Critical

software

PRODUCT ASSURANCE REPORT

RAMS - DEPENDABILITY AND SAFETY EVALUATIONS
Call Of Order 02

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1.1	01	24-11-2003	First draft	José Gonçalo Silva
1.2	02	26-11-2003	Comments suggested during document formal review.	José Gonçalo Silva

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1. Introduction

1.1 Overview

This document formalizes the product assurance report for RAMS - Dependability and Safety Evaluations, Call Of Order 02 during the whole project life cycle period.

1.2 Purpose

The purpose of this report is to make an evaluation of the project status, concerning the achieved goals, the schedule deviation (or not) and report the verification activities performed.

It also focuses on some actions that should be taken to prevent the project from making the same mistakes in future projects.

1.3 Audience

The audience for this document is the client. It will also be delivered to the project team and the Dependability Business Unit where this project is included in CSW internal organization and to the company Quality Manager.

1.4 Definitions and acronyms

Acronyms	Description
CSW	Critical Software, S.A.
TBD	To Be Defined
TBC	To Be Confirmed
AR	Acceptance Review
CDR	Critical Design Review
PDR	Preliminary Design Review
SRR	Software Requirements Review
RAMS-COO2	RAMS, call of order 02

1.5 Document structure

Section 1. Introduction, provides information about the document content including the overview, purpose, audience, definitions and acronyms, structure and references list.

Section 2. Product quality objectives and metrication, provide metrics reports included in the regular software product assurance reports.

Section 3. Deviations, summarises the non-conformances found.

1.6 References

1.6.1 Applicable documents

[AD-1]   CORDEIRO, Rui, "Software Development Process", Critical Software, SA., 2003, CSW-2002-SDP-0909.

[AD-2]   CORDEIRO, Rui, "Quality Assurance Process", Critical Software, SA., 2003, CSW-2002-SEP-0449.

1.6.2   Reference documents

[RD-1]   ESA PSS-05-02 Issue 1 Revision 1, Guide to the user requirements definition phase, March 1995.

[RD-2]   MAIA, Ricardo, "Software Dependability and Safety Evalutations - Proposal for Call-off Order number 02", Critical Software, SA, 2003CSW-2003-PRL-0843, edition 0, revision 3.

[RD-3]   SILVA, José, "Quality Assurance Plan", Critical Software, SA., 2003, CSW-RAMS-2003-QAP-1233-quality-assurance-plan.pdf, version 1.1, 02-07-2003.

2. Product quality objectives and metrication

This section performs the comparison between the target values and measurement results:

- target values are the values defined in the project proposal;

- measurement results, are the results collect throughout the development. The results obtained shall be used to define corrective actions.

The measurements were performed at each milestone: SRR, PDR, CDR and AR.

2.1 Software Requirements Review

All previewed deliverables were performed and formally reviewed.

Expected deliverable work products were (duration in days and efforts in hours):

Work Product	Comments Performed	Planned Effort	Effort Spent
Evaluation Report (Issue 1) – RTEMS4.5.0 Description and Scope Definition	Performed	48	80

The overall phase result was:

Metrics	Target Values	Measurement Results	Comments
Duration:	7	7	
Effort:	48	80	
Number of critical problems detected during reviews:	0	1	

2.2 Preliminary Design Review

All previewed deliverables were performed and formally reviewed (with the exception of the quality assurance plan, which was informally reviewed and approved by the Project Manager and Quality Manger).

Expected deliverable work products were (duration in days and efforts in hours):

Work Product	Comments Performed	Planned Effort	Effort Spent
Evaluation Report (issue 2) – Uploaded with Fault Model	Performed.	100	100
Evaluation Report (issue 2) – Updated with Experiments Framework Description	Performed. Document merged with document from previous row.	60	60
Evaluation Report (issue 2) - Updated with Metrics Definition	Performed. Document merged with Evaluation Report (issue 5) produced in the Acceptance Phase.	24	91
Quality Assurance Plan	Performed.	40	48

The overall phase result was:

Metrics	Target Values	Measurement Results	Comments
Duration:	25	78	Metrics definition was postponed and merged with evaluation report (issue 5).
Effort:	224	299	
Number of critical problems detected during reviews:	0	2	

2.3   Critical Design Review

All previewed deliverables were performed and formally reviewed.

Expected deliverable work products were (duration and efforts in hours):

Work Product	Comments Performed	Planned Effort	Effort Spent
Robustness Testing Report (issue 1) – Test Case Definition	Performed.	80	198
Robustness Testing Workloads	Performed.		
Robustness Testing Report (issue 2) – Updated with Test Results	Performed. Document merged with Robustness Testing Report (issue 1) – Test Case Definition.	80	142
Stress Testing Report (issue 1) – Test Cases Definition	Performed.	80	140
Stress Testing Workloads	Performed.		
Stress Testing Report (issue 2) – Updated with Test Results	Performed. Document merged with Stress Testing Report (issue 1) – Test Cases Definition.	80	100

The overall phase result was:

Metrics	Target Values	Measurement Results	Comments
Duration:	29	45	
Effort:	320	580	The scope of the tests was too ambitious, and the plan underestimated the project complexity.
Number of critical problems detected during reviews:	0	2	

2.4   Acceptance Review

All previewed deliverables were performed and formally reviewed.

Expected deliverable work products were (duration and efforts in hours):

Work Product	Comments Performed	Planned Effort	Effort Spent
Product Assurance Report	Performed.	30	6
Evaluation Report (issue 5) – Updated with Problems Found and Potential Improvements.	Performed.	52	60
Final Report (presentation)	Performed.	24	24

The overall phase result was:

Metrics	Target Values	Measurement Results	Comments
Duration:	10	10	
Effort:	106	90	
Number of critical problems detected during reviews:	0	0	

3. Deviations and opportunities for improvement

This section presents the deviations or non-conformances to summarise any issues not handled in the individual sections.

3.1 Deviations

Project plan was not thoroughly followed as the initial scope defined for the testing activities was too ambitious. Some problems regarding the metrics collection using the RTEMS tools package were also encountered (refer to evaluation report for further details).

Monthly progress reports were performed and delivered to keep the client aware of work products evolution. However, no personal task reports were produced throughout the project life cycle.

Not all milestone review meetings were formally performed.

3.2 Opportunities for improvement

Perform a rigorous planning of the work products. Define clearly the scope of the project. Maintain a tight risk management.

Perform all milestone review meetings formally for project status tracking, problem analysis and improvement opportunities definition.

Project members should always produce personal task reports on a monthly basis.