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SURVEILLANCE VISIT TO AN ACCREDITED LABORATORY IN ENGLAND

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ABSTRACT

Accreditation of laboratories is becoming more widespread in Turkey. However, the laboratory to be assessed has little information on what to expect from accreditors.
As the quality of accreditation is held in high esteem in well established national accreditation bodies such as NAMAS, UK, a typical NAMAS accreditation would serve as a positive example for Turkish laboratories thinking about accreditation.
In the company of a NAMAS accreditor an annual surveillance visit to a UK electrical laboratory was carried out. The conduct of both parties, the professionalism, quality and the long experience of the accreditor is examined.

1. INTRODUCTİON

Calibration and testing facilities in Turkey are trying to improve the quality of their calibrations and the reputation of their laboratories. Calibration and testing has in recent years become increasingly important in Turkey due to increasing industrial output of high technology products and subsequent competition with imported products. As calibration and testing labs provide certification detailing the performance of high technology equipment, information about the quality of these laboratories must be made available to customers. This quality can be measured in two ways, technical capability and management quality.
The method of checking the quality of a laboratory is called an accreditation. Many laboratories in Turkey have obtained accreditation for their laboratories through the few organisations, which have the capability to do this. Many laboratories are worried about how best to prepare for a laboratory accreditation and what to expect from the accreditors.
This paper aims to help those in this position, by giving an account of a NAMAS accreditation visit to a test and calibration laboratory in the United Kingdom.

2. THE NAMAS SURVEİLLANCE VİSİT

2.1 calibration measurements[1,2,3,4]

Some problems with the measurements were discussed. One particular voltmeter had undergone a step change in its measured values on just one of its ranges. The assessor advised the customer that these types of steps could occur in instruments. It was advised that the value must be monitored until it had settled properly in its new reading. The assessor asked about problems with e-m interference when he noticed a possible source. Environmental conditions were then checked briefly to see whether the equipment stated in the quality handbook was used. discussed with the assessor giving his advice where required. The assessor then required

to watch a measurement being carried out by a qualified member of staff. The assessor watched quietly keeping the technician at ease.

2.2 Technical details

Careful scrutiny of the laboratory practice was then undertaken.
It was found that when equipment was used by other staff members outside the lab it was not check measured on return. They were advised to check returning equipment according to the guidelines.

The procedure for accepting equipment to be calibrated in the laboratory was then discussed. Incoming equipment were put onto a shelf in a dedicated room, here a member of staff logs the details into the computer. The computer then generates a job sheet (containing all the information about the equipment) and a job sheet number. Any cables or other equipment coming with the instrument are listed as accessories. Some of these accessories are very expensive and should not be mixed-up with the calibration labs equipment. The same staff member follows the job through its calibration process, deciding which lab is appropriate for the calibration, and placing the instrument on the 'incoming' shelf of the lab with its job sheet. After calibration the instrument is placed on the 'outgoing' shelf of the lab ready for collection by the same member of staff, who logs any comments on the outgoing equipment.

2.3 Document details

The staff and organisation diagram were checked in the quality handbook. One person in the chart had moved to another lab. The lab were asked to update their quality handbook. The lab had prepared an authorisation matrix (staff versus their skills and training) so that replacements for this change were easily found.

Calibration certificates were then checked for the labs own standards. They were calibrated regularly every year. They did not use Tippex to remove errors, they crossed them and wrote besides them. This is the scientific way of dealing with experimental corrections. For some of the repeatability measurements the lab were using non-accredited equipment to carry out statistical analyses. They were advised this was OK as their uncertainty covers this as a type A uncertainty.

On checking the uncertainty analysis there was no mention of the method of calculation. They were advised that they must use an accepted method for the uncertainty calculation and state which method was used. The customer certificates were then discussed. It was noticed that the uncertainties printed on the certificates were only quoted at decade values. This was not acceptable as they had calibrated at other values also. They were advised to send the uncertainties to the customer at the actual values calibrated in the lab, along with an explanation.

2.4 Measurement Audit

The measurement audit was discussed. The lab wanted to know how NAMAS calculate the quality of its measurement. The following method was described:

$$\frac{\text{Measurement}_{\text{NAMAS}} - \text{Measurement}_{\text{LAB}}}{\text{rms uncertainty}}$$

A value of less than one indicates the quality of the measurement if the lab uncertainty is correct.

A device for audit measurement may be sent to he lab anytime within six months of the accreditation visit, so that it is unexpected.

3. OTHER ASPECTS OF THE VİSİT

3.1 Professional behaviour

The experience and professional behaviour of the accreditor is a special concern to NAMAS. They advise that they only choose people with many years experience in the area to be accredited. The accreditor is given a special course on how to put the laboratory staff at ease and not to give orders, make unpleasant comments and make them feel as if they are on trial. On observation the accreditation visit was a pleasant experience for both sides. The assessor was there to observe and not to discuss his own background and skills. The assessor had the skill to put himself in a passive friendly position but still managed to keep the right amount of distance from the lab staff, that he could not be compromised.

3.2 Respect to the Customer

Respect to the customer is a top priority of both NAMAS and the accredited lab. This was obvious in their 'confidentiality of the customer' policies. The accreditor declined from commenting on the measurement practices of other accredited labs when prompted by the accredited lab. The accredited lab in turn refuse to give details about prototypes they have calibrated to any of their other customers. They mention that they have been asked these types of questions on occasion.

3.3 Starting and wrapping up discussions

The starting statements were very official and it was observed that the accredited lab understood the seriousness of the visit. This ensured the correct behaviour and respect from the accredited lab and the situation atmosphere was official. Although the lab passed without any major non-compliances. The wrapping up session was also very official. The accreditor asked the lab staff not to interrupt him while he went through the list of non-compliances. This meant the accreditor kept control of the situation during the wrapping up and until all the correct documents were photocopied and signed in his presence.

4. Non-Compliances

The following were listed as non-compliances by the accreditor.

Some equipment was obsolete in the calibration procedure, but the quality system had not been updated. (minor non-compliance)

A lab procedure in the quality manual was no longer used, so had to be removed (minor non-compliance).

A FLUKE null detector was no longer calibrated or used for NAMAS work and so had to be removed from the inventory list (minor non-compliance).

The uncertainties on the certificates were quoted at decade values, but other values had also been calibrated (minor non-compliance).

An accepted method for the calculation of uncertainties had not been stated. (minor non-compliance) as there was only a small calculated difference with the accepted method. If the difference were large, however, it would have been a major non-compliance.

One staff member had gone to another lab, but his name had not been removed as an authorised person to use and remove equipment. (minor non-compliance)

5. CONCLUSİON

The laboratory accredited was a 'good' laboratory and had always carefully followed the regulations. The visit demonstrated that even though accrediting a lab is a very difficult technical exercise, taking up much effort and time it can be done professionally. When a professional approach is used for accreditation both the official and practical work required can go smoothly, making the system feasible.

ACKNOWLEDGMENT

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