HKAS Accreditation for Underground Utility Survey

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The Government of HKSAR

5 Jan 2021 (pm)

Outline

- What is accreditation?
- Role of accreditation
- HKAS accreditation
- HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey
- Important Notes

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- **What is accreditation?**
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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**
- HKAS 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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- What is accreditation?
- Role of accreditation
- **HKAS accreditation**
- HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey
- Important Notes

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:

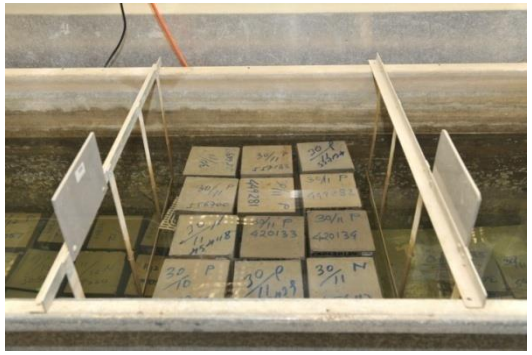
- Hong Kong Laboratory Accreditation Scheme
  香港實驗所認可計劃 (HOKLAS)
  Accreditation standard: ISO/IEC 17025

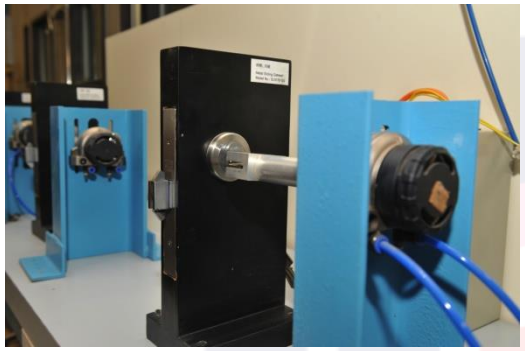
- Hong Kong Certification Body Accreditation Scheme
  香港認證機構認可計劃 (HKCAS)
  Accreditation standard: ISO/IEC 17065

- 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

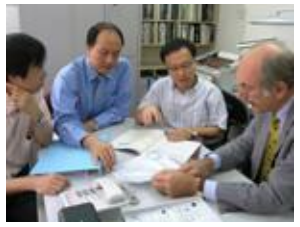
  Quality Management System (QMS)
  Environmental Management System (EMS)
  Food Safety Management System (FSMS)
  Occupational Health and Safety Management System (OHSMS)
  Energy Management System (EnMS)
  Residential Care Homes (Elderly Persons) Service Providers' Management System

Number of Establishments Accredited by HKAS*

	No. of Establishments	No. of Establishments under Construction
Laboratories Under HOKLAS	226	80
Inspection bodies under HKIAS	23	15
Certification bodies under HKCAS	25	6
Total	**274**	**101 (more than 1/3)**

* as at 23 Nov 2020

Accreditation Process Flow chart



Application with Quality documents

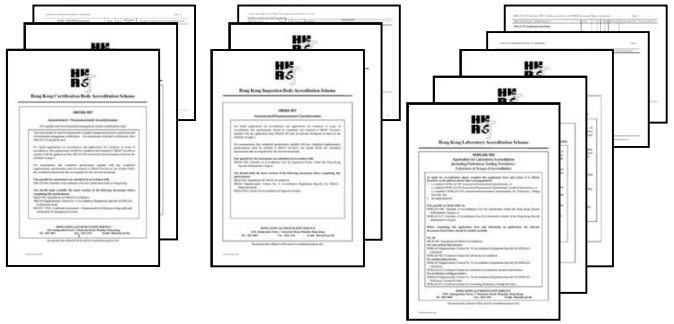
Pre-assessment visit

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)

Use more accredited testing, inspection and certification services!!!

Benefits of using accredited testing, certification and inspection services

- Competence of conformity assessment bodies have been assured, providing confidence in services
- Reliable measurements, testing and inspection limit product failure, reduce down time and control manufacturing costs
- Accreditation is recognised by regulators and can support approval processes
- Reduce the need for government and regulators to employ their own special assessment personnel

Outline

- What is accreditation?
- Role of accreditation
- HKAS accreditation
- **HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey**
- Important Notes

HOKLAS Supplementary Criteria No. 55

Construction Materials Test Category – Accreditation of Underground Utility Survey

1 INTRODUCTION

1.1 This document serves to clarify and supplement the requirements of ISO/IEC 17025: 2017 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: 2017, the relevant HOKLAS policy 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 gravity water-carrying utilities

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

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

  - Personnel
  - Equipment & calibration
  - 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

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

(i) 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 or a Bachelor of Science (e.g. Geomatics/Land Surveying) degree with not less than 200 contact hours of BSc/BEng's UU training, provided by a recognised tertiary institution plus at least three years of technical and managerial experience of underground utilities, within which a period of two years is substantially related to PCL/EML, or

(ii) a valid certificate or diploma of specialisation in PCL/EML issued by a recognized organisation operating under international standards or qualifications framework level 4 plus at least five years of technical and managerial experience of underground utilities, within which three years are substantially related to PCL/EML, or

(iii) at least a higher certificate or diploma issued by a recognised technical institute or an equivalent qualification in a relevant discipline, 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 (cont'd)

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

(i) 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 at least one year of on-the-job experience substantially related to PCL/EML, or

(ii) a valid certificate or diploma of specialisation in PCL/EML issued by a recognised organisation operating under international standards or qualification framework level 3 plus at least two years of substantial on-the-job experience related to PCL/EML, or

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

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

Requirements on Equipment & Calibration

Type of equipment/chemicals	Recommended maximum period between successive calibration/verification	Recommended calibration/verification procedure or guidance documents and equipment requirements
Pipe cable locator / electromagnetic locator	5 years	By a 'competent calibration body' as defined in Clause 2.1 of HOKLAS SC-02 in accordance with a relevant standard.
	1 year	The depth verification shall be performed in an open area, away from any steel or reinforced concrete structure that would cause distortion of the magnetic field. A typical 5-step procedure is suggested as follows: (1) lay a 60 m long wire and bend it into a square of 15 m x 15 m and connect the transmitter to both ends of the wire. (2) switch the transmitter to all frequencies ranging from 500 Hz to 200 kHz and trace at least 12 points on the wire loop. (3) position the receiver where a peak response over a distribution of low-high-low magnetic field is resulted. Repeat the trace with any step frequency between 500 Hz to 200kHz available in the equipment. (4) for every test, position the receiver on a wood / plastic platform right above the wire so that the bottom of the receiver is at least 50 cm above the centre of the wire. (5) measure the receiver's distance along the wire at 3m intervals along the loop starting from any corner, but do not take a measurement at the four corners. All values must fall within the acceptance criteria suggested by the manufacturer.
	Before each test	Carry out on-site self-test to check the working performance of the pipe cable locator / electromagnetic locator as suggested by the manufacturer.

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.

Outline

- What is accreditation?
- Role of accreditation
- HKAS accreditation
- HOKLAS Supplementary Criteria No. 55 for Accreditation of Underground Utility Survey
- **Important Notes**

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.

- 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**.

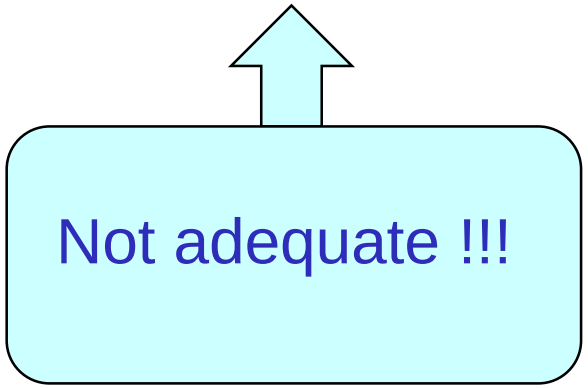
How to Identify the Accredited/ Endorsed Report/Certificate?

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.



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: 24 December 2020
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
Underground Utility Survey	Pipe Cable Locating / Electromagnetic Locating	Specifications for Nondestructive Testing, Surveying, Imagining and Diagnosis for Underground Utilities 1.1 Pipe Cable Locating / Electromagnetic Locating (2020)
	Ground Penetrating Radar	Specifications for Nondestructive Testing, Surveying, Imagining and Diagnosis for Underground Utilities 1.2 Ground Penetrating Radar (2020)
	Laser Scanning Survey	Specifications for Nondestructive Testing, Surveying, Imagining and Diagnosis for Underground Utilities 1.3 Laser Scanning Survey (2021)
	Visual Inspection	Specifications for Nondestructive Testing, Surveying,

Scope of Accreditation
Registration No. HOKLAS XX
Page 1 of 1
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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
Underground Utility Survey	Pipe Cable Locating / Electromagnetic Locating	Specifications for Nondestructive Testing, Surveying, Imagining and Diagnosis for Underground Utilities 1.1 Pipe Cable Locating / Electromagnetic Locating (2020)
	Ground Penetrating Radar	Specifications for Nondestructive Testing, Surveying, Imagining and Diagnosis for Underground Utilities 1.2 Ground Penetrating Radar (2020)

Laser scanning survey results shall be reported in **endorsed test reports**

Laser scanning survey shall be performed by an accredited laboratory under HOKLAS.

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irement?
r EFG Limited

Two important messages today:

Adopt more accredited services

Accredited laboratory ≠ Accredited test

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).

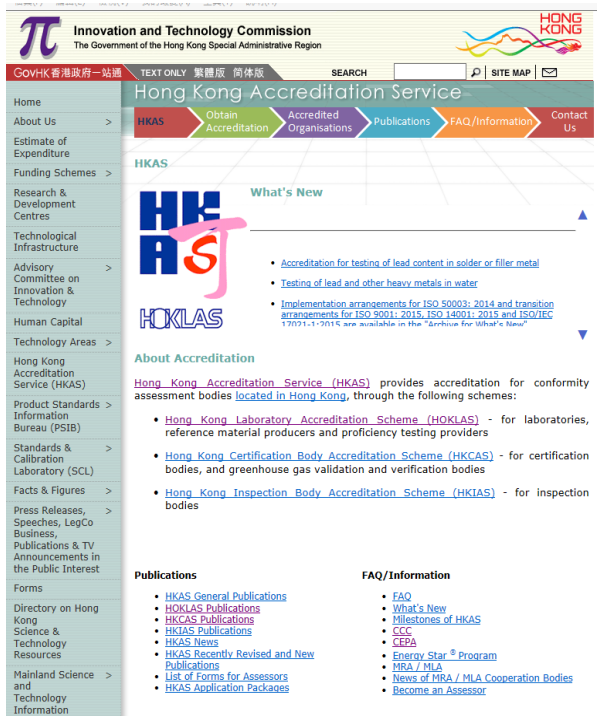
1b. HKAS Policy Document No. 1
HKAS Policy for Accreditation of Laboratories according to ISO/IEC 17025: 2017 under HOKLAS (ISO/IEC 17025: 2017 HOKLAS Policy)

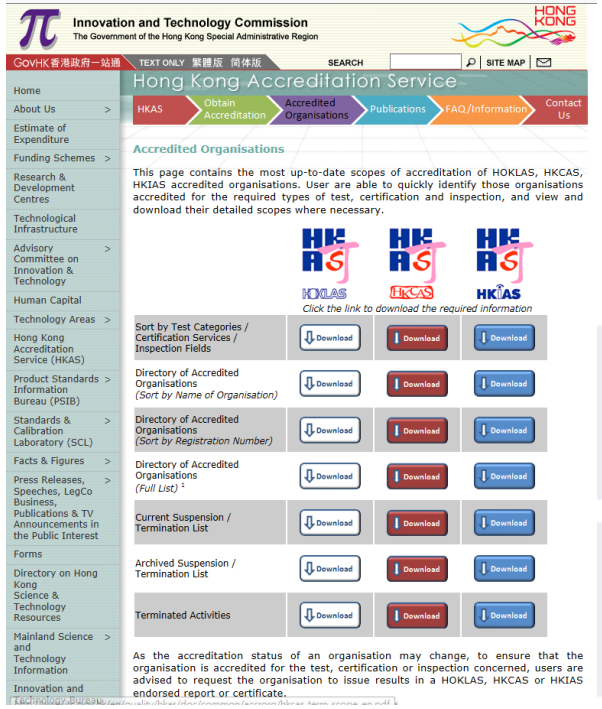
HKAS Policy Document No. 1 contains HKAS policy that serves as additional explanation of the requirements of ISO/IEC 17025: 2017. It shall be read in conjunction with ISO/IEC 17025: 2017.

For More Information...

Please visit our website

www.hkas.gov.hk



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