance, like a monopole of a given length *L* and diameter *D*.	
REQ-RPW-SCI-0014	Given the solar wind density and temperature variations reported in section 3.3 and the corresponding Debye Lengths, L has to be larger than 5 meters in order to allow correct Thermal Noise measurements. The upper limit for L shall be compatible with the mechanical requirements from the platform and the RPW overall resources.	
REQ-RPW-SCI-0015	For minimizing the shot noise perturbations on the thermal noise measurements, the ANT diameter has to be as low as possible, being	

priorité

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RPW Operations Centre

ROC Concept and Implementation Requirements Document

ROC-GEN-SYS-PLN-00002-LES
Iss.02, Rev.00

Prepared by:	Function:	Signature:	Date
Yvonne de Conchy Xavier Bonnin	RPW Ground Segment Project Manager RPW Ground Segment Deputy Project Manager		DD/MM/YYYY
Verified by:	**Function:**	**Signature:**	**Date**
Milan Maksimovic	RPW PI		Dd/mm/yyyy
Approved by:	**Function:**	**Signature:**	**Date**
Milan Maksimovic	RPW PI		Dd/mm/yyyy
For application:	**Function:**	**Signature:**	**Date**
Name	Team Member #4		Dd/mm/yyyy

6.2 Data processing

6.2.1 Producing RPW data files

The ROC will produce RPW science data files daily.

The convention concerning the Solar Orbiter payload science data is described in [RD6]. The list of RPW science data to be produced by the ROC is available in [AD2]. Other data products are described in [RD18].

REQ-ROC-CIRD-0004	Producing RPW LZ data	**Test**
The ROC shall produce the RPW LZ data defined in [RD18]. The LZ data files shall store the RPW TM packet data as delivered by the MOC.		
Req. target	**Implements:**	

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RSS

RPW Operations Centre

ROC Software System Specification

ROC-GEN-SYS-SPC-00026-LES
Iss.01, Rev.02

Prepared by:	Function:	Signature:	Date
Xavier Bonnin	RPW Ground Segment Project Manager		DD/MM/YYYY
Verified by:	**Function:**	**Signature:**	**Date**
Sonny Lion	RPW Ground Segment Software engineer		Dd/mm/yyyy
Approved by:	**Function:**	**Signature:**	**Date**
Name	Team Member #3		Dd/mm/yyyy
For application:	**Function:**	**Signature:**	**Date**
Name	Team Member #4		Dd/mm/yyyy

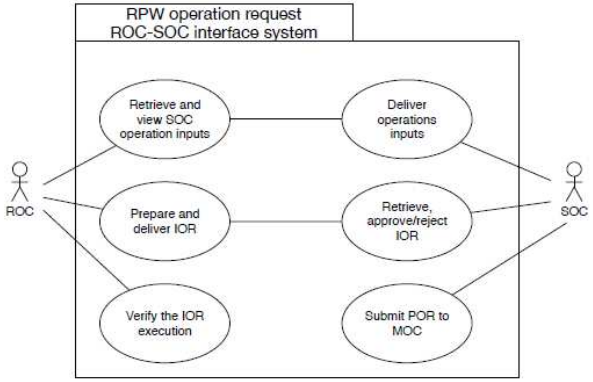

Figure 7. RPW operation requests ROC-SOC interface nominal use case.

The use case will have the following steps:

1. The SOC delivers to the ROC via the GFTS the operations inputs relative to a given MTP cycle, covering ~6-month orbit. The delivery will be done 6 months prior to the MTP-cycle start.
2. The ROC retrieves the operations inputs, which can be viewed from the MUSIC OPERA interface.
3. The ROC prepares and generates a first set of IORs for the MTP cycle
4. The RPW MTP IORs are delivered to the SOC via the GFTS mechanism.
5. The SOC will then perform a first validation of the IORs and check that they are consistent with the mission operations timeline and constraints. The SOC can reject the IORs if the requirements are not met.

Cas d'utilisation et scenarios

4 MUSIC GUI REQUIREMENTS

4.1 MUSIC main page specific requirements

4.1.1 MUSIC main page user requirements

REQ-ROC-SSS-0001	MUSIC main page content	Test
MUSIC shall have a main page, from which the users can at least: - Sign up (i.e., access to the registration form) - Sign in - Access to the MUSIC application tools (TV, FIGARO, FAUST, OPERA and SISSI) - Contact the ROC support (i.e., webmaster) - View the MUSIC user manual - Check the version of MUSIC and its components - Go to relevant external links (e.g., RPW Web page, etc.) - View the status and news related to the application (Application is run correctly, Application is stopped for upgrades/bugs fixing, Upgrade will be performed in 2 days)		
MUSIC		**Implements:**

Exigences

ROC Requirements

	Template ROC Long Doc	Ref: ROC-XXX-XXX-XXX-XXXXX-XXX Issue: XX Revision: XX Date: DD/MM/YYYY - 1 / 15 -
SOLAR ORBITER	RPW	ROC

RPW Ground Segment

RPW Operations Centre Requirements

ROC-XXX-XXX-XXX-XXXXX-XXX
Iss.XX, Rev.XX

Prepared and approved after verification by:	Function:	Signature:	Date
Milan Maksimovic	PI		18/03/2018
Verified by:	**Function:**	**Signature:**	**Date**
Volodya Krasnosselskikh	Lead CoI	V. Krasn	
Andris Vaivads	Lead CoI		

3.1 Operational requirements

Requirement Number	Requirement Description
REQ-ROC-001	The ROC shall participate, under the responsibility of CNES, to the commissioning of the RPW instrument (see [RD1])
REQ-ROC-002	The ROC shall comply to the high level requirements defined in [AD2 & AD3]
REQ-ROC-003	The ROC shall operate the instrument following the specific modes defines by the RPW consortium & ROB, in agreement with the mission timeline defined by the SWT and SOWG
REQ-ROC-004	The ROC shall operate the BIAS and set the biasing current under the supervision of the BIAS lead CoI and team and in accordance to the operation plans defined by the RPW consortium & ROB
REQ-ROC-005	The ROC shall provide to the RPW consortium and ROB all the necessary tools to access and visualize the data in order to help defining the modes

- Incrément de 2 ou plus
- priorités
- méthode de vérifications
- Lien exigences en amont

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Merci de votre attention

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