

# Keysight Infiniium Oscilloscopes Software

This software is designed to run on the Keysight Infiniium 9000 Series, S-Series, 90000A Series, 90000 X-Series, V-Series, 90000 Q-Series, and Z-Series oscilloscopes or on personal computers.

Version 06.74.01101

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Released Date:	26 January 2024
Operating System:	Windows 10, Windows 7

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## Enhancements

- Adds Top, Base algorithm selection for amplitude measurement custom thresholds.

## Bug Fixes

- Touch screen won't turn off on V-series oscilloscope using the newest LCD display, Power View PN: 2090-1159.
- Not all data is decoded in MIPI C-PHY protocol.
- Burst Interval measurement includes an invalid burst interval from the start of the waveform to the first burst.
- Burst width measurement includes a burst at the end of a waveform that isn't followed by an idle period.
- Some of the licenses are not enabled for the following bundles, D9011BDLP, D9020BDLP, SW02MIPI, SW02PCIE and SW02USBH.

## Notes

- Updates Keysight Host Process Platform to 5.4
- Updates Keysight IO Library Suite to 18.3

## Version 06.74.00701

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Released Date:	5 October 2023
Operating System:	Windows 10, Windows 7

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### Enhancements

- Adds support for D9011PAMA and D9020PAMA Pulse Amplitude Modulation PAM-N Analysis Software.
- Makes frame de-skew optional for Multiscope, rather than required.
- Increases the Clock Reference maximum to 5 UI in the Jitter/Noise Setup Advanced tab.
- Adds a new SCPI query to get a binary block of recovered clock times, “:ANALyze:CLOCK:TIME?”
- Decreases the CDR settling time requirement for PCIe 5 CDR presets.

### Bug Fixes

- The bandwidth parameters for the PCIe5/6 PLL’s have a typo, where 10eX should be written as 1eX. This bug may cause the measured jitter for 12-edge jitter to be smaller than the actual value, since it causes the PLL bandwidth to be larger than it should be.
- The PCIe Gen 4 preset for OJTF Loop BW at 16Gbs/s is incorrectly set to 4.891MHz. It should be 10MHz.
- The Max Input probe system characteristic is misleading for the N7020A and N7024A probe amps and should be removed.
- The Help content for the Eye Crossing % measurement marker position is incorrect.
- The Eye Crossing Percentage measurement is inaccurate.
- 100BASE-T1 protocol analysis Trigger on Search crashes in RUN mode.
- Infiniium crashes while running Clock Jitter tests for the DDR5 compliance app.
- Infiniium crashes when selecting the USB Power Delivery protocol.
- The Acq Mem ICs service self-test doesn’t complete.
- The DC Attenuation/Offset cal fails on the first attempt when using the N5449A High Impedance Adaptor with a BNC cable.
- The FFT Magnitude math function is not detecting peaks while using Logarithmic Horizontal Scale.
- USB 3.0 Gen 1 protocol decode inconsistent in 8b10b framer in absence of control symbols.

## Notes

- Adds support for Keysight License Manager 5.5.2.121 and Keysight License Service 5.5.2.121. Previous Infiniium software versions do not recognize installed licenses when 5.5.2.121 or newer is installed.

## Version 06.74.00402

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Released Date:	5 July 2023
Operating System:	Windows 10, Windows 7

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## Bug Fixes

- Keysight Pathwave Calibration Advisor doesn't install properly.
- Some of the PCIe CDR presets are incorrect.
- Trigger on Search is not working for Ethernet 100BaseT protocol.
- DP0001A probe LED is not indicating 500:1 with channel offset > 0.

## Known Bugs

- The PCIe Gen 4 preset for OJTF Loop BW at 16Gbs/s is incorrectly set to 4.891MHz. It should be 10MHz. This issue will be fixed in the next release.

## Notes

- This Infiniium software version updates the Keysight Pathwave Calibration Advisor to 1.46.0523.7.

## Version 06.74.00204

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Released Date:	19 April 2023
Operating System:	Windows 10, Windows 7

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### Bug Fixes

- Connecting the N7010A probe crashes the Infiniium application.
- Intermittent issues connecting/disconnecting MX002XA probes.
- Adds missing AC/DC coupling control for the PP0001A/2A/3A Hi-Z+ passive probes.
- Corrects for an unaccounted skew when using Pattern/State trigger with Multiscope.

### Notes

- Includes Keysight License Manager update 5.5.1.81 and Keysight License Service update 5.5.1.81.

## Version 06.74.00002

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Released Date:	2 March 2023
Operating System:	Windows 10, Windows 7

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### Bug Fixes

- The probe system characteristics (Max Input, Signal Range, CM Range) listed for the N2803A probe amp with the N5444A SMA probe head are incorrect.
- Not reporting enough significant digits in the measurement results when the Significant Figures in the Display Setup Results dialog is set to Max.
- The number of significant digits in the measurement results reported over SCPI doesn't match the GUI reported number in some cases.
- The AUX output probe compensation voltage levels listed in the online help for the 90000A, V and Z series oscilloscopes is incorrect.
- D9010MPMP MPIP M-PHY protocol decode showing incorrect status. The correct status should be "scrambling supported" and "skip symbols not required".
- Incorrect URL is launched in a web browser when the Software Updater isn't found.
- Data Time Interval Error (TIE) sometimes produces an improper Mean result.
- "The measurement you chose can't be performed on the selected waveform" error message shown when loading the Bookmarks demo.
- "Auto set measurement thresholds" produces incorrect thresholds intermittently.
- Unable to edit the GPIB remote address in the Utilities->Remote dialog.

- “:DISPlay:GRATicule:GLAYout?” query returns incorrect strings that don’t match the programming guide.
- “N7019A Type-C Active Link Fixture” probe selection does not go away after doing a factory default.
- Missing SCPI documentation for the “:FUNCTion<N>:FFT:START” command/query.

## Version 06.73.00301

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Released Date:	9 December 2022
Operating System:	Windows 10, Windows 7

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### Enhancements

- SCPI grammar to select user defined current probes has been added.
- Increases the UDF string length from 128 to 255 chars for the “:FUNCTion<F>:MATLab:CONTrol<N>” SCPI command.

### Bug Fixes

- Continuous execution of SCPI commands which open/close jitter graphs may slow down over time.
- Clock TIE markers with constant frequency CDR are drawn in the incorrect location with respect to the current measurement.
- The probe skew calibration for the PP0001A/02A/03A probes is failing.
- When using the PP0004 probe adapter with the PP0001A/02A/03A probes, after calibrating a probe and then connecting a different probe, the new probe connected shows that it is already calibrated.
- MIPI M-PHY G5 compliance test software is throwing an intermittent error when saving the oscilloscope image.
- CAN-XL Protocol – Not handling ADS/DAS tolerance correctly.
- Infiniium software crashes when using an invalid Server IP address connecting to Data Analytics from within the Utilities->Data Analytics setup dialog.

### Notes

- The Data Analytics Setup dialog box no longer supports uploading attachments such as setups, composites, and waveform data. It still supports uploading measurement results. The Help documentation has been updated to reflect this.

## Version 06.73.00102

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Released Date:	2 November 2022
Operating System:	Windows 10, Windows 7

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### Bug Fixes

- Due to rounding, setting the :CHANnel<N>:SCALE command to the maximum value might return an -222 “data out of range” error code when that maximum value is a fractional value.

## Version 06.73.00003

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Released Date:	23 September 2022
Operating System:	Windows 7, Windows 10

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### Enhancements

- Adds support for UniPro 2.0 (rev 1.0) for the “D9010MPMP MIPI M-PHY Protocol Decode/Trigger Software.”
- Adds support for eUSB2 v1.2 for the “D9010EMBP Embedded Protocol Decode/Trigger Software for USB 2.0, 10/100 ETH, PCIe 2/1,” and the “D9010USBP USB4, USB 3.x, USB 2.0 and eUSB2 Protocol Decode/Trigger Software.”

### Bug Fixes

- “Automatic Probe Correction” is not being applied to the N2803A probe amplifier causing degraded signal integrity.
- Incorrect SCPI grammar for the “:DISPlay:BOOKmark<N>:SET” command.
- Measured jitter values (especially DJ) are significantly changing depending on the memory depth setting.
- MIPI:I3C Protocol: “HDR-DDR Master Abort” is reported as a protocol error.
- Adding a measurement to a function source before the source is turned on is returning SCPI error code 25.
- Peak-Peak Contrast measurement not showing a result.
- Channel 1 Invert setting inadvertently gets applied to the other channels when Averaging and High Resolution acquisition modes are enabled.
- “Level Qualification of Timing Measurements” broken for “Between Upper, Lower Thresholds” mode.

- Manual vertical scaling option in “Histogram (Measurement)” function doesn’t have any effect on scaling.

## Notes

- Includes an FPGA update for the S-series oscilloscopes.

## Version 6.72.00501

Released Date:	11 July, 2022
Operating System:	Windows 7, Windows 10

## Enhancements

- Adds support for new Add-On model numbers. D9110xxxx replaces D9010xxxx and D9120xxxx replaces D9020xxxx model numbers.
- Adds support for two new model numbers for midrange and high-performance oscilloscopes to replace D9010PAMA. For midrange, D9110PAMA “Pulse Amplitude Modulation PAM-N Analysis Software for MXR/EXR/S-Series”. For high performance, D9120PAMA “Pulse Amplitude Modulation PAM-N Analysis Software.”

## Bug Fixes

- MIPI D-PHY protocol: EOT missing.
- CAN-XL protocol: Not able to select data rate more than 10 Mbps.
- DisplayPort Aux Protocol: removed digital channel selection.
- Protocol is re-decoded when the waveform is moved.
- Normalization not applied properly for FFE equalization taps.
- Probes not recognized on 9000A, 90000A and 90000X series oscilloscopes.
- Front panel LEDs not lighting up on 9000A and 90000A series oscilloscopes.
- Voltage overload running PP0001A passive probe calibration on S-series oscilloscopes.
- Probe DAC calibration failure on 90000X series oscilloscopes. The Probe DAC calibration runs at the beginning of the frame calibration.

## Version 6.72.00302

Released Date:	26 May, 2022
Operating System:	Windows 7, Windows 10

### Bug Fixes

- Fixes a defect causing the N7005A and MX002XA probes not to be recognized when connecting the probe to the oscilloscope.

## Version 6.72.00301

Released Date:	11 May, 2022
Operating System:	Windows 7, Windows 10

### Enhancements

- Adds decode support for PWM signaling for protocol CAN-XL – D9010AUTP “Automotive Protocol Decode and Trigger Software”.
- Adds help documentation for protocol CAN-XL (FAST Mode) – D9010AUTP “Automotive Protocol Decode and Trigger Software”.
- Adds documentation to the programmer’s guide for “:DISPlay:PAM:SOURce”, “:DISPlay:PAM:TABLE” and “:DISPlay:PAM:GRAPH” SCPI commands – D9010PAMA “Pulse Amplitude Modulation PAM-N Analysis Software”.
- Adds documentation to the programmer’s guide for the “:DISK:PUTFILE” SCPI command.



## Bug Fixes

- Fixes missing GUI for setting internal probe controls such as voltage termination.
- Fixes a software crash that can occur when disconnecting the PP0004A AutoProbe-1 adapter.
- Fixes a calibration failure of the PP0001A passive probe running on an S-series oscilloscope.
- Fixes a display defect in the gating math function where the gate is still showing after the gating source channel is turned off.
- Fixes realtime eye measurements for cases when Mask Test is enabled.
- Fixes the PCIe5 CTLE equalization preset filter response.
- Fixes a defect with recalling a setup. The measurement sequence in the measurement results tab was not being recalled properly.

## Version 6.72.00001

<b>Released Date:</b>	<b>2 March, 2022</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- Adds a SCPI command, :LXI:IDENtify[:STATe] <Boolean>, used by LXI to identify the oscilloscope by popping up an LXI LAN information window that includes the LXI class, LXI version and MAC Address.
- Adds the undershoot measurement.
- Adds support for the D9010ASIA “Advanced Signal Integrity Software” license.
- Compensates for VTerm on MX0105A and N5380A/B SMA probe heads.
- Adds support for CAN-XL to the D9010AUTP “Automotive Protocol Decode and Trigger Software” license.

## Bug Fixes

- Fixes a false CRC error in the CAN protocol decode software, D9010AUTP.
- Fixes a Multiscope defect on the S-series oscilloscopes preventing the sample rate from going below 10GSa/s.

- Increases the number of significant digits for percent measurements available over SCPI. The customer can control this by increasing the number of Significant Figures in the Display setup dialog under the Results tab.
- Addresses a SCPI issue where adding a tracking measurement marker deletes all the markers that were previously enabled. The :MARKer:MEASurement:MEASurement command is updated to add new optional parameters to prevent deletion of the other tracking markers.
- Fixes an issue on the V-series and Z-series oscilloscopes running with Windows 7 where the display is cutoff slightly on the top and bottom of the screen.
- Fixes a discontinuity in the BER Bathtub plot that can occur between Tj and Rj/Dj jitter extrapolation for the D9010JITO, D9010JITA and D9020JITA jitter/noise analysis software.

## Version 6.71.00202

<b>Released Date:</b>	<b>15 December, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Enhancements to D9010ASIO “Infiniium Offline – Adv Signal Integrity Software” and D9020ASIA “Advanced Signal Integrity Software”
  - Adds Infiniisim SCPI grammar for specifying port numbering and port flipping.

### Bug Fixes

- Fixes oscilloscope voltage range limits for probes with multiple attenuation levels including DP00001A, MX002XA, N7026A, N7000/1/2/3A, N2830/1/2A, N2820/1A, N2790A, and N2750/1/2A.
- Fixes a defect preventing the oscilloscope software from responding to Current Probe external power being plugged in/removed.
- Fixes the probe calibration cancel action for the MX002XA probes so that it shows uncalibrated.
- Fixes a software crash that occurs on the MX002XA with E2676B browser when source estimate mode is selected.
- Fixes a MX0025A gain/offset probe calibration failure which was occurring while using the MX0106A flat probe head.
- Fixes a N7003A with N5444A probe head calibration failure.

- Fixes the N5449A skew calibration procedure to call out a 50-ohm pass-thru for cable connections.
- Fixes decoding defects in the I3C protocol decoder.
- Fixes decoding defects in the JTAG protocol decoder.
- Fixes a software hang occurring with “Multipurpose on Trigger” Quick Email.
- Fixes a defect preventing the loading of a .h5 waveform file from the “Open Composite File” dialog.
- Fixes channel differential mode to work properly when probe external gain/offset is enabled.

## Version 6.71.00001

<b>Released Date:</b>	<b>26 October, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Supports Secure Instrument Communications 1.0.
- Extends the maximum number of measurements to 40. The previous maximum was 20.
- Adds support for the following Protocols:
  - MIPI RFFE V3.0 (includes protocol trigger for S-series and decode only for other series) – D9010MPLP license
  - UniPro 2.0 – D9010MPMP license
- Adds SCPI support for the Duty Cycle Adjustment measurement.

### Bug Fixes

- Fixes the “Multipurpose on Trigger” feature for saving waveforms and screen images.
- Fixes a problem maximizing the oscilloscope window after minimizing.
- Fixes a defect preventing digital channels from being loaded from .h5 composite, .txt, .csv and .bin file formats.
- Fixes a crash that occurs after opening the probe resource center link in the probe configuration dialog.

## Version 6.70.00101

Released Date:	5 October, 2021
Operating System:	Windows 7, Windows 10

### Enhancements

- Adds the query, :LISTer:DATA? BUS, to get lister data for digital channel buses.

### Bug Fixes

- Updates Quick Jitter to use Arbitrary Pattern Length.
- Fixes the USB remote address displayed.
- Fixes the probe offset selection.
- Calls out the correct calibration fixture options for the InfiniiMax I and InfiniiMax II probes.
- Fixes some cases where the noise graphs were not being displayed for the EZJIT Complete Jitter/Noise application.
- Removes the InfiniiSim preset that sets up, "Remove Scope Reflections," because it's no longer supported.
- Fixes the "Probe Resource Center" link in the Probe Configuration dialog.
- Fixes the loop bandwidth setting for the Display Port UHBR10, UHBR13.5 and UHBR20 CDR presets. The correct setting is 5 MHz.
- Fixes a case where the Eye Height measurement was returning 0 rather than the correct eye height.

Version 6.70.00001

Released Date:	20 August, 2021
Operating System:	Windows 7, Windows 10

## Enhancements

- Includes several updates to PAM4 CDR, equalization and jitter to support IEEE 802.3ck D1.4 spec and PCIe6:
  - o New CTLE and CDR functions for PCIe6
  - o Improves the 12E measurements to work with high BER signals
  - o 12E Jitter and Jrms, J4U, J6U, EOJ measurement on PRBS9Q and PCIe6 52-bit pattern
  - o SNDR Sigma-n measurement
  - o Improves pattern averaging to work on closed eyes.
- Provides support for the following new InfiniiMax probes: MX0020A (10 GHz), MX0021A (13 GHz), MX0022A (16 GHz), MX0024A (20 GHz), MX0025A (25 GHz). Note that MX0023A (25 GHz) is already supported with the 06.60 versions of software.
- Adds support for following Protocols:
  - o Automotive Ethernet 1000BaseT1, decode only, D9020AUTP
  - o CSI2 v3.0 over CPHY v2.0, D9010MCDP
  - o DP 2.0 Phase 1 – Aux Channel, decode only, D9010EMBP and D9010USBP

## New SCPI Grammar (refer to Programmer's guide for details)

- :FUNCTION:FFT:PEAK:SORT {DMAGnitude | DFRequency | IMAGnitude | IFRequency}
- :FUNCTION<N>:FFT:PEAK:STATe {ON | OFF}
- :FUNCTION<N>:FFT:PEAK:LEVel <peak\_search\_level>
- :FUNCTION<N>:FFT:PEAK:COUNT <max\_peaks\_to\_find>
- :FUNCTION<N>:FFT:PEAK:MAGNitude?
- :FUNCTION<N>:FFT:PEAK:FREQuency?
- :FUNCTION<N>:LABel <label\_string>

- :WMEemory<N>:LABel <label\_string>
- :MEASure:NSIGma [<source>[, {PCIE | IEEE}]
- :MEASure:PN:DESKew
- :DISPlay:GRATicule:AREA<N>:HSCale {ON | OFF}
- :DISPlay:GRATicule:AREA<N>:VSCale {OFF | AUTO | MANual}
- :DIGital<N>:POSition <1-24>
- :DISPlay:BOOKmark:DElete:ALL

## Bug Fixes

- Fixes an issue with the “:LISTer:DISPlay ON” command not turning the display back on.
- Fixes an issue in the Phase Noise plot not accumulating averages.
- Fixes an issue with Quick Jitter on the S-series only going to 250kpts.
- Fixes an issue where the Macro Recorder doesn’t work when the Protocol Subtype is set.
- Fixes an issue with the remote commands for Marker source selection.
- Fixes an issue with recognizing the AE6910T license.
- Fixes a Telnet port conflict issue between Infiniium and the Keysight Translator Framework.
- Fixes an issue saving screen shots to a file through a Remote Desktop connection.
- Fixes an intermittent crash occurring when using “:MEAS:RJDJ:ALL?” query.
- Fixes an intermittent crash occurring when using “:MEAS:PAM:PRBS13q:EDGE:EOJ?” query.
- Fixes Multipurpose so that it correctly saves the number of .csv files selected.
- Fixes FFT channel power and power spectral density results for Vrms units.
- Increases the resolution of the frequency labels on the x axis.
- Fixes the delta-time measurement between an analog and digital channel when “Measure All Edges” setting is enabled.
- Turns off differential channels when the external probe scaling is different between the two channels.

- Changes composite files to always use 16-bit integer format for the data and not ever use float format.
- Fixes a discontinuity in the jitter bathtub plot.
- Fixes an issue where the gain is set incorrectly for auto-selected DFE taps with optical probes.
- Reduces the probe offset error resulting from the Gain/Offset probe calibration for the N7000A-3A InfiniiMax III+ probes.

## Version 6.60.00802

<b>Released Date:</b>	<b>16 June, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixes a defect preventing the D9010EXMA External Mixer Assistant Software from working.
- Fixes a defect with the PDER (process done event register) query which is impacting the Ethernet Compliance Software application. In some cases, PDER was returning "1" for a single run before the acquisition was complete.
- Adds Windows10 support to the Infiniium installer so that it installs VC++2013 (x86 and x64) redistributables. These are required for some compliance test applications.

## Version 6.60.00601

<b>Released Date:</b>	<b>29 April, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixes improper decoding of the TS2 packet for USB 3.2 protocol decode.
- Reduces the time required on the MX0023A InfiniiMax 25 GHz RC probe to change the attenuation setting.
- Fixes a failure that occurs uploading more than one data set to Pathwave Measurement Analytics.
- Fixes a bug with the power spectral density measurement showing “N.N” result for the FFT with Vrms units selected.
- Modifies the 12-edge jitter algorithms to measure jitter relative to the nearest recovered clock edge rather than from the start of the waveform.
- Fixes the phase noise carrier power measurement for a differential signal. It was calculated with 50-Ohm reference impedance but should be calculated with 100-Ohm reference impedance.
- Fixes an issue causing the Eye Diagram test to abort in the eDP compliance test application.

## Version 6.60.00504

<b>Released Date:</b>	<b>29 March, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Adds SCPI support for RS-232 / UART serial decoding.
- Provides a popup dialog to update the MX0023A probe firmware when a probe with out-of-date firmware is connected to the oscilloscope. Using MX0023A probes with out-of-date probe firmware can result in long delays when attaching the probe or when changing attenuation setting. The most current version of MX0023A probe firmware is 6.4.

### Bug Fixes

- Fixes a crash that occurs running the FFT function under certain conditions.



- Fixes a crash occurring when reordering measurements.
- Fixes an issue with deleting a single measurement after reordering the measurements. Multiple measurements were being deleted.
- Fixes the SCPI command, :LISTER:DISPLAY:OFF, which turns off the protocol lister display.
- Fixes an issue with the eye width measurement not measuring the full extent of the eye opening under certain conditions.
- Fixes an issue with loading Mask Test file formats other than “.msk”, such as “.mskx”. An error message would pop up for formats other than “.msk”.
- Fixes an intermittent crash occurring when running the USB3 compliance test application.
- Fixes the “Display->Windows->Tab Windows” feature so that it works properly for the protocol tab.
- Fixes the “Auto set thresholds” feature in the Measurement Threshold dialog for PAM-4 signals. It wasn’t working for existing thresholds that were outside of the eye. This issue was impacting all PAM-4 compliance test applications.
- Changes the reference for 12-edge jitter measurements for every iteration of the pattern instead of per acquisition.

## Version 6.60.00403

<b>Released Date:</b>	<b>12 February, 2021</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- Adds support for MDIO protocol decode (D9010EMBP)
- Adds CDR presets for DisplayPort UHBR speeds
- Adds programmable Reference Impedance to the FFT Magnitude math function. Also adds SCPI grammar to support this feature.
  - o :FUNC<N>:FFT:IMPedance {AUTO | <impedance>}
  - o :FUNC<N>:FFT:IMPedance?

## Bug Fixes

- Fixes a bug in the MIPI RFFE v22.10 protocol decoder where it wouldn't trigger on a register read.
- Reduces the delay that occurs after attaching the MX0023A InfiniiMax 25 GHz RC probe or when changing attenuation setting.
- Removes an invalid message that occurs when connecting any type of probe, "MX0023A probe detected, computing probe transfer function which will take a minute."
- Fixes two bugs occurring after calibrating the MX0023A probe, (1) no longer supports 1:1 probe attenuation, and (2) a voltage offset occurs at < 50 mV/div scale settings.
- Fixes a bug when playing through segments where the colorgrade display of a math function does not accumulate.
- Fixes a bug when playing through segments of a waveform memory where the segment index does not increment.
- Fixes a crash that occurs when sending a SCPI :SYSTem:DEBug command with an invalid filename argument.
- Fixes a bug with measurement histograms where the count resets to 1 after pressing stop.
- Fixes a bug with the SCPI :MEASure:ETOEdege? query where it erases the onscreen measurement result.
- Fixes a bug in the SVID protocol decoder where it falsely triggers on an error type of "End Pattern Error".
- Fixes a crash that can occur when closing the Mask Test dialog.
- Fixes a touch screen bug where pressing a stepper control such as time/div or volts/div causes two steps rather than one.
- Fixes a defect in the eye height and eye width measurements and marker placements for cases when the scale is more than 1.5 UI.

## Enhancements and bug fixes for Pathwave Calibration Advisor (PCA) version 1.41.0122, which is included with the Infiniium Oscilloscope Software

- In the setup wizard, adds popup confirmations to help ensure the accurate “first power on” date and calibration interval is used.
- Adds a popup confirmation to help ensure unapplied changes are not lost when the user tries to exit the PCA application.
- Adds a popup message with instructions to manually download the instrument’s Electronic calibration certificate (Ecc) file if the instrument has no Internet access.
- In the setup wizard, adds an option to prevent PCA from automatically running when the instrument powers on.
- Fixes a bug in which PCA could not import calibration data correctly if it was running on Infiniium models with the DSA option installed.

## Version 6.60.00109

<b>Released Date:</b>	<b>18 November, 2020</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- Adds a new calibration service feature called the “Pathwave Calibration Advisor”, to remind customers when calibration is due and to make it easy to request calibration service. These reminders can be turned off for customers who do not want this feature.
- Adds a new measurement called “Duty Cycle Adjustment” to support the DDR5 compliance test application. This is a set of measurements requested by DDR5 customers who need to evaluate the duty cycle of each “phase” of the DQS (strobe) signal.
- Accelerates the runtime speed of the EZJIT jitter analysis software. The greatest acceleration occurs when running Periodic mode, using Spectral RJ separation. Other modes like Random mode and Tail-fit will also receive some acceleration.
- Some improvements have been made for screen capture. The time to render an inverted screen capture has been accelerated. The Platinum theme has been reworked to fix inverted-screen printing issues.
- Adds a new check box in the Display setup dialog to enable/disable the Color Grade Legend. Also adds remote SCPI grammar to support this.
  - o :DISPLay:CGRade:LEGend <ON|OFF>
  - o :Diplay:CGRade:LEGend?

- Adds SCPI grammar for saving a measurement report. The report can be saved as PDF or MHTML format.
  - o :DISK:SAVE:MREPort <filename.pdf|mht>
- Adds SCPI grammar for reordering measurements within the results table.
  - o :MEASurement<1-20>:POSition <1-20>
  - o :MEASurement<1-20>: POSition?
- Adds SCPI grammar for specifying the layout format to be used to organize grids in the waveform area.
  - o :DISPlay:GRATicule:GLAYout{SVERTical | SHORizontal | TVERTical | THORizontal}, [<area>]
- Adds “Auto set thresholds” functionality for “Protocols without Clock Recovery.”
- Adds a SVID Spec Revision (v1.93, VR14) to the D9010LSSP Low Speed Protocol Decode/Trigger Software.
- Adds USB4 USB3.2-Tunneling and USB4 PCIe3.1-Tunneling to the D9010USBP Protocol Decode/Trigger Software.
- Adds PCIe Gen 5 to the D9010PCIP Advanced PCIe Protocol Decode/Trigger Software.
- Adds new CTLE presets and 5th Order PLL support to address PCIe Gen 5. Refer to Help and the Programmer’s guide for more information.
- Adds the ability to measure eye width and eye jitter in UI units. Refer to Help and the Programmer’s guide for more information.

## Bug Fixes

- Fixes an issue saving screen shots to a file through a Remote Desktop connection.
- Fixes an issue with the N2810A-200 memory upgrade license not installing leaving the max memory at 50 Mpts on the DSAX-series.
- Fixes some issues with displaying Color Grade information while playing segments in Segmented Sampling mode.
- Fixes an issue truncating the number of digits displayed when saving all channels to a .csv file format.
- Fixes an issue causing the eye height and width markers to be placed incorrectly on the eye when running explicit clock recovery.

- Fixes an issue with the risetime measurement units, when saved to a CSV file, being saved as “?s” rather than “us”.
- Fixes an issue preventing marker colors from being set to a color other than the default.
- Fixes the limit test results query for the Vaverage measurement. It was always returning 0.
- Fixes an issue where certain “.h5” files loaded into a waveform memory could cause the wrong units to be displayed for time and voltage.
- Fixes a packet searching issue in the D9010MPLP MIPI I3C protocol decoder.
- Fixes an issue causing an invalid trace to run through the middle of the eye. This issue was occurring while running the High Frequency SJ Calibration in the MIPI compliance test software.
- Fixes an equalization setup error occurring while running the D9040DPPC DisplayPort compliance test software.
- Fixes an incorrect result for the FFT Magnitude Vavg measurement occurring while running the D9040DPPC DisplayPort compliance test software.
- Fixes a small offset error in the placement of the voltage marker. This issue was found while running the D9040DDRC DDR4 and LPDDR4 compliance test software.

## Notes

- For safety reasons, the maximum high-impedance voltage offset for the S-Series and 9000-Series Infiniium oscilloscopes has been reduced to +/-40 V. Previously, it was +/-100 V.

## Version 6.55.00902

Released Date:	9 September, 2020
Operating System:	Windows 7, Windows 10

## Enhancements

- Adds support for USB4 and USB4LS to the :Bus Type command.

## Bug Fixes

- Fixes the DC Offset/Gain Cal for the MX0023A InfiniiumMax 25 GHz RC probe with MX0105A SMA probe head.
- Fixes an issue causing the oscilloscope to crash while running the D9010EBSC IEEE802.3Bs/cd compliance application.

## Version 6.55.00901

Released Date:	28 August, 2020
Operating System:	Windows 7, Windows 10

### Enhancements

- Adds new SCPI grammar for setting marker colors, :MARKer<k> CMODE {CUSTom | SOURce} and :MARKer<K> COLor <color>

### Bug Fixes

- Fixes an issue on the S-series oscilloscopes where the 200MHz bandwidth limit filter was showing as 20MHz in the screen capture.
- Fixes an installation issue with the N5415B-1NL Infiniiscan license.
- Fixes an installation issue with the N2810A-200 UMD 200-Mpts memory license.
- Fixes an issue where the N5412D/E SAS3 and SAS4 licenses were not showing up in the Help About dialog.
- Fixes an incorrect attenuation range when selecting the N5425A probe head for the 1169A/B probes.
- Fixes a MultiScope issue where the leader freezes when exiting the oscilloscope if the periodic cal is turned on.
- Fixes an issue where the CTLE Zero, Pole1, Pole2 and Pole3 frequencies were dependent on the acquisition sampling rate setting for waveform memory sources.
- Fixes an issue causing the Protocol Generic Raw PAM-4 demo to crash when changing the format to DCode.
- Fixes a Protocol issue where the Symbols display is not tracking the search navigation.
- Fixes a Protocol issue where the Symbols display is not synchronized with the highlighted packet.
- Fixes a Z-series MultiScope issue where the real edge channels were restricted to 32GHz bandwidth.
- Fixes an issue with the PCIe Gen 4 Protocol decoder showing erroneous errors in UpdateFC packets for Gen 4 capable hardware that has the Scaled Flow Control feature enabled.

- Fixes an issue with the PCIe Gen 4 Protocol decoder not properly decoding Gen4 Control SKP Ordered Sets.
- Fixes an issue with the UFS Protocol decoder not decoding the last FLR data.
- Fixes an issue with offline measurements of averaged waveforms showing as incomplete.
- Fixes an issue when connecting the MX0023A probe to the oscilloscope where “A long operation is occurring” message is displayed and doesn’t go away.

## Version 6.55.00702

Released Date:	25 June, 2020
Operating System:	Windows 7, Windows 10

## Enhancements

### Enhancements

- Adds support for a new protocol bundle, D9011BDLP - “Basic Infiniium Protocol Decode/Trigger”.
- Adds support for a new protocol bundle, D9020BDLP - “Complete Infiniium Protocol Decode/Trigger”.
- Adds new SCPI grammar for returning the phase noise frequency data, :WAVEform:PNOise:FREQuency?

## Bug Fixes

- Fixes the following issue. Keysight IT recently tightened its Internet security and the Infiniium Software Updater could not reach keysight.com for updates. This manifests as a message in the "Check for Updates" or "Update Software" feature that the "LatestAppinfo.xml file cannot be found", a standard Microsoft error.
- Updates the help documentation calculations for noise eye-height measurements.
- Fixes the dynamic range reading for the N5449A High Impedance Adapter.
- Fixes an issue with the :CHANNEL[N]:PROBE:INFO query returning incorrect probe information.
- Fixes an issue with Infiniium going into a “no measurement” state for the N6472A IEEE 802.3 bs/cd compliance test application.
- Fixes -222 “Data out of range” error for the :MEASURE:THRESHOLD:PERCENT command.

- Fixes a delta time measurement issue for the Add math function when the two sources being added are the same channel.
- Fixes an issue with the PAM4 jitter and histogram measurement results degrading with each setup change.
- Fixes the following issue. After running the PCIe protocol decoder on a waveform containing TS1 Training Sequences, the decoder erroneously shows "Compliance Receive = Enable Compliance Receive" in the "Details" view of a packet. This logic is inverted.
- Fixes an EZJIT MATLAB runtime error when running the Rx DisplayPort compliance test solution for HBR3 Total Jitter.
- Fixes an issue with the :MTES:FOLD:TSC command was returning -222 "Data out of range" for the Rx MIPI D-PHY compliance test solution.
- Fixes an issue with the :LANE[N]:EQUALIZER:DFE:TAP:AUTOMATIC command returning error 25, "This entry isn't a valid selection. The control had not been modified."
- Fixes an issue with a "current probe" selection always picking N7019A.
- Fixes an issue with information messages showing up in the screen shot obstructing the waveform viewing area.



Version 6.55.00504

Released Date:	24 April, 2020
Operating System:	Windows 7, Windows 10

## Enhancements

### Enhancements

- Removes Thunderbolt and CIO CDR presets. New CDR presets are added for USB4 10 Gb/s, USB4 10.3125 Gb/s, USB4 20 Gb/s, and USB4 20.625 Gb/s.
- Adds a cancel dialog to warn customers that measurement data will be lost when changing PRBS13Q measurement units.
- Adds support for a 2nd Order TIE Low-Pass-Filter to support the USB4 and DisplayPort2.0 Tx Compliance Test Software.

## Bug Fixes

- USB 3.2 Protocol Decode is now enabled with D9020USBC USB 3.2 Tx Compliance Test Software.
- Fixes an issue in USB 3.2 Protocol Decode where the triggered packet is not correctly marked.
- Fixes an issue where the equalization controls (upper target, lower target, etc.) are reporting in Volts for channels with an O/E probe connected. These controls should report in Watts. Also, the resolution of these controls was changed to uW rather than mV.
- Fixes an issue where USB2 Protocol Decode is disabled when loading a setup file with it enabled.
- Fixes an intermittent issue causing the Ethernet Tx Compliance Test Software to abort when running the 10Base-T Ethernet Speed test.
- Fixes an issue with PCI-Express Gen 4 Protocol Decode labeling TS2 packets as “Unknown Packets”.
- Fixes the AC Response Calibration choices in the N7004A probe dialog.
- Fixes a response error in the TIE filter for the EZJIT Plus and EZJIT Complete jitter analysis software.

## Version 6.55.00401

Released Date:	20 March, 2020
Operating System:	Windows 7, Windows 10

### Enhancements

- Adds support for USB4 High Speed Gen 3, USB4 High Speed Gen 2 and USB4 Low Speed protocol decoders to the D9010USBP license bundle.
- Adds support for the MX0023A Infiniimax 25GHz RC Probe Amp with AutoProbe interface.
- Adds support for the N7019A Type-C Active Link Fixture.
- Increases the maximum number of FFE equalization taps to 60. Previously, it was 40.
- Makes 3rd order PLL CDR standard. Before it was only available with the Thunderbolt compliance test application.

### Bug Fixes

- Enables the Delay and Auto button controls when using DFE equalization in place. Previously, they were hidden.
- Fixes an issue with recalling a setup with jitter measurements enabled. The PJ (periodic jitter) value was not being measured correctly after recalling the setup.
- Fixes an issue introduced by the 6.50.01104 software version that was disabling the legacy DSA license bundle.
- Fixes an issue in the equalization wizard that was reverting clock recovery to Constant Frequency after finishing the wizard. This was occurring when setting up Equalized Clock Recovery.
- Enables Equalized Clock Recovery in the equalization wizard. Previously, it was being disabled.
- Fixes the auto setup measurement thresholds for eUSB2 High Speed protocol to be 100mV +/- 50mV.

### Notes

- This software version has not been fully tested and confirmed to work with all the compliance test applications. A newer version of 6.55 will be made available once this testing is complete.

Version 6.50.01104

Released Date:	3 February, 2020
Operating System:	Windows 7, Windows 10

## Enhancements

- Adds USB2 and eUSB2 to the D910USBP and D9010HSPO license bundles.
- Adds a user preference to enable/disable a 200MHz bandwidth limit hardware filter at high voltage sensitivity settings less than 3mV/div for 1M $\Omega$  inputs.
- Increases the maximum number of bins for measurement histograms to 8000 bins. The previous maximum was 1280 bins.
- Adds new SCPI remote measurement commands to better support PAM4-based compliance applications (see new SCPI commands in the Notes below).
- Adds a new SCPI remote command to perform “Multipurpose on Failure”, :MTEST:RUMode:MOFailure.

## Bug Fixes

- Multiple bug fixes for the Spacewire and QSPI protocols.
- Fixes the D9010EMBP bundle license to include the eUSB2 protocol.
- Extends the length of channel labels displayed to 64 characters. Before only 16 characters were displayed.
- Fixes a memory leak when saving large waveforms to disk which could cause Infiniium Offline to stop responding over the remote interface.
- Fixes an issue preventing CTLE equalization from being displayed for some setups.
- Disables DFE equalization if it's a function with CTLE/FFE running and recommends using lane chaining to perform the equivalent operation.
- Fixes a bug with loading the histogram .bin format.
- Fixes bugs with the mouse drag handles for function gates.

## Notes

- This patch release changes the part number text for the Data analytics software from N8844A to KS6800A.

- This patch release adds the following new SCPI commands:
  - :MEASure:PAM:PRBS13q:COUNt
  - :MEASure:PAM:PRBS13q:EDGE:EOJ
  - :MEASure:PAM:PRBS13q:EDGE:J4U
  - :MEASure:PAM:PRBS13q:EDGE:JRMS
  - :MEASure:PAM:PRBS13q:HUNits
  - :MEASure:PAM:PRBS13q:STATe
  - :MEASure:PAM:PRBS13q:UNITs
  - :DISP:PAM:SOURce <source string>
  - :DISP:PAM:TABLE <string of choices>
  - :DISP:PAM:SElectgraph <string of choices>
  - :MTEST:RUMode:MOFailure

## Version 6.50.01004

Released Date:	2 January, 2020
Operating System:	Windows 7, Windows 10

### Enhancements

- Adds performance improvements for saving a screen image.
- Increases the length of the CTLE filter to provide a better response for the DP2.0 CTLE specification.
- Improves SCPI queries for reporting PAM4 PRBS13Q measurements.
- Adds SCPI commands to turn on PAM4 jitter tables and graphs.

### Bug Fixes

- Fixes an issue with recalling jitter measurement setups.
- Fixes a licensing issue that was locking up the local thread and causing measurement results to stop updating.
- Fixes other miscellaneous licensing issues.

- Fixes a Spacewire protocol issue where search is not working properly after selecting EOP in search dialog.
- Fixes a Spacewire protocol issue with an invalid decode with pattern sync mode.
- Fixes an issue where the DFE Delay control was incorrectly hidden.
- Fixes an issue causing questionable edge measurements at long time/div settings.
- Fixes a marker issue where markers don't track 2-source measurements correctly after swapping the channel sources.
- Fixes a skew issue when turning off and on Precision Cable "Include Filter Delay".
- Fixes the Auto Deskew control for differential channels when the oscilloscope is stopped and not running.
- Fixes an FFT issue causing the FFT graph to shift when the start frequency was set to 1Hz.

## Notes

- Remote grammar changes:
  - :DISPLay:PROPortion <pane> parameter now includes P4Jitter option.
  - :MEASure:PAM:PRBS13q:EDGE:EOJ, :MEASure:PAM:PRBS13q:EDGE:J3U, :MEASure:PAM:PRBS13q:EDGE:J4U, :MEASure:PAM:PRBS13q:EDGE:Jrms queries now return an additional value at the end indicating the count of the number of edges measured.

## Version 6.50.00906

Released Date:	25 November, 2019
Operating System:	Windows 7, Windows 10

### Enhancements

- Improves the PAM4 PRBS13Q EOJ (Even-Odd Jitter) measurements and GUI and added per-edge measurements. Histograms can now be shown for each bit jitter. Please note that the remote grammar changed with this update. The changes are shown in the “Notes” section below.
- Adds a GUI control for applying the “Eye Opening Probability” to all eyes in a PAM4 signal.
- Adds DFE (Decision Feedback Equalizer) pre-seed taps ability for DDR5.
- Improves the CTLE (Continuous Time Linear Equalizer) filter length calculation.
- Adds a new “Edge to all edges” measurement for TOF (Time of Flight).
- Adds explicit clock recovery support for the phase noise application.
- For the “EZJIT Complete” application, the algorithm for computing parameters such as DJdd and TJpp has been improved when using the spectral method. The original/legacy algorithm assumed that jitter histograms were symmetric. The improved algorithm treats the left and right sides of the histogram separately, leading to better accuracy when histograms are asymmetric. This approach has always been used whenever the Tailfit method was selected, but it is now extended to the spectral method as well. There are no changes to the GUI.
- Adds support for the N7024A power rail probe for the 9000 and 90000A series oscilloscopes.
- Adds remote commands to control function global gating for the gating math function.
- Adds remote commands for setting wavelength and responsivity for the N7004A O/E converter.
- Adds documentation in the programmer’s guide for the measurement Zoom to Max/Min commands.

### Bug Fixes

- Fixes a I3C protocol decoder bug occurring after ‘HDR Restart Pattern’ packet.
- Fixes a bug with the Delta Marker query returning a zero-value.

- Fixes a display bug with the Precision Probe graphs dialog where the label information is off screen.
- Fixes a bug in sequence trigger with delay.
- Fixes a bug where labels weren't being recalled when loading composite files into waveform memories.
- Fixes a bug where the auto setup button for BroadR-Reach doesn't set trigger thresholds correctly for differential signals.
- Changes the preset for CEI 3.0 28GHz clock recovery to use "First Order PLL clock data recovery", "25.78125 Gb/s nominal data rate", and "10 MHz loop bandwidth".
- Fixes a memory leak occurring with measurements enabled that was degrading oscilloscope performance when running for long durations.
- Updates the Auto de-skew for differential channels to work with input signals that have significant voltage offset.
- Fixes a bug in the edge-edge measurement where the tracking markers were showing an incorrect vertical marker position.

## Notes

- For software versions older than 6.20, upgrading to 6.50 will require first upgrading to 6.40 and then upgrading to 6.50. This is required to properly uninstall and update the IVI driver.
- Deprecated the :DISPLAY:PROPORTION and :DISPLAY:PROPORTION:RESULTS queries because there are many times the results are wrong and were adding little or no value.
- Microsoft advises against screen captures with Remote Desktop due to security vulnerability. Starting with 6.50, the remote command for screenshots will generate a SCPI error 273 for the Remote Desktop case. The recommend work-around is to use VNC, rather than remote desktop.
- To support improvements to the PAM4 PRBS13Q EOJ (Even-Odd Jitter) measurements, the following changes were made to the remote grammar.
  - o Old grammar
    - • :MEASure:PAM:J3U <source>
    - • :MEASure:PAM:J4U <source>
    - • :MEASure:PAM:JRMS <source>
    - • :MEASure:PAM:EOJ <source>

- • :MEASure:PAM:COUNT
- New grammar
  - • :MEASure:PAM:PRBS13q:STATe <source>, {ON | OFF}
  - • :MEASure:PAM:PRBS13q:STATe? <source>
  - • :MEASure:PAM:PRBS13q:COUNT <report\_count>
  - • :MEASure:PAM:PRBS13q:UNITs {SECond | UNITinterval}
  - • :MEASure:PAM:PRBS13q:HUNits {LINear | LOGarithmic}
  - • :MEASure:PAM:PRBS13q:EDGE:J3U? <source>
  - • :MEASure:PAM:PRBS13q:EDGE:J4U? <source>
  - • :MEASure:PAM:PRBS13q:EDGE:JRMS? <source>
  - • :MEASure:PAM:PRBS13q:EDGE:EOJ? <source>

## Version 6.40.01201

Released Date:	18 September, 2019
Operating System:	Windows 7, Windows 10

### Bug Fixes

- When applying clock recovery to all waveforms, the Nominal Data Rate will track all waveforms when necessary.
- Fixed an issue with Equalization Nominal Data Rate not updating correctly when using Auto control.
- Fixed a number of SpaceWire protocol and trigger issues.
- Fixed a problem with the application crashing when saving a .mat file, in some cases.
- Fixed a problem with N7004A external scaling seeming to work backwards.
- Fixed an issue with licenses getting removed (disappearing) when they should not be.



## Version 6.40.01101

Released Date:	8 August, 2019
Operating System:	Windows 7, Windows 10

### Enhancements

- Added performance improvements for Multi-Lane Equalization.

### Bug Fixes

- The .mat file format will now save all the segmented data when requested too.
- Fixed marks so that they are showing the right scale values when its source is a Histogram.
- Fix a crash in the SpacWire protocol when using the move down button in the Configuration Sync Pattern dialog.
- Fixed a problem with plotting a Real-Time Eye with Deemphasis Removal, in some cases.
- Fixed a problem of some setups not recalling correctly on startup.
- Changed the name of BroadR-Reach to Automotive Ethernet 100BASE-T1.

## Version 6.40.01001

Released Date:	1 July, 2019
Operating System:	Windows 7, Windows 10

### Enhancements

- Added support for eUSB2 protocol and decode to the D9010EMBP license.
- Change the LANE<N>:EQualizer:DFE:TAP:DELay command to move the waveform when doing DFE equalization as a function to match the in place behavior. The LANE<N>:EQualizer:DFE:THReshold:DELay command was added to delay the threshold waveform relative to the input waveform. See programmer guide for more information.
- Added the ability to do in place equalization for Infiniium Offline channels.

### Bug Fixes

- Fixed several DFE issues around edge finding among other things.
- Fixed some touch screen issues caused by the fix in 6.40.00802.

- A CSV file with segmented data saved in the 10.XX baseline, can now be loaded into 06.40 Offline.
- Fixed a Host ID issue in Asset Management.
- Changed the demos to use the new trial licenses.
- Fixed a problem with Infiniium Offline crashing on startup, in some cases.
- Fixed a problem with all functions being invalid when Equalization is setting all sources to Explicit Clock Recovery.
- Fixed a problem with the :CHAN<N>:PROB:PREC:BAND command giving an error if it is set to its min/max value.
- Fixed the V time measurement to have a GUI input for the time value.
- Fixed a problem with Auto Channel Skew not working in some cases.
- Fixed a problem when using an N7010A probe with a large Vterm voltage that would put it off screen, the EZJIT Complete Wizard would fail to calibrate noise out of the reported random jitter.

## Version 6.40.00802

<b>Released Date:</b>	<b>30 May, 2019</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

**Note:** The current version of the DP (U7232E) compliance applications are not supported by this version of Infiniium software.

### Bug Fixes

- Fixed a problem with new S-Series touchscreen.

## Version 6.40.00801

Released Date:	20 May, 2019
Operating System:	Windows 7, Windows 10

**Note:** The current version of the DP (U7232E) compliance applications are not supported by this version of Infiniium software.

### Bug Fixes

- Several bug fixes for Quad SPI (D9010LSSP) protocol decode.
- Fixed a few memory leaks.
- Fixed a problem with the minimum DFE tap value not allowing a negative number.
- Removed the FFT RMS detector because it was not working correctly. The average detector with Vrms units, should be used instead.
- Fixed a problem with the oscilloscope responding slowly when changing the Timebase Reference, in some cases.
- Fixed a problem with the :MEAS:VPP?WMEM# query sometimes returning an error code.
- Fixes to the DFE algorithm to work better with valid waveforms.

## Version 6.40.00714

Released Date:	17 April, 2019
Operating System:	Windows 7, Windows 10

**Note:** The current version of the eDP (N6469A) and DP (U7232E) compliance applications are not supported by this version of Infiniium software.

### Enhancements

- Added support for Multi-Lane Equalization, which allows you to do more than one type of equalization at a time, among other things.
- DFE equalization can now be visualized as a waveform.
- Add the ability to upload to the KS6800A application via the Infiniium GUI.
- For the Phase Jitter measurement, a user can now select units of dBc or s(rms).

- DFE min and max auto tap values are now set in Volts instead of being unitless.
- Added T Edge measurement to the GUI.
- Added support to query the Start and End of packet information for many of the low speed protocols.
- Added the ability to turn off listing popups.
- The C-PHY signal type is now standard.

## Bug Fixes

- Several PAM-4 clock recovery/equalization fixes, including supporting better eye openings.
- Fixed a problem with PAM-4 PRBS13Q EOJ measurement giving a “No Patn Found” error message in cases where it should not.
- When recalling a setup with a histogram on, the histogram will now recall to the correct grid.
- Fixed a problem with the units for the Optical Average Power measurement.
- Fixed a problem with seeing “Invalid Top” error message under some measurement cases.
- Removed DDR protocol trigger option in sequential trigger because it is not a valid option.
- Fixed a problem where the Draw Mask dialog would cut off some of its content.
- Made a change so that the application does not crash with certain CAN protocol setups.
- Fixed a problem with InfiniiSim not working in offline, in some cases.
- Fixed the Preset clock recovery setting for DisplayPort.
- Fixed an issue with the Measurement Report’s .mht format.
- Changed the passive probe procedure to tell the user to use the De-skew Fixture, when needed.
- Fixed a problem with mskx files not scaling the zones correcting when loaded.
- Fixed a problem with the Jitter Results section not displaying the number of Transitions when it should.
- Automatic removal of scope RJ is not supported for PAM-4 signals, so the option was removed in this case.

- Fixed a problem with the Gating function not working with multiple memories, in some cases.
- Fixed a problem where saving an image remotely causes the GUI to change, in some cases.
- Fixed a problem with getting the color grade waveform data over remote.
- Fixed a problem in Multi-Scope when trying to calibrate, in some cases.

## Version 6.30.01102

Released Date:	6 February, 2019
Operating System:	Windows 7, Windows 10

### Enhancements

- Added SCPI commands to setup PAM-3 custom thresholds.
- Removing scope jitter for Period and UI-UI jitter modes.
- Added Min/Max options to Measurement Histogram.
- Added support for MX0109A probe head.

### Bug Fixes

- Fixed a problem with the DDJ vs bit jitter saved data being out of sync with the graph on screen.
- Fixed a problem with the measurement thresholds not being display correctly for PAM-3 signals in some case.
- Fixed a problem with auto-zero not working in some cases for the N7026A probe.
- Fixed a problem with the D9010AUTP license when selecting the CAN protocol.
- Fixed some phase noise issues.
- Fixed some Multi-Scope issues.
- Fixed an issue with the application crashing when BoradR-Reach and Real-Time Eye was on at the same time.
- Fixed a problem with the Measurement Report not saving the scale and position correctly for Real-Time Eye.
- Fixed the recall system to recall the tab layout the way it was in previous versions of code.

- Fixed a problem with the application crashing when selecting Arbitrary pattern while Pattern Average functions are available.

## Version 6.30.00901

Released Date:	11 December, 2018
Operating System:	Windows 7, Windows 10

### Enhancements

- PAM-3 signal type is now supported for Generic Raw protocol.
- Implemented block merging for USB 3.2 Gen 2.
- Added several attributes for Symbolic decode.
- Phase Noise results are not reset in many use cases. It will still reset if the input waveform changes or a function is turned on/off.
- Added the ability to do the eye height measurements around the recovered clock location instead of the calculated center of the eye.
- Added a button to auto center a DFE eye.
- Added auto clock skew calculation for PAM-4 Clock Recovery signal.
- MIPI I3C protocol decode is now working for v08r10-r11 version changes.

### Bug Fixes

- Fixed several phase noise issues.
- Fixes to Symbolic decode.
- Made a change to the clock recovery method for BroadR Reach, to make it more reliable.
- Fix to the SENT protocol not showing the correct number of tick times.
- Fixed an issue with MIPI I3C protocol showing a parity error when it should not.
- Fixed some USB 3.2 decoding errors.
- Fixed an issue with the MARKer:TYPE:TRACK command not tracking the actual value correctly.
- Fixed a problem with Precision Probe not working correctly with the N7010A probe.
- Fixed a problem with Setup and Hold markers not displaying correctly in some cases.

- Fixed a problem with interpolation not being saved correctly, in some cases.
- When saving Mask files, a Missing Parameter message is not displayed anymore.
- Fixed a few issues with the :DISPlay:PROPortion:RESults command.
- Fixed an application crash when selecting a function in some cases.
- A few Multi-Scope fixes.
- Fixed an issue with USB Dongle based licenses.

## Version 6.30.00701

Released Date:	12 October, 2018
Operating System:	Windows 7, Windows 10

### Enhancements

- Allow CAN-FD to go to 500kBit/s.

### Bug Fixes

- Some remote command performance improvements.
- Fix to the DISPlay:PROPortion:RESults command.
- Fix an issue with the PAM-4 arbitrary jitter results.
- Fixed an issue with saving composite files via SCPI.
- Fixed a touch screen issue when enabling it on a Windows 10 oscilloscope.
- Fixed a few demos.
- Fixed a problem with the Infiniium application not shutting down properly in some cases.
- Fixed a problem with Draw Mask not working when protocol decode is enabled in some cases.
- When saving Jitter Data the PAM-4 results will now be saved correctly.
- Several Phase Noise application fixes (D9010JITA/D9020JITA).
- Fixed to measurement trend not working in some cases.
- Fixed a problem with the average function not working when the source was an FFT with a RMS detector.

- Fixed a digital calibration crash on V-Series scopes.
- Fixed a problem with the units of the Slew Rate measurement.
- Fixed a problem with the FFT horizontal scale being changed unexpected in some cases.
- Fixed a problem with auto de-skew not working if the Common Mode channel is off.

## Version 6.30.00609

<b>Released Date:</b>	<b>18 September, 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added a Phase Noise application, which is license under D9010JITA/D9020JITA.
- Arbitrary Jitter Mode is now supported on a PAM-4 signal.
- Added a PAM-3 Signal Type, that supports Jitter/Noise analysis and measurements, which is licensed under D9010PAMA.
- FFTs now support logarithmic horizontal scale.
- Added USB 3.2 protocol decode, which is licensed under D9010U31P.
- Added Quad SPI protocol trigger and decode, which is licensed under D9010LSSP.
- Made symbolic protocol decode improvements.
- Went to a common GUI windowing manager.
- Went to a new graphing package for Results area graphs.
- Added an auto deskew option when in differential mode and you want to remove the skew between differential channels.
- Added a force trigger capability through remote and via Multipurpose button.
- Will no longer push the ground marker/label off screen when there is a large offset.
- Added a new SCPI command for the Eye Opening Probability selection.
- Made SDA, UDF and Multi-Scope standard features.
- Added support for USB Dongle based license and the new Keysight standard floating license system.



- Added support for the following models:  
D9010ASIO, D9010BSEO, D9010JITO, D9010HSPO, D9010LSPO, D9010AUTP,  
D9010BDLP, D9010EKRP, D9010EMBP, D9010LSSP, D9010MCDP, D9010MILP,  
D9010MPLP, D9010MPMP, D9010PCIP, D9010USBP, D9010DMBA, D9010EXMA,  
D9010JITA, D9010PAMA, D9010POWA, D9010SCNA, D9010UDAA, D9020JITA,  
D9020SCNA, D9020ASIA, D9020AUTP

## Bug Fixes

- Fixed a problem with differential channel GUI indicators staying active even when differential is turned off.
- Fixed a probe calibration diagram for the N5449A probe.
- Fixed the Equalization readout so that it updates correctly when changing equalization values.
- Changed the 802.3bs CTLE presets to match the standard.
- Fixed a problem with InfiniiScan measurement triggering not obeying the limits in all cases.
- Fixed a problem with Draw Mask not working with some differential signals.

## Version 6.20.01101

<b>Released Date:</b>	<b>9 August 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- Added support for the MX0100A micro probe head.

## Bug Fixes

- Fixed an I<sup>2</sup>S protocol trigger issue.
- Fixed a MIPI M-PHY SSIC Reserved packets decode problem.
- Fixed a trigger on search problem for the LLI protocol.
- Fixed a USB PD Preamble decode problem.
- Fixed a problem with multiple data values not displaying correctly for RFFE protocol.
- Fixed a problem with measurement statistics getting reset when playing through segmented data.

- Fixed a Infiniium application lockup condition.
- Fixed a problem with the Real-Time Eye getting reset when it should not be.
- Fixed the OMA equation when running with dBm units.
- Fixed a problem with the vertical autoscale not working correctly when an N7004A probe is connected.
- Fixed a problem where Get Image stops updating after a few requests are sent.
- Fixed a problem with the Infiniium application crashing when canceling the PAM-4 wizard.
- Fixed an issue when using averaging on a FFT signal.

## Version 6.20.01002

<b>Released Date:</b>	11 July 2018
<b>Operating System:</b>	Windows 7, Windows 10

### Bug Fixes

- Fixed two FPGA version issues on the S-Series scopes.

## Version 6.20.01001

<b>Released Date:</b>	10 July 2018
<b>Operating System:</b>	Windows 7, Windows 10

### Bug Fixes

- Fixed a problem with the DSA license for 90000A Series scopes.

## Version 6.20.00901

<b>Released Date:</b>	21 June 2018
<b>Operating System:</b>	Windows 7, Windows 10

### Bug Fixes

- Fixed a problem with DFE Jitter value not calculating correctly for some input signals.
- Asset Management improvements to store off data so that even if the power is pulled on an oscilloscope, some data will be retained.
- Fixed a S-Series problem with the protocol/digital FPGA images not loading correctly in some case.

## Version 6.20.00803

Released Date:	1 June 2018
Operating System:	Windows 7, Windows 10

### Enhancements

- Added support for the N7024A probe.
- The Software Updater application is installed in a new location and the Infiniium application is pointing to the new location.
- UniPro preemption is now being decoded.

### Bug Fixes

- Fixed several issues with the marker position knob not working.
- Fixed a problem with triggering on USB PD v1.1 packets.
- Fixed a problem with the Edge time measurement not working when measure all edges is enabled, in some cases.
- Fixed a problem with PCIe protocol decode having a data payload size limitation, which would cause data to not be decoded correctly.
- Fixed a problem with PCIe compliance patterns not being decoded correctly.
- Fixed an issue with the About Infiniium dialog not sizing the licensing window correctly, in some cases.
- Fixed a problem with UDFs not plotting correctly when there are holes in the data.
- Fixed a Payload tab display issue for the I2C protocol demo.

## Version 6.20.00801

Released Date:	11 May 2018
Operating System:	Windows 7, Windows 10

### Enhancements

- Added new High Resolution option for the S-Series oscilloscopes, to allow a user to pick a fixed 11bit up to 16bit mode.

## Bug Fixes

- Fixed a problem when saving images to the hard drive while the GUI is disabled.
- When using the dBuV units for an averaged FFT function, the results were not correct, in some cases.
- Fixed a problem with marker measurement results not be reported correctly over remote, in some cases.
- Fixed an issue with marker location not getting drawn correctly when using a remote program, in some case.
- Fixe a problem with saving all data when in segmented mode not working.
- Fixed a vertical scale issue on the integrate function.
- Fixed a Multi-Scope issue that cause a lockup when calibration cables are not present.

## Version 6.20.00701

<b>Released Date:</b>	<b>20 April 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- Removed the restriction on N8900A not support fixed perpetual license for compliance applications.

## Bug Fixes

- Fixed an issue that cause N2830/1/2A and N7000/1/2/3A probes to get corrupted in some cases. It will also correct a probe if it is already corrupted.

## Version 6.20.00620

<b>Released Date:</b>	<b>3 April 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Enhancements

- This version of software is supported by VSA2018 or newer.
- Up to 100 X,Y marker pairs can be added to the screen.
- Added J4, J<sub>RMS</sub>, EOJ for measurement on 12 specific PAM4 edges (IEEE 802.3bs).

- Now FFE is being accelerated in hardware.
- Patterns can be applied for BER measurements and equalization.
- BER measurements now support NRZ signals.
- Pattern/State trigger support OR option for analog channels.
- MIPI DSI version 1.3.1 decode support added.
- MIPI UniPro version 1.8 decode support added.
- MIPI I3C version 1.0 decode and trigger support added.
- MIPI RFFE version 2.1 decode and trigger support added.
- UFS version 3.0 decode support added.
- SENT protocol decode and trigger support added.
- PCIe Gen4 decode support added.
- Will install the C:\Users\Public\Documents\Infiniium\Filters\Probes directory when installing on a PC.
- Added support for 100k:1 attenuation ration for user defined probes.
- Added the ability to do RMS measurements on Measurement Log function.
- Added a segmented lister view.

## Bug Fixes

- Changed the way clock recovery information is saved in mask files.
- Changed the following commands so that they do not automatically set Measure All Edges by default: :MEASure:DUTYcycle, :MEASure:FREQuency, :MEASure:PERiod, :MEASure:OVERshoot, :MEASure:VOVershoot, :MEASure:PREShoot, :MEASure:VPReshoot, :MEASure:EDGE, :MEASure:SLEWrate
- Fixed an issue when recalling a composite file containing segmented data causing a firmware crash in some cases.
- Fixed a firmware crash when connecting some VGA monitors.
- Fixed an issue with the Integrate function sometimes having a negative slope on all positive data.
- Fixed a unit's problem in the BER Bathtub plot.

- Fixed a problem with InfiniiSim files not recalling correcting in some cases.
- Fixed a problem with the Measurement Log function not drawing correctly for some measurements.
- Measurement thresholds were not getting applied correctly when trying to setup different thresholds for different sources in some cases.
- Fixed a problem when loading a mask file with the bandwidth limit set to Max but recalling as Automatic.
- When using a N7004A probe in Equivalent Time mode the invert function will now be applied correctly.
- Fixed a sampling problem for some sample rates on the S-Series.
- Fixed the Software Updater tool to display version numbers with the correct zero padding.
- When a user changes the Socket port it will change correctly after the scope application is restarted.
- Fixed a problem with the Jitter ISI filter graph not displaying correctly for some unit types.
- The code will now remember the save location for all save types.
- Fixed a problem with the UniPro decoder not working on all channels.
- Allow no edges on the SPI MOSI line so that it decodes correctly in this case.
- The Measurement Trend function will not be measured correctly when doing an Edge to Edge measurement.
- When loading a transfer function file, the S-parameters were not loaded instead it was set to an Ideal Thru in some cases.
- Fixed a problem with markers not being displayed when opening a setup file in some cases.

## Version 6.10.01101

<b>Released Date:</b>	<b>13 February 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added Install All support for the Software Updater tool.

### Bug Fixes

- Fixed a problem with saving a Measurement Report causing a crash in some cases.
- Fixed a problem with Edge Time measurement not working in some cases.
- Fixed a bug in the Software Updater tool where it was not always detecting the latest versions of available applications.

## Version 6.10.01001

<b>Released Date:</b>	<b>8 January 2018</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixed a problem where the USB 3.1 decoder causes the oscilloscope to hang in some cases.

## Version 6.10.00806

<b>Released Date:</b>	<b>4 December 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added support for 100GBase-KR/CR protocol decode.

### Bug Fixes

- Fixed an issue with clock recovery data not getting cleared correctly in some cases.
- Added support for the RS-232/UART (N5462A/B) option to the N8888A product.
- When saving a .bin file or .mat file an error message will now be displayed if there are too many data points to be saved.
- Fixed a case where the oscilloscope locks up while taking a screen shot for a compliance application, in some cases.
- Put a fix into the Software Updating Tool to be more tolerant of changes to the Keysight.com server software.

## Version 6.10.00804

<b>Released Date:</b>	<b>15 November 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixed an issue with touch screens not working on a S or Z Series running Windows 10 in some cases.

## Version 6.10.00803

<b>Released Date:</b>	<b>13 November 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added SCPI support for PAM-4 measurement settings.
- When a N7026A is inserted into a channel it will clamp the channel bandwidth to all 200MHz, 20MHz HW LPF or custom filter to be selected on S-Series scopes.



- Added enhancements to our LIN protocol visualization.
- Added triggering support for Generic Manchester.
- Added support for UFS 2.1.
- Added USB and PCIe to the CTLE presets list.

## Bug Fixes

- Fixed an issue with pilot tone amplitude being too small in some cases, for Q/Z-Series.
- Fix a problem with Noise BER Bathtub curve showing UI units instead of UA.
- Fixed an issue with the 1169A probe turning on the Extension Cable option by default. Now it will keep it at whatever setting it was set to, the last time that probe was connected to that channel.
- Fixed a licensing issue where licenses are not installed on startup, in some cases.

## Version 6.10.00709

<b>Released Date:</b>	<b>27 October 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

## Bug Fixes

- Fixed an issue with measurement result attributes not showing up in some cases.
- Fixed an issue with some Math functions not being displayed in some cases.
- Fixed an installation issue with files not being correctly installed under C:\Users\Public\Documents\Infiniium.
- Fixed a problem with some compliance apps not completing when running jitter tests.

## Version 6.10.00704

<b>Released Date:</b>	<b>12 October 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Several fixes to BroadR-Reach trigger and decode (N8847A) to improve accuracy.
- Fixed an incorrect representation of a packet in the header tab for many protocols.
- Add support for the DP 1.4 license (U7232) to work in Infiniium Offline.
- Fixed a problem with screen shots not working in compliance apps in some cases.
- Fixed a problem with PAM-4 clock recovery not working when bandwidth limiting is applied.
- Fixed a file installation issue that did not put the correct files in the public\documents directory. Fixed a InfiniSim file load issue with this fix.
- Fixed a problem with calibration of Multi-Scope using more than two units in a star topology.

## Version 6.10.00702

<b>Released Date:</b>	<b>3 October 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixed a problem with 89600 VSA crashing on start up.

## Version 6.10.00616

<b>Released Date:</b>	<b>20 September 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- PAM-4 Jitter analysis on all three levels at once.
- Improved PAM-4 clock recovery.
- Jitter analysis on a DFE source.
- Power Integrity application (N8846A).

- New Infiniium Offline 2018 Bundle (N8900A-008).
- BroadR-Reach protocol decode and trigger (N8847A).
- MIPI C-PHY protocol decode one lane only (N8848A).
- SpaceWire protocol decode and trigger (N8849A).
- Manchester protocol decode (N8850A).
- Automatic Real-Time Eye mask creation.
- Added support for the N704XA and N7026A probes.
- FFT vertical reference set to the bottom of screen when the FFT is in linear units (Vrms, Watt) and the top of screen with the units are in log units (dBm, dBuV, dBmV).
- Added Histogram Full Width Half Max measurement.
- Improved Results area performance and capability.
- Allow extinction ratio measurement to work on external O/E.
- Added the ability to histogram TVolt, TMin and TMax measurements.
- When saving Mask files with Real-Time Eye enabled, the clock recovery and thresholds will be saved to help recreate the eye on Mask file load.
- Added the ability to save marker information to the clipboard using the right-click menu.
- The measurement list can now be reordered using the right-click menu.
- Added an AC/DC indicator under the 50 $\Omega$ /1M $\Omega$  indicator on the screen.
- Added the ability to save .mat format using :DISK:SAVE:WAVEform command.
- Added the ability to save up to 1,000,000 files using the auto increment capability in multipurpose save.
- Added :HOSTed:NCONnected? to know how many scopes are connected in a Multi-Scope setup.

## Bug Fixes

- A function following an FFT will have its RBW changes when the FFT's is changed.
- Fixed a problem with measurement trend not scaling correctly with data that had no standard deviation.

- Show the measured BER and TJ if the bathtub graph has sufficient vertical space to show them.
- Fixed an application crash problem when saving a measurement report in some cases.
- Fixed a problem with waveform memories not scaling correctly when “tie to time base” is set in some cases.
- When saving a screen image with a high-resolution display, it will now capture all the data.
- Fixed a lockup/crash issue when querying measurement results when a clock could not be recovered.
- Analog sampling rate will dynamically adjust in a Multi-Scope configuration.
- Fixed a problem with the Zone trigger still displaying the Zone summary even though “Hide All Zones” was enabled.
- Fixed InfiniiSim labels in the transfer plots not updating in all cases.
- Remember the save name and directory after a restart.
- Several Multi-Scope fixes.
- Made Waveform Memories Tie To Timebase work for bin file format loads.
- All the step size of markers to be less than 1Hz of resolution.
- When turning on markers or measurements infinite persistence data is retained.
- Fixed an issue with protocol decode precomputing when moving a waveform in offline.
- Fixed a problem with edge selection for period measurements.
- The histogram will no longer be reset when a measurement is missed for a given acquisition.
- Fixed an issue with edge trigger when switched sources in some cases.
- Fixed an issue with Offline not starting up in some cases.
- Fixed a problem with setup files not recalling correcting in some cases.
- Fixed a bandwidth reporting issue with N2803A.
- All segments will now be saved into .mat files.
- Fixed a problem with black bars showing up when doing a waveform only image save.
- Calibration of the N283XA probes will now call out the de-skew fixture.

- Prevent a crash if nonstandard ASCII characters are used. Blanks are inserted instead.
- Changing the units for seconds to UI and back of the Composite Histogram Jitter graph will keep the data correctly displayed.
- Fixed a few issues with Get Image not working from the scope's webpage.
- Touch mode on/off will persist through power cycles.
- Improved how color grad looks with and inverted screen image save.
- Fixed max input readout for the N5449A adapter.
- Fixed a problem with acquisition being restarted when changing waveform intensity in Roll mode.
- Fixed a problem with eSPI packet header being decoded as data in some cases.
- Changed MIPI Auto Setup PLL settling time from 10mT to 1T.
- Fixed a problem the PCIe Gen3 SKIP OS with Length of 8 Symbols not decoded properly.
- Fixed an error message that was generated when sending :MEAS:THR:ABS command in some cases.

## Version 6.00.01201

<b>Released Date:</b>	<b>8 September 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Bug Fixes

- Fixed for Software Updating tool so that it detects the latest application version in all cases.
- Full support for new N8890A switch matrix option.
- Fixed an error code that was thrown when the :MEAS:THResholds:ABSolute command was sent in some cases.
- Fixed a number of data points problem when bandwidth limit was enabled after a Multi-Scope acquisition.
- Removed the deskew channels option within Multi-Scope.

## Version 6.00.01001

Released Date:	28 July 2017
Operating System:	Windows 7, Windows 10

### Enhancements

- Added license for new N8888A promotion.
- Added new Software Updating tool that can be launched from Help > Update Software...

### Bug Fixes

- Fixed a problem with the phase measurement reporting 90° instead of 180° in some cases.
- Fixed a problem with Clock Recovery not working correctly when there are idle states in some case.
- Fixed for Multi-Scope including one in deskew channels.
- Fix for compliance application screen capture issue, where the previous image is being used instead of a new one.

## Version 6.00.00901

Released Date:	19 June 2017
Operating System:	Windows 7, Windows 10

### Enhancements

- eSPI: Added the ability to add a delay to the rising clock edge after TAR cycles.

### Bug Fixes

- Fixed a SKP Order Set issue in USB 3.1 protocol decode.
- Fixed an issue with USB PD 1.1 defect with the length computed.
- Fixed some typos in serial decoded results.
- Fixes a lister decode problem with LLI protocol.
- Fixed a First and Second Order PLL issue skipping a clock edge on some PAM-4 signals.
- Fixed query response for the :HOSTed:PERiodic? to return the same answer as to what you would set it to.

- Fixed a heap corruption issue.
- Fixed a CTLE equalization issues when running it on a loaded waveform.
- Fixed a problem with the :MEASure:THResholds:HYSTeresis command throwing a value out of range error when it shouldn't.
- Fixed a problem with connecting some 90000 Q-Series scopes to a Z-Series scope using a Multi-Scope configuration.
- Fixed a problem with TIE measurement results not working correctly when using a gating function on a memory.
- Fixed a problem with the TVolt measurement not giving the same result with different scale settings.
- Fixed a problem with some transfer function not being saved correctly on an oscilloscope.
- Fixed :DISK:DIRectory? so that it returns a list of directories instead of a number.
- Fixed a problem with Eye contour not displaying for some eyes.

## Version 6.00.00701

<b>Released Date:</b>	<b>9 May 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added USB PD v1.1 support.
- Added the ability to launch the InfiniiSim viewing tool with just an offline license.
- When connecting an N7004A probe the default channel scale will be set to 1mW/div and the default setup button will set the scale to this value also.

### Bug Fixes

- Fixed a problem with the application not launching if the PATH variable was too long.
- Fixes to MIPI LLI protocol decode dealing with MK0.
- Fixed an issue with a measurement not waiting until all averages are acquired when using remote query.
- Fixed a problem with measurements on a FFT Phase function.

- Using explicit clock recovery, the jitter values were not being reported correctly when using UI as the display units.
- Fixed a problem with the entry dialog for IPv6 Source IP field.
- Threshold lines will now be displayed for PAM-4 signals, when selected.
- Fixed a lockup issue when switched between First and Second Order PLL clock recovery method, while doing serial decode.
- FFT vertical scale will recall correcting on power up.
- The 10076C probe will now be recognized correctly.

## Version 6.00.00628

<b>Released Date:</b>	<b>29 March 2017</b>
<b>Operating System:</b>	<b>Windows 7, Windows 10</b>

### Enhancements

- Added support for Windows 10 and it still supports Windows 7.
- Put in new 1<sup>st</sup> and 2<sup>nd</sup> order PLL algorithms.
- Added 3<sup>rd</sup> order PLL selection with a Thunderbolt 3.0 compliance license.
- Use the scroll wheel in a Waveform Window to adjust the waveform intensity.
- Added a Measurement Log function that will take one measurement per acquisition and plot the values over time.
- MHT/PDF Measurement Reporting save option.
- ARINC and MIL-1553 Symbolic Decode support.
- SPMI serial decode and trigger.
- Generic Raw protocol decode support for both PAM-4 and NRZ.
- Improved the performance of segmented memory navigation and statistical accumulation, along with Infinite persistence.
- Added the ability to set any supported data rate in our Hardware Serial Trigger card, instead of just being able to select from a list of rates.
- Hardware accelerated CTLE calculation.
- Added the ability to save color grade data.



- Support for an external InfiniiSim viewing tool.
- Update to using Matlab 2016b component run time.
- Added the ability to turn off the front panel LEDs on an S-Series, V-Series and Z-Series.
- When a user starts typing in a file manager, it will start matching folders in the directory.
- Added the ability to grab the Delta Marker readout to move the two markers as a pair.
- Added protocol Auto Setup capability for all PCIe supported data rates along with CDR presets.
- Added a Measurement Threshold button to the Analysis Diagram dialog.
- A user can right-click on a Memory1-4, Function 1-4, or Channel 1-4 icon and change the front panel knobs to control their offset and scale.

## Bug Fixes

- Fixed an issue with Eye Contour not displaying even after there is sufficient data acquired.
- Fixed a performance issue if you toggle the off/on state of either serial decode or digital busses.
- Moved the Undo/Redo buttons to a better location so that they were not accidentally pressed when using the Run/Stop/Single controls.
- Fixed the Display Port compliance license string to display version 1.4 instead of 1.3.
- Fixed a problem with a customer being able to specify a file name as just a “\” which causes a crash.
- A Jitter Complete (N8823) trial license is now working.
- Fixed the instruction for the calibration of the N282XA.
- Fixed a problem when using the Precision Probe Wizard when trying to calibrate another cable after the first probe head was calibrated.
- Fixed a labeling problem, on InfiniiMax III+ probes, with single-ended and differential offset range.
- Fixed an issue with the scope crashing when saving a screen shot in some cases.
- Fixed a waveform loading problem where units were not displaying correctly on the horizontal grid in some cases.

- Fixed an issue with measurement queries taking too long with an already installed measurement.
- Fixed slew rate units in setup information output.
- The horizontal scale readouts in the main GUI will reflect the scale units set in the Real-Time Eye dialog.
- A user is only allowed to save a mask .csv file if they have limit lines setup.
- DISPLAY:BOOKmark command will now set the color correctly.
- Fixed a problem with screenshots not including vertical scale information in some cases.
- Defined the PCIe Gen3 “Compliance Receive” bit in our protocol decode.
- Fixed a lock up issue when doing large jitter analysis processes.
- Fixed a problem with reading corrupted waveform file.
- General fixes to the help system.

## Version 5.75.00402

<b>Released Date:</b>	<b>24 February 2017</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Made changes to support new model number sting for 1169B probes that will report themselves as 1169A otherwise.
- Change the trigger out pulse width to 300ns for better detection on S-Series, 90000 X-Series, V-Series, 90000 Q-Series, and Z-Series.
- Fixed a problem with saving and recalling automask files, because of directory specification.
- Fixed problems with UDF using digital channels as a source.
- Fixed a problem with InfiniiSim crashing in some cases.
- Fixed problems with the N8838A software not handling the detection of a mixer correctly and not listing them correctly in the GUI.
- Added license support for the PCIe Gen 4.0 compliance application.

## Version 5.75.00303

<b>Released Date:</b>	<b>20 January 2017</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with Multi-Scope Hosted not calibrating correctly in some cases.
- Fixed an Undo/Redo issue that would cause a crash.
- Fixed a bug with setting a Hex value for the Generic Serial Search String.
- Fixed a mask test placement problem with Real-Time Eyes.
- Fixed a bug with bandwidth upgrades not working on Z-Series in some cases.
- Fixed problems with the N8838A software:
  - o Fixed a performance problem.
  - o It now sets the LO to 10dBm by default.
  - o It preserves the LO address across a default setup.
- Fixed a trigger time error for Storm 10-bit mode (10GSa/s and 20GSa/s). The error starts to occur when waiting for a trigger that is longer than 1.374s.

## Version 5.75.00214

<b>Released Date:</b>	<b>9 December 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added the ability to load and save .mat files.
- Added a macro recorder that will allow a user to recorder their interaction with the oscilloscope and then play it back.
- Added the ability to undo/redo the last few actions that were taken on a scope.
- Added a new 3<sup>rd</sup> order CTLE option along with some improvements to the CTLE GUI.
- Added J4 and J5 Jitter support and improved the algorithms for J2 and J9.
- Added support for HDR-TSL and HDR-TSP to the I3C protocol decode and trigger.
- Added some new data rates for the Hardware Serial option card.

## Bug Fixes

- Fixed a problem with two thresholds being displayed in the Protocol Manual Setup dialog when they should not be.
- Fixed a bug with reading files that had capitalized MSK extension.
- Fixed a problem with the display of a function disappearing when zooming in on a signal in some cases.

## Version 5.70.00901

Released Date:	9 November 2016
Operating System:	Windows 7

## Enhancements

- Added dynamic range graphic for the N7004A probe.

## Bug Fixes

- Removed the PCIe Gen1 and Gen2 from the clock recovery presets lists.
- Fixed a problem with the Signal Type dialog when only N8838A was licensed.
- Fixed a GPIB command issue when controlling an MXG signal generator that did not have a modulation license.
- Improved N7004A extinction ratio measurement tolerance, when deviating from the dark calibration settings.
- When removing an N7004A from a scope the scale will be defaulted to 1V/div to help prevent possible frontend damage.
- Fixed a problem with Real-Time Eye diagrams resetting when running a DDR4 compliance application.
- Limited the number of cores that will be used on a PC to 24 to work around a MATLAB issue.
- Fixed a Sync port issue with Multi-Scope.
- Fixed a 90000A Series issue when trying to run a calibration without administrative privileges on the oscilloscope.
- Fixed an eye contour issue when the main waveform display is turned off.

- Improved the location and size of the remote operation lock message to allow the main waveform area to be seen while running compliance applications.
- Fixed a V-Series touch screen issue when enabling it for the first time on startup.

## Version 5.70.00802

<b>Released Date:</b>	<b>14 October 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added HDR-DDR support for I3C protocol decode and trigger.

### Bug Fixes

- Fixed a problem with a CD-ROM drive not being displayed correctly in the file explorer.
- Fixed a problem with draw mask not working with some Real Time Eye cases.
- Crosstalk application will now display the Time, Error for power supplies.
- Fixed a problem with Autoscale not setting the trigger level corrected when hardware invert was on.
- Fixed a problem where mask test waveform count would increment when histograms were turned on/off in some cases.
- Fixed a calibration probe skew issue in our 90000A Series oscilloscopes.
- Eye Contour improvements and bug fixes.

## Version 5.70.00715

<b>Released Date:</b>	<b>26 September 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a compatibility issue with some of our compliance applications.
- Fixed an issue with some mask files not loading when using the CSV format.
- Fixed a problem with eye measurements not working on some optical signals.
- Change Optical Power measurement to Optical Average Power measurement to be in line with what our sampling oscilloscopes call this measurement.

Version 5.70.00714

Released Date:	20 September 2016
Operating System:	Windows 7

## Enhancements

- FFT enhancements:
  - o Channel Power Measurement
  - o Occupied Bandwidth Measurement
  - o Power Spectral Density Measurement
  - o Vertical Units: dBmV, dbuV, Watt
  - o RF Detectors
  - o Limit Lines
- An analog channel can now be inverted in the hardware.
- Support for the N7004A 33 GHz Optical-to-Electrical Converter. Including some new capabilities associated with the probe:
  - o OMA measurement
  - o Optical power
  - o Eye measurements (one/zero level, extinction ratio)
  - o Dark calibration.
  - o New vertical reference for Watts signal.
- Added a 4th order Bessel filter for all channels.
- Add the ability to do mask test using mask margins.
- Added automatic mask scaling.
- Added a number of optical standard mask files.
- ARINC 429 protocol decode and trigger support.
- MIL-STD-1553 protocol decode and trigger support.
- Enhanced Ethernet 100BaseT hardware trigger support on S-Series scopes.

- Partial I3C protocol decode and trigger, including I2C, SDR.
- Multi-lane MIPI LLI decode support.
- Added an Analysis Diagram view which shows the flow of the input signal through all our analysis paths.
- InfiniiSim support for Infiniium Offline.
- Added the ability to load segmented data back into a waveform memory. It will not work if you load them into a channel in offline only a memory.
- Mask tests can be run on acquired segmented data.
- Crosstalk application improvements.
- Added the ability to change the segmented play rate via SCPI.
- Added more SCPI commands for FFT functionality.
- Added a trigger scope indicator in the GUI.

## Bug Fixes

- Fixed an issue with the pilot tone being lost with some signals on Z-Series.
- When sending a remote query, it will not cause a disable of the scope as much as it used to.
- When changing vertical scale between linear and log, the optimal vertical scaling will be used.
- Fixed a screen image saving having the save dialog in them.
- Added the ability to display non equalized waveform with a Real-Time Eye.
- Added back the ability to get screenshots from the oscilloscopes webpage.
- Fixed a limit test display issue in Platinum display mode.
- Fixed a problem with bandwidth limit was being set inappropriately in some InfiniiSim modes.
- Fixed a correlation issue between EZJIT+ and EZJIT when measuring period jitter.
- After a power cycle the probe head information will be restored correctly.
- Improved the vertical scale when switching between vertical FFT units.

- The probe details box will show up less often and will go away when it needs no matter where the mouse is.
- Documentation updates.

## Version 5.60.00904

Released Date:	30 August 2016
Operating System:	Windows 7

### Bug Fixes

- Added a warning message and disabled bad N7010A probes.
- Added support for new N7010A probes.
- Added an updated flatness test to the Quick Calibration to test for damage caused by old N7010A probes.

## Version 5.60.00902

Released Date:	12 August 2016
Operating System:	Windows 7

### Bug Fixes

- Fixed a firmware crash when doing an eye measurement with bad data coming in.

## Version 5.60.00901

Released Date:	3 August 2016
Operating System:	Windows 7

### Bug Fixes

- Added a warning message for an issue cause by our current N7010A probe.

## Version 5.60.00804

Released Date:	27 July 2016
Operating System:	Windows 7

### Bug Fixes

- Fixed a problem with Real Time Eyes not being displayed after the recall of a setup.



- Fixed a problem with the Eye Height measurement not computing in some cases.
- Fixed an issue with three source UDFs.

## Version 5.60.00802

Released Date:	19 July 2016
Operating System:	Windows 7

### Bug Fixes

- Fixed a problem with eye mask test results not being reported correctly.
- Fixed a problem with PAM-4 BER/SER cumulative count results.
- Made a change to eSPI decode to match the delay in the triggering.

## Version 5.60.00603

Released Date:	25 May 2016
Operating System:	Windows 7

### Bug Fixes

- Fixed an issue when setting Explicit Clock Recovery with some protocol settings.
- Clamped the Connect Dots option to off if in Equivalent Time sampling mode. If it is allowed to be on it may cause waveform drawing problems.
- Fixed a histogram drawing issues when in Equivalent Time sampling mode.
- Fixed a problem with Real-Time Eyes not being displayed in some cases.
- Fixed a problem with V-Series scopes crashing on a factory default when using the touchscreen.
- Fixed some Multi-Scope issues.
- Updated help content.

## Version 5.60.00602

Released Date:	11 May 2016
Operating System:	Windows 7

### Bug Fixes

- Fixed an issue with the application failing to startup on previous versions of firmware.
- For dialogs that have tabs in them, the active tab will be remembered when closing the dialog so that it can be recalled when opening it again.
- For the N7010A probe, a message will tell the users how to configure the probe correctly and that the VTerm value is being set to zero for front end protection.
- Disabled InfiniiSim in Offline mode.
- Fixed some Multi-Scope issues.
- Fixed a problem with the Reset block display when using Sequence trigger.

## Version 5.60.00505

Released Date:	4 May 2016
Operating System:	Windows 7

### Enhancements

- Added channel information in marker readouts.

### Bug Fixes

- The :DISK:LOAD command will now work on channels 5-40 when running Infiniium Offline.
- Allow Eye Contour to be used without a DDR compliance application license.
- Updated help and user guide content.
- Fixed an issue with some of our demos loading correctly.
- Fixed a problem with some front panels not working on S, V, and Z-Series scopes.
- When running Infiniium Offline channels 5-40 will appear when not hosting an oscilloscope.

## Version 5.60.00503

<b>Released Date:</b>	<b>11 April 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixes a problem with specific inputs cases for Crosstalk.
- A number of fixes for Multi-Scope.
- Added a correction factor fix for new M1971E mixers.
- Fixed an installer issue with Microsoft .NET.

## Version 5.60.00501

<b>Released Date:</b>	<b>5 April 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added PAM-4 BER rate measurements.
- Added the ability to draw masks for Mask Test.
- Multi-Scope supported in the oscilloscope.
- Crosstalk analysis application.
- Added Eye Contours for DDR analysis.
- Added 3 port support to InfiniiSim.
- Added N8838A external mixer support for the M1971E smart mixer reference solution.
- Added CAN-FD protocol decode and trigger support.
- Upgraded to RFFE 2.0 protocol support.
- Added support for the N2839A InfiniiMax II Differential Browser.
- Added Quick Jitter and Quick Eye Diagram selections.
- Increased the Clock Multiplier max value to 1200 for SDA.
- Protocol decode and Mask test can be on at the same time.
- Added F/2 (Even/Odd) jitter result value.

- Added Peak-to-Peak Contrast measurement.
- Added some new data rates for the Hardware Serial option card.
- Added a probe dynamic range indication and removed the probe clipping message.
- Increased the maximum time/div setting in roll mode to 1000s/div.
- Increased the maximum time/div setting in real time and segmented modes to 200s/div.

## Bug Fixes

- Fixes to our bandwidth limit readout.
- Fixed a problem with explicit clock recovery not working with PAM-4 signal type.
- Fixed an issue with navigation of protocol decode when in zoom mode.
- Display the correct unit for measurement histograms.
- Added TIE filter setting into the new GUI like it was in the old GUI.
- Added the ability to change the colors of derived waveforms.
- Fixed masks files that had loading errors.
- After sending a SYST:LOCK command you can break the lock by minimizing the application.
- Fixed a problem with screen invert getting stuck when saving images on trigger.
- Fixes to using the hislip connection.
- Fixed a problem with file save locations not being recalled correctly.
- Fixed some interpolation issues when saving composite file in Infiniium Offline.
- Fixed an issue with zooming in on a channel when the Timebase Reference was not set to 50%.
- Changed the PCIe Gen3 CDR preset bandwidth to 10MHz.
- Fixed a number of screen saving issues.
- Fixed a problem with the Blackman-Harris FFT window.
- Some UDF control fixes.
- Fixes for BechVue support.
- Fixed a problem with saving digital data on a 90000 X-Series

- Fixes to the Precision Cable Wizard.
- Fixed an issue with the automatic scaling of function in some cases.
- Fixed a timeout error that happened when multiple trials of a SATA compliance application.
- Remote command enhancements and fixes.
- Help documentation updates.

## Version 5.52.0011

<b>Released Date:</b>	<b>11 March 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Added a data rate of 2.97GHz to the Hardware Serial Trigger option card.
- Increased the CTLE max frequency to accommodate greater bandwidth on Q and Z Series scopes.
- Added MTEST:FOLDING:COUNT? legacy support so that you do not have to specify a source.

## Version 5.52.0008

<b>Released Date:</b>	<b>16 February 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with decoding PCIe Gen1,2 with the Gen 3 license.
- Fixed a problem with sequence triggering not working with some protocols.
- Fixed a calibration problem with the N2820A probe.
- Fixed an issue with memory upgrade on the S-Series.
- Fixed a problem with saving images and composite files on trigger.
- Fixed an issue with measuring date on some imported waveform memories.
- Fixed a problem with Mask Test causing a crash in some cases.

## Version 5.52.0004

<b>Released Date:</b>	<b>8 January 2016</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a LAN connection issue when trying to do remote control.
- Fixed a problem with Long READ Response packets in D-PHY decoder.
- Fixed a problem with 1UI value being different between the RTEye and the actual waveform.

## Version 5.52.0003

<b>Released Date:</b>	<b>15 December 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with protocol decode not working in segmented memory mode.
- Fixed a problem where some probe offsets are not set correctly based on the attenuation of the probe.
- Fixed a crash of the Infiniium application when using the Enter Value dialog for some protocols.
- Fixed a problem with the Infiniium application crashing when running through the Equalization Wizard in some cases.
- Fixed an issue with installed bandwidth licenses not working on 90000 Q-Series with greater than 33GHz bandwidth.

## Version 5.52.0001

<b>Released Date:</b>	<b>30 November 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added legacy color grade mode under persistence.

## Bug Fixes

- An N5444A probe head will report a bandwidth of 30GHz.
- Fixed a problem with high speed digital data not being saved corrected when in half channel mode, 20GSa/s.
- Fixed some issues with the new SYST:MENU? query.
- Fixed an issue with bandwidth upgrades of some 90000 Q-Series and Z-Series.

## Version 5.51.0002

<b>Released Date:</b>	<b>6 November 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

## Enhancements

- Added USB PD protocol decode and trigger.
- Added USB 3.1 protocol decode and search.

## Bug Fixes

- Fixed a problem with the Global Bandwidth Limit not working on a 9000.
- Fixed a problem with digital and analog memory depths not collating correctly.
- Fixed a problem with probe overload happening on an S-Series and the hardware and the software get out of sync.
- The N7010A probe will now use Precision Cable instead of Precision Probe.
- Fixed an issue with our Second Order PLL setting changes when using SCPI and the front panel.
- Fixed an issue with clock recovery not working intermittently in some cases.
- Fixed a problem with calibration not working on some heterogeneous Multi-Scope Hosted configurations.

## Version 5.50.0035

<b>Released Date:</b>	<b>21 October 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with bandwidth upgrade license for V-Series scopes.

## Version 5.50.0033

<b>Released Date:</b>	<b>9 October 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added a SYST:MENU? remote command, to allow a user to query contents of any menu.

### Bug Fixes

- Fixed global bandwidth setting and display.
- Fixed jitter issue for real edge channels on Q and Z Series.
- Fixed banding issue in real-time eye for differential channels with N7010A probes connected.
- Made fixes to the N7010A skew calibration.
- Made some improvements for Quick Environmental calibration along with reducing calibration failures in some cases.
- Fixed a LIN and USB2 triggering issue on S-Series.
- The calibration for the InfiniiMax III with N5444A 2.92mm head will now ask the user to added a shorting cap.
- On Multi-Scope Hosted the code will allow Aux-In as a trigger.
- On Multi-Scope Hosted fixed a problem with clock synchronization.
- On a 90000 X-Series SPI trigger will now work on the digital channels.
- Fixed a problem with the PDER remote sometimes giving false positive.
- Allow some measurements to work on a smooth function.
- Fixed a problem with eye measurements when using explicit clock recovery.



- Fixed a licensing problem with the N5459B DDR bundle.
- Fixed a problem with PCI Express 2.0 licensing on a Raptor.
- Added :BUS:B1:Type command support for eSPI and Ethernet 10/100Base T.
- Fixed it so that a user can go from 13GHz to a lower bandwidth when stepping.

## Version 5.50.0031

Released Date:	1 September 2015
Operating System:	Windows 7

### Bug Fixes

- Fixed a licensing problem on 90000 X-Series

## Version 5.50.0030

Released Date:	26 August 2015
Operating System:	Windows 7

### Enhancements

- Added support for the N7010A on a 90000 X-Series.
- Added the displaying of the “Size (in Bits)” column before the payload so the number of SKPs will be known.

### Bug Fixes

- Fixed a problem with some front panels on S-Series, V-Series and Z-Series.
- Fixed a problem with probe skew calibrations failures in some cases.
- Fixed a problem when you use the right-click “Copy Image Screen” option in a Waveform Window that is not window 1.
- Fixed some problems with reporting more than five measurements in the setup information printout.
- Made a fix so that the entire screen is copied if you choose “Copy Screen” from the main menu.
- Fixed a problem with a Zone moving/going away when a user changes the source after creating the zone.

- Fixe a problem with skew calibration on a N2820A when using an S-Series.
- Fixed a problem with the EZJIT wizard not working correcting with only an EZJIT plus license.
- Fixed a licensing problem for SVID.
- Fixed a problem with the vterm for a N7010A getting cleared out when you connect or disconnect another probe.
- Added some DC calibration improvements for the N7010A.
- Fixed a problem with the eye diagram mask not indicating violations correctly.
- Fixed a problem with saving an image when in tabbed mode.

## Version 5.50.0027

<b>Released Date:</b>	<b>31 July 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

## Enhancements

- Added Jitter Free capability for the Hardware Serial Trigger option card.
- Added  $\Delta Y/\Delta X$  readout for your marker results.
- Added the ability to determine if a calibration is in progress for the N8834A option.
- Increased the Clock Recovery Clock Multiplier to 120.

## Bug Fixes

- Fixed a problem with saving transfer function sometimes failing in InfiniiSim.
- Fixed a problem with opening some h5 files.
- Fixed problems with screen captures not getting all of the data on the screen with the Display Port compliance applications.
- Fixed problems with the icons disappear from the saving screen image dialog in some cases.
- Updated the image for the N5443A deskew calibration fixture to highlight the 50 Ohm termination needed.
- Fixed a problem with the histogram box not displaying correctly in some cases.
- When a user prints a screen the image will no longer contain the print dialog.

- Fixed a problem with Real-Time Eye folding in some cases on a Z-Series oscilloscope.
- Fixed a problem with the edge then edge measurement with a single pulse.
- Now the segmented time tag and X origin is saved in h5 files.
- Fixed a problem in histograms where the Max Bins was not updating the results.
- The scale factors for the N2800A have been corrected.
- Fixed a problem with the :MTES:FOLD:TPOS command not setting the units correctly.
- Improved the resolution of the FFT peak annotation to show more accurate results.
- Fixed a problem with :WAVEform:COMplete not returning the correct value.

## Version 5.50.0021

Released Date:	9 July 2015
Operating System:	Windows 7

### Bug Fixes

- Fixed an issue that could potentially cause incorrect channel and function display data on the S-Series to be produced when using Individual Channel Bandwidth Limit filters at sample rates less than or equal to 5 GSa/s.
- Fixed an issue that could cause Precision Cable calibrations to incorrectly deskew signals.
- Fixed an issue that prevented the front panel from being detected when certain USB devices were attached to the instrument.

## Version 5.50.0015

Released Date:	25 June 2015
Operating System:	Windows 7

### Enhancements

- The Jitter results are now included as part of the Setup Information.

### Bug Fixes

- Added the right-click zoom to min/zoom to max back in for measurements.
- Made changes to remote commands for some of the N8834A calibration capability.
- Fix a problem with serial decode not working when you drag digital channels around.

- Fixed a problem with bandwidth limit not being turned on when using the :CHANnel<N>:ISIM:BWLimit command on a S-Series.

## Version 5.50.0014

Released Date:	19 June 2015
Operating System:	Windows 7

### Enhancements

- Added remote commands for some of the N8834A calibration capability.

### Bug Fixes

- Fixed problems with screen shots when the GUI off remote command was used.
- Made changes to the ACVrms measurement to work on the full sampled data.
- Fixed a text entry problem when increasing the number of bytes within the numeric entry pad.
- Fixed a problem with some oscilloscopes losing their licenses.
- Fixed a problem with crossing measurement not working in some cases.

## Version 5.50.0013

Released Date:	5 June 2015
Operating System:	Windows 7

### Bug Fixes

- Fixed a problem in the Bookmark list view to only show the first line if you have a multiline bookmark.
- Fix a problem with measurements sometimes not updating correctly when in a stopped mode.
- Added back in the Multi-Scope control license.
- The term voltage on a N5444A probe head will recall correctly.

## Version 5.50.0012

Released Date:	1 June 2015
Operating System:	Windows 7

### Bug Fixes

- Added the support of 2-port S-parameter files when in set to a 4 Port type
- Fixed a problem with Digital Memories widget incorrectly tied to digital channels.
- Waveforms will now recall into the same grid that they were saved in.
- Fixed a memory upgrade problem on Z-Series

## Version 5.50.0011

Released Date:	28 May 2015
Operating System:	Windows 7

### Bug Fixes

- Updated the Power Rail probe demo.
- Added a new legacy mode to the :DISK:SAVE:MEASurements command to return the data in columns instead in rows.
- Fixes to Precision Probe causing overloads in some cases.
- The correct Precision Probe diagram and instructions will be display on a V-Series oscilloscope.
- Some additional fixes when saving an inverted image.
- Fixed a problem with digital memories not saving/loading correctly in Infiniium Offline.
- Auto Sin(x)/x will not work correctly in Infiniium Offline.
- Added back the ability to set the Jitter BER Levels to E6, E7, E8.
- The Hardware Serial Trigger eye diagram will now open up again once a good signal is connected.

## Version 5.50.0010

<b>Released Date:</b>	<b>18 May 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with Jitter Tailfit Bathtub graph not displaying data.
- The number of USB connected to a oscilloscope no longer causes a problem in the File Management dialog.
- Put the RF measurement demos in.
- Fixed a problem with the Composite Histogram not displaying any data if some parts are not reporting values.

## Version 5.50.0009

<b>Released Date:</b>	<b>11 May 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- The QuickWaveform Multipurpose action will now display all needed save options like you have in the main save dialog.
- Sequence trigger reset time will display the correct value in all cases.
- Properly display the bandwidth information in the bandwidth dialog when RealEdge is enabled.

## Version 5.50.0008

<b>Released Date:</b>	<b>5 May 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Removed support for the 1153A probe for S-Series, V-Series, 90000 Q-Series, and Z-Series.
- Updated the Bandwidth Limit dialog to only show the bandwidth readout for a given channel if it is enabled.
- Fixed a problem where triggering would not work in some cases after a Mask Test run.

- Fixed a problem with triggering locking up when doing a QuickSave action on trigger.
- Auto incrementing will now work in all QuickSave cases.
- After saving file with setup information, histograms will now update correctly afterwards.
- Fixed a crash when doing the average of an FFT.
- Fixed a bug with the horizontal scaling of average FFTs.
- Did a better job of inverting the background when doing an image save.
- Fixed a crash when running a probe skew calibration.

## Version 5.50.0007

<b>Released Date:</b>	<b>24 April 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with UFS search not worked corrected when Any Host to Target and Any Target to Host was selected.
- Bandwidth upgrade problem fixed for Q-Series and Z-Series.
- A problem with the Protocol Lister trigger line indication was fixed.
- Fixed a problem with Sequence trigger Reset-By-Event not triggering properly.
- When running in offline we will not try to load an FIR filter since they will not work.
- Hardware Serial Trigger is limited to 16 symbols for Generic 8b/10b in the GUI.
- Fixed a problem with CAN debug trigger in some cases.
- Fixed a problem with the Bandwidth Limit dialog not always updating the oscilloscope behavior correctly.
- When connecting a N2800/1/2/3A to a 90000X-Series the DC baseline will not shift on probes connected to other channels.
- Probe offset is not working properly for the 1169A.

## Version 5.50.0006

Released Date:	16 April 2015
Operating System:	Windows 7

### Bug Fixes

- Made updates to the “Quick Environmental” cal for the 90000 (Q, X, V and Z) series.
- Made the default memory to 50 Mpt. for V-Series.
- Turned interpolation control off for analog channels in Infiniium offline and on for waveform memories for both on the oscilloscope and offline.
- Fixed PAM TIE measurements at high symbol rates.
- Added support for :CHAN:PROBe:HEAD:VTERm command on N7010A probe.
- Fixed the problem with the Ethernet 100BASE-TX Protocol menu check box not displaying the correct state.

## Version 5.50.0005

Released Date:	13 April 2015
Operating System:	Windows 7

### Enhancements

- Multi-lane Unipro/UFS will merge data even without MK0, MK1 alignment characters.

### Bug Fixes

- Fixes to Multi-Scope hosted.
- Fixes to PAM-4.
- Made updates to the “Quick Environmental” cal for the 90000 (Q, X, V and Z) series.
- Fixed problem with the ExecuteGPIBScript.exe not running correctly.
- The protocol Lister will display all captured data correctly for all numbers of lines of data.



## Version 5.50.0004

Released Date:	10 April 2015
Operating System:	Windows 7

### Enhancements

- Added a “Quick Environmental” cal for the 90000 (Q, X, V and Z) series to reduce phase drift.

### Bug Fixes

- Fixed a potential phase error issue on the real edge channels of the 90000 Q and Z series. Loading this software update on the Q and Z series will display a “Quick Environmental” cal required message after the oscilloscope starts up
- Fixed a problem with 63G license on Z-Series scopes.
- Improvements to the S-Series calibrations including probe skew calibration.
- Improvements on the accuracy in a few trigger calibrations.

## Version 5.50.0001

Released Date:	26 March 2015
Operating System:	Windows 7

### Enhancements

- V-Series oscilloscope support.
- PAM-4 analysis support.
- Multi-Scope Hosted support.
- Hardware Serial Trigger option card support.
- Added support for the N7000A – N7003A probes.
- Added N7020A S-parameter support.
- Added the ability to save each channel in a different CSV file and an image all with one button press.
- Added a remote command to turn off GUI updates.
- Can save waveform data and an image with on button press.

- New bandwidth filter menu that consolidates all bandwidth filters into one dialog.
- Multi-lane Unipro/UFS will merge data even without MK0, MK1 alignment characters.

## Bug Fixes

- When saving a file it will remember the previous file name.
- When saving setup information as part of a save screen image, the measurement results will be included.
- Fixed a problem with printing setup information with  $\geq 14$  characters in the label.
- Fixed compliance application upgrade problem going from an Agilent branded application to a Keysight one.
- Improvements to Ethernet serial decode.
- The :DISPlay:CGRad and :MTESt:FOLDing commands were changes to keep some of the legacy behavior will still allowing new capability.
- Better indication of what is being controlled when using the Quick Control capability.
- Fixed the :DISK:SAVE:MEAS command to make sure it saves all of the data.
- The Real Time Eye horizontal controls now work correctly based on the icon on the button.
- Updated the descriptions for the N2832A skew calibration.
- Fixed an overload problem with probing on S-Series.
- The number of UIs for Real-Time Eye is now displayed as a floating point number because it could report negative numbers before.
- Fixes to Jitter graph rendering.
- Fixed a problem with gating box show when Real-Time Eye is displayed.
- Fixes to the EZJIT Complete Wizard.
- A number of precision probe calibration GUI fixes.
- Fixed units for Slew Rate results to be a more traditional expression.

## Version 5.30.0004

<b>Released Date:</b>	<b>31 March 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with 63G license on Z-Series scopes.

## Version 5.30.0003

<b>Released Date:</b>	<b>18 March 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with updating the 90000 X-Series front panel FPGA.

## Version 5.30.0001

<b>Released Date:</b>	<b>26 February 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixes a crash when Buses are displayed and you zoom in and out in some cases.
- The CAN demo will now work with the N8803 license.

## Version 5.30.0000

<b>Released Date:</b>	<b>23 February 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Added support for the N7010A probe.
- Added probe head support for N2851A.
- In Roll Mode you can set the sample rate and function horizontal getting work while running.
- Added 1M $\Omega$  500MHz DSP correction filter to the S-Series
- Ethernet 10/100BaseT decodes and trigger on 10BaseT. Both IPv4 and IPv6 support.

- Added support back in for Measure All Data and Measure All Edges.

## Bug Fixes

- Fixes to the decimation algorithm of the color grade database.
- For the S-Series, the Bits of Resolution display the correct value.
- Better documentation on how to configure VNC Viewer was added.
- Added correction for probe offset linearity on 90000 X-Series.

## Version 5.21.0001

Released Date:	18 March 2015
Operating System:	Windows 7

## Enhancements

- Fix a problem with downgrading your 90000 X-Series to a pre-5.30 baseline.

## Version 5.21.0000

Released Date:	23 February 2015
Operating System:	Windows 7

## Enhancements

- This version allows you to downgrade your 90000 X-Series to a pre-5.30 baseline.

## Version 5.20.0021

Released Date:	6 February 2015
Operating System:	Windows 7

## Bug Fixes

- Fixed a problem with mask being scaled correctly.
- Fixed a problem with bandwidth upgrades on a DSA.

## Version 5.20.0018

Released Date:	22 January 2015
Operating System:	Windows 7

### Bug Fixes

- Fixed a problem with Resolution Bandwidth only driving acquisition setting in one direction.

## Version 5.20.0017

Released Date:	16 January 2015
Operating System:	Windows 7

### Enhancements

- Added multi-line support for bookmarks.

### Bug Fixes

- Fixed a problem with the remote self-test command and made it so that the self-test dialog will be torn down when done.
- Navigation with Limit Test now works.
- Fixed a Mask recall problem.
- The FFT Resolution Bandwidth can drive acquisition settings even when the sample rate is fixed.

## Version 5.20.0016

Released Date:	9 January 2015
Operating System:	Windows 7

### Enhancements

- Added support to the :CHANNEL<N>:PROBE:EADAPTER command/query to support E2697A and N5449A.

## Version 5.20.0015

<b>Released Date:</b>	<b>7 January 2015</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with Mask testing off screen data.

## Version 5.20.0014

<b>Released Date:</b>	<b>18 December 2014</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a problem with IO Libraries Suite 17.0 connecting to our oscilloscopes.
- Allowed QuickExecute to process double quoted filenames among other changes.

## Version 5.20.0013

<b>Released Date:</b>	<b>4 December 2014</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed a license environment variable issue causing the Offline application to start up very slowly. The fix was to ignore the default LM\_LICENSE\_FILE environment variable when checking for server based licenses.
- Fixed an issue where the edge-edge measurement was always using the middle threshold regardless of the threshold setting.
- Fixed an issue which was causing an incorrect measurement count for some configurations.

## Version 5.20.0010

<b>Released Date:</b>	<b>21 November 2014</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fixed PCIe 3.0 Tx protocol decode of compliance preset number and lane number (mod 8).
- Fixed VTerm not always being applied correctly for the N280xA probes.
- The cable delay will now be included in Precision Probe calibration.
- Fixed problem with MISO always reporting FF in 4 wire SPI decoding.
- Fixed mask test query failure in the Display Port compliance application.
- Allow the user to select the polarity when doing an SMA calibration using Precision Probe.

## Version 5.20.0008

<b>Released Date:</b>	<b>11 November 2014</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Bug Fixes

- Fix to measurement threshold setting when using Custom level +/- hysteresis.
- Fixed a problem with editing an existing transfer function.
- Normalize DC gain checkbox was fixed.
- Added back in Qualifying Thresholds when doing a Versus (XYZ Qualified) function.
- Fixed the ability to do GPIB measurement query.

## Version 5.20.0006

<b>Released Date:</b>	<b>30 October 2014</b>
<b>Operating System:</b>	<b>Windows 7</b>

### Enhancements

- Improved the performance of ASCII file save.

## Bug Fixes

- Fixed the SELFtest:SCOPetest command to run a self-test, display the GUI and respond to queries.
- Offset range and other small fixes for the N7020A Probe.

## Version 5.20.0005

Released Date:	17 October 2014
Operating System:	Windows 7

## Enhancements

- Added source 3 and 4 to the function GUI for UDFs that support this number of sources.

## Bug Fixes

- Fixed a bug in UDF calculation that was happening in a few oscilloscope configurations.
- Increased the efficiency in loading InfiniiSim transfer file.
- Fixed a problem with the “-nohpib” command turning off all remote connections.

## Version 5.20.0004

Released Date:	7 October 2014
Operating System:	Windows 7

## Enhancements

- The user can interpolate channel data when loading a file into Infiniium Offline.

## Bug Fixes

- Fixed probe head selection slowness on the S-Series.
- Fixed decoding PACP\_CAP\_EXT1\_ind in Unipro 1.60.
- Fixed histogram X axis windowing to plot small number of bin histograms correctly.
- Fixed a problem with MATLAB errors with InfiniiSim and no UDF license.



Version 5.20.0003

Released Date:	30 September 2014
Operating System:	Windows 7

## Enhancements

- Keysight rebranding.
- Clock recovery per channel.
- Resizing the waveform does not cause statistics to reset.
- Resizing waveform area does not reset the color grade.
- Mask test does not depend on the size on the screen. It will always test as if full screen.
- Move the waveform to different areas using right-click.
- Right-click allows you to select 3 grids.
- HDMI 1.0 and 2.0 Clock Recovery preset will default using rising edge.
- Added remote commands for LIN and FlexRay.
- Can change the max number of bins for measurement and waveform histograms.
- Support for N7020A Probe

## Bug Fixes

- General performance improvements.
- Able to save all segment data.
- Improved the performance of :DIG.
- Right-click context menu comes up more easily.
- Ability to save images via the oscilloscope's webpage.
- Added keyboard shortcuts for items in the Control menu.
- Removed VNC support from the oscilloscope webpage. You will have to use UltraVNC.

## Version 5.10.0005

Released Date:	1 August 2014
Operating System:	Windows 7

### Bug Fixes

- Fixed a problem with importing multi-channel waveform data .h5 files from InfiniiVision products into InfiniiView.

## Version 5.10.0003

Released Date:	8 July 2014
Operating System:	Windows 7

### Bug Fixes

- Fixed a crash when using EZJIT

## Version 5.10.0001

Released Date:	4 July 2014
Operating System:	Windows 7

### Enhancements

- Changed the highlight color in list boxes and tabs to make it more clear what is selected.
- Enhanced the calibration procedure for the N2820A probe to allow for more accurate measurements.

### Bug Fixes

- Fixed issues with the S-series memory options.
- Fixed an issue where the incorrect amount of available standard memory was incorrect on the S-series.
- Fixed several user interface defects.

Version 5.02.0009

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Released Date:	25 June 2014
Operating System:	Windows 7

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## Bug Fixes

- Fixed an issue where there is a dramatic slowdown for all DSA model scopes.
- Fixed an issue where the S-series scopes did not have the right memory depth
- Fixed an issue with the 90000 X-Series where sometimes during a user calibration the oscilloscope application crashes.
- UFS decode now decodes the 1st packet data even if there is no previous packet with the EOM bit set.

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