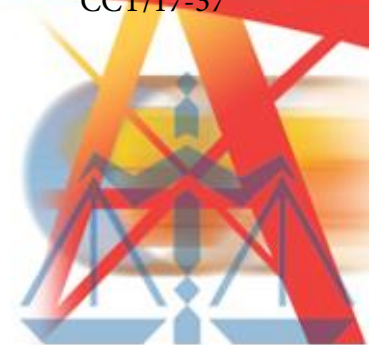




**AFRIMETS**  
Intra-Africa Metrology System  
Système Intra-Africain de Métrologie



# **AFRIMETS TECHNICAL COMITEE FOR THERMOMETRY (TC-T) REPORT**

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**Paris, France**  
**2017**

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# CURRENT STATUS OF TC-T MEMBER LABORATORIES

South Africa

- -200 °C - 1600 °C
- Ar, Hg, Wtp, Ga, In, Sn, Zn, Al, Ag, Cu

Rwanda

- -40°C - 1800°C
- No fixed point cell

Ghana

- -80 °C - 1200 °C
- No fixed point cell

Egypt

- -290 °C - 2200 °C
- O<sub>2</sub>, Ar, Hg, Wtp, Ga, In, Sn, Zn, Al, Ag, Cu

Namibia

- -80 °C - 280 °C
- Wtp

Burkina Faso

- -45 °C - 300 °C
- No fixed point cell

Ethiopia

- -40 °C - 1200 °C
- Hg, Wtp, Ga, Sn, Zn, Al

Zimbabwe

- -50 °C - 1200 °C
- Hg, Wtp, Sn, Al

Tanzania

- -40 °C - 1200 °C
- none

Botswana

- -40 °C - 1100 °C
- No fixed point cell

Kenya

- -40 °C - 1300 °C
- Hg, Wtp, Ga, Sn, Zn

Morocco

- -40 °C - 1200 °C
- Hg, Wtp, Ga, In, Sn

Tunisia

- -80 °C - 1200 °C
- Hg, Wtp, Ga, Sn, Zn, Al

Zambia

- -80 °C - 1300 °C
- Hg, Wtp, Ga, In, Sn, Zn, Al, Ag, Cu

Seychelles

- -30 °C - 250 °C
- No fixed point cell

# AFRIMETS TC-T INTER COMPARISON

## AFRIMETS. T-S1

- Supplementary comparison of Industrial PRT calibration capability
- Range: -50 °C to 450 °C
- Started: March 2008
- Addressing comments on Draft B from WG KC NMI result anomalies at some temperature values, Equipment details, traceability of reference SPRT, etc..
- Participants are requested to provide information on the commented issues
- Status: To prepare final report (Participant need to present response to comment provided)
- Participating NMIs
  - South Africa, Egypt, Ethiopia, Kenya, Thailand, Uganda, Tanzania, Seychelles, and Mauritius.

## AFRIMETS. T-S2

- Supplementary comparison of Industrial PRT calibration capability
- Range: -50 °C to 450 °C
- Started: May 2012
- Participating NMIs
  - South Africa, Tunisia, Egypt, Morocco, Ghana, Burkinfaso, Benin
- Status: Under circulation (Presently at South Africa)

## CONT...

### AFRIMETS. T-S3

- Supplementary comparison of Industrial PRT calibration capability
- Range: -50 °C to 450 °C
- Started: May 2012
- Status: Under circulation
- Participating NMIs:  
South Africa, Zambia, Zimbabwe, Botswana, Namibia, Mozambique, Uganda, Rwanda, Democratic Republic of the Congo

### AFRIMETS. T-S5

- Supplementary comparison of Liquid in glass thermometer
- Range: -35 °C to 250 °C
- Started: February 2016
- Status: Report approved by AFRIMETS TCT
- Participating NMIs:  
Zimbabwe, Zambia, Botswana, Namibia, Mauritius, South Africa

# S-RMO INTER COMPARISONS

## MAGMET (Maghreb Metrology)

### i. SPRT inter comparison

Reference Lab: NMI of France (LNE-INM)

Pilot: Tunisia

Participants: Morocco, Tunisia and Algeria

Status: Final report prepared by Tunisia

### ii. FIXED POINTS (Hg – Sn)

Reference Lab: NMI of France (LNE-INM)

Pilot: Tunisia

Participants: Morocco, Tunisia

Status: Final report prepared by Tunisia

# CONT...

## SADCMET (Southern Africa Metrology)

### i. PRT inter comparison

Reference Lab: South Africa

Pilot: Zimbabwe

Participants: Namibia, Zambia, Botswana

Status: Completed

### ii. Thermocouple inter comparison

Reference Lab: South Africa

Pilot: Zimbabwe

Participants: Namibia, Zambia, Botswana

Status: completed

### iii. Electrical Simulation inter comparison

Reference Lab: South Africa

Pilot: Zimbabwe

Participants: Namibia, Zambia, Botswana

Status: completed

# FUTURE INTER-COMPARISONS

- Noble metal Thermocouple, AFRIMETS TS-7 (0 °C-1100 °C)
  - Pilot: Egypt (NIS)
  - Reference: South Africa
  - Participants: South Africa, Egypt, Zambia, Morocco, Botswana, Kenya, Zimbabwe, Ghana
  - Status: Protocol under review
- SPRT, AFRIMETS TS-6 (Hg - Zn)
  - Pilot: Egypt (NIS)
  - Reference: South Africa
  - Participants: South Africa, Egypt, Zambia, Morocco, Zimbabwe, Tunisia, Kenya
  - Status: Protocol under review
- Radiation Thermometer (600 °C to 1100 °C)
  - Pilot: Egypt (NIS)
  - Reference: South Africa
  - Participants: South Africa, Egypt, Zambia
  - Status: Protocol to be prepared
- Humidity: Dew point (-20 °C – 30 °C)
  - Pilot: Egypt (NIS)
  - Reference: South Africa
  - Participants: South Africa, Egypt, Morocco, Kenya
  - Status: Protocol to be prepared



# Training & Capacity development

- ❖ Practical temperature measurement training organized by NMISA
  - Metrologists from Namibia and Malawi
- ❖ Practical temperature measurement training by NIS
  - Metrologist from Ghana

# CMC submission

The following CMC submissions are under review by AFRIMETS

- ❑ Zimbabwe (SIRDIC) (Thermometry Service classification 2.2, 2.3, 2.4, 2.7 & 2.8)
  - Platinum resistance thermometer (-40 °C – 280 °C)
  - Base metal thermocouple (-40 °C – 280 °C)
  - Digital thermometer (-40 °C – 280 °C)
  - Ice point (0 °C)
  - Electrical simulation (-200 °C – 1200 °C)
  - Liquid in glass thermometer (-40 °C – 280 °C)
  
- ❑ Mauritius (MSB) (Thermometry Service classification 2.4)
  - Liquid in glass thermometer (0 °C– 200 °C)
  
- ❑ Botswana, Morocco and Zambia are in the process of submitting CMC

THANK YOU



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