



Australian Government
**National Measurement
Institute**



NITP 0
**General National Instrument Test Procedures for
Measuring Instruments**

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NITP 0

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PREFACE

NMI's Chief Metrologist has determined that NITP 0 contains the test procedures for the verification of measuring instruments of an approved pattern other than those for which a specific NITP has been determined.

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EXPLANATION OF TERMS

For explanations of other terms see [General Information for Test Procedures](#).

Inspector's Handbook

A publication by the former National Standards Commission covering the testing of measuring instruments approved for use for trade for the purposes of verification.

ABBREVIATIONS

| | |
|------|------------------------------------|
| MPE | maximum permissible error |
| NITP | national instrument test procedure |

1. SCOPE

NITP 0 describes the test procedures for the verification and in-service inspection of measuring instruments of an approved pattern to assess whether they measure within the applicable maximum permissible errors (MPEs) and that they comply with their relevant Certificate of Approval.

NITP 0 applies to measuring instruments other than those for which a specific NITP has been determined.

2. EQUIPMENT

1. Certificate of Approval.
2. Appropriate reference standards, instruments or materials as follows:
 - (a) Reference standards of measurement, and/or
 - (b) Certified measuring instruments, and/or,
 - (c) Australian certified reference materials.

Record details of the references used on the test report.

3. Current certificates for all reference standards, instruments or materials as follows:
 - (a) Current regulation 13 certificates for all reference standards of measurement, and/or
 - (b) Current regulation 37 certificates for all certified measuring instruments, and/or,
 - (c) Current regulation 48 certificates for all Australian certified reference materials.

The uncertainty (and variations where applicable) associated with all references shall be no greater than one-third the applicable MPE of the measuring instrument being tested.

4. Other equipment required to complete test procedures.
5. Test report (see Appendix A).

For certain instruments, a control instrument may be applicable. In these cases, contact NMI to confirm the use of a control instrument.

3. VISUAL INSPECTION

Visually inspect the measuring instrument. Gather the required data (see clause 3.1). Determine compliance with applicable characteristics (see clause 3.2).

Where required, record details on the test report (Appendix A).

3.1 Required Data

1. Test report reference number.
2. Date of test.
3. Type of test: verification or in-service inspection (ensure that the verification mark is in place for in-service inspection or reverification).
4. Verifier's name.
5. Name of owner/user.
6. Address of owner/user.
7. Name of contact person on premises.
8. Address of instrument location.
9. Description of instrument.
10. Manufacturer.
11. Model.
12. Serial number.
13. Certificate(s) of Approval number(s).

3.2 Characteristics of the Instrument

Where applicable the measuring instrument shall comply with the following clauses:

1. The instrument shall comply with its Certificate(s) of Approval.
2. The instrument shall be used in an appropriate manner.
3. All mandatory descriptive markings as required by the relevant Certificate of Approval shall be clearly and permanently marked on the data plate.
4. Where applicable, the data plate shall be fixed on the instrument.
5. The instrument shall be complete.
6. The instrument shall be clean.
7. The instrument shall be operational.
8. The operation of the instrument shall be free of any apparent obstructions.
9. Where applicable, the instrument shall be securely mounted on a firm and level base.
10. Where applicable, the operator and the customer shall have a clear and unobstructed view of the indicating device and the whole of the measuring process.
11. Where applicable, the instrument shall be adequately protected against abnormal dust, air movement, vibrations, atmospheric conditions and any other influence likely to affect its performance.

4. TEST PROCEDURES

The test procedures determine whether the performance of an instrument is within the applicable MPEs and whether the instrument requires adjustment or service.

Where required, record results on the test report (Appendix A).

- Where test procedures are provided in the Certificate of Approval, these test procedures shall be used.
- Otherwise, where applicable test procedures are provided in the Inspector's Handbooks, these test procedures shall be used.
- Otherwise, where applicable test procedures are provided in the pattern approval standard (NMI M or NMI R document) used to approve the instrument, these test procedures shall be used.

Note the Inspector's Handbooks are available from NMI upon request.

5. SUGGESTED SEQUENCE FOR TESTING

1. Visually inspect the instrument and record the required details on the test report.
2. Conduct the required test procedures.
3. Determine whether the instrument has passed or failed.
4. Carry out anything else you need to do to complete the procedure. See *General Information for Test Procedures* for more information. This may include:
 - obliterating the verification mark from the instrument;
 - applying a verification mark; and
 - applying a seal as specified in the Certificate of Approval.

APPENDIX A. TEST REPORT

Appendix A contains a test report on which to record the results.

Although the format of the test report may vary according to the individual needs and requirements of trade measurement inspectors and servicing licensees, the following test report contains the minimum amount of information that must be recorded.

If the Certificate of Approval requires additional tests, attach pages that record the results of these tests.

Number each page of the test report in the style shown at the top of each of the following pages.

Test Report

Test report reference number Date of test

Type of test (tick one) Verification In-service inspection

For in-service inspection or reverification, record the verification mark:.....

Name of owner/user

Address of owner/user

Name of contact person on premises

Address of instrument location.....

Description of instrument

Manufacturer Model.....

Serial number Certificate of Approval number.....

Details of the Reference (clause 2)

| Reference | |
|--|--|
| Make (if applicable) | |
| Model (if applicable) | |
| Serial number | |
| Description | |
| Reference certificate number (e.g. Regulation 13 certificate, etc) | |
| Certificate expiry date | |

| General Characteristics (clause 3.2) | Yes, no or N/A |
|---|----------------|
| Does the instrument comply with its Certificate(s) of Approval? | |
| Is the instrument being used in an appropriate manner? | |
| Are all mandatory descriptive markings clearly and permanently marked on the data plate? | |
| If applicable, is the data plate fixed on the instrument? | |
| Is the instrument complete? | |
| Is the instrument clean? | |
| Is the instrument operational? | |
| Is the operation of the instrument free of any apparent obstructions? | |
| If applicable, is the instrument securely mounted on a firm and level base? | |
| Does the operator (and where applicable, the customer) have a clear and unobstructed view of the indicating device and the entire measuring process? | |
| If applicable, is the instrument adequately protected against abnormal dust, air movement, vibrations, atmospheric conditions and any other influence likely to affect its performance? | |

Test Report

Test Results

Comments

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.....

Verifier's name Identification number

Signature