Chamber Test For Calibrators

**1.0 INTRODUCTION**

This instruction is used to verify the performance of the calibrator with respect to temperature. Other product may also be conditioned over temperature using this procedure.

**2.0 DESCRIPTION**

This instruction details the set-up, operation and evaluation of the chamber test for calibrators.

**3.0 LIMITATIONS**

This instruction is applicable to the model CAL250 and 1000 Hz calibrators and equipment in general which requires conditioning over temperature.

**4.0 MATERIALS, TOOLS, & EQUIPMENT**

Battery straps or 9V batteries

ESPEC CHAMBER

2559 microphones

PRM901’s

Temperature Simulator Box (CAL250’s)

A200.1 loading diagram

A250.1 loading diagram

**5.0 PROCEDURE**

**5.1 Calibrator setup (If conditioning new product over temperature, connect power if applicable, place on shelf, close door, and skip to step 5.2)**

**5.1.1 Place the calibrator being tested over the microphone in the chamber. 24 units is the maximum that can be tested at one time.**

5.1.2 Connect power to the units using the cables supplied at the chamber or a 9V battery may also be used.

5.1.3 Close and secure the door of the chamber.

**5.2 Running the test program**

5.2.1Open the chamber program by clicking on the chamber icon.

5.2.2Select CALIBRATOR tab at the top of the page.

5.2.3Open appropriate sequence file for Model of Calibrator being tested. (CAL200.SEQ is used for CAL200 and CAL150’s. If conditioning, use 48HR.SEQ or 60HR. SEQ.)

**5.3 Serial number entry.**

5.3.1 Enter calibrator model and serial number on each microphone station. *If conditioning only, model and bogus S/N required on 1 line only.*

5.3.2 Click begin tab to start test.

**5.4 Retrieving Test Results**

5.4.1 Open the Report Gen program to access and print test results.

(No test results for conditioning. Remove calibrators from chamber at end of conditioning.)

**5.5 Chamber Test Results & Temperature compensation adjustment**

 5.5.1 The chamber limits for drift as the temperature changes are as follows:

 CAL200 ±0.40db −10° to 50°C ±7.0 Hz

 CAL150 ±0.50db −10° to 50°C ±7.0 Hz

 CAL250 ±0.40db −10° to 50°C ±2.0 Hz

 Make the plot as flat as possible, it may be necessary to adjust the temperature compensation pot. **For adjustment of CAL250’s use CAL250 TC.xls file and follow listed instructions contained therein. Shortcut is on desktop of computer and is labeled “CAL250 TC.xls”.**

*Refer to the S200 Assembly Test (D0001.8188) or CAL250 F Assembly Test (D0001.8110) for pot location..*

**The following adjustment instructions apply to all calibrators:**  Turning the pot clockwise causes the slope of the plot to go positive, counterclockwise negative. If the pot were to represent the hour positions on a clock, each hour change would represent approximately 0.2 dB change.

**The following applies to CAL150, CAL200, and CAL250 models:**

 If additional positive correction is needed at 50° C on the CAL200 & CAL150 models, R30 may be added to the A200.1 board. For the CAL250, R17 is added to the A250.1 board. This resistor is not preloaded. The value of R is derived from the following formula: R = 15k/dB. The following are typical values used: ~0.1 dB correction = 121k

 ~0.2 dB correction = 75k

 ~0.3 dB correction = 49.9k

5.5.2 After adjustment of CAL200 & CAL150’s OR IF no adjustment was necessary, assemble units, secure with two screws(#5345.0004) and place PN # MAC200.10 in the battery compartment of calibrator as shown below:

MAC200.10



5.5.3 If the temperature compensation is adjusted once the calibrator is tested, **it must be run through the temperature test again.**

5.5.4 Apply RED FINGERNAIL POLISH to the top of the temperature compensation pot on all calibrators when temperature testing is completed. On CAL250’s, apply LD Calibration seal (#3255.0014) over access hole after fingernail polish is applied.

**6.0 EVALUATION**

This instruction is an evaluation of the performance of the calibrator over temperature. No further evaluation is required.

**7.0 RECORDS**

The chamber plots are maintained for the life of the instrument warranty or two years, whichever is longer.

**8.0 REVISION HISTORY**

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| --- | --- | --- | --- | --- |
| **DCO #** | **REV** | **DATE** | **INITIALS** | **CHANGES MADE** |
| 297 | A | 6/12/01 | SM | Initial Release |
| 870 | B | 6/13/05 | SM | Rewrite of the process |
| 1103 | C | 6/16/08 | SM | Update |
| 1223 | D | 7/01/09 | SM | Added reference for conditioning product over temp. |
| 1344 | E | 6/23/11 | SM | Added Temperature Simulator Box to equipment list. 5.5.1 Added reference to CAL250 TC.xls file for adjustment of CAL250’s over temperature. |
| 1394 | F | 8/6/12 | SM | Added minor clarifications & detail in step 5.5 |
| 1893 | G | 6/10/19 | SM | Step 5.5.1 Added clarification on Temp correction at 50 degrees for A200.1 & A250.1 boards |
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