AXIEM
3D Planar Electromagnetic Analysis Software
The NI AWR Story
Since AWR (acquired by NI in 2011) was founded, our mission has been simple: to improve design productivity with a superior use model that streamlines complex tasks. As such, AXIEM 3D planar electromagnetic (EM) analysis software is a valuable addition to the NI AWR Design Environment™. Whether you’re characterizing and optimizing passive components on ICs, RF printed circuit boards (PCBs), or modules, as well as interconnect, or integrated antennas, the accuracy, capacity, and speed of AXIEM save design cycles, time, and money.

The Advantage
One Integrated Workflow: By being fully integrated in the NI AWR Design Environment framework, you gain 3D EM power with Microwave Office efficiency. This helps you concentrate on designing and improving product performance rather than migrating and managing the flow of data between disparate tools.

Accuracy: For maximum accuracy with minimum simulation time, the AXIEM Method of Moments (MoM) solver is fast, accurate, and efficient for typical microwave/RF circuit designs.

Flexibility: With the AWR EXTRACT flow, you can use one or all of the EM solver technologies offered by AWR or through third-party relationships. This gives you the accessibility and flexibility to use the most appropriate technique for the current state of the design.

### Software Capabilities
- Schematic-driven EM
- Layout/drawing editor
- Automatic and adaptive meshing
- Discrete and fast-frequency sweeps
- Visualization and post-processing

### Common Applications
- On-chip passive components
- IC, RF PCB, module, and packaging interconnect
- Antenna and antenna arrays

The NI AWR Design Environment encompasses all of the tools and technologies necessary to realize today’s high-frequency components, circuits, and systems. AXIEM is a key technology within this product portfolio to enable 3D planar electromagnetic extraction.
AXIEM Applications

On-Chip Passives
Characterize passive circuitry in MMICs and RFICs that range from interdigitated capacitors to spiral inductors quickly and easily with AXIEM. It not only accurately captures circuit response in the form of S-parameters but also visually displays current densities and other parameters. AXIEM can solve designs an order of magnitude more complex than other MoM point tools, so you can simulate all passive circuits in a MMIC or RFIC.

Board/Module Interconnects
AXIEM helps you analyze your 3D planar interconnects within the RF circuit board or all throughout the module. It accurately captures the coupling and parasitic effects of stripline, microstrip, and vias, thereby streamlining EM analysis from within the Microwave Office environment.

Antennas
For antennas, AXIEM is an excellent choice for the analysis and post-processing of both planar antennas and planar arrays. With fast N*Log(N) solver technology, you can analyze large, complex arrays that were previously impractical to simulate in their entirety. Post-processing capabilities include the ability to show not only the currents on antennas but also 2D and 3D far-field antenna pattern measurements for linear, circular, and elliptical polarizations.

“We chose AXIEM because of its speed, capacity, and accuracy. It enabled us to shorten our design process. AXIEM helped us deliver a higher performing antenna product in less time while reducing design and manufacturing costs.”

– Shinichi Goto, Design Manager, Antenna & Media Division, Toshiba
Expand the Breadth and Depth of Your Design Environment

The NI AWR Design Environment consists of a comprehensive software product portfolio that offers a variety of high-frequency design environments that embrace system simulation, circuit simulation, and electromagnetic analysis.

**Microwave Office**
The most comprehensive software solution for designing all types of RF and microwave circuits, from integrated microwave assemblies to MMICs.

**AXIEM**
Characterize and optimize passive components on RF PCBs, modules, LTCCs, MMICs, RFICs, or antennas.

**Visual System Simulator™**
A complete software suite that enables engineers to design system architecture and formulate suitable specifications for underlying components.

**Analog Office**
Capture, synthesize, simulate, optimize, lay out, extract, and verify RFIC and analog designs from the system level through to final tape-out.

**Analyst™**
Powerful 3D FEM EM simulation and analysis software that lets you move from circuit concept to full 3D EM verification in an instant.

Visit awrcorp.com/whatsnew for a complete list of features found in the current version of the NI AWR Design Environment.