

MIL-T-18303B(AS)

1 September 1966

~~SUPERSEDING~~

MIL-T-18303A

1 May 1963

MILITARY SPECIFICATION

TEST PROCEDURES; PREPRODUCTION, ACCEPTANCE, AND LIFE
FOR AIRCRAFT ELECTRONIC EQUIPMENT, FORMAT FOR

This specification has been approved by the
Naval Air Systems Command, Department of the Navy.

1. Scope

1.1 Scope - This document establishes the format for the preparation of Design Approval, Preproduction, Acceptance, and Life Test Procedures required for the testing of Avionic Equipment. This format is prescribed for:

A. PREPRODUCTION OR DESIGN APPROVAL TESTS

Part I Performance Tests under Laboratory
Conditions (Bench Tests)

Part II Performance Tests under Simulated
Environmental Conditions
(Environmental Tests)

Part III Interference Test

Part IV Reliability Index Determination
Test

B. ACCEPTANCE TESTS

Part I Individual Test

Part II Sampling Test

Part III Reliability Assurance Test

Part IV Special Test (when required)

C. LIFE TEST

FSC MISC

MIL-T-18303B(AS)

2. APPLICABLE DOCUMENTS

- 2.1 The following documents of the issue in effect on date of invitation for bid form a part of this specification to the extent specified herein:

STANDARDS

MILITARY

MIL-STD-804 -- Formats and coding of tabulating and aperture cards for Engineering Data, Micro-Reduction System

3. REQUIREMENTS

- 3.1 General - Format and content of test procedures shall be as specified in the following paragraphs. Each procedure part shall be complete within itself to the extent that it will not be necessary to refer to other procedures or specifications to perform the specified tests.
- 3.2 Cover - Front and back covers shall be of card stock or other similar material which will protect the procedure and provide adequate support when stored on library shelving. The cover size shall be 8 1/2 x 11 inches.
- 3.2.1 Titling - In addition to appropriate security information the front cover of each procedure shall contain the following information:

Title of Test Procedure
Test Procedure Part Number
Equipment Name and Nomenclature
Contract Number
Contractor's Name

(See the sample Title Page in Appendix I for format.) This information may be deleted from the front cover if a window is provided to view this information on the Title Page. The only other information permitted on the cover shall be the necessary security markings.

MIL-T-18303B(AS)

3.3 Title Page - A title page shall be included directly under the front cover. The title page shall include the information specified in 3.2.1 and:

- (1) Date of issue (upper right-hand corner)
- (2) Total pages in the procedure
- (3) Date of revision(s) (when applicable)
- (4) A comprehensive listing, showing revised pages and the date of revision (lower half of page)

Note: (3) and (4) are accomplished by a replacement title page which functions as a cover page for the submission of revisions. (See paragraph 3.6)

3.4 Binding - Each Procedure Part shall be bound along the left hand margin by means suitable for holding the procedure together and for the removal and insertion of revision pages without the use of special tools. Staples, Spiral-wire or multiloop plastic bindings, or similar devices are not acceptable.

3.5 Pages - Pages shall be 8 x 10 1/2 or 8 1/2 x 11 inches in size. Charts, graphs, or other information which cannot be contained on pages of the specified size shall be arranged and folded so as to fit properly within the covers.

3.5.1 Pagination - Each page of each part shall be identified as to part number and numbered consecutively at the bottom center of each page, i. e., II-23.

3.6 Revision Pages - Where revisions of existing test procedures are required, such revisions shall be accomplished by preparing revision pages for substitution in the existing procedure. In the event the number of revision pages exceeds the number of pages replaced, continuity of pagination shall be maintained by adding a letter suffix to the page number, i. e., page II-23 may be replaced by pages II-23 and II-23A. Each revision page shall be identified by a cover page which is a replacement title page. The revision cover page (the new title page) shall include a comprehensive list of revisions and respective dates. The date of the original title page shall be retained on the replacement title page.

3.7 Legibility - Test procedures shall be typewritten or copies of typewritten material. They shall be legible to the extent they can be easily read. Type smaller than standard pica (10 points) is not considered legible.

MIL-T-18303B(AS)

- 3.9 Company Format - Company format shall not be used if it requires deviation from this specification.
- 3.9 Table of Contents - A page outlining the contents of the procedure is optional except for the Reliability Assurance Test Procedures where it is required. If used, it shall be the next page following the title page.
- 3.10 Submission of Procedures - Two plain copies and one reproducible copy are required for submission to the Naval Activity specified by contract requirements.
- 3.10.1 Reproducible Copies - Reproducible copies of approved test procedures shall be prepared on tracing paper or transparent vellum. Aperture cards in accordance with Standard MIL-STD-804 are acceptable.
- 3.11 Content and Arrangement - The content and arrangement of test procedures shall be as shown on the following pages.

MIL-T-18303B(S)

PREPRODUCTION TEST PROCEDURE PART I

PERFORMANCE TEST UNDER LABORATORY CONDITIONS

TITLE PAGE The title page shall contain the following information:

DATE

PREPRODUCTION TEST PROCEDURE
PART I
PERFORMANCE TEST
UNDER LABORATORY CONDITIONS
for
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included in appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS Optional; if used, it follows the title page.

TABLE OF TESTS This table shall list all tests to be performed with this procedure, the corresponding paragraph number of the test, and the corresponding paragraph number of the specification requirement. A test shall be included to demonstrate compliance with each performance requirement set forth in the detail equipment specification. A statement shall be included to indicate the applicable equipment specification.

LIST OF TEST EQUIPMENT This list shall include all the test equipment required to conduct the tests of this procedure. It shall list the name, manufacturer, and type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

LIST OF ABBREVIATIONS This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

MIL-T-18303B(AS)

TEST PROCEDURE

The tests of this section are intended to determine how well the equipment performs under standard conditions. Each test shall describe:

- (1) Requirement - The requirement of the specification for the test to be performed shall be delineated. The applicable tolerances shall be included.
- (2) Conditions - The conditions shall include: pictorial diagrams of the equipment set up; adjustment or alignment of the test equipment to be utilized, and the reference designation of connectors and interconnecting cabling. If the diagrams are small, they may be inserted under the description of the conditions. If they are large, they shall be inserted at the back of the procedure prior to the data sheets and shall be referenced in the description of the conditions.
- (3) Measurement - A step-by-step procedure to obtain the data to determine conformance with the specification requirement.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets shall correspond to the paragraphing of the test procedure. The use of check marks and "yes-no" answers for data sheets shall be avoided. Provisions for recording the date the test was performed, signature of tester, signature of inspector, and serial number of the equipment shall be included.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, should be included.

MIL-T-18303B(AS)

PREPRODUCTION TEST PROCEDURE PART II

PERFORMANCE TEST UNDER SIMULATED ENVIRONMENTAL CONDITIONS

TITLE PAGE The title page shall contain the following information:

DATE

PREPRODUCTION TEST PROCEDURE
PART II
PERFORMANCE TEST
UNDER SIMULATED ENVIRONMENTAL CONDITIONS
for
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included if appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS Optional; if used, it follows the title page.

TABLE OF TESTS This table shall list all tests to be performed with this procedure, the corresponding paragraph number of the procedure, and the corresponding paragraph number of the specification requirement. A test shall be included to demonstrate equipment performance under each environmental requirement. A statement shall be included to indicate the applicable equipment and environmental specifications.

LIST OF TEST EQUIPMENT This list should include all the test equipment required to conduct the tests of this section. It shall list the name, manufacturer, type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

LIST OF ABBREVIATIONS This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

MIL-T-18303B(AS)

TEST PROCEDURE

The tests of this section are intended to determine how well the equipment performs under simulated environmental conditions. Operational and Performance Checks will be required before, during, and after most environmental exposures.

The Performance Check shall be a series of tests designed to analyze the environmental stress effects on the equipment and to determine compliance with requirements of the equipment specification. All major functions and associated critical functions of the equipment shall be tested.

The Operational Check shall be a series of tests designed to analyze the environmental stress effects on the equipment in situations where time limitations exist; e.g., tests required to insure satisfactory equipment performance in a specified warm-up time. All major functions of the equipment shall be tested and, if time permits, as many of the associated critical functions as possible shall be included in the tests.

Each test should describe:

- (1) An Operational and a Performance Check Procedure giving step-by-step test details and measurements necessary to verify satisfactory equipment performance. These checks may be referenced in the procedure after they have been identified relative to test equipment, set up, conditions, and measurements per test. Pictorial diagrams of test set ups with necessary adjustments and alignments shall be included. The pictorial diagrams shall clearly identify each equipment to be utilized and the reference designation of connectors and interconnecting cabling. If the diagrams are small, they may be inserted under the description of the conditions. If they are large, they shall be inserted at the back of the procedure prior to the data sheets and shall be referenced in the description of the conditions.
- (2) An Environmental Procedure giving step-by-step test details for setting up the environmental conditions. Pictorial diagrams clearly showing orientation of equipment under test and location of sensors shall be included.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedure. The use of check marks and "yes-no" answers for data sheets should be avoided. Provisions for recording the date the test was performed, the environmental condition, signature of the tester, signature of the inspector, and the serial number of the equipment should be included.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of the test conditions and procedures, should be included.

MIL-T-18303B(AS)

PREPRODUCTION TEST PROCEDURE PART III

INTERFERENCE TESTS

TITLE PAGE

The title page shall contain the following information:

DATE

PREPRODUCTION TEST PROCEDURE
PART III
INTERFERENCE TESTS
for
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included if appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS

Optional; if used, it follows the title page.

TABLE OF TESTS

This table shall list all tests to be performed with this procedure, the corresponding paragraph number of the procedure, and the corresponding paragraph number of the applicable specification requirement. A statement shall be included to indicate the applicable equipment and interference specification.

LIST OF EQUIPMENT

This list should include all the test equipment required to conduct the tests of this section. It should list the name and/or nomenclature, type number, range or spectrum required to conduct the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

LIST OF ABBREVIATIONS

This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

MIL-T-18303B(A)

TEST PROCEDURE

This test is intended to determine how well the equipment will perform in conjunction with other equipment. A step-by-step procedure, as required, to determine compliance with the applicable specification shall be included. Each test should describe:

- (1) Requirement - The requirement of the specification for the test to be performed shall be delineated.
- (2) Conditions - The conditions shall include pictorial diagrams of the equipment set up identifying each equipment, its orientation, and relation to other equipments; adjustment or alignment of the test equipment and the equipment under test required to make the measurement. The pictorial diagrams shall clearly identify each equipment to be utilized, and the reference designation of connectors and interconnecting cabling. If the diagrams are small, they may be inserted under the description of the conditions. If they are large, they shall be inserted at the end of the procedure prior to the data sheets and shall be referenced in the description of conditions.
- (3) Measurement - A step-by-step procedure to obtain the data to determine conformance with the specification requirement.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedure. Provisions for recording the date the test was performed, signature of the tester, signature of the inspector and serial number of the equipment should be included. In addition, the data shall be presented in graphical form wherever applicable.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for calibration of test conditions and procedures, should be included.

MIL-T-18303B(AS)

PREPRODUCTION TEST PROCEDURE PART IV

RELIABILITY INDEX DETERMINATION TESTS

TITLE PAGE

The title page shall contain the following information:

DATE

PREPRODUCTION TEST PROCEDURE
PART IV
RELIABILITY INDEX DETERMINATION TESTS
for
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

NOTE:

A note shall be placed near the bottom of the title page giving the total number of pages in the test procedure. Information concerning revised pages shall be included when appropriate. (See 3.3)

TABLE OF CONTENTS

This table shall list the titled paragraphs, figures, tables, and drawings of the procedure.

TABLE OF TESTS

Optional; if used, this table shall list the tests for the operational checks and the performance tests, giving the paragraph number of the procedure and the corresponding number of the equipment detail specification.

LIST OF TEST EQUIPMENT

This list shall include all the test equipment required to conduct the tests of this section. It shall list the name, manufacturer, type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

TEST PROCEDURE

The tests of this section are intended to obtain sufficient data to determine the reliability of an avionic equipment based on one or more models. The procedure shall be divided into sections as follows:

- (1) The first section of the procedure shall state the criteria of testing.

MIL-T-18303B(AS)

- a. Specified MTBF
- b. Selected Confidence Level
- c. Test Level
- d. Number of Equipments
- e. Length of Test
- f. Definition of Equipment Failure
- g. Equipment Deficiencies
- h. Repair and Corrective Action
- i. Preventative Maintenance

(2) The second section of the procedure shall state the conditions of testing.

- a. Description of Test Facilities
- b. Burn-in (Debugging) Information and Data
- c. Thermal Survey Information and Data
- d. Duty Cycle Information

(3) The third section of the procedure shall include the procedure for performance tests.

- a. Performance Requirements and Test Titles
- b. Test Set Ups
- c. Step-by-step Procedure
- d. Data Evaluation

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedures. The use of check marks and "yes-no" answers for the data sheets should be avoided.

MIL-T-18303B(AS)

Provisions for recording the date the test was performed, signature of the tester, signature of the inspector, and serial number of the equipment should be included.

Samples of all required Logs and Reports (i.e., Test Log, Failure Report, Failure Tag, Failure Repair Sheet, and Summary of Failures) shall be included in this section.

REMARKS

Information of calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, should be included.

LIST OF
ABBREVIATIONS

This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

MIL-T-18303B(AS)

ACCEPTANCE TEST PROCEDURE PART I

INDIVIDUAL TESTS

TITLE PAGE

The title page shall contain the following information:

DATE

ACCEPTANCE TEST PROCEDURE

PART I

INDIVIDUAL TEST

for

(Name and Nomenclature of Equipment)

Contract (Contract Number)

Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included if appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS

Optional; if used, it follows the title page.

TABLE OF TESTS

This table shall list all tests to be performed with this procedure, the corresponding paragraph number of the procedure, and the corresponding paragraph number of the specification requirement and shall include those tests conducted on each equipment submitted for acceptance. A statement shall be included to indicate the applicable equipment specification.

LIST OF TEST EQUIPMENT

This list shall include all the test equipment required to conduct the tests of this section. It shall list the name, type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

LIST OF ABBREVIATIONS

This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

MIL-T-18303B(AS)

TEST PROCEDURE

The tests of this section are intended to provide sufficient data to assure that each equipment will operate satisfactorily prior to acceptance. Each test should describe:

- (1) Requirement - The requirement of the specification for the test to be performed shall be delineated. The applicable tolerances shall be included.
- (2) Conditions - The conditions shall include pictorial diagrams of the equipment set up, and adjustment or alignment of the test equipment and the equipment under test to make the measurement. The pictorial diagrams shall clearly identify each equipment to be utilized and the reference designation of connectors and inter-connecting cabling. If the diagrams are small, they may be inserted under the description of the conditions. If they are large, they shall be inserted at the back of the procedure prior to the data sheets and shall be referenced in the description of the conditions.
- (3) Measurement - A step-by-step procedure to obtain the data to determine conformance with the specification requirement.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedures. The use of check marks and "yes-no" answers for data sheets should be avoided. Provisions for recording the date the test was performed, signature of tester, signature of inspector, and serial number of the equipment should be included.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, should be included.

MIL-T-18303B(18)

ACCEPTANCE TEST PROCEDURE PART II

SAMPLING TEST

TITLE The title page shall contain the following information:

DATE

ACCEPTANCE TEST PROCEDURE
PART II

(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included if appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS Optional; if used, it follows the title page.

TABLE OF TESTS This table shall list all tests to be performed with this procedure, the corresponding paragraph number of the procedure, and the corresponding paragraph number of the specification. A statement shall be included to indicate equipment and environmental specifications.

LIST OF TEST EQUIPMENT This list shall include all of the test equipment required to conduct the test of this section. It should list the name and/or nomenclature, type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and the data sheets.

LIST OF ABBREVIATIONS This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

TEST PROCEDURE The tests of this section are to be conducted after satisfactory completion of the individual test. It is intended to provide sufficient data to assure that the equipment is in all respects equivalent to the approved preproduction model.

MIL-T-18303B(AS)

In general, this procedure should include a complete performance test under laboratory conditions, as well as certain of the environmental tests. Each test should describe:

- (1) Requirement - The requirement of the specification for the test to be performed shall be delineated. The applicable tolerances shall be included.
- (2) Conditions - The conditions shall include pictorial diagrams of the equipment set up, and adjustment or alignment of the test equipment and the equipment under test required to make the measurement. The pictorial diagrams shall clearly identify each equipment to be utilized, and the reference designation of connectors and interconnecting cabling. Pictorial diagrams clearly showing orientation of equipment under test and location of environmental sensors shall be included. If the diagrams are small, they may be included in the description of the conditions. If they are large, they shall be inserted at the back of the procedure prior to the data sheets and shall be referenced in the description of the conditions.
- (3) Measurement - A step-by-step procedure to obtain the data to determine conformance with the specification requirement.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedures. The use of check marks and "yes-no" answers for data sheets should be avoided. Provisions for recording the date the test was performed, signature of tester, signature of inspector, and serial number of the equipment should be included.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, should be included.

MIL-T-18303B(AS)

ACCEPTANCE TEST PROCEDURE PART III

RELIABILITY ASSURANCE TESTS

TITLE PAGE

The title page shall contain the following information:

DATE

ACCEPTANCE TEST PROCEDURE
PART III
RELIABILITY QUALIFICATION TEST
(or RELIABILITY SAMPLING TEST)
for
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

NOTE:

Separate test procedures shall be submitted for the Reliability Qualification test (or Predelivery Reliability Test) and the Reliability Sampling Test (or Reliability Qualification Tests during Delivery).

A note shall be placed near the bottom of the title page giving the total number of pages in the test procedure. Information concerning revised pages shall be included when appropriate. (See 3.3)

TABLE OF CONTENTS

This table shall list the titled paragraphs, figures, tables, and drawings of the procedure.

TABLE OF TESTS

Optional; if used, this table shall list the tests for the operational checks and the performance tests, giving the paragraph number of the procedure and the corresponding number of the equipment detail specification.

LIST OF TEST EQUIPMENT

This list shall include all the test equipment required to conduct the tests of the section. It shall list the name, manufacturer, type number, range or spectrum required to conduct the test, accuracy required for the test, and alternate equipment that may be used. Schematics and block diagrams of any special test instrumentation shall be included at the end of the procedure, between the procedure and data sheets.

MIL-T-18303B(AS)

TEST PROCEDURE

The tests of this section are intended to obtain sufficient data to determine the equipments compliance with applicable reliability requirements. The test procedure shall be divided into sections as follows:

(1) The first section of the procedure shall state the required MTBF and any other basic information. The documents (contract, specification) which establish these requirements shall be referenced.

(2) The second section shall state the number of units to be tested and describe the method of selection. This section shall present the criteria necessary to determine when the test shall be terminated and shall describe the criteria for acceptance or rejection of the test lot.

(3) The third section shall present the detailed "rules" of the test including, but not limited to:

- a. step-by-step procedure for the test
- b. any necessary preventive maintenance
- c. information concerning thermal survey
- d. burn-in (debugging) testing
- e. details of test level and test cycle identifying the periods and values of heating, cooling, vibration, input voltages, equipment ON-OFF times and the performance check schedule.
- f. determination of a failure and action to be taken afterward.
- g. procedures for failure analysis, corrective action and data analysis.
- h. the action to be taken upon reaching an accept or reject decision.

(4) The fourth section shall describe the operational checks or performance tests which will be continuously or periodically made.

MIL-T-18 3

(5) Figures and diagrams describing the test set up and the test equipment to be used shall be included.

(6) Examples of test logs, test data sheets, and any other data or log forms to be used shall be appended to the procedure.

**LIST OF
ABBREVIATIONS**

This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, shall be included.

MIL-T-18303B(AS)

LIFE TEST PROCEDURE

TITLE PAGE

The title page shall contain the following information:

DATE

LIFE TEST PROCEDURE
(Name and Nomenclature of Equipment)
Contract (Contract Number)
Manufacturer (Name of Manufacturer)

Information concerning the number of pages shall be placed on the lower half of the page. Revision page information shall be included if appropriate (applicable to the submission of revision pages). (See 3.3)

TABLE OF CONTENTS

Optional; if used, it follows the title page.

TABLE OF TESTS

This table shall include all tests required to conduct a performance check of the equipment during the Life Test. The performance check shall include tests to evaluate all major equipment functions and associated critical functions.

LIST OF TEST EQUIPMENT

This list should include all of the test equipment required to conduct the tests of this section. It should list the name, type number, range or spectrum required to conduct the tests, accuracy required for the tests, and alternate equipment that may be used. Include schematic and block diagrams of any special test instrumentation.

LIST OF ABBREVIATIONS

This list shall include all abbreviations used in this test procedure and their meanings. Common abbreviations need not be listed.

TEST PROCEDURE

The tests and conditions outlined by this procedure are intended to evaluate the equipment during its useful life. The procedure shall provide for the taking of sufficient data for determination of satisfactory operation of the equipment. Each test shall describe:

- (1) Requirement - The life and test requirements for the equipment shall be delineated. The applicable tolerances shall be included. All required reports--failure, progress, final, etc.--shall be identified. Action to be taken as a result of a failure shall be included.

MIL-T-18303B(AS)

- (2) **Conditions** - The conditions shall include pictorial diagrams of the equipment set up, and adjustment or alignment of the test equipment and the equipment under test required to make the measurement. The pictorial diagrams shall clearly identify each equipment to be utilized and the reference designation of connectors and interconnecting cabling. If the diagrams are small, they may be included in the description of the conditions. If they are large, they shall be inserted at the back of the procedure prior to the data sheets and shall be referenced in the description of the conditions.
- (3) **Measurement** - A step-by-step procedure to obtain the data to determine conformance with the specification requirement.

DIAGRAMS

Diagrams associated with the special test equipment or with the conditions of testing shall be contained in this section.

DATA SHEETS

Data sheets shall be included for recording data of each test. The data sheet shall also include specification requirement values with tolerances wherever applicable. The paragraphing of the data sheets should correspond to the paragraphing of the test procedures. The use of check marks and "yes-no" answers for the data sheets should be avoided. Provisions for recording the date the test was performed, signature of the tester, signature of the inspector, and serial number of the equipment should be included.

REMARKS

Information on calibration of test equipment, as well as any general information deemed necessary for clarification of test conditions and procedures, should be included.

- 4.0 **Marginal Indicia** - The outside margins of this specification have been marked to indicate where changes, deletions, or additions from the previous issue have been made. This has been done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content as written, irrespective of the marginal notations and relationship to the last previous issue.

MIL-T-18303B(AS)

APPENDIX I

DATE

PREPRODUCTION TEST PROCEDURE
PART I
PERFORMANCE TEST UNDER LABORATORY CONDITIONS
FOR
RADAR SET, AN/APS-00
CONTRACT - NOW 63-0000
MANUFACTURER - XYZ CORPORATION

Total Pages in this procedure - 47

(Sample showing Title Page, Revision Cover Page, Table of Tests, List of Test Equipment, Test Procedure, and Data Sheets.)

MIL-T-18303B(A^c)

Revision No. (Date Submitted)
Date (Original Submission)

PREPRODUCTION TEST PROCEDURE
PART I
PERFORMANCE TEST UNDER LABORATORY CONDITIONS
FOR
RADAR SET, AN/APS-00
CONTRACT - NOW 66-0000
MANUFACTURER - XYZ Corporation

Total Pages in the procedure - 47

Revision - 1 / 4-22-66 / Pages I-3, I-13, I-18, I-18A, I-35, I-35A, and
I-35B.

(This page shall replace the original Title Page.)

MIL-T-18303B(AS)

**TABLE OF TEST
FOR
PERFORMANCE TEST UNDER LABORATORY CONDITIONS**

System Test for Radar Set AN/A-S-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>
2.1	Transmitter Power	Par. 3.3.2.1.2
2.2	Sector Sweep	Par. 3.3.7
2.3	Manual Time	Par. 3.7.3.6.2 and 3.7.4

Unit Test for Receiver-Transmitter RT-00/APS-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>
3.1	IF Amplifier Sensitivity	Par. 3.4.7.1
3.2	Beat Frequency Oscillator	Par. 3.3.9.2 (a)
3.3	Horizontal Sweep Generator Voltage	Par. 3.1.4
3.4	Video L. F. Response	Par. 3.2.7.9 and 3.3.6.1
3.5	Video Noise Ratio	Par. 3.1.7
3.6	AGC Delay Characteristics	Par. 3.1.7.2.4

Unit Test for Indicator Unit ID-00/APS-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>
4.1	Focus Control	Par. 3.7.2
4.2	Horizontal Centering	Par. 3.7.3
4.3	Vertical Centering	Par. 3.7.4

Unit Test for Power Supply PP-00/APS-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>
5.1	Supply Voltage and Ripple Measurement	Par. 3.8.1
5.2	Input Current	Par. 3.8.2

LIST OF TEST EQUIPMENTTEST EQUIPMENTCHARACTERISTICS REQUIRED

1. Signal Generator
Hewlett Packard 608F

Range 140 to 180 MC $\pm 0.1\%$ Dial Accuracy
Output Voltage 15 MV minimum
Output Impedance 50 ohms nominal

2. Signal Generator
AN/TRM-3

Range 20 to 30 MC Dial Accuracy $\pm 0.1\%$
Output Voltage 15 MV minimum
Output Impedance 50 ohms nominal

3. Oscilloscope
Tektronix 545 or 547

5 inch screen; dual trace; sweep speed:
0.02 usec/cm to 12.5 sec/cm; trigger
duration: .02 usec to 12.5 sec; trigger
amplitude: .5 to 60 v peak to peak;
vertical sensitivity: .02 peak to peak/
cm; horizontal sensitivity: .1 v to
12.5 v peak to peak/cm; X100 magnification
single sweep trigger capabilities;
frequency response: DC to 1 mc/sec
X axis, DC to 15 mc/sec on Y axis, 1,000
cps to 2 mc/sec on Z axis; input
impedance: 1 meg on X and Y axes, 2.2 meg
on Z axis.

MIL-T-18303B(AS)

TEST EQUIPMENT

4. Vacuum Tube Voltmeter
Hewlett Packard 400C

CHARACTERISTICS REQUIRED

Voltage Range 0 to 750 v. Frequency
range 50 to 1000 cps. Low impedance
accuracy ± 1 .

5. Wattmeter
Weston 240

Range 0 to 5000 uw. accuracy ± 10 '
Frequency range 30 to 10,000 cps.
Impedance range 2.5 to 20,000 ohms.
Accuracy ± 5 .

SPECIAL TEST EQUIPMENTSPECIAL TEST EQUIPMENT

1. Test Bench Harness AN/UPM-00
2. Dummy Mixer (Fig. 1)

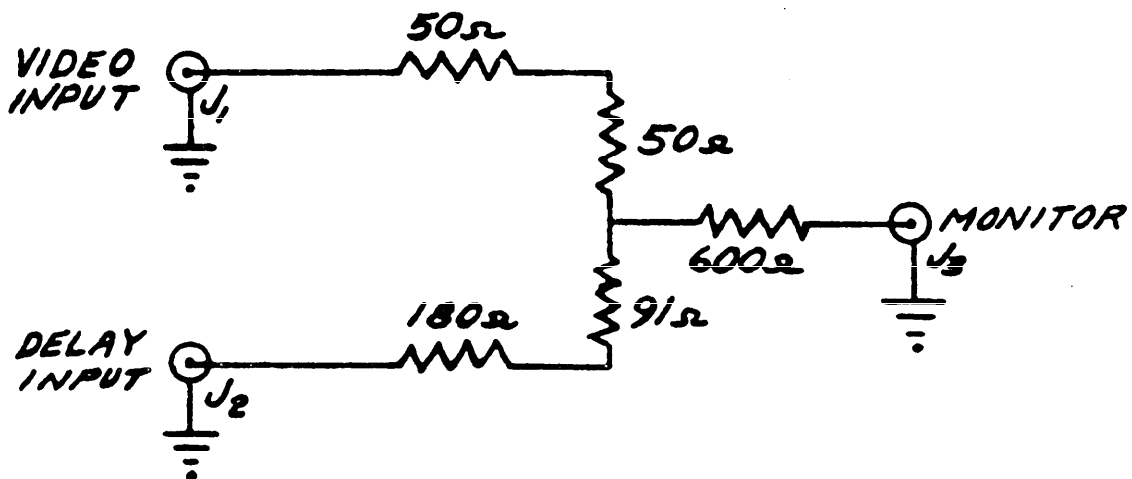


Figure 1. Dummy Mixer Schematic

TEST PROCEDURES

1. General - Unless specified otherwise all tests shall be performed under the following conditions:

- (a) Atmospheric Conditions - The tests shall be performed at prevailing factory or laboratory atmospheric conditions.
- (b) Input Power - The input power shall be 26.5 \pm 0.5 V DC and 115 \pm 1 v, 400 \pm 20 cps AC.

2. System Test2.1 Transmitter Power

(a) Requirement - (3.3.2.1.2) The output power shall be at least 300 watts.

(b) Conditions

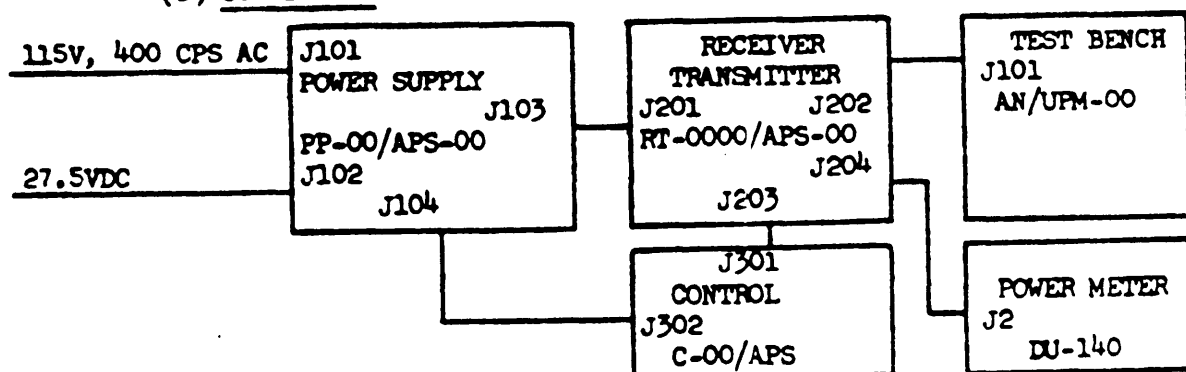


Figure 3

- (1) Set up equipment as shown in Figure 3.
- (2) The function switch of the C-00/APS shall be turned standby and the equipment permitted to warm-up 5 minutes.
- (3) Turn function switch of the C-00/APS to transmit.
- (c) Measurement - The Test Bench Harness, AN/UPM-00, Meter Select switch shall be adjusted to the "POWER" position. Read output power on M1 of the Power Meter. Record reading.

MIL-T-18303B(AS)

2.2 Sector Sweep Test - List Requirement, Conditions, and Measurements for each of the tests listed under System Tests and Units test similar to the arrangement shown in 2.1.

PREPRODUCTION TEST PROCEDURE PART I

DATA SHEET

Unit:
 Serial No:
 Date:
 Test Personnel:

SYSTEM TEST

Procedure 2.1 Transmitter Power

Measurement	Limit
	Not Less Than 300W

Procedure 2.2 Sector Sweep Test

Measurement	Sector 1 0° - 90°	Sector 2 90° - 180°	Sector 3 180° - 270°	Sector 4 270° - 360°	Print
Sweep Length					3 ±1/8 inches
Sweep Speed					NLT 10°/sec
Sweep Lag					NLT 1°

MIL-T-18303R(AS)

APPENDIX II

DATE

PREPRODUCTION TEST PROCEDURE
PART II
PERFORMANCE TESTS UNDER SIMULATED ENVIRONMENTAL CONDITIONS

FOR
RADAR SET, AN/APS-00
CONTRACT - NOW 63-0000
MANUFACTURER - XYZ Corporation

Total Pages in this procedure - 64

Sample showing Table of Tests and composite Data Sheet to be used with Part II. Test Equipment Requirements, Test Procedure Arrangement and other Data Sheets similar to sample shown in Appendix 1.

MIL-T-18303B(AS)

TABLE OF TESTS
for
PERFORMANCE TESTS UNDER SIMULATED ENVIRONMENTAL CONDITIONS

REFERENCE TEST FOR RADAR SET AN/APS-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>
2.1	Transmitter Power	Par. 3.3.2
2.2	Receiver Sensitivity	Par. 3.4.5
2.3	Range Accuracy	Par. 3.5.1

ENVIRONMENTAL TESTS FOR RADAR SET AN/APS-00

<u>Test</u>	<u>Name</u>	<u>Specification Requirement MIL-N-0000</u>	<u>MIL-T-5422</u>
3.1	Temperature-Altitude	3.2.10.1	4.1
3.2	Vibration	3.2.10.2	4.2
3.3	Shock		4.3
3.4	Humidity		4.4
3.5	Salt Spray		4.5
3.6	Explosion		4.6

APPENDIX III

DATE

ACCEPTANCE TEST PROCEDURE
PART III
RELIABILITY QUALIFICATION TESTS
FOR
RADAR SET, AN/APX-00
CONTRACT - NOW 66-0000
MANUFACTURER - XYZ Corporation

Total Pages in procedure - 50

Sample showing Table of Contents to be used with Part III. Test Equipment Requirements and Test Procedure Arrangement similar to sample shown in Appendix I.

III-1

MIL-T-18303B(AS)

PREPRODUCTION TEST PROCEDURES PART II

DATA SHEET

	INPUT VOLTAGE		INPUT POWER		SENSITIVITY			BFO OSCILLATOR		GAIN FIDELITY			VOLTAGE & RIPPLE				EXTENT OF CONTROLS								
	DC	AC	DC WATTS	AC WATTS	150 MC	150 MC	170 MC	AMP OFF	100 ON	100 ON	150 MC	150 MC	170 MC	105 V		150 V		300 V		-650 V		CONTROL	METER	MOUNTING	TUNING
														Y	R	Y	R	Y	R	Y	R				
PERFORMANCE CHECK #1																									
TEMPERATURE ADJUST YES?																									
REFERENCE RUN #1																									
STEP 1 (-50°C)																									
STEP 2 (-50°C)																									
STEP 3 (-50°C 3000 FT)																									
STEP 4 (FROST)																									
REFERENCE RUN #2																									
STEP 5 (-85°C)																									
STEP 6 (-75°C)																									
STEP 7 (-55°C)																									
STEP 8 (4000 FT)																									
STEP 9 (25°C 20,000 FT)																									
STEP 10 (20°C 50,000 FT)																									
VIBRATION TEST																									
EQUIPMENT IDENTIFIED WITH																									
REFERENCE RUN																									
STEP 1																									
READING TAKEN																									
STEP 2																									
STEP 3																									
READING TAKEN																									
VIBRATION AT 10 CPS																									
VIBRATION AT 20 CPS																									
STEP 4																									
READING TAKEN																									
VIBRATION AT 12 CPS																									
VIBRATION AT 25 CPS																									
STEP 5																									
EXAMINATION REVEALED																									
COUP INTO WITHOUT VIBRATION ISOLATORS																									
STEP 1																									
READING TAKEN																									
STEP 2																									
STEP 3																									
READING TAKEN																									
VIBRATION AT 11 CPS																									
VIBRATION AT 20 CPS																									
VIBRATION AT 15 CPS																									
STEP 4																									
READING TAKEN																									
VIBRATION AT 12 CPS																									
VIBRATION AT 25 CPS																									
VIBRATION AT 10 CPS																									
STEP 5 (TERMINATION)																									
SHOCK TEST																									
STEP 1 SHOCKS AT 15G																									
REFERENCE RUN																									
MINORITY TEST																									
AFTER 10 CYCLES																									
LOW STRAY TEST																									
UP TO 50 MC (NORMAL)																									
(20000 MC TEST)																									

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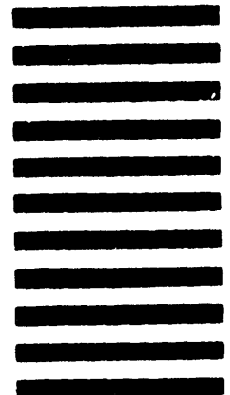
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