

**Brief Report to the 7th meeting
of the
Consultative Committee for Acoustics, Ultrasound and Vibration

NMISA
Acoustics, Ultrasound and Vibration Laboratory**

1. ACCREDITATION

The Acoustics, Ultrasound and Vibration Laboratory (AUV) of the National Metrology Institute of South Africa (NMISA) were re-assessed by the South African National Accreditation System (SANAS) in October 2009. This was a surveillance visit of the laboratory's capabilities with a local technical assessor assessing all the technical aspects of the laboratory.

During the assessment, the laboratory made improvements to its scope of accreditation. Certainly the most notable for the laboratory was the signatory status obtained by Mr Moses Temba for accelerometer calibration by comparison method (ISO 16063-21).

2. ACOUSTICS

The laboratory is the process of replacing and upgrading aging equipment relating to all areas of standard realisation and dissemination. The upgrade of the system will provide the laboratory the capability to realise the standard for sound pressure in air for LS1P as well as LS2P microphones using primary methods with reduced uncertainty of measurement as well as extended frequency ranges. Currently the laboratory is realising the standard using LS1P microphones.

Updated CMCs have been submitted and the Intra-regional review questions and concerns are being addressed.

3. VIBRATION

The frequency range of over which the national standard for vibration is being realised (using primary methods) has been extend down to 0,4 Hz. A bi-lateral comparison is in progress to validate the

system performance. The bi-lateral comparison, AFRIMETS.AUV.V-K2, covers the frequency range 0,4 Hz to 40 Hz.

Updated CMCs have been submitted and the Intra-regional review questions and concerns are being addressed.

The laboratory developed a mechanical shock calibration system using comparison techniques (ISO 16063-22). This was developed to satisfy demand from local industry. The system is used to calibrate mechanical shock for force- as well as vibration transducers. Currently traceability is imported, but it is planned to develop primary mechanical shock calibration capabilities in the future.

4. COMPARISONS

The Vibration laboratory is participating in CCAUV.V-K2. It completed the measurements on time, as per the revised comparison schedule.

The laboratory is piloting AFRIMETS.AUV.V-K2, a bi-lateral comparison with INMETRO for low frequency vibration calibration using laser interferometry. The comparison just started and the laboratories plan to complete the measurements by early 2011.

5. REGIONAL ACTIVITIES - AFRIMETS

5.1 AFRIMETS CMC Entries

South Africa's NMISA and Egypt's NIS are the only members with CMC's in the KCDB. AFRIMETS has 368 CMCs officially accepted. In General physics (308), Ionising Radiation (37) and Chemical metrology (23).

Kenya is currently preparing its first CMC's for submission to the KCDB.

The Quality system of NIS (Egypt) was accepted by EURAMET. AFRIMETS will closely follow the process of the submission of CMCs by Egypt, as a learning exercise for AFRIMETS. The first Quality system submitted to the AFRIMETS TC-QS is that of Kenya (KEBS). It is expected that Tunisia will follow soon.

Kenya Bureau of Standards (KEBS) submitted its Quality System to the AFRIMETS TC-QS. The system is under review and a site visit is planned to take place early 2011. The second QS expected to be submitted to the TC-Qs is that of Tunisia.

5.2 AFRIMETS Events

- During August 2010, AFRIMETS presented a training session for AFRIMETS Chairs and Vice-chairs. The training was presented at the NMISA and covered a range of topics aimed at familiarising AFRIMET chairs with BIPM MRA related issues such as CMC preparation and submission, the review process and the structure of the BIPM.
- The 4th AFRIMETS GA took place in Egypt during September 2010.
- In February 2011, AFRIMETS will host a Metrology School at KEBS in Kenya.

5.3 AFRIMETS.AUV

Mr Anderson Maina from the Kenyan Bureau of Standards (KEBS) was appointed vice chair for the AFRIMETS AUV WG.

The NMISA provided training for Mr Anderson Maina from the KEBS in the fields of Acoustics and Vibration metrology during November 2009. Mr Maina also attended the Uncertainty of Measurement course as presented by National Laboratory Association (NLA) in South Africa. Additional training, relating to the application of acoustical and vibration measuring equipment, was provided by M&N Acoustics, a local SANAS accredited laboratory.

Traceability was also provided to KEBS with the calibration of a multi-function sound calibrator and a reference accelerometer.