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Discussion on Calibration Intervals

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Definitions

Calibration Interval =

- **Period of time or amount of use between calibrations,**
- **to ensure equipment remains reliable.**

Reliable =

within sufficient tolerance (or uncertainty) for the tests being done

Stakes

Interval too short: Calibration \$\$\$\$

Interval too long: Risk of bad measurements & repercussions.

17025 Requirements

[5.5.2] Equipment shall be:

- **capable of achieving accuracy required;**
- **comply with test/cal method specifications;**
- **managed under a calibration program.**

Therefore, need to:

- **define required accuracy;**
- **identify the equipment that can affect it;**
- **manage that equipment under a cal program.**

More 17025 Requirements

[5.6.1] Established program and procedure for calibrating equipment (that matter).

[5.1.1 and 5.1.2] Calibration program, etc., needs to consider many factors; e.g.

- **human factors;**
- **environmental;**
- **sampling;**
- **handling, etc.**

CLAS Recommended Practices

- **Cal at (planned) periodic intervals to ensure acceptable accuracy & reliability;**
- **Shorten intervals when results of previous cals suggest it;**
- **May lengthen intervals on basis of demonstrated performance;**
- **Documented procedure for assigning and adjusting cal intervals;**
- **Fully documented recall system.**

How to Establish Calibration Interval

1. Consider influencing factors and existing knowledge; e.g.,

- accuracy sought **& consequences of error**;
- manufacturer's recommendations;
- accommodation & environment;
- purpose & usage;
- **maintenance & servicing**;
- **trends from previous calcs**;
- **frequency of checks**;
- **etc., etc., etc.**

How to Establish Calibration Interval (cont'd)

2. Make an initial choice, considering the factors above (especially the following ones):

- accuracy sought **& consequences of error**;
- manufacturer's recommendations;
- accommodation & environment;
- purpose & usage.

How to Establish Calibration Interval (cont'd)

3. Monitor & Review, adjust as necessary:

- Automatic or staircase method for individual item;
- Control chart (enables predictions)
- Adjust based upon performance of a group of similar items;
- In-service checks of critical parameters.

References

- ILAC-G5:1994 (www.ilac.org)
- ISO 10012-1:1992 Annex A
- CLAS Recommended Practices
(www.nrc.ca/inms/clas/clase.html ---> Reference Documents)
- NCSL RP-1 1996