



FIMMWAVE/FIMMPROP , version 5.2

Feature/Option Table (CFG3)

Feature	Base	Complex Engine	Fimmprop (Opt05)	Cylindrical Solvers (Opt06)	Thermal/EO Module (Opt07)	Stress Solver	FEM Solver (Opt 08)
FMM Mode Solver - real, rectangular geometry index profiles	☑						
FMM Mode Solver - complex rectangular geometry index profiles		☑					
FDM Mode Solver - real, arbitrary geometry index profiles, diagonal anisotropic dielectric tensor	☑						
FDM Mode Solver - complex, arbitrary geometry index profiles, diagonal anisotropic dielectric tensor		☑					
FEM Mode Solver - real, arbitrary geometry index profiles, general anisotropic dielectric tensor							☑
FEM Mode Solver - complex, arbitrary geometry index profiles, general anisotropic dielectric tensor		☑ (with Opt08)					
Effective Index Solver - real, rectangular geometry index profiles	☑						
Effective Index Solver - complex, rectangular geometry index profiles		☑					
Scalar mode solver for step-index fibre	☑			☑			
Gaussian mode solver for fibre geometries	☑			☑			
General Fibre Solver – arbitrary radial profile $N_e(r)$, circularly symmetric, real index				☑			
FDM Fibre Solver – arbitrary radial profile $N_e(r)$, circularly symmetric, real index				☑			
FDM Fibre Solver – arbitrary radial profile $N_e(r)$, circularly symmetric, complex index		☑ (with Opt06)					
Far-field Calculator	☑						

Efficient free-space propagation (waveguide-gap-waveguide geometry in FIMMPROP)			<input checked="" type="checkbox"/>				
Bi-directional optical propagation			<input checked="" type="checkbox"/>				
Reflections due to coatings			<input checked="" type="checkbox"/>				
Propagation due to arbitrary beam input			<input checked="" type="checkbox"/>				
Propagation with absorbing computational boundaries		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Propagation in the presence of strongly absorbing regions (e.g. metals)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Heat flow calculation using 2D Poisson Solver, effect of heating on modes.					<input checked="" type="checkbox"/>		
Electro-optic effect simulation with 2D anisotropic Poisson Solver, effect of E-field on modes. E.g. for design of EO switches					<input checked="" type="checkbox"/>		
Effects of stress on modes and propagation						<input checked="" type="checkbox"/>	
Rectangular Geometry Waveguides	<input checked="" type="checkbox"/>						
Cylindrical Geometry Waveguides	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			
Geometrical Shapes Waveguides (ellipses, rectangles and polygons)	<input checked="" type="checkbox"/>						

Feature	FMM Solver	FDM Solver	FEM Solver	Eff. Index Solver	General Fibre Solver (real solver only)	FDM Fibre Solver
Rectangular Geometry Waveguides	✓✓✓	✓✓✓	✓✓✓	✓✓		
Cylindrical Geometry Waveguides – arbitrary Ne(r)	✓	✓	✓✓		✓✓✓	✓✓✓
Geometrical Shapes Waveguides (ellipses, rectangles and polygons)	✓	✓✓	✓✓✓	✓		
Graded index waveguides including diffused waveguides	✓	✓✓✓	✓✓✓	✓✓	✓✓	✓✓
Anisotropic refractive index	✓✓	✓✓	✓✓			
Metals, gainy or absorbing waveguides (with Complex Engine option)	✓✓	✓✓✓	✓✓✓	✓✓		✓✓✓
Compatibility with FIMMPROP	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Periodic boundary conditions	✓✓✓	✓✓✓		✓✓✓		
Metal/Magnetic wall boundary conditions	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Transparent boundary conditions (with Complex Engine option)	✓✓	✓✓			✓✓	
PML boundary conditions (with Complex Engine option)	✓✓	✓✓✓	✓✓	✓✓		✓✓
Bend Modes	✓✓✓	✓✓	✓✓			
Very thin layers	✓✓✓	✓✓	✓✓	✓✓✓	✓✓✓ (radial)	✓✓✓ (radial)

KEY	FMM Solver
✓✓✓	Fully supported – best performance
✓✓	Fully supported – fair performance
✓	Some capability, but not the most accurate or recommended use