# Infiniium 54850 Series Oscilloscopes
InfiniiMax 1130 Series Probes

7 GHz, 20 GSa/s Differential and Single-Ended Oscilloscope Measurement System

Data Sheet

- 7, 6, 4, 2.5 and 2 GHz bandwidth real-time oscilloscopes with up to 20 GSa/s sample rate on all four channels simultaneously

- Up to 1 Mpts MegaZoom deep memory at all sample rates and 32 Mpts MegaZoom deep memory at 2 GSa/s and slower sample rates

- Electronic attenuators eliminate the reliability and repeatability concerns associated with mechanical attenuator relays

- Trigger jitter 1.0 ps rms

- Easy-to-use, easy-to-understand jitter analysis options

- InfiniiMax 7 GHz, 5 GHz, 3.5 GHz, and 1.5 GHz probing systems

- Each InfiniiMax probe amplifier supports both differential and single-ended measurements for a more cost-effective solution

- Unrivaled InfiniiMax probing accessories support browsing, solder-in, and socket use models at the maximum performance available

- Award-winning user interface based on Microsoft Windows® XP Pro supports CD-RW, dual-monitor, and third-party software packages
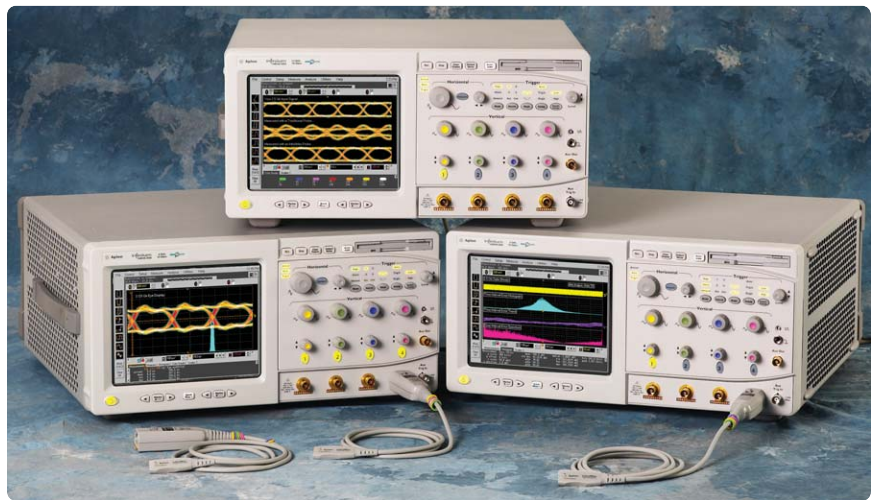
The highest-performance end-to-end measurement system available

If you are an experienced scope user, you know that your measurements are only as good as your probing system. And as bandwidth increases, it's increasingly important to ask the question: am I measuring my circuit or my scope probe? Nothing is more frustrating than chasing down an apparent design problem, only to find that it was caused by an inferior scope probe.

Together, the newest Agilent Infiniium scopes and the breakthrough Agilent InfiniiMax high-performance probing systems offer an end-to-end measurement system with unmatched performance, accuracy, and connectivity. The result is measurements you can trust and better insight into your circuit behavior.

InfiniiMax: The Worlds Best High-Speed Probing System

EDN Magazine has awarded Agilent's InfiniiMax active probe system the 2002 Innovation of the Year Award.

Agilent Technologies

Benefits

54850 Series Infiniium oscilloscopes

Model	Bandwidth	Channels	Sample rate per channel	Standard acquisition memory	Optional acquisition memory
54855A	6 - 7 GHz	4	20 GSa/s	262 kpts per channel	1 Mpts per channel up to 20 GSa/s 32 Mpts per channel ≤ 2 GSa/s
54854A	4 GHz	4	20 GSa/s	262 kpts per channel	1 Mpts per channel up to 20 GSa/s 32 Mpts per channel ≤ 2 GSa/s
54853A	2.5 GHz	4	20 GSa/s	262 kpts per channel	1 Mpts per channel up to 20 GSa/s 32 Mpts per channel ≤ 2 GSa/s
54852A	2 GHz	4	10 GSa/s	262 kpts per channel	1 Mpts per channel up to 10 GSa/s 32 Mpts per channel ≤ 2 GSa/s

1130 Series InfiniiMax probe amplifier

Model	Bandwidth	Description
1134A	7 GHz	Probe amplifier – order one or more probe heads or connectivity kits
1132A	5 GHz	Probe amplifier – order one or more probe heads or connectivity kits
1131A	3.5 GHz	Probe amplifier – order one or more probe heads or connectivity kits
1130A	1.5 GHz	Probe amplifier – order one or more probe heads or connectivity kits
E2669A differential kit		Each connectivity kit includes browser, solder-in and socket probe-heads
E2668A single-ended kit		Each connectivity kit includes browser, solder-in and socket probe-heads

InfiniiMax probe amplifier specifications: Dynamic range = ± 2.5 V, DC offset range = ±12 V, maximum voltage = ± 30 V

1130 Series InfiniiMax probe system specifications (1134A probe amplifier with probe head)

Probe head	Model number	Differential measurement (BW, input C, input R)	Single-ended measurement (BW, input C, input R)
Differential solder-in	E2677A	7 GHz, 0.27 pF, 50 kΩ	7 GHz, 0.44 pF, 25 kΩ
Differential socket	E2678A	7 GHz, 0.34 pF, 50 kΩ	7 GHz, 0.56 pF, 25 kΩ
Differential browser	E2675A	6 GHz, 0.32 pF, 50 kΩ	6 GHz, 0.57 pF, 25 kΩ
Differential SMA	E2695A	7 GHz	7 GHz
Single-ended solder-in	E2679A	N/A	5.2 GHz, 0.50 pF, 25 kΩ
Single-ended browser	E2676A	N/A	5.5 GHz, 0.67 pF, 25 kΩ

Benefits (continued)

How much bandwidth and sample rate do I need?

| Bandwidth required to measure risetime with 3% error	Example: 100 ps rise time (20-80%)
Maximum signal frequency content = 0.4/rise time (20-80%)	Maximum signal frequency = 4 GHz
Scope bandwidth required = 1.4 x maximum frequency	Required scope bandwidth = 5.6 GHz
Minimum scope sample rate required = 2.5 x bandwidth	Required scope sample rate = 14 GSa/s

## Key trends in the electronics market

- Technologies with dramatically increased clock speeds and edge rates have emerged.

- Very fast serial differential buses are being used to save board space, reduce power and provide better noise immunity.

- Densely packed circuit boards, often with stacked daughter boards, increase the need to probe in very hard-to-reach places.

## Key benefits of the 54850 and InfiniiMax Series

- Up to 7 GHz bandwidth can track even the fastest signal speeds.

- A sample rate of 20 GSa/s on all four channels can measure high-speed differential buses correlated with other signals.

- The innovative InfiniiMax probing system supports even the most demanding mechanical access requirements without sacrificing performance.
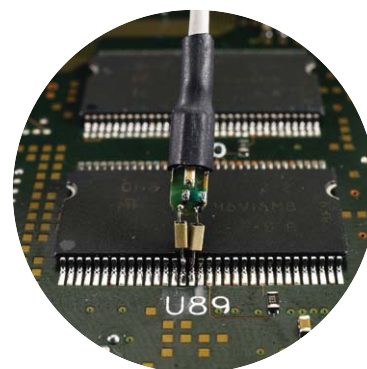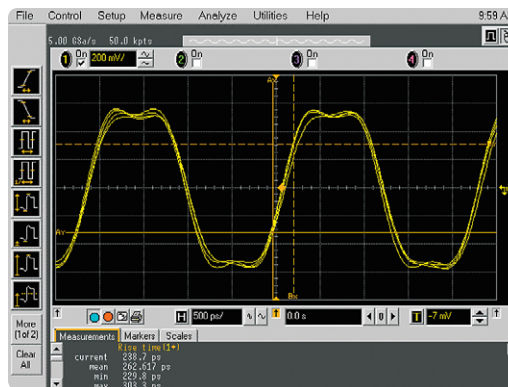
20 GSa/s Sample Rate on All Channels at Once!
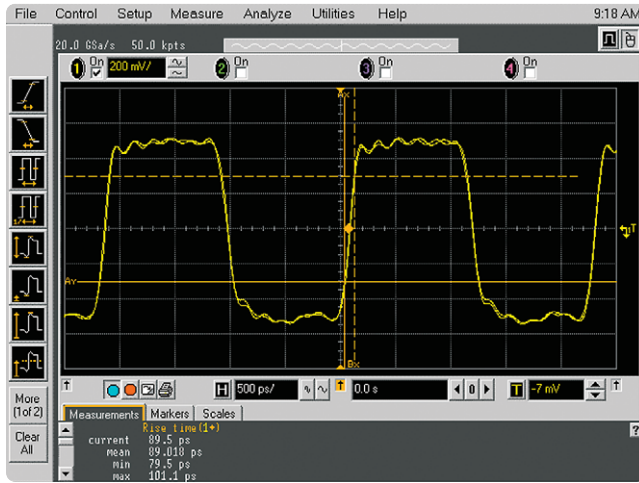
20 GSa/s provides accurate measurement.
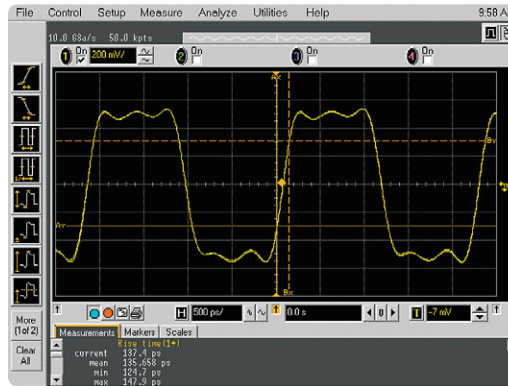
10 GSa/s is not enough.

| Sample rate	Measured rise time
20 GSa/s	89 psec
10 GSa/s	137 psec
5 GSa/s	238 psec

**Example for 90 ps rise time input**

5 GSa/s is not enough.

- The full real-time bandwidth of up to 7 GHz is supported on every channel by the 20 GSa/s sample rate.

- This industry-leading sample rate produces more accurate and repeatable measurements, avoiding measurement error and signal aliasing due to under sampling, as shown above.

- The combination of 7 GHz bandwidth and 20 GSa/s sample rate on all channels makes the 54850 series ideal for designs that include: PCI-Express, Serial ATA, Rapid IO, HyperTransport, InfiniBand, or Gigabit Ethernet.

Application Software
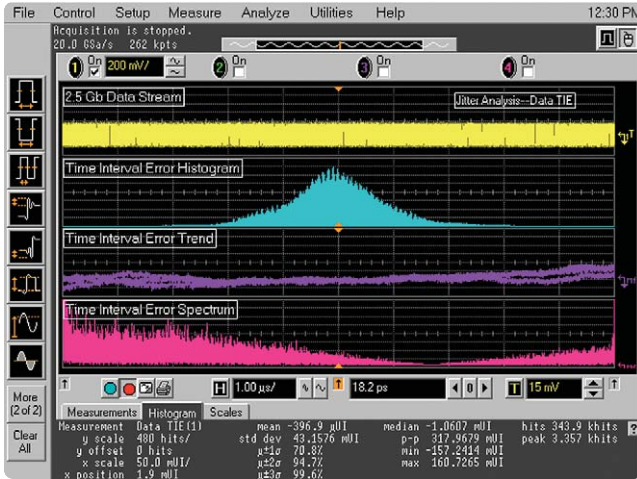
E2681A EZJIT Jitter analysis software

Includes the following key measurements: cycle-to-cycle jitter, n-cycle jitter, period jitter, time interval error, setup and hold time, measurement histograms, measurement trending, and jitter frequency spectrum.
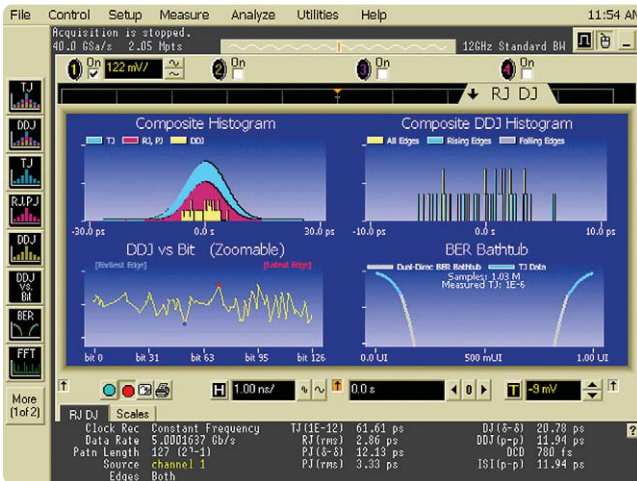
N5400A EZJIT Plus Jitter analysis software

Quickly separate random and deterministic jitter components and estimate total jitter at low BER for standards compliance. Automatic clock recovery and pattern detection, an easy-to-use setup wizard and graphical display views integrated into the Infiniium oscilloscope software further simplify navigation and RJ/DJ analysis.
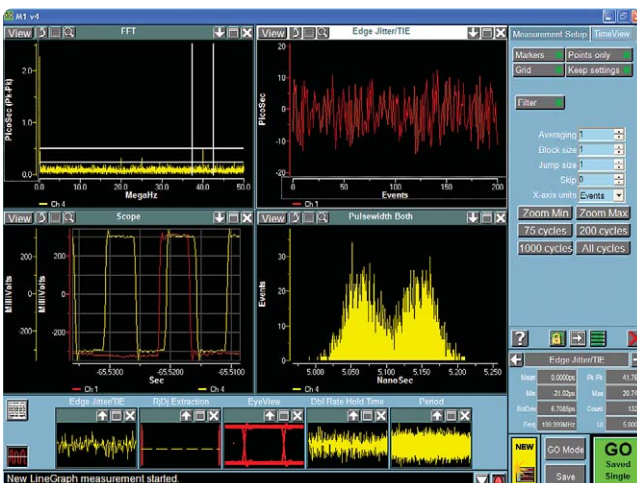
E2690A Timing Interval and Jitter Analysis software

The Agilent E2690A Advanced Time Interval and Jitter Analysis Software, licensed from Amherst Systems Associates (ASA); offers the most powerful and comprehensive set of tools for exploratory debug of jitter, and it is remarkably easy to use. The E2692A Basic Time Interval and Jitter Analysis Software offers the basic tools you need for jitter debug with the same precision you get with the advanced version. Both advanced and basic software versions provide complete jitter decomposition into its components – including deterministic, random, and total jitter – as well as AutoMeasure to provide quick insight.

Infiniium: "It's like someone who sits down and actually uses a scope designed this one."

Steve Montgomery, Director of Engineering, Linx Technologies

20 GSa/s sample rate on all four channels significantly reduces the chances of aliasing, increases measurement accuracy, and delivers the full real-time bandwidth of the oscilloscope on every channel simultaneously.

Get fast answers to your questions with the built-in information system. Infiniium's task-oriented Setup Guide provides step-by-step instructions for several advanced measurements and procedures.

See your signal more clearly with a large (8.4-inch) high-resolution color display. Infiniium's bright TFT display with anti-glare coating lets you see the details of your signal from all angles.

20 GB hard drive, 3.5" 1.44 MB floppy drive and rear USB port make it easy to save setup files, data files, screen shots, etc.

Identify anomalies easily with color-graded persistence, a colorful visual representation of waveform distribution.

Label waveforms and add notes to your screen captures — Infiniium's keyboard makes it easy.

Drag and drop markers with your mouse or use the arrow keys.

Easy access to advanced features like math functions and FFTs, is provided by the Windows-based graphical user interface. This GUI also gives you unique capabilities like drag-and-drop measurements and zooming, and offers a graphical equivalent to all front panel controls.

Remote access with Web-enabled connectivity, e-mail on trigger, and GPIB over LAN allows you to access your scope from remote locations.

32 Mpts acquisition memory at 2 GSa/s or slower sample rates allows you to capture long time windows at high resolution – such as identifying glitches due to a power supply start-up from reset.

QuickMeas+ key gives you any five automated measurements with a push of a button. You can also configure this key to print/save screen shots, save waveforms, or load a favorite setup.

Zoom and search with instant response. Zoom into your signal using the horizontal scale knob and search through your waveform with the position knob. MegaZoom technology allows you to find your area of interest quickly and easily – even with 32 Mpts waveforms.

Built-in CD-R drive on rear panel allows you to update the system software conveniently and can be used to install third-party application packages.

Hands-free operation with the Infiniium VoiceControl option. Just speak into the microphone to operate front-panel controls.

Segmented memory acquisition mode captures bursting signals at maximum sample rate without consuming memory during periods of inactivity.

Removable hard disk drive option is available for added data security.

Install third-party software packages such as Excel, LabView, Agilent Vee, MATLAB®, anti-virus software, and more to perform customized processing and automation of your oscilloscope or to make the scope compliant to the network environment of your company.

An external monitor allows you to run third-party applications on a large, high-resolution display while using the scope's built-in monitor for high-speed waveform display.

Windows® XP Pro operating system.

A familiar interface makes simple tasks simple. Infiniium's analog-like front panel has a full set of controls color coded to the waveforms and measurements, making simple tasks simple.

Three-year standard warranty and a variety of Agilent support options protect your investment for the long term.

A new 18 GHz, BNC-compatible connector provides a high signal fidelity connection to Agilent active probes, SMA adapters, and standard BNCs.

AutoProbe interface completely configures your scope for use with the InfiniiMax probing system and previous generation Agilent active probes.

10/100 Mbps LAN interface lets you easily print waveforms on networked printers, save your results on your office PC, share information with others, and control the scope over the Web.

InfiniiMax: The Worlds Best High-Speed Probing System

InfiniiMax offers you the highest performance available for measuring differential and single-ended signals, with flexible connectivity solutions for today's high-density ICs and circuit boards.

Variable spacing via the tab on the side of the differential browser allows the probe tips to be adjusted for different circuit geometries from 0.25-5.80 mm (10-230 mills).

Z-axis compliance allows both probe tips of the differential browser to spring, supporting various probing angles and target system characteristics.

Differential browser is the best choice for general-purpose trouble-shooting of differential or single-ended signals up to 6 GHz bandwidth.

Solder-in differential probe head provides 7 GHz bandwidth and can be attached to very small geometry circuits for measuring both single-ended and differential signals.

The differential socket probe head can be used to measure either differential or single-ended signals to 7 GHz bandwidth.

Extremely small single-ended, solder-in probe heads support 5.2 GHz measurements of even the hardest-to-reach single-ended signals.

Single-ended browser is the best choice for general purpose probing of single-ended signals when small size of the probe head is the primary consideration. Bandwidths up to 5.5 GHz can be obtained in this configuration.

Differential SMA probe head provides 7 GHz bandwidth and allows you to connect two SMA cables to make a differential measurement on a single scope channel.

The 54006A 7.5 GHz resistive divider probe is available as a low-cost probing alternative for casual inspection of signals.

A flat frequency response over the entire probe bandwidth eliminates the distortion and frequency-dependent loading effects that are present in probes that have an in-band resonance.

Ergonomic sleeves make hand browsing comfortable even over long periods of time.
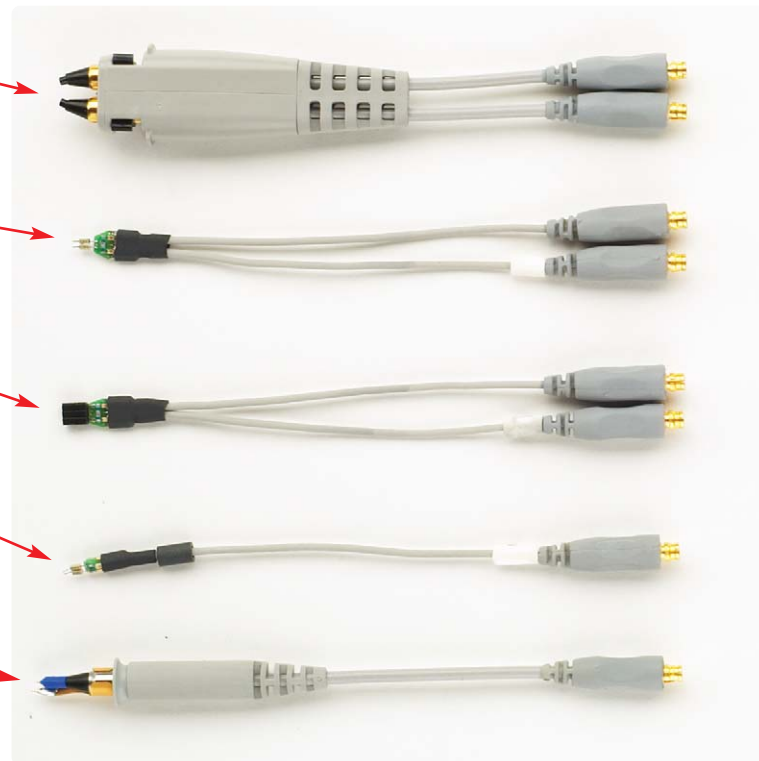
Supplied axial lead resistors, when trimmed to the appropriate length, allow user to trade off bandwidth and reach. Values and trimming templates are supplied for measurements from 2.8 GHz to 7 GHz.

The damped-wire accessory provides maximum connection reach and flexibility without introducing an in-band resonance for signals up to 1.2 GHz bandwidth.

InfiniiMax probes have fully characterized performance for all of their various probe heads. This includes:
• Swept frequency response plot
• Common mode rejection vs. frequency plot
• Impedance vs. frequency plot
• Time-domain probe loading plot
• Time-domain probe tracking plot
See page 16 for an example.

One-year standard warranty on active probes and a variety of Agilent support options to choose from.

Controlled impedance transmission lines in every probe head deliver full performance versus the performance limitations produced by traditional wire accessories.

Probe interface software allows you to save the calibration information for up to 10 different probe heads per channel and will automatically retrieve calibration data for a probe amplifier as it is attached to the scope.

High-input impedance active probes minimize loading, support differential measurements and DC offset, and can compensate for cable loss.

InfiniiMax is the world's best high-speed probe
• InfiniiMax's bandwidth is greater than the scope's bandwidth.
• Each use model (browsing, solder-in, socket) is optimized for maximum performance.
• Supports both differential and single-ended measurements with a single probe amplifier.

EDN Magazine has awarded Agilent's InfiniiMax active probe system the 2002 Innovation of the year award. This exclusive award program, now in its 13th year, awards truly outstanding products in the electronics industry.

Infiniium 54850 Series Performance Characteristics

Vertical

Input channels	4
Analog bandwidth (–3 dB)*	54855A: 6 GHz 54854A: 4 GHz 54853A: 2.5 GHz 54852A: 2 GHz
Rise time (10% to 90%)	54855A: 70 ps 54854A: 105 ps 54853A: 168 ps 54852A: 210 ps 54855A with option 008: 62 ps
Input impedance	50 Ω ± 2.5%
Sensitivity[1]	1 mV/div to 1 V/div
Input coupling	DC
Vertical resolution[2]	8 bits, ≥ 12 bits with averaging
Channel to channel isolation (any two channels with equal V/div settings)	DC to 100 MHz: 40 dB 100 MHz to 1 GHz: 28 dB > 1 GHz to 6 GHz: 24dB
DC gain accuracy*[1]	± 1% of full scale at full resolution channel scale
Maximum input voltage*	± 5 V
Offset range	> ± 12 div or ± 4 Volts, whichever is smallest
Offset accuracy*[1]	± (2% of channel offset + 1% of full scale)
Dynamic range	± 4 div from center screen

DC voltage measurement accuracy*[1]
   Dual cursor
   Single cursor
	
	± [(DC gain accuracy)+(resolution)]
	± [(DC gain accuracy)+(offset accuracy)+(resolution/2)]

Horizontal

Main timebase range	54855A and 54854A: 5 ps/div to 20 s/div 54853A and 54852A: 10 ps/div to 20 s/div
Main timebase delay range	–200 s to 200 s
Delayed timebase range	1 ps/div to current main time scale setting
Channel deskew	–50 µs to 150 µs range, 100 fs resolution
Time scale accuracy[3]	± 1 ppm pk

Delta-time measurement accuracy[6,7]
   ≥ 256 Averages, rms
   ≥ 256 Averages, peak
   Averaging disabled, rms
   Averaging disabled, peak
	
	54855A: 70 fs rms 54854A: 90 fs rms 54853A: 110 fs rms 54852A: 160 fs rms
	± [(0.5 ps) + (1 x 10^{-6} x |reading|)] peak
	54855A: 2.0 ps rms 54854A: 2.5 ps rms 54853A: 3.0 ps rms 54852A: 4.5 ps rms
	± [(X ps) + (1 x 10^{-6} x |reading|)] peak
	54855A: X = 7.0 ps 54854A: X = 8.0 ps 54853A: X = 10.0 ps 54852A: X = 15.0 ps

Jitter measurement floor[6]
   Time interval error
   Period jitter
   N-cycle, cycle-cycle jitter
	
	54855A: 1.4 ps rms 54854A: 1.8 ps rms 54853A: 2.0 ps rms 54852A: 3.0 ps rms
	54855A: 2.0 ps rms 54854A: 2.5 ps rms 54853A: 3.0 ps rms 54852A: 4.5 ps rms
	54855A: 3.0 ps rms 54854A: 3.8 ps rms 54853A: 4.5 ps rms 54852A: 6.8 ps rms

Infiniium 54850 Series Performance Characteristics (continued)

Acquisition

Real time sample rate per channel	54855A: 20 GSa/s 54854A: 20 GSa/s 54853A: 20 GSa/s 54852A: 10 GSa/s

Memory depth per channel	
Standard	262,144 at all sample rates
Option 001	1,025,000 at all sample rates
	32,800,000 ≤ 2 GSa/s sample rate

Sampling modes	
Real time	Successive single-shot acquisitions
Real time with averaging	Selectable from 2 to 4096
Real time with peak detect	2 GSa/s peak detect, for less than 2 GSa/s sample rates (option 001 only)
Segmented memory	Captures bursting signals at maximum sample rate without consuming memory during periods of inactivity. Selectable number of segments up to 16,384 with Option 001 deep memory installed. Minimum intersegment time (the time between the end of the previous acquisition and the beginning of the next acquisition) of 20 µs. See on-line help for various performance points. The serial number breaks on the 54850 Series models that support segmented memory are:
	54852A: MY44000301 and greater
	54853A: MY43001701 and greater
	54854A: MY42001701 and greater
	54855A: MY42001701 and greater

Filters	
Sin(x)/x Interpolation	On/off selectable FIR digital filter. Digital signal processing adds points between acquired data points to enhance measurement accuracy and waveform display quality.

Trigger

Sensitivity[1]	
Internal Low[1]	54855A: 0.5 div p-p 0 to 2 GHz, 1.0 div p-p 2 to 4 GHz, < 2.5 div @ 5 GHz
	54854A: 0.5 div p-p 0 to 2 GHz, 1.0 div p-p 2 to 4 GHz
	54853A: 0.5 div p-p 0 to 2 GHz, 1.0 div p-p 2 to 2.5 GHz
	54852A: 0.5 div p-p 0 to 2 GHz
Internal High[1]	54855A: 0.2 div p-p 0 to 6 GHz
	54854A: 0.2 div p-p 0 to 4 GHz
	54853A: 0.2 div p-p 0 to 2.5 GHz
	54852A: 0.2 div p-p 0 to 2 GHz
Auxiliary	DC to 500 MHz: 500 mV p-p

Level range	
Internal	± 8 div from center screen or ± 4 Volts, whichever is smallest
Auxiliary	± 5 V

Sweep modes	Auto, triggered, single

Trigger jitter[6,8]	54855A: 1.0 ps rms 54854A: 1.3 ps rms 54853A: 1.7 ps rms 54852A: 1.8 ps rms

Trigger holdoff range	80 ns to 320 ms

Trigger actions	Specify an action to occur and the frequency of the action when a trigger condition occurs. Actions include e-mail on trigger and QuickMeas+.

www.agilent.com/find/infiniimax

Infiniium 54850 Series Performance Characteristics (continued)

Trigger (continued)

Trigger modes	
Edge	Triggers on a specified slope and voltage level on any channel or auxiliary trigger.
Glitch	Triggers on glitches narrower than the other pulses in your waveform by specifying a width less than your narrowest pulse and a polarity. Triggers on glitches as narrow as 500 ps. Glitch range settings: < 1.5 ns to < 160 ms.
Line	Triggers on the line voltage powering the oscilloscope.
Pattern	Triggers when a specified logical combination of the channels is entered, exited, present for a specified period of time or is within a specified time range. Each channel can have a value of High (H), Low (L) or Don't care (X). Triggers on patterns as narrow as 500 ps.
State	Pattern trigger clocked by the rising or falling edge of one channel. Logic type: AND or NAND.
Delay by time	The trigger is qualified by an edge. After a specified time delay between 30 ns to 160 ms, a rising or falling edge on any one selected input will generate the trigger.
Delay by events	The trigger is qualified by an edge. After a specified delay between 1 to 16,000,000 rising or falling edges, another rising or falling edge on any one selected input will generate the trigger.

Violation triggers	
Pulse width	Trigger on a pulse that is wider or narrower than the other pulses in your waveform by specifying a pulse width and a polarity. Triggers on pulse widths as narrow as 500 ps. Pulse width range settings: 1.5 ns to 160 ms.
Setup/hold	Triggers on setup, hold or setup and hold violations in your circuit. Requires a clock and data signal on any two input channels as trigger sources. High and low thresholds and setup and/or hold time must then be specified.
Transition	Trigger on pulse rising or falling edges that do not cross two voltage levels in > or < the amount of time specified.

Measurements and math

Waveform measurements	
Voltage	Peak to peak, minimum, maximum, average, RMS, amplitude, base, top, overshoot, preshoot, upper, middle, lower, area.
Time	Period, frequency, positive width, negative width, duty cycle, delta time, rise time, fall time, Tmin, Tmax, channel-to-channel phase.
Frequency domain	FFT frequency, FFT magnitude, FFT delta frequency, FFT delta magnitude, FFT phase.

Statistics	Displays the mean, standard deviation, minimum, maximum and number of measurements value for the displayed automatic measurements.

Histograms	Vertical (for timing and jitter measurements) or horizontal (noise and amplitude change) modes, regions are defined using waveform markers. Measurements included: mean, standard deviation, peak-to-peak value, median, min, max, total hits, peak (area of most hits), and mean ± 1, 2, and 3 sigma.

Eye-diagram measurements	Eye-diagram measurements include eye height, eye width, eye jitter, crossing percentage, Q factor, and duty-cycle distortion.

Jitter analysis measurements (E2681A EZJIT or N5400A EZJIT Plus Jitter Analysis software)	Cycle-cycle jitter, N-cycle jitter, cycle-cycle + width, cycle-cycle – width, cycle-cycle duty cycle, data rate, unit interval, time interval error data, time interval error clock, setup time, hold time, phase, period, frequency, + width, – width, duty cycle, rise time, fall time.

Infiniium 54850 Series Performance Characteristics (continued)

Measurements and math (continued)

Mask testing	Allows pass/fail testing to user-defined or Agilent-supplied waveform templates. AutoMask lets you create a mask template from a captured waveform and define a tolerance range in time/voltage or percentage. Test modes include test forever, test to specified time or event limit, and stop on failure. Communications Mask Test Kit option provides a set of ITU-T G.703, ANSI T1.102, and IEEE 802.3 industry-standard masks for compliance testing.
Waveform math	Four functions, select from add, average, differentiate, divide, FFT magnitude, FFT phase, integrate, invert, magnify, min, max, multiply, subtract, versus, common mode, smoothing.

FFT
Frequency range[4]	DC to 10 GHz.
Frequency resolution	Sample rate/memory depth = Resolution.
Best resolution at maximum sample rate	54855A, 54854A, 54853A: 20 GSa/s / 1 Mpts = 20 kHz.
	54852A: 10 GSa/s / 1 Mpts = 10 kHz.
Frequency accuracy	(1/2 frequency resolution)+(1 x 10^{-6})(signal frequency).
Signal-to-noise ratio[5]	60 dB at 32k memory depth.
Window modes	Hanning, flattop, rectangular.

Measurement modes
Automatic measurements	Measure menu access to all measurements, five measurements can be displayed simultaneously.
QuickMeas+	Front-panel button activates five pre-selected or five user-defined automatic measurements.
Drag-and-drop measurement toolbar	Measurement toolbar with common measurement icons that can be dragged and dropped onto the displayed waveforms.

Marker modes	Manual markers, track waveform data, track measurements.

Display

Display
Display	8.4 inch diagonal color TFT-LCD.
Resolution	640 pixels horizontally x 480 pixels vertically.
Annotation	Up to 12 labels, with up to 100 characters each, can be inserted into the waveform area.
Grids	Can display 1, 2 or 4 waveform grids.
Waveform styles	Connected dots, dots, persistence (minimum, variable, infinite), color-graded infinite persistence.

Computer system and peripherals, I/O ports

Computer system and peripherals
Operating system	Windows® XP Pro.
CPU	Intel® Pentium® III 1 GHz microprocessor.
PC system memory	512 MB.
Drives	≥ 20 GB internal hard drive, CD-R drive on rear panel, standard 3.5 inch 1.44 MB floppy drive.
Peripherals	Logitech optical USB mouse and compact keyboard supplied. All Infiniium models support any Windows-compatible input device with a serial, PS/2 or USB interface.

File types
Waveforms	Compressed internal format, comma and tab separated X and Y pairs or voltage values.
Images	BMP, PCX, TIFF, GIF or JPEG.

Infiniium 54850 Series Performance Characteristics (continued)

Computer system and peripherals, I/O ports (continued)

I/O ports	
LAN	RJ-45 connector, supports 10Base-T and 100Base-T. Enables Web-enabled remote control, e-mail on trigger or demand, data/file transfers and network printing.
GPIB	IEEE 488.2, fully programmable.
RS-232 (serial)	COM1, printer and pointing device support.
Parallel	Centronics printer port.
PS/2	2 ports. Supports PS/2 pointing and input devices.
USB	2 ports. Allows connection of USB peripherals like storage devices and pointing devices while the oscilloscope is on.
Video output	15 pin VGA, full color output of scope waveform display.
Dual-monitor video output	15 pin XGA, full color output for using third-party applications.
Auxiliary output	DC (±2.4 V); square wave (~715 Hz and 456 MHz); trigger output (255 mV p-p into 50 Ω).
Trigger output	5 V 50 Ω back-terminated.
Time base reference output	10 MHz, 5V 50Ω back-terminated.

General characteristics

Temperature	Operating: 5° C to +40° C. Non-operating: –40° C to +70° C.
Humidity	Operating: Up to 95% relative humidity (non-condensing) at +40°C. Non-operating: Up to 90% relative humidity at +65°C.
Altitude	Operating: Up to 4,600 meters (15,000 feet). Non-operating: Up to 15,300 meters (50,000 feet).
Vibration	Operating: Random vibration 5-500 Hz, 10 minutes per axis, 0.3 g(rms). Non-operating: Random vibration 5-500 Hz, 10 minutes per axis, 2.41 g(rms); resonant search 5-500 Hz, swept sine, 1 octave/minute sweep rate, (0.75g), 5 minute resonant dwell at 4 resonances per axis.
Power	100-240 VAC, ± 10%, Cat II, 47 to 440 Hz; max power dissipated: 475 W.
Weight	Net: 13 kg (28.5 lbs.). Shipping: 16 kg (35.2 lbs.).
Dimensions (excluding handle)	Height: 216 mm (8.5 in). Width: 437 mm (17.19 in). Depth: 440 mm (17.34 in).
Safety	Meets IEC 61010-1 +A2, CSA certified to C22.2 No.1010.1, self-certified to UL 3111.

* Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period, and ±5°C from annual calibration temperature.

1 Full scale is defined as 8 vertical divisions. Vertical divisions are defined by the major scale settings above non-major scale settings. The major scale settings are 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V.

2 Vertical resolution for 8 bits = 0.4% of full scale, for 12 bits = 0.024% of full scale.

3 Within one year of previous calibration.

4 FFT amplitude readings are affected by input amplifier roll-off.
54855A: –3 dB at 6 GHz, with amplitude decreasing as frequency increases above 6 GHz.
54854A: –3 dB at 4 GHz, with amplitude decreasing as frequency increases above 4 GHz.
54853A: –3 dB at 2.5 GHz, with amplitude decreasing as frequency increases above 2.5 GHz.
54852A: –3 dB at 2 GHz, with amplitude decreasing as frequency increases above 2 GHz.

5 The noise floor varies with memory depth and averaging.

6 Test signal peak-to-peak amplitude ≥ 5 divisions; vertical scale ≥ 10 mV/div; test signal rise time ≤ 415 ps (54852A), 335 ps (54853A), 225 ps (54854A), 150 ps (54855A); sample rate = 20 GSa/s (10 GSa/s for 54852A); sin(x)/x interpolation enabled; measurement threshold = fixed voltage at 50 % level.

7 Between two edges on a single channel. Rms value refers to the standard deviation of 256 consecutive measurements performed using an individual instrument.

8 Internal trigger. Trigger level contained within full scale display range of trigger channel.

InfiniiMax 1130 Series Performance Characteristics

|	**1134A, 1132A, 1131A, 1130A**
Bandwidth*	1134A: > 7 GHz 1131A: > 3.5 GHz 1132A: > 5 GHz 1130A: > 1.5 GHz
Rise and fall time (10% to 90%)	1134A: 60 ps 1131A: 100 ps 1132A: 86 ps 1130A: 233 ps
System bandwidth (–3 dB)	1134A with 54855A: 6 GHz 1132A with 54854A: 4 GHz 1131A with 54853A: 2.5 GHz 1131A with 54846B: 2.25 GHz 1131A with 54852A: 2 GHz 1130A with 54832B/D, 33A/D: 1 GHz
Input capacitance[1]	Cm = 0.10 pF Cm is between tips Cg = 0.34 pF Cg is to ground for each tip Cdiff = 0.27 pF Differential mode capacitance = Cm + Cg/2 Cse = 0.44 pF Single-ended mode capacitance = Cm + Cg
Input resistance*	Differential mode resistance = 50 kΩ ± 2% Single-ended mode resistance = 25 kΩ ± 2%
Input dynamic range	5.0 V peak to peak, ± 2.5 V
Input common mode range	6.75 V peak to peak dc to 100 Hz; 1.25 V peak to peak > 100 Hz
Maximum signal slew rate	18 V/ns when probing a single-ended signal 30 V/ns when probing a differential signal
DC attenuation	10:1 ± 3% before calibration on oscilloscope 10:1 ± 1% after calibration on oscilloscope
Zero offset error referred to input	< 30 mV before calibration on oscilloscope < 5 mV after calibration on oscilloscope
Offset range	± 12.0 V when probing single-ended
Offset accuracy	< ± 1% of setting when probing single-ended
Noise referred to input	3.0 mV rms
Propagation delay	~6 ns (this delay can be deskewed relative to other signals)
Maximum input voltage	30 V peak, CAT I
ESD tolerance	> 8 kV from 100 pF, 300 Ω HBM

*   Denotes warranted specifications, all others are typical.
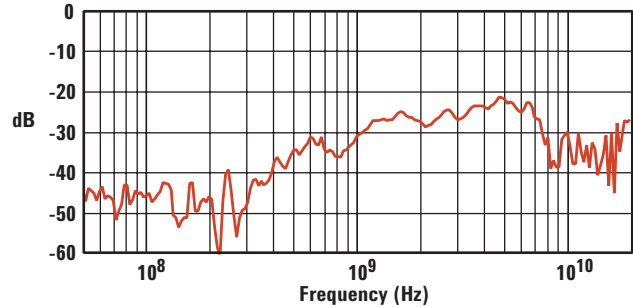1   Measured using the probe amplifier and solder-in differential probe head with full bandwidth resistors.
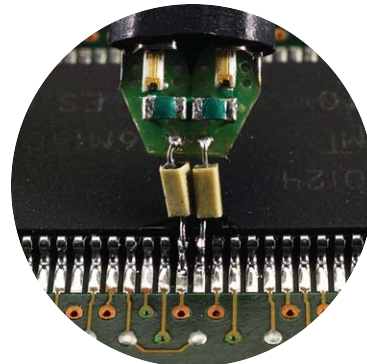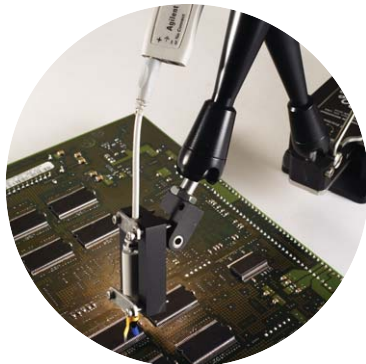
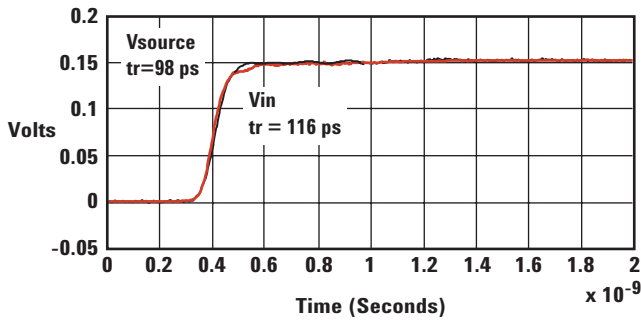# InfiniiMax 1130 Series Performance Characteristics (continued)

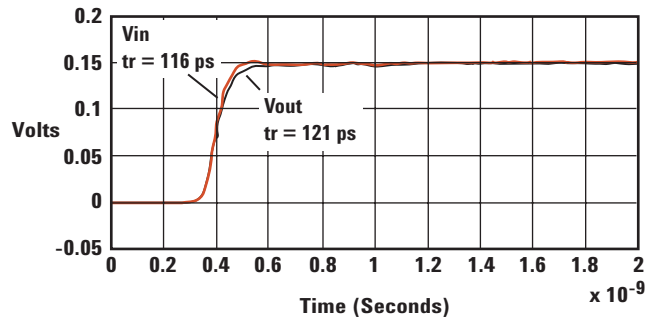**Example of characterized performance plots: differential solder-in probe head**
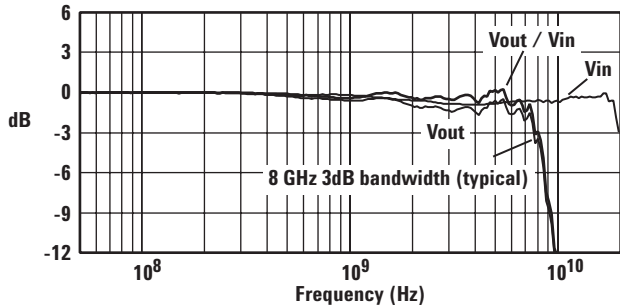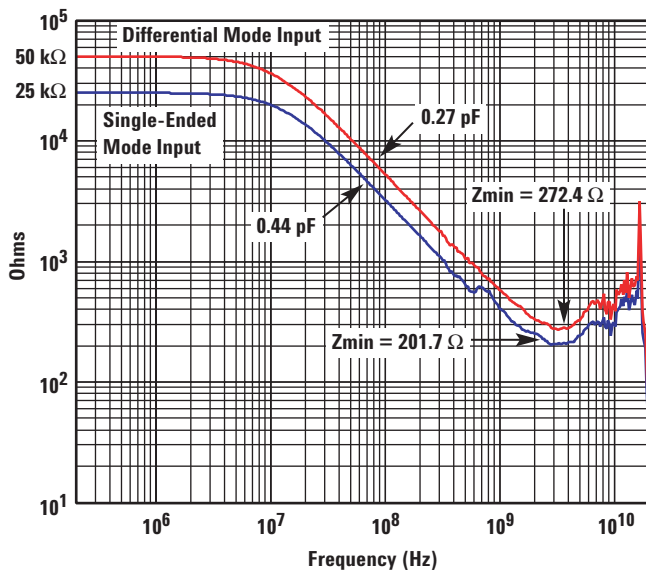
Swept frequency response

Common mode rejection vs. frequency

Time-domain probe loading

Time-domain probe tracking of 100 ps 10-90% step

Impedance vs. frequency

The electrical properties of the oscilloscope's probe head or probe accessory can often be the limiting factor in the measurement bandwidth or measurement accuracy that can be realized in practical use. The InfiniiMax probing system is the only high-bandwidth probing system that provides characterized performance plots for each of its probe heads. This allows you to see the measurement capability you can achieve for a given use model.

Additional InfiniiMax probe information including input impedance SPICE models (and corresponding SPICE decks) for InfiniiMax probes can be found online at **www.cos.agilent.com/manuals/scopes.html**.
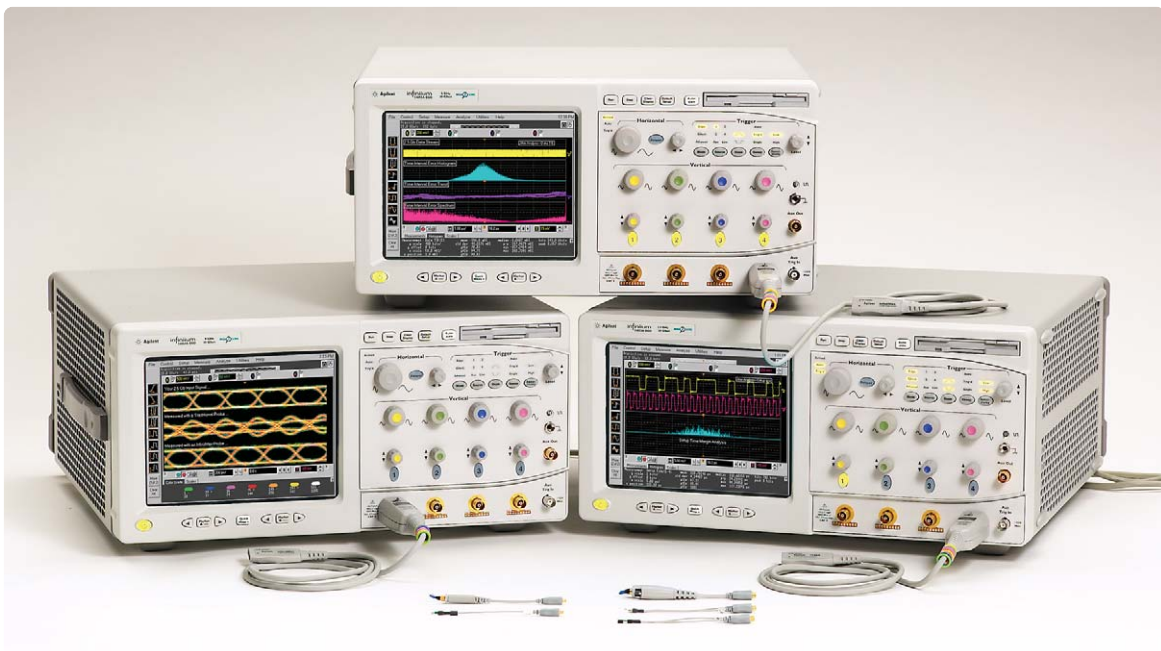
Ordering Information

54850 Series Infiniium oscilloscopes

Model	Bandwidth	Channels	Sample rate per channel	Standard acquisition memory
54855A	6 - 7 GHz	4	20 GSa/s	262 kpts per channel
54854A	4 GHz	4	20 GSa/s	262 kpts per channel
54853A	2.5 GHz	4	20 GSa/s	262 kpts per channel
54852A	2 GHz	4	10 GSa/s	262 kpts per channel

The above models include:
- Optical USB mouse
- Compact keyboard
- User's quick-start guide
- Documentation CD (service guide, programmer's guide, programmer's quick reference guide)
- Accessory pouch
- Power cord
- High-performance calibration cable (54855A only)
- E2655B probe deskew and performance verification kit
- Two 54855-67604 BNC-compatible to precision 3.5 mm (f) adapters (54855A, 54854A only)
- Three-year warranty.

Note: No probes are included with the 54850 Series oscilloscopes. The InfiniiMax 1130 Series probes must be purchased separately.
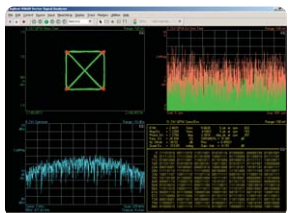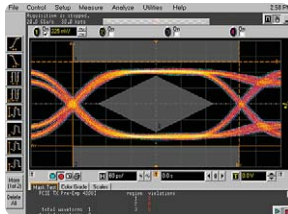
Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories

Options	Description
001	1M/ch memory upgrade for Infiniium 5485xA oscilloscopes (32M/ch for sample rates $\leq$ 2 GSa/s).
002	EZJIT jitter analysis software for Infiniium 5485xA oscilloscopes (installed at the factory).
003	High-Speed Serial Data Analysis/Mask Testing with clock recovery and 8b/10b decoding (installed at the factory).
004	EZJIT Plus jitter analysis software (installed at the factory).
006	My Infiniium Integration Package (installed at the factory).
008	7 GHz enhanced bandwidth software for the 54855A oscilloscope. Increase measurement bandwidth to 7 GHz (typical) or reduce scope bandwidth to 1 GHz to reduce system noise.
017	20 GB removable hard disk drive for Infiniium 5485xA oscilloscopes Replaces internal hard disk with a removable hard disk. Order the N5390A for additional hard disk drive cartridges.
021	Low-Speed Serial Data Analysis for Infiniium 548xx oscilloscopes (installed at the factory).

Instrument options	Description
1CM (E2609B)	Rack-mount kit.

Service options	Description
A6J	ANSI Z540-compliant calibration.

Accessories	Description
E2680A	After-purchase memory upgrade for Infiniium 5485xA oscilloscopes. Order 5485xA option 001 when purchasing a new Infiniium 5485xA oscilloscope. The E2680A is for customers who own a 5485xA scope and wish to upgrade the acquisition memory.
E2681A	After-purchase EZJIT jitter analysis software for Infiniium 5485xA oscilloscopes. Order 5485xA option 002 when purchasing a new Infiniium 5485xA oscilloscope. The E2681A is for customers who own a 5485xA oscilloscope and wish to upgrade to add the EZJIT software.
N5400A	After-purchase EZJIT Plus jitter analysis software for Infiniium oscilloscopes. The N5400A is for customers who own a 54850 or DSO80000 Series oscilloscope and wish to upgrade to add the EZJIT Plus software.
N5401A	After-purchase EZJIT Plus jitter analysis software for existing installations of E2681A EZJIT on Infiniium 54850 and DSO80000 Series Infiniium oscilloscopes. Adds RJ/DJ separation displays and analysis capability.
E2690A	After-purchase Advanced Timing Interval and Jitter Analysis software for Infiniium 5485xA oscilloscopes. Available in one scope license and four scope license versions.
N5390A	Additional 20 GB hard disk drive cartridge for Infiniium 5485xA option 017
E2654A	EZ Probe Positioner®: includes base, joystick, and articulating arm.

Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
E2655B	Additional probe deskew/performance verification kit for InfiniiMax probes.
54855-67604	18 GHz BNC-compatible to precision 3.5 mm (f) adapter for Infiniium 5485xA scopes. Allows highest fidelity connection of 3.5 mm or SMA cables.

E2688A

High-Speed Serial Data Analysis/Mask Testing with Clock Recovery.

Easily perform mask testing and characterize serial data streams that employ embedded clocks. The E2688A provides mask templates and clock recovery for verifying compliance to computer, communication and datacom standards. You can even characterize proprietary serial buses with the built-in, general purpose golden PLL clock recovery.

Features include:
- Golden PLL clock recovery
- Set up wizard to configure the clock recovery
- Real-time eye diagram display with eye-mask unfolding
- Recovered clock display
- Time interval error (TIE) jitter measurement with statistics on the data stream
- Mask template loading
- 8b/10b decode with symbol trigger and search

Standard masks include:
- PCI Express (2.5 Gbps)
- Serial ATA (1.5 Gbps)
- Fibre Channel Electrical (1.0625, 2.125, 4.25 Gbps)
- Ethernet IEEE 802.3 (10/100/1000Base-T)
- Serial Attached SCSI, XAUI

89601A

Vector Signal Analysis Software.

Agilent Infiniium oscilloscopes team up with the 89601A Vector Signal Analysis software to provide powerful, flexible, wideband signal analysis with up to 13 GHz bandwidth for applications including wideband communications and modulated radar.

Features include:
- Measurement bandwidth up to 13 GHz
- Flexible analog and digital demodulation supports the most advanced, complex modulation formats
- Deep memory in the Infiniium oscilloscopes allows excellent dynamic range and frequency resolution
- Flexible, powerful displays including spectrogram provide rapid insight into dynamic signal behavior
- For signal integrity and jitter measurements up to 13-GHz bandwidth the high performance Infiniium 54850 or 80000 Series digital oscilloscopes offer InfiniiMax active probes, MegaZoom deep memory, and 40 GSa/s sample rates
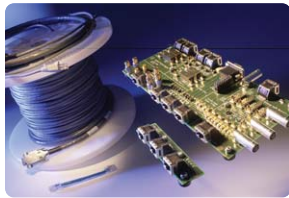
Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
N5392A	Ethernet Electrical Performance Validation and Compliance Software for Infiniium 54830, 54850, and 80000 Series Oscilloscopes.

The Agilent Technologies N5392A Ethernet electrical performance validation and compliance software for Infiniium 54830, 54850 and 80000 Series oscilloscopes provides you with a fast and easy way to verify and debug your 1000Base-T, 100Base-TX and 10Base-T Ethernet designs. The Ethernet electrical test software allows you to automatically execute Ethernet physical-layer (PHY) electrical tests, and it displays the results in a flexible report format. In addition to the measurement data, the report provides a margin analysis that shows how closely your device passed or failed each test.
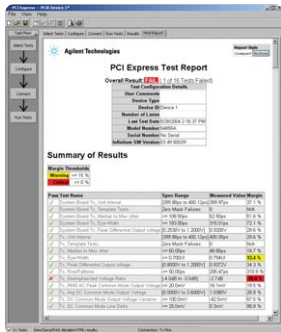
The Ethernet electrical performance validation and compliance software performs a wide range of electrical tests to meet the Ethernet electrical specifications for 1000Base-T, 100Base-TX and 10Base-T systems as documented in the IEEE 802.3-2002 and ANSI X3.263-1995 standards.

Features:
- Test setup wizard guides you through test selection, configuration, connection, execution, and results reporting.
- Wide-range of electrical tests are performed for 1000Base-T, 100Base-TX and 10Base-T standards.
- Measurement connection setups are displayed when you must change the test setup.
- Oscilloscope setup is automatically configured for each test.
- Test results report formally documents your test configuration, measurements made, pass/fail status, and waveforms.
- Pass/fail margin analysis provides an indication of how close your device is to meeting a test specification.

N5393A	PCI Express Electrical Performance Validation and Compliance Software.

The Agilent Technologies N5393A PCI Express electrical performance validation and compliance software provides you with a fast and easy way to verify and debug your PCI Express designs. The PCI Express electrical test software allows you to automatically execute PCI Express electrical checklist tests, and it displays the results in a flexible report format.

The N5393A PCI Express electrical test software utilizes the clock recovery method used in the official PCI-SIG Signal Quality Test Methodology ("SigTest") application, ensuring that your test results are consistent with results from the SigTest application.

The PCI Express electrical performance validation and compliance software performs a wide range of electrical tests as per the PCI Express 1.0a electrical specifications for add-in cards and motherboard systems as documented in section 4 of the base specification and section 4 of the card electromechanical specification.

Requires the E2688A serial data analysis software and one of the PCI-SIG approved compliance test fixtures (CBB or CLB).

Features:
- Test setup wizard guides you through test selection, configuration, connection, execution, and results reporting.
- Wide-range of electrical tests are performed, significantly more than SigTest.
- PCI-SIG SigTest clock recovery algorithm is used to ensure consistency with SigTest.
- Measurement connection setups are displayed when you must change the test setup.
- Oscilloscope setup is automatically configured for each test.
- Test results report formally documents your test configuration, measurements made, pass/fail status, and waveforms.
- Pass/fail margin analysis provides an indication of how close your device is to meeting a test specification.

Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
N5394A	DVI Electrical Performance Validation and Compliance Software for Infiniium 54850 and 80000 Series Oscilloscope.

The Agilent Technologies N5394A DVI electrical performance validation and compliance software provides you with a fast and easy way to verify and debug your digital visual interface (DVI) designs for add-in cards, cables and motherboard systems. The DVI electrical test software allows you to automatically execute DVI electrical checklist tests, and it displays the results in a flexible report format. In addition to the measurement data, the report provides a margin analysis that shows how closely your device passed or failed each test.

The N5394A DVI electrical performance validation and compliance software offers the four fundamental DVI electrical tests. The software automatically configures the oscilloscope for each test, and it provides an informative results report that includes margin analysis indicating how close your product is to passing or failing that specification.

Features:
- Test setup wizard guides you through test selection, configuration, connection, execution, and results reporting.
- Wide-range of electrical tests are performed.
- Uses the Silicon Graphics DVI Compliance test fixtures for measurements and hardware clock recovery.
- Measurement connection setups are displayed when you must change the test setup.
- Oscilloscope setup is automatically configured for each test.
- Test results report formally documents your test configuration, measurements made, pass/fail status, and waveforms.
- Pass/fail margin analysis provides an indication of how close your device is to meeting a test specification.

Download	Serial ATA Signal Quality Compliance Test.

If you develop Serial ATA host bus adapters or devices and would like to perform compliance testing to the standard, the sigtest program provides the following features:
- program runs inside Infiniium 54855A and tests host bus adapters and devices for compliance to Serial ATA standard, as issued by Serial ATA working group
- written test procedure for Agilent Infiniium 54855A and Agilent 81134A pulse/pattern generator
- software automatically sets up the oscilloscope, allows user to transfer setups to pattern generator, acquires waveform data and launches eye measurement (sigtest)
- includes support for OOB (out of band) signal testing
- solution has been evaluated and proven at Serial ATA plugfests

Program can be downloaded for free from the following URL:
http://www.cos.agilent.com/scope-apps/sata.html

Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
Partner Product	IEEE-1394 Pre-Compliance Test Option. A pre-compliance test solution is available from Quantum Parametrics for use in conjunction with Agilent 54850 Series oscilloscopes. This test solution automates the compliance test process for the IEEE-1394 standard. See http://www.quantumparametrics.com for additional information.
E2683A	USB 2.0 Compliance Test Option. The Agilent USB 2.0 compliance test option makes USB signal integrity testing as simple as capturing the signals with your oscilloscope. Infiniium has significantly reduced the work associated with USB compliance testing by eliminating the need to transfer scope waveforms to a PC. The Infiniium USB 2.0 test option features run-time MATLAB embedded in the scope for use with the USB signal integrity scripts, providing a one-box solution. The USB-IF compliance program recognizes Infiniium as a recommended scope for use in pre-compliance testing. In addition, all MATLAB scripts used with the USB 2.0 test option come from the USB-IF organization. This option works with all Infiniium 5485xA 4-channel oscilloscopes. Included with the E2683A are USB-IF MATLAB scripts and Signal Quality Inrush Droop/Drop (SqiDD) test fixture, needed for low/full speed testing. Additional SqiDD test fixtures can be purchased as the E2646A. For USB 2.0 High Speed testing, order the E2683A test option as well as the E2649A for a complete set of six fixtures and power supply. For USB 2.0 High Speed testing, a differential probe is required. Please order either the InfiniiMax 1130A 1.5 GHz, 1131A 3.5 GHz, 1132A 5 GHz or 1134A 7 GHz probe amplifiers, along with the E2669A differential connectivity kit or E2678A differential socketed probe head. The USB 2.0 Compliance Test Procedure is located at http://www.usb.org/developers/docs

Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
E2697A	High Impedance Adapter (Includes 500 MHz Passive Probe) for Infiniium 54850 Series Oscilloscopes.

The E2697A high impedance adapter allows connection of probes that require a high impedance input (e.g., passive probes, current probes) to the Infiniium 54855A, 54854A, 54853A and 54852A family of high performance oscilloscopes. The E2697A high impedance adapter extends the capability of Agilent Infiniium high-performance oscilloscopes, making them ideal for a variety of general-purpose measurements such as power supplies, inverters, semiconductor measurements, etc. The E2697A provides switchable ac/dc coupling, as well as 10:1 and 1:1 attenuation settings.

Specifications/Characteristics
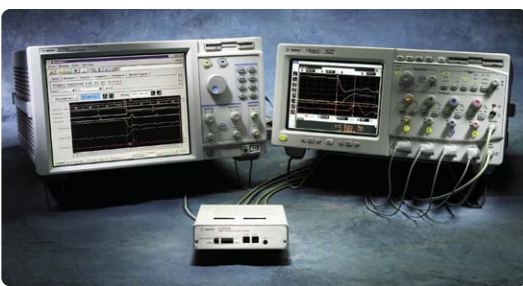
Bandwidth	Analog BW (-3 dB)*	500 MHz (with supplied 10073C passive probe)
	System Bandwidth	500 MHz (with 10073C passive probe and 54850 series oscilloscope)
Dc attenuation	1.16:1	E2697A internal attenuator at 1:1 (at scale settings > 200 mV/div signal size limited by input dynamic range)
	11.6:1	E2697A internal attenuator at 10:1 (at scale settings > 200 mV/div signal size limited by input dynamic range)
Input Dynamic Range	E2697A internal attenuator setting of 1:1	±0.8 V
	E2697A internal attenuator setting of 10:1	±8 V
Input Dynamic Range with 10073C passive probe	E2697A internal attenuator setting of 1:1	±8 V
	E2697A internal attenuator setting of 10:1	±80 V
Input Impedance*	1 MΩ ± 1% (~12 pF)	
Input Coupling	dc, ac (7 Hz)	
Maximum Input Voltage	±100V [dc + ac] [ac < 10 kHz], CAT I	
Offset Range	E2697A internal attenuator setting of 1:1	±5 V
	E2697A internal attenuator setting of 10:1	±50 V
Dc Gain Accuracy*[1]	±1.5% of full scale	
Offset Accuracy *[1]	±(1.5% of channel offset +1.5% of full scale)	

* Denotes warranted specifications, all others typical. Specifications are valid after a 30 minute warm-up period and ±5 °C from calibration temperature.

1 Full scale is defined as 8 vertical divisions.

Ordering Information (continued)

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
E2625A	Communication Mask Test Kit.

Take the frustration out of communications testing and prove your designs conform to industry standards with the E2625A Communications Mask Test Kit option. Infiniium's familiar Windows interface makes it easy for you to access the masks you need and configure your tests.

In addition, the E2625A Communication Mask Test Kit comes with a set of electrical communication adapters to ensure convenient, reliable and accurate connections to your device under test. Included are more than 20 industry standard ANSI T1.102 and ITU-T G.703 communication signal mask templates.

E5850A   Logic Analyzer/Oscilloscope Time-Correlation Fixture.

Now you can more effectively verify and track down problems between the analog and digital portions of a design. Easily make time-correlated measurements between an Agilent 16700 Series logic analysis system and an Infiniium 54800 Series oscilloscope. With the E5850A Time-Correlation Fixture, you can trigger the Infiniium from the logic analyzer (or vice versa), automatically deskew the waveforms and simultaneously view the Infiniium oscilloscope waveforms and the logic analyzer's timing waveforms on your Agilent 16700 Series Logic Analyzer.

Foot Switch   Kinesis Savant 3-Action Programmable Foot Switch P/N FS004PS2.

Allows you to easily program the 3-action foot pedals to perform the following scope functions: run, stop, toggle between run and stop, save waveform, save screenshot, measure any five waveform parameters and recall an instrument setup. See http://www.kinesis-ergo.com for additional information and ordering instructions.

54850 Series Infiniium oscilloscope options and accessories (continued)

Accessories (continued)	Description
1184A	Testmobile. Agilent's 1184A testmobile provides a convenient solution for your portability and storage needs. The 1184A includes a drawer for accessories and a keyboard tray with a mouse extension for either right- or left-handed operation.

E2682A — VoiceControl Option.

If you're making measurements on target systems with densely packed Ics, your hands are tied up holding probes, making it difficult to turn knobs and press buttons on the front panel of your scope. Infiniium's award-winning VoiceControl option solves this problem. Just speak into the collar-mounted microphone to operate your Infiniium's front-panel controls without using your hands. Simply tell the scope what you want it to do, using natural English-language commands, such as "set channel one to 1 volt per division." The VoiceControl system does not require the scope to be trained to understand a particular user.

E2699A — My Infiniium Integration Package
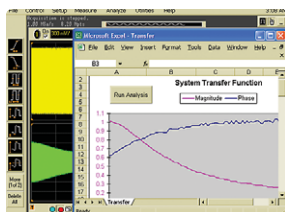
My Infiniium allows you to extend the power of your Windows XP-based Infiniium oscilloscope by letting you launch customized applications, such as those written for Agilent VEE Pro, NI LabVIEW, MATLAB$^{®}$ or Microsoft Excel, directly from the oscilloscope's front panel or graphical user interface.

For more detailed information, please request Agilent publication number 5988-9934EN.

N5391A — Low-Speed Serial Data Analysis Software.
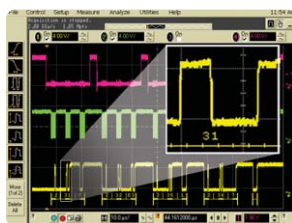
Provides a fast and easy way to debug Inter-Integrated Circuit (I^2C) and 2-wire or 3-wire Serial Peripheral Interface (SPI) serial communication busses. The Low-Speed SDA software, when used with the Agilent 54830 Series or 54850 Series Infiniium oscilloscopes, provides the ability to capture and automatically display decoded serial data in numerical format synchronized with the analog or digital waveform view of I^2C or SPI serial data streams.

Ordering Information (continued)

1130 Series InfiniiMax probing system

Probe amplifiers model	Description
1134A	7 GHz InfiniiMax probe amp — order one or more probe heads or connectivity kits.
1132A	5 GHz InfiniiMax probe amp — order one or more probe heads or connectivity kits.
1131A	3.5 GHz InfiniiMax probe amp — order one or more probe heads or connectivity kits.

Connectivity kits model	Description
E2669A	InfiniiMax connectivity kit for differential/single-ended measurements. Includes a differential browser, four solder-in differential probe heads and two socketed differential probe heads. Includes all necessary accessories.
E2668A	InfiniiMax connectivity kit for single-ended measurements. Includes one single-ended browser, one solder-in probe head and one socketed probe head. Includes all necessary accessories.

Individual probe heads	Description
E2675A	InfiniiMax differential browser probe head and accessories. Includes 20 replaceable tips and ergonomic handle. Order E2658A for replacement accessories.
E2676A	InfiniiMax single-ended browser probe head and accessories. Includes 2 ground collar assemblies, 10 replaceable tips, a ground lead socket and ergonomic browser handle. Order E2663A for replacement accessories.
E2677A	InfiniiMax differential solder-in probe head and accessories. Includes 20 full bandwidth and 10 medium bandwidth damping resistors. Order E2670A for replacement accessories.
E2678A	InfiniiMax single-ended/differential socketed probe head and accessories. Includes 48 full bandwidth damping resistors, 6 damped wire accessories, 4 square pin sockets and socket heatshrink. Order E2671A for replacement accessories. Order E5381-82103 for 34 damped wire accessories only.
E2679A	InfiniiMax single-ended solder-in probe head and accessories. Includes 16 full bandwidth and 8 medium bandwidth damping resistors and 24 zero ohm ground resistors. Order E2672A for replacement accessories.
E2695A	Differential SMA probe head. Includes semi-rigid coax to change span between SMA cables. Works with InfiniiMax 1130 series probe amplifiers.

Adapters	Description
N1022A	Adapts 113x/115x active probes to 86100 Infiniium DCA.

Ordering Information (continued)

1130 Series InfiniiMax probing system (continued)

Other compatible probes	Description
1144A	800 MHz active probe. Requires 1142A probe power supply when used with Infiniium scopes. Requires 01144-61604 probe power extender when using two or more 1144A active probes.
1145A	2-channel, 750 MHz active probe. Requires 1142A power supply when used with Infiniium oscilloscopes.
1156A	1.5 GHz single-ended active probe for Infiniium scopes.
1157A	2.5 GHz single-ended active probe for Infiniium scopes.
1158A	4 GHz single-ended active probe for Infiniium scopes.
54006A	7.5 GHz passive resistive divider probe – 10:1 (500 ohms) or 20:1 (1 kohms).

Ordering Information (continued)

The Agilent 81134A pulse/pattern generator provides high speed stimulus to your devices, with pulses, patterns and PRBS data from 15 MHz to 3.35 GHz. You can also perform stressed eye diagram measurements with jitter on PRBS, data and clock signals.

Related Literature

Publication Title	Publication Type	Publication Number
Infiniium 54800 Series Oscilloscopes	Data Sheet	5988-3788ENUS
Option 008, 7 GHz Enhanced Bandwidth Oscilloscope	Data Sheet	5989-1066EN
E2681A EZJIT Jitter Analysis Software	Data Sheet	5989-0109EN
E2690A Timing Interval & JItter Analysis Software	Data Sheet	5988-9723EN
E2683A USB 2.0 Compliance Test Sotfware	Data Sheet	5989-0236EN
E2688A High-Speed Serial Data Analysis Software	Data Sheet	5989-0108EN
Using Agilent InfiniiMax Probes with Test Equipment other than Agilent Infiniium Oscilloscopes	Configuration Guide	5989-1869EN
Infiniium 54800 Series Oscilloscope Probes, Accessories and Options	Selection Guide	5968-7141EUS
Advantages and Disadvantages of Using DSP Filtering on Oscilloscope Waveforms	Application Note 1494	5989-1145EN
Restoring Confidence in Your High-Bandwidth Probe Measurements	Application Note 1419-01	5988-7951EN
Understanding Usability Versus Performance on High-Bandwidth Active Oscilloscope Probes	Application Note 1419-02	5988-8005EN
Performance Comparison of Differential and Single-Ended Active Voltage Probes	Application Note 1419-03	5988-8006EN
Understanding Oscilloscope Frequency Response and Its Effect on Rise Time Accuracy	Application Note 1420	5988-8008EN
Understanding and Using Offset in InfiniiMax Active Probes	Application Note 1451	5988-9264EN
Finding Sources of Jitter with Real-Time Jitter Analysis	Application Note 1448-2	5988-9740EN

Product Web site

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