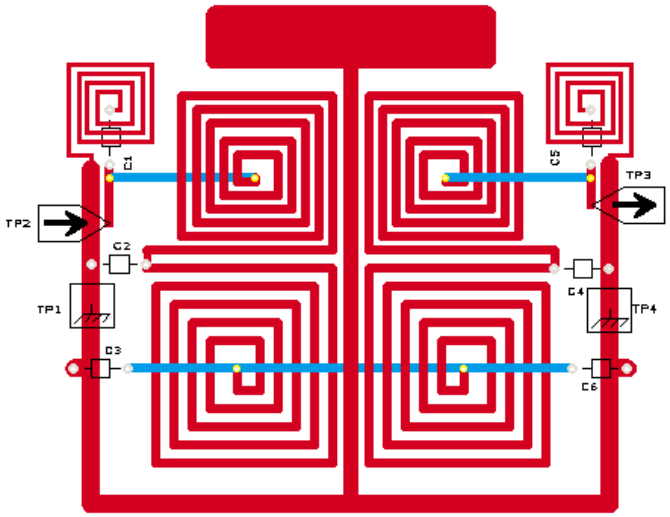
Layan for Windows



Until now, many engineers working in RF design have been unable to reap the rewards of the recent advances in circuit simulation. Even when the theoretical circuit has been simulated, prototypes often fail due to coupling effects between the PCB tracks and pads linking the components.

Electromagetic Simulation

LAYAN is an Electromagnetic simulator which takes the printed circuit board layout information from EASY-PC For Windows and computes the effects of the electrostatic and electromagnetic fields of the metallization pattern. Layan produces a partial element equivalent circuit of the layout including capacitive and inductive couplings, inductance and resistance of the tracks. Layan even allows for skin effect, and dielectric losses. The net list of the Partial element equivalent circuit is automatically combined with the original net list from the schematic and the whole fed into Analyser For Windows for analysis.

'S' Parameters

Where complex PCB structures are involved like stripline filters, couplers, etc. their S-parameters can be saved and then used as a design block within the schematic for phenomenally fast simulations of very complex systems.

The Layan Simulation Engine

The engine at the heart of Layan is based on the results of over 20 man-years work by scientists at Philips Research Laboratories in Redhill Surrey, UK. It is an Electromagnetic Field Solver designed specifically for complex planar structures and making use of numerical analysis based on Integral Methods and the Method of Moments. It is capable of modelling much larger problems than most tools already on the market. It achieves this by running 3D Vector Field Analysis, then reducing Maxwell's field equations to an equivalent set of Kirchoff's network equations. This and other well proven approximations dramatically reduce the computational requirements enabling workstation performance on a PC.

Application Areas

Layan allows accurate simulation of printed couplers, filters, inductors, capacitors, stubs, transformers, transmission lines etc., and is ideal for all analogue, AF, IF, RF and Microwave design verification in any application where the layout itself can have an effect of the performance of the design.

Prerequisites For Using Layan

Layan For Windows works with and requires any Easy-PC For Windows V5 or later.

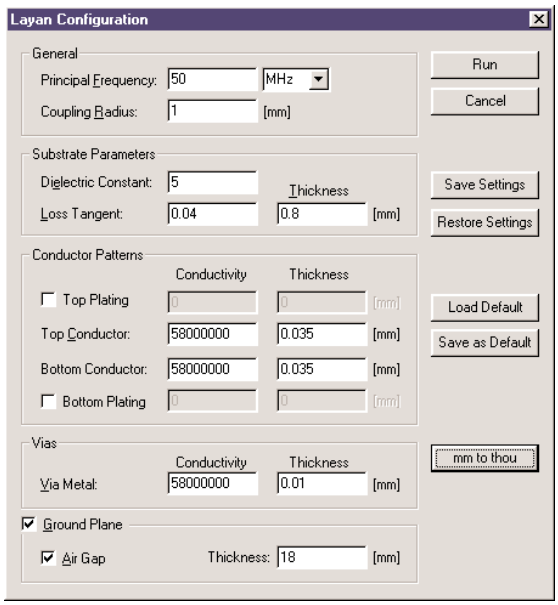
The example above shows a micro strip filter with a band width of ~1.5Ghz at 11Ghz and is constructed from Alumina. It is from the book, Foundations for Microstrip Design by Terry Edwards.

Data Sheet

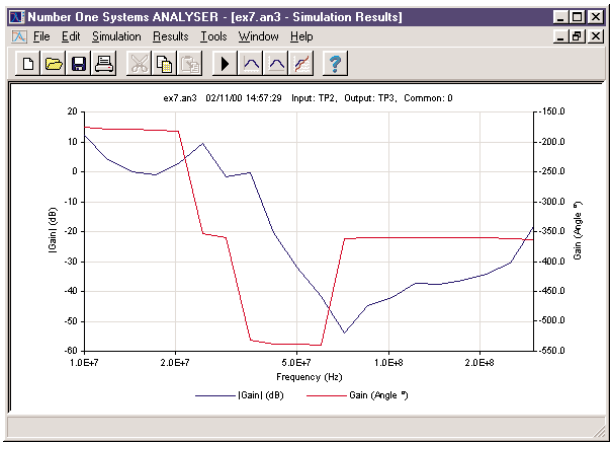
№1 Number One Systems

Features

- Integrated into the Easy-PC For Windows PCB editor
- Supplied with a library of primitive components and symbols
- Extracts layout parasitics:
  Resistance, Capacitance, Inductance, Mutual inductance
- Extracts circuit information from: Tracks, Polygons, Via resistance including skin effect at high frequencies
- Self and mutual inductances
- Capacitances
- Dielectric losses
- Near, far or no ground plane
- 1 or 2 Conductor layers
- Takes into account plated conductors
- Distributed coupling effects
- Transmission line effects
- Models skin effect
- Models loss tangent
- User definable substrate materials, including Printed circuit board, thick film and thin film.
- Layan allows accurate simulation of printed couplers, filters, inductors, capacitors, stubs, transformers, transmission lines, etc. Ideal for all analogue AF, IF, RF and Microwave design verification in any application where the layout itself can have an effect on the performance of the design.
- Layan can dramatically reduce or even eliminate the need for design iterations.
- Excellent for microstrip design and phenomenally fast in operation - often much faster than competitive workstation based software.



Layan is easily set up using some simulation parameters and a straight-forward configuration dialog that details that phyical structure of the PCB.



The results from Layan are displayed in Analyser For Windows, this program is supplied with Layan. Testpoints placed on the PCB are used as reference points to display the results as a waveform.

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