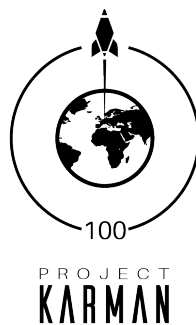




Association for Space Technology and
Research Applications



Project Karman

Test Report - Avionics System

Document number:

Issued:

Revision:

Prepared:

Released:

Team Members

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Date of Submission:

Contents

1	Summary	4
1.1	Scope	4
1.2	Test Objectives	4
1.3	Test Specimen	4
1.4	Test Verification Matrix	4
2	References	5
2.1	Applicable Documents	5
2.2	Reference Documents	5
2.3	Abbreviations	5
3	Test Setup	6
4	Test Conditions	7
4.1	Responsibilities	7
4.2	Test Reviews	7
4.3	Environmental Conditions	7
4.4	Test Tolerances	8
4.5	Instrumentation and Test Equipment	8
4.6	Test Safety Precautions	8
5	Test Program	9
5.1	Test Criteria	9
5.2	Test Success Criteria	9
5.3	Recorded Data	9
5.4	Vibration test	9
5.5	Test Descriptions	10
6	Test Result Sheets	11

List of Figures

1	LOGO of ASTRA	11
---	-------------------------	----

List of Tables

1	Test Specimen	4
2	Test Verification Matrix	4
3	Environmental Conditions	7
4	Test Tolerances	8

1. Summary

1.1. Scope

This document describes the — test procedure for the — of the — unit to meet the requirements — and —.

Purpose of the test is to demonstrate that —.

This document establishes the test procedure as well as the test sequence required for the — test of the — unit.

1.2. Test Objectives

The major test objectives are:

1. To demonstrate that the – unit adequately meets the — requirements.
2. To ensure/demonstrate that — unit can be operated in — mode.

1.3. Test Specimen

A list of the test specimen parts is given in the table below.

Table 1: Test Specimen

Test item	Hardware/Part number	Model
–Unit	88888	ABC-X
–Unit	99999	XYZ-S

1.4. Test Verification Matrix

Table 2: Test Verification Matrix

Test Requirement	Test Temperatures	Remarks
Performance Test	AV001 +Xdeg, -Xdeg	Acceptance level

2. References

2.1. Applicable Documents

AV-COM-SPEC-777 ABC-Band RF Specification
AV-GPS-SPEC-777 GPS – Specification

2.2. Reference Documents

2.3. Abbreviations

3. Test Setup

The general setup to test — of the — unit is shown in the figure below.

4. Test Conditions

This section defines the general conditions under which the test shall be carried out.

4.1. Responsibilities

The test shall be performed under the supervision of the Test Review Board (TRB) consisting of the following members:

— **Team Lead:**

- Operation of measuring instrumentation and test facility
- Performance of functional checks
- Compilation of test results
- General safety precautions
- Test evaluation

External Review Board member:

External Safety Assurance Engineer:

4.2. Test Reviews

The Critical Design Review (CDR) and the XYZ Review shall be conducted by the External Test Review Board.

4.3. Environmental Conditions

Table 3: Environmental Conditions

Conditions	Requirements	Verification
Tempearture	+22 degrees	Thermometer
Relative Humidity	50%	Hygrometer
Pressure	110bar	xy gauge

4.4. Test Tolerances

Table 4: Test Tolerances

Parameter	Tolerance Allowed	Comment
Voltage	+/- 1 %	xxx
Current	+/- 1 %	N/A
Frequency	+/-1 ppm	ECSS-x-x

4.5. Instrumentation and Test Equipment

4.6. Test Safety Precautions

Handle xyz with care.

Be aware of xxx changes during the process of xxx.

Strong precautions need to be taken for xxx.

5. Test Program

5.1. Test Criteria

The performance mentioned has to be in line with the relevant requirement specification defined within [PR005]. (PR005: Unit 4)

5.2. Test Success Criteria

The acceptance tests are considered to be successful if the following criteria are fulfilled:

- No visible damage has occurred.
- All tested parameters are within specified limits.
- No NCR was raised. (Signs of non-conformity raised by someone who inspected the units)

5.3. Recorded Data

All actions and results shall be documented in the test report.

The following data shall be measured and recorded:

- Picture of the set-up.
- Picture of the test-specimen connected to the measurement equipment.
- All measurement data has to be written in the results sheet (chapter 6).

Anomalies, deficiencies or ambiguities are to be immediately reported and mentioned in the Problem-Failure report. Any variation to the test procedure has to be discussed and approved.

Any deviation and malfunction has to be mentioned in the Non-conformance report.

An overview of the general test sequence is shown in Figure below.

5.4. Vibration test

18 seconds cycles (sinusoidal and random).

Frequencies (rocket engine): 100Hz-5000Hz.

100, 250, 750, 1000, 2000, 3000, 4000, 5000. (times 5)

Random(100-5000Hz): Also 5 times.

Amplitudes:

Avionics bay dimensions: (model) (diagram with description) (2D drawing with dimensions)

Connectors:

5.5. Test Descriptions

6. Test Result Sheets

Include, plots, checklists, tables and pictures here.

Also include an Annex of used equipment, Procedure variation sheet, Non-conformity report, Problem-failure report.



Figure 1: LOGO of ASTRA