

Guidelines for Approved Test House Audits

Version 1.3

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Version control

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1.0	25 October 2016	Draft for consultation
1.1	28 February 2017	Updated draft for consultation
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1.3	5 October 2017	Updated for changes to the Code made under the Code Review Programme 2017

Glossary of abbreviations and terms

AS/NZS 1284	AS/NZS 1285.13:2002. Electricity metering Part 13: In-service compliance testing
Approved test house	Approved test house – a testing and calibration facility
ATH	A participant that operates an approved test house
Authority	Electricity Authority
Code	Electricity Industry Participation Code 2010
ICP	Installation control point
ISO 17025	AS/NZ ISO/IEC 17025:2005. General requirements for the competence of testing and calibration laboratories
ISO 9001	AS/NZ ISO 9001:2000. Quality management systems requirements
JCGM 100	JCGM 100:2008. Guide to the Expression of Uncertainty in Measurement
MEP	Metering equipment provider
NSP	Network supply point
POC	Point of connection
QMS	Quality management system

Executive summary

The Electricity Authority (Authority) provides this guideline to promote a better understanding of, and to encourage consistency in, the methodology and processes surrounding ATH audits. This guideline is intended to provide a structured approach to audits for auditors and participants that is fair and consistent. It outlines ATHs' Electricity Industry Participation Code 2010 (Code) obligations, and auditors' requirements when carrying out ATH audits.

This guideline describes what ATHs and auditors should do when carrying out audits under the Code, and the obligations of ATH's under the Code. However, the information in this guideline does not replace the requirement for participants to know and comply with their obligations under the Code. This guideline reflects the Authority's view of best practice approaches.

The information in this guideline is not necessarily definitive of the obligations of ATHs and auditors under the Code, and the responsibilities of auditors when undertaking an audit. It should not be used instead of legal advice. If there is any inconsistency between this information and the Code, the Code takes precedence.

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1 Introduction

- 1.1 The metering equipment provider (MEP) is the participant responsible for the compliance of a category 1 or above metering installation with the Code at a point of connection (POC) to a network, as provided by Part 10 and the relevant sections of Parts 1, 11, and 15 of the Code.
- 1.2 In the Electricity Industry Act 2010, an approved test house is a facility that has been approved in accordance with the procedures in the Code. Part 1 of the Code defines ATH as "a person who is approved under Schedule 10.3 to operate an approved test house". Only approved test houses can be used to carry out metering functions. The ATH is the participant responsible for ensuring each metering installation complies with the Code.
- 1.3 The MEP must ensure that every metering installation used to record the supply of electricity complies with the accuracy provisions in the Code. The MEP must appoint an ATH to carry out the relevant obligations in the Code.
- 1.4 ATHs ensure metering systems operate accurately. ATHs are responsible for certifying metering installations and ensuring the standards of metering calibration, testing, installation, and maintenance detailed in the Code are satisfied.
- 1.5 An ATH is the participant contracted by a MEP to:
- inspect, test, install, and certify metering components and metering installations in accordance with Part 10 of the Code
 - provide reports and maintain records in accordance with Part 10 of the Code¹
 - investigate metering installation faults.
- 1.6 An ATH is not responsible for:
- ongoing compliance for a metering installation once certification has been carried out
 - provision of metering components
 - arranging access to metering installations or raw meter data.
- 1.7 There are two categories of approved test houses: class A and class B.
- 1.8 Class A test houses are approved to:
- carry out calibration of working standards, metering components and metering installations
 - install and commission metering components
 - certify all categories of metering installations.
 - issue calibration and certification reports for all categories of metering installation.
- 1.9 Class B test houses are approved to:
- carry out calibration of class 0.5, class 1, and class 2 meters and class 0.5 and class 1 current transformers

¹ clauses 13 and 14 of Schedule 10.4

- install and modify metering equipment
 - commission and certify category 1–3 metering installations.
- 1.10 Schedule 10.3 of the Code sets out the requirements for obtaining either class A or class B approved test house status.
- 1.11 An ATH can only carry out the activities it holds approval for, as authorised by the Authority. The ATH must carry out those activities with the level of skill expected by good industry practice and in compliance with all applicable safety, employment, and environmental requirements. The ATH may exercise its discretion in using its industry knowledge and skill, as applicable under Part 10, provided that it records its actions and reasoning.²
- 1.12 The Authority approves test houses. A test house seeking approval must demonstrate to the satisfaction of the Authority that it has the facilities and procedures to consistently meet the requirements outlined in the Code.

2 Audit requirements

- 2.1 Each ATH must be audited under the Code.³ The Authority may also require a particular participant to have an audit undertaken.⁴ Clauses 16A.19 and 16A.20 set out an ATH's audit requirements.
- 2.2 Clause 16A.3 requires each ATH to ensure its audit is conducted by an Authority-approved auditor.
- 2.3 The Authority specifies the date by which an auditor must carry out the audit of an ATH's compliance with Part 10 of the Code. This date must be between three to 36 months after the completion date of the ATH's previous audit.⁵
- 2.4 Matters that must be covered by an audit of an ATH can be grouped into certain functions, which include but are not limited to the following:
- (a) **Function 1:** Administrative tasks - Obligations regarding arranging for and submitting applications for approval.
 - (b) **Function 2:** ATH requirements - Obligation regarding general ATH requirements, such as use of contractors and holding quality certification.
 - (c) **Function 3:** Metering records and reports - Obligations regarding requirement to maintain and keep accurate and complete metering records.
 - (d) **Function 4:** Calibration and certification of metering components–
 - (i) issuing calibration reports⁶
 - (ii) calibrating metering components onsite⁷
 - (iii) calibrating class 0.5, 1, and 2 meters, and class 0.5 and 1 current transformers⁸

² clause 10.41

³ clause 10.17A and clause 10.40(2)(b).

⁴ clause 10.17B

⁵ clause 16A.14(1)

⁶ 3(2)(b) of Schedule 10.3.

⁷ 3(2)(c) of Schedule 10.3.

- (iv) calibrating metering components onsite.⁹
 - (e) **Function 5:** Calibration and certification of metering installations–
 - (i) certifying categories of metering installations and issuing certification reports¹⁰
 - (ii) installing and modifying metering installations¹¹
 - (iii) installing and modifying metering components¹²
 - (iv) certification using the selected component and fully calibrated method of certification for category 1 and 2 metering installations and category 3 metering installations with a primary voltage of less than 1 kV¹³
 - (v) certification using the comparative re-certification method for category 2 metering installations¹⁴
 - (vi) issuing certification reports for category 1 and 2 metering installations and category 3 metering installations with a primary voltage of less than 1 kV¹⁵
 - (f) **Function 6:** Inspection of metering installations–
 - (i) inspecting metering installations¹⁶
 - (ii) inspecting category 1 and 2 metering installations and category 3 metering installations with a primary voltage of less than 1 kV.¹⁷
 - (g) **Function 7:** Process for handling faulty metering installations - Testing of metering installations under clause 10.44 and production of statement of situation under clause 10.46.¹⁸
- 2.5 The audit requirements for each of the above functions are described in detail in Appendix A by reference to the relevant Code provisions.
- 2.6 The list of Authority appointed auditors can be found on the Authority’s website at <https://www.ea.govt.nz/operations/retail/audits-approvals-and-certification/approved-auditors/>
- 2.7 The participant audit regime uses a risk-based approach to planning audits. The following three documents are integral to this approach:
- (i) *Risk and materiality guideline*
- This sets out how to assess risk, the process for applying risk to focus audit effort, and how to assess the materiality and likelihood of a risk.

⁸ 4(2)(a) of Schedule 10.3.

⁹ 4(2)(d) of Schedule 10.3.

¹⁰ 3(2)(f) of Schedule 10.3.

¹¹ 3(2)(d) and 4(2)(b) of Schedule 10.3.

¹² 3(2)(e) and 4(2)(c) of Schedule 10.3.

¹³ 4(2)(e), 4(2)(f) of Schedule 10.3.

¹⁴ 4(2)(g) of Schedule 10.3.

¹⁵ 4(2)(h) of Schedule 10.3.

¹⁶ 3(2)(h) of Schedule 10.3.

¹⁷ 4(2)(i) of Schedule 10.3.

¹⁸ 3(2)(g) of Schedule 10.3.

(ii) *Auditor protocol*

This sets out audit standards and the Authority's expectations of auditors when performing audits.

(iii) *Inherent risk register*

This sets out the risks inherent in a participant's functions and processes that are audited. The auditor uses these inherent risks as a starting point for determining an audited participant's residual risk. Residual risk is used by the auditors to determine audit priority and effort.

2.8 The *Risk and materiality guideline*, *Auditor protocol*, and inherent risk registers are available on the Authority's website at: <https://www.ea.govt.nz/operations/retail/audits-approvals-and-certification/>

2.9 A "notes" field has been added in the tables in the appendices, to provide guidance when auditing an ATH's obligations.

Appendix A Functions and processes

Function 1 – Administrative tasks

Pre-audit.

Code reference	Description	Notes
Clause 10.17A	<p>The ATH being audited must appoint an auditor. The ATH and the auditor should enter into a contract for the provision of auditing services. The auditor should be clear on the scope and reporting of the audit with the ATH, including the:</p> <ul style="list-style-type: none"> • process and procedures to be audited • Code obligations to be audited • the reason(s) for the audit. <p>The auditor may request the following types of supporting information from the ATH:</p> <ul style="list-style-type: none"> • a copy of its last two audit reports • correspondence supporting its last two audit reports • information regarding the ATH's company structure, and the names of contractors and service providers that assist with, or are used in, the functions to be audited • a list of manufacturers of hardware and software that assist or are used in the process that is being audited. <p>The auditor obtains a letter from the ATH authorising the collection of information from other parties agreed in the audit scope, and requests the necessary information for the audit from those parties.</p> <p>The auditor obtains from the Authority copies of any alleged, under investigation, or closed breaches that have occurred in the past twelve months that relate to the processes being audited.</p>	

Post-audit

Code reference	Description	Notes
Clause 16A.12(1)(b)	The auditor must send a draft audit report setting out the provisional findings of the audit to the ATH and give the ATH a reasonable opportunity to comment on the draft audit report.	
Clause 16A.12(1)(c) & (d)	The auditor must provide a final audit report to the ATH after considering any comments from the ATH on the draft audit report.	
Clause 16A.12(1)(e)	<p>The final audit report must specify any of the following:</p> <ul style="list-style-type: none"> • the extent to which the ATH has failed to comply with the provisions of the Code • any conditions that the auditor considers the ATH must satisfy in order to comply with the Code • recommendations • any action that the ATH has taken in respect of those conditions • a recommended date for the next audit • any comments by the ATH on the draft audit report as considered relevant by the auditor 	

Function 2 – ATH requirements

A.1 An ATH must ensure that systems and processes are in place to meet its obligations under the Code.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 10.3	An ATH may use a contractor but remains responsible for all Code obligations.	
Clause 10.6	A participant must take all practical steps to ensure that information provided is complete and accurate and not misleading, deceptive or likely to mislead.	
Clause 10.40(1)	A person seeking approval as an ATH, or an ATH wishing to renew its approval, must apply to the Authority in writing at least two months before the intended effective date of the approval or renewal.	
Clause 10.40(2)	An applicant must satisfy the Authority that it has the facilities and procedures to reliably meet the minimum requirements of the Code for the class(es) of ATH for which it is seeking approval, has been audited by an approved auditor, and is a fit and proper person for approval.	
Clause 10.41	An ATH can only carry out activities for which it holds Authority approval for. Any activity carried out must be completed with the level of skill expected by good industry practice and in compliance with all applicable safety, employment and environmental regulations. The ATH may exercise its discretion in using its industry knowledge and skill, as applicable under Part 10, provided that it records its actions and reasoning.	Verify this includes: Safety practices to the Ministry of Business, Innovation and Employment's (energy safety) requirements: access to insulation, livening practices, polarity testing, safety practices in regard to asbestos switchboards, use and testing of personal protective equipment, hazard identification, and risk management.

Code reference	Description of obligations of ATH	Notes
Clause 3(1) of Schedule 10.3	<p>An applicant applying for approval as a class A ATH must confirm:</p> <ul style="list-style-type: none"> • it holds and complies with AS/NZS ISO 17025 accreditation • the scope of its ISO 17025 accreditation covers the activities that the ATH undertakes or proposes to undertake • it complies with any requirements of its ISO accreditation • if it proposes to carry out field work it is certified to the relevant AS/NZS ISO 9001:2008 or AS/NZS ISO 9001:2016 and will remain certified during the requested term of the approval • the scope of its ISO 17025 accreditation, has been extended to cover the carrying out of the field work. 	Class A ATH only
Clause 3(3) of Schedule 10.3	<p>A class A ATH may only carry out the following functions conditional on any limitations that may be specified in the ATH's ISO 17025 accreditation or ISO 9001 certification:</p> <ul style="list-style-type: none"> • the calibration of working standards, metering components and metering installations, and the issue of calibration reports for those items • the onsite calibration of metering components, and the installation and modification of metering components and metering installations • the certification of all categories of metering installations and the issuing of certification reports • the testing of metering installations that may be inaccurate, defective, or not fit for purpose and the production of statements of situation relating to those installations • the inspection of metering installations. 	Class A ATH only
Clause 4(1) of Schedule 10.3	<p>An applicant applying for approval as a class B ATH must confirm that:</p> <ul style="list-style-type: none"> • it holds and complies with ISO 9001 certification • the scope of its ISO 9001 certification covers the activities that it undertakes, or proposes to undertake • it will develop and maintain a conflict of interest policy¹⁹ in compliance with ISO 17025. <p>If the ATH belongs to an organisation that does work other than calibration and testing, the responsibilities for key personnel should be clearly defined. If the ATH would like recognition as a third party laboratory, it should be able to demonstrate that it is impartial and not subject to commercial or financial pressure that may influence technical judgement.</p>	Class B ATH only

¹⁹ ISO 17025:2005 clause 4.1.4.

Code reference	Description of obligations of ATH	Notes
Clause 4(3) of Schedule 10.3	<p>An ATH may only carry out the following functions subject to any limitations that may be specified in the ISO 9001 certification:</p> <ul style="list-style-type: none"> • the calibration of class 0.5 meters, class 1 meters, class 2 meters, class 0.5 current transformers, and class 1.0 current transformers provided that the calibrations are carried out under their approved quality certification using approved ISO 17025 methodology, in accordance with Schedule 10.8 and the methodology is included within the ATH audit for approval • the installation and modification of metering components and metering installations • the calibration of metering components on site • the certification, using the selected component certification method or the fully calibrated certification method, of category 1, category 2, and category 3 metering installations with a primary voltage of less than 1 kV • the certification, using the comparative recertification method, of category 2 metering installations • the issuing of certification reports for the certifications of metering installations above • the inspection of category 1, category 2, and category 3 metering installations with a primary voltage of less than 1 kV. 	Class B ATH only
Clause 15(1) of Schedule 10.4	An ATH must have managerial staff who have the authority and resources to discharge the ATH's obligations under the Code. The ATH must ensure that staff that perform or supervise work are technically competent, experienced, qualified, and trained.	
Clause 15(2)(a) and 15(2)(b) of Schedule 10.4	<p>An ATH must appoint the following:</p> <ul style="list-style-type: none"> • a technical manager with appropriate engineering qualifications and experience • a quality manager with responsibility for QMS implementation and QMS certification. 	
Clause 16 of Schedule 10.4	An ATH must establish, document, implement, maintain, and comply with a quality management system which records its processes and procedures.	
Clause 17 of Schedule 10.4	If a class A ATH arranges for another person to carry out field work, it must ensure that person is certified to the relevant AS/NZS ISO9001:2008 or AS/NZS ISO9001:2016 standard at all times while the person carries out the work.	Class A ATH only
Clause 16A.11	If the ATH intends to make a material change to any of its facilities, processes, procedures, or the scope of the ATH's ISO accreditation is reduced, the ATH must arrange for an additional audit at least 5 business days before the change or reduction in scope take place.	

Code reference	Description of obligations of ATH	Notes
Clause 16A.12 and 16A.13	The ATH must provide an audit report to the Authority by the due date. If there are areas where compliance is not achieved, the ATH must also submit a compliance plan which specifies the actions that the ATH intends to address, any issues identified in the audit report and the time frames to complete those actions.	
Clause 1(a) and (b) of Schedule 10.4	An ATH must maintain control of the access to and use of the equipment, facilities, and metering records of its approved test house and only provide access to: <ul style="list-style-type: none"> • authorised personnel or persons under direct supervision • the Authority • an auditor conducting an audit. 	Lab/office access restrictions
Clause 1(c) of Schedule 10.4	An ATH must restrict access to metering records and only provide access to: <ul style="list-style-type: none"> • the relevant MEP • the Authority • an auditor conducting an audit • appropriate metering component owner. 	Lab/office access restrictions
Clause 1(d) and (e) of Schedule 10.4	The ATH must ensure that the environment in which its activities are undertaken is monitored, appropriate for the tests being carried out and unlikely to affect the required accuracy.	Test lab temperature
Clause 1(f) of Schedule 10.4	The ATH must comply with the specific requirements of the applicable standard listed in Table 5 of Schedule 10.1.	
Clause 8 of Schedule 10.4	If an ATH is approved to certify metering installations, the ATH must have a documented process for the determination of compensation factors.	
Clause 8(3) of Schedule 10.8	An ATH must ensure that a certification sticker is: <ul style="list-style-type: none"> • made of weather-proof material • permanently attached • filled out using permanent markings. 	
Clause 10.12	An ATH may not directly or indirectly interfere with a metering installation unless it is also the MEP or has been instructed to do so by the existing or gaining MEP for the installation.	

Function 3 – Metering records and reports

- A.2 The Code requires ATHs to maintain and keep accurate and complete metering records. This includes ‘metering records’ and ‘metering certification reports’.
- A.3 Registry metering records are used by traders during switching and the reconciliation and billing process.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 10.35(2) and (3)	If it is not practical in the circumstances to locate the metering installation at the point of connection, the reconciliation participant must calculate the quantity of electricity conveyed through the point of connection using a loss compensation process approved by the certifying ATH. If this occurs the ATH must record the calculation, measurements, and assumptions in the installation certification report.	Reconciliation participants are responsible for the physical location of metering installations.
Clause 8(2) of Schedule 10.7	The metering installation certification report must specify whether the installation is half hour or non-half hour metering. It must also record where the services access interface is.	
Clause 8(4) of Schedule 10.7	An ATH must record the category of the metering installation in the metering installation certification report.	
Clause 7(7) of Schedule 10.4	An ATH may select a test point other than those specified in the relevant standard listed in Table 5 of Schedule 10.1, or at a lower burden than specified in the standard, but must, if it does this, document its reasons for the selection of these test points in the calibration report.	Compare to test points in IEC standard. ²⁰
Clause 10 of Schedule 10.4	The ATH must determine, and record in the metering installation certification report, the location of the “services access interface”.	The services access interface means the point at which access may be gained to the services available from a metering installation and where information received from the metering installation can be made available to

²⁰ International Electrotechnical Commission.

Code reference	Description of obligations of ATH	Notes
		another person.
Clause 11(1) of Schedule 10.4	For each metering installation certified, the ATH must produce a certification report that complies with Schedule 10.7.	
Clause 11(2)(a) of Schedule 10.4	For each metering component calibrated, the ATH must produce a calibration report that complies with Schedule 10.8.	
Clause 11(2)(b) of Schedule 10.4	For each metering component certified, the ATH must produce a certification report that complies with Schedule 10.8.	
Clause 12(1) of Schedule 10.4	The ATH must document and maintain its record keeping system for certificates, reports, and any other records. The records can be stored in any media, such as hard copy or electronically. The records should be stored in a manner that prevents deterioration or damage and that retrieval of a record cannot result in change or damage to the record. Electronic storage should be backed up.	
Clause 12(2) of Schedule 10.4	<p>The ATH must securely store all records, certificates, and reports and ensure that each metering installation is:</p> <ul style="list-style-type: none"> • uniquely identified • sufficiently detailed to verify the tests carried out including test conditions, the test equipment used and the personnel carrying out the tests. 	
Clause 13 of Schedule 10.4	The ATH must keep all records, certificates, and calibration reports for all components and installations certified for at least 48 months after the date of decommissioning.	
Clause 14 of Schedule 10.4	The ATH must provide the MEP responsible for the metering installation with the record, certificate, or report for the metering installation within 5 business days of certification. The ATH must ensure the MEP receives the record. This can be either as an electronic copy or any other agreed format.	
Clause 6(4) of schedule 10.7	If the ATH makes a determination to certify a metering installation at a lower category under clause 6 of Schedule 10.7, the certification report must include all information required to demonstrate compliance.	
Clause 26(3) of Schedule 10.7	<p>The ATH needs to document the following in the metering records:</p> <ul style="list-style-type: none"> • the meter manufacturer's required recommendations for regular maintenance • any maintenance that has been carried out on the meter, such as battery monitoring and replacement. 	

Code reference	Description of obligations of ATH	Notes
Clause 26(4) of Schedule 10.7	An ATH must record in the metering installation certification report, the maximum interrogation cycle for the metering installation before it certifies a metering installation incorporating a meter.	
Clause 27(5) of Schedule 10.7	The ATH must record the certification expiry date for each meter in a metering installation in the metering installation certification report and the meter certification report.	
Clause 28(3) of Schedule 10.7	<p>The ATH needs to document the following in the metering records:</p> <ul style="list-style-type: none"> • the manufacturer’s recommendations for any regular maintenance required for the measuring transformer • any maintenance that has been carried out on the measuring transformer. 	
Clause 36(3) and 36(4) of Schedule 10.7	<p>An ATH must record the maximum interrogation cycle for the metering installation. The maximum interrogation cycle for a metering installation is the shortest of the following periods:</p> <ul style="list-style-type: none"> • the period of inherent data loss protection for the metering installation • the period of memory availability given the data storage device configuration • the period in which the accumulated drift of a data storage device clock is expected to exceed the maximum time error set out in Table 1 of clause 2 of Schedule 15.2 for the category of the metering installation. 	

Function 4 – Calibration and certification of metering components

- A.4 An ATH must ensure that systems and processes are in place to meet its obligations under the Code before it becomes responsible for calibrating individual metering installations or components.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 1(d)-(e) of Schedule 10.4	The ATH must ensure that the environment in which its activities are undertaken is monitored, appropriate for the tests being carried out and unlikely to affect the required accuracy.	Test lab temperature
Clause 1(f) of Schedule 10.4	The ATH must comply with the specific requirements of the applicable standard listed in Table 5 of Schedule 10.1.	
Clause 2(1) of Schedule 10.4	The ATH must: <ul style="list-style-type: none"> ensure it is equipped to carry out the scope of its approval maintain its equipment in accordance with the manufacturer's recommendations and the requirements of this Code keep maintenance history records and calibration records of each item of equipment. 	Maintenance & Repair records
Clause 2(2) of Schedule 10.4	A class B ATH must have and maintain procedures for the purchase of test equipment and associated consumables.	Class B ATH only. May be wider organisational requirements eg capex rules, specifications
Clause 3(1)(a), (b)(i), and (6) of Schedule 10.4	An ATH must ensure that any reference standard is calibrated by an approved calibration laboratory and that any working standard is calibrated by an approved calibration laboratory or class A ATH. The calibration reports for the calibrated standards must be held by the ATH and indicate that the standard is within the manufacturer's accuracy specifications.	Year on year comparison of calibration reports – trending of results.
Clause 3(1)(b)(ii) and (2) of Schedule 10.4	Each reference standard or working standard must be calibrated within the applicable calibration interval set out in Table 1 of Schedule 10.4.	

Code reference	Description of obligations of ATH	Notes
Clause 3(3)(a) of Schedule 10.4	Class A ATHs must ensure that in calibration of reference standards, any uncertainties are sufficiently small so that the overall uncertainty in the measurements used to test a metering installation does not exceed one third of the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of metering installation that the reference standard will be used to calibrate.	Class A ATH only. Uncertainty calculator(s). May also check at this stage for how reference uncertainty is applied to working standards in calibration reports.
Clause 3(3)(b) of Schedule 10.4	Class A ATHs must ensure that a working standard on a system operating at a voltage of 33kV or above has been calibrated by an approved calibration laboratory.	Class A ATH only.
Clause 3(3)(c) and (4) of Schedule 10.4	If a reference standard is used in conditions that deviate from those in the calibration report, the class A ATH must calculate and apply adjustments using its own processes and procedures so that the reference standard achieves the reference conditions.	Class A ATH only.
Clause 3(5) of Schedule 10.4	If a reference standard is used in conditions that deviate from those in the calibration report, the class A ATH must calculate and apply adjustments using its own processes and procedures so that the reference standard achieves the reference conditions.	Class A ATH only, as only class A ATHs have reference standards.
Clause 4 of Schedule 10.4	An ATH may use a complete calibrated metering component testing system (a test bench) as an alternative to a separately calibrated working standard only if the ATH: <ul style="list-style-type: none"> • calibrates the test bench as if it was a working standard • carries out a testing system accuracy test, using approved reference standards before completing the calibration report. 	
Clause 5 of Schedule 10.4	An ATH must not use a reference standard or working standard, including a test bench, for calibration if it has a calibration error. A calibration error is defined as the reference standard or working standard performing outside of the manufacturer's accuracy specifications. As soon as reasonably practicable after becoming aware of a calibration error, but no more than 3 months, the ATH must: <ul style="list-style-type: none"> • carry out an investigation • record the cause of the error in a calibration report • treat each metering installation that it has calibrated using the suspect or inaccurate reference standard or working standard as outside the applicable accuracy tolerances • treat each metering installation that may have been calibrated with a standard or 	

Code reference	Description of obligations of ATH	Notes
	working standard with a calibration error as it the installation is inaccurate defective or not fit for purpose.	
Clause 6 of Schedule 10.4	An ATH must document, maintain, and comply with a system that ensures, whenever it undertakes a calibration test or measurement, the ATH can replicate the test or measurement in every respect and the results of the measurements are traceable.	
Clause 7(6) of Schedule 10.4	<p>An ATH must ensure that:</p> <ul style="list-style-type: none"> • it has documented instructions on the use and operation of all relevant equipment it uses for calibration • it has documented calibration procedures that it makes available to, and ensures are followed by, its staff carrying out the calibration • its calibration procedures are aligned with the standards listed in Table 5 of Schedule 10.1. 	
Clause 9 of Schedule 10.4 and clause 47(7) of Schedule 10.7	<p>An ATH is required to have a documented system for applying seals to a metering installation to ensure that each metering component in the metering installation that could be expected to affect the accuracy or reliability of the metering installation is sealed. The system of sealing will ensure monitoring of the integrity of the metering installation and that unauthorised access to the metering installation will be identifiable so that the MEP can be notified.</p> <p>The sealing system will identify:</p> <ul style="list-style-type: none"> • the ATH who affixed the seal • the person (or the sealing tool) who applied the seal • when the seal was applied. 	

Function 5 – Calibration and certification of metering installations

- A.5 All metering installations and metering components must be certified. Schedules 10.1, 10.7, and 10.8 contain the majority of the obligations and information that pertain to certification and calibration of metering installations and metering components. The certification process involves activities that the ATH must perform before, during, and after certification. The ATH must not certify the installation if the installation does not comply with Schedule 10.7.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 8(1) of Schedule 10.7	The ATH must not certify a metering installation if the installation does not comply with Part 10.	
Clause 10.11 & Clause 5 of Schedule 10.7	An ATH is required to determine the category of the metering installation in accordance with Table 1 of Schedule 10.1 before it certifies a metering installation.	
Clause 2(4) of Schedule 10.7	The ATH must receive a design report from the MEP before installing or modifying a metering installation or a component in a metering installation.	
Clause 3(1) of Schedule 10.7	Before certifying a metering installation the ATH must check the design report to confirm the metering installation will function as designed and that the metering installation will comply with Part 10.	
Clause 3(2) of Schedule 10.7	The certifying ATH must update the design report with any changes and provide it to the MEP responsible for the installation within 10 days of installation certification.	
Clause 5 of Schedule 10.7 & clause 10.11	An ATH is required to determine the category of the metering installation in accordance with Table 1 of Schedule 10.1 before it certifies a metering installation.	
Clause 6(1) of Schedule 10.7	An ATH may determine that the metering category of a current transformer installation is lower than would otherwise be the case and certify the installation at that lower category only if: <ul style="list-style-type: none"> (a) a protection device, like a fuse or a circuit breaker, is installed so that it limits the maximum current; or (b) the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified at; or (c) the components in the metering installation will use less than 0.5 GWh in any 12 month period; or 	

Code reference	Description of obligations of ATH	Notes
	(d) the MEP provides evidence from historical data that the installation will use less than 0.5 GWh in any 12 month period.	
6(2)(a) of Schedule 10.7	<p>If the ATH determines the category of a current transformer metering installation is lower than would otherwise be the case and a current limiting device is used, the ATH must:</p> <ul style="list-style-type: none"> • confirm the suitability and operational condition of the protection device • record the rating and setting of the protection device in the metering records • seal the protection device • apply, if practicable, a warning tag or label to the seal. 	
Clause 6(2)(b) and (d) of Schedule 10.7	<p>The ATH may determine the metering installation category according to the metering installation's expected maximum current, if:</p> <ul style="list-style-type: none"> • there has been a request to do so from the MEP; • the MEP provides evidence from historical data that the maximum current will be lower than the current setting of the protection device for the category that metering installation is currently certified; and • the ATH considers it is appropriate to do so in the circumstances. <p>The MEP must obtain the maximum current that flows through the installation each month from the participant interrogating the installation. From this data the ATH can calculate the maximum current from the raw meter data by either calculation from the kVA by trading period if available or from a maximum current indicator if fitted. If the MEP does not receive the monthly report from the participant interrogating the installation or if the current exceeds the maximum calculated rating of the installation, the certification of the installation is automatically cancelled.</p>	
clause 6(3) of Schedule 10.7	Before the ATH determines a metering installation to be a lower category, the ATH must first visit the site of the metering installation to ensure it is suitable for the metering installation to be determined to be a lower category.	
clause 7(1) of Schedule 10.7	<p>When certifying a metering installation the ATH must use either of the following methods:</p> <ol style="list-style-type: none"> (a) the selected component certification method if the metering installation is category 1, 2, or 3; or (b) the fully calibrated certification method. 	

Code reference	Description of obligations of ATH	Notes
Clause 7(2) of Schedule 10.7	<p>In addition to the selected component and fully calibrated methods, the ATH may also recertify an installation using:</p> <ul style="list-style-type: none"> (a) an approved statistical sampling process for category 1 metering installations; or (b) the approved comparative recertification method for a category 2 metering installation 	
Clause 8(3) of Schedule 10.7	<p>An ATH may only certify a metering installation as category 3 or higher if the metering installation incorporates a half hour meter.</p>	
Clause 9(1) of Schedule 10.7	<p>An ATH, when required to carry out tests specified in Tables 3 or 4 of Schedule 10.1, must comply with the provisions of clause 9(1) of Schedule 10.7 for the following tests:</p> <ul style="list-style-type: none"> • a prevailing load test • an installation or component configuration test • a raw meter data output test. <p>A prevailing load test is defined in the Code as a test that is carried out by comparing the output of the metering installation against a working standard connected to the metering installation. For a category 2 or higher metering installation, the prevailing load check must be done against a calibrated instrument (working standard). For a category 1 metering installation industry, best practice has defined a prevailing load test as a measurement of disk revolutions or pulses compared with time and current measurements. The revolutions or pulses are compared against a table or chart to validate the accuracy of the measurement. The prevailing load check is more than simply confirming that the meter operates but is only intended to identify a “gross error” like a phase missing or reversed or a significant metering error.</p> <p>If the ATH carries out an installation or component configuration test on a metering installation or a metering component, it must ensure that the test equipment configuration is the same as the metering installation or component configuration recorded in the design report.</p> <p>A raw meter data output test is carried out for a category 1 metering installation or category 2 metering installation by comparing a known load change against the increment of the sum of the meter registers.</p>	
Clause 9(1A) of Schedule 10.7	<p>If the ATH performs a raw meter data output test under subclause (1)(c) or subclause (1)(d), for a metering installation that will be certified for remote meter reading, the ATH must:</p>	

Code reference	Description of obligations of ATH	Notes
	(a) obtain the raw meter data from the back office system where the raw meter data is held; or (b) ensure that the metering equipment provider responsible for the metering installation has a process to validate a meter reading taken at the time of the metering installation certification with a meter reading from the metering equipment provider's back office system.	
Clause 9(1)(c) of Schedule 10.7	A raw meter data output test is carried out for a category 1 metering installation or category 2 metering installation by comparing a known load change against the increment of the sum of the meter registers.	
Clause 9(2) and 9(3) of Schedule 10.7	If the ATH performs a raw meter data output test that requires a comparison between 2 quantities, the ATH must not certify the metering installation unless the test demonstrates that the difference between the 2 quantities is within the applicable accuracy tolerances set out in Table 1 of Schedule 10.1.	
Clause 10(1) and (2) of Schedule 10.7	An ATH must not certify a metering installation if the results of tests on the metering installation or any of its metering components find that: <ul style="list-style-type: none"> • a metering component did not pass all the tests • the metering installation did not meet the requirements for certification. Within 5 business days of reviewing the tests, the ATH must advise the relevant MEP why it did not certify the metering installation.	
Clause 11(2) of Schedule 10.7	An ATH may only use the selected component certification method to certify a metering installation which complies with the categories and component specifications set out in Table 1 of Schedule 10.1.	
Clause 11(3) of Schedule 10.7	An ATH must only use the selected component certification method to certify the metering installation if: <ul style="list-style-type: none"> • the required tests in Table 3 of Schedule 10.1 are carried out • each data storage device, meter, and measuring transformer has been calibrated and certified • each data storage device is certified in accordance with clause 5 of Schedule 10.8 • the ATH provides a certification report for the metering installation. 	
Clause 12(2) of Schedule 10.7	An ATH may only use the comparative recertification method to recertify a category 2 metering installation if:	

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> • the certification of the current transformers in the metering installation expire before the meter certification expiry date • each data storage device and/or meter has been calibrated and certified. 	
Clause 12(3) and 12(5)(a) of Schedule 10.7	<p>An ATH must, when recertifying the category 2 metering installation using the comparative recertification metering installation certification method, ensure that:</p> <ul style="list-style-type: none"> • the metering installation has passed the tests set out in Table 3 of Schedule 10.1 using a working standard • the accuracy of the current measurement sensor (current transformer or high accuracy Rogowski coil) enables the metering installation to meet the specified accuracy requirements of Table 1 of Schedule 10.1 • the overall metering installation accuracy meets the requirements of Table 1 of Schedule 10.1 and • the ATH provides a certification report for the metering installation. 	
Clause 13(3) of Schedule 10.7	<p>An ATH must use the fully calibrated certification method to certify the metering installation:</p> <ul style="list-style-type: none"> • by carrying out the tests set out in Table 4 of Schedule 10.1 • if each of the components (the data storage device, meter, and measuring transformer) has been calibrated and certified. 	
Clause 13(4) of Schedule 10.7	<p>Each individual metering component in the metering installation must have a current certification report that confirms that the metering component complies with the requirements of its accuracy class; and includes the certification date of the metering component.</p>	
Clause 13(5) and (6) of Schedule 10.7	<p>The ATH must provide a certification report for the metering installation. The certification report must include confirmation that:</p> <ul style="list-style-type: none"> • the ATH has checked the design report of the metering installation to confirm the metering installation functions in accordance with the report • the overall metering installation accuracy meets the requirements of Table 1 of Schedule 10.1 • the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation • each metering component in the metering installation is used only in a permitted 	

Code reference	Description of obligations of ATH	Notes
	combination as set out in table 1 of Schedule 10.1.	
Clause 13(7) of Schedule 10.7	An ATH must, before it certifies a metering installation, ensure that the ATH uses the meter class accuracy, and not the actual accuracy, to calculate whether the actual error is within the maximum permitted error.	
Clause 14(2) of Schedule 10.7	<p>Every metering installation requires a test to ensure that the installation is correctly recording the energy used at the installation. The tests required are defined in Tables 3 and 4 of Schedule 10.1. The checks range from a minimum check that the meter registers increments through to a full raw meter data output check against a working standard and a check against the back office data for a half hour installation.</p> <p>If the ATH decides to certify half hour metering installation that has insufficient load to complete a prevailing load check, the ATH must ensure that:</p> <ul style="list-style-type: none"> • it performs an additional integrity check of the metering installation wiring, and records the results of this check in the certification report • it records in the certification report that the metering installation is certified under clause 14 of Schedule 10.7. 	<p>There is an obligation on the MEP to obtain and monitor the raw meter data for a POC that has been certified without a prevailing load test. When the MEP obtains raw meter data that indicates there is sufficient load to carry out and complete prevailing load tests, it must arrange for the ATH to make a visit to the site and carry out the tests.</p>
Clause 14(5) of Schedule 10.7	<p>Once load is present and following a request from the MEP, the ATH must carry out prevailing load tests. If the tests demonstrate that the metering installation performs within the maximum permitted error, the certifying ATH must:</p> <ul style="list-style-type: none"> • update the metering installation certification report, within 5 business days of completing the tests, to include the results of the tests carried out • leave the original metering installation certification expiry date unchanged. 	
Clause 16(2) of Schedule 10.7	<p>A group of meters can be sampled by the ATH and the results of the sample group can be extended to a larger group of the same meters. This is a process of certification by statistical sampling. The ATH must select a sample using a statistical sampling process that is:</p> <ul style="list-style-type: none"> • detailed in AS/NZS1284 (or approved and published by the Authority) • recertify the group by recertifying each metering installation in the sample using the fully calibrated certification method • advise the MEP as soon as reasonably practicable whether the sample passes or fails the recertification requirements. 	<p>A MEP may arrange for an ATH to recertify a group of category 1 metering installations for which the MEP is responsible using a statistical sampling process. At the time of publication of this guideline there are no approved and published alternatives to AS/NZS 1284.</p>
Clause 16(3) &	If the ATH carries out a statistical sampling process when recertifying a group of category	

Code reference	Description of obligations of ATH	Notes
16(6) of Schedule 10.7	<p>1 metering installations on behalf of an MEP, it must document and record:</p> <ul style="list-style-type: none"> • the process it follows for selecting samples • any assumptions about those samples • the metering installations in the sample • the metering installations in the recertified group. <p>An ATH that recertifies a group of metering installations using a statistical sampling process does not need to apply a certification sticker to the remainder of the metering installations in the family or group that was sample tested.</p>	
Clause 7(3) of Schedule 10.7	<p>If the ATH uses statistical sampling, it must use either the selected component method or the fully calibrated method, as applicable, to certify each metering installation in the sample.</p>	
Clause 17(2) of Schedule 10.7	<p>A metering installation certification expiry date is the earliest of:</p> <ul style="list-style-type: none"> (a) the date of commissioning plus the maximum certification validity period for the relevant category of metering installation, as set out in Table 1 of Schedule 10.1; or (b) the earliest metering component certification expiry date; or (c) a date determined by the ATH if the ATH believes that the circumstances and condition of the components in a metering installation warrant deviation from Table 1 of Schedule 10.1. 	
Clause 17(3) of Schedule 10.7	<p>The expiry date for a metering installation in a group recertified using a statistical sampling process, is the earliest expiry date of the metering installations in the sample.</p>	
Clause 21 of Schedule 10.7	<p>An ATH must, before it certifies a metering installation, ensure that the metering installation does not exceed the relevant maximum permitted error after the application of any external compensation factors.</p>	
Clause 22 of Schedule 10.7	<p>If a metering installation is certified using the comparative recertification or fully calibrated methods, the ATH must calculate and record the percentage of overall error of the metering installation. The ATH must calculate this using appropriate mathematical methods that include:</p> <ul style="list-style-type: none"> • all sources of measurement error including test instrument errors, reference standard variations when used in conditions that deviate from those in the calibration report, variations in repeated observations, the instrument resolution or discrimination threshold and any assumptions incorporated in the measurement method and 	

Code reference	Description of obligations of ATH	Notes
	<p>procedure</p> <ul style="list-style-type: none"> • the error calculation must include the uncertainty in the measurement at a 95 % level of confidence using JCGM 100:2008 • the error and its calculation must be recorded in the certification report. <p>The ATH must not certify the metering installation if the uncertainty is greater than the maximum permitted site uncertainty or the combined error that includes the measured error and the uncertainty, is greater than the maximum permitted installation error.</p>	
<p>Clause 24(1)(b) of Schedule 10.7</p>	<p>Before it certifies a metering installation that requires a compensation factor to adjust raw meter data, the ATH must:</p> <ul style="list-style-type: none"> • advise the MEP of the compensation factor • ensure that the compensation factor that will be applied to raw meter data external to the metering installation is applied as follows: <ul style="list-style-type: none"> a. for ratio compensation, on a category 1 metering installation or higher category of metering installation; or b. for error compensation, on a metering installation that quantifies electricity conveyed through a point of connection to the grid; or c. for loss compensation, only on a category 3 or higher metering installation. 	
<p>Clause 24(2) of Schedule 10.7</p>	<p>If a compensation factor is applied to a metering installation, the ATH must record in the certification report, the methodology, assumptions, measurements, calculation and details of each compensation factor that is included within the internal configuration of the metering installation and each compensation factor that must be applied to the raw meter data.</p>	
<p>Clause 25(1) of Schedule 10.7</p>	<p>Before it certifies a metering installation, the ATH must ensure that the installation of the metering components was carried out by an ATH. However, a suitably qualified person such as a switchboard manufacturer may install the measuring transformers and any required associated burden, the test facilities, potential fuses and switchboard wiring.</p>	
<p>Clause 25(2) of Schedule 10.7</p>	<p>Before it certifies a metering installation, the ATH must ensure that each metering component is installed in accordance with the installation design report.</p>	
<p>Clause 27(1) and (2) of Schedule 10.7</p>	<p>The ATH needs to determine the meter certification expiry date for each meter in a metering installation. The meter certification expiry date must be the earliest end date of the following periods, calculated from the date of commissioning of the metering installation:</p>	

Code reference	Description of obligations of ATH	Notes
	(a) the maximum metering installation certification validity period for the relevant category of metering installation; or (b) the maximum meter certification validity period set out in Table 2 of Schedule 10.1 for the relevant class of meter for the metering installation; or (c) the certification period specified in the meter certification report.	
Clause 27(4) of Schedule 10.7	If an electromechanical meter is not installed in a metering installation within 24 months of the date of the meter's certification report, the meter must be recertified before it is installed.	
Clause 28(2) of Schedule 10.7	All measuring transformers must be certified before they can be used in a metering installation. If a measuring transformer has previously been used in another metering installation, the ATH must ensure that the measuring transformer has been recalibrated since it was removed from the previous metering installation. This must be undertaken either by an approved calibration laboratory or an ATH.	
Clause 28(4) of Schedule 10.7	To certify any metering installation incorporating measuring transformers, the ATH must ensure that: <ul style="list-style-type: none"> • the installation has certified measuring transformers • the installation has a test facility which has provision for isolation, installed as physically close to the meter as practical in the circumstances • the test facility is fitted with a transparent cover • the installation has securely mounted measuring transformers which are, if practicable, in a sealed enclosure • the ATH uses the measuring transformer's actual accuracy (rather than class accuracy) when calculating the maximum permitted error for the relevant metering installation category • any voltage supplies from a voltage transformer to a meter or that other equipment in the metering installation is protected by appropriately rated fuses or circuit breakers dedicated to the supply. All fuses and circuit breakers must be suitably sealed or located in sealed enclosures • the measuring transformer's secondary circuit is earthed and that it is earthed at no more than 1 point • the total burden (magnitude and phase angle, where appropriate), including burden resistors if used, on the measuring transformer does not exceed its name plate rating 	

Code reference	Description of obligations of ATH	Notes
	or an alternative rating lower than the name plate rating, if specified in the metering installation design report.	
Clause 29 of Schedule 10.7	The ATH needs to determine the measuring transformer certification expiry date for each measuring transformer in a metering installation. The measuring transformer certification expiry must be within the validity period specified in the measuring transformer certification report.	
Clause 30(2)(a) of Schedule 10.7	<p>If the ATH certifies a metering installation incorporating a measuring transformer used by another metering installation, it must ensure that where voltage transformers are connected to more than 1 meter:</p> <ul style="list-style-type: none"> • the meters are included in the metering installation being certified • appropriate fuses or circuit breakers are provided to protect the metering circuit from short circuits or overloads affecting the other meter. 	
Clause 30(2)(b) of Schedule 10.7	<p>While it is desirable that only metering equipment is connected to measuring transformers in a metering installation if, in some circumstances, the MEP connects other equipment to measuring transformers, the ATH must ensure that:</p> <ul style="list-style-type: none"> • the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation category • the metering installation certification report confirms that the accuracy of the metering installation remains within the maximum permitted error for the relevant metering installation • any wiring between the equipment and any part of the metering installation is continuous • the equipment is labelled appropriately, including with any restrictions regarding being electrically disconnected • the connection details of the other equipment are recorded in the metering installation design report • there are appropriate fuses or circuit breakers provided to protect the voltage transformer and metering circuit from short circuits or overloads affecting the other equipment. 	
Clause 31(1) of Schedule 10.7	An ATH may certify a metering installation for a POC to the grid that includes error compensation factors as an alternative to the use of burden resistors only if the ATH is satisfied the error compensation factors will provide a more accurate result than the use	

Code reference	Description of obligations of ATH	Notes
	of burden resistors.	
Clause 31(6) of Schedule 10.7	<p>An ATH may change the burden on a voltage transformer, without obtaining the approval of the MEP, if the ATH confirms in the certification report that the difference between the new burden and the burden at the time of the most recent metering installation certification is:</p> <ul style="list-style-type: none"> (a) less than or equal to 1/30th of the VA rating of the voltage transformer, if the voltage transformer is rated at less than 30 VA; or (b) no greater than 1 VA, if the voltage transformer is rated at equal to or greater than 30 VA. 	
Clause 31(7) of Schedule 10.7	<p>Before it certifies a measuring transformer where the in-service burden is less than the lowest burden test point specified in a standard set out in Table 5 of Schedule 10.1, the ATH must install burdening resistors to increase the in-service burden to be equal to or greater than the lowest test point of the measuring transformer certification test or confirm from the manufacturer of the instrument transformer that the accuracy will not be adversely affected by the low in service burden.</p>	
Clause 32(1) of Schedule 10.7	<p>If the ATH cannot comply with the requirements for certifying a measuring transformer solely due to the inability to obtain physical access to test the measuring transformers, it can certify the metering installation for a period not exceeding 24 months only if:</p> <ul style="list-style-type: none"> • the measuring transformer has not previously been certified due to failure to obtain access • the ATH is satisfied that the metering installation will comply with the applicable accuracy requirements • the ATH has advised the MEP that the metering installation has been certified by this method • the MEP has advised the registry of the certification. 	Also known as “alternate certification”.
Clause 33(2) of Schedule 10.7	<p>Before the ATH can certify a metering installation incorporating a control device that must be certified, it must ensure:</p> <ul style="list-style-type: none"> • that the certification expiry date for each control device is the same as the metering installation certification expiry date and record that date in the installation certification report • that the control device complies with the applicable standards listed in Table 5 of Schedule 10.1 	Before a reconciliation participant can use a control device for controlling a load or switching meter registers, an ATH must certify that load control device (clause 33(1A) of Schedule 10). The reconciliation participant will

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> • the control device is fit for purpose • if the metering installation contains a control device that has previously been used in another metering installation, that the control device is still fit for service. • that the control device is: <ul style="list-style-type: none"> ○ likely to receive control signals ○ correctly connected ○ correctly programmed. 	<p>therefore need to inform the MEP who will in turn instruct the ATH that the control device needs certifying.</p> <p>If the certifying ATH believes that a single load control device operates slave load control devices at multiple ICPs (e.g. pilot wire systems or load control devices operating contactors in apartment buildings) it must label and reference the master and slave load control devices to minimise confusion. The ATH should record this in the certification report and inform the MEP so the MEP can update the registry.</p>
Clause 34(1) of Schedule 10.7	In order to ensure control device accuracy or the completeness of reconciliation information, the ATH must determine the likelihood of the control device not receiving control signals before it certifies a metering installation incorporating a control device.	
Clause 34(3) to (5) of Schedule 10.7	If the ATH believes the likelihood of the control device not receiving control signals would affect the accuracy or completeness of the information for consumption reconciliation, the ATH may certify the remainder of the metering components and the installation, excluding the control device. The ATH must advise the MEP within 3 business days of its decision. The MEP is then responsible for advising both the reconciliation participant for the POC for the metering installation and the control signal provider of the ATH's determination.	
Clause 36(2) of Schedule 10.7	If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.	

Code reference	Description of obligations of ATH	Notes
Clause 36(3) and (4) of Schedule 10.7	<p>An ATH must record the maximum interrogation cycle for the metering installation. The maximum interrogation cycle for a metering installation is the shortest of the following periods:</p> <ul style="list-style-type: none"> • the period of inherent data loss protection for the metering installation • the period of memory availability given the data storage device configuration • the period in which the accumulated drift of a data storage device clock is expected to exceed the maximum time error set out in Table 1 of clause 2 of Schedule 15.2 for the category of the metering installation. 	
Clause 38(1) and (2) of Schedule 10.7 and clause 5(1) of Schedule 10.8	<p>An ATH must ensure that each data storage device in the metering installation:</p> <ul style="list-style-type: none"> • is installed so that on-site interrogation is possible without the need to interfere with seals • has a dedicated power supply unless the data storage device is integrated with another metering component • is compatible with each other metering component of the metering installation • is suitable for the electrical and environmental site conditions in which it is installed • has all of its outputs and inputs appropriately electrically isolated and rated for purpose • has no outputs that will interfere with the operation of the metering installation • records periods of data identifiable or deducible by both date and time on interrogation • has memory capacity and functionality that is suitable for the proposed functions of the data storage device specified in the design report for the metering installation, has availability of memory for a period that is suitable for the proposed functions as set out in the design report for the metering installation, and at least for a minimum continuous period of 15 days. <p>The data storage device must have an event log which records the following:</p> <ul style="list-style-type: none"> ○ loss of power supply ○ critical internal alarms ○ meter phase failure if integral to the meter ○ software configuration changes 	

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> ○ a record of time changes. 	
Clause 41(1) of Schedule 10.7	An ATH must confirm the metering installation certification by attaching a metering installation certification sticker as close as possible to the meter, while maintaining reasonable visibility of the certification sticker and the meter.	Equipment in the metering installation must meet the requirements of the Electricity (Safety) Regulations 2010. The regulations provide that the metering equipment must be safe and the installation must be safety inspected. The ATH could use the installation certification sticker to meet these requirements in addition to meeting the requirements of Part 10.
Clause 41(2) of Schedule 10.7	<p>The metering installation certification sticker must show:</p> <ul style="list-style-type: none"> • the name of the ATH who certified the metering installation • the certification date of the installation • the metering installation category • the ICP • the certification number for the metering installation. 	
Clause 41(4) of Schedule 10.7	If attaching a certification sticker is not practicable, the ATH must devise and use an alternative means of documenting the information and keep any metering component certification sticker with the documented information.	
Clause 42 of Schedule 10.7	An ATH must ensure that if a metering component in the metering installation is housed in a separate enclosure from the meter enclosure, the enclosure is appropriate to the environment in which it is located and has a warning label attached stating that the enclosure houses a metering component.	
Clause 43(1) of Schedule 10.7	Before certifying an installation, the ATH must ensure that each component has been certified by an ATH and has been stored appropriately since component certification.	
Clause 47(2) (3) (4) and (5) of Schedule 10.7	Before an ATH certifies a metering installation or leaves it unattended, the ATH must ensure that each metering component that could reasonably be expected to affect the accuracy or reliability of the metering installation is sealed.	The Code considers that something being “sealed” includes items contained

Code reference	Description of obligations of ATH	Notes
	<p>The metering components which must be sealed include:</p> <ul style="list-style-type: none"> • each part and connection of a data storage device in, or attached to, the metering installation except for a port for on-site reading that is not capable of carrying out any other function • the main switch cover, if the main switch: <ul style="list-style-type: none"> ○ is on the supply side of the metering installation ○ has provision for sealing. 	within a sealed enclosure.
Clause 47(6) of Schedule 10.7	When applying a seal to a metering component in an enclosure, the ATH must attach a warning label in a prominent position inside the enclosure.	
Clause 47(7) of Schedule 10.7	<p>An ATH must use a sealing system that enables identification of:</p> <ul style="list-style-type: none"> • the ATH who affixed the seal • the person (or the sealing tool) who applied the seal • when the seal was applied. 	
Clause 48(6) of Schedule 10.7	<p>When the ATH investigates an unauthorised removal or breakage, it must assess the accuracy and continued integrity of the metering installation. If the ATH considers the accuracy and continued integrity is unaffected, it must replace the removed or broken seals.</p> <p>If the accuracy and continued integrity is affected, the ATH must replace the removed or broken seal and advise the MEP that the metering installation is potentially inaccurate, defective, or not fit for purpose.</p>	If a seal has been removed for satisfactory reasons and the installation remains accurate, the installation can be resealed and recorded and recertification is not required.
Clause 6 of Schedule 10.8	<p>An ATH must, before it certifies a metering installation, ensure that all wiring in the metering installation is suitable for the environment in which the metering installation is located, fit for purpose, securely fastened, and compliant with all applicable requirements and enactments.</p> <p>The ATH must ensure that the wiring between metering components in the metering installation:</p> <ul style="list-style-type: none"> • is run as directly as practicable • is appropriately sized and protected • does not, to the extent practicable, include intermediate joints for any measuring transformer circuits 	

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> • includes conductors that are clearly and permanently identified, by the use of any 1 or more of the following: <ul style="list-style-type: none"> ○ colour coding ○ marker ferrules ○ conductor numbering. <p>If it is not practicable to exclude intermediate joints for any measuring transformer circuits, the ATH must ensure that the intermediate joints are sealed or in a sealed enclosure.</p>	
Clause 7 of Schedule 10.8	An ATH must ensure that all fuses and circuit breakers that are part of the metering installation are appropriately rated for the electrical duty and discrimination required, clearly labelled, and sealed or located in sealed enclosures.	
Clause 7(1) of Schedule 10.4	Before the ATH certifies a metering installation or metering component, it must ensure that the metering components have been calibrated by an approved calibration laboratory or an ATH with appropriate approval under Schedule 10.3.	
Clause 7(2) of Schedule 10.4	Before the ATH certifies a metering component it must ensure that the component is calibrated or adjusted under the physical and electrical conditions specified in Table 5 of schedule 10.1 and the conditions permit the calculation of uncertainties at the reference conditions.	
Clause 7(3) of Schedule 10.4	A class B ATH must follow the relevant requirements of ISO17025 for calibration of components and only use methodologies that have been verified in their most recent audit.	Class B ATH only
Clause 7(4) of Schedule 10.4	<p>If the ATH calibrates a component it must ensure that the test points that it uses are either:</p> <ul style="list-style-type: none"> • no less than the test points in Table 5 of Schedule 10.1 or • sufficient to calculate the metering installation error as defined in clause 22 of Schedule 10.7. 	
Clause 7(5) of Schedule 10.4	<p>An ATH must, when calibrating a metering component:</p> <ul style="list-style-type: none"> • if necessary, adjust and document the error compensation • ensure that any adjustment carried out is appropriate to achieve an error as close as practicable to zero • ensure that the uncertainty of measurement during the calibration of the metering 	

Code reference	Description of obligations of ATH	Notes
	<p>component does not exceed one third of the maximum permitted error in the relevant standard listed in Table 5 of Schedule 10.1.</p> <p>If the metering component is intended for a metering installation which will be certified using the selected component certification method, the ATH must ensure that the ATH records the errors of a current transformer from 5 % to 120 % of rated primary current.</p>	
Clause 2(3) of Schedule 10.3	If a class B ATH wishes to calibrate components (such as class 0.5 meters, class 1 meters, class 2 meters, class 0.5 current transformers, and class 1.0 current transformers) this must be carried out under the relevant provisions and methodologies of ISO 17025. The final audit report must include a list of all relevant requirements of ISO 17025 for calibrating these metering components and all relevant methodologies audited.	Class B ATH only
Clause 1 of Schedule 10.8	All meters must be certified before they can be used in a metering installation. The ATH must ensure that the meters in a metering installation have been type tested by an approved test laboratory, that the results for the meter are appropriate for that meter model and version, and have a calibration report.	
Clause 26(2) of Schedule 10.7 and clause 43(2) of Schedule 10.7	If a meter has previously been used in another metering installation, the ATH must ensure that the meter has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory or an ATH unless it is less than 12 months since the meter was commissioned in the previous installation.	
Clause 28(2) of Schedule 10.7	All measuring transformers must be certified before they can be used in a metering installation. If a measuring transformer has previously been used in another metering installation, the ATH must ensure that the measuring transformer has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory or an ATH.	
Clause 2(1)(a) and (b) of Schedule 10.8	Before certifying a measuring transformer, an ATH must test the measuring transformer's errors at a range of primary values at their rated burdens. If the measuring transformer is a multi-tap current transformer, an ATH must carry out the calibration tests and only certify the transformer for the ratios that have been calibrated.	
Clause 2(1)(c) of Schedule 10.8	<p>If the in-service burden of a measuring transformer is lower than a test point specified in a standard listed in Table 5 of Schedule 10.1, the ATH must confirm the accuracy of the measuring transformer at the in-service burden by:</p> <p>(a) obtaining confirmation of accuracies at the in-service burden from the measuring transformer's manufacturer; or</p>	

Code reference	Description of obligations of ATH	Notes
	(b) if the primary voltage of the measuring transformer is greater than 1 kV, a class A ATH calibrating the measuring transformer at the in-service burden.	
Clause 2(2) of Schedule 10.8	Before it certifies an epoxy insulated current transformer, the ATH must ensure that the certification tests allow for, and the metering installation certification report shows, the current transformer's age, temperature, and batch.	
Clause 3 of Schedule 10.8	<p>Before it certifies a measuring transformer, the ATH must ensure that:</p> <ul style="list-style-type: none"> • the measuring transformer has a current calibration report issued by an approved calibration laboratory or an ATH approved to carry out calibration • the measuring transformer calibration report: <ul style="list-style-type: none"> • confirms that the measuring transformer complies with the standards listed in Table 5 of Schedule 10.1 • records any tests the ATH has performed to confirm compliance • confirms that the measuring transformer has passed the tests • records any recommendations made by the ATH on error compensation • includes any manufacturer's calibration test reports. <p>The ATH is required to produce a measuring transformer certification report that includes:</p> <ul style="list-style-type: none"> • the date on which it certified the measuring transformer • the certification validity period for the measuring transformer, which must be no more than 120 months • whether the certification was based on batch test certificates • if the certification was based on batch test certificates, confirmation that the manufacturer's batch testing facility is, in the ATH's opinion, of an acceptable standard. <p>The ATH must provide confirmation that the ATH has inspected the manufacturer's test certificates, and carried out any additional tests it considers necessary, to satisfy itself that the measuring transformer meets the accuracy requirements.</p>	
Clause 4 of Schedule 10.8	<p>Before it certifies a new control device, the ATH must produce a certification report that:</p> <ul style="list-style-type: none"> • confirms that the control device complies with the applicable standards listed in Table 5 of Schedule 10.1 • includes the details and results of any test that the ATH has carried out to confirm 	

Code reference	Description of obligations of ATH	Notes
	<p>compliance under paragraph (a)</p> <ul style="list-style-type: none"> • confirms that the control device has passed such tests. <p>Before it certifies an existing installed control device, the ATH must produce a certification report that confirms:</p> <ul style="list-style-type: none"> • that the control device is fit for purpose • the control device certification validity period that the ATH considers appropriate, which must be no more than 180 months. 	
Clause 36(2) of Schedule 10.7	If a data storage device has previously been used in another metering installation, the ATH must ensure that the data storage device has been recalibrated since it was removed from the previous metering installation by an approved calibration laboratory, an approved test laboratory, or an ATH.	
Clause 9(1) of Schedule 10.8	<p>An ATH may only calibrate a metering component on site in the metering component's normal environment by measuring the influence of all on-site variables and including their estimated effects in the uncertainty calculation. An ATH must ensure that:</p> <ul style="list-style-type: none"> • the effects of any departures from the reference conditions can accurately and reliably be calculated • the metering installation, in which the metering component is incorporated, is within the applicable accuracy tolerances set out in Table 1 of Schedule 10.1 after taking into account all known influences including temperature and temperature co-efficient measurements. 	
Clause 9(2) of Schedule 10.8	<p>If the ATH calibrates a metering component on site using manual methods, computers, or automated equipment for the capture, processing, manipulation, recording, reporting, storage, or retrieval of calibration data, it must ensure that its computer software:</p> <ul style="list-style-type: none"> • is documented in the ATH's procedures • can manipulate the variables that affect the performance of the metering component in a manner that will produce results that would correctly indicate the level of compliance of the metering component with this Code. 	
Clause 9(3) of Schedule 10.8	<p>An ATH that certifies a metering component on site must include confirmation in the metering component certification report that:</p> <ul style="list-style-type: none"> • it has calculated the uncertainty of measurement taking into account all environmental factors for both the metering component being calibrated and the 	

Code reference	Description of obligations of ATH	Notes
	<p>working standards</p> <ul style="list-style-type: none"> • the calculation of the uncertainty comprises all uncertainties in the chain of calibration • the ATH has used a calibration procedure to calibrate the metering component that was included in the ATH's most recent audit and is appropriate for on-site calibration. 	
Clause 37 of Schedule 10.7	Before certifying a metering installation which incorporates a data storage device, the ATH must determine the expiry date of the data storage device. The ATH must record the expiry date in the certification report for the metering installation and the certification report for the data storage device. .	
Clause 10.42(2)	Where Part 10 requires the ATH to complete a function or activity before a metering installation is certified, the ATH must complete that function or activity as part of the process for certifying the metering installation.	

Function 6 – Inspection of metering installations

- A.6 Metering installations are inspected by an ATH, on instruction from the MEP, to ensure that they continue to meet certification requirements throughout the certification period. An ATH will carry out the inspection of metering installations on behalf of the MEP.
- A.7 The MEP will have a process to randomly select installations for its population of certified category 1 installations. The MEP may ask the ATH to do this on its behalf. This selection process will need to be approved by the Authority. While not a requirement, the ATH should make recommendations to the MEP if it believes that certain meter or component types should be excluded (or included) from the sample population due to ATH concerns about equipment reliability.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 44(1)(a) to (e) of Schedule 10.7	<p>When carrying out an inspection of a metering installations, the ATH must:</p> <ul style="list-style-type: none"> • check and confirm that the data storage device in the metering installation operates as required • check and confirm that the expected remaining lifetime of each battery in the metering installation will be reasonably likely to meet or exceed the metering installation certification expiry date • ensure that no modifications have been made to the metering installation without the change having been documented and certification requirements satisfied • visually inspect all seals, enclosures, metering components, and wiring of the metering installation for evidence of damage, deterioration, or tampering • ensure that the metering installation and its metering components carry appropriate certification stickers. 	
Clause 44(1)(f) of Schedule 10.7	<p>When carrying out an inspection of a category 1 metering installation, the ATH must also check and confirm there is no difference between the volume of electricity recorded by the master accumulation register of a data storage device, and the sum of the meter registers</p>	
Clause 44(2) of Schedule 10.7	<p>An ATH must prepare an inspection report for each inspection of a metering installation that it carries out, which includes the following:</p> <ul style="list-style-type: none"> • details of the checks carried out, the results, and the installation certification expiry date • the serial numbers of all components in the metering installation 	

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> any non-compliances and the action taken to remedy the non-compliance the name of the inspector and the date on the inspection. 	
Clause 44(3) of Schedule 10.7	The ATH must, within 10 business days of carrying out the inspection, provide the inspection report to the MEP.	
Clause 46(2) of Schedule 10.7	<p>When carrying out an inspection of a category 2 or higher metering installation, the ATH must also conduct the following additional checks:</p> <ul style="list-style-type: none"> a visual inspection of each metering component in the metering installation for damage, tampering, or defect if the current transformer can be safely accessed, check the position of the current transformer tap to ensure it is still appropriate for the expected maximum current for the metering installation check for the presence of appropriate voltages at the metering installation check the voltage circuit alarms and fault indicators. 	
Clause 44(4) of Schedule 10.7	If the ATH has not performed an inspection of a fully certified metering installation within the specified timeframe in Part 10, the certification of the metering installation is automatically cancelled on the date by which the metering installation was required to have been inspected.	The ATH is required to do the inspection but the MEP is responsible for requiring the ATH to carry out the inspection and recording that certification of the metering installation has been cancelled on the registry if the inspection is not completed.
Clause 5 of Schedule 10.8	All data storage devices must be certified before they can be used in a metering installation. The ATH must ensure that the data storage devices in a metering installation have been type tested by an approved test laboratory, that the results for data storage devices are appropriate for that model and version, and have a calibration report.	
Clause 8(1) of Schedule 10.8	An ATH must confirm certification by attaching a metering component certification sticker to the metering component or, if not practicable, provide the sticker with the metering component.	
Clause 8(2) of Schedule 10.8	<p>A metering component certification sticker must show:</p> <ul style="list-style-type: none"> the name of the metering component owner (if available) 	

Code reference	Description of obligations of ATH	Notes
	<ul style="list-style-type: none"> • if the metering component is a meter or a measuring transformer: <ul style="list-style-type: none"> ○ the name of the ATH or the approved calibration laboratory who calibrated the metering component ○ the name of the ATH who certified the metering component ○ the date on which the metering component was certified • the initials or other unique identifier of the person who carried out the certification of the metering component. 	

Function 7 – Process for handling faulty metering installations

A.8 A faulty metering installation is one that is inaccurate, defective, or not fit for purpose. If a faulty metering installation is reported to the MEP by a participant, or considered faulty by the MEP, The MEP must arrange for the metering installation to be investigated by an ATH. The ATH must report on the situation to the MEP as soon as reasonably practicable.

Relevant provisions of the Code

Code reference	Description of obligations of ATH	Notes
Clause 10.43(3)	As a participant, the ATH must inform the MEP if it believes a metering installation is faulty, inaccurate, defective, or not fit for purpose.	
Clause 10.44	When advised by an MEP that a metering installation is faulty, inaccurate, defective, or not fit for purpose, the ATH must test the metering installation as soon as practical and provide a statement of situation.	Timeframes are for investigation and report on issue, not necessarily resolution.
Clause 10.46(1)	The ATH must include the following in the statement of situation: <ul style="list-style-type: none"> the details and results of the tests carried out a conclusion, with reasons, as to whether or not the metering installation is faulty an assessment of the risk to the completeness and accuracy of the raw meter data the remedial action proposed or undertaken any correction factors to apply to raw meter data to ensure that the volume information is accurate the period over which the correction factor must be applied to the raw meter data. 	
Clause 10.47	When taking action to remedy an inaccuracy or defect within a metering installation, the ATH must ensure that records of any modifications that are carried out to the metering installation are kept for each metering component of the metering installation in the metering records and in a manner reasonable in the circumstances to ensure that further investigation can be carried out.	

Code reference	Description of obligations of MEP	Notes
Clause 10.9(2)	The MEP is responsible for providing and maintaining the services access interface.	<p>The services access interface is recorded in the certification report. It defines where information received from the metering installation can be made available to other parties.</p> <p>This will be either:</p> <ul style="list-style-type: none"> • at the meter; or • where the information received from the metering installation can be made available to other parties (only when the MEP is the only party that can interrogate the meter).
Clause 10.23	<p>The MEP is responsible if it:</p> <ul style="list-style-type: none"> • is identified in the registry as the primary metering contact; or • is the participant who owns the meter for the POC or to the grid; or • has accepted responsibility under clause 1(1)(a)(ii) of Schedule 11.4; or • has contracted with a participant responsible for providing the metering installation. <p>An MEP's obligations come into effect on the date recorded in the registry as being the date on which the metering installation equipment is installed or, for an NSP the effective date set out in the NSP table on the Authority's website.</p> <p>An MEP's obligations terminate only when;</p> <ul style="list-style-type: none"> • the ICP changes under clause 10.22(1)(a); • the NSP changes under clause 10.22(1)(b), in which case the MEP's obligations terminate from the date on which the gaining MEP assumes 	

Code reference	Description of obligations of MEP	Notes
	responsibility; <ul style="list-style-type: none"> • the metering installation is no longer required for the purposes of Part 15; or • the load associated with an ICP is converted to be used solely for unmetered load. 	
Clause 10.50(1) to (3)	Dispute resolution: <ul style="list-style-type: none"> • participants must in good faith use its best endeavours to resolve any disputes related to Part 10 of the Code • disputes that are unable to be resolved may be referred to the Authority for determination • complaints that are not resolved by the parties or the Authority may be referred to the Rulings Panel by the Authority or participant. 	Confirm if any disputes have occurred and if so how they were resolved.
Clause 7(1) of Schedule 10.6	The MEP must ensure it has a unique participant identifier and must use this participant identifier (if required) to correctly identify its information.	Identify: <ul style="list-style-type: none"> • The code(s) used by the participants • The code(s) that apply to the MEP functions • Any instances where incorrect use of participant codes have occurred.
Clause 40 of Schedule 10.7	The MEP must ensure that the use of its communication equipment complies with the compatibility and connection requirements of any communication network operator the MEP has equipment connected to.	
Clause 11.2 Clause 10.6	The MEP must take all practicable steps to ensure that information that the MEP is required to provide to any person under Parts 10 and 11 is: <ul style="list-style-type: none"> (a) complete and accurate (b) not misleading or deceptive 	This clause applies to all information provided under Parts 10 and 11 and should be considered when assessing the provision of information under these

Code reference	Description of obligations of MEP	Notes
	<p>(c) not likely to mislead or deceive.</p> <p>If the MEP becomes aware that in providing information under Parts 10 and 11, the MEP has not complied with that obligation, the MEP must, as soon as practicable, provide such further information as is necessary to ensure that the MEP does comply.</p>	<p>parts.</p>

Audit frequency guidance

- A.9 An auditor must recommend a date by which the ATH must have completed its next audit and audit report.²¹ This provides a range from 3 months to 36 months between audits. This is to allow for a higher level of surveillance of ATHs that do not have fully functional processes and a consequent lower level of compliance.
- A.10 In accordance with the risk and materiality guidelines and auditor protocol, each non-compliance identified in the ATH's most relevant audit report will be assessed by the auditor and given a breach risk rating in accordance with the risk and materiality guidelines. The sum of the breach risk ratings determines the future risk rating. The future risk rating is used to determine the indicative audit frequency.
- A.11 This “indicative audit frequency” table below has been specifically calculated for ATHs and is not intended to be applied to other participant types.
- A.12 Auditors should use Table 1 to calculate the indicative audit frequency.

Table 1: Indicative audit frequency

Future risk rating	1–3	4–6	7–8	9–17	18–26	27+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Source: Electricity Authority

- A.13 The decision on the recommended audit date is a matter of the auditor's opinion but should take into consideration:
- the indicative audit frequency
 - the participant's proposed resolution of breaches (including breaches that have been cleared during the audit)
 - breaches that are outside of the participant's control (either due to needing improvements in the wording of the Code, or are due to the actions of another participant)
 - any instances where there is a risk of future breaches of the Code, but was not a breach in the audit report.

²¹ Clause 16A.12(1)(e)(v).