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Evaluation of software controlled measuring instrument- Malaysia practice
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Capacity Building Workshop On Understanding Conformity Requirements For Software Controlled Weight And Measuring Instruments For Sustainable Trade 2022

NMIM is special Business Unit under SIRIM
 Facilitating domestic and international trade as well as ensuring safety, health and environment for Malaysians through measurement


INDUSTRY OF INTERNATIONAL TRADE AND INDUSTRY



NATIONAL MEASUREMENT COUNCIL



SIRIM


NMIM
NATIONAL METROLOGY INSTITUTE OF MALAYSIA


Secretariat of MPK SBU-Statutory

- **Mandate under National Measurement System Act 2007 (Act 675):**
*NMIM is appointed as the **National Measurement Standards Laboratory (NMSL)** and responsible to realise, establish and maintain or cause to be maintained the National Measurement Standards and Certified Reference Materials (CRMs).*
- **Mandate under Weights and Measures Act 1972 (Act 71):**
*NMIM is the **Custodian of Weights and Measures** and shall advise the Minister on all matters related to calibration, verification and testing of weights and measures or instruments for weighing and measuring and other matters related to metrology.*





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When did we start....

2010: Workshop on Software Controlled Measuring Instrument – APEC CTI 46/2009T (Bangkok)

2013: Collaboration with local university


2017: PTB Software Testing for Measuring Instruments for ASEAN Member States

2019 Malaysia's Software Examination




Challenges

- Most of the applicants are not ready on the new software requirements in pattern approval.
- Software examination requires a combination of sound understanding in IT and some programming knowledge as well as experience in metrology.
- Software and IT is a fast-pace technology.
- Difficult to get the experts in the Asia Pacific region.
- Wide variety of software design and implementation.
- Dissemination of knowledge and requirements to software developers.



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Pattern approval of software examination process flow

Applicant request for software examination

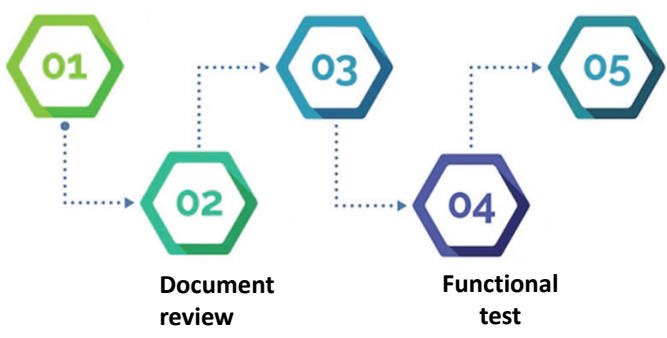
01

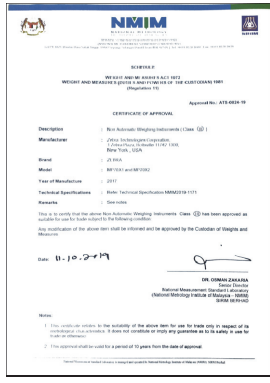
02 Document review

03 Lab test on software sample

04 Functional test

05 Present for approval



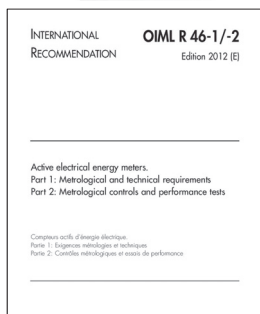


Pattern approval of software controlled measuring instruments



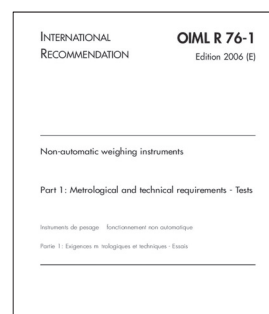
Energy meter Instrument

- Requirement is based on OIML R 46-1/-2 clause 3.6 (Protection of metrological properties)
- Examination is based on OIML R 46-3:2013 Item 3 (Validation procedure)



Non- Automatic Weighbridge Instrument (NAWI)

- Requirement is based on OIML R 76-1 clause 5.5 (Additional requirements for software-controlled electronic devices)
- Examination is based on OIML R 76-1 Annex G
- Reporting is based on R 76-2 Item 17.4



Pattern approval of software controlled measuring instruments

Software evaluation

- The general characteristics of software such as identification, correctness of algorithms and functions.
- Protection of software such as prevention of misused, protection against falsification
- Support of hardware functions such as fault detection
- Determination and separation of the corresponding parts of software and interface; either separation of devices and components or separation of software parts
- Data storage, transmission by communication
- Maintenance and reconfiguration (tested updating, traced)



Required documents

Required software design documentation for pattern approval.

- Description of legally relevant software
- Description of system and hardware requirements
- Description of security
- Description of functionality
- Description of durability
- Description of data sets stored or transmitted
- Software Operating Manual



Thank You



FOR FURTHER INFORMATION:

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