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Proficiency Testing Schemes - Calibration Detailed Information

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1. Introduction

The Proficiency Testing (PT) Schemes Calibration ((ILCs), offered by the NLA – SA, are specifically applicable to the calibration laboratory community.

The Schemes make use of artefacts, which have been calibrated by a SANAS accredited Reference Laboratory, (typically the National Metrology Institute of South Africa), who have the smallest measurement uncertainties in the country.

Participating laboratories pay a nominal fee to the NLA – SA in order to participate which includes the provision of the artefact, the processing of the measurement results, calculation of the Normalised Error (En) value, and the issuing of a report.

2. Background

The calibration laboratory community has become accustomed to participation in an annual SANAS audit programme at no additional cost. The big disadvantage of this programme was that it only audited a very limited scope of the laboratory technical capability and the delay in getting the results reported to the participating laboratory meant that they may continue to perform calibrations, blissfully unaware that the measurement results they are reporting, may be erroneous.

SANAS no longer offers the audit programme. The NLA – SA has started offering various programmes for the calibration laboratories. Currently two types are offered, namely “Closed” or “Open” schemes. The “Closed” programmes are partially sponsored by SANAS as a replacement for the audit programmes no longer offered by SANAS. What to offer is based on feedback received from the STC’s and the laboratories. .

Since the inception of ISO/IEC 17025: 2005 and SANAS R-48, calibration laboratories have been obliged to participate in PT activities to cover their entire scope of technical capability at least once every 5 years, or in line with the perceived risk. Unfortunately however, this has proven problematic for the following reasons:-

- Finding willing participants to cover the required technical range has proven difficult,
- In many cases, the measurement uncertainties of the selected participants have not been appropriate,
- Reports, including calculated Normalised Error (En) values together with conclusions as to whether the ILC was satisfactory or whether corrective actions are required and their description, have not been generated.
- Often, only bilateral ILCs take place and this increases the risk of producing perceived good results, when in fact both participants are not “good” but just “equally bad”.
- The amount of time and effort required to organize and participate in suitable PT activity has been grossly under-estimated. It could therefore be argued that whilst in most cases, there is no “direct cost” to the participants of these informal activities, the “indirect costs” to the participants remain unknown and can be significant.
- Most of the PT activities are organized informally which typically results in informal records being generated, which do not meet the requirements of ISO/IEC 17025, or SANAS R-48.

3. Benefits of participating in NLA – SA run PT Schemes.

- The NLA - SA offers several Calibration PT Schemes, thereby covering a wide range of technical measurement capability. This enables calibration laboratories to select schemes to cover the widest possible range of measurement capability.
- The PT artefacts are instruments which are typical of those seen by calibration laboratories on a daily basis. They therefore realistically evaluate the competence of the laboratory to calibrate similar instruments received from customers for calibration.
- The measurement uncertainties associated with the NLA – SA PT Scheme reference values is small thereby enabling most laboratories to be able to use their PT scheme results to justify their accredited measurement capabilities.
- The interim and consolidated reports issued to NLA – SA PT Scheme participants contain all the information required to fulfil the requirements of ISO/IEC 17025 as well as SANAS R-48.

4. How are the NLA – SA Proficiency Testing Schemes for Calibrations laboratories run?

- 4.1 The “Open Schemes” schemes are of an “open ended” nature meaning they have no defined start or completion date. Laboratories can elect to participate at any time provided the artefact is available.
- 4.2 Typically a laboratory wanting to participate identifies the particular scheme, registers to participate and books a tentative 1 week time slot. This slot is only confirmed upon receipt of the payment of the required fee.
- 4.3 Once the laboratory has performed the measurements, they return the artefact, and submit their measurement results to the NLA.
- 4.4 Within two weeks, an interim report will be issued indicating the laboratory’s Normalized Error (En) values. A consolidated report will be issued at least annually, containing the results from all the participant laboratories, and this will usually be presented at the annual NLA Test & Measurement Conference.
- 4.5 The “Closed Schemes” have a defined start and end date. Once registered, the Scheme coordinator, in consultation with the individual laboratories, will allocated a week in which each laboratory will participate. Participation is confirmed upon receipt of the payment of the required fee.
- 4.6 Within two weeks, an interim report will be issued indicating the laboratory’s Normalized Error (En) values. A consolidated report will be issued. A final report containing the results from all the participant laboratories will be issued four weeks after the end of the end date.

5. What Schemes are on offer and what costs are involved?

- 5.1 Refer to the document “NLA-PT-I-011-XX PT Schemes Offering Summary (Open, Calibration) and NLA-PT-I 12-XX (Closed, Calibration)”.

6. How do I participate?

6.1 Refer to the document “**NLA-PT-I-04-XX Proficiency Scheme Process Flow Chart**”.

7. How and when will I receive my results?

7.1 Interim reports are E-mailed to participants within two weeks of scheme participation. These reports will contain the absolute normalized error (En) values where an En value $< |1|$ indicates satisfactory performance and an En value $\geq |1|$ indicates that corrective action is required. The report will also highlight potential problems.

7.2 A final report for the “Open Schemes” will be distributed where possible annually. A final report for the “Closed Schemes” will be distributed four weeks after the end date of the scheme.