# /E option – Equivalent Circuit Analysis

## 6500B Series Precision Impedance Analyzer

The 6500B Equivalent Circuit Analysis function allows the Device Under Test to be characterised as a 3-element or 4-element model, as well as the standard 2-element Series or Parallel model.

**Auto Mode.** This calculates the equivalent circuit parameters for each element, based on the actual frequency characteristic measurements on the Device Under Test.

**Set Mode.** This displays the calculated frequency characteristics when the user defines the values for each element in a model.

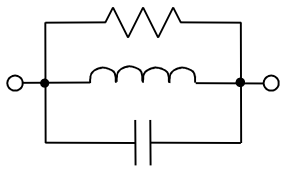
For each mode, changing the type of model updates the results immediately.

### 5 standard models (circuits)

Four 3-element models and one 4-element models are available:

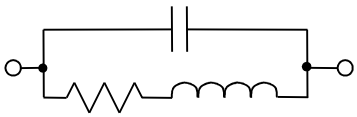
**Circuit 1:**

Typical of a lossy inductor



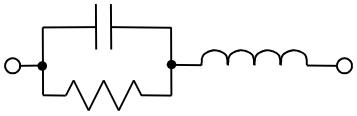
**Circuit 2:**

Typical of a resistor or inductor



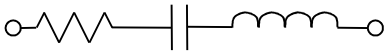
**Circuit 3:**

Typical of a large value resistor



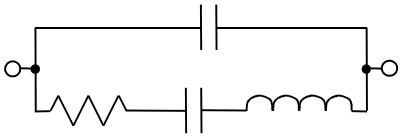
**Circuit 4:**

Typical of a capacitor



**Circuit 5:**

Typical of a resonator



## Auto Mode

The first step is to measure the DUT and display its frequency characteristic. Press **Calc Parms**.

The instrument will then display the "best fit" frequency characteristic and values for each element in the selected circuit model.

The user can then switch between the five models to determine which circuit gives the best 'fit' (correlation) between measured and calculated traces.


*This example shows the measurement traces for a film capacitor and the close fit of the calculated traces using Circuit 4.*

## Set Mode

The first step is to select the required model and then enter values for each element. Press **Calc Parms**.

The instrument will then display the resultant frequency characteristic. This can also be compared against existing measurement traces.

## Installation

This option can be installed on a unit at the time of manufacture, or by the customer after a licence has been emailed to them.