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The Role of Accreditation Bodies in the Dissemination of Traceability to SI

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Use of Test / Measurement

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    graph TD
      A[Needs to know a parameter] --> B[Testing / measurement]
      B --> C[Decision]
  
```

Needs to know a parameter To support decisions on health, safety, trade, research, manufacturing, regulations, design, etc.

Testing / measurement Are the results accurate and reliable?

Decision Inaccurate results reduce quality of decisions?

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Value of Accreditation

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    graph TD
      A[Assess the organisation for conducting the test/measurement] --> B[Grant Accreditation to the organisation for the test/measurement]
  
```

Assess the organisation for conducting the test/measurement Basis: International Standards, e.g., ISO/IEC 17025 ISO 15189

Grant Accreditation to the organisation for the test/measurement Declare to the public that the organisation can provide accurate and reliable results

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Measurement Traceability Links

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    graph BT
      A[Definitions of units (S.I.)] --> B[Realisation of Reference materials / standards / cultures]
      B --> C[Test/measurements]
  
```

Accreditation assures quality

Relationship of measurement results with definitions of relevant measurement units is measurement traceability

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International Comparability

- Top level
 - Realisation of units are carried out by NMIs and provided as calibration service and reference standards / materials / cultures
 - Consistency is maintained through intercomparison, e.g., BIPM and APMP intercomparison
- Working level
 - Laboratories / reference material producers use traceable calibration service and reference standards / materials / cultures
 - Participation in proficiency testing

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Factors affecting traceability

- Direct measurement using an instrument
 - The instrument must be proved accurate through calibration
- Comparison method
 - The reference standards / materials / cultures must be accurate

Role of AB in dissemination of measurement traceability

- Ensure accredited organisations comply with the traceability requirements in competence standards (ISO/IEC 17025, ISO 15189, ISO/IEC 17020, etc)
- Identification of reliable sources of measurement traceability through providing accreditation
 - Calibration
 - Production of reference materials

Implementation of traceability

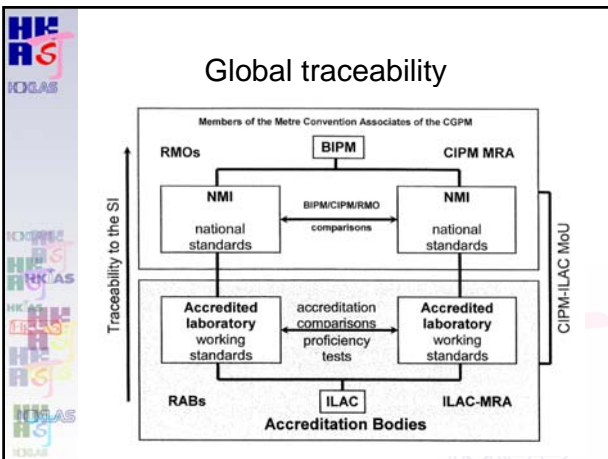
- Traceability policy
 - HOKLAS 003, clause 5.6.H
 - ILAC traceability policy, ILAC P10:2002
- Assess using competent assessors

ILAC Traceability Policy

- Traceability of calibration to SI
 - through
 - NMIs
 - Competent calibration laboratories, e.g. accredited laboratories
- Traceability of testing to
 - Accredited calibration laboratories
 - NMIs
 - Certified reference materials (CRMs)
 - Mutual consent standards or
 - Agreed methods

International Cooperation

- Required for exchange and mutual acceptance of data across borders
- Accreditation body MRAs
 - International Laboratory Accreditation Cooperation (ILAC)
 - Asia Pacific Laboratory Accreditation Cooperation (APLAC)
- NMIs MRAs
 - International Committee on Weights and Measures (CIPM Global MRA)
 - Asia Pacific Metrology Programme (APMP) supports the global MRA
- CIPM – ILAC MoU
- APLAC – APMP MoU (being developed)
- Well developed for calibrations, mainly for physical measurements



MRA on Accreditation of Reference Material Producers

- APLAC is the pioneer
- Working group under the APLAC MRA Council led by a staff of HKAS
- The MRA is open for application in 2006
- Several ABs have already applied
- Evaluations will be conducted in 06/07
- The MRA will support traceability, notably for chemical measurements
- Similar global MRA being discussed in ILAC

