

# Inductance Test

## Introduction

### Inductance

Inductance is ratio between alternating magnetic flux inside and around the wire and the current production of this flux when alternating current flows the wire. Inductance is also known as self-inductance factor, it is just a parameter related to the number of turns, size, shape, and medium coil regardless of the applied current.

### Quality factor

The quality factor (Q) is defined as the ratio of the energy stored in a component to the energy dissipated by the component. Q serves as a measure of a reactance's purity. The higher Q of the coil, the smaller loss of the loop. Q of the coil is affected by DC resistance, dielectric loss of skeleton, shield or core loss, skin effect and so on caused by high-frequency.

## Test System

A variety of equipment meet the spectrum test from 20 Hz to 3 GHz.

Device Name	Impedance analyzer	RF impedance analyzer
Equipment Type	E4990A	E4991A
Frequency Range	20 Hz to 120 MHz	1 MHz to 3 GHz
Basic Accuracy	±0.08%	±0.8%

## Data Output

Spectrum graphics and spectral data can be saved. It is a typical impedance spectrum curve of chip inductors on the right.

