Quick Demo Guide
Keysight Technologies E4980A Precision LCR Meter, 20 Hz to 2 MHz

Procedure overview

1. Preset system
2. Perform compensation of fixture
3. Set measurement parameters
4. Connect DUT and measure at a single frequency
5. Set up list sweep table
6. Set trigger mode and make sweep measurement

In this demo…

– Measurement of chip SMD device
– Fixture compensation
– List sweep

Required Instrument and fixture

E4980A Precision LCR Meter

Fixture for SMD device (16034E/G/H, 16334A)

If the fixture for SMD device is not available, it is possible to perform the same procedure with following fixtures. Use lead components in this case.

16047D   16047E   16089A/B/C/D/E

1. Preset system

a. Press **[Preset]** front panel key
b. Press **CLEAR SET&CORR** softkey
c. Press OK softkey (wait about 20 seconds…)

2. Perform compensation of fixture

a. Set fixture to UNKNOWN terminals
b. Press [**Meas Setup**] front panel key
c. Select **CORRECTION** softkey
d. Move cursor onto **OPEN** field by pressing [▼] front panel key
e. Make open condition for the test fixture

To make open condition, adjust the distance of the two electrodes so that the separation becomes equal to the length of the DUT (Figure 1)
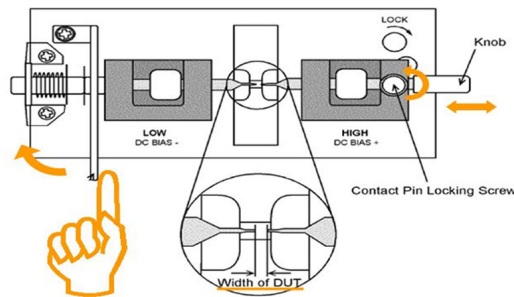

Figure 1. Make open condition (for 16034E/G/H).

To activate Open correction, the status of the OPEN field should be changed from "OFF" to "ON." (Figure 2)

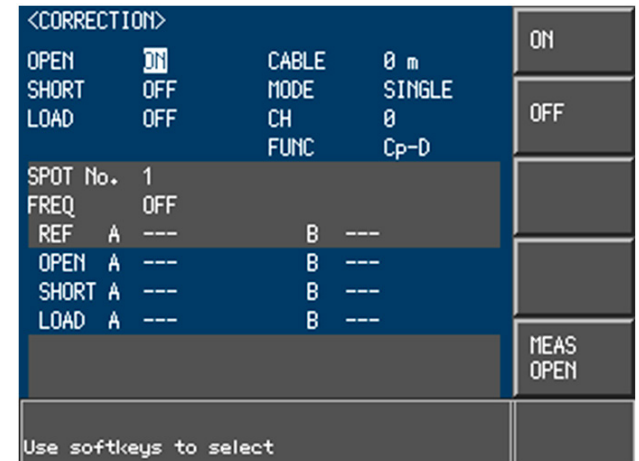f. Press **MEAS OPEN** softkey to perform open correction
g. Press **ON** softkey

Figure 2. Turned on OPEN correction.

h. Make short condition for the test fixture

To make short condition, short the test fixture by sliding the right (HIGH) electrode to the left so that two electrodes contact to each other

i. Move cursor onto **SHORT** field by pressing [▼] front panel key
j. Press **MEAS SHORT** softkey to perform short correction
k. Press **ON** softkey

3. Set measurement parameters

a. Press [**Display Format**] front panel key
b. Move cursor onto **FUNC** field by pressing [▼] front panel key
c. Press **MORE** softkey
d. Press **Z-...** softkey
e. Press **Z-Φd** softkey
f. Move cursor onto **FREQ** field by pressing [▼] front panel key
g. Enter **1 MHz** (press [**1**] front panel key then press **M** softkey)

4. Connect DUT and measure at single frequency

a. Connect DUT to the test fixture
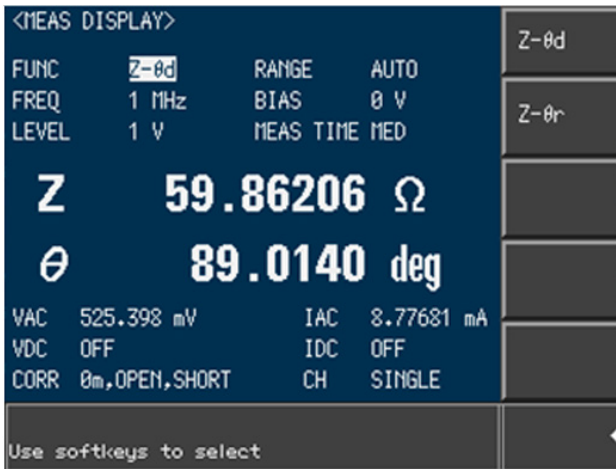b. You will see the impedance value (Z) at spot frequency (Figure 3)

Figure 3. Measured value of 10 uH inductor at 1 MHz.

Impedance value can be calculated by following formula. Inductive device: Z = 2 * PI * frequency * L Capacitive device: Z = 1 / (2 * PI * frequency * L)

5. Setup list sweep table (sweep frequency from 1 kHz to 2 MHz, 201 points)

a. Press [**Meas Setup**] front panel key
b. Press **LIST SETUP** softkey
c. Move cursor onto **FREQ[Hz]** field by pressing [▼] front panel key (4 times)
d. Enter 1 kHz (press [**1**] front panel key then press **k** softkey)
e. Press **PREV PAGE** softkey
f. Enter 2 MHz (press [**2**] front panel key then press **M** softkey)
g. Press **FILL LOG** softkey
h. Press **NEXT PAGE** softkey to see that the list frequency is filled up (Figure 4)
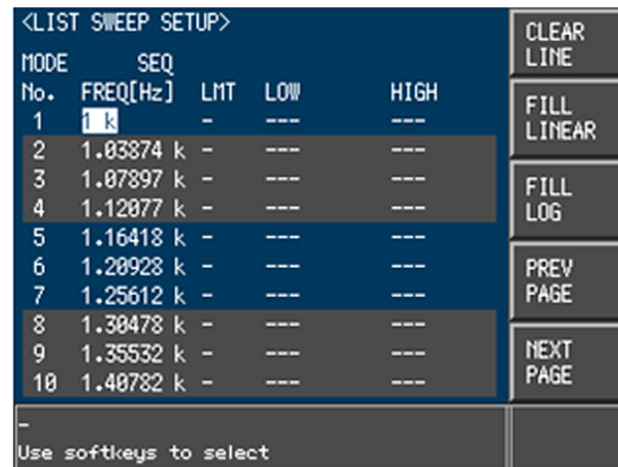
Figure 4. List frequency filled up.

6. Set trigger mode and make measurement

a. Press [**Meas Setup**] front panel key
b. Move cursor onto **TRIG INT** field by pressing [▼] front panel key (4 times)
c. Press **MAN** softkey
d. Press [**Display Format**] front panel key
e. Press **LIST SWEEP** softkey
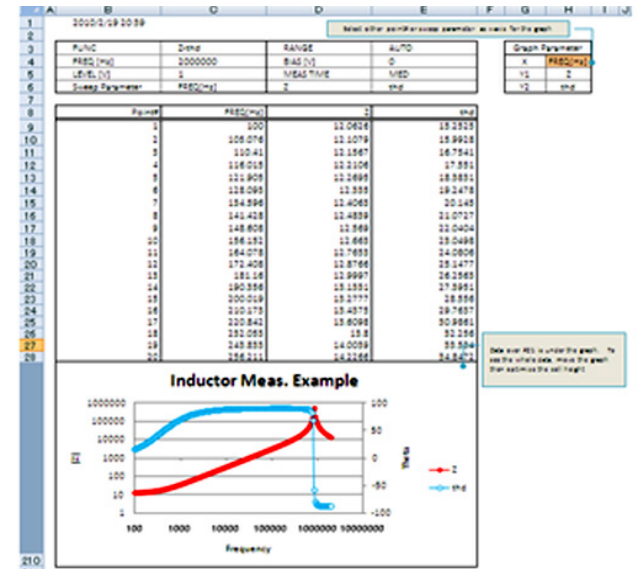f. Press [**Trigger**] front panel key to make measurement

Figure 5. E4980A Data Transfer Program.

By using E4980A Data Transfer Program, measurement data can be easily transferred from the E4980A to a PC (Figure 5). Visit Keysight website to download the program.

www.keysight.com/find/lcrmeters

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