

4. Amplitude Accuracy and Flatness

This test measures the amplitude accuracy and frequency response.

Setup

We will use the frequency synthesizer to provide an accurate frequency and the AC calibrator to provide a sine wave with an exact amplitude.

Connect the output of the frequency synthesizer to the phase lock input of the calibrator. Connect the output of the AC calibrator to the A input of the lock-in. Be sure to use the appropriate terminations where required. Connect the TTL SYNC output of the synthesizer to the Reference Input of the lock-in.

Set the Synthesizer to:

Function	Sine
Frequency	1 kHz
Amplitude	0.5 Vrms
Offset	off or 0V
Sweep	off
Modulation	none

Set the AC Calibrator to:

Frequency	1 kHz
Amplitude	1.000 Vrms
Voltage	Off
Phase Lock	On
Sense	Internal

Procedure

- 1) {PRESET} (Turn the lock-in off and on with the [Setup] key pressed)
- 2) Press the keys in the following sequence:

[Source]

Select External reference mode (INTERNAL led off).

[Trig]

Select POS EDGE.

[Channel 1 Display]

Set the Channel 1 display to R.

[Slope/Oct]

Select 24 dB/oct.

- 3) Amplitude accuracy is verified at 1 kHz and various sensitivities. For each sensitivity setting in the table below, perform steps 3a through 3c.

<u>Sensitivity</u>	<u>AC Calibrator Amplitude</u>
1 V	1.0000 Vrms
200 mV	200.00 mVrms
100 mV	100.000 mVrms
20 mV	20.000 mVrms
10 mV	10.000 mVrms

- a) Set the AC calibrator to the amplitude shown in the table.