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Quality Management Plan

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DOCUMENT APPROVAL

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Glossary

CE
: Chief Engineer. 4, 7–10

CI
: Configuration Items. 7

CMP
: Configuration Management Plan. 8

IRDS
: Intelligent Replanning Drone Swarm. 4, 7

QA
: Quality Assurance. 7

QAA
: Quality Assurance Activities. 10

QAP
: Quality Assurance Process. 5, 10

QCM
: Quality & Configuration Manager. 7, 10

QM
: Quality Manager. 7–9

QMP
: Quality Management Plan. 4, 5

RM
: Requirements Manager. 4, 7

SM
: Safety Manager. 4, 7

V&V
: Validation & Verification. 7

VVM
: Validation & Verification Manager. 4, 7

1 Introduction

This document is a Quality Management Plan (QMP) for the project Intelligent Replanning Drone Swarm (IRDS) that makes sure that all deliverables from the Safety Manager (SM), Requirements Manager (RM), Validation & Verification Manager (VVM), and Chief Engineer (CE) meet the same quality standards. This means that the deliverables are traceable, reviewed, and approved, and that the whole team works consistently and efficiently.

1.1 Purpose

The purpose of this QMP is to define process, standards, and responsibilities that ensures all project deliverables meet the required level of quality. This plan establishes the framework for quality assurance and quality control. It provides guidance for all team members to follow, ensuring consistency, traceability, and compliance with applicable standards (can be found in table 2). This is something necessary for the project in order to safety

1.2 Related Documents

The standards used to create this QMP are listed in table 2. Other related documents that are referred to in this management plan are listed in table 1.

Document ID	Document Title
PP-01	Project Plan [1]
CM-01	Configuration Management Plan [2]

Table 1: Related documents

Standard	Year	Title
ISO/IEC 25002	2024	Quality model overview and usage [3]
IEEE 730	2014	IEEE Standard for Software Quality Assurance Processes [4]
ISO 9001	2015	Understand, Implement, Succeed! [5]
ISO 10007	2017	Quality management — Guidelines for configuration management [6]

Table 2: Standards used to create this QMP.

2 Scope

This QMP applies to all project deliverables, including reports, management plans, test results and safety analyses. It covers activities such as creation, review protocols, and roles and responsibilities. All controlled items are managed using different tools and templates to ensure compliance with quality standards. Drafts and informal notes are excluded.

2.1 Objectives

The objectives of the QMP are to ensure that all project deliverables are accurate, complete, consistent, and compliant with applicable standards. Specifically, the QMP aims to:

- Ensure all reports, plans, and codes are reviewed and approved before release.
- Maintain traceability between requirements, tests, and safety analyses.
- Standardize document formatting and templates.
- Detect and resolve issues early through peer reviews, audits, and corrective actions.
- Ensure that the system is technically correct and fit for purpose.

2.2 Deliverables

ID	Deliverable
QM-01	Quality Management Plan and Quality Assurance Process.
QM-02	Review Protocol.

Table 3: Deliverables.

Since this project is not a big one, it was decided to put in the QAP in the QMP and have it as a one deliverable.

3 Methodology

The quality methodology for the IRDS project is based on a prevention-driven approach aligned with ISO 9001, IEEE 730, ISO 10007, and ISO/IEC 25002. Quality assurance is integrated throughout the project lifecycle and focuses on early defect detection, consistent documentation practices, traceability, and structured peer reviews.

3.1 Tools and Methods

Jira is used for quality workflow and issue tracking, Git/GitHub for configuration control, SharePoint for sharing of materials and review protocols, and standardised templates ensure consistency. A traceability matrix links requirements to design, tests, and safety analyses.

4 Quality Oversight

To support the successful delivery of this project and maintain high standards of quality, it is important to establish clearly defined deliverables under quality oversight, well-defined roles and responsibilities, and structured review processes. Together, these elements promote accountability, consistency, and traceability throughout the project lifecycle.

4.1 Project Deliverables by Role

The IRDS project comprises multiple deliverables contributed by all managers on the team. These deliverables fall under the scope of quality oversight (refer to the project plan for the list of all the deliverables).

4.2 Quality Responsibilities & Roles

The quality related responsibilities for each manager are:

- CE
  - Review deliverables from a technical perspective.
- RM
  - Ensure requirement specifications meet quality criteria (clarity, completeness, traceability).
  - Confirm all requirement are reviewed.
  - Participate in peer reviews of requirement deliverables.
  - Submit requirement reports to Quality Assurance (QA) for review before submitting.
- VVM
  - Collaborate with other managers (Safety, Requirements, Quality) to align V&V with system goals.
  - Ensure V&V reports follow QA rules (traceability, correctness).
  - Participate in quality reviews of test artifacts.
- SM
  - Ensure safety reports comply with templates and QA requirements.
  - Confirm that safety requirements are traceable and reviewed.
  - Participate in quality reviews of safety deliverables.
- Quality & Configuration Manager (QCM)
  - Quality
    - Define and enforce quality standards (templates, report rules, git commit message guidelines).
    - Plan and conduct audits and reviews.
    - Approve deliverables before release.
    - Identify quality risks and propose mitigation strategies.
  - Configuration
    - Ensure all Configuration Items (CI) are properly identified, controlled, and documented (maintain traceability and clarity over project materials).
    - Provide the QM with the latest controlled versions of documents.
    - Ensure all changes follow approved processes.

4.3 Review Process

The process for completing a delivery review begins with a review request being submitted. The reviewer then evaluates the delivery in accordance with the review protocol. A more detailed description of the review request process and the review protocol is provided below.

4.3.1 Review Request

When a delivery has been completed, a review request shall be initiated. The responsible delivery manager does this by accessing Jira (for more information regarding Jira, refer to CMP) and creating a task that clearly states a review is required. The task must specify which delivery is to be reviewed and be assigned to the CE and QM.

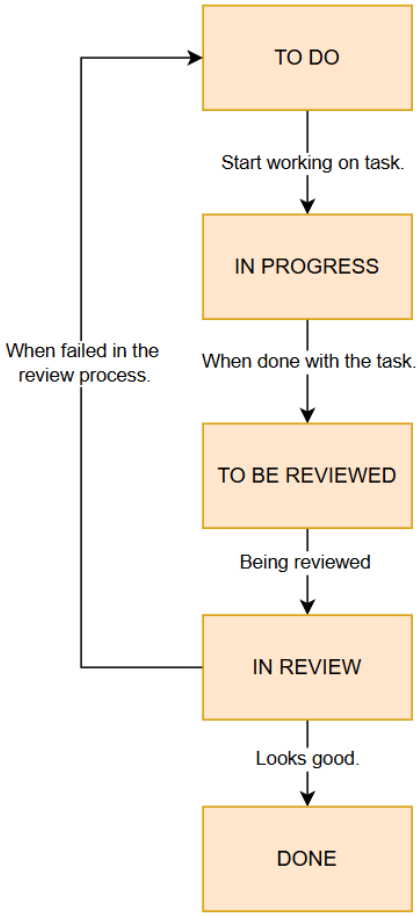

Figure 1: Jira (process).

4.3.2 Review Protocol

A review protocol is a structured approach for examining project deliverables, processes, or outcomes to ensure they meet defined quality standards and other requirements. When reviewing a document, the reviewer follows the protocol and evaluates the content against these criteria. The author may accept or reject the comments provided by the reviewer. The protocol also serves as evidence that the document has been reviewed and that it aligns with the defined requirements. This process applies to all project related reports produced during the project lifecycle. The requirements are according to ISO 9001 [5] and ISO 10007 [6]. All reports will be reviewed against the following checklist:

Document Control & Compliance:

- Report has unique identifier and version number.
- Correct template used, all mandatory sections included.
- Report is reviewed and approved before release.
- Report history/version record updated correctly.

Content Accuracy & Completeness

- Information is factually accurate and consistent with source data.
- Objectives, scope, and purpose of the report are clearly stated.
- All required data, metrics, and evidence are included.
- References and citations are complete and verifiable.

Clarity & Readability

- Logical structure and flow of information.
- Language is clear, concise, and free of ambiguity.
- Acronyms, abbreviations, and technical terms are defined.
- Tables, charts, and figures are accurate, labelled, and referenced.

Compliance with Standards & Requirements

- Report aligns with contractual, regulatory, or legal requirements.
- Confidentiality, security, and access requirements considered (Project owner provided images that are not to be published).

Approval & Records

- Corrections implemented and verified.
- CE approval recorded.
- QM approval recorded.

Table 3 is a list of quality requirements used for reports, shared with team members to be aligned with quality standards.

ID	Quality Requirement	Source	Approved by
QR01	All reports shall use the project-approved template and include the required sections.	Yonatan Michael (QM)	
QR02	Every report shall include a version number, revision history, and approval record.	Yonatan Michael (QM)	
QR03	Each report shall undergo peer review before approval.	Yonatan Michael (QM)	
QR04	All requirements, test results, or safety concerns in reports shall be traceable.	Yonatan Michael (QM)	
QR05	Reports need to be written in British English.	Yonatan Michael (QM)	
QR06	The word "and" in headings should be written with a "&".	Andrea Haglund (CE)	Yonatan Michael (QM)
QR07	All words in headings (except if, of, etc.) should start with a capital letter.	Andrea Haglund (CE)	Yonatan Michael (QM)
QR08	The planning reports shall be written in future tense.	Claire Namatovu (RM)	Yonatan Michael (QM)

Table 4: Quality requirements used for reports.

5 Quality Assurance Process

The QAP ensures that all project deliverables meet defined quality standards. QAP is a set of planned and systematic activities designed to ensure that all project deliverables meet predefined quality standards. It establishes processes, guidelines, and responsibilities to prevent defects and maintain consistency across deliverables. QAP involves defining quality objectives, applying standards and templates, performing reviews and audits, monitoring compliance, and managing corrective actions.

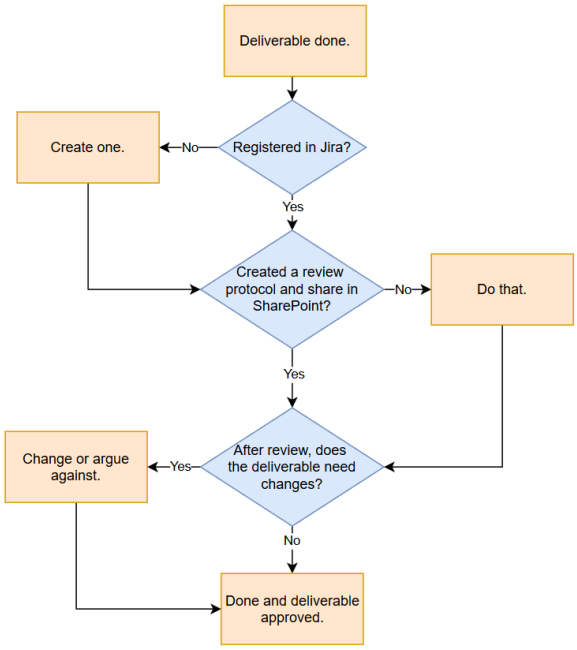

Figure 2: A simplified explanation of the review process using flowchart.

5.1 Quality Assurance Activities

All reports, plans, test results, and safety analyses must undergo the following Quality Assurance Activities (QAA):

- Deliverables are reviewed by the author together with the Chief Engineer (CE) from a technical perspective. Then it's reviewed by the Quality & Configuration Manager (QCM) for accuracy, completeness, clarity, formatting, compliance, and traceability. Reviewer comments are logged and addressed in a review protocol.
- Issues are identified, resolved, and deliverables re-reviewed; corrective actions are tracked in QA audit reports.
- Check that all deliverables comply with quality standards (ISO 9001, IEEE 730, ISO 10007, ISO/IEC 25002).
- Confirm that references, figures, tables, and glossaries match across documents.
- Flag potential misalignment between requirements, tests, or safety analyses early.

References

[1] A. Haglund, *Project Plan*, Intelligent Replanning Drone Swarm, Sep. 2025.
[2] Y. M. Beyene, *Configuration Management Plan*, Intelligent Replanning Drone Swarm, Sep. 2025.
[3] ISO, IEC, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Quality model overview and usage*, Mar. 2024.
[4] IEEE, *IEEE Standard for Software Quality Assurance Processes*, Jun. 2014.
[5] Jarvis. A, Palmes. P, *Understand, Implement, Succeed!*, ISO, Mar. 2015.
[6] ISO, *Quality management — Guidelines for configuration management*, ISO, Mar. 2017.