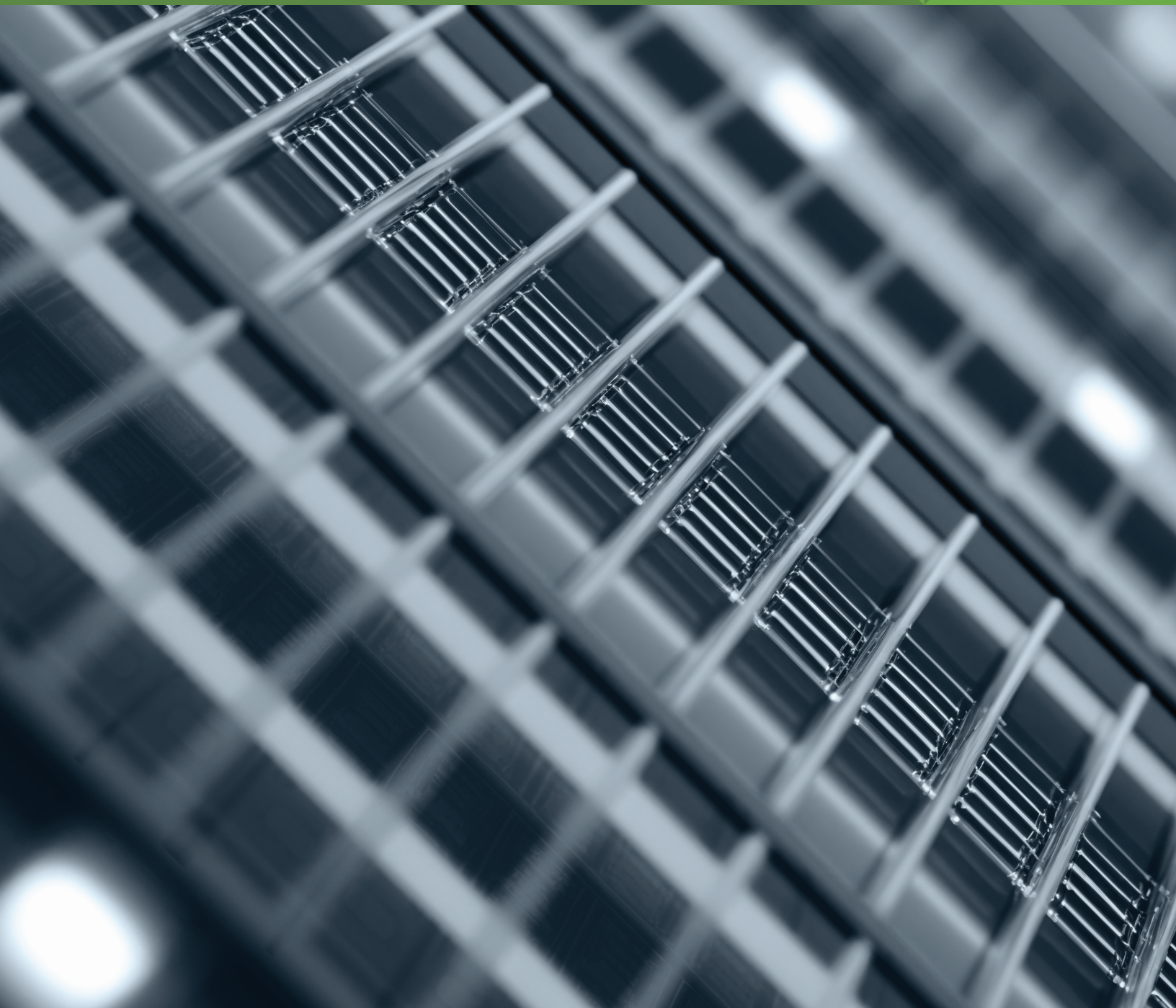


NAVX™ MATCHING NETWORK

ULTRAFAST, RF-SYNCHRONIZED TUNING
TO MULTI-LEVEL PULSE STATES





Tuning Within Multiple Pulse States

NavX™ Matching Network

Innovate beyond the nanometer. The NavX™ matching network redefines tuning speed, sophistication, and RF synchronization for exacting plasma control across the most complex pulsing profiles.

Groundbreaking Advanced Selectable Tuning controls allow accelerated analysis for impedance matching to your chosen number of process pulse states. This proprietary algorithm instantly reduces reflected power in processes with shorter RF on times. Paired with the eVerest™ RF generator, the NavX matching network completes AE's latest RF delivery system, enabling unparalleled control of plasma characteristics as the industry sets its sights on Angstrom scale geometries.

Together, the NavX matching network and eVerest RF generator empower process innovation at the limits of physics and chemistry. Direct match-generator communication and AE's proprietary Velocity Tuning algorithm optimize hardware response speed for pulse sequences, while critical process power and impedance measurements are available via EtherCAT communication.

BENEFITS

- Enhanced repeatability, yield, and throughput
- Tight control of plasma characteristics
- Increased process parameter customization
- Optimized response speed for control during rapid pulse sequences
- Expanded access to new energy regimes through scalable pulse states
- Increased uptime and productivity

FEATURES

- Advanced Selectable Tuning: single or multiple pulse state tuning
- eVerest RF generator communication and synchronization
- Critical process power and impedance measurement
- Improved sensor calibration
- Faster tuning/matching response time
- Sweep-frequency operation
- Intermodulation distortion (IMD) immunity for multi-frequency applications

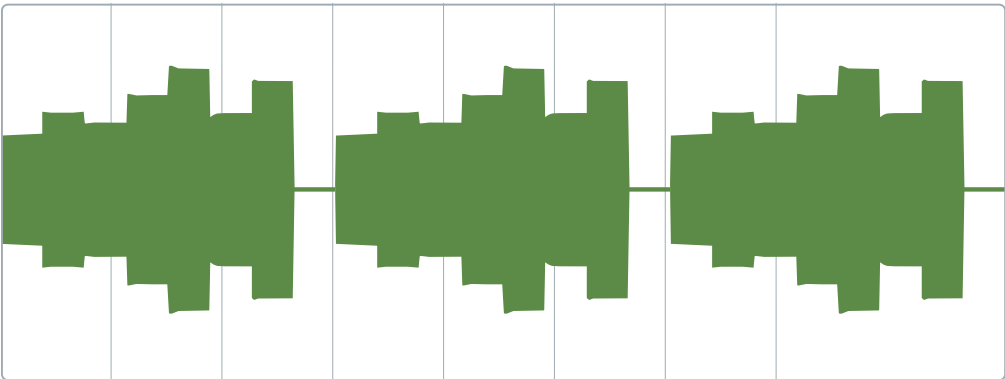
APPLICATIONS

- Etch
- PECVD
- PVD
- Chamber Clean
- HDP-CVD

MARKETS

- Semiconductor
- Solar
- Flat Panel Display
- MEMs
- Industrial Coatings

Speed and Control within Programmable Pulse Profiles



Dynamically control multi-level pulsing.

Access new energy regimes and distributions.

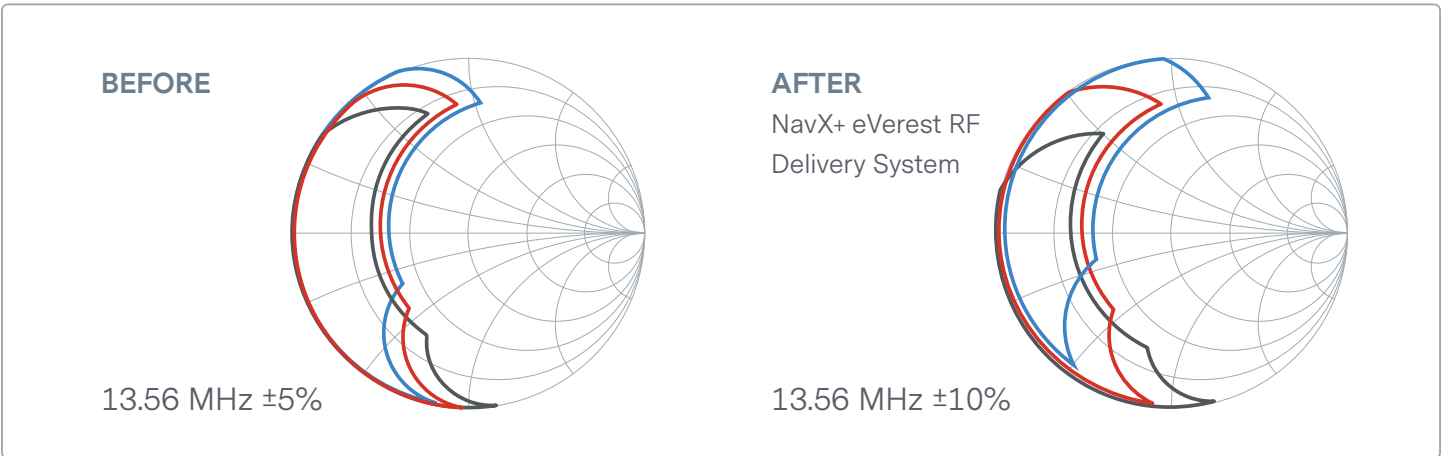
Low Reflected Power in Pulsed RF Steps



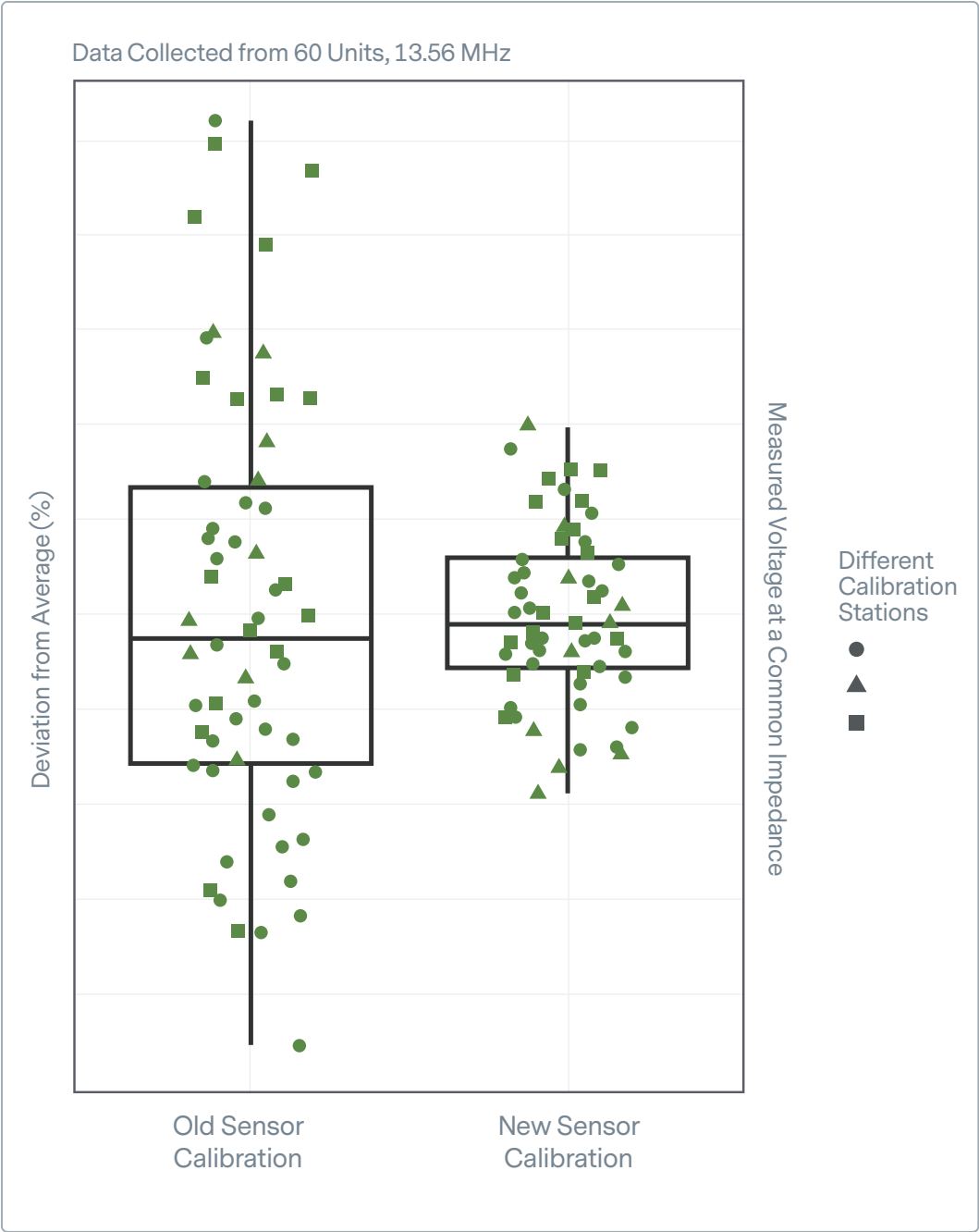
Advanced Selectable Tuning enables impedance matching to one or more states.

Select single or multiple state tuning.

Frequency vs. Tuning Range



Enhanced Repeatability

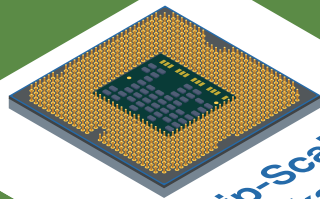


Improve process control and precision.

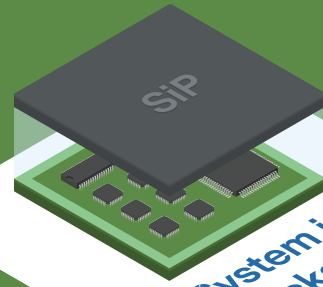
New sensor calibration minimizes unit-to-unit deviation for better repeatability.

Over 20 Years of Full RF Systems

Advanced Energy has offered full RF delivery systems for over 20 years, with multiple options for matching solutions and intelligent SyncTech™ synchronization.



Chip-Scale Package



System in Package

RF Plasma Generators



RFG
Digital/Analog



APEX®
Digital/Analog

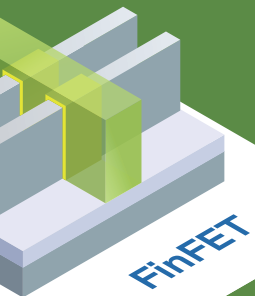
RF Match Networks



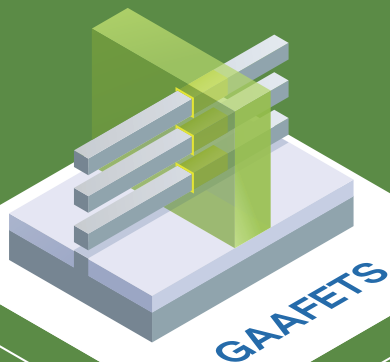
Navigator®
All Digital



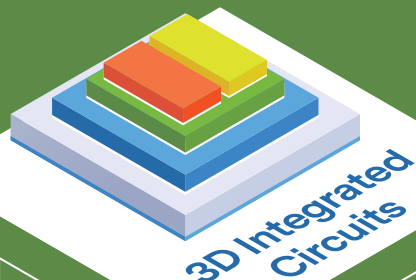
Navigator®
All Digital



FinFET



GAAFETs



3D Integrated Circuits



Paramount®
Higher Density



Paramount®+
Digital Control



eVos™
Tunable Ion Energy



eVerest™
Accelerated Digital Control



Navigator® II
Model-Based



Navigator® II
Model-Based



NavX™ Matching Network
MLP Tuning
In-State Pulse Tuning

Specifications

Electrical Specifications	
Match Types	Single Frequency Dual Frequency
Available Matching Topologies	L match, T match, design per customer's tune range requirements
Frequency Range	1 to 60 MHz
Current Range	0.1 to 150 A, design per customer's requirements
Voltage Range	1 to 10 kVpk, design per customer's requirements
RF Output Power Range	1 to 10 kW
Communication Interface	Serial (RS-232) EtherCAT Ethernet
Pulsing State Time	11 μsec to 250 msec

Mechanical Specifications	
Dimensions	Design per customer's requirements
Weight	Design per customer's requirements
Cooling	Air, water
RF Input Connector	Design per customer's requirements (HN, 7/16)
DC Input Connector	Design per customer's requirements (7 Pin, 9 Pin)
Primary Output Connector	Design per customer's requirements (B20N)
Interlock Requirement	Provided default for system readiness

Complete RF Delivery System



eVerest™
RF Generator



NavX™ Impedance
Matching Network





For international contact information,
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+1 970 221 0108

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than four decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE | TRUST

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