

Title: Calibration Of Beckman Digital Capacitance Meter

Scope

Work Instruction for the internal calibration of Beckman Digital Capacitance Meter. To be used in the absence of a manufacturers calibration instruction.

Preparation

Calibration Equipment

Calibration must be carried out using Category A Master instruments as required.

Equipment required;-

- 1.1 Data Precision Digital Capacitance Meter.
- 1.2 Time Electronics Capacitance Box.
- 1.3 Capacitance Box Nominal Values 100uf and 1000uf.

Zero Adjustment

Carry out test 1 with the leads positioned approximately 2" apart. Note that the position of the leads affects the capacitance and the zero adjustment.

Method

- 2.1 All calibration results must be entered on the results sheets (see appendix A)
- 2.2 Note the lab. temperature / R.H. and enter onto the results sheet.
- 2.3 Using items 1.1 and 1.2 listed above set the capacitance box to the following values and record the values in the capacitance value column of tests 2 to 7 as follows 100pf, 1nf, 100nf, 1uf and 10uf.
- 2.4 Using items 1.1 and 1.3 listed above record the values of the 100uf and 1000uf capacitors in the capacitance value column of tests 8, 9 and 10.
- 2.5 Carry out test 2 to 7 using 1.2 listed above.
- 2.6 Carry out tests 8 to 10 using 1.3. above.
- 2.7 Complete results sheet head and enter Pass / Fail.

- All records must be kept for audit purposes

References

Appendix A Calibration Results for Beckman Digital Capacitance Meter

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Appendix A

Calibration Results for Beckman Digital Capacitance Meter

Model Serial No

Date Result

Lab Temp / RH Operator

User Location Certificate No

Accuracies quoted are from manufacturer's specifications or relevant British Standard.

Insulation Test – 5kV Range

Test 1 Zero setting – Insert leads and switch on. Adjust zero to compensate for leads.
Does UUT adjust to zero of 200pf range? Pass / Fail

Test No	Capacitance Value	UUT Range	UUT Reading	Accuracy	Result
2		200 pf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
3		2 nf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
4		20 nf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
5		200 nf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
6		2 uf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
7		20 uf		$\pm 0.5\% \pm 1d \pm 0.5pf$	Pass / Fail
8		200 uf		$\pm 1.0\% \pm 1d$	Pass / Fail
9		2000 uf		$\pm 2.0\% \pm 1d$	Pass / Fail
10		20 mf		$\pm 2.0\% \pm 1d$	Pass / Fail

The UUT was calibrated using the following equipment:

1. Data Precision Digital Capacitance Meter S/N
2. Time Electronic Capacitance Box S/N
3. Capacitance Box S/N

The uncertainty in the applied value is estimated not to exceed:

Capacitance: $\pm 0.2\% + 0.7pf$
 $\pm 1.1\% + 0.2pf (1000uf)$

The uncertainty limits quoted, which are derived from the arithmetic summations of the contributions, refer to the applied values only and do not relate to the stability of the UUT.