

# APMP TCT report

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# Content of report

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- Recent activities
  - APMP TCT focus areas in recent years
  - Yearly meetings and workshops
  - APMP TC initiatives
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- APMP comparisons
- CMC intra RMO reviews
- On-site peer reviews
- Review of the CIPM MRA – APMP on going discussion

# APMP TCT structure

## ■ Five Working Groups

- SPRT and FPs (lead by I. Yang, KRISS)
- Radiation thermometry (lead by Y. Yamada, (NMIJ)
- Industrial thermometers (lead by Y.-G. Kim, KRISS)
- Humidity (lead by H. Abe, NMIJ)
- Thermophysical quantities (lead by M. Akoshima, NMIJ)

## ■ One Task Group on Strategy

- Lead by Dr B.I. Choi, KRISS

Information can be found:

[http://www.apmpweb.org/fms/working.php?tc\\_id=T](http://www.apmpweb.org/fms/working.php?tc_id=T)

# Recent activities

- APMP TCT Focus Areas in recent years
  - Energy Efficiency
  - Climate Change
  - Moisture Measurement

# Recent activities

- Yearly APMP General Assembly and TCT meetings
- 2015 TCT workshop on
  - Redefinition of kelvin
  - Moisture measurement in solid materials
- 2016 TCT workshop on temperature and humidity measurement related to energy efficiency and climate change
- 2016 APMP Focus Group workshop (supported by TCT) on energy efficiency (building sustainability solar energy)

# Recent activities

## ■ APMP TC Initiatives (2017-2018)

- Sponsorship for APMP S14 travelling standards
  - 9 participants
- Sponsorship for APMP comparison on moisture measurement in solids (wood)
  - 7 participants

## ■ MEDEA (PTB) project

- Comparison of LIG thermometer (2016-2018)
  - 9 participants

# APMP comparisons

- APMP comparison guideline APMP-G2
  - There is no differentiation between KC and SC
  - All SC protocol and report are reviewed by relevant TCT WGs and CCT-WG-KC

# APMP comparisons

- APMP comparison reports published 2015 - 2017
  - APMP K 3.4
  - APMP K7
  - APMP S6
  - APMP S7



# APMP comparisons – current on going

| Identifier     | Artefact             | Range                          | Start | End  | Status                    |
|----------------|----------------------|--------------------------------|-------|------|---------------------------|
| APMP.T-K6.2013 | DP Meter             | (-50 to 20) °C DP              | 2015  | 2018 | Measurement in progress   |
| APMP.T-S13     | DP Meter             | (-80 to -60) °C DP             | 2015  | 2018 | Measurement in progress   |
| APMP.T-K8      | High DP Meter        | (30 to 90) °C DP               | 2012  | 2014 | Draft A in progress       |
| APMP.T-K9      | SPRT                 | Ar ~ Zn                        | 2017  | 2018 | Measurement to be started |
| APMP.T-S8      | LIG                  | (-40 to 250) °C                | 2011  | 2017 | Measurement in progress   |
| APMP.T-S9      | Thermal diffusivity  |                                | 2017  | 2018 | Protocol review           |
| APMP.T-S10     | Thermal conductivity |                                | 2017  | 2018 | Protocol review           |
| APMP.T-S11     | RT                   | (156 to 2000) °C               | 2013  | 2017 | Measurement in progress   |
| APMP.T-S12     | RT                   | (960 to 2800) °C               | 2013  | 2017 | Measurement in progress   |
| APMP.T-S14     | RH meter             | (10-95) % RH at (5, 23, 50) °C | 2017  | 2018 | Protocol review           |
| APMP.T-S15     | Ear thermometer      | (30 to 40) °C                  | 2017  | 2018 | Protocol review           |
| APMP.T-S16     | TC                   | (1000 to 1560) °C              | 2017  | 2018 | Protocol review           |

**Note : Bilateral comparisons include K3.5, K3.6, K4.1 and K7.1**

# CMC Intra-RMO reviews

- Yearly call for CMC submission in June
- NMIs submit CMCs according to TCT CMC submission guidelines, available at:  
[http://www.apmpweb.org/fms/guidelines3.php?tc\\_id=T](http://www.apmpweb.org/fms/guidelines3.php?tc_id=T)
- Review completed by WGs by Dec
- 2016 reviewed submission is pending for APMP TCQS approval

# On-site peer reviews 2015-2017

## ■ Year 2015

- NML\_ITDI (Philippine), NMIA (Australia), NMIJ (Japan), KIM-LIPI (Indonesia), CMS (Taiwan)

## ■ Year 2016

- NMC (Singapore), NMIM (Malaysia), SCL (Hong Kong), NIM (China), MSL (New Zealand)

## ■ Year 2017

- EMI (United Arab Emirates), NMIT (Thailand)

# Review of the CIPM MRA – APMP on going discussion

- Combining on site peer review with the CMC intra RMO review
- Using paid “comparisons/calibrations” to support CMC review
- Alignment with CCs

**Thank you!**