Australian/New Zealand Standard™

Electricity metering

Part 13: In-service compliance testing

Standards Australia

STANDARDS NEW ZEALAND Paerewa Aotearoa

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-011, Electricity Metering Equipment. It was approved on behalf of the Council of Standards Australia on 21 May 2002 and on behalf of the Council of Standards New Zealand on 9 May 2002. It was published on 24 June 2002.

The following are represented on Committee EL-011:

Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
CSIRO – Division of Telecommunications and Industrial Physics
Electrical Regulatory Authorities Council
Electricity Engineers Association (New Zealand)
Electricity Supply Association of Australia
Ministry of Economic Development (New Zealand)
National Electricity Market Management Company
National Standards Commission

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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

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Australian/New Zealand Standard™

Electricity metering

Part 13: In-service compliance testing

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-011, Electricity Metering Equipment.

The objective of this Standard is to provide the electricity metering industry with guidance for the timely sampling, testing, and assessment of in-service compliance of populations of electricity meters.

This Standard is Part 13 of AS/NZS 1284, *Electricity Metering*, which is published in Parts as follows:

Part 1: General purpose induction watthour meters

Part 2: Portable alternating current rotating standard watthour meters

Part 3: Induction watthour meters—Energy demand type

Part 4: Socket mounting system

Part 5: General purpose electronic watthour meters

Part 6: Ripple control receivers for tariff and load control

Part 7: Internal clocks for meters and load control devices

Part 8: Polyphase multifunction demand watthour meters (Class 1)

Part 9: Electronic watthour meters (Classes 0.2 S and 0.5 S)

Part 10.1: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—IEC Standard interface

Part 10.2: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—ANSI Standard interface

Part 11: Single-phase multifunction watthour meters

Part 12: Polyphase multifunction (non-demand) watthour meters (Class 1)

Part 13: In-service compliance (this Standard)

The term ‘informative’ has been used in the Standard to define the application of the appendix to which it applies. An informative appendix is only for information and guidance.

CONTENTS

FOREWORD

This Standard is intended to provide a basis for the maintenance of the metrological performance (in-service compliance) of electricity meters by utilities and metering providers. It forms the basis for a performance based asset management plan.

This Standard specifies a suitable in-service compliance testing regime for electricity meters. This regime was developed taking into account differing jurisdictional requirements. Having chosen to adopt such a regime, this Standard requires that from the implementation date the compliance testing regime be applied within five years to the entire population of existing in-service meters within a service area.

This Standard does not cover other important aspects of metering of energy usage, notably the correct installation (connection) of meters, and the matching, interconnection and in-service compliance of instrument transformers (CTs and VTs).

This Standard is intended to provide guidance for the compliance testing of large populations of in-service meters for which 100% testing is not viable. The application of statistical sampling provides results which enable the Metering Provider to identify action priorities with respect to the performance of various meter populations.

Accordingly, this Standard is primarily concerned with the mass domestic and small commercial market sectors and is intended to be applied to the following categories within these populations—

(a) direct-connected and CT-operated meters;

(b) electronic and induction meter types; and

(c) both single-phase and polyphase meters.

If a meter is found to not comply, then compensation to the consumer is a matter for the relevant regulator.

For in-service compliance, the Standard requires testing for errors at 2 points for direct-connected single-phase meters, 3 points for direct-connected polyphase meters and 4 points for CT-operated meters. The errors measured at these points are not averaged (each has equal weight); accordingly there is a greater chance of rejecting a meter sample (and ultimately the population that it represents) at one point of the 2 (3 or 4) test points even though the sample might conform at the other test points. This is consistent with the fact that the rate of consumption will vary in individual installations, both between installations and over time.

This Standard requires that the population of any new pattern or type (or variant of an existing pattern or type) of meter placed into service must undergo compliance testing within one to three years of being placed into service. The results of this testing will then determine the compliance period of that meter in accordance with Table 4.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Electricity metering

Part 13: In-service compliance testing

1 SCOPE

This Standard specifies requirements for the timely sampling, testing, and assessment of in-service compliance of populations of electricity meters.

2 APPLICATION

This Standard is intended for use by utilities or meter providers responsible for maintaining metrological performance (in-service compliance) of meters throughout the life of the meters. It does not apply to meters that have been tampered with or damaged.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
1199 Sampling procedures and tables for inspection by attributes

1284 Electricity metering
1284.1 Part 1: General purpose induction watthour meters
1284.5 Part 5: General purpose electronic watthour meters
1284.9 Part 9: Electronic watthour meters (Classes 0.2 S and 0.5 S)

2490 Sampling procedures and charts for inspection by variables for percent nonconforming

ISO
2854 Statistical interpretation of data—Techniques of estimation and tests relating to means and variances

2859 Sampling procedures for inspection by attributes
2859.1 Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

4.1 Definitions relating to meters

4.1.1 *Basic current (I_b)*

Value of current with which the relevant performance of a direct-connected meter is fixed.

4.1.2 *Rated current (I_n)*

Value of current with which the relevant performance of a CT-operated meter is fixed.