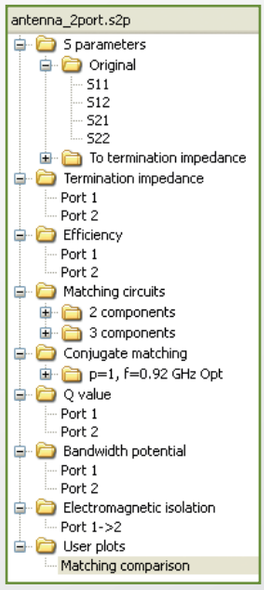
Optenni Lab™

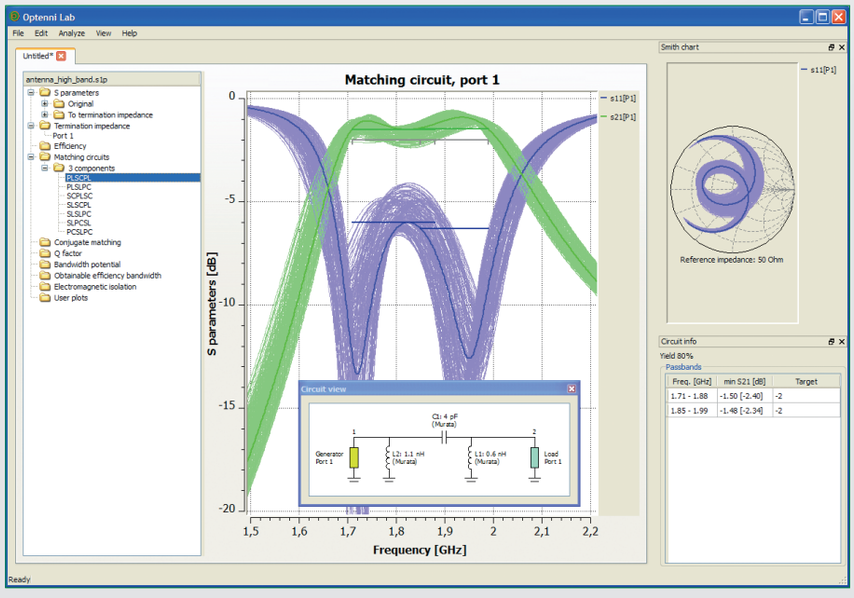
Easy-to-use matching circuit optimisation and antenna analysis software

Optenni Lab is a novel software with innovative analysis features that increases the productivity of antenna designers and speeds up the antenna design process. Optenni Lab offers fast, fully automatic matching circuit optimisation tools, estimation of the obtainable bandwidth of antennas and calculation of the worst-case isolation in multi-antenna systems. With these tools the antenna designer can quickly evaluate various antenna designs and concepts, including multiport antennas and tunable matching circuits. Optenni Lab is very easy to use and does not require specialist knowledge in impedance matching.

MAIN FEATURES

- Fast, fully automatic generation and optimisation of multiband matching circuits for given frequency ranges
- Easy-to-use component library and tolerance analysis
- Simultaneous multiport matching
- Generation of matching circuits for conjugate matching to the termination impedance or maximising the bandwidth around a starting frequency
- Estimation of obtainable antenna bandwidth through matching circuits
- Worst-case isolation calculation for two-port systems using the concept of electromagnetic isolation
- Complex frequency-dependent termination impedances
- Calculation of radiation efficiency from impedance and total efficiency data
- Intuitive user-friendly graphical user interface
- Capacity to save and load project files containing the previously computed results
- Integrated workflow between Optenni Lab and FEKO®
- Link to Microwave Office™





MATCHING CIRCUIT OPTIMISATION

Optenni Lab's multiband matching circuit generation is fast and easy. Just read in the impedance file, select the frequency ranges from a menu, select the number of components in the circuit and press OK. Within seconds, Optenni Lab creates, optimises and ranks a number of circuit topologies. You do not need any impedance matching or circuit simulation skills to use Optenni Lab.

In matching circuit optimisation you can also:

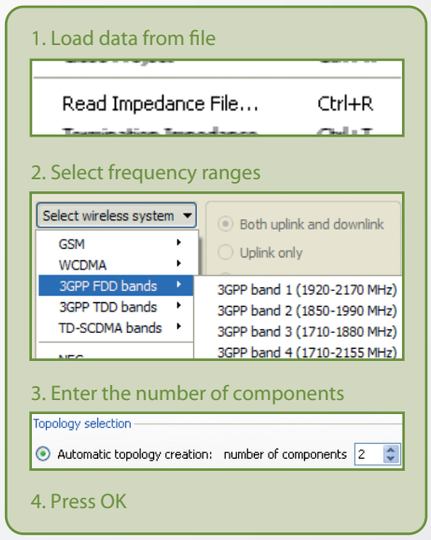
- Take into account losses in matching circuit components
- Use library models of inductors and capacitors from major component manufacturers in the easy-to-use component library
- Verify the sensitivity of matching circuits with respect to component tolerances
- Match multiple ports simultaneously
- Specify stop band criteria for the optimisation
- Set upper and lower limits for the component values
- Specify the topology manually using inductors, capacitors, resistors, transmission lines, library components and 2-port S parameter blocks
- Study tunable S parameter blocks in the S2PMDIF format
- Tune the generated circuits interactively
- Visualise the operation of the matching circuit on the Smith chart at a given frequency
- Import plots as images or text files

ESTIMATING ANTENNA BANDWIDTH

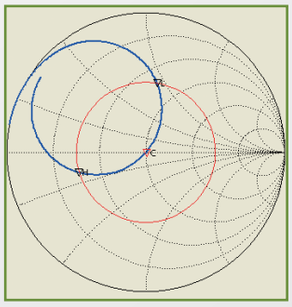
Optenni Lab offers tools for estimating the obtainable bandwidth from antenna impedance curves using the Q-value and bandwidth potential approaches. In the bandwidth potential calculation, Optenni Lab constructs for each frequency a two-component matching circuit and calculates the obtained maximal impedance bandwidth. It repeats the analysis for all frequencies and gives a curve that shows what kinds of bandwidths can be obtained at different frequencies. With the bandwidth potential calculation you can compare differently matched attennas to show which one offers best obtainable bandwidth and verify if the bandwidth is large enough for the desired application.

BENEFITS OF OPTENNI LAB

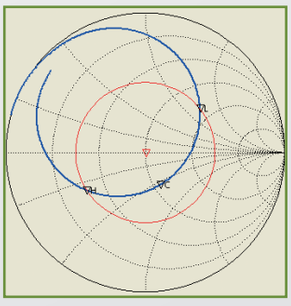
Optenni Lab increases the productivity of antenna designers and speeds up the antenna design process. It has an intuitive graphical user interface and is very easy to learn and to use. With Optenni Lab the antenna designer can quickly evaluate new antenna designs and concepts. Optenni Lab offers many new innovative analysis features not found in other software. It helps the antenna designer to design antennas with optimal total performance.



Optenni Lab Workflow



Matching to 50 Ohms



Matching with optimised symmetric bandwidth

FEKO
Comprehensive Electromagnetic Solutions

Optenni Lab is a product of Optenni Ltd and is available through the global FEKO sales network.

A free 30 day evaluation version of Optenni Lab is available on our website.