Period: January to December 2021

Institute: National Metrology Institute of South Africa (NMISA)

State economy: South Africa

Number of persons involved in thermometry of the institute:

There are:

- three temperature scientist/metrologists
- two humidity scientist/metrologists
- a section-head

Short summary of research and development:

- The lab has conducted a development work on ear thermometer and ear thermometer BB source measurement capability. Accreditation on the two parameters is obtained
- The lab has conducted a development work on the establishment of a thermal imager measurement capability. Accreditation on the parameter is obtained
- The lab is also conducting a development work on the establishment of Eutectic fixed point measurement capability at Co-C and Pd-C for thermocouple measurement
- The lab is conducting a development work on the establishment of high temperature radiation thermometry measurement using eutectic fixed-point cells
- The lab is conducting research work on polarisation and temperature effect on the performance of a linear pyrometer.

Short summary of recent comparison activity:
• Piloted AFRIMETS TS-2. AFRIMETS TS-2 is completed, and report is published on metrologia and BIPM web.

• Piloted AFRIMETS TS-3. AFRIMETS TS-3 is to be re-started in 2022.

• Piloted AFRIMETS TS-7. It is at measurement stage currently at KEBS, Kenya.

• Participated in CCT K7-2021. First leg measurement completed

• Signed up to participate in CCT organised body IR comparison

• Participated in APMP TS11/12. Measurement completed, report under preparation by the pilot

• Participated in APMP TK4.2. Measurement completed, report under preparation by the pilot

• Participated in APMP TS16. Measurement completed, report under preparation by the pilot

• Signed up to participate in APMP TS17. Measurement to start soon

• Signed up to participate in APMP TK7-2021. Measurement to start soon

Short summary of other activities:

• Drafting MoU between CEM and NMISA for possible bilateral CCT K9.x comparison

• The lab has refurbished most of its aging equipment by replacing them with the new generation ones

• Assisted the South African Accreditation Service (SANAS) in drafting a guide for the Body Infrared thermometer measurement

• Provide technical consultancy and training services to African NMIs.

Link to bibliography or list of bibliography (last 5 years):

2. Efrem Ejigu (2021): Accurate Clinical Tympanic Thermometer Measurement System at NMISA, NCSLI Measure, DOI: https://doi.org/10.51843/measure.13.2.5.


5. **E.K. Ejigu**, Simulating radiation thermometer temperature measurement error from the performance change of an interference filter due to polarization effect, Measurement (2017), DOI: [http://dx.doi.org/10.1016/j.measurement.2017.08.003](http://dx.doi.org/10.1016/j.measurement.2017.08.003)

