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Space systems — General test documentation

Systèmes spatiaux — Documentation générale d'essais

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17566 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Introduction

This International Standard provides the minimum requirements for generating test documentation for an individual test of a spacecraft, subsystem or unit. Specifically, information and templates are included which simplify and standardize the writing of the test documentation described herein.

This International Standard covers four types of test documentation:

— test plan;

— test specification;

— test procedure;

— test report.

The scope of this International Standard does not include overall programme test planning. A specific test plan can also be part of the overall spacecraft project test plan.

Although these documents are functionally independent, there is some overlap of the information contained in each. These documents can be combined as appropriate, depending on the nature and complexity of the test in question. For example, for a test of moderate complexity, the test plan and test specification can be combined into one document. For very simple tests, such as unit tests, it may be appropriate to combine the test plan, specification and procedure all into one document. Guidance on combining documents to handle these situations is provided in Clause 4.

Space systems — General test documentation

1 Scope

This International Standard provides a specific format for the development of test documentation for an individual test of a spacecraft, subsystem or unit. It is focused on the definition of the format for test plans, test specifications, test procedures and test reports.

The scope of this International Standard does not include overall programme test planning. A specific test plan can also be part of the overall spacecraft project test plan.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
analysis
verification method which entails performing a theoretical evaluation using accepted techniques

NOTE These techniques can include mathematics, statistics, qualitative design analysis, modelling and computer simulation.

2.2
characteristic
distinguishing feature

2.3
objective evidence
data supporting the existence or verity of something

2.4
procedure
specified way of carrying out an activity or a process

2.5
process
set of interrelated or interacting activities which transforms inputs into outputs

2.6
requirement
need or expectation, stated or generally implied, whose fulfillment is obligatory

2.7
test
determination of one or more characteristics according to a procedure by which requirements are verified through measurement of product performance and functions during and/or after exposure to simulated environmental loads

2.8
verification
confirmation, through the provision of objective evidence, that specified requirements of the spacecraft system have been fulfilled after exposure to simulated or in-service loads

3 Document descriptions

3.1 Test plan documentation

The test plan document is the master plan describing the process for an individual test on a specified test article. The test plan document contains the following elements:

a) an introduction, comprising

   1) overall test objectives, and

   2) scope of the test plan document;

b) referenced documentation, including

   1) normative references,

   2) applicable references, and

   3) informative references;

c) nomenclature, including

   1) terms and definitions,

   2) symbols, and

   3) acronyms;

d) test purpose, comprising

   1) overall test description, and

   2) test strategy matrix;

e) test description, comprising

   1) test approach and methodology,

   2) test flow,

   3) test article,

   4) test set-up,

   5) specialized test tools,

   6) supporting analyses,

   7) test input data, and

   8) test output data.

3.2 Test specification documentation

The test specification is an intermediate step in the test definition process occurring between the test plan and the test procedure. The test specification document specifies the test parameters to be used to satisfy the test requirements given in the test plan document. Instead of listing all information in the test specification document, other documents may be referenced. This can occur in situations where a large amount of information is to be specified due to the complexity of the test requirements or test article. The test specification document includes the following sections:

a) an introduction, comprising

   1) overall test objectives, and

   2) scope of the test plan document;

b) referenced documentation, including

   1) normative references,

   2) applicable references, and

   3) informative references;

c) nomenclature, including

   1) terms and definitions,

   2) symbols, and

   3) acronyms;

d) test article configuration requirements, including

   1) test article configuration matrix,

   2) test article measured parameters,

   3) deviations from flight configuration, and

   4) test article functional configuration, including

      i) operational mode,

      ii) electrical system state,

      iii) pyrotechnic system state, and

      iv) propulsion system state;

e) test facility requirements, including

   1) test facility identification and location,

   2) equipment,

   3) instrumentation,

   4) interfaces to test article,

   5) environmental conditions,

   6) software,

7) data acquisition and analysis systems,

8) other infrastructure required for performance of the test,

9) test facility constraints,

10) test facility operational limitations, and

11) test facility safety limitations;

f) procedural test requirements, including

1) test set-up,

2) test flow,

3) supporting analyses,

4) test article disposition after testing,

5) test specimen equipment,

6) test specimen software,

7) test specimen ground support instrumentation,

8) calibration,

9) test conditions,

10) test input parameters, tolerances and limits,

11) test output data,

12) data acquisition,

13) data processing,

14) test-specific safety considerations, and

15) test success criteria.

3.3 Test procedure documentation

The test procedure document is a detailed step-by-step set of instructions which, when followed, satisfy the referenced test specification requirements. The test procedure document contains the following elements:

a) an introduction, comprising

1) objectives,

2) scope, and

3) background;

b) referenced documentation, including

1) normative references,

2) applicable references, and

3) informative references;

c) nomenclature, including

   1) terms and definitions,

   2) symbols, and

   3) acronyms;

d) test personnel;

e) a detailed procedural checklist.

3.4 Test report documentation

The test report document describes the execution and results of the test. It provides conclusions with reference to the objectives and test requirements specified in the test plan and test specification documents. The test procedure document may be converted into an as-run test procedure for inclusion in the test report document. The test report document contains the following elements:

a) an introduction, comprising

   1) objectives,

   2) scope, and

   3) background;

b) referenced documentation, including

   1) normative references,

   2) applicable references, and

   3) informative references;

c) nomenclature, including

   1) terms and definitions,

   2) symbols, and

   3) acronyms;

d) as-run test article configuration;

e) as-run detailed procedural checklist;

f) test results, including

   1) test output data,

   2) test processed data,

   3) environmental and facility data,

   4) test documentation, and

   5) photographs, videos and sketches;

g) test data evaluation;

h) test deviations;

i) summaries and conclusions.

4 Combining documents

4.1 General

Although these documents are functionally independent, there is some overlap of the information contained in each. These documents may be combined as appropriate, depending on the nature and complexity of the test in question. For example, for a test of moderate complexity, the test plan and test specification may be combined into one document. For very simple tests, such as unit tests, it may be appropriate to combine the test plan, specification and procedure all into one document. Guidance on combining documents to handle these situations is provided in 4.3 and 4.4.

4.2 Test plan/test specification/test procedure/test report

For complex testing of a space system, the test plan, test specification, test procedure and test report will usually all be written. The elements that each of these should contain are specified in Table 1 below.

Table 1 — Summary of documentation contents for complex testing

Section	Test plan	Test specification	Test procedure	Test report
Introduction	Yes	Yes	Yes	Yes
Referenced documentation	Yes	Yes	Yes	Yes
Nomenclature	Yes	Yes	Yes	Yes
Test purpose	Yes	No	No	No
Test description	Yes	No	No	No
Test article configuration requirements	No	Yes	No	No
As-run test article configuration	No	No	No	Yes
Test facility requirements	No	Yes	No	No
Procedural test requirements	No	Yes	No	No
Test personnel	No	No	Yes	No
Detailed procedural checklist	No	No	Yes	No
As-run detailed procedural checklist	No	No	No	Yes
Test results	No	No	No	Yes
Test data evaluation	No	No	No	Yes
Test deviations	No	No	No	Yes
Summary and conclusions	No	No	No	Yes

4.3 Combined test plan and test specification/test procedure/test report

For moderately complex testing of a space system or subsystem, the documentation set may be reduced to a combined test plan and test specification, a test procedure and a test report. The elements that each of these should contain are specified in Table 2 below.

Table 2 — Summary of documentation contents for moderately complex testing

Section	Test plan & specification	Test procedure	Test report
Introduction	Yes	Yes	Yes
Referenced documentation	Yes	Yes	Yes
Nomenclature	Yes	Yes	Yes
Test purpose	Yes	No	No
Test description	Yes	No	No
Test article configuration requirements	Yes	No	No
As-run test article configuration	No	No	Yes
Test facility requirements	Yes	No	No
Procedural test requirements	Yes	No	No
Test personnel	No	Yes	No
Detailed procedural checklist	No	Yes	No
As-run detailed procedural checklist	No	No	Yes
Test results	No	No	Yes
Test data evaluation	No	No	Yes
Test deviations	No	No	Yes
Summary and conclusions	No	No	Yes

4.4 Combined test plan, specification and procedure/test report

For simple testing of a space subsystem or unit, the documentation set may be reduced to a combined test plan, test specification and test procedure along with a test report. The elements that each of these should contain are specified in Table 3 below.

Table 3 — Summary of documentation contents for simple testing

Section	Test plan & specification & procedure	Test report
Introduction	Yes	Yes
Referenced documentation	Yes	Yes
Nomenclature	Yes	Yes
Test purpose	Yes	No
Test description	Yes	No
Test article configuration requirements	Yes	No
As-run test article configuration	No	Yes
Test facility requirements	Yes	No
Procedural test requirements	Yes	No
Test personnel	Yes	No
Detailed procedural checklist	Yes	No
As-run detailed procedural checklist	No	Yes
Test results	No	Yes
Test data evaluation	No	Yes
Test deviations	No	Yes
Summary and conclusions	No	Yes

Annex A
(normative)

Test plan documentation

A.1 Introduction

A.1.1 General

The **Introduction** clause is a preliminary element which shall be used to give general information or commentary on the technical content of the test plan document, and on the reasons prompting its preparation. The introduction shall include a brief description of the test and its objectives. It shall not contain requirements.

A.1.2 Objective

The **Objective** subclause shall specify the desired outcome of the test in terms of test article qualification, acceptance or development. The Objective subclause may reference other elements which appear later in the document.

A.1.3 Scope

The **Scope** subclause shall define without ambiguity, the test article, the range of testing covered by the plan and the applicability of the plan in relation to fulfilling test article test objectives.

The test plan document shall provide input information for generation of the test specification document in terms of the overall test objectives. The test plan document may be a part of the overall spacecraft programme test plan.

A.1.4 Background

The **Background** subclause is optional. If included, it may discuss the background of the spacecraft programme if that information benefits overall understanding of the test.

A.2 Referenced documentation

A.2.1 General

This clause shall provide a list of the documents to which reference is made in the test plan.

A.2.2 Normative references

Normative references are published standards and specifications that provide requirements or constraints for conducting the test. The following text shall precede the list of normative references:

The following normative documents contain provisions which, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this document 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. Members of ISO and IEC maintain registers of currently valid International Standards.

In the event of a conflict between the documents referenced herein and the contents of this document, the contents of this document shall supersede. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Document number	Document description	Revision level/Release date

A.2.3 Applicable references

Applicable references are programme-related documents that provide requirements or constraints for conducting the test.

Document number	Document description	Revision level/Release date

A.2.4 Informative references

These documents are listed for information only. Informative references amplify or clarify the document content and do not contain requirements applicable to the test plan. Some examples of these documents are standards, publications and drawings.

Document number	Document description	Revision level/Release date

A.3 Nomenclature

A.3.1 Terms and definitions

The **Terms and definitions** subclause shall provide definitions necessary for the understanding of certain terms used in the test plan. The Terms and definitions subclause shall include only those items specific to the test plan in question. In some cases, a project dictionary or glossary may be referenced.

A.3.2 Symbols

The **Symbols** subclause shall provide a list of the symbols necessary for the understanding of the test plan.

Unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order.

The Symbols subclause shall include only those items specific to the test plan in question.

A.3.3 Acronyms

The **Acronyms** subclause shall provide a list of the acronyms necessary for the understanding of the test plan.

The Acronyms subclause shall include only those items specific to the test plan in question.

A.3.4 Abbreviations

The **Abbreviations** subclause shall define the abbreviations used in the test report.

A.4 Test purpose

A.4.1 Overall test description

This subclause shall describe the overall test process as it applies to the scope of the document and how it relates to the test strategy matrix.

A.4.2 Test strategy matrix

The test strategy matrix shall specify the minimum set of requirements to be verified within the test plan and the testing strategies that will be employed to satisfy these requirements. This matrix shall also be utilized to establish pass-fail criteria for all testing within the scope of the plan.

Document	Paragraph reference	Requirement	Test strategy for satisfying requirement

A.5 Test description

A.5.1 General

The **Test description** clause shall provide a general description of the test in terms of test approach.

A.5.2 Test approach and methodology

This subclause shall contain a description of the logic behind the test flow and a general description of the methods used.

A.5.3 Test flow

This subclause shall provide information on the test flow and sequence of test events. Include a flow chart or spreadsheet if appropriate.

A.5.4 Test article

A.5.4.1 Identification

This subclause shall specify how the test article is identified in terms of name, part number, etc.

A.5.4.2 Description

This subclause shall provide a general description of the test article. A more detailed configuration will be included in the test specification document.

A.5.4.3 General Configuration

This subclause shall provide information on the configuration of the test article in general terms. Configuration control methods shall also be included.

A.5.5 Test set-up

This subclause shall provide a general description of the test set-up, including mechanical and electrical support equipment and facilities.

A.5.6 Specialized test tools

This subclause shall describe any specialized tools to be employed in the test process. These may include such items as analytical tools, specialized mechanical support equipment for the test article, specialized electrical support equipment for the test article, and custom simulators and software.

A.5.7 Supporting analyses

This subclause shall provide a general description of required analysis performed to support definition of test set-up or execution of the test.

A.5.8 Test input data

This subclause shall provide a general description of the planned input methodology.

A.5.9 Test output data

This subclause shall provide a description of the data that will be generated during the test.

Annex B
(normative)

Test specification documentation

B.1 Introduction

B.1.1 General

The **Introduction** clause is a preliminary element which shall be used to give general information or commentary on the technical content of the test specification document, and on the reasons prompting its preparation. The introduction shall include a brief description of the test and its objectives. It shall not contain requirements.

B.1.2 Overall test objectives

The **Objective** subclause shall specify the desired outcome of the test in terms of test requirements. The Objective subclause may reference requirements provided later in the document.

B.1.3 Scope

The **Scope** subclause shall specify the scope and applicability of the test specification as well as providing a general description of the range of requirements for the test.

The test specification is an intermediate step in the definition of the test process, coming between the test plan and the test procedure. It shall specify the test requirements for the test article based upon the verification objectives stated in the test plan and shall also provide input information for the test procedure in advance of the procedure or the activity itself. Information contained in the test specification may also be used to produce a requirements document for test facility planning operations.

B.1.4 Background

The **Background** subclause is optional. If included, it may discuss the background of the spacecraft programme if that information benefits overall understanding of the test.

B.2 Referenced documentation

B.2.1 General

This clause shall provide a list of the documents to which reference is made in the test specification.

B.2.2 Normative references

Normative references are published standards and specifications that provide requirements or constraints for conducting the test. The following text shall precede the list of normative references:

The following normative documents contain provisions which, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this document 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. Members of ISO and IEC maintain registers of currently valid International Standards.

In the event of a conflict between the documents referenced herein and the contents of this document, the contents of this document shall supersede. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Document number	Document description	Revision level/Release date

B.2.3 Applicable references

Applicable references are programme-related documents that provide requirements or constraints for conducting the test.

Document number	Document description	Revision level/Release date

B.2.4 Informative references

These documents are listed for information only. Informative references amplify or clarify the document content and do not contain requirements applicable to the test plan. Some examples of these documents are standards, publications and drawings.

Document number	Document description	Revision level/Release date

B.3 Nomenclature

B.3.1 Terms and definitions

The **Terms and definitions** subclause shall provide definitions necessary for the understanding of certain terms used in the test specification. The Terms and definitions subclause shall include only those items specific to the test specification in question. In some cases, a project dictionary or glossary may be referenced.

B.3.2 Symbols

The **Symbols** subclause shall provide a list of the symbols necessary for the understanding of the test specification.

Unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order.

The Symbols subclause shall include only those items specific to the test specification in question.

B.3.3 Acronyms

The **Acronyms** subclause shall provide a list of the acronyms necessary for the understanding of the test specification.

The Acronyms subclause shall include only those items specific to the test specification in question.

B.3.4 Abbreviations

The **Abbreviations** subclause shall define the abbreviations used in the test report.

B.4 Test article configuration requirements

B.4.1 Test article configuration matrix

A specific identification of the test article shall be provided. This may be in the form of a parts list including part or drawing numbers.

B.4.2 Test article measured parameters

This subclause shall contain information measured on the test article which is pertinent to the test. For example, the measured weight of the test article may be included for a modal survey test to aid in model verification.

B.4.3 Deviations from flight configuration

This subclause shall contain a detailed list of deviations from flight configuration.

B.4.4 Test article functional configuration

B.4.4.1 General

This subclause shall contain a detailed description of the physical and electrical system states of the test article for the test.

B.4.4.2 Operational mode

Specify the operational mode in which the test article is configured for each stage of testing. For a spacecraft test, specify whether the spacecraft is in launch or on-orbit configuration and how the operational mode is defined (solar arrays deployed, etc.).

B.4.4.3 Electrical system state

Specify the details of how the electrical system is configured with regard to which systems are powered and operational.

B.4.4.4 Pyrotechnic system state

Specify the configuration and operational state of pyrotechnic ordnance devices and associated electrical systems.

B.4.4.5 Propulsion system state

Specify the configuration and operational state of all propulsion systems and associated electrical systems.

B.5 Test facility requirements

B.5.1 Test facility identification and location

This subclause shall specify the name and address/location of the test facility.

B.5.2 Equipment

This subclause shall specify the facility equipment to be used for the test. Equipment name, description and model numbers should be included.

B.5.3 Instrumentation

This subclause shall contain a description and listing of facility test instrumentation required for the physical set-up of this test. A table should be included containing instrumentation descriptions, measurement parameters, model numbers, quantities, etc.

B.5.4 Interfaces to the test article

This subclause shall specify the interfaces between the test facility and the test article.

B.5.5 Software

This subclause shall contain a description and listing of specific facility test software required for the physical set-up of this test. Some possible examples are software for test control, data analysis, data transmission, data display and plotting.

B.5.6 Data acquisition and analysis systems

This subclause shall specify the facility equipment to be used for the test. Equipment name, description and model numbers should be included.

B.5.7 Other infrastructure required for performance of the test

This subclause shall specify any other facility hardware not covered elsewhere in the document.

B.5.8 Test facility constraints

This subclause shall specify any test facility constraints that may affect the operation of the test, such as physical access, hours of operation, manpower availability.

B.5.9 Test facility operational limitations

This subclause shall specify any test facility operational limitations, such as test equipment load limits, crane/lifting limits, cleanliness levels, etc.

B.5.10 Test facility safety limitations

This subclause shall specify any test facility characteristic that may produce personnel or hardware safety issues due to the characteristics of the test article or requirements of the test.

B.6 Procedural test requirements

B.6.1 Test set-up

B.6.1.1 General

This subclause shall provide a general description of the test set-up, including mechanical and electrical support equipment and facilities. A sketch or photograph may be included for clarity.

B.6.1.2 General description

This subclause shall provide a description of how the test article and test facility are integrated for the execution of the test.

B.6.1.3 Drawings

This subclause shall specify and, if practical, include drawings needed to define the test.

B.6.1.4 Figures

This subclause shall specify and, if practical, include figures needed to define the test.

B.6.1.5 Schematics

This subclause shall specify and, if practical, include schematics needed to define the test.

B.6.2 Test flow

This subclause shall specify the sequence of events for the execution of the test.

B.6.3 Supporting analyses

This subclause shall provide a general description of required analysis performed to support definition of test set-up or execution of the test.

B.6.4 Test article disposition after testing

This subclause shall specify the subsequent operations that will be carried out after the test sequence is completed.

B.6.5 Test specimen equipment

This subclause shall contain a description and listing of ground support equipment (GSE), mechanical, electrical and fluidic, unique to the test specimen and required to support the test.

B.6.6 Test specimen software

This subclause shall contain a listing and description of test software unique to the test specimen and required to support the test.

B.6.7 Test specimen ground support instrumentation

This subclause shall contain a description and listing of test instrumentation unique to the test article.

B.6.8 Calibration

This subclause shall provide the appropriate calibration reference and describe the calibration techniques.

B.6.9 Test conditions

B.6.9.1 Environmental conditions

B.6.9.1.1 Temperature

If applicable, specify the temperature range that is required to be maintained during the test.

B.6.9.1.2 Relative humidity

If applicable, specify the range of relative humidity that is required to be maintained during the test.

B.6.9.2 Contamination control

B.6.9.2.1 Non-volatile residue

If applicable, specify the maximum non-volatile residue that is allowable during the test.

B.6.9.2.2 Particulate contamination

If applicable, specify the maximum particulate contamination that is allowable during the test.

B.6.10 Test input parameters, tolerances and limits

B.6.10.1 General

This subclause shall provide a general description of the planned input methodology.

B.6.10.2 Test input levels

This subclause shall specify the test input levels if applicable. A table of levels may be included for clarity of presentation.

B.6.10.3 Test level tolerances and limits

This subclause shall specify test level alarm and abort limits

B.6.11 Test output data

This subclause shall provide a description of the data that will be generated during the test.

B.6.12 Data acquisition

This subclause shall specify how data will be acquired and what form the data will be in. Parameters such as digital sample rates, storage parameters and full scale ranges may be provided here.

B.6.13 Data processing

This subclause shall specify how data will be processed and what the analysed output data will be. Parameters such as digital sample rates, storage parameters and full scale ranges may be provided here.

B.6.14 Test-specific safety considerations

B.6.14.1 Test article protective handling and control

This subclause shall specify details of how the test article should be handled with regard to transportation, lifting, etc. It shall also contain a description of the protective measures to be implemented for the safe handling of the test article.

B.6.14.2 Electrostatic discharge control

This subclause shall contain a description of the protective measures to be implemented for the safe handling of the test article with regard to static electricity protection.

B.6.14.3 Personnel safety

This subclause shall specify general safety procedures as well as test-specific requirements for testing that ensure personnel safety. Pressurized systems and active pyrotechnics are examples of items involving test-specific safety requirements.

B.6.15 Test success criteria

This subclause shall specify test success criteria as concise requirements.

The system tests shall be completed in accordance with the appropriate test procedure.

If the test specimen should fail, be damaged in any way, or experience an out-of-tolerance condition, it should be preserved in its current condition if possible, and a detailed failure analysis shall be performed to determine the cause of the damage or anomalous condition. Testing shall not resume until authorized by the test director. Appropriate documentation shall be generated when deemed necessary by the test director.

Annex C
(normative)

Test procedure documentation

C.1 Introduction

C.1.1 General

The **Introduction** clause is a preliminary element which shall be used to give general information or commentary on the technical content of the test procedure document, and on the reasons prompting its preparation. The introduction shall include a brief description of the test and its objectives. It may also discuss the background of the spacecraft programme if that information benefits the overall understanding of the test. It shall not contain requirements.

C.1.2 Objective

The **Objective** subclause shall specify the desired outcome of the test based on successful execution of the procedural steps contained in the test procedure.

C.1.3 Scope

The **Scope** subclause shall specify the scope and applicability of the test procedure as well as providing a general description of the range of activities to be completed for the test.

The test procedure is an intermediate step in the definition of the test process, coming after the test specification and before the test report. It shall specify the procedural steps to be executed during the test, based on the test requirements stated in the test specification.

C.1.4 Background

The **Background** subclause is optional. If included, it may discuss the background of the spacecraft programme if that information benefits the overall understanding of the test.

C.2 Referenced documentation

C.2.1 General

This clause shall provide a list of the documents to which reference is made in the test procedure.

C.2.2 Normative references

Normative references are published standards and specifications that provide requirements or constraints for conducting the test. The following text shall precede the list of normative references:

The following normative documents contain provisions which, through reference in this text, constitute provisions of this document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this document 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. Members of ISO and IEC maintain registers of currently valid International Standards.

In the event of a conflict between the documents referenced herein and the contents of this document, the contents of this document shall supersede. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Document number	Document description	Revision level/Release date

C.2.3 Applicable references

Applicable references are programme-related documents that provide requirements or constraints for conducting the test.

Document number	Document description	Revision level/Release date

C.2.4 Informative references

These documents are listed for information only. Informative references amplify or clarify the document content and do not contain requirements applicable to the test plan. Some examples of these documents are standards, publications and drawings.

Document number	Document description	Revision level/Release date

C.3 Nomenclature

C.3.1 Terms and definitions

The **Terms and definitions** subclause shall provide definitions necessary for the understanding of certain terms used in the test procedure. The Terms and definitions subclause shall include only those items specific to the test procedure in question. In some cases, a project dictionary or glossary may be referenced.

C.3.2 Symbols

The **Symbols** subclause shall provide a list of the symbols necessary for the understanding of the test procedure.

Unless there is a need to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order.

The Symbols subclause shall include only those items specific to the test procedure in question.

C.3.3 Acronyms

The **Acronyms** subclause shall provide a list of the acronyms necessary for the understanding of the test procedure.

The Acronyms subclause shall include only those items specific to the test procedure in question.

C.3.4 Abbreviations

The **Abbreviations** subclause shall define the abbreviations used in the test report.

C.4 Test personnel

C.4.1 Personnel

Specify key personnel required for execution of the test using the following format.

Title	Name	Phone	E-mail
Test director			
Test conductor			
etc.			

C.4.2 Responsibilities

C.4.2.1 Test director

This subclause shall describe the test director's responsibilities.

The test director is responsible for directing test activities, maintaining the test log and documentation, test schedules and coordination of resources. The test director shall be responsible for all data collection during the test and its evaluation for the final test report. The test director shall also be responsible for coordinating the inputs from the test conductors and from the quality assurance representatives.

C.4.2.2 Test conductor

This subclause shall describe the test conductor's responsibilities.

The test conductor shall be responsible for the phase of the test being conducted. He/She shall also be responsible for test preparation, executing the test procedure and the scheduling of daily activities.

C.4.2.3 Subsystem engineer

This subclause shall describe the subsystem engineer's responsibilities.

The subsystem engineer shall be responsible for delivering the test article, test fixtures and test equipment to the test director/conductor. The subsystem engineer shall also be responsible for any specific handling requirements for the test article.