




Dr Philip Mitchell

APEC Software Workshop – NMI Australia

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Capacity Building Workshop On Understanding Conformity
Requirements For Software Controlled Weight And Measuring
Instruments For Sustainable Trade 2022

APEC

The National Measurement Institute Australia

- A division of the Department of Industry, Innovation, Science and Research.
- Legal Metrology
 - National Measurement Act and Regulations
 - National Measurement System
 - National Trade Measurement System
- Maintain primary standards
- Calibrations services
- Analytical services
- Chemical and biological measurements

2

Who Are We

- Legal Metrology
- Policy and Regulatory Services
 - Policy Unit – **Manager: Phillip Mitchell**
 - Pattern Approval Unit – **Manager: Mario Zamora**
 - Licensing and Appointments Unit
 - Measurement Standards Unit
- Trade Measurement Inspectors
- Investigations and Compliance
- Programs and Governance
- Professional Development
- Training and Technology Transfer
- Measurement Law Review

3

Framework for Measuring Instruments

- NMIA regulates measuring instruments used for trade
- Pattern Approval
 - Requirements generally based on OIML Recommendations
 - NMIA Pattern Approval laboratory
 - Also accept test results from other laboratories (including OIML-CS)
- Verification
 - Performed by third-parties who are authorised by NMIA. (NMIA generally do not perform verifications).
 - Third-parties and verifications inspected and audited by NMIA
- In-service inspection
 - Performed by NMIA (Trade Measurement Inspectors)

4

Categories of Measuring Instruments

- All measuring instruments used for trade are required under the act to be pattern approved and verified. Frameworks exists for the following categories:

Dimensional – length, area, multidimensional

Weighing – NAWIs, load cells, belt weighers etc.

Quality – grain protein, cane sugar etc.

Utility Meters – electricity, water, gas

Volume – fuel dispensers, bulk flow meters, beverage measures, tanks etc.

Supplementary – Indicators, Point of Sale systems etc.

Legal – evidential breath analysers

In Development – Electric Vehicle charging, hydrogen vehicles, wine sugar etc.

5

Software Requirements

Current Approach

- No direct examination or inspection of software, but is assessed through functional testing at pattern approval and verification.
- Software version(s) may be recorded / indicated on Certificates of Approval.
- Manufacturer is required to advise of any modifications (hardware or software) that affects metrology.

Current and future challenges

- Confidence in software updates
- Remote software – e.g. cloud-based software
- Modular components – e.g. remote displays
- Artificial Intelligence
- “Self-calibrating”

6



Questions?

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