

**Brief Report to the 10th meeting
of the
Consultative Committee for Acoustics, Ultrasound and Vibration**

**NMISA
Acoustics, Ultrasound and Vibration Section**

1. STAFF COMPLIMENT

The Acoustics, Ultrasound and Vibration Section of NMISA were fortunate in having grown its staff compliment from three to five. Dr Aletta Karsten was appointed as the head of the Section, while Mr Vumile Tyalimpi joined the Section in the Ultrasound & Underwater Acoustics Laboratory.

2. ACCREDITATION

The Acoustics, Ultrasound and Vibration Section (AUV) of the National Metrology Institute of South Africa (NMISA) were re-assessed by the South African National Accreditation System (SANAS) in November 2014. This was a full re-assessment of the Section's capabilities with an international technical assessor assessing all the technical aspects of the Section.

During the assessment, the Section made improvements to its scope of accreditation and obtained addition technical signatory status for some staff members.

3. ACOUSTICS

The Laboratory completed the process of replacing and upgrading aging equipment relating to all current areas of standard realisation and dissemination. More notably, the Laboratory now has new and re-established capabilities 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 having extended frequency ranges to < 20 Hz and phase calibration as a new parameter.

The Laboratory is in the process of participating in comparisons in support of updated and new CMCs that will be forth coming in the foreseeable future.

4. VIBRATION

The Laboratory finalised the purchasing of equipment to replace its aging equipment. While the Laboratory is currently focussing on commissioning the primary systems, the equipment to perform secondary calibration has been commissioned. In both areas, the replacement of old instruments enabled some noticeable improvements to existing capabilities. These include;

- Extending frequency ranges (magnitude and phase) for secondary calibrations.
- Extending acceleration level capabilities up to 4 000 m/s².
- Establishing secondary shock capabilities (50 m/s² to 10 km/s²).

- Improved primary low frequency capabilities with the implementation of a 450 mm peak to peak air bearing vibration exciter.
- Upgrading existing primary method software to enable homodyne as well as heterodyne demodulation techniques.

The frequency range over which the national standard for vibration is being realised (using primary methods) has been extend down to 0,1 Hz. Validation of the capability through comparison is in progress.

Updated CMCs will be forth coming in the foreseeable future.

5. ULTRASOUND & UNDERWATER ACOUSTICS

The Laboratory is investigating the National requirements for Underwater Acoustics as well as for Ultrasound Power traceability in order to provide the required services to the South African industry.