EESTI METROLOOGIA KESKASUTUS

METROSERT

Metrological infrastructure and research potential development in the Baltic region

Toomas Kübarsepp

Metrosert ltd

Estonia

FG-FNMID, Vienna, 17.09.2015

Motivation

- Contributing to Focus Group meeting
- Introduction of metrological activities in Baltic States
- Presentation of ideas for Research Potential Call 2015 SRT-r04 "*Metrology Research Potential Development in Baltic region*"

Facts

- Baltic region: 9 countries
  - 8 EURAMET members
- Baltic states
  - Estonia, Latvia, Lithuania
  - Population 6,3 M
  - Area 175 thousand km^2
  - GDP (nominal) €83,3 billion
  - Currency Euro



Metrological infrastructures

- Metrology Act/Law and legislation
- Responsible ministries (economy and education related)
- National Metrology Institutes/Designated Institutes
  - Signatures to CIPM-MRA
- Accreditation bodies
  - Signatures to EA-MLA
- Market/Technical Surveillance bodies
  - Members of OIML, WELMEC
- Accredited laboratories (calibration/verification/analysis)

NMIs/DIs

- Lithuania
  - NMI: Center for Physical Sciences and Technology (EM, T, T&F, MiC)
  - DI: Vilnius Metrology Centre (M, L, P)
  - DI: Lithuanian Energy Institute (gas flowrate, liquid flow)
- Latvia
  - NMI: Latvian Metrology Bureau (M, L, EM)
- Estonia
  - NMI: Metrosert (M, L, T, EM)
  - DI: University of Tartu (air velocity and air relative humidity)

National measurement standards

- Lithuania
  - DC Voltage: Josephson array
  - T&F: ^{133}Cs-clocks (contributing to UTC)
  - Temperature: fixed points
  - Other NS – secondary level
- Latvia
  - NS – secondary level
- Estonia
  - NS – secondary level

CMCs/Accreditation

- Lithuania
  - 78 CMCs
- Latvia
  - 59 CMCs
- Estonia
  - 4 CMCs
  - Services accredited, also

http://kcdb.bipm.org/appendixC/

Focus of NMIs/DIs

- Maintenance of traceability for national standards and traceability dissemination
- Delivery of calibration and measurement services
- Development of capabilites according to local needs
  - Authorities
  - Industry
  - R&D institutions
  - Health care
- Strategic development of metrology infrastructures

Research Potential Call2015 SRT-r04

- Challenges to meet the needs ⇒ joint activities

EURAMET/EMPIR Research Potential Capacity Building measure:

SRT-r04 “Metrology Research Potential Development in Baltic region

  - Development of measurement methods
  - Enhancing metrology potential for research
  - Elaborating strategic approach

Measurement methods

- Joint activities for local needs:
  - Metrology for length and complicated objects with Coordinate Measuring Machine
    - Industry
    - Automation of measurements
  - Metrology for contact temperature
    - Traceable measurement capability for -150°C
    - Surface temperature measurement capability up to +200°C

Metrology potential for research

- For further project participation (EMPIR)
  - Development of mass scale realisation by subdivision and multiplication in (1 mg - 20 kg) range

    Competetive INDUSTRY
  - Optical measurements for VIS-NIR spectral range

    SI BROADER SCOPE
  - Non-contact temperature measurement methods
    - IR-thermometers

      Traceable HEALTH
    - Emissivity studies

      Better ENVIRONMENT

Strategic approach

- National strategies in metrology development with limited resources
- Knowledge transfer (more stronger need than presently envisaged within RPot measure)
- Smart specialisation within Baltic States
  - LT: Mass measurement services (E1-class)
  - EE: Complicated object measurement services using CMM

JRP proposal

- 4 EMPIR members (EE, FIN, NO)
- 4 non-EMPIR members (LT, LV)
- 5 workpackages, duration 36 months

Creating Impact:

- Strenghten co-operation in Baltic region
- Developing services and metrology research potential
- Bring new members to EMPIR

Thank you!

Contacts

Toomas Kübarsepp

Metrosert ltd

tkubarsepp@metrosert.ee

Tel: +372 6814806