

James Walker	<b>Title:</b>  Master Thermometer External Calibration Procedure	<b>Date:</b>  Nov 7, 2022	<b>Rev:</b>  4	<b>Page:</b>  Page 1 of 2	<b>Document No:</b> QPD116  <b>Approved by:</b> Test Room Manager
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**REASON FOR UPDATE:** Allowable error changed from 0.2% to  $\pm 0.5^{\circ}\text{C}$ , as 0.2% has been found to be unachievable by third party laboratories due to stipulated "uncertainty" values.  
Step 4.2 amended to be less restrictive on usable range – "...however the range can be amended if requirements change." added.

**ASSOCIATED DOCUMENTS:** Calibration Certificate

## 1. PURPOSE

- 1.1 To provide a procedure for the organisation of calibration of the master thermometer by an external company.

## 2. SCOPE

- 2.1 This document applies to all those involved with the organisation of calibration of the master thermometer by an external company.

## 3. RESPONSIBILITY

- 3.1 The Test Room Manager is responsible for updating and communicating the details within this procedure.

## 4. PROCEDURE

**Transfer Standard** - Calibrated externally by a UKAS accredited laboratory to UKAS standards where possible, otherwise calibrated externally by a laboratory with measurements traceable back to National Standards.

- 4.1 Organising the calibration should begin around 30 days before the expiry date as the whole process could potentially take several weeks to complete.
- 4.2 Contact suitable external companies stating the temperature range which the thermometer is used in, and ensuring the calibration will cover this range with suitable intervals:
- The temperature range of the current instrument  $-60^{\circ}$  to  $+200^{\circ}\text{C}$ , however the range can be amended if requirements change.
  - The number of intervals across the range must be at least 7
- 4.3 Obtain a suitable quotation from an external company, then follow the internal process for raising a purchase order.
- 4.4 After authorisation, contact the external company to let them know you intend to send the items to them, and perform any special instructions provided by them, e.g. return numbers to include in the package.
- 4.5 Remove all unnecessary ancillary items from the case such as spare thermocouples, plugs, documentation, CD's etc.
- 4.6 Put these ancillary items in a bag, label up, and store in a safe place.
- 4.7 The only items to be sent to the external company should be the main unit in its protective case and the main RTD in its protective tube.
- 4.8 Check there is no damage to the main unit or main RTD.

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- 4.9** Locate the 'Dispatch Request Form' in the Logistics section of LionShare, and fill in the required details including approval from the Test Area Manager.
- 4.10** Print off the form.
- 4.11** Take the items and the form to the Logistics department and inform a relevant member of the department to initialise the delivery procedure.
- 4.12** Upon return after calibration, check the package includes the main unit, RTD, and calibration certificate(s).
- 4.13** If any of the items appear damaged then quarantine immediately and follow up with an investigation.
- 4.14** If the items are physically OK, check the calibration certificate for acceptance.
- 4.15** If all the measured value errors are less than  $\pm 0.5^{\circ}\text{C}$ , accept into the calibration system.
- 4.16** Remove the old colour code date stickers and apply new ones to the unit and RTD.
- 4.17** Check the external company's calibration sticker is clear, readable and has the correct dates and the calibrator's signature/initials.
- 4.18** Update the calibration spreadsheet and save a scanned copy of the certificate(s) into the relevant folder.
- 4.19** Re-patriate the stored ancillary items back into the case.
- 4.20** If any of the measured value errors are greater than  $\pm 0.5^{\circ}\text{C}$ , quarantine the items and certificate(s).
- 4.21** Update the calibration spreadsheet to reflect the quarantine situation.
- 4.22** Seek technical assistance on how to proceed from the following:
- Organise the repair and re-certification of the items.
  - Apply a sticker to the items stating their useable range if required.
  - Dispose of the items and replace with new ensuring steps 4.15 to 4.22 are followed.
- 4.23** Ensure the following items are documented on the certificate(s):
- Certificate Number
  - Reference/Job Number if different from Certificate Number
  - Relevant Dates
  - Serial Number and Range
  - Test Conditions
  - Results
  - Calibrators Name