Sistema Inter-Americano de Metrologia
Inter-American System of Metrology

Metrology Working Group 9: Acoustics, Ultrasound and Vibration

Report to the Consultative Committee for Acoustics, Ultrasound and Vibration

7th CCAUV meeting, 20-21 October 20010, Paris, France

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1 SIM INTER-LABORATORY COMPARISONS

The comparisons SIM.AUV.A-S1 and SIM.AUV.V-K1.1 have not evolved to the Draft B stage yet.

- SIM.AUV.A-S1 (calibration of pistonphones), pilot laboratory: CENAM/Mexico
- SIM.AUV.V-K1.1 (accelerometers: complex sensitivity), pilot laboratory: INMETRO/Brazil

No new SIM interlaboratory comparison has been carried out in the period 2008-2010. The start of the low-frequency acceleration comparison SIM.AUV.V-S1 was delayed to allow more time for the participants to improve their calibration systems.

2 OTHER INTER-LABORATORY COMPARISONS

2.1 CCAUV.V-K1.1 (accelerometers: complex sensitivity)

INMETRO participated in this comparison with the PTB/Germany (pilot laboratory), NIM/China and NPLI/India. The final report was published and the results were approved for equivalence.

3 FUTURE CCAUV INTER-LABORATORY KEY COMPARISON

3.1 CCAUV.V-K2

CENAM/Mexico and INMETRO/Brazil are representing SIM in this comparison and will carry out their calibrations in 2011.

4 CALIBRATION AND MEASUREMENT CAPABILITIES

4.1 Intra-regional CMC reviews

The SIM members have not submitted CMCs for review since 2008. It is expected that SIM will submit CMCs for review in 2010/2011, covering both inclusions of new entries and improvement of uncertainties stated in current CMCs.

4.2 Inter-regional CMC reviews

SIM MWG-9 reviewed the following CMC entries: APMP.AUV.5.2009, APMP.AUV.6.2009, COOMET. AUV.5.2009, APMP.AUV.7.2010 and AFRIMET.AUV.2.2010.

5 MEETINGS

The last SIM MWG-9 meeting was held at NIST/USA on March 26-27, 2009. The next meeting will be held in Mexico and CENAM will be the host. The final dates are still under discussion.

The chairman of MWG-9 has participated in the SIM General Assembly and in the SIM TC Meeting, which were held in Lima, Peru on October 26-28, 2009.

6 REASSESMENT OF QUALITY SYSTEMS

All SIM MWG-9 members with CMCs in the fields of acoustics, ultrasound and vibration have submitted their quality systems to reassessment processes in accordance with the requirements of the MRA and ISO 17025 and were then approved by the SIM Quality System Task Force in 2009 and 2010.

7 INCLUSION OF NEW MEMBERS

The INDECOPI from Peru, joined the SIM MWG-9 as a new member in 2010.

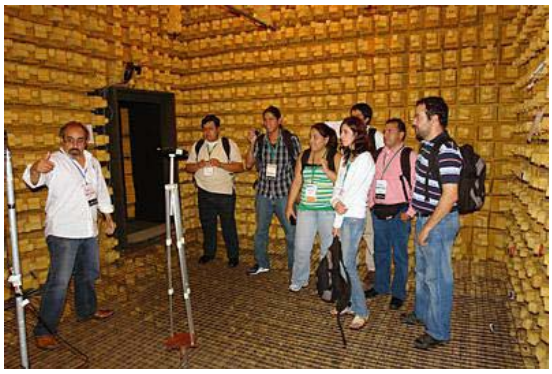
8 1st SIM METROLOGY SCHOOL

The Inter-American Metrology System (SIM), with the support from the Brazilian Agency of Cooperation (ABC) carried out a complete training activity for approximately 50 young metrologists from SIM national metrology institutes, see Fig.1. Inmetro (Brazil) was the host NMI, taking the responsibility for local arrangements and for providing the laboratory facilities for practical classes. With the support from NIST (USA) it was possible to invite also 6 young metrologists from AFRIMETS and APMP NMIs. This Project had the expectation of helping to build a network of trained metrologists who will contribute to develop the metrology in their own countries. The future interaction within this group will help to improve metrology throughout the SIM region and across the globe.

The field of acoustics and vibration was included among the subjects covered by the 1st SIM Metrology School. INMETRO's staff presented a one-hour theoretical lecture and four experimental classes of 20 min each.

Experimental classes (Fig. 2):
A1 – Anechoic chamber – directivity of a sound source (loudspeaker);
A2 – Reverberation chamber – real time acoustical measurements in a reverberation chamber;
A3 – Measurement of sound absorption in impedance tube – measurement of sound absorption using the sine sweep technique and digital signal processing;
A4 – Vibration measurements – primary and comparison calibration of accelerometers.

Fig.1 – Attendants to the 1st SIM Metrology School



A1

A2

A3

A4

Fig. 2 – Experimental classes in Acoustics and Vibration

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