

SynMatrix

An all-in-one platform for RF filter design, optimization, and manufacturing tuning

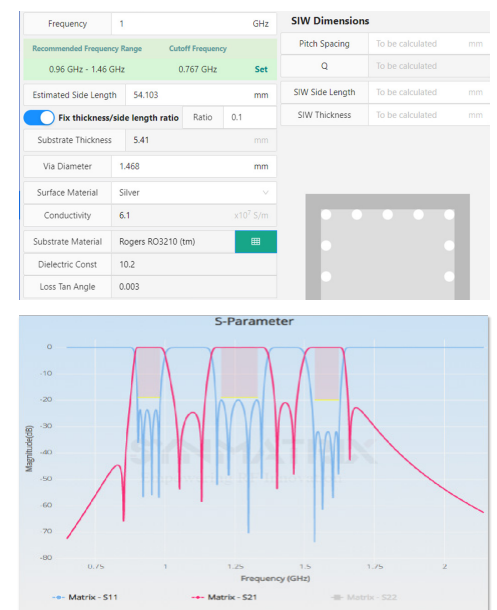
Making it easier to get to market faster.

SynMatrix offers a comprehensive filter design and test tuning platform to help accelerate R&D cycle time, enable diagnostics analysis, and improve the manufacturing RF tuning process.

Specification Analysis	Optimization
<ul style="list-style-type: none"> Design matrix synthesis Topology analysis Dispersive effect prediction Diplexer and triplexer support 	<ul style="list-style-type: none"> Computer-aided tuning and diagnostics analysis AI optimization and space mapping with Ansys HFSS integration automation
Automatic 3D Model Generation	Manufacturing Tuning
<ul style="list-style-type: none"> Single resonator modelling and analysis Peak power and temperature drift analysis Adjacent and input/output coupling modelling and analysis Fully parameterized 3D modelling generation for RF filters 	<ul style="list-style-type: none"> Real-time tuning with VNA control from a single GUI Time domain tuning Integrated design and manufacturing user experience Diagnostics workflow for debugging and analysis

Benefits

- Reduce engineering design time with automatic 3D generation and optimization workflows
- Reduce R&D costs, eliminate prototype builds, and improve time to market
- Accelerate filter diagnostic processes with comprehensive tools and functions
- Eliminate specialized, expensive labour and accelerate technician training with a GUI-based tuning tool
- Improve manufacturing throughput, quality, and yield with real-time tuning
- Designed using first principles, offering better design customization capabilities compared to template-only based systems



Why SynMatrix?

- One platform.** Design and manufacture using one end-to-end tool.
- Automated HFSS workflows.** Automatic AI optimization and 3D model generation.
- Real-time test and tuning.** Simplified test tuning workflow with complete VNA control integration
- Powerful synthesis and CAT functions.** One of the most comprehensive filter design platforms in the industry.
- Future proof your investment.** Based on first principles methods, get better design customization for future design requirements



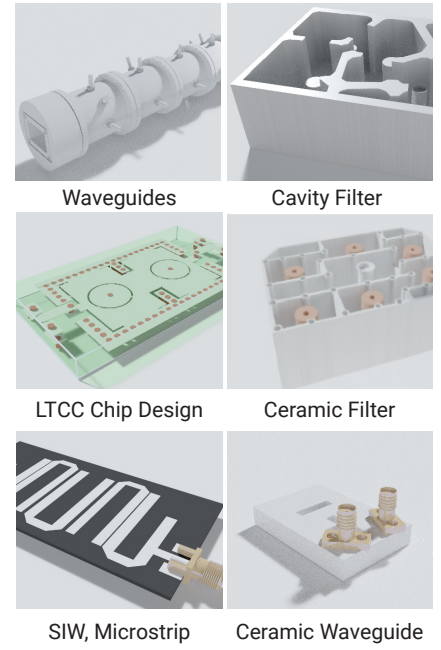
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Specifications and Features

SynMatrix can be used to design filters across many different industries including telecommunications, space exploration, medical and military applications:

Very High Frequency	L and S Band	mm-Wave Application
<ul style="list-style-type: none"> • Ground-Aircraft, Aircraft-Aircraft Communications • Marine and mobile radio telephony 	<ul style="list-style-type: none"> • Mobile Phones • GPS • Radio Astronomy 	<ul style="list-style-type: none"> • Communication satellites, Satellite TV broadcasting • 5G Network • Military and Aerospace

<p>Specification Analysis</p>	<ul style="list-style-type: none"> • Bandpass, bandstop, low pass, and multi-band filter synthesis • Diplexer and triplexer support • Yield and Monte Carlo Analysis • Comprehensive topology library • Matrix sensitivity analysis • Arbitrary topology optimization
<p>3D Model Generation</p>	<ul style="list-style-type: none"> • One-click 3D model gen in Ansys HFSS • Cavity, waveguide, & SIW support • Dimension analysis • Peak power and temperature drift analysis • Support for several resonators, I/O schemes • Frequency and Q analysis
<p>Optimization</p>	<ul style="list-style-type: none"> • Advanced computer-aided tuning • Advanced coupling matrix extraction <ul style="list-style-type: none"> • Two-port and multi-port tuning, time-domain diagnostics • AI-optimization and space mapping • Perturbation System • Custom optimization mode • Dispersive effects simulator • Precise extraction and control
<p>Test and Measurement</p>	<ul style="list-style-type: none"> • Fast, accurate, real-time tuning • Plug and Play VNA set up • Manual and real-time modes • Time domain tuning function • Support for R&S, Keysight, Copper Mountain VNAs



Contact us

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