*EUROPEAN COOPERATION*

*ECSS*

*FOR SPACE STANDARDIZATION*

# Space project management

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# Organization and conduct of reviews

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# Foreword

This Standard is one of the series of ECSS Standards intended to be applied together for the management, engineering and product assurance in space projects and applications. ECSS is a cooperative effort of the European Space Agency, National Space Agencies and European industry associations for the purpose of developing and maintaining common standards.

Requirements in this Standard are defined in terms of what shall be accomplished, rather than in terms of how to organize and perform the necessary work. This allows existing organizational structures and methods to be applied where they are effective, and for the structures and methods to evolve as necessary without rewriting the standards.

The formulation of this Standard takes into account the existing ISO 9000 family of standards.

This Standard has been prepared by the ECSS Working Group M-30-01, reviewed by the ECSS Technical Panel and approved by the ECSS Steering Board.

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# Introduction

Project reviews are examinations of the technical status of a project and associated issues at a particular point in time. Their primary purpose is to provide a comprehensive assessment and, through independent participation, to give additional support to the project concerned at crucial stages and to give the responsible management confidence in the technical progress being achieved.

The overall success of any review is dependent upon the planning, organization and specific assignment of responsibilities prior to the review work and the process established to close out the action items raised during the review. An inadequately prepared or conducted review has little chance of success, and even a well-organized review will accomplish little if questions raised are not answered to the customer's satisfaction in a timely manner. Review members, not fully prepared for the review, will be neither effective nor productive. Thus, proper preparation of a review is essential for both the customer and supplier.

This ECSS Standard belongs to the Space Project Management series called up by the "Policy and Principles" standard, ECSS-M-00.

Reviews are carried out throughout the project life cycle, as defined in Figure 1 of ECSS-M-30A, at all levels from system to equipment level.

The review purpose, mandate and documentation vary for each particular project and for the specific phase or stage of activity of the project.

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# 1

# Scope

This Standard provides means for identifying and structuring all of the activities and information required in a project review. It identifies the information outputs and follow-up activities necessary to complete the review process. It also provides a check-list of activities and information required for each of the major project reviews identified in the ECSS Management Standards.

This Standard does not prescribe a particular review procedure or organizational structure to be applied, in order to respect the customer's own rules and regulations.

When viewed from the perspective of a specific project context, the requirements defined in this Standard should be tailored to match the genuine requirements of a particular profile and circumstances of a project.

> **NOTE**  Tailoring is a process by which individual requirements or specifications, standards and related documents are evaluated and made applicable to a specific project. Application of the contract requirements may necessitate deletion, addition or modification of the requirements of this Standard.

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# Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revisions of any of these publications do not apply. However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

| | |
|---|---|
| ECSS–P–001 | Glossary of terms |
| ECSS–M–30A | Space project management – Project phasing and planning |

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# Terms, definitions and abbreviated terms

## 3.1    Terms and definitions

The following terms and definitions are specific to this Standard in the sense that they are complementary or additional with respect to those contained in the ECSS–P–001.

### 3.1.1    Mission requirements document (MRD)

Defines mission parameters, overall system performance and system segment objectives.

### 3.1.2    System requirements document (SRD)

Defines system function, overall system performance, system segment objectives and interfaces.

## 3.2    Abbreviated terms

The following abbreviated terms are defined and used within this Standard.

| Abbreviation | Meaning |
|---|---|
| AR | Acceptance Review |
| CDR | Critical Design Review |
| CI | Configuration Item |
| CIDL | Configuration Item Data List |
| ECSS | European Cooperation for Space Standardization |
| EOLR | End of Life Review |
| FQR | Flight Qualification Review |
| FRR | Flight Readiness Review |
| ILS | Integrated Logistic Support |
| LRR | Launch Readiness Review |
| MDR | Mission Definition Review |
| MRD | Mission Requirements Document |
| N/A | Not applicable |
| ORR | Operational Readiness Review |
| OTS | Off-the-Shelf |

**PDR**        Preliminary Design Review

**PRR**        Preliminary Requirements Review

**QR**        Qualification Review

**RID**        Review Item Discrepancy

**SRD**        System Requirements Document

**SRR**        System Requirements Review

**SWCI**        Software Configuration Item

**ECSS**

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# Fundamentals of review

## 4.1    Basic principles

The basic principle applicable to reviews of all European space projects is that a thorough overall examination of the technical status of the project is performed at crucial steps of the programme, involving independent expertise. Reviews assess the work performed by all participants in a project against the stated project requirements, the application of the relevant requirements and standards and good engineering practice.

It is essential that the status of all elements of a system under review and its interfaces (e.g. Launcher, Spacecraft, Ground Segment, Payloads, Operations) are examined during the review process.

The objective of project review is to provide the customers management with assurance throughout the programme, that at the time of each specific review:

- the feasibility of meeting the mission objectives has been established;
- requirements are adequately defined so that by their fulfilment the mission objectives are satisfied;
- the design definition (including hardware, software, and operational approach) satisfies specified requirements for all parts of the system, including standardization where applicable;
- all configuration items conform with their design, configuration and performance requirements;
- verification of all specified requirements, from component to system level, has been demonstrated;
- no potentially serious risk has been overlooked which could affect safety, mission success or which could have major schedule or cost impact on the programme.

A review constitutes a major milestone in the project, and a major responsibility for management. A review identifies potential problems at an early stage and, depending on the terms of reference of the review groupresult in decisions or recommendations to the project management on how to solve these problems. In addition, the outcome of project reviews can serve to measure the suppliers' progress against prescribed requirements.

## 4.2    Stage of achievement and review definition

Each review should be planned to take place at a natural stage of work in progress and at times when sufficient information exists to start the next phase of work with confidence. The definition of this may vary slightly, depending on the nature of the project involved.

The principle adopted in ECSS–M–30 is that activities may overlap project phases. Stricter definition may be adopted to formulate the required output for a specific phase. This is particularly true for the early stages of a project, and should be contained in the relevant project requirements document.

However, based on the system and product activities defined in ECSS–M–30A, clause 4 and as further defined in clause 7, (determined by the principle "define down, make and verify up"), a corresponding review sequence has been derived in this Standard. For a review cycle, this means that:

a.    requirements and design definition shall be established, from the level of mission objectives down to the lowest level of design;

b.    verification shall be performed from the lowest level configuration item up to mission readiness level.

Requirements pertaining to the relationships between system level phases and reviews, as listed in clause 7 of ECSS–M–30A, are further detailed here in Tables 1, 2 and 3.

Formal project reviews shall be held at system level and are often necessary at lower levels (subsystem, equipment and software items). The number and type of reviews shall be dependent on the project size, complexity, engineering critical-ity and whether it is a recurring product. Subsystem and equipment critical de-sign and acceptance reviews shall be completed before the system level review is initiated.

System level reviews should involve the customer and the first level supplier. Lower level reviews should involve the first level supplier and his suppliers (and so on). The customer shall always have the right to attend any lower level project review, including those below the level of its direct suppliers. When exercising this latter, the customer should act as an adviser who contributes on the basis of the technical knowledge and experience of its representatives attending the re-view. In some cases, however, the customer may elect to maintain a formal direct involvement in specific lower level reviews to minimize technical or programma-tic risk. Such cases shall be clearly identified in the business agreement, includ-ing role and prerogative of the customer during those reviews (i.e. review group co-chairmanship).

Using the typical project life cycle of ECSS–M–30, the following reviews desig-nated in this Standard are considered:

● System requirements review

● Preliminary design reviews

● Critical design reviews

● Qualification reviews

● Acceptance reviews

These important reviews are those usually carried out at any product level.

**Table 1: Stage of achievement versus review reference – Progressive definition of requirements**

| Stage of activity just completed | Review Name (System level) | Output for the System | Output for Subsystems | Output for Equipment |
|---|---|---|---|---|
| Identification of user requirements and initial concepts | Mission Definition Review **MDR**[a] | Confirmation of the mission requirements | N/A | N/A |
| Initial mission or user requirements converted into overall system requirements, i.e. mission feasibility and validation of system architecture | Preliminary Requirements Review **PRR**[b] | Confirmation of system feasibility and functional specification released. Requirements on system interfaces established by the first level customer. | Allocation of subsystem functional requirements | N/A |
| System technical specification established | System Requirements Review **SRR**[c] | Assessment of preliminary performance based on conformance with system functional requirements. Evaluation of major plans, (such as D&D, AIV, PA/S). Controlled configuration. System technical specification released, with inclusion of external interfaces. | Allocation of technical requirements on each subsystem | Identification of technical requirements for critical technologies |
| Preliminary design established | Preliminary Design Review **PDR** | Assessment of performance based on analysis results, establishment of technological readiness and compatibility between design and customer requirements, approval of project plans (such as qualification plan, verification and test plan) and standards. Compatibility between design and customer requirements, confirmation of verification approach, special models design. Internal interfaces established | Controlled configuration. Test and verification methods defined. Release of technical subsystem specifications | Allocation of technical requirements on each equipment. Test and verification methods defined. |

a. Generally an internal consumer/customer review.
b. Generally internal customer review to confirm feasibility.
c. The system level SRR should be the baseline from which the first level supplier conducts his subsystem SRRs.

**Table 2: Stage of achievement versus review reference - Progressive verification**

| Stage of activity just completed | Review Name (System level) | Output for the System | Output for Subsystems and Equipment |
|---|---|---|---|
| Development testing completed. Supplier detailed design established | Critical Design Review **CDR**[a] | Design justification file: e.g. integration and test of functional model, design analyses and preliminary version of users documentation | "Build-To", "Buy-To" documents and test procedures |
| Integrate and test a qualification model. For ground elements technical qualification of, e.g. control centre and user's ground element | Qualification Review **QR**[b] | Ground qualification of the system by the customer. Test results and analyses. Design justification (analysis and inspection reports) and qualification reports. User's documentation. Qualification of ground elements. Product configuration baseline by CIDL release. | Completion of design verification activities (test, analyses and inspections). Product configuration baseline by CIDL release. |
| Integrate and test a first flight model to the flight design qualified | Acceptance Review **AR**[c] | Flight model system acceptance test results and analyses/verification and certificate of acceptance | Completion of product verification activities (test, inspections) |

a. To achieve System CDR objectives, subsystem CDRs and ground segment/operations design reviews should have been completed.
b. Ground segment implementation review should be carried out in this time-frame.
c. To achieve AR objectives, subsystem ARs shall be completed.

**Table 3: Stage of achievement versus review reference - Progressive readiness and utilization**

| Stage of activity just completed | Review Name (System level) | Output for the System | Output for Subsystems | Output for Equipment |
|---|---|---|---|---|
| Operational readiness established | Operational Readiness Review **ORR** | Results operational qualification and declaration of operational readiness | Correct team size and training, nominal and degraded modes of operation exercised | N/A |
| Compatibility and readiness of space element for flight | Flight Readiness Review **FRR** | Confirm proper performance with mission requirements and interfaces with all mission elements | "As-built" configuration confirmed | N/A |
| Launch preparation complete and mission performance verified | Launch Readiness Review **LRR** | Confirm proper closure of ORR and FRR actions. Declaration of launch readiness | N/A | N/A |
| Test and verification of actual performance versus mission requirements after useful time of flight operation or service | Flight Qualification Review **FQR** | Operational qualification of system or in-orbit check-out completed and capability to fulfil intended mission confirmed | N/A | N/A |
| End of useful time of operation or service | End of Life Review **EOLR** | Condition and procedures for disposal, retrieval, re-entry | Lessons learned | Lessons learned |

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# 5

# Review process

## 5.1    General

A project review shall avail itself of strong, independent expertise which is impartial to the interests of both the customer's project team and the supplier. Accordingly, the customer shall ensure that this independent element is represented in a review group at senior expertise level to support the customer.

Review groups shall have access to all the information necessary for them to carry out their tasks.

The following elements shall be available to adequately meet the objective of a review:

- timely definition of the data package;
- data input related to the review objectives and timely delivery of a complete and agreed data package;
- emphasis on reviewing working documents;
- clear identification and allocation of tasks to the review group;
- review group study of documents followed by the generation and disposition of "RIDs" (see subclause 5.7);
- contractor summary presentation including answers to questions, early in the review process (e.g. 5 working days after review of the data package);
- consolidation by the review group of the input provided and recommendations to customer;
- customer decision, when applicable;
- project follow-up and confirmation of appropriate closure of actions.

A secondary benefit of the review can be a list of lessons learned. The following establishes requirements for the preparation and conduct of the review and participant roles and responsibilities.

## 5.2    Review bodies

The participants in a review shall include the decision making authority, the supplier's project team and the review group as presented in the schematic diagram of Figure 1.

The *decision making authority* shall have the authoritative role. It may be organized in a Project Steering Committee or Programme Directorate or any other suitable entity. It shall be composed of managers of level high enough:

- to have authority over the actors of the project;

- to have the power to make all necessary decisions or the capacity to easily access people having this power.

It shall be chaired by a representative of the customer organization and includes at least the customer project or programme manager. The decision making authority should involve the management of the supplier organization, in order to discuss and agree on all issues concerning the review such as the scope of the review, the mandate of the review group, the review organization and planning and in particular the review group recommendations and ensuring corrective actions.

The s*upplier's project team* shall have the executive role. Some members of the supplier's project team may be selected to present the documentation submitted to review. But all members (as well as the technical support to the project team) shall be available to provide information requested by the review group and to reply to the RIDs.

The *review group* shall have the consultative role. It should include representatives of the customer organization having no direct involvement in the project activities and always shall include engineering and product assurance experts. Qualified representatives of external bodies having specific competences necessary for the review may also be included, such as:

- experts in the design or industrialization of the type of product (or similar) subject to review;

- specialists responsible for running and maintaining similar products;

- representatives of interfacing systems, components or projects.

When feasible the review group should be composed around the same core members throughout the project cycle.

The review group chairperson shall be appointed by the decision making authority, and shall generally be selected from the customer organization, but shall not be a member of the customer's project team and shall have no hierarchical authority over it. The chairperson shall have equal or higher seniority to the customer project or programme manager, and during the review process functional authority over the review group.

- In some cases the review group may have a part of the authoritative role. In such a situation the composition of both the decision making authority and the review group shall be adjusted.

- The customer's project team shall not appear as a review body. However, during the review process its support to the review group and to some extent to the supplier's project team is of primary importance for the success of the review.

- The review group may establish panels, or subpanels, depending on the complexity of the product under review.
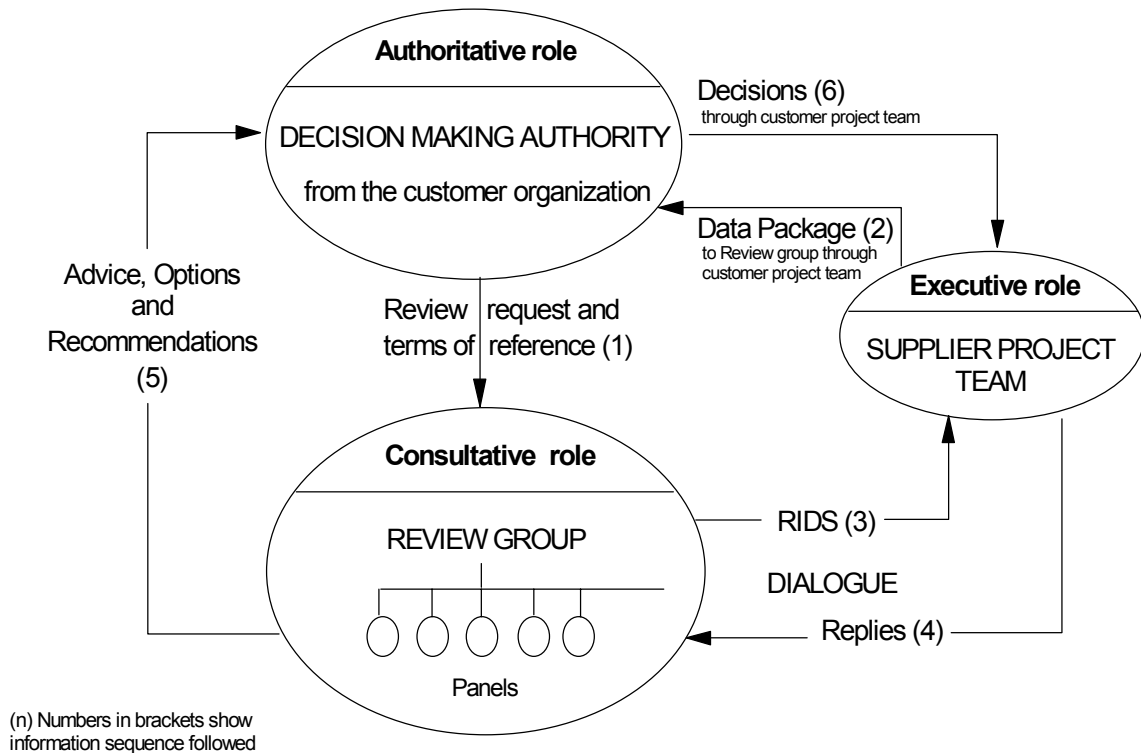
**Figure 1: Schematic presentation of interfaces and interactions between review participants**

## 5.3 Roles and tasks

### 5.3.1 Decision making authority

The decision making authority shall:

a.  define the objectives of the review;

b.  define the terms of reference of the review group;

c.  approve the review plan;

d.  appoint the review group chairperson;

e.  approve the review group membership in consultation with the review group chairperson;

f.  examine the final review group report presented by the review group chairperson;

g.  consider the recommendations and required actions resulting from the review;

h.  generate the relevant decisions as required.

### 5.3.2 Supplier project team

The supplier project team shall:

a.  propose the review plan, if required by the customer project manager;

b.  provide all facilities and logistics for the review meetings and sessions, if required by the customer project team;

c.  ensure that all necessary means, information and documentation are available and current for the review;

d.  prepare responses to RIDs and propose a schedule for the identified actions;

e.  appoint the review secretary, if required by the customer project team.

### 5.3.3    Review group chairperson

The review group chairperson shall:

a.    approve the review plan and submit it to the decision making authority;

b.    select the review group members and propose the membership to the decision making authority;

c.    manage the activities of the review group;

d.    verify the status of actions from the previous review of the project;

e.    verify that the submitted documentation corresponds to the objectives of the review;

f.    approve the RID problem statements;

g.    request supplier responses to RIDs;

h.    prepare the final review report, including recommendations.

### 5.3.4    Review group members

The review group members shall, under the authority of the review group chairperson:

a.    review the submitted documentation;

b.    identify problems or request explanations by means of RIDs (see subclause 5.7);

c.    participate in RID close-out activities, including classification of unresolved problems as being major or minor;

d.    prepare recommendations when the supplier response to a RID (see subclause 5.7) is not considered satisfactory.

### 5.3.5    Review secretary's responsibilities

The project managers of the customer and supplier shall agree on the appointment of a review secretary from the customer's or supplier's organization.

The review secretary shall:

a.    prepare the review plan and submit it to the supplier project manager (when the secretary is from the supplier organization);

b.    track the RID process, filing and numbering;

c.    provide general support to the review participants.

## 5.4    Conditions for holding the review

Before distributing the review plan, the chairperson of the review group, in collaboration with the customer's and supplier's project managers, should analyse the situation of the documentation submitted and the status of the actions from previous reviews, to determine whether all conditions are fulfilled to start the review.

If these conditions are not fulfilled, the chairperson of the review group shall propose to the decision making authority of the customer:

a.    to redefine the review and assign new objectives; or

b.    to take the necessary corrective actions before the review; or

c.    exceptionally, to postpone the review.

## 5.5    Review plan

A review plan shall be prepared to define:

a.    the objectives of the review;

b.    responsibilities of the participants in review, their names and organizational affiliations;

c.    scope of the work assigned to the review group and its panels (if any);

d.    concerns and required decisions or directions, such as option justifications;

e.    lists of documents to be distributed to review group members and all documents to be available during the review;

f.    procedure to be followed during the review meetings including RID numbering, submission and processing;

g.    review schedules to include dates for the kick-off meeting, start and finish dates for the review meetings, distribution date for the final report for review approval and proposed dates for the review group meetings;

h.    status of actions from previous reviews;

i.    forms to be used.

## 5.6    Review meetings

### 5.6.1    Kick-off meeting

The purpose of the kick-off meeting shall be to:

a.    present the review plan and organization;

b.    introduce review group members and decide on any panel assignment;

c.    provide detailed information on the product to be reviewed giving due account of the review objectives;

d.    provide a detailed presentation of the documentation submitted for review;

e.    acknowledge adequacy of the documentation for the review;

f.    formally authorize proceeding with the review.

### 5.6.2    Review group/supplier meetings

Review group/supplier meetings (usually at the supplier's facilities) shall provide the basis for formal exchange of information and for discussions between the members of the review group and the supplier project team, identifying problems (using RIDs) and proposing solutions or providing further inputs. RIDs may be submitted before the meeting as "preliminary".

Each working session (or day) shall end with a restricted meeting at Panel or Review Group level, during which each member shall debrief on the status of the problems identified.

### 5.6.3    Review group closing meeting

The Review Group closing meeting shall consist of:

a.    synthesizing a general opinion on the status of the product under review;

b.    proposing recommendations or actions, or drafting them if it was an objective during the final session;

c.    listing and drafting the actions already accepted by the project team of the supplier.

The results of the closing meeting shall be reflected in the review group report. They may be presented to the supplier and customer project team.

### 5.6.4 Decision making authority meeting

The decision making authority shall meet as soon as possible after release of the review group report. The review group chairperson shall present the review group report. The decision making authority shall examine the actions already accepted by the project team of the supplier for the solution of major problems. The decision making authority shall analyse recommendations proposed by the review group and decide on all the actions suggested for identified problems which are not accepted by the supplier project team.

## 5.7 Review Item Discrepancy recording and processing

The Review Item Discrepancy (RID) shall be the mechanism used to record questions or identified problems arising from examination of review documentation and review presentations. The form shown at annex A.3 is a typical example. Additional pages may be added to the RID form, as necessary, if there is insufficient space to cover the required subjects.

Review Item Discrepancies should only be generated when there is an issue of substance to be addressed and not simply for a clarification or a detailed matter which can be better handled by the project team outside the review.

A RID shall state which requirement is violated by the problem observed. If the RID addresses a matter of quality, feasibility of approach or safety, the requirements most at risk shall be stated.

The logical diagram for RID processing is shown in Figure 2.

When the review group examines the supplier project team's responses to the RIDs, one of the following conclusions may be reached (see Figure 2):

a. The RID raises a problem which has received an immediate and satisfactory reply, the RID is then closed.

b. The RID raises a minor problem which the project team of the supplier accepts for processing as project action.

c. The RID raises a minor problem whose solution is not accepted by the supplier project team. The RID is included in the review group report.

d. The RID raises a major problem that the project team of the supplier accepts to correct by implementing the corresponding actions. The RID identifying the major problem and agreed corrective actions shall be included in the review group report.

e. The RID raises a major problem over which there is either disagreement with the supplier's project team or which creates an impact (financial, schedule, interface, technical or other) which needs to be highlighted and further discussed at a higher level. A recommendation is drafted and the possible impact identified for submission to the decision making authority.
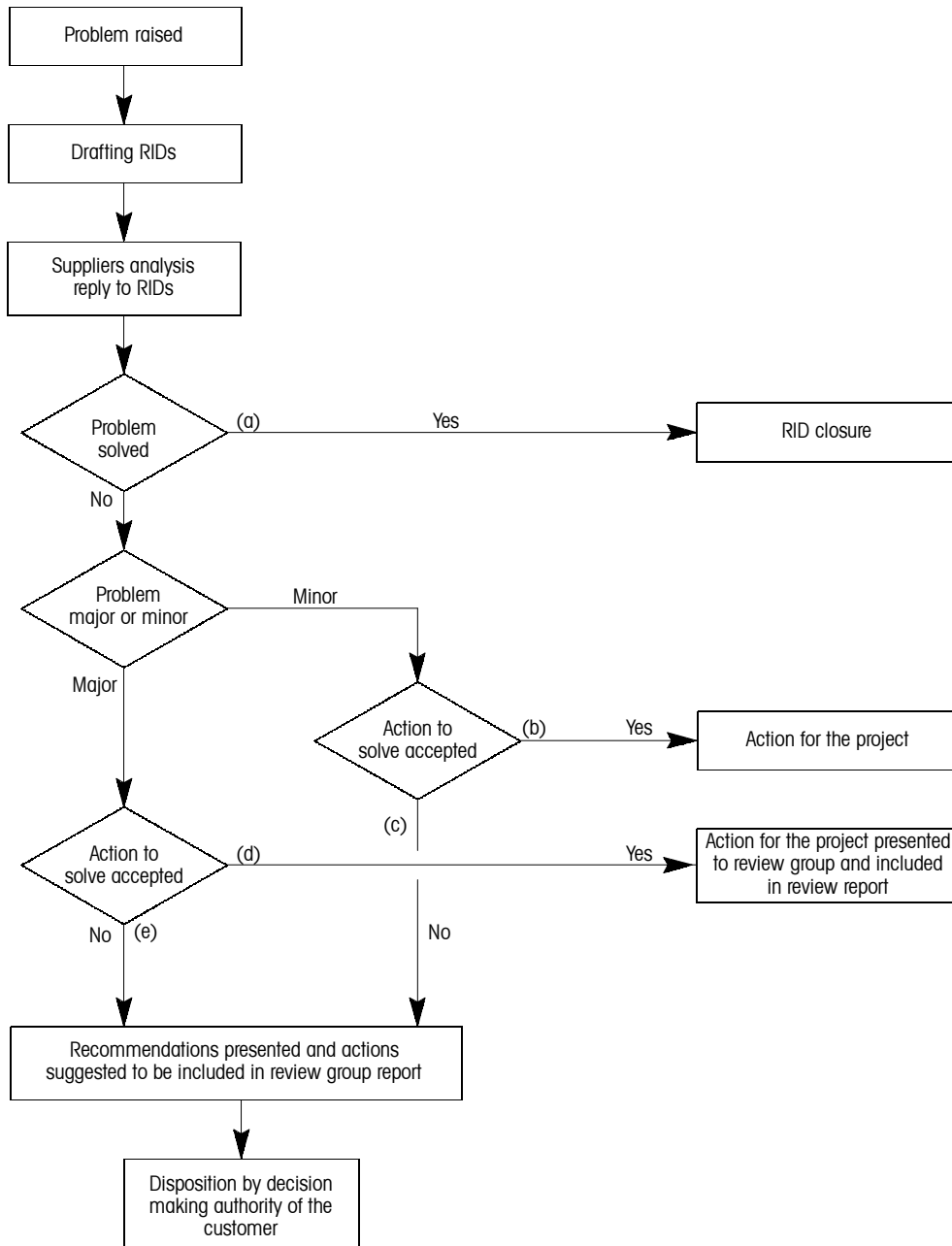
**Figure 2: Logic diagram for RID processing**

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# 6

# Review output and follow-up

## 6.1 Final review group report

The final report issued by the review group should contain:

a. a detailed response to each review objective and question identified in the review plan;

b. the review group's assessment of the quality of the documentation submitted for approval (completeness, technical content and DRD compliance);

c. a summary of major problems identified during the review (including references to the applicable RID number(s) and identified solutions);

d. a summary of the review group's recommendations for issues for which no agreement or solution has been found;

e. an annex containing all RIDs, including the supplier's response;

f. a statement saying whether the review has achieved its overall objectives. If this is not the case, the report should contain recommendations on how to correct the situation.

## 6.2 Actions follow-up

The review objectives are achieved if the recommendations and related actions are satisfactorily closed or under control through normal work procedures. To ensure this, the following arrangements shall be made:

a. an entity inside the customer project team is designated to manage the actions arising from the review;

b. all actions, whether they arise directly from an agreement given by the supplier project team or from recommendations accepted by the decision making authority of the customer, shall be managed in the same manner;

c. the persons responsible for actions should be duly informed and their agreement sought;

d. all action closures should be supported by documented evidence.

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# Annex A (informative)

# Review tools

## A.1    General

This Standard is applicable to European space projects of various sizes from full-scale projects down to technology development contracts.

To apply a reference model adaptable to such a wide variety of complexity, account has been taken of current experience with project reviews throughout Europe.

The following annexes provide descriptions of review tools. However, the tools are generic and can or will be adapted to fit the project requirements.

## A.2    Template for review plan

A typical review plan contains the following information:

**1.    Review title and project**

1.1    Exact name

1.2    System or product subject to review

**2.    Reference documents**
List of project documentation applicable to the review

**3.    Review objectives**

3.1    Purpose of review

3.2    Expected results

**4.    Review organization**

4.1    Review process

4.2    Review participants

4.3    Review administration

4.4    Review group organization

**5.    Review schedule**
Description of activity flow from data package delivery up to and including review group meeting and sequential dates

**6.       Documentation subject to review**

6.1   Document to be examined and provided for the review

6.2   Available reference document

6.3   Summary description of item under review

**7.       Agenda of the presentation session**

7.1   Presentation of the review group and its report

7.2   Presentation of the project (context, technical and management requirements)

7.3   Presentation of the product (definition, critical points, performance, operations)

7.4   State of recommendations of the previous review (if any)

**8.       Participants**

8.1   Decision making authority

8.2   Review group chairperson, secretary and members of the review group

8.3   Members of the project team

**9.       Logistics**

9.1   Address and map – transportation (e.g. nearest airport)

9.2   Suggested accommodation

9.3   Local contact

**10.      Annexes**

10.1  RID form

## A.3     Supporting documentation

Documents presented to a review are used to substantiate the design to be reviewed and to amend, for major reviews, after adequate approval, the corresponding frozen baseline. Documents presented at qualification and acceptance reviews are used to demonstrate completion of relevant verification.

For each project, a detailed list of deliverable documents for the important reviews is defined in the Document Requirements List (DRL), which usually forms part of the contract.

No additional documents to those described in the project DRL are required to support the review, with the exception of a dedicated hand-out for the review presentation.

A typical list of documents for each review is provided below.

### A.3.1   Mission definition review

Mission Requirements Document (MRD);

### A.3.2   Preliminary requirements review

System Requirements Document (SRD);

### A.3.3   System requirements review

System/Requirements Specification;

refines System Requirements Document, includes design requirements and software requirements, specifies verification methodologies and specifies life cycle support (ILS elements)

### A.3.4   Preliminary design review

a.   Development specifications for all CI/SWCIs (all levels)

b.   Interface documentation (system/segment level)

c.   New/critical technology demonstration plans

d.   Design analysis reports

e.   Long-lead material procurement plans

f.   Test requirements documents

g.   Detailed management plans

h.   SW architectural documents (for SWCIs)

i.   Safety plans (preliminary)

### A.3.5   Critical design review

a.   Preliminary drawings and associated lists

b.   I/F documentation (CI/SCIs level)

c.   Vendor substantiation data (purchased off-the-shelf (OTS) products only)

d.   Design analysis reports and development test reports

e.   Subsystem/system components/prime items integration plans/procedures

f.   Qualification and test plans and procedures

g.   Special tooling and support equipment definitions

h.   Special facility requirements documents

i.   SW development folders

j.   SW integration and test plans

k.   Configuration Item Data List (CIDL)

l.   Safety plans

### A.3.6   Qualification review

a.   Product development specifications/software requirements specifications

b.   Drawings and schematics (logic diagrams) as required

c.   I/F specifications

d.   Test plans and procedures

e.   Test and analysis reports

f.   Source qualification reports for OTS items

g.   CIDL

h.   Safety procedures (preliminary)

### A.3.7   Acceptance review

a.   Complete set of product drawings and associated lists

b.   I/F drawings

c.   Test and analysis reports

d.   First article "as-built" records

e.   Critical components list

f.   Calibration requirements documents

g.   Special tools and test equipment documentation

h.   Shelf life item controlled list

i.   Non-standard parts approval requests

j. Preliminary operation and maintenance documentation

k. CIDL

l. Safety procedures

### A.3.8   Flight readiness review

a. Records of flight segment integration and qualification status

b. Records of ground segment operation and qualification status

c. Critical items status reports

d. Safety reports

e. Launch campaign plan and procedures

### A.3.9   Operational readiness review

Plans and procedures for operational activity, ILS and ground support records of final integration and testing activities

### A.3.10 Launch readiness review

Records of integration/launch preparation activities

### A.3.11 Flight qualification review

a. Flight commissioning tests reports

b. Ground commissioning tests reports

c. Lessons learned report

### A.3.12 End of Life Review

a. Disposal plan and procedures

b. Disintegration schedule

c. Disintegration facility requirements

d. Hazardous/contaminated material handling procedures

## A.4    Review Item Discrepancy (RID)

(see example form on next page)

| COMPANY | **REVIEW ITEM DISCREPANCY (RID)** | | 1. RID ID |
|---|---|---|---|
| PROJECT | 3. DOCUMENT IDENTIFICATION | | 2. SYSTEM/SUBSYSTEM |
| 3b. DOCUMENT TITLE | | | 4. VOLUME, SECTION, PARA-GRAPH, PAGE REFERENCE |
| 5. TITLE OF RID | | | 6. ORIGINATOR      DATE |

**7. DISCREPANCY/VIOLATED REQUIREMENT**

**8. SUGGESTED SOLUTION**

**9. SUPPLIER RESPONSE:**      SUGGESTED SOLUTION IS   ☐ IN SCOPE      ☐ OUT OF SCOPE

SUPPLIER SIGNATURE

**10. REVIEW GROUP DISPOSITION FOR   ☐ MAJOR OR   ☐ MINOR
    AND FINAL RECOMMENDATION**

| 11. WITHDRAWN | 12. CLOSE | 13. OPEN IN SCOPE | 14. OPEN OUT OF SCOPE | REVIEW GROUP CHAIRPERSON SIGNATURE |
|---|---|---|---|---|

**15. DECISION MAKING AUTHORITY'S DISPOSITION**

| ACCEPTED IN SCOPE | ACCEPTED OUT OF SCOPE | WITHDRAWN | CLOSED | SUPPLIER SIGNATURE |
|---|---|---|---|---|
| DUE DATE FOR ACTION | | | | |
| CLOSEOUT DATE | | 16. CLOSEOUT REFERENCE | | CUSTOMER SIGNATURE |

Box 7:     Define the reason for the RID detailing adverse consequences on the present status.

Box 8:     Describe the solution suggested by the initiator, clearly and in as much detail as possible. If no solution is suggested, provide rationale.

Box 9:     If the suggested solution is not acceptable as is, an alternative proposal shall be made.

Box 10:    The review group shall classify the RID as major or minor and give a final recommendation and, if required, pass the RID to the decision making authority.

Box 11:    If the RID initiator agrees that the response provided is adequate, the RID is withdrawn.

Box 12:    If the RID disposition proposed by the review group is adequate, the RID is closed.

Box 13:    Implementation of the RID recommendation is commensurate with the contractual boundaries.

Box 14:    Implementation of the RID recommendation is considered an additional requirement or design/test modification to the agreed contractual boundaries.

Box 15:    Major RIDs shall be processed through the decision making authority. Closure of the RID will be recorded by joint signature of the supplier and customer.

Box 16:    Closeout reference and date shall be completed after RID closure.

## ECSS Document Improvement Proposal

| 1. Document I.D. | 2. Document Date | 3. Document Title |
|---|---|---|
| ECSS–M–30–01A | 1 September 1999 | Organization and conduct of reviews |

**4. Recommended Improvement** (identify clauses, subclauses and include modified text and/or graphic, attach pages as necessary)

**5. Reason for Recommendation**

**6. Originator of recommendation**

| Name: | Organization: | |
|---|---|---|
| Address: | Phone:<br>Fax:<br>E–Mail: | **7. Date of Submission:** |

**8. Send to ECSS Secretariat**

| Name:<br>W. Kriedte<br>ESA–TOS/QR | Address:<br>ESTEC, PO Box 299<br>2200 AG Noordwijk<br>The Netherlands | Phone:  +31–71–565–3952<br>Fax:     +31–71–565–6839<br>E–Mail: wkriedte@estec.esa.nl |
|---|---|---|

**Note:** The originator of the submission should complete items 4, 5, 6 and 7.

This form is available as a Word and Wordperfect–Template on internet under
http://www.estec.esa.nl/ecss/improve/

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