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Quality Assurance Plan

ABS software system Quality Assurance Plan

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Revision History

1.

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Author

The software quality management plan is created in

MS office Microsot Word.

Description

1

Version

12th October, 2017

Date





Introduction

Enfineering Safety Critical Systems

1

ABS software system Quality Assurance Plan

Series of actions or steps taken in order to achieve a particular goal.

A person or action creating or controlling a situation rather than just

responding to it after it has happened.

A staff function is an alternate function of people that do not partake

instantly in an activity as they help the line functions to reach their

targets.

Getting the critical risks defined allows people to know the types

of defects that are most likely to occur and the ones that can have the

greatest system impact.

Quality audit is the process of systematic examination of

a quality systemcarriedoutbyaninternalor

external quality auditor or an audit team.

The action of teaching person a particular skill.

6.

5.

4.

Training

Quality

Audit

Prevent

defects

Staff

function

Process

Proactive

3.

1.

2.

Description

Term

Definitions

Definitions and Abbreviations

No.

1.3.1.

1.3.

The items which lies under this document is software system for Electronic Control Unit (ECU).

The other systems like sensors, modulators or hardware items etc, are out of the scope of this

document.

This QA plan document is about the planning of software system quality management. This

document is associated with Automotive ABS software System. This document plans the quality

checking criteria for the selected software system.

Scope

1.2.

This Quality Assurance (QA) Plan details the overall approach to quality assurance activities for

Automotive ABS System. This QA Plan documents how the project defines, implements and

assures quality during the software development process.This QA Plan is a communication

vehicle for the entire project team, including the project manager, development manager,

developers, test analysts, SQA analysts, technical writers, functional analysts, other project

teams, and users.

Purpose

1.1.

This document contains the plan for quality assurance. The software under development is ABS

system which is part of automotive system. In this documents the managent process, different

documentations regarding ABS system and the methods and tools required to use are explicitly

reported.

1.

3. The Milestone 2 Review occurs after the Initial operational capability. The review also

ensures the project is ready to enter the active Implementation stage. Projects can deliver

multiple increments and each increment would receive a Milestone 2 Review.



Additional supporting organizational documents, to include other internal teams,

external vendors, and any other teams/organizations participating in the project’s QA

process.

3.2.







Reviews

The reviews to be conducted in quality assurance activity are listed below. These reviews will

assure the implementation of software system upon the standard ISO-26262.

Peer Review - the evaluation of an artifact or its performance by peers in order to

maintain or enhance the quality or performance of the artifact.

Formal Review - a structured examination of an artifact by an assigned formal review

team.

Milestone Reviews - Milestone Reviews are mandatory and ensure that the work

required in the current state is complete and the project is ready to enter the next state.

PMAS Guide Section 6.4.1. Defines these reviews.

1. The Milestone 0 Review occurs in Project Initiation after the Formal Review of the

requirements.

2. The Milestone 1 Review occurs in Project Planning after review by the project responsobles.

Projects require a Milestone 1 review to establish if in full compliance before transitioning to

Active.

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4. The Milestone 3 Review occurs at the end of the active state and establishes that the project

has completed all of its Active state activities. The review also ensures the project is ready to

enter the closed state.

5. The Milestone 4 Review occurs at the end of the closed state. The review ensures that the

project has completed all of the activities of the closed state. It also ensures that the project is

ready to end all activities. At this review, the project is closed and the delivered capabilities

are in use.

6. A Milestone 4 Review is also required if a project is closed-stopped; no other review is

necessary.

4.

Documentation

The number of planning documents have been reported in the reference section. All of the

refered documents are related to the ABS system under development.

5.

Standards and Guidelines

3

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The document refered in as system specification document, which contains all of the system

requirement. During that stage we have also developed the quality requirement as well.

No.

1.

2.

3.

4.

5.

Abbreviations

Term

ABS

QA

SQA

RS

QUEST

Description

Anti-lock Braking System

Quality Assurance

Software Quality Assurance

Requirement Specifications

Quality Assurance and Testing

1.4.

References

Below are the referenced documents which can be used in multiple sections of QA document.

ID

Tittle

System specifications

Performance specifications & performance data manual

System qualification test report

ISO – 26262:10 – Guidelines and methods for conducting the safety assessment process

on automotive systems

Functional Safety Assessment Plan

PMAS Guide Section 6.4.1

2.

Quality Objectives

1.3.2.

3.

3.1.

Management

Organization

The organization responsible for the quality assurance is QUEST lab private limited. The

evaluation of the software product would be done by the representative of this lab. Following

documents would be provided on demand of certification organizations





QA Organization Chart (to include Program Management, Program Executive Office,

Portfolio and Software Development)

Project Team Organization Chart (to include the project SQA team)

ABS software system Quality Assurance Plan

2





Modifcation

Manager, Milestone Review

Domain Experts Personal, Formal Review, Milestone 2 weeks

Project ManagerReview

Domain Experts Personal, Formal Review, Milestone 1 weeks

Project ManagerReview

EndUsers,Domain Peer Review

Experts Personal, Project

Manager

1 weeks

6.3.

Artifact

Review Schedule

Version

1…n

Title

Parent standard for template documents i.e. IEC - 61508

ISO 26262 Automotive standard to follow

PMAS Guide Section 6.4.1

Changed

4

Milestone

requirement Milestone 0

Time Line

2 Weeks

Requirement

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Source Code

ID

6.

6.1.

Documentation Reviews

Artifacts

The project artifacts that will be the subject of the review would be software system models

developed in matlab, the modified models according to the software requirements and the final

source code generated from these model used.

6.2.

Review Plan

The review plan for each of the artifact would be followed according to the table below.

Artifact

Requirement

Specifications (RS)

Resources

Domain Experts Personal

Method

Time Line

Peer Review, Milestone 2 weeks

Review

2 weeks

Model Development Project

Developersfrom RS

Model Refinement

End Product



Tools, Techniques and Methodologies

Team Lead

Quality Assurance

Domain Experts

Manage the development ISO-26262

according to standard

MilestoneReview, Implement rules according to ISO-26262

Formal Reviewstandard

MilestoneReview, Implement rules according to ISO-26262

Formal Reviewstandard

Peer Review

Provide

tasks

feedbacks,

Assign ISO-26262

6.5.

Tools

Model Refinement

PinPoint Review

Inspections, UML Class Diagrams Reviews

Checklist Document

Techniques

Methodology

6.6.

Quality Records

Quality records include documentation established and maintained to provide evidence of

conformance to requirements and to the effective operation of the quality management system In

this plan we will use checklist, meeting agendas and meeting minutes documentations.

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Group / Indivisual

Specifications (RS)

Source Code

End Product

1…n

1…n

1…n

details

Modification

details

document Milestone 1, 2

Milestone 3, 4

Milestone 4

1 Weeks

1 Weeks

1 Weeks

Updated versions

Running Application

6.4.

Organization and Responsibilities

Review Activity

Formal Review

Task

Standard

Project Manager

Techniques

Enfineering Safety Critical Systems

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ABS software system Quality Assurance Plan

The Risk management plan is the sub section in functional safety assessment plan document i.e.

Appendix A.

10. Risk Management

The configuration plan for the ABS software system is developed seperatly according to the ISO-

26262 standard i.e. Appendix z.

Configuration Management

9.

Methodologies

7.

Test and Evaluation plan is separately developed i.e. Appendix y.

Check list, Reviews

Code inspection, UML Diagrams

Matlab, PinPoint Review

Tools, Techniques and Methodologies

Test and Evaluation

Tools

8.