

# CTS-4

## Multi-state RF Module Test Platform

*Speed, Accuracy, Flexibility and Ease-of-Use come together in the Industry's Best-Performing System*

**Eljay Microwave's Fourth Generation Component Test System:**  
**A tailored system that's ready for today, poised for tomorrow**

Eljay's automated test system balances technical requirements with everyday business demands by ensuring exact results of hundreds—if not thousands—of complex RF measurements during each series of test sequences.



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### CTS-4: Speed

Meeting the ever-expanding requirements of engineering, yet fast enough for automated manufacturing production, Eljay CTS-4 strikes the perfect balance of flexibility and speed without sacrificing accuracy. Eljay CTS-4 leverages the newest available components and Eljay's fourth generation measurement software. The result, a state-of-the-art system built for complex, multi-state device testing—such as T/R chips and modules—that measures every device under every user condition with unsurpassed accuracy.



CTS-4 systems feature the latest technology and equipment, such as the Keysight PNA-X and PXA

### CTS-4: Accuracy

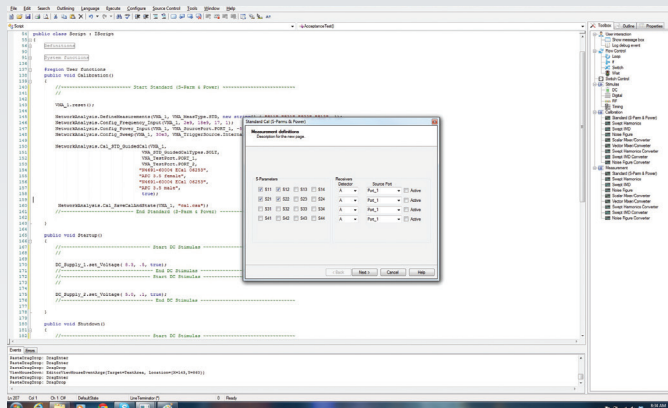
Based on the latest advanced equipment from Keysight Technologies™ and National Instruments™, Eljay CTS-4 delivers measurements that are precise and efficient. By combining Eljay's software expertise with the performance of Keysight's PNA-X and PXA, Eljay CTS-4 is fast, user-friendly, and unparalleled in measurement accuracy.

### CTS-4: Flexibility

Designed for maximum configuration and test measurement flexibility, the System's agile and scalable architecture delivers high-speed, high-volume microwave and millimeter-wave measurement capabilities while providing frequency coverage from 10 MHz to 50 GHz.

For added flexibility, Eljay CTS-4 also features:

- Front panel control for manual measurements
- Four RF test ports
- Optional high-power capabilities
- Fast, repeatable, reliable, and stable measurement algorithms



Easily script even the most complex measurement processes with WIDE software

### CTS-4: Ease-of-Use

Eljay WIDE (Wizard-based Integrated Development Environment) makes even the most complex measurement processes easy to script, eliminating the requirement for specialized programmers. The extensive range of intuitive measurement and control wizards empowers all users—even those without coding skills—to build professional, accurate test routines. WIDE software enables users to quickly and easily create sophisticated, interactive test scripts that can run as standalone programs.

### CTS-4: A+ Team and Worldwide Support

RF measurement specialists and system designers are Eljay's first line of communication for developing and supporting all Eljay CTS-4 systems. When treated as a member of the customer's development and production teams, Eljay's team of RF specialists helps deliver the best quality product in the most time- and cost-efficient manner.

Of course, there will always be a time when factory assistance is required, and when that time comes, service needs to be accessible, fast, simple, and complete. Eljay's Custom Systems Group is dedicated to exceeding customer satisfaction expectations. Leveraging decades of experience in delivering and supporting systems deployed throughout the world, Eljay customizes support programs to meet even the most demanding customer requirements.

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### High-frequency applications demand high performance

Aerospace/defense and communications markets are forecasting large growth over the next decade. This growth, driven significantly by new developments in land-, air-, and sea-based radar systems, demands more bandwidth and high-speed information transmission. To lead the market, high-frequency module and MMIC manufacturers must deliver cost-effective components as quickly as possible while maintaining the highest quality and performance. Critical components of increasing complexity, frequency, and capability are deployed in today's satellite arrays, point-to-point radios, multi-function MMICs, and radar T/R modules. All require full testing prior to shipment, and Eljay CTS-4 supports that requirement.

### Module development or high-throughput production agility

Ready to test a few devices with numerous measurements, many devices with a few measurements, or thousands of devices with thousands of measurements, Eljay CTS-4 is the right choice. The System has all the essential tools and flexibility for building complex test sequences required for product and process improvement while maintaining the power for optimizing manufacturing production throughput. As a production test system, Eljay CTS-4 lowers the cost-of-test by delivering high-speed, complex measurement results.

### A tailored system that's ready for today, poised for tomorrow

Eljay CTS-4 is capable of making a broad range of CW and pulsed microwave measurements from 10 MHz to 50 GHz on both linear and frequency-translating devices.

Basic test capabilities of Eljay CTS-4 include:

- S-parameters (Mag/Ph), CW and pulsed
- DC voltage and current, CW and pulsed
- Tuned power incident and output
- Gain (linear and conversion)
- Gain compression (1, 3, 5 dB)
- Gain flatness
- Efficiency
- Harmonics
- Total harmonic distortion
- Spurious signals (in-band, out-of-band, known, unknown)
- Higher order intercept points
- RF pulse profile
- DC pulse profile
- Pulse droop (Mag/Ph)
- Noise figure (vector corrected and cold noise)
- Frequency-translation measurements
- Extendable to include digitally modulated RF measurements, such as EVM and Envelope-Tracking measurements

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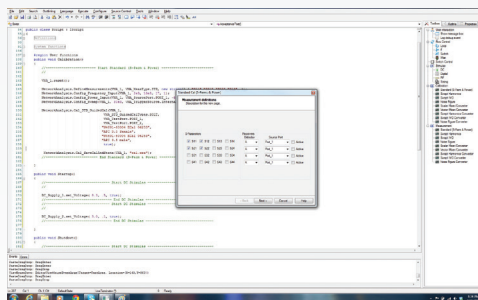
Eljay CTS-4 is designed to be customized and optimized for each customer's needs. Eljay's RF measurement specialists and system designers work closely with each customer to ensure the delivered system meets all measurement and performance requirements. Often, the Eljay team will suggest enhancements to the customer's process by leveraging the team's deep history and experience in delivering leading-edge, multi-state RF module test systems.

**System Architecture:** Eljay integrates the latest in advanced technology from component suppliers to build the core of the System. By leveraging the strengths of vendors such as Keysight Technologies, National Instruments, and Eljay's own sub-systems, the foundation of the Eljay CTS-4 is poised for optimization. Each System is designed and integrated based on end-user measurement requirements and careful consideration is taken to not only meet the customer's measurement demands of today, but to anticipate their needs of tomorrow.

**System DUT Control:** Featuring analog or digital DUT control, Eljay CTS-4 provides synchronous DUT control to align measurement triggers with DUT states in a hardware handshake mode. For digital control, Eljay CTS-4 may be configured for as many as 32-bit parallel or serial lines at clock rates up to 200 MHz. For analog control, Eljay CTS-4 may be configured with up to 16 DAC stimulus lines, each capable of  $\pm 10$  V (20 mA). Additionally, 32 digital receive channels are provided for DUT response—each capable of measuring up to 10 V.

**Software Description:** Eljay CTS-4 provides open software architecture designed to support today's growing volume of measurements in production environments while allowing future process improvements, expansion, and upgradeability. The software runs under Microsoft® Windows 8® and 7® operating systems on a PC workstation. If desired, a complete and documented low-level API can be utilized for hardware control.

The Windows operating system provides strong support for existing LAN infrastructures, allowing off-line test plan development, as well as simple access to production data for full off-line statistical data analysis. Standard data formats are available in CSV (comma separated values), Microsoft Excel®, and S2P files. Specific data translators can be developed to meet unique requirements.



WIDE software enables users to run custom code as part of the test script

