LARGE SYNOPTIC SURVEY TELESCOPE

PROD Software Test Report

C.N.m major/minor release

prepared by: theAuthor
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Abstract

This is a template for the Gaia DPAC Software Test Report for PROD. It renders findings and results from test controls.

Document History

Issue	Revision	Date	Author	Comment
D	1	yyyy-mm-dd	WOM	First draft

Contents

1 Introduction

1.1 Objectives

This section shall describe the objectives of the report, viz. document the testing activities that were carried out against the STP and STS, assessment of the software tested, etc.

1.2 Scope

The general ambit of PRODtesting is defined in **?** .
Specific scope of the test campaign that this report documents should be described in this section.

1.3 System Overview

This paragraph shall briefly states the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation and maintenance. A summary of the software functionality, software configuration , its operational environment and its external interfaces can be provided.

1.4 Applicable Documents

PROD Software Testing Specification
[**?**] DPAC System and Validation Test Plan
? Gaia DPAC Project Development Plan
? DPAC Product Assurance Plan
? DPAC Software Engineering Guidelines
? ECSS Tailoring

1.5 References

[] **[RD-010]**, Drimmel, R., Els, S., O'Mullane, W., et al., 2014, *DPAC Project Development Plan*,
GAIA-CD-PL-INAF-RD-010,
URL http://www.rssd.esa.int/cs/livelink/open/2786669

[] **[RG-004]**, Guerra, R., leaders CU leaders, D., 2013, *DPAC System Validation and Test*

Plan,
GAIA-C1-SP-ESAC-RG-004,
URL http://www.rssd.esa.int/cs/livelink/open/2898933

[] **[TL-001]**, Levoir, T., Damery, J., Hoar, J., et al., 2012, *DPAC Product Assurance Plan*,
GAIA-C1-PL-CNES-TL-001,
URL http://www.rssd.esa.int/cs/livelink/open/2439085

[] **[TLO-001]**, Lock, T., 2007, *Software Engineering Standards (ECSS-E-40B) - Tailored for Gaia Science Ground Segment*,
GAIA-C1-TN-ESAC-TLO-001,
URL http://www.rssd.esa.int/cs/livelink/open/2786522

[] **[WOM-011]**, O'Mullane, W., Hoar, J., Levoir, T., et al., 2011, *Software Engineering Guidelines for DPAC*,
GAIA-C1-UG-ESAC-WOM-011,
URL http://www.rssd.esa.int/cs/livelink/open/2760364

1.6 Definitions, acronyms, and abbreviations

The following table has been generated from the on-line Gaia acronym list:

Acronym	Description
AGIS	Astrometric Global Iterative Solution
AO	Announcement of Opportunity
CCB	Configuration Control Board
CM	Configuration Management
CU	Coordination Unit (in DPAC)
DOC	Department of Commerce (USA)
DPAC	Data Processing and Analysis Consortium
DPC	Data Processing Centre
DU	Detection Unit
ECSS	European Cooperation for Space Standardisation
ESA	European Space Agency
ESAC	European Space Astronomy Centre (VilSpa)
GWP	Gaia Work Package
PA	Product Assurance
QA	Quality Assurance
SCMP	Software Configuration Management Plan
SRS	Software Requirements Specification

SW	Software (also denoted S/W)
TOC	Table of Contents
WBS	Work Breakdown Structure
WP	Work Package

1.7 Document Overview

This section shall describe the contents of the document and explains how the rest of the report is organized.

2 Test Configuration

This section shall contain a full identification of the hardware and the software to which this document applies, providing the PRODbaseline.
Additionally, this paragraph shall also document the documents, input data description, software requirements, interface requirements and/or ICDs and coding standards that the tests use or follow.
Reference to where all software used and input and output data can be retrieved, if needed again, should be provided.

2.1 Documents

Specify the documents composing the baseline for which we are testing against. Especially it is important to provide the issue and revision numbers of the Software Testing Specification document.

2.2 Software

Specify the characteristics and configuration of the software that was run during the execution of the tests. This may include system software as operating systems, compilers, etc.

2.3 Hardware

Specify the characteristics and configuration of the hardware required to execute the tests.

2.4 Input Data

Specify the baseline of the input data used.

3 Personnel

This paragraph shall specify the personnel participating in the testing activities reported in the document and their roles or responsibilities.

4 Overview of the Test Results

4.1 Summary Table

The following table shall summarize, among others, the completion status of each test case.

TEST CASE ID	PASS/FAIL	COMMENTS
test case 1	pass/fail	comment
test case 2	pass/fail	comment
...	...	...

4.2 Overall Assessment

- Provide an overall assessment of the software as demonstrated by the test results in this report
- Identify any remaining deficiencies, limitations or constraints that were detected by the testing performed
- For each remaining deficiency, limitation or constraint describe:
  - Its impact on software and system performance, including identification of requirements not met
  - The impact on software and system design to correct it
  - A recommended solution/approach for correcting it
  - Mantis issue

4.3 Impact of Test Environment

This paragraph shall provide an assessment of the manner in which the test environment may be different from the operational environment and the effect of this difference on the test results.

4.4 Recommended Improvements

This section shall provide any recommended improvement in the design, operation or testing of the software tested. A discussion of each recommendation and its impact on the software may be provided.

5 Detailed Test Results

This section describes more in detail the results of those test cases that are failed or need a more detailed revision.

5.1 [TEST-ID]

5.1.1 Summary of test results

This paragraph shall summarize the results of the test. When the completion status of the test is not 'PASS', this section shall reference the following paragraphs for details.

5.1.2 Problems encountered

5.1.2.1 [TEST-CASE-ID] This paragraph shall identify by their unique identification, the test cases in which one or more problems occurred, and shall provide:

- A description of the problem that occurred
- Identification of the test procedure step in which it occurred
- Reference to the Mantis issue
- The number of times the procedure or step was repeated in attempting to correct the problem and the outcome of each attempt (if applicable)
- Test steps where tests were resumed for retesting (if applicable)

5.1.3 Deviations from test cases/procedures

5.1.3.1 [TEST-CASE-ID] This paragraph shall identify by their unique identification, the test cases in which one or more deviations occured and shall provide:

- A description of the deviation (e.g. substitution of any resource, procedural step not followed, scchedule deviation, etc)
- The rationale of the deviation
- An assessment of the deviation impact on the validity of the test case

6 Test Review Board Declaration

This section must be filled only if the test campaign follows the formal procedure described in **?** , (TRR and TRB). After the tests are executed and the test team circulates a draft of this document the TRB meets to declare the completion of the test campaign. This section must contain this declaration and the pass of fail status of the tests after completion (in case of failing it should also account for the actions taken - Mantis issues, etc.)

A ANNEX A: Unit Tests

Description of the unit test coverage given by Cobertura

B ANNEX B: Patch releases verification

describe here the test activities executed in order to garantee the quality of the patch release

B.0.1 Patch release C.M.n

Due to the small number mantis issues fixed with the *PRODUCT* patch release *C.M.n* (very short mantis list) and due to the minimal changes applied to the software, the test campaign completed for the *PRODUCT* major release $C.M$ is still valid.

All unit and integration tests are still running without problems.

Following manual verification has been done:

- verification 1
- ...

No system test has been re-executed, but the fix has been verified with a specific run on *DPCX* platform.