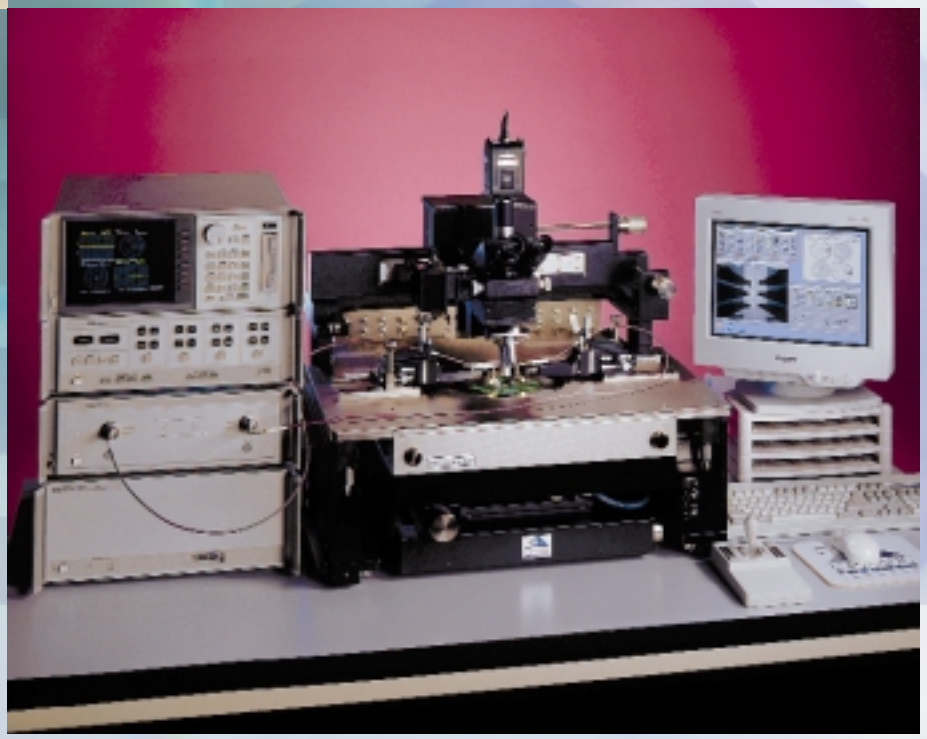




Complete RF/Microwave probing stations for every application

Because accurate device modeling and functional test begin with accurate measurements, start your measurement process with Cascade Microtech's Summit line of RF/Microwave probing systems. Only Cascade Microtech offers the precision tools you need for a complete custom probing solution.

CASCADE® MICROTECH

Innovating Test Technologies

With the Summit Series of Microwave and RF Probe Stations you get not only precision tools (state-of-the-art stations, software, positioners, and probes), but the most experienced test engineers, applications support, and research team in the industry to help ensure your success.

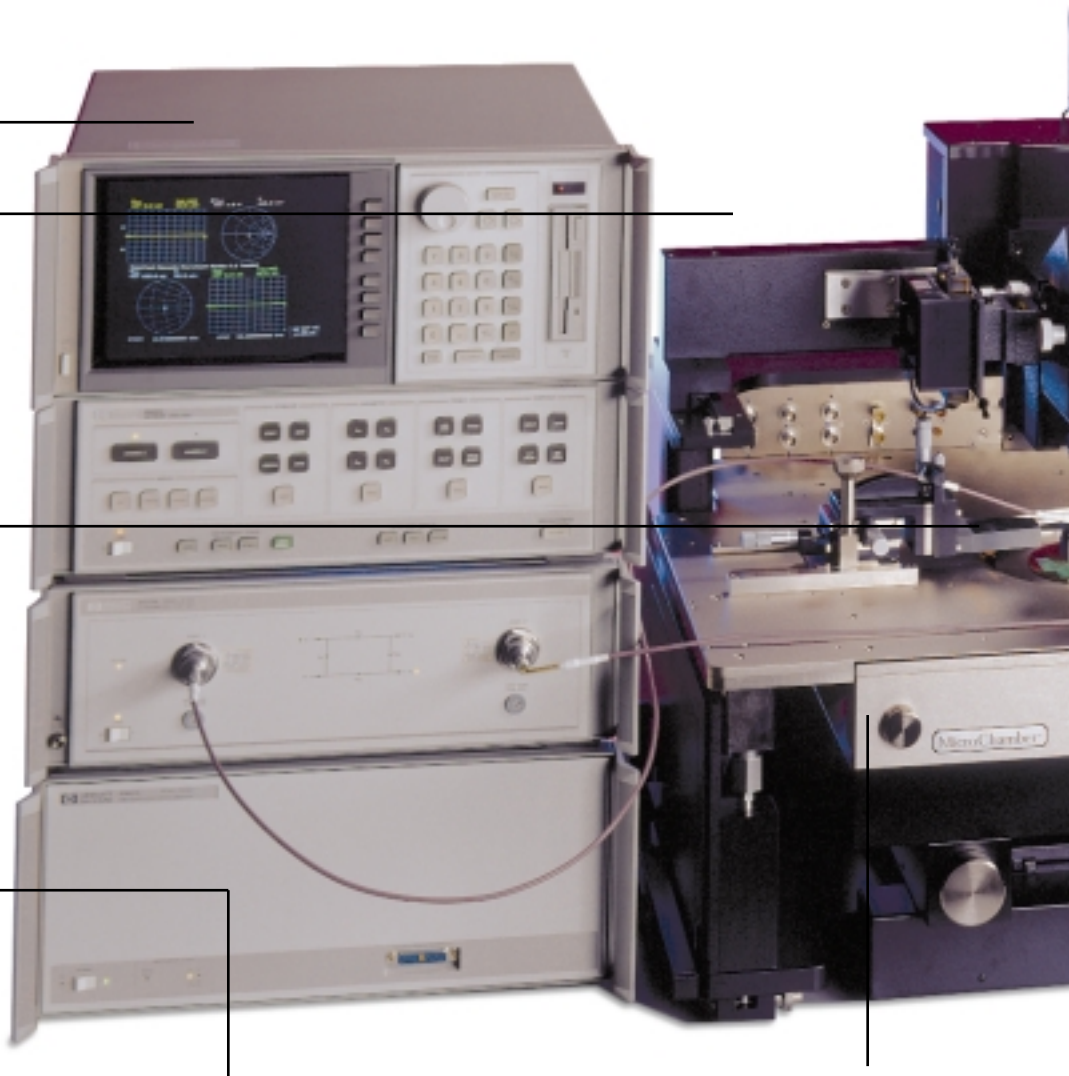
Fully compatible with Agilent Technologies test instrumentation
Our close association with Agilent ensures that the full potential of your test instruments now extends right to the probe tips

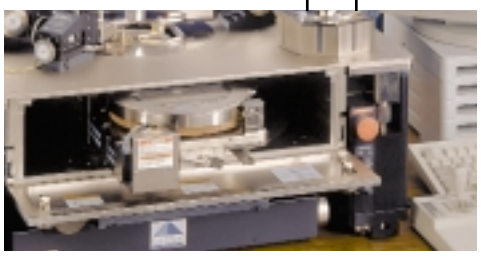
Sturdy optics bridge mount
With 100 x 127 mm (8 in. x 5 in.) travel for analytical microscopes

Patented high performance ACP-Series probes
Highly compliant, low-loss, durable, reliable family of microwave probes provide superior test performance

Safely load and unload DUTs
Access to DUT provided with easy-to-open interlock-ready door with locking roll-out stage

Quick access to calibration standards
Two auxiliary stages with separate vacuum control incorporated into the chuck provide quick access to ISSs for VNA calibrations and verifications





Integrated thermal system
Fully integrated thermal chuck heats or cools your test devices, not your calibration standards

Patented MicroChamber®
Chuck enclosure ensures light-tight, EMI-protected measurements, eliminates dark box, making over-temperature measurements easy

Agilent Technologies
Innovating the HP Way

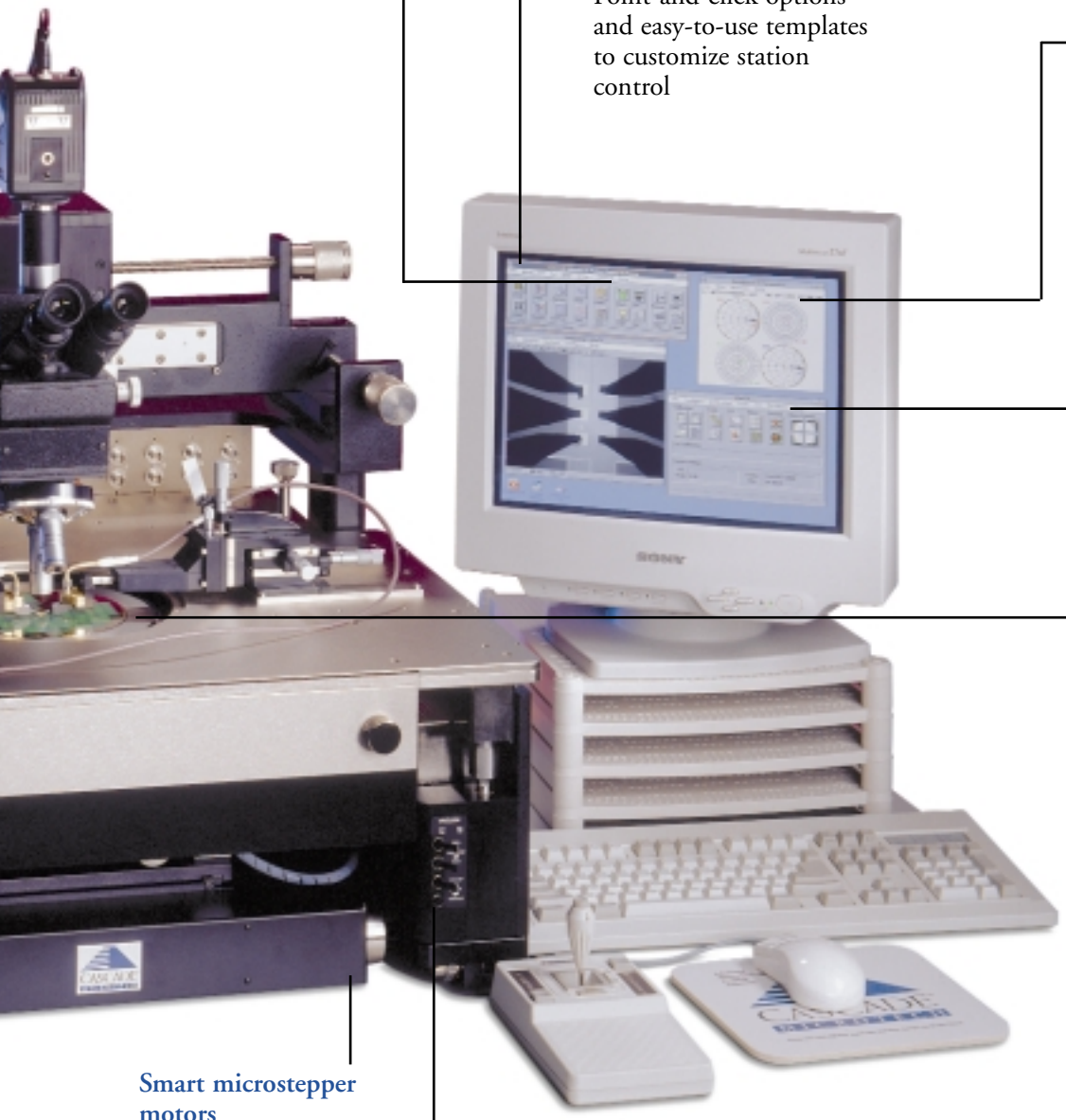
Channel Partner

Easy Viewing
Live video display allows you to track probes. Cut, paste, and save video output to file.

Versatile Nucleus™ prober control software
Runs on Windows NT or 98 and dynamically links to all industry-standard test executives

Easy station control
Point-and-click options and easy-to-use templates to customize station control

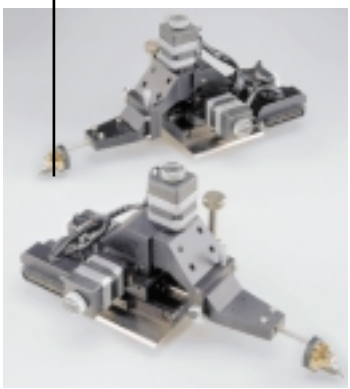
Read/Save S-Parameters within WinCal™
Read, display, and store S-Parameter data to file in Touchstone format



Powerful WinCal calibration software
Provides the simplest, most accurate, repeatable, network-analyzer calibrations for precision on-wafer measurements

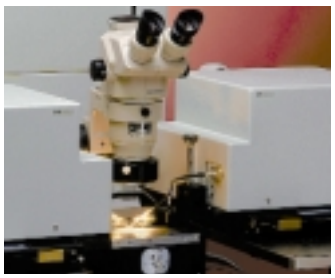
Accommodates multiple positioners
Handles up to four positioners in microwave configurations

MS1-8 programmable micropositioners
Enable automatic test and TRL calibrations



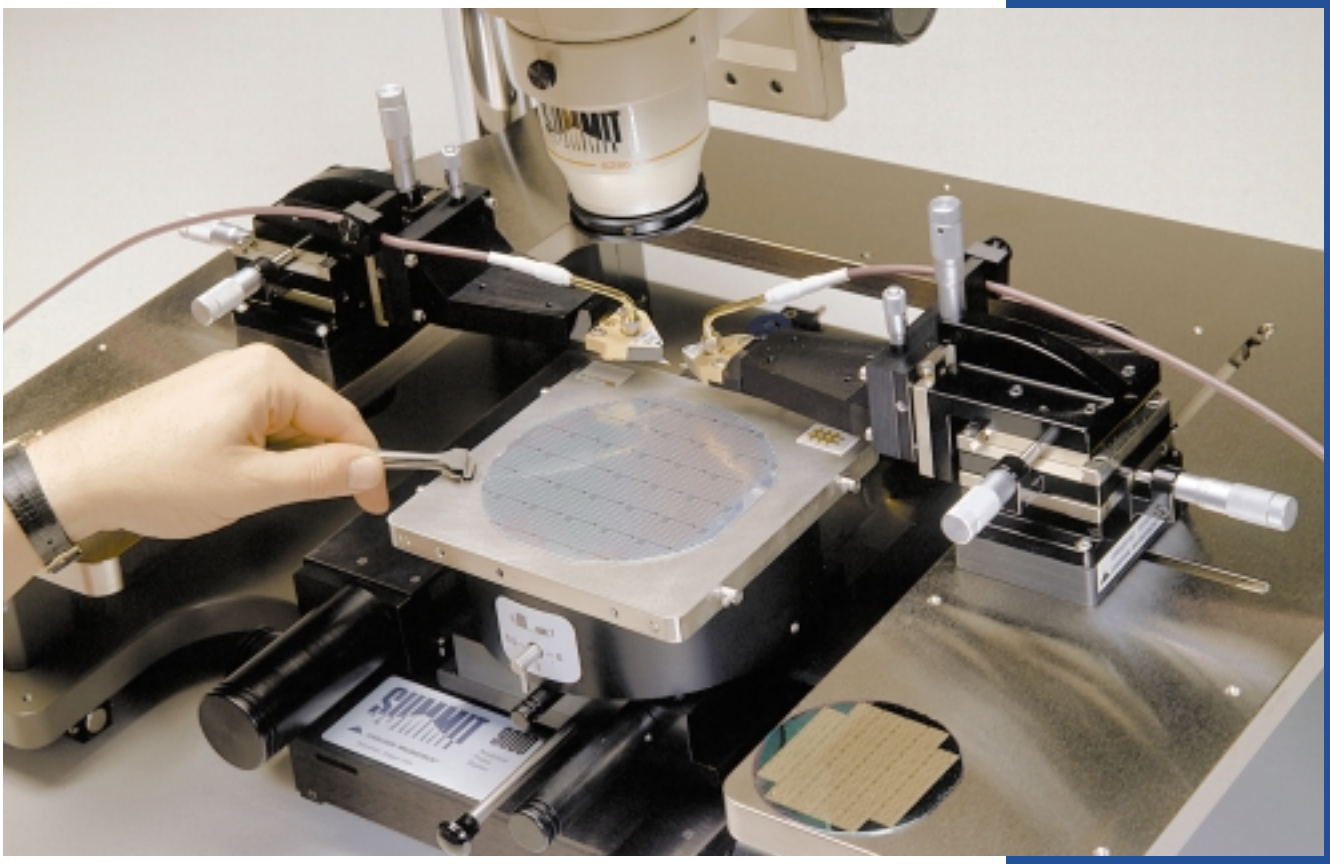
Smart microstepper motors
Fast and precise to ensure submicron chuck movement

Convenient vacuum control
For probing up to 8 in. (200 mm) wafers, as well as modules



Integrates easily with Agilent's 8510XF 110 GHz VNA
Ensures micron positioning of mmW test heads

Make Accurate, Repeatable, On-Wafer Measurements



A complete microwave test solution goes far beyond simply connecting the probes, probe station, and test instrumentation. With Cascade Microtech you get not only precision tools, but the analytical test experience you need to make accurate, repeatable, on-wafer measurements.

A complete customized Cascade Microtech RF/Microwave test system includes a Summit series probe station, patented Air Coplanar® Probes, NIST-verified Impedance Standard Substrates, powerful Prober Control and WinCal Calibration Software, as well as complete accessories.

Our close association with Agilent Technologies ensures that the full potential of your vector network analyzer extends right to the wafer level.

Standard Probe Stations

Cascade's standard 6- and 8-inch manual and semiautomatic stations are modular in design to accommodate the full range of Cascade's microwave tools. They are easy to configure, thus minimizing set-up time.

Designed specifically for 6 in. or smaller RF/microwave wafer probing, the unique square chuck of the 9101 station holds an impedance standard substrate (ISS), contact substrate, and wafer simultaneously to allow quick calibrations and on-wafer measurements.

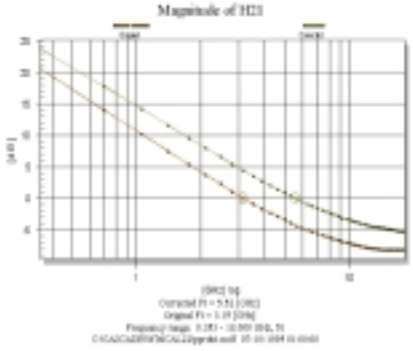
The square chuck uses vacuum holes instead of rings to eliminate electromagnetic resonance and the possibility of breaking thin wafers.

The 11101 and 12101 probe stations couple submicron motion control with a large rigid platen, providing the basis for 8 in. (200 mm) wafer measurements.

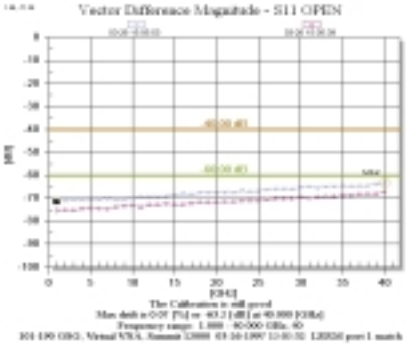
The Summit 9101 Station's unique square chuck with independent vacuum control holds an ISS, contact substrate, and test wafer simultaneously. The station's rollout stage protects your valuable wafers.

Cascade Microtech's Systems Measurement Advantages

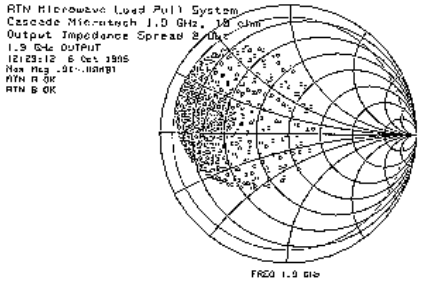
Measurement	Common Problem	Cascade's Systems Measurement Advantages
Over-Temperature S-Parameter Measurements	Moisture or frost accumulation on wafer. Long purge times for dry box	Patented low-volume MicroChamber is purged in < 15 min. with dry air or nitrogen allowing frost-free measurements to -65°C
	System calibration drift is often > 10% over temperature	WinCal software checks stability of probes, cables, and VNA to user-definable limits. Auxiliary chucks hold an ISS for calibration and contact substrates for planarity checks
Load Pull	Inability to measure very low impedances with 50 Ω probes	Partial-matching Air Coplanar probes extend the tuning range of the load-pull system
Noise Parameter	Probe and cable losses limit source gamma and accuracy	Ultra-low loss ACPs and source mounting hardware can reduce losses < 0.25 dB max.
RFIC Functional Testing	Power bypass and ground inductance too high to maintain stable device operation	Pyramid Probe™ Card enables unrivaled measurement capability with minimal bypass and ground inductance
F_t Measurements	Pad parasitics mask intrinsic Silicon device parameters	WinCal's pad-parasitic removal routines de-embed F_t measurements to reveal intrinsic device performance
mm Wave Measurements	Calibration accuracy, data repeatability	WinCal and the semiautomatic probe station ensure highest accuracy in the industry with superior probe placement
On-Wafer TRL Support	Manual probe placement limits calibration accuracy and repeatability	Motorized positioners and WinCal software allow push-button automatic VNA calibrations
Lightwave/OE	Laser diode impedances are too low to use a 50W probe for pulsed bias measurements	Resistive matching ACP probe allows broadband impedance matching



Silicon device Ft measurements before and after pad parasitic removal using WinCal software.

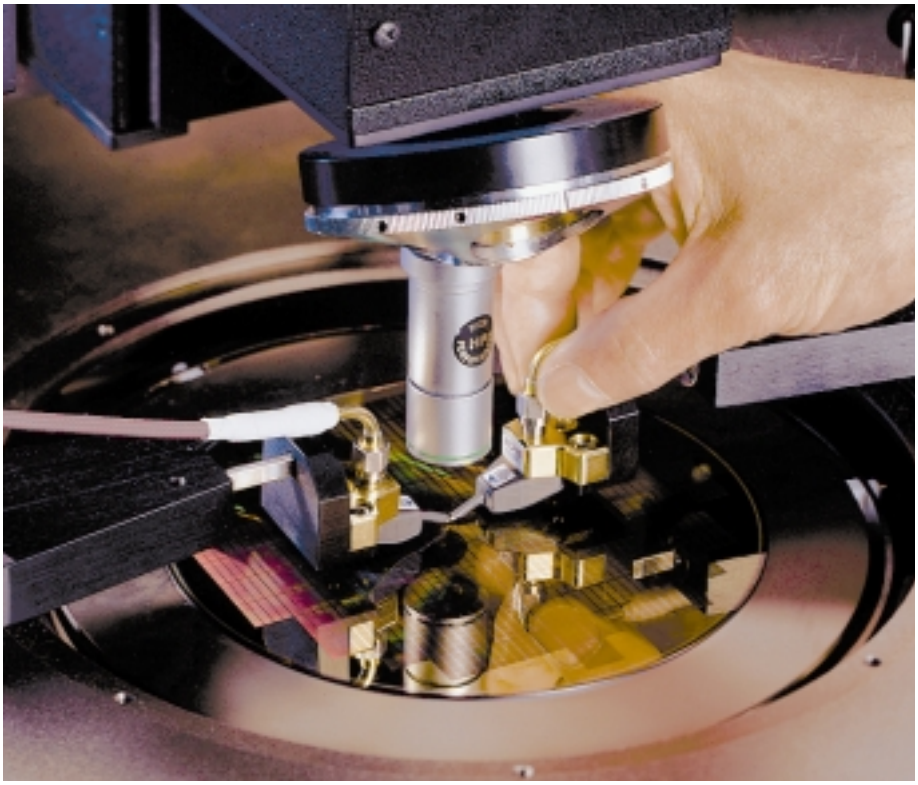


WinCal software verifies and plots system drift so data integrity is enhanced; gain confidence in your calibrations.

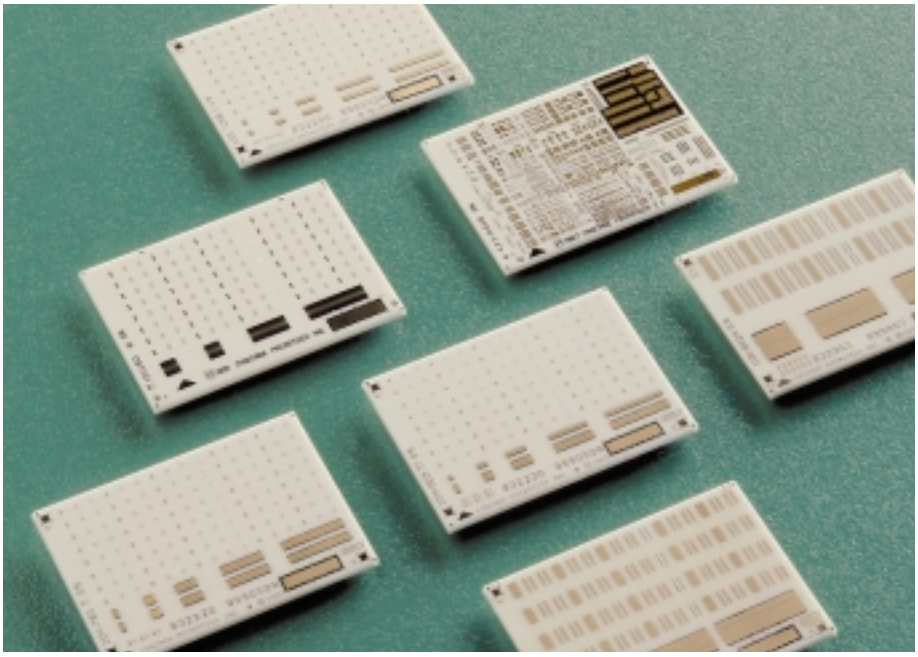


Load Pull Tuner impedance spread at DUT using a 50-to-10 W impedance matching ACP probe.

Support all Your High-Frequency Probing Applications



Beryllium copper or tungsten Air Coplanar Probes are optimized for silicon and gallium arsenide probing.



Cascade's NIST-verified family of Impedance Standard Substrates (ISSs) support all of your high-frequency applications including RFIC Pyramid Probe cards.

Thermal Stations

Cascade's thermal 6- and 8-inch manual and semiautomatic stations come with a patented MicroChamber™ that provides a light-tight, EMI-shielded, wafer enclosure.

With your wafer enclosed in the purged, low-volume MicroChamber, temperature transitions are fast. The system allows on-wafer measurements over a -65°C to 200°C temperature range.

NIST-Verified ISSs

Cascade's family of impedance standard substrates (non-dispersive calibration standards usable through 110 GHz) support all of your high-frequency probing applications, including Pyramid Probe cards.

Powerful WinCal Software

Cascade's WinCal Calibration Software provides the simplest, most accurate, repeatable, network analyzer calibrations for precision on-wafer measurements. New pad parasitic removal routines incorporated into the software perform one-step corrections for device pad parasitic removal. WinCal assures measurement integrity by allowing you to monitor system drift.

Cascade's WinCal Calibration Software offers the proven accuracy of NIST-verified LRRM calibration with load-inductance compensation. LRM/LRRM calibration along with Cascade's ISSs provides the highest accuracy in the industry.

Patented Air Coplanar Probes

Patented Air Coplanar probes enable over-temperature probing from -65°C to +200°C with the lowest insertion loss in the industry and superior calibration accuracy. The Air Coplanar design provides low-contact force and superior tip visibility, along with extremely long probe life, for stable and repeatable high-temperature measurements.

It's clear. Cascade Microtech offers the most complete microwave and RF test system you'll find anywhere.

Specifications

X-Y stage manual stations

Travel: 150 mm (6 in) or
200 mm (8 in)
Bearings: crossroller
Resolution: 0.2 in/turn

X-Y stage semiautomatic

Travel: 200 mm (8 in)
Bearings: crossroller
Resolution: 0.1 µm
Repeatability: ±1 µm
Accuracy: ±2 µm
Speed: >50 mm (2 in)/sec

Z-stage semiautomatic

Travel: 50 mm (0.2 in)
Repeatability: ±1 µm

Microwave thermal wafer chuck with MicroChamber

Cold purge time: 15 min
Max temp: +200°C
HT options: 0° to 300°C
Min. temp: -65°C
Flatness: 25 µm
Material: nickel
Auxiliary Stages/Vacuum Sites: 2

Microwave chuck with no MicroChamber

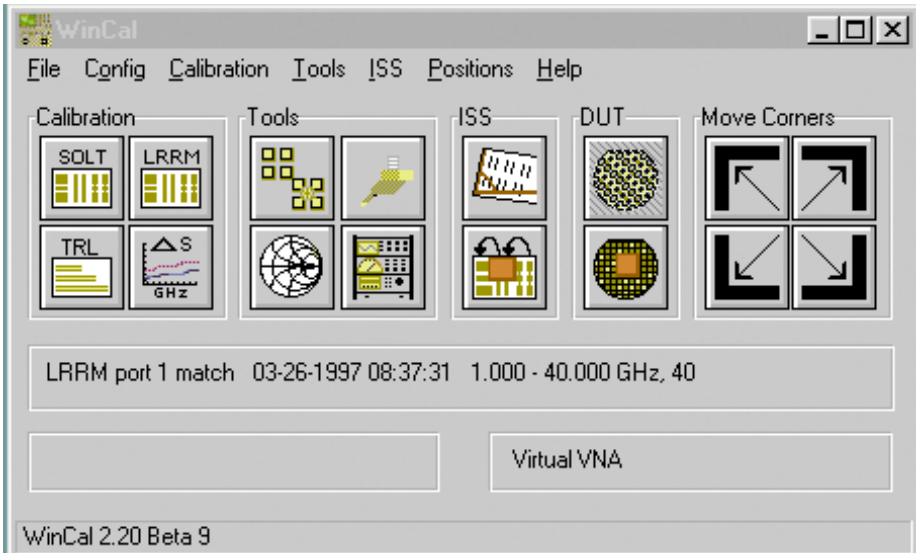
Flatness: 10 mm
Material: nickel
6 in. manual auxiliary stages/vacuum sites: 4
8 in. auxiliary stages/vacuum sites: 2

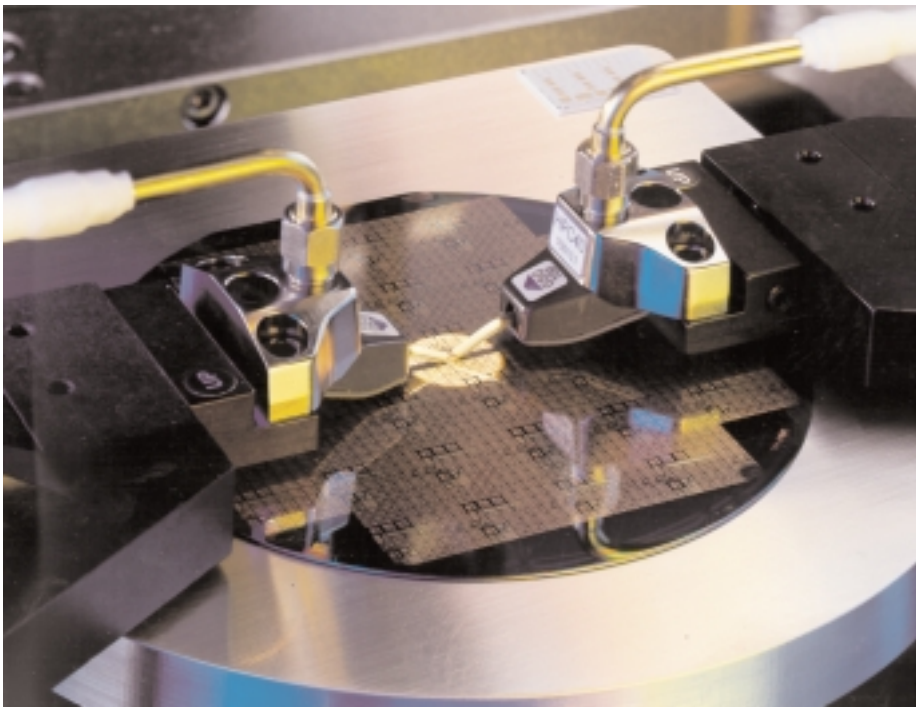
Station Accessories

- Impedance Standard Substrates
- Air Coplanar probes to 110 GHz
- Micropositioners, manual and programmable
- Vector network analyzer (VNA) calibration software (WinCal)
- Prober control software (Nucleus)
- Flexible RF cables
- 8510XF positioners

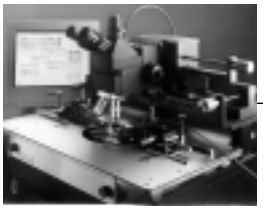
For Software Information

Refer to the *Prober Control Software* data sheet and *WinCal Software* data sheet





WinCal Calibration Software allows TRL calibrations, pad parasitic removal, and reads and stores S-parameters in Touchstone format.



- 6 in.
  - Manual
    - Standard — Summit 910X
    - Thermal — Summit 1165X-6
  - Semiautomatic
    - Standard — Summit 1210X-6
    - Thermal — Summit 1265X-6
- 8 in.
  - Manual
    - Standard — Summit 1110X
    - Thermal — Summit 1165X
    - High-Temp Thermal — Summit 1165X-HT
  - Semiautomatic
    - Standard — Summit 1210X
    - Thermal — Summit 1265X
    - High-Temp Thermal — Summit 1265X-HT

Ordering Information

6 in. manual, standard *910X*

6 in. manual, thermal with MicroChamber *1165X-6*

6 in. semiautomatic, standard *1210X-6*

6 in. semiautomatic, thermal with MicroChamber *1265X-6*

8 in. manual, standard *1110X*

8 in. manual, thermal with MicroChamber *1165X*

8 in. manual, thermal with MicroChamber, high temperature chuck *1165X-HT*

8 in. semiautomatic, standard *1210X*

8 in. semiautomatic, thermal with MicroChamber *1265X*

8 in. semiautomatic, thermal with MicroChamber, high temperature chuck *1265X-HT*

Note: X is 1 for nickel plated chuck and 2 for gold plated chuck.

CASCADE® MICROTECH

Innovating Test Technologies for better measurements faster

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Data subject to change without notice