How does Accreditation Deliver Confidence in Construction Industry?

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Innovation and Technology Commission
The Government of HKSAR

24 Feb 2022 (pm)

Outline

- What is accreditation?
- Role of accreditation
- Benefits of accreditation
- Introduction to HKAS accreditation
- Important Notes
- New accreditation services on underground utility

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- **What is accreditation?**
- Role of accreditation
- Benefits of accreditation
- Introduction to HKAS accreditation
- Important Notes
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What is accreditation?

Accreditation is **assurance of the competence** of

- Laboratories 實驗所
- Inspection bodies 檢驗機構
- Certification bodies 認證機構

to carry out their testing, inspection and certification services.

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- **Role of accreditation**
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What is the role of accreditation?

Accreditation determines the following aspects of the organisations (Note):

- **technical competence 技術能力**
- **Integrity 誠信/操守**
- **Impartiality 公正性**

Note: providing conformity assessment services such as testing, calibration, certification, and inspection based on international standards.

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- **Benefits of accreditation**
- Introduction to HKAS accreditation
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Benefit

Benefit

Benefit

What benefits does accreditation provide?

1) For Government and Regulators 政府和監管機構
2) For Construction Companies 建築公司
3) For Manufacturers of Construction Products 建築產品製造商
4) For Building Owners and Facility Managers業主和設施經理
5) For Consumers 消費者

What benefits does accreditation provide?

1) For Government and Regulators 政府和監管機構

Reduce the need for government and regulators to employ their own special assessment personnel. Accreditation provides assurance to government and regulators to rely on commercial providers of evaluation and inspection services in the construction sector.

See **Hong Kong Housing Authority** as an example!

What benefits does accreditation provide?

1) For Government and Regulators (cont'd)

The Hong Kong Housing Authority specifies the requirement of using certified construction products for ten major building materials in its construction projects.

Note: ready-mixed concrete, aluminium window, passive fire protection products, cement, tile adhesive, repair mortar, mesh reinforcement, ceramic tiles, uPVC drainage pipes & fittings, close-coupled water closet suites

What benefits does accreditation provide?

2) For Construction Companies建築公司

- Confidence that manufactured products and raw materials are safe and meet specification, thereby reducing potential delays, product failure, and project cost

- Provide a safe working environment for employees (ISO 45001: 2018 Occupational Health and Safety Management System)

What benefits does accreditation provide?

3) For Manufacturers of construction products
建築產品製造商

- Reliable measurements, testing and inspection limit product failure, reduce down time and control manufacturing costs

- Accreditation to internationally-recognised standards can provide a competitive advantage and facilitate access to export markets

- Accreditation is recognised by regulators and can support approval processes

What benefits does accreditation provide?

3) For Manufacturers of construction products (cont'd)
建築產品製造商

Structural concrete 結構混凝土 for all public works contracts shall be obtained from suppliers who are certified under the Quality Scheme for the Production and Supply of Concrete (QSPSC™)

What benefits does accreditation provide?

4) For Building Owners and Facility Managers
業主和設施經理

- Owners of commercial properties or Facility managers are responsible for providing a safe and efficient environment which supports businesses and other types of organisations.

What benefits does accreditation provide?

4) For Building Owners and Facility Managers (cont'd)
業主和設施經理

- Facility Managers use the services of external contractors to provide testing, inspection and certification services to monitor the safety of the built environment.

- Testing of asbestos samples, noise acoustics, sound-proofing, ambient air quality, etc.

- Fire safety inspection, lift inspection, etc.

What benefits does accreditation provide?

5) For consumers 消費者

- Confidence in the safety of new and existing buildings and the general infrastructure.
- Confidence in the claims made about sustainability, environmental and energy performance of commercial and domestic buildings.

What benefits does accreditation provide?

5) For consumers 消費者(cont'd)

Testing the quality of various construction products and materials in Hong Kong by the accredited testing laboratories

An example:

Testing lead content鉛含量in solder alloy 焊料

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Hong Kong Accreditation Service (HKAS)

- Part of Innovation and Technology Commission of the Hong Kong Special Administration Region (HKSAR) Government

香港特別行政區政府
創新科技署

- Set up in 1998 (previously known as HOKLAS since 1985)
- The only accreditation body in Hong Kong
- Provides independent and impartial accreditation services

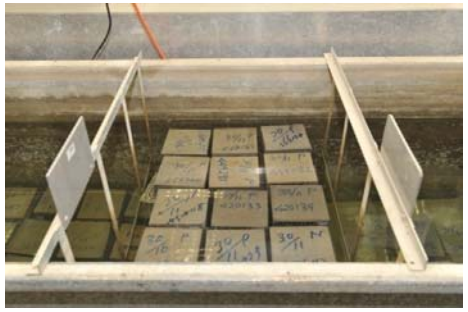
- HKAS provides accreditation services to testing laboratories, certification bodies and inspection bodies under 3 schemes:

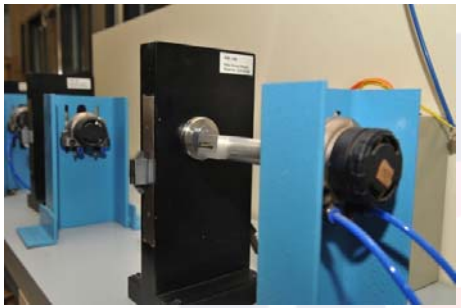
HOKLAS HKCAS HKIAS

- Hong Kong Laboratory Accreditation Scheme
  香港實驗所認可計劃 (HOKLAS)
  Accreditation standard: ISO/IEC 17025
- Hong Kong Certification Body Accreditation Scheme
  香港認證機構認可計劃 (HKCAS)
  Accreditation standard: ISO/IEC 17065
- Hong Kong Inspection Body Accreditation Scheme
  香港檢驗機構認可計劃 (HKIAS)
  Accreditation standard: ISO/IEC 17020

Hong Kong Laboratory Accreditation Scheme (HOKLAS) – Scope of services

- Calibration Services
- Chemical Testing
- Chinese medicine
- Construction Materials
- Electrical and Electronic Products
- Environmental Testing
- Food
- Forensic Testing
- Medical Testing
- Miscellaneous
- Pharmaceutical Products
- Physical and Mechanical Testing
- Textiles and Garments
- Toys and Children's Products





Hong Kong Inspection Body Accreditation Scheme (HKIAS) – Scope of services

- Construction Products Inspection
  Paint
  Waterworks
  Welding

- Consumer Products Inspection
  Consumer products,
  Electrical and electronic products,
  Factory inspection,
  Furniture,
  Kitchenware,
  Toys and children's products

- Indoor Air Quality Inspection

Hong Kong Certification Body Accreditation Scheme (HKCAS) – Scope of services

- Product Certification

  Construction Products
  Consumer Products
  Food

- Management System Certification

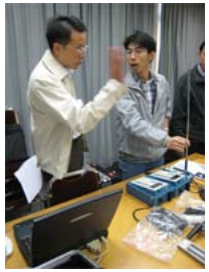
  Quality Management System (QMS)
  Environmental Management System (EMS)
  Food Safety Management System (FSMS)
  Occupational Health and Safety Management System (OHSMS)
  Energy Management System (EnMS)
  Residential Care Homes (Elderly Persons) Service Providers' Management System

Number of Establishments Accredited by HKAS*

	No. of Establishments	No. of Establishments under Construction
Laboratories Under HOKLAS	236	81
Inspection bodies under HKIAS	23	16
Certification bodies under HKCAS	26	6
Total	**274**	**101 (more than 1/3)**

* as at 11 January 2022

Accreditation Process Flow chart



Application with Quality documents

↓

Pre-assessment visit

↓

Full on-site assessment
(HKAS officers and technical assessors)

↓

Remedial actions

↓

Accreditation Decision

↓

Accreditation granted

Monitoring

Measures for monitoring CAB performance

- Accreditation is maintained through rigorous assessment and monitoring, the measures include:
  - Reassessments (複評審)
  - Surveillance (監察)
  - Monitoring of changes
  - Complaints handling (處理投訴)
  - Proficiency Testing (能力驗證) / Inter-laboratory Comparison Study
  - Code of conduct (紀律守則)

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- Introduction to HKAS accreditation
- **Important Notes**
- New accreditation services on underground utility

Important Notes ……
to the Regulatory Bodies and Users of Accredited services

(Updated in March 2017)

Ref.: L/M No. (2) to CSO/AW/1-50/GC/1 Pt. 30 Government Secretariat

Government of the Hong Kong
Special Administrative Region

18 February 2016

General Circular No. 16/2016

Hong Kong Accreditation Service

(Note : Distribution of this Circular is Scale C. It should be brought to the attention of officers who, because of the functions of their posts, are required to take action on, or to be informed of, the Circular.)

Introduction

This Circular provides an update on Hong Kong Accreditation Service (HKAS) which is operated by the Innovation and Technology Commission and urges bureaux/departments (B/Ds) to use the services provided by HKAS and its accredited organisations. General Circular No. 2/2014 dated 6 February 2014 is hereby cancelled.

Accreditation

2. Accreditation is a formal recognition that a conformity assessment body (including laboratory, certification body, inspection body, proficiency testing provider, reference material producer and greenhouse gas (GHG) validation/verification body) is competent to carry out specific tasks. It will only be awarded to an applicant after its technical competence, its management system for quality, administrative and technical operations and other aspects have been thoroughly assessed to be in conformity with the applicable international standards by technical experts. To ensure continual conformity, accredited organisations are subject to regular surveillance and reassessments.

3. Accreditation is activity-specific and only covers the specific activities listed in the scope of accreditation of an accredited organisation. For those activities not listed, they have not been assessed and HKAS has no information on whether the organisation is competent to perform them. B/Ds are therefore recommended to use conformity assessment services that are accredited by HKAS. B/Ds should request reports or certificates bearing the HKAS accreditation symbol.

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- B/Ds are therefore recommended to use conformity assessment services that are accredited by HKAS. **B/Ds should request reports or certificates bearing the HKAS accreditation symbol**.

How to Identify the Accredited/ Endorsed Report/Certificate?

Accredited laboratory ≠ Accredited test

Endorsed Reports and Accredited Certificates

- Unless otherwise approved and specified, only results of accredited activities can be shown in endorsed reports and accredited certificates
- The competence of the accredited activities has been assessed ➔ the reliability of results in endorsed reports and certificates can be assured

Tests shall be performed by an accredited laboratory under HOKLAS.

Not adequate !!!

Test results shall be reported in **endorsed test reports**.

Scope of accreditation
(can be found via HKAS website)

Scope of Accreditation
Registration No. HOKLAS XX
Page 1 of 1
Issue Date: 1 January 2022
Ref: HOKLASXX-1

ABC Limited
ABC 有限公司

Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Concrete (diagnostic)	Covermeter survey	BS 1881: Part 204: 1988
	Half-cell potential measurement	ASTM C876-15
	Infrared thermography for detection of building surface defects	Hong Kong Concrete Institute TM1 (2009)
	Surface hardness measurement	BS 1881: Part 202: 1986 BS EN 12504-2: 2012

Scope of Accreditation
Registration No. HOKLAS XX
Page 1 of 1
Issue Date: 1 January 2022
Ref: HOKLASXX-1

EFG Limited
EFG 有限公司

Construction Materials 建築材料		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED 特定測試或量度的特性	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED 規範、標準方法或應用技術
Concrete (diagnostic)	Covermeter survey	BS 1881: Part 204: 1988
	Half-cell potential measurement	ASTM C876-15

Which laboratory can meet the requirement?

Infrared thermography results shall be reported in **endorsed test reports**

Infrar

accredited labor under HOKLAS?

Two important messages today:

Adopt more accredited services

Accredited laboratory ≠ Accredited test

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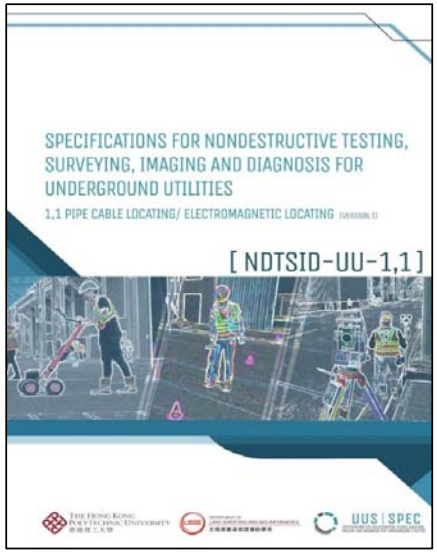
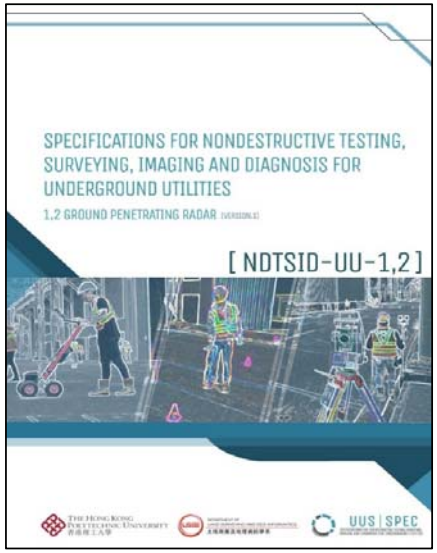
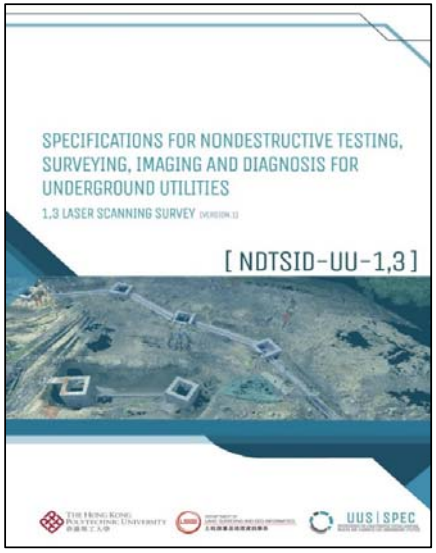
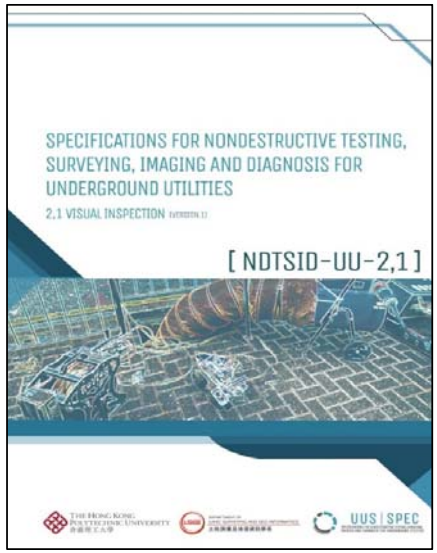
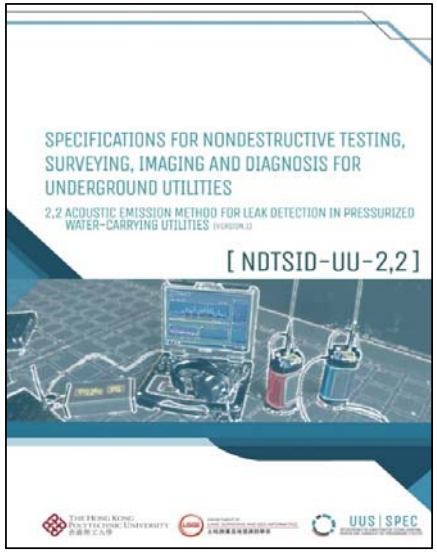
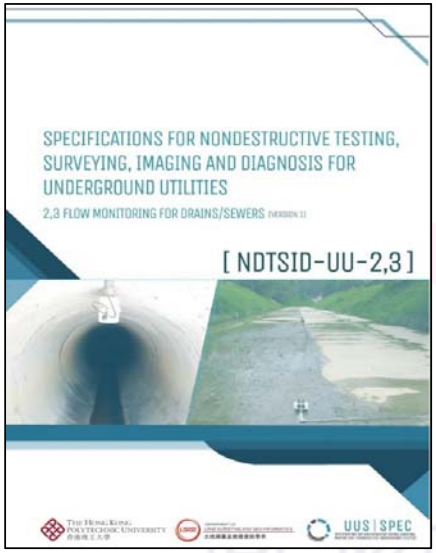

SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
1.1 PIPE CABLE LOCATING/ ELECTROMAGNETIC LOCATING
[NDTSID-UU-1,1]
UUS | SPEC


SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
1.2 GROUND PENETRATING RADAR
[NDTSID-UU-1,2]
UUS | SPEC


SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
1.3 LASER SCANNING SURVEY
[NDTSID-UU-1,3]
UUS | SPEC

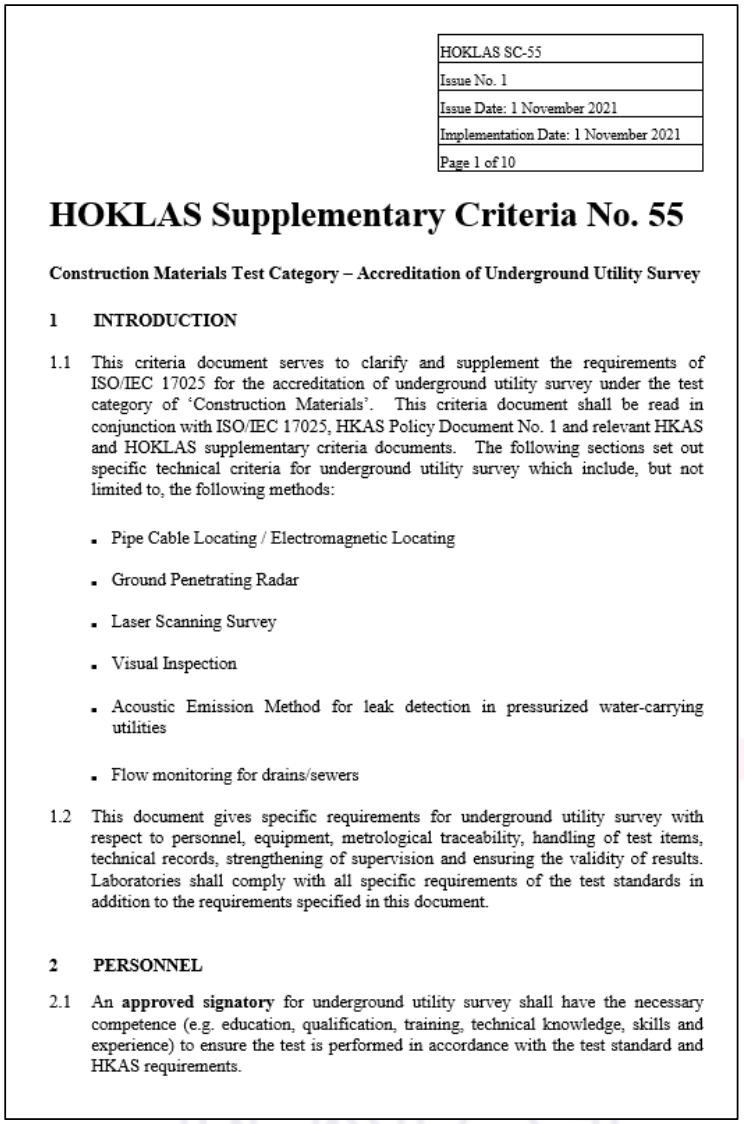

SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
2.1 VISUAL INSPECTION
[NDTSID-UU-2,1]
UUS | SPEC


SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
2.2 ACOUSTIC EMISSION METHOD FOR LEAK DETECTION IN PRESSURIZED WATER-CARRYING UTILITIES
[NDTSID-UU-2,2]
UUS | SPEC


SPECIFICATIONS FOR NONDESTRUCTIVE TESTING, SURVEYING, IMAGING AND DIAGNOSIS FOR UNDERGROUND UTILITIES
2.3 FLOW MONITORING FOR DRAINS/SEWERS
[NDTSID-UU-2,3]
UUS | SPEC

New accreditation services on underground utility

- Pipe Cable Locating / Electromagnetic Locating
- Ground Penetrating Radar
- Laser Scanning Survey
- Visual Inspection
- Acoustic Emission Method for Leak Detection in Pressurized water-carrying utilities
- Flow monitoring for drains/sewers



HOKLAS SC-55
Issue No. 1
Issue Date: 1 November 2021
Implementation Date: 1 November 2021
Page 1 of 10

HOKLAS Supplementary Criteria No. 55

Construction Materials Test Category – Accreditation of Underground Utility Survey

1 INTRODUCTION

1.1 This criteria document serves to clarify and supplement the requirements of ISO/IEC 17025 for the accreditation of underground utility survey under the test category of 'Construction Materials'. This criteria document shall be read in conjunction with ISO/IEC 17025, HKAS Policy Document No. 1 and relevant HKAS and HOKLAS supplementary criteria documents. The following sections set out specific technical criteria for underground utility survey which include, but not limited to, the following methods:

- Pipe Cable Locating / Electromagnetic Locating
- Ground Penetrating Radar
- Laser Scanning Survey
- Visual Inspection
- Acoustic Emission Method for leak detection in pressurized water-carrying utilities
- Flow monitoring for drains/sewers

1.2 This document gives specific requirements for underground utility survey with respect to personnel, equipment, metrological traceability, handling of test items, technical records, strengthening of supervision and ensuring the validity of results. Laboratories shall comply with all specific requirements of the test standards in addition to the requirements specified in this document.

2 PERSONNEL

2.1 An **approved signatory** for underground utility survey shall have the necessary competence (e.g. education, qualification, training, technical knowledge, skills and experience) to ensure the test is performed in accordance with the test standard and HKAS requirements.

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

- HOKLAS SC-55 gives specific requirements with respect to the followings:

  - Personnel
  - Handling of test items & records
  - Strengthening of supervision
  - Proficiency testing

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

- Requirements on Personnel

  - Approved signatory
  - Testing personnel

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

- Requirements on Personnel

  - **Approved signatory**
  - Testing personnel

Requirements on Personnel (cont'd)

2.2 For pipe cable locating (PCL) / electromagnetic locating (EML), an **approved signatory** shall either have:

(i) (a) at least a Bachelor of Science (e.g. Geomatics/Land Surveying) or Engineering (e.g. Civil/Electrical/Materials/Mechanical/Gas/Industrial) degree, with specialisation in underground-utility (UU) survey not less than 200 contact hours of BSc/BEng's UU training provided by a recognised tertiary institution, plus (b) at least three years of technical and managerial experience of underground utilities, within which a period of two years is substantially[Note 1] related to PCL/EML, or

Note 1: Direct technical and managerial involvement in at least 10 test/survey reports in different contracts/works orders.

(ii) (a) a valid certificate or diploma of specialisation in PCL/EML issued by a recognised organisation, plus (b) at least five years of technical and managerial experience of underground utilities, within which three years are substantially related to PCL/EML, or

(iii) (a) at least a higher certificate or diploma issued by a recognised technical institute or an equivalent qualification in a relevant discipline, (b) with at least seven years of direct technical and managerial experience, within which five years are directly related to PCL/EML, plus relevant training courses covering PCL/EML.

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

- Requirements on Personnel

  - Approved signatory
  - **Testing personnel**

Requirements on Personnel

2.11 **Testing personnel** for PCL/EML shall either have:

(i) (a) a higher diploma or above (e.g. Geomatics/Land Surveying), or an engineering higher diploma or above (e.g. Civil/Electrical/Materials/ Mechanical/Gas/ Industrial), with not less than 75 contact hours of UU training, provided by a recognised tertiary institution, plus (b) at least one year of on-the-job experience substantially(Note 2) related to PCL/EML, or

(ii) (a) a valid certificate or diploma of specialisation in PCL/EML issued by a recognised organisation, plus (b) at least two years of substantial on-the-job experience(Note 2) related to PCL/EML, or

(iii) (a) at least a higher certificate or diploma issued by a recognised technical institute or an equivalent qualification in a relevant discipline, plus (b) at least three years of substantial on-the-job experience(Note 2) related to PCL/EML, plus (c) relevant training courses covering PCL/EML, or

(iv) at least eight years of substantial on-the-job experience(Note 2) related to PCL/EML.

Note 2: On-the-job involvement in at least 10 test/survey reports in different contracts / works orders.

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

Requirements on handling of test items and records

- Items shall be **traceable and identified against test results**
- high resolution digital **photograph records**

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

Requirements on strengthening of supervision

HOKLAS Supplementary Criteria No. 36
Construction Materials Test Category – Additional Accreditation Requirements

- ensure effective supervision
- undue pressure
- frequent unannounced on-site visits

HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey

Requirements on Proficiency Testing

- The aim of proficiency testing schemes is to give a way for an organisation to **monitor** its performance against both its own requirements and the performance of other organisations.

HKAS Application Package

https://www.itc.gov.hk/en/quality/hkas/doc/ApplicationPackages/HOKLAS_AP006.pdf

HKAS Application Package
- Accreditation of Construction Materials Testing Laboratories
(申請指南中文版本見第 4 頁)

Hong Kong Accreditation Service (HKAS) provides accreditation for conformity assessment bodies (including laboratories, reference material producers, proficiency testing providers, certification bodies, verification and validation bodies, and inspection bodies) located in Hong Kong through Hong Kong Laboratory Accreditation Scheme (HOKLAS), Hong Kong Certification Body Accreditation Scheme (HKCAS) and Hong Kong Inspection Body Accreditation Scheme (HKIAS).

This document provides information relating to accreditation application process. Interested laboratories seeking HKAS accreditation for their construction materials testing services are encouraged to study this document before submitting an application.

HKAS Application Package

https://www.itc.gov.hk/en/quality/hkas/doc/ApplicationPackages/HOKLAS_AP006.pdf

1. Accreditation Standard

Applicant laboratories shall comply with following accreditation standard and Policy Document.

1a. ISO/IEC 17025: 2017
General Requirements for the Competence of Testing and Calibration Laboratories

The Product Standards Information Bureau (PSIB) of the Innovation and Technology Commission (ITC) provides standards sales service to general public. You may purchase the above international standard through PSIB. For details, please visit the website of PSIB (https://www.itc.gov.hk/en/quality/psib/index.html).

1b. HKAS Policy Document No. 1
HKAS Policy for Accreditation of Laboratories according to ISO/IEC 17025: 2017 under HOKLAS (ISO/IEC 17025: 2017 HOKLAS Policy)

HKAS Policy Document No. 1 contains HKAS policy that serves as additional explanation of the requirements of ISO/IEC 17025: 2017. It shall be read in conjunction with ISO/IEC 17025: 2017.

For More Information…

Please visit our website **www.hkas.gov.hk**

Innovation and Technology Commission
The Government of the Hong Kong Special Administrative Region of the People's Republic of China

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Home > Accreditation, Standards and Calibration Services: Hong Kong Accreditation Service

HKAS	Accreditation Services	Accredited Conformity Assessment Bodies	Publications	FAQ / Information
About HKAS	Our Accreditation Services	Hong Kong Laboratory Accreditation Scheme (HOKLAS)	HKAS Application Packages	Frequently Asked Questions
HKAS Executive	Hong Kong Laboratory Accreditation Scheme (HOKLAS)	Hong Kong Certification Body Accreditation Scheme (HKCAS)	HKAS General Publications	Closer Economic Partnership Arrangement (CEPA)
HKAS Milestones	Hong Kong Certification Body Accreditation Scheme (HKCAS)	Hong Kong Inspection Body Accreditation Scheme (HKIAS)	HOKLAS Publications	Mutual Recognition Arrangements (MRA) / Multilateral Recognition Arrangements (MLA)
Accreditation Advisory Board (AAB)	Hong Kong Inspection Body Accreditation Scheme (HKIAS)		HKCAS Publications	Becoming an Assessor
Working Parties and Task Forces	Obtain Accreditation		HKIAS Publications	Testing of Lead, Cadmium, Chromium, Nickel, Antimony and Copper in Water
Online HKAS Accreditation Service System (Login account required)	HKAS Arrangement for Transition of Accreditation Standards		HKAS Recently Revised and New Publications	Useful Links
Contact Us			List of Form for Assessors	
			Pamphlets and Booklets	
			HKAS News	

The End & Thank you!

www.hkas.gov.hk