



MiG Microwave Innovation Group

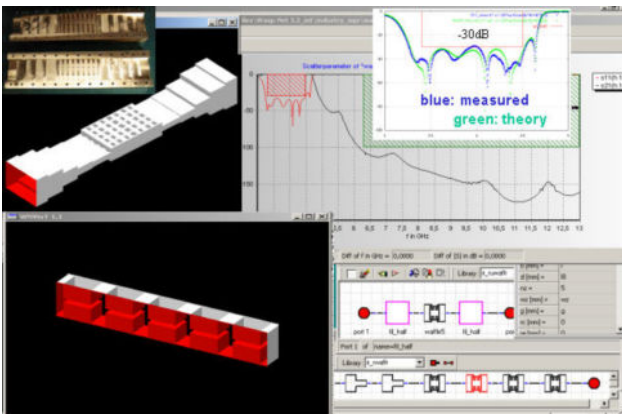
WASP-NET®

Pioneer of a New Era in Fast EM CAD and Optimization: Hybrid MM/FE/MoM/FD Technique

The High-Speed Exact Hybrid Electromagnetics (EM) Based CAD and Optimization Software for Waveguide, Coax, Combine and Antenna Components

Since more than fifteen years successfully applied by leading space-, wireless-communication- and microwave-companies to reduce design time drastically

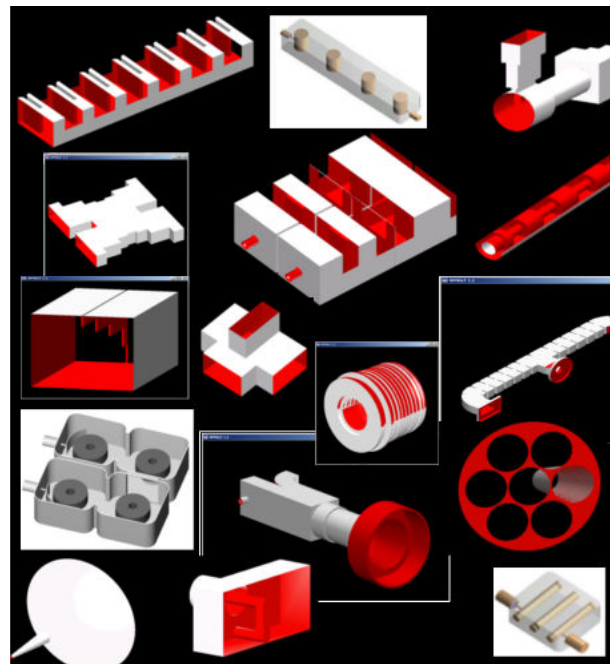
Four Solvers in one CAD Tool



APPLICATION RANGES

Fast exact CAD and optimization of waveguide components, coax components, combine / interdigital filters, aperture antennas.

Based on the new hybrid MM/FE/MoM/FD method, WASP-NET® combines the high speed of the analytic mode-matching (MM) method with the flexibility of the space discretization finite-element (FE), method-of-moment (MoM), and finite-difference (FD) techniques. WASP-Net is tailored for the fast CAD and optimization of microwave components and aperture antennas.



CAD and optimization examples include:

- **Filters** (waveguide, combine, interdigital, coaxial, dual-mode, evanescent-mode, corrugated, waffle-iron, ridged waveguide, dielectric resonator, folded, cross-coupled filters, etc.)
- **Diplexers, Multiplexers**
- **Couplers**
- **Polarizers**
- **Phase Shifters**
- **Ortho-Mode-Transducers**
- **Transformers**
- **Transitions**
- **Horn Antennas, Horn Clusters, Slot Arrays**
- **Feed-Networks**
- **Compensated Bends**
- **Hybrid Junctions, also compensated**



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General Features

WASP-NET® - serving for over ten years the leaders in international space-, communication- and microwave-industry to cut design time drastically - features a unique comprehensive hybrid EM CAD software: Combining intelligently *mode-matching (MM)* / *finite-element (FE)*, *method-of-moment (MoM)*, and *finite-difference (FD)* methods, thus using advantages of all four field solvers in one single CAD tool: Efficiency of the MM – flexibility of the FE, MoM, FD methods.

WASP-NET includes a user-friendly filter synthesis wizard for the fast full-wave filter synthesis.

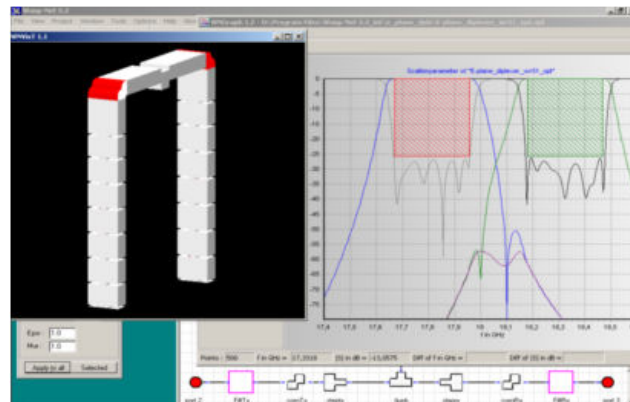
WASP-NET utilizes three powerful optimizers, by which also toughest component specs can be met within shortest optimization time. The efficient evolution strategy optimizer is capable to find the global minimum.

WASP-NET is embedded in a user-friendly graphical user interface, which guides the user to intuitively create designs. Help buttons, immediate graphical visualization of the layout, template wizards, online help, quick start and tutorial manuals, and an extensive pool of typical design examples help to quickly design even complicated components within shortest time dimensions.

WASP-NET – see cover feature article, *Microwave Journal*, September 2002



WASP-NET CAD and optimization example: WR-62 E-plane septated T-junction coupled diplexer with compensated corners



The unquestioned advantage of **WASP-NET's** comprehensive hybrid approach lies in the immanent opportunity to counter the well known struggle with limitations of the more common utilizing of single or restricted number of methods

About MIG:



WASP-Net 's top efficiency is based on more than 25 years of renowned research in advanced computational electromagnetics in cooperation with the University of Bremen, Germany



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