

Keysight M8070A System Software for M8000 Series of BER Test Solutions

The M8070A system software for the M8000 Series of BER Test Solutions is required to control M8041A, M8045A, M8046A, M8051A, M8061A, M8062A, M8195A and M8196A.

Software licensing

Offline version does not require a license.

For controlling the hardware, you can choose between a transportable, perpetual license (M8070A-OTP) and a network, perpetual license (M8070A-ONP). The network license is only recommended when using multiple M8020A or M8040A setups within one company. When ordering M8020A-BU1 or M8040A-BU1 the M8070A-OTP license will be pre-installed on the embedded controller.

For further important information see

- [M8020AInstallationGuide.pdf](#)
- [M8020AGettingStartedGuide.pdf](#)
- [M8070APluginsGettingStartedGuide.pdf](#)
- [M8020AUserGuide.pdf](#)
- [M8020AProgrammingGuide.pdf](#)
- [M8030AStartHere.pdf](#)
- [M8040AStartHere.pdf](#)
- [M8040AGettingStartedGuide.pdf](#)
- [M8000-91010TipsForPreventingDamage.pdf](#)

located on this DVD or after installation in the start menu under All Programs ⇒ Keysight M8070A.

Updating “Factory” folder

If you have previously installed the M8070A software on your PC, upgrading to a newer version will not automatically update the predefined settings and pattern in the “Factory” folder. This is to ensure that user created settings containing references to a predefined pattern are not deleted from the "Factory" folder which could cause the settings to become corrupted.

M8070A is detecting that the factory folder being used is not matching the installed software version on the first startup-up after installation. In this is the case, it offers to update the factory folder to match the installed software version. If this automatic update is rejected, the software will keep using the existing outdated factory folder.

To update the factory folder after having rejected the automatic update, follow the following steps.

To ensure that the latest “Factory” folder is created, you must delete the current “Factory” folder before starting the latest version of the M8070A software.

On the command line the path to this folder is:

```
C:\Users\<login_name>\Documents\Keysight\M8070A\Workspaces\Default\Factory
```

In a file explorer window the path is:

```
C:\Users\<login_name>\My Documents\Keysight\M8070A\Workspaces\Default\Factory
```

After deleting the “Factory” folder, starting the latest version of the M8070A software will automatically create a new “Factory” folder containing the latest settings and pattern.

Fixing pattern-synchronization issues

If the analyzer fails to sync on a memory based pattern make sure, that the first 48bits of the pattern are unique by rotating the pattern in the pattern editor.

Recommendations for working with an embedded controller

- With an embedded controller (e.g. M9537A) installed, do not connect an external host PC to the AXIe System Module (ASM) or Embedded System Module (ESM) front panel PCIe or USB connector.
- Do not leave empty slots between the embedded controller M9537A and instrument modules. Modules may be inaccessible with some ESM firmware revisions.

- Ensure that the ESM firmware version matches the embedded controller’s minimum requirements. Consult the ESM and embedded controller’s documentation for further details.

Recommendations for working with M8030A setups

- Using Keysight IO Library rev. 17.2.20605 or above is mandatory to prevent enumeration issues.
- If working with an external computer.
Wait until all LEDs on the chassis and all modules have reached a stable condition before turning on the external computer. This can take several minutes.
- Always shut down the external computer before switching off the M9514A chassis.
- Make sure to use the correct clock cables when using a M8192A to synchronize multiple modules.
The cables that come with M8051A modules are not working together with a M8192A synchronization module.

Informational

- M8196A V2.0.215
 - When using M8070A with this M8196A SFP it needs to be started manually before starting M8070A. In case M8070A starts the M8196A SFP it will crash.
 - Using IQTools version 2017-10-25 distributed with this M8196A SFP for phase/frequency response calibration is not possible as it does not allow saving the resulting S-Parameter file.
Check <http://www.keysight.com/find/M8196A> under “Technical Support” for the latest IQTools release.

Release 5.1.100.6

Released Date:	6. March 2019
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit) Version 1607 (Anniversary Update) or newer
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXle embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXle chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXle Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXle Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_5.1.100.6.exe

New features

- M8041A / M8051A
 - USB 3.1: Adoption of TSEQ training sequence according to ECN (Engineering Change Notice to the USB standard).
Increased the number of times the TSEQ training sequence is being transmitted to 0x80000 times. This allows testing of many coefficient settings.

Fixed defects

- LFPS test error for USB3 RX (564528)
- Termination check for single ended operation in DDR5 applications
- PCIe LTSSM does not always send EQTS2 before a speed change
- M8196A: Generation of patterns at symbol rates above 45 GBd not possible

Known defects

- 554078 M8196A with single or dual channel option:
When sharing the AWG between IQTools and M8070A the Mode setting in the SFP Output tab needs to be switched to Single/Dual Channel (without Markers). This need to be performed whenever the specific SFP was utilized from IQTools before continuing to work with M8070A.
- 553811 M8196A:
Using an IQTools phase/frequency response calibration for high baud rates (e.g. 56 GBd or 60 GBd) suffers a PAM4 eye height decrease of about 25 % compared to IQTools or previous M8070A versions.

Release 5.1.50.2

Released Date:	7. September 2018
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit) Version 1607 (Anniversary Update) or newer
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_5.1.50.2.exe

New features

- M8045A
 - The FEC error insertion feature is enabled by selecting one of the FEC factory patterns:
 - IEEE_802_3cd_RS_544_514_Scrambled_Idle
 - IEEE_802_3cd_RS_544_514_Remote_Fault
- M8195A Rev2
 - Support for extended sequences containing multiple looped and one-time blocks.

Breaking changes

- M819XA
 - In previous versions periodic and random jitter in signal generation mode was not limited in a way to always result in consistent waveforms when using extreme jitter amplitude / frequency settings. Such limits were now introduced. In case a setting was stored using settings which are outside the allowed range it cannot be recalled in the

new version. A workaround is to set jitter amplitude and frequency for all jitter sources to 0 in a previous version and use this modified setting with the new M8070A version.

- Previously pulse patterns were line coding independent. Now for consistency with extended sequencing pulse pattern properties adhere to the currently selected symbol mapping. This means that in case PAM4 line coding is selected for the specific channel that e.g. a pulse width of 32 bit will correspond to 16 PAM4 coded symbols.

Fixed Defects

- 553893 PCIe Gen 4 speed 2.5 - 8G change timed – out
- 554119 Fixed error in calculation of Estimated Total Jitter in Output Timing Measurement results.
- 549352 While using Relative sweep mode in Parameter Sweep measurement, limits of 'Sweep From' and 'Sweep To' parameters were being calculated incorrectly.
- 553895 LTSSM does not generate Error signal to the sequencer.
- 555633 In case of Percentage (%) parameter(s) M8070A is not accepting the negative values.
- 555504 Enable Impairments button does not control CMI or DMI on M8062A.
- 554968 In Parameter Sweep Measurement 'Sweep To' and 'Sweep From' field is not accepting the negative values when sweep mode is relative.
- 553813 In case of AWG Sinusoidal Jitter causing severe glitches in some settings.
- 553814 In case of AWG Random Jitter causing severe glitches in some settings.

Known defects

- 554078 M8196A with single or dual channel option:
When sharing the AWG between IQTools and M8070A the Mode setting in the SFP Output tab needs to be switched to Single/Dual Channel (without Markers). This need to be performed whenever the specific SFP was utilized from IQTools before continuing to work with M8070A.
- 553811 M8196A:
Using an IQTools phase/frequency response calibration for high baud rates (e.g. 56 GBd or 60 GBd) suffers a PAM4 eye height decrease of about 25 % compared to IQTools or previous M8070A versions.

Release 5.0.228.4

Released Date:	13.July 2018
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit) Version 1607 (Anniversary Update) or newer
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_5.0.228.4.exe

Fixed Defects

- 554295 M8046A: 0A3 license cannot be installed

Release 5.0.222.2

Released Date:	25. June 2018
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit) Version 1607 (Anniversary Update) or newer
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_5.0.222.2.exe

New features

- M8041A/M8051A
 - Increased relax time for output protection to avoid problems in MIPI testing
 - PCIe4: Support for Compliance Receive bit
 - Asymmetric SSC profile
- M8045A
 - Asymmetric SSC profile
 - Second de-emphasis post cursor
 - rSSC generation
 - PAM4 modulo 4 pre-coder
- M8046A
 - Support of option A64, NRZ error detector up to 64 Gb/s
 - Support of option 0A3: Adjustable equalization above 32 GBd

- Support M8046A together with M8041A and M8062A

- M8195A
 - Generation of DM-SI and CM-SI
 - Generation of de-emphasis and DCD
- M8196A
 - Generation of DM-SI and CM-SI
 - Generation of de-emphasis and DCD
- SCPI command recorder
- Error ratio measurement
 - Display a combined BER for a group of analyzers on which the error ratio measurement is done
- Sampling Point View
 - Adjustable persistence of histogram data for more precise manual tuning of threshold and equalization settings
- Parameter Sweep
 - Additional methods to specify BER measurement depth
 - Selectable auto-alignment before the BER measurement
 - Hooks for DUT Control Interface scripts
- Query system configuration information via SCPI command
- Workspace folder migration from Agilent to Keysight
- Prevent laptops from automatically entering sleep mode

New factory patterns

- PCIe3

- Calibration

- DMSI_CMSI_cal_BIT
 - PCIe3_Compliance_lane0_BIT_8G
 - RJ_SJ_cal_BIT
 - Step_BIT
 - TxEQ_cal_BIT

- Test

- PCIe3_modified_compliance_lane_0_CC_BIT_8G
 - PCIe3_modified_compliance_lane_0_IR_BIT_8G
 - PCIe3_modified_compliance_lane_0_SKPOS_filtering_M8046A_BIT_8G

- PCIe4

- Calibration

- DMSI_CMSI_cal_BIT
 - PCIe4_Compliance_lane0_BIT_16G
 - RJ_SJ_cal_BIT
 - Step_BIT
 - TxEQ_cal_BIT

- PCIe5

- Calibration

- DMSI_CMSI_cal_BIT
 - RJ_SJ_cal_BIT
 - Step_BIT
 - TxEQ_cal_BIT

- Test

- PCIe4_modified_compliance_lane_0_CC_BIT_16G
- PCIe4_modified_compliance_lane_0_IR_BIT_16G
- PCIe4_modified_compliance_lane_0_SKPOS_filtering_M8046A_BIT_16G

- CCIX

Calibration

- DMSI_CMSI_cal_BIT
- RJ_SJ_cal_BIT
- Step_BIT
- TxEQ_cal_BIT

Test

- CCIX_modified_compliance_lane_0_CC_BIT_20G_25G
- CCIX_modified_compliance_lane_0_IR_BIT_20G_25G
- CCIX_modified_compliance_lane_0_SKPOS_filtering_M8046A_BIT_20G_25G

New factory settings

- CCIX_25G_M8062A_M8046A

Fixed Defects

- | | |
|--------|--|
| 526180 | Cannot load SSPRQ pattern from factory library into M8045A/M8046A when AWG is in RI/SI mode |
| 532090 | Real-time scope integration may report VISA timeout errors when using HiSLIP protocol. Use the Infiniium 06.20.00801 on the real-time oscilloscope. This version is available on Keysight.com. |
| 539881 | M8195A SFP version 3.5.17.1 needs to be started manually before starting M8070A. Use M8195A SFP 3.6.00, available on Keysight.com |
| 543151 | Simple pattern selection SCPI query is returning an internal enum representation that is not even accepted by the command to set the pattern |
| 546122 | Incorrect PRBS sent by the M8062A as soon as SSC is enabled |
| 548336 | M8196A: S-Parameter de-embedding produces bad signal when activating jitter |

Known defects

- 539881 M8196A SFP version 2.0.215.0 needs to be started manually before starting M8070A
- 359903 M8070A may become unresponsive when controlling multiple N1076A/N1077A.
This problem can occur when M8070A is configured to the default setting and the bandpass filter is present at the CLK IN connector of M8046A.
Disconnecting the signal from the M8046A CLK IN connector will allow M8070A to settle and become responsive again.

Release 4.5.70.2

Released Date:	23. March 2018
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_4.5.70.2.exe

New features

- M8045A: Alignment of data channels and control outputs.
For availability of this feature on your unit, refer to the data sheet.
- PCIe4 enhancements
 - Separate Ref Clk. Independent SSC Architecture (SRIS)
 - Entry into loopback through configuration state
 - Visualize transfer rate used for different phases in LTSSM log
 - Indicate incorrect de-emphasis coefficients requests of the DUT in the LTSSM log
- Added support for the following real-time oscilloscopes as error detector channels
 - DSA594A
 - DSO594A

- Simplified selection of patterns on individual channels
 - Ability to select different patterns for individual channels in the pattern selection dialog
 - Download the pattern in the pattern editor directly to the data channels.
 - SCPI command to set a single pattern on a data channel without the need of a full sequence definition.
- Auto-alignment status query SCPI command
- Added description of the factory patterns in the user guide

IEEE 802.3bs SSPRQ Pattern

Replaced outdated IEEE/SSPRQ_bit_SelectGrayCoded pattern file with the version as defined in 802.3bs-2017.

The outdated version is still available under IEEE/SSPRQ_bit_SelectGrayCoded_D1p5.

Fixed Defects

- 531990 M8041A: Interactive LTSSM for USB 3.1 (Gen1 and Gen2) does not link with DUT on some units
- 539493 SSPRQ factory pattern inconsistent with IEEE 802.3bs standard release definition
- 537963 M8046A: Auto-align for PAM-4 signals with high intrinsic error rate fails
- 530911 M8046A: LED at CLK in not working as documented

Known defects

- 546122 Incorrect PRBS sent by the M8062A as soon as SSC is enabled
Use SW 3.7 to avoid this problem
- 539881 M8195A SFP version 3.5.17.1 needs to be started manually before starting M8070A
M8196A SFP version 2.0.215.0 needs to be started manually before starting M8070A
- 532090 Real-time scope integration may report VISA timeout errors when using HiSLIP protocol.
Use a USB connection to control the oscilloscope to avoid this problem.
- 359903 M8070A may become unresponsive when controlling multiple N1076A/N1077A.
This problem can occur when M8070A is configured to the default setting and the bandpass filter is present at the CLK IN connector of M8046A.

Disconnecting the signal from the M8046A CLK IN connector will allow M8070A to settle and become responsive again.

Release 4.0.101.4

Released Date:	05. February 2018
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_4.0.101.4.exe

List of changes

- Maintenance release to support latest hardware revisions.

Release 4.0.100.2

Released Date:	20. November 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_4.0.100.2.exe

New features

- Integration of real-time oscilloscopes as error detector channel
 - Supported models
 - DSOZ634A
 - DSAZ634A
 - DSOX96204Q
 - DSAX96204Q
 - Requires Infiniium 06.10.00616 or newer with the following licenses
 - N5384A Serial Data Analysis (SDA)
 - N8827A PAM-4 Measurement (PM4)
 - N5461A Equalization (DEQ)

- System setup view
- Sampling point view
- M8046A
 - Improved input equalization
 - Report histogram of received signal in sampling point view
 - Error counter results in offline mode
- M8062A
 - Sequencer based squelch signal generation for SAS applications
- Jitter Tolerance measurement
 - New search algorithm 'Adaptive Binary' to reduce measurement times
 - Show only maximum passed points connected by a line
 - User defined search algorithms
 - Remote programming API enhancements
 - Query the list of maximum passed amplitudes
 - Query minimum fail and maximum pass information for each measured jitter frequency
 - Define and select a J-Tol template via SCPI
 - Create a J-Tol template from the last measurement result
- Pattern Capture
 - Capture received data without error information
 - Speed optimized data upload mode
- Measurement history
 - Rename history entries
 - User defined comments for history entries
 - Delete single history entry

Breaking changes

The improved input equalization of M8046A does result in a different equalization for the same equalization level setting compared to 3.7.64.6

Existing setups need to be re-tuned in terms of equalization on the M8046A or de-emphasis on the transmitting side to achieve the same electrical performance than with 3.7.64.6 or earlier.

Fixed Defects

- 531990 M8041A: Interactive LTSSM for USB 3.1 (Gen1 and Gen2) does not link with DUT on some units
- 493938 M8041A: AWG FPGA bring-up fails sporadically with test register access failure
- 532614 M8046A: Remote program must set clock out divider correctly before it can set new frequency even if clock out is disabled
- 526115 M8046A: PRBS sync issues with minimum block size of 1024 bits
- 526116 M8046A: PRBS generator sync-timing not aligned with sequence block
- 532179 M8046A: :INPut:EQUalization:[PRESet]:LEVel command does not work
- 532617 M8046A: Eye height information of auto-alignment cannot be queried from a remote program when line coding is PAM-4
- 532616 M8046A: Eye height result of auto-alignment always reported as 0 when line coding is NRZ
- 526180 Cannot load SSPRQ pattern from factory library into to M8045A or M8046A when AWG is in RI/SI mode
- 531508 M8062A: Calculated results of output timing measurement are incorrect, if the measurement runs before the data rate has been set to a non-default value
- 527179 M8062A: Mapping of errors is confusing or incorrect in the 'Sequence Control' of the sequence editor
- 530912 N1076A Integration: Selection of clock recovery not working correctly in configurations with two M8046A and two N1076A/N1077A
- 523144 M8195A/M8196A: Random Interference generated by M8195A and M8196A does not have Gaussian distribution
- 527794 Pattern editor: Squelch bits get modified when saving the pattern with CTRL+S

- 531978 Pattern editor: Paste option unavailable when the first bit of a row is selected in a pattern
- 532082 Jitter tolerance measurement: Inconsistent results when measurement runs without view
- 531999 Eye diagram measurement: Eye contour leaving eye diagram when turning ON/OFF the 'Contour Legend' and the measurement is running for 'Fixed Time' persistence
- 532001 Eye diagram measurement: 'Calculated results' disappear when stopping the measurement after turning off the contour legend and the measurement is running for 'Fixed Time' persistence
- 532541 Output timing measurement: Analyzer location doesn't show grouped analyzer location
- 532252 Pattern capture does not capture the correct amount of data when 'Capture In Memory' is enabled
- 531609 Access denied error while renaming any saved instrument state
- 527701 User Guide: Add scrambler polynomials for PCIe, USB, SATA
- 527555 Side by side installation of MIPI C-PHY Editor 2.1.0.0 and any newer versions of the MIPI C-PHY Editor causes a crash of M8070A
- 532186 M8070A crashes on un-installing any DCI script when a parameter sweep measurement is opened
- 532501 Rebranding: Directory log-file located in a folder named 'Agilent'
- 533420 Min/max is unsupported for F2-Jitter SCPI command and query

Known defects

- 530911 M8046A: LED at CLK IN not working as documented
- 530910 M8045A: Can get stuck after frequency change to exactly 32.414 GHz

Release 3.7.64.6

Released Date:	21. September 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.7.64.6.exe

List of changes

- M8046A
Maintenance release to support latest hardware revisions and factory calibration.

Release 3.7.40.2

Released Date:	23. August 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A/M9537A including pre-installation of M8070A software and module licenses. Otherwise: M9536A/M9537A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.7.64.6.exe

New features

- M8046A
 - Built-in and adjustable equalization to re-open closed eyes
- M8045A and M8046A
 - User definable memory NRZ: 2 Gbit/channel PAM-4: 1 Gsymbol/channel
- Fan control improved

Fixed defects

- 523408 M8045A/M8046A PAM-4 mode status bar shows no SER
- 522469 Error message during installation of M8070A system software
- 521692 PAM-4 line coding query throws stack error

- 523891 RI crest factor entered does not change signal

Release 3.6.1.4

Released Date:	06. July 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.6.1.4.exe

New features

- M8041A and M8051A
 - LTSSM for PCIe Gen4 (requires license)
 - Allow output impedances between 70-130 Ohm balanced without triggering output protection
- Integration of external Clock Recovery N1076A
- Parameter Sweep Measurement
- M8196A: support up to 60GBd. Requires tool-supported calibration.
- M8195A, M8196A: PAM4 custom coding
- M8062A: De-emphasis presets, like M8041/51A
- M8062A: Pattern Capture
 - Immediate Trigger Mode

- For Data Rate > 4G
- Up to 137280000 Bit
- When working with expected memory patterns, limitations apply:
 - Minimum expected pattern length > 512 bit
 - No capture possible after a failed synchronization

Fixed defects

- 509757 M8062A: High F/2 jitter at 6 Gb/s
- 506296 M8041A, M8051A: PCIe 16G LTSSM doesn't update data output

Release 3.5.110.8

Released Date:	19. June 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Keysight Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.5.110.8.exe

List of changes

- M8046A settling times in the channel power up sequence improved

Release 3.5.108.6

Released Date:	03. March 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.5.108.6.exe

List of changes

- M8045A: Improved internal temperature regulation.

Known defects

- Ignore following self-test message:
“Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”
- 493938 Hardware bring-up sporadically fails with error message
‘AWG FPGA test register access failed’ on M8041A, M8051A and M8045A.
Work around: Power-cycle AXIe chassis and restart the software.
- 492740 Instantaneous BER value is not always completely readable in the status display.
- 494050 Auto-alignment button not completely visible in the status display.

Known limitations

- M8196A
 - The maximum system data rate is limited to 46 GBd.
- M8045A
 - Pattern and Sequence:
 - Pattern memory limited to 4 Mbit per channel.
 - SYS IN A, SYS IN B cannot be used to control sequence
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
- M8046A
 - Pattern and Sequence:
 - Pattern must have a mark density of 50% because of AC coupled data input. Non-balanced patterns will lead to pattern-sync and alignment failures caused by the average voltage mismatch before and after the AC coupling.
 - Pattern memory limited to 4Mbit.
 - Pattern capture
 - limited to 2 Mbit
 - PAM-4 threshold parameters and SCPI commands are now using the unit Volt instead of %.
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x and the PAM-4 threshold values will remain at the default settings.

Release 3.5.104.4

Released Date:	09. February 2017
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.5.104.4.exe

Breaking changes

- M8046A: Minimum Symbol Rate increased to 5.0 GBd
Please refer to updated data sheet for updated specification.
- M8046A: Minimum CLK IN frequency increased to 2.5 GHz
Please refer to updated data sheet for updated specification.

Fixed defects

- 494139 M8046A: When being operated with an embedded PC or via PCIe cable, the following self-test error message is reported in the power on self-test result
Error: M1.MBd.DataIn.Memory reports Setting up HMC for BIST failed.
- 495292 GUI crops Analyzer Status window

Known defects

- Ignore following self-test message:
“Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”
- 493938 Hardware bring-up sporadically fails with error message
‘AWG FPGA test register access failed’ on M8041A, M8051A and M8045A.
Work around: Power-cycle AXIe chassis and restart the software.
- 492740 Instantaneous BER value is not always completely readable in the status display.
- 494050 Auto-alignment button not completely visible in the status display.

Known limitations

- M8196A
 - The maximum system data rate is limited to 46 GBd.
- M8045A
 - Pattern and Sequence:
 - Pattern memory limited to 4 Mbit per channel.
 - SYS IN A, SYS IN B cannot be used to control sequence
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
- M8046A
 - Pattern and Sequence:

- Pattern must have a mark density of 50% because of AC coupled data input. Non-balanced patterns will lead to pattern-sync and alignment failures caused by the average voltage mismatch before and after the AC coupling.
 - Pattern memory limited to 4Mbit.
 - Pattern capture
 - limited to 2 Mbit
 - PAM-4 threshold parameters and SCPI commands are now using the unit Volt instead of %.
- Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x and the PAM-4 threshold values will remain at the default settings.

Release 3.5.100.2

Released Date:	22. December 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 or M8040A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.5.100.2.exe

New features

- M8040A High-performance BERT 64 GBaud
 - Support for M8045A
 - Support for M8046A
 - Support for M8057A
- New Factory Patterns
 - IEEE\PRBS13Q_Lane0_bit
 - IEEE\PRBS13Q_Lane1_bit
 - IEEE\PRBS13Q_Lane2_bit
 - IEEE\PRBS13Q_Lane3_bit
 - IEEE\SSPRQ_bit_SelectGrayCoded
 - IEEE\QPRBS13_Lane0_bit_SelectGrayCoded

Breaking changes

The factory pattern IEEE\PRBS13Q_bit was renamed to IEEE\PRBS13Q_Lane0_bit.

Effect:

Existing settings that are using the previous factory pattern PRBS13Q_bit cannot be recalled. This problem occurs after updating the Factory folder as described above.

Workaround:

1. Before upgrading to M8070A 3.5.100.2
Temporarily change all settings that use PRBS13Q_bit
 - Recall the setting
 - Change all sequences that use PRBS13Q_bit to use another factory pattern
 - Save the setting
2. After upgrading to M8070A 3.5.100.2
 - Update the Factory folder as described above
 - Start M8070A 3.5.100.2
 - Load each setting that has been modified in the previous step and select PRBS13Q_Lane0_bit in the sequences that have been using PRBS13Q_bit.
 - Save the setting

Fixed defects

494233 M8062A: Output Timing measurement sporadically shows wrong bathtub curve and calculated results

Known defects

- Ignore following self-test message:
“Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”

- 493938 Hardware bring-up sporadically fails with error message
'AWG FPGA test register access failed' on M8041A, M8051A and M8045A.
Work around: Power-cycle AXIe chassis and restart the software.
- 494139 M8046A: When being operated with an embedded PC or via PCIe cable, the following self-test error message is reported in the power on self-test result
Error: M1.MBd.DataIn.Memory reports Setting up HMC for BIST failed.
Workaround: Ignore the error message after verifying that the problem is not being reported using a USB connection.
Note: All M8046A have passed the memory self-test during manufacturing.
- 492740 Instantaneous BER value is not always completely readable in the status display.
- 494050 Auto-alignment button not completely visible in the status display.

Known limitations

- M8196A
 - The maximum system data rate is limited to 46 GBd.
- M8045A
 - Pattern and Sequence:
 - Pattern memory limited to 4 Mbit per channel.
 - SYS IN A, SYS IN B cannot be used to control sequence
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
- M8046A
 - Pattern and Sequence:

- Pattern must have a mark density of 50% because of AC coupled data input. Non-balanced patterns will lead to pattern-sync and alignment failures caused by the average voltage mismatch before and after the AC coupling.
- Pattern memory limited to 4Mbit.
- Pattern capture
 - limited to 2 Mbit
- PAM-4 threshold parameters and SCPI commands are now using the unit Volt instead of %.

Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x and the PAM-4 threshold values will remain at the default settings.

Release 3.5.0.2

Released Date:	1. December 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit) Microsoft Windows 10 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal to version 1.3.42
File Name:	M8070A_Setup_3.5.0.2.exe

New features

- M8041A and M8051A
 - LTSSM for USB 3.1 (requires license)
 - Allow user to select the LTSSM phase that will send a trigger
 - Increased maximum rSSC amplitude to 600ps
 - TX EQ negotiation for 10GBASE-KR (requires plug-in installation and corresponding license)
- Support of M8195A as a
 - digital data source
 - level interference source for M8045A
- Support of M8196A as a
 - digital data source

- level interference source for M8045A
- Import and export of sequences and referenced patterns from within the sequence editor
- Impairment Setup View

- Pattern Editor
 - Go To functionality
 - Find in pattern
 - Create new patterns from imported ASCII file
 - Improved selection of pattern for copy and find functionality
 - Import pattern from external ASCII files into pattern editor with code conversion
- New Pattern files
 - IEEE\PRBS13Q_bit
the generator polynomial is $G(x) = 1 + x + x^2 + x^{12} + x^{13}$ and the seed used for the stored pattern is 0000010101011.
 - IEEE\JP03A
 - IEEE\JP03B
 - IEEE\PAM-4_Linearity_Test_bit
- Eye diagram measurement
 - Improved measurement duration for M8041A, M8051A and M8062A
- Script Editor
 - Improved auto-completion
- Switch between BER and SER display
- Individual stop indicators for Generator and Analyzer channels
- Support of embedded controller M9537A
- Windows 10 support
- Restart pattern sequence at a certain block via SCPI command.
See remote programming guide for details.
- Limited support of M8045A 64 GBd Generator-Clock Module for early shipments and demos
- Limited support of M8046A 32 GBd Analyzer Module for early shipments and demos
- Documentation and context sensitive help is already prepared for M8045A and M8046A, but not yet completed.

Fixed defects

- 478584 SSC on DATA Out if no jitter option present
- 479497 M8041A, M8051A: Wrong data rate when SSC is being used at 8.1 Gb/s
- 477522 M8041A/51A: Sequencer controlled trigger out toggles although not defined in sequence
- 473797 Error when opening factory DisplayPort settings on PG only M8041A
- 469990 M8062A: Error message generated when no CDR board present
- 470196 Auto correction dialog causes the instrument to change system frequency without executing the mandatory hardware re-initialization.
- 489683 M8070A / M8195A: With a two or one channel licensed AWG module it is not possible to select data rates going below 50 ps minimum transition time.
- 489784 File-save naming error pop-up
- 489931 M8070A SW pulling network license of M8085A plugin.
- 489978 Auto align doesn't work properly in M8062A
- 489875 M8070A Software Crashes within BER measurements
- 481565 SSC indicator disappears from status section in 32G mode
- 480306 SCPI command returns undefined signs
- 469746 Capture Measurement crash

Known defects

- Ignore following self-test message:
 “Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”
- Pattern editor does not support editing mask information in PAM-4 mode

Known limitations

- M8045A
 - Pattern and Sequence:
 - Pattern memory limited to 2 Mb per channel.
 - SYS IN A, SYS IN B cannot be used to control sequence
 - Symbol rates below 5 GBd are non-functional on LSR units
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Clock/2 jitter is non-functional on LSR units
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
 - De-emphasis parameters and SCPI commands are subject to change.
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x
 - Parameter limits may differ from the specified values in the data sheet.
- M8046A
 - Pattern and Sequence:
 - Pattern memory limited to 2Mb.
 - Pattern capture
 - limited to 2 Mb
 - error information not correctly aligned with captured data
 - PAM-4 threshold parameters and SCPI commands are now using the unit Volt instead of %.
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x
 - Maximum symbol rate in PAM-4 mode is 29 GBd
 - Parameter limits may differ from the specified values in the data sheet.

- Embedded controller M9536/7A works if controller is in highest slot of chassis and instrument is connected with USB
- The amount of jitter at the CLK IN connector is limited.
- In rare cases the auto alignment needs retry.

Release 3.4.20200.4

Released Date:	10. August 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.4.20200.4.exe

New features

- Limited support of M8046A 32 GBd Analyzer Module for early shipments and demos

Known defect

Ignore following self-test message:

“Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”

Fixed defect

- M8045A
 - PRBS polynomials $2^{13}-1$, $2^{23}-1$, $2^{45}-1$ and $2^{51}-1$ are now functional
 - De-emphasis setting is inaccurate after a symbol rate change and the output signal may remain at static levels after starting up the software.
Workaround: Toggle Data Out polarity

Known limitations

- M8045A
 - Pattern and Sequence:
 - Limited to one sequencer block with infinite loop.
 - Limited to hardware generated PRBS.
Use the 'Select Pattern' dialog to configure the PRBS to be used.
 - TRIG OUT, SYS OUT A, SYS OUT B, CTRL OUT A and CTRL OUT B cannot be controlled from within sequence
 - SYS IN A, SYS IN B, CTRL IN A and CTRL IN B cannot be used to control sequence
 - Symbol rates below 5 GBd are non-functional
 - SSC is non-functional
 - Jitter sweep is non-functional
 - Error insertion is non-functional
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Clock/2 jitter is non-functional
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
 - De-emphasis parameters and SCPI commands are subject to change.
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x
 - Parameter limits may differ from the specified values in the data sheet.
- M8046A
 - Pattern and Sequence:
 - Limited to one sequencer block with infinite loop.

- Limited to hardware generated PRBS.
Use the 'Select Pattern' dialog to configure the PRBS to be used.
- CTRL OUT A cannot be controlled from within sequence
- CTRL IN A cannot be used to control sequence
- Pattern capture not enabled
- PAM-4 threshold parameters and SCPI commands are subject to change (unit will change from % to V).
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x
- Data Loss indicator not functional
- Maximum symbol rate in PAM-4 mode is 29 GBd
- Parameter limits may differ from the specified values in the data sheet.
- Embedded controller M9536/7A works if controller is in highest slot of chassis and instrument is connected with USB
- The amount of jitter at the CLK IN connector is limited.
- Unstable or missing clock can cause system hang-up and requires power cycle of the AXIe chassis.
- In rare cases the auto alignment needs retry.
- No context sensitive help for new features

Release 3.4.10100.2

Released Date:	10. August 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.4.10100.2.exe

New features

- Limited support of M8045A 64 GBd Generator-Clock Module for early shipments and demos
- Support of M8196A as digital data source
- Import and export of sequences and referenced patterns from within the sequence editor
- M8041A, M8051A: Increased maximum rSSC amplitude to 600ps
- Pattern Editor
 - Go To functionality
 - Find in pattern
 - Create new patterns from imported ASCII file
 - Improved selection of pattern for copy and find functionality
- New Pattern files

- IEEE\PRBS13Q_bit
the generator polynomial is $G(x) = 1 + x + x^2 + x^{12} + x^{13}$ and the seed used for the stored pattern is 0000010101011.
- IEEE\JP03A
- IEEE\JP03B
- IEEE\PAM-4_Linearity_Test_bit
- Restart pattern sequence at a certain block via SCPI command.
See remote programming guide for details.
- Individual stop indicators for Generator and Analyzer channels

Known defect

Ignore following self-test message:

“Before performing a system self-test terminate every DATA OUT pin with 50 Ohms. Take care to remove any devices from the tested M8000 system as any connected device under test might be damaged.”

Fixed defects

478584 SSC on DATA Out if no jitter option present

479497 M8041A, M8051A: Wrong data rate when SSC is being used at 8.1 Gb/s

477522 M8041A/51A: Sequencer controlled trigger out toggles although not defined in sequence

473797 Error when opening factory DisplayPort settings on PG only M8041A

469990 M8062A: Error message generated when no CDR board present

470196 Auto correction dialog causes the instrument to change system frequency without executing the mandatory hardware re-initialization.

Known limitations

- M8045A
 - Pattern and Sequence:

- Limited to one sequencer block with infinite loop.
 - Limited to hardware generated PRBS.
Use the 'Select Pattern' dialog to configure the PRBS to be used.
 - PRBS polynomials $2^{13}-1$, $2^{23}-1p$, $2^{45}-1$ and $2^{51}-1$ are non-functional
 - TRIG OUT, SYS OUT A, SYS OUT B, CTRL OUT A and CTRL OUT B cannot be controlled from within sequence
 - SYS IN A, SYS IN B, CTRL IN A and CTRL IN B cannot be used to control sequence
 - Symbol rates below 5 GBd are non-functional
 - SSC is non-functional
 - Jitter sweep is non-functional
 - Error insertion is non-functional
 - Direct clock mode is limited to 8.1GHz to 16.2GHz
 - Clock/2 jitter is non-functional
 - De-emphasis setting is inaccurate after a symbol rate change and the output signal may remain at static levels after starting up the software.
Workaround: Toggle Data Out polarity
 - Timing relation between channel 1 and 2 is non-deterministic and can vary with each timing parameter change.
 - Timing relation between channel 1 and TRIG OUT/CLK OUT is non-deterministic and can vary with each timing parameter change.
 - Jitter profiles of channel 1, channel 2 and TRIG OUT/CLK OUT are not phase aligned.
 - De-emphasis parameters and SCPI commands are subject to change.
Instrument settings created with 3.4.x.x may not recall completely with version 3.5.x.x
 - Parameter limits may differ from the specified values in the data sheet.
- No context sensitive help for new features

Release 3.1.55.14

Released Date:	08. June 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.1.55.14.exe

Fixed defect

- Incompatibility with the C-PHY CTS plug-in

Release 3.1.52.10

Released Date:	23. May 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.1.52.10.exe

New features

- Limits for termination resistance increased (valid for M8041A, M8051A, M8061A, M8062A)
 - from 120 Ohm to 130 Ohm for balanced dc coupling
 - from 60 Ohm to 65 Ohm for unbalanced dc coupling

Fixed defect

457875

462222

464288

463098

464810

464812

462169 Eye diagram enhancements and stability improvements

465168 :OUTP:DEEM:CONF:SIGN accepts now 3 or 7 arguments for supporting M8061A; Programming guide was updated correspondingly

465434 Global SSC switch turns off SSC on Clock Out in common with the DataOuts now

463963 M8195A Increased lower limits of transition time in 2 or 4 channel deep memory configurations. Using very low transition times does not increase signal performance but instead causes jitter.

460958 Several enhancements to run measurements for a long time

464842 M8062A Clean Clock Out is now part of the global outputs switch on/off mechanism

471451 PCIe3 link training is possible on every lane now

Release 3.1.15.6

Released Date:	14. April 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.1.15.6.exe

Fixed defect

464485 CMI/DMI frequency change on single channel module failed

Release 3.1.14.4

Released Date:	24. March 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.1.14.4.exe

New features

- Support for the M8062A CDR option (-OA4).

Release 3.0.40.20

Released Date:	14. March 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.0.40.20.exe

New features

- Support for next generation HH-ASIC

Release 3.0.34.10

Released Date:	27. February 2016
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.2.20605 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_3.0.34.10.exe

New features

- M8030A Multi-Channel BERT
- Eye diagram measurement
- Support M8192A Multi-Channel Synchronization Module
- Support of M8195A rev2
- M8195A
 - S-parameter based embedding
 - RJ and PJ generation
 - SSC generation
 - Increase channel delay from $\pm 100\text{ps}$ to $\pm 1\text{ns}$
 - Support for extended memory configuration of M8195A rev2
 - Additional PRBS polynomial
 $X^{13} + X^{12} + X^2 + X + 1$
- M8041A and M8051A

- Bit recovery mode with CDR
- Additional PRBS polynomials
 - $X^{13} + X^{12} + X^2 + X + 1$
 - $X^{33} + X^{20} + 1$
 - $X^{35} + X^{33} + 1$
 - $X^{39} + X^{35} + 1$
 - $X^{41} + X^{38} + 1$
 - $X^{45} + X^{44} + X^{42} + X^{41} + 1$
 - $X^{47} + X^{42} + 1$
 - $X^{49} + X^{40} + 1$
 - $X^{51} + X^{50} + X^{48} + X^{45} + 1$
- Changed default value of SSC Deviation to 0.5%
- Measurement enhancements
 - Accumulated BER stop after a user defined number bits
 - JTOL templates for SATA2, SAS2, CEI, 10G Ethernet, XFP, FibreChannel
 - JTOL measurement can re-train DUT into loopback during a measurement using the DUT Control Interface.
- System View enhancements
 - Support for M8195A
 - In place editing of parameters.
- Pattern Editor enhancements
 - Bit order selection can be changed
 - Display and edit PAM-4 0,1,2,3 symbols
 - Copy/paste from pattern editor to clipboard and vice versa
 - Display pattern length
- Sequence Editor enhancements
 - Show pattern length in sequence editor
- ISI Editor improvement in 2-point mode
- Rebranding related changes
 - New response to *IDN? Query

- New: *Keysight Technologies, M8070A, DE525000002, 3.x.x.x*
- To date: *Agilent Technologies, M8070A, DE525000002, 3.x.x.x*
- Installation folder changed to C:\Program Files\Keysight

Known limitations

- Plug-ins that have been installed for the 2.x.x.x version are not compatible with 3.x.x.x. Please download a compatible version and re-install.
- A downgrade of the M8070A system software from version 3.x.x.x to 2.x.x.x requires a manual uninstall. Please follow the downgrade procedure below.
 - Click on: Start → Control Panel → Uninstall a program (Scroll down to Keysight)
 - Right-click on ... and select Uninstall
 1. Keysight M8070A
 2. Keysight License Manger
 3. Keysight License Service
 4. Keysight InstrumentIOConfig
 5. Keysight Host Processor Platform
 - Initiate a reboot
 - Install the M8070A_Setup_2.x.x.x.exe
- Defect 458831
Using the Pattern Select dialog to configure the patterns is not working and preventing the sequence editor to download a sequence.
Workaround:
Open the Sequence Editor before using the Pattern Select dialog for the first time.
- Defect 458628
Corrupt graph in Error Ratio measurement when the error detector is stopping and re-starting during a measurement, e.g. when the CDR is losing lock.

Fixed defects

- 437384 Immediately after sending the query ':plugin:eratio:fetch:pfr?', SCPI commands to set or query de-emphasis values return an error.

- 448957 JTOL measurement shows wrong maximum allowed jitter frequency.
- 449518 Opening measurement windows causes remote programming delays

Release 2.6.4.6

Released Date:	16 October 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.1 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_2.6.4.6.exe

New features

Variable transition times for Data Out of M8195A.

Fixed defects

435205 Wrong jitter generated for BUJ and RJ if a shared jitter source is being turned off at one place while still being used at another place.

Release 2.5.6.10

Released Date:	26 August 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.1 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_2.5.6.10.exe

New features

Support for M8062A 32Gb/s Front-end for J-BERT M8020A High-Performance BERT

Release 2.5.2.4

Released Date:	06 August 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.1 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_2.5.2.4.exe

New features

- PAM-4 signal generation with M8195A Rev. 1.
Required M8195A firmware 1.3.1.1 or above.
- M8020A generic features
 - LTSSM enhancement
Test dynamic EQ according to 2.4 and 2.7.
 - Generator and Analyzer sequences can be downloaded independently
 - CTLE presets for USB 3.1 and PCIe 4
 - New MIPI ISI presets
- DUT Control Interface (requires the M8070A option 1TP or 1NP)

Fixed defects

427311 MUX mode setup recall from SCPI is incomplete

421276 Jitter not aligned between Data Out 1, Data Out 2 and Clock/Trigger Out.

- 415324 Sequencing: Wrong data generated with patterns that do not fit in Sequence Granularity and are unrolled.
- 407010 Application crashes when reading error ratio results via SCPI.
- 403630 System freezes when stopping due to instable reference clock.
- 402269 Single channel M8041A or M8051A hangs in arming loop when changing data rate by factors of 2.
- 400552 System freezes when a pattern sync or sequence break overlaps with re-arming events.
- 397109 M8195A module in frame causes M8070A software and M8195A software to crash.
- 396357 Documentation on pattern/settings sharing between systems is not clear.
- 395181 USB connection to M9505A chassis becomes unresponsive, M8070A software hangs.
- 394686 Exception message when storing setting while a measurement is running.
- 394685 Jump to Sync in pattern sequence has no effect ton SYS OUT A/B and TRIG OUT.
- 394683 128b/13xb coding expected data generation: bypass byte0 and reset dc balancing not generating correct expected data.
- 396348 Pattern export does export wrong data for patterns > 32kbyte.
- 394342 Pattern Capture remains in stopped state after parameter conflicts occurred.

Release 2.1.50.2

Released Date:	21 May 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.1 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_2.1.50.2.exe

New features

Selectable transition times for Data Out of M8041A and M8051A.

Fixed defects

- 386921 Factory settings cannot be loaded when a M8051A is present.
- 387505 Sequence trigger pulse width could only be set in block 1.
- 387506 Sequencing: PON sequence sends incorrect bits depending on payload length.
- 387746 8b10b pattern: can't achieve SER 0 for expected pattern that is not unique at offset 0.
- 385829 Output Timing Measurement: Graph not matching the numeric results.
- 383549 Output Level Measurement: Produces wrong result when ED cannot set the requested threshold.
- 383555 Output Level Measurement: Threshold sweep range not as entered by the user.
- 383548 Output Level Measurement: Threshold range not checked against ED capabilities.

Known limitations

- 383575 Output Timing Measurement: Incomplete results for jitter separation when measuring on a group of Error Detectors.
Work around: Measure the channels individually.
- 394342 Pattern Capture remains in stopped state after parameter conflicts occurred.
Symptom: Pattern capture reports stopped state without presenting data even in immediate mode.
Workaround:
- Either toggle SSC state or change the system frequency.
- Start Pattern Capture again.

Release 2.0.0.0

Released Date:	27 March 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 17.1 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_2.0.0.0.exe

New features

- Built-in ISI (Inter Symbol Interference)
- Compare and Capture
- Output level measurement (Q-factor)
- ISI S Parameter View
- Pattern Editor: Copy/Paste, Export, Coding Conversion
- Auto alignment accessible from status indicator panel.
- Changed the content of the tooltips in the parameter editor.
The displayed Value, Minimum and Maximum are the current setting dependent valid values and neither datasheet nor absolute value ranges.

New Factory Settings

- PCIe3/PCIe3_modified_compliance_pattern_lane0_SRIS
- PCIe3/PCIe3_RX_Cal
- SAS/SAS_12G_Cal

- SAS/SAS_12G_JTOL
- USB3.0/USB_3_0_Cal
- USB3.1/USB_3_1_Cal

Updated Factory Settings

- USB3.0/GenericPowerUp
- USB3.1/USB_3_1_power_on_loopback_training

Fixed defects

- | | |
|--------|---|
| 358545 | Save/recall settings not working when user name does have a space. |
| 377940 | SER = 0 without input signal connected. |
| 376282 | Programming guide error for :PLUG:OTIM:FETC:DATA? |
| 376292 | Clk/2 jitter is not documented and location is not intuitive. |
| 376248 | CDR sequence control graphic is not intuitive and does not update when the change is made. |
| 376056 | System view graphics do not updated when the change is made. |
| 376286 | Jitter Tolerance Measurement: Need wider max setting on binary search exit criteria. |
| 382342 | M8000 test result of PCIe Gen2 RX Jitter Tolerance (by N5990) is abnormal. |
| 376240 | 'replicate' option in the pattern generator is not clear enough. |
| 376287 | Jitter Tolerance Measurement: RJ amplitude included in HF jitter total even when disabled. |
| 376222 | Documentation for :data:seq:bre command wrong. |
| 376201 | HF jitter range falsely stated (in GUI).
Jitter budget calculation for SSC and rSSC fixed. |

Known limitations

- | | |
|--------|---|
| 383549 | Output Level Measurement produces wrong results when the measurement range conflicts with capabilities of the error detector.
Work around: Ensure that the entered threshold sweep range does not conflict with the error detector capabilities. |
|--------|---|

- 383555 Output Level Measurement: Threshold sweep range is not behaving as expected. The measurement is running from "Optimum Sample Threshold" + "Sample Threshold Low Level" to "Sample Threshold High Level".
Work around: Enter "Sample Threshold Low Level" as ("Desired Measurement Low Level" - "Optimum Sample Threshold").
- 383575 Output Timing Measurement: Incomplete results for jitter separation when measuring on a group of Error Detectors.
Work around: Measure the channels individually.

Release 1.5.9.6

Released Date:	24 February 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.5.9.6.exe

New features

- Maintenance release to support latest hardware revisions.
- Support for M8085A options DT1, DN1 and DD1.

Fixed defects

358952	USB driver(s) removed when installing V1.5.x.x M8070A SW.
360333	Tool-tip on some GUI element is giving wrong information.
359951	User is unable to run symbol rate's SCPI with suffix, need to provide complete digit of input value for SCPI.
360074	User is unable to run sample rate's SCPI with suffix, need to provide complete digit of input value for SCPI.
369627	Factory Default Settings: Sync Loss Threshold not sensible. Fixed the following settings: - PCIe3/PCIe3_mod_compliance_lane0_ASIC - USB3.0/GenericPowerUp

Known limitations

354552 When using the M8061A a low transition density of the pattern can lead to an alignment failure between the M8041A and M8061A modules. ("Error ID: 16123057 Description: Failed to align the connection from M1.DataOut1 to M2.DataIn1. Check there is a cable connected and that the complement output of M1.DataOut1 is properly terminated.").

Workaround:

- Select a PRBS pattern and force an input alignment by changing the data rate.
- Change the pattern back after the alignment succeeded.

Release 1.5.7.4

Released Date:	15 December 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.5.7.4.exe

Fixed defects

356986	M8061A integration - null reference exception when query BER via SCPI.
356775	Sync loss with a pattern having 4e+9 symbols in bit mode with block length as 90910300.
359630	User is unable to enter “+” and “\” symbols by keyboard in SCPI editor’s input field.
355337	Error is thrown when rename and new folder operation is done in a sequence.
343272	Output timing issue when injecting PJ1 to the M8061A.
355749	Pattern may get corrupted, when user closes the Save Pattern while GUI is performing the save pattern operation.
358328	M8061A: N4877A loop bandwidth out of sync. with loop bandwidth displayed in M8070A.
338421	Behavior of Documents/Agilent/M8070A directory in M8070A installation is not clearly documented.
353468	M8070A software hangs in start-up, HF jitter source FIFO problems in log file

354976	No sync with 10101 pattern and other patterns that have length 5 bits. This happens for data-rates above 8.1Gb/s.
356319	:INP:ALIG:EYE:RES:DEL? doesn't return enough digits of resolution.
358069	Unexpected auto-correction of jitter amplitude when changing data rate.
355348	Bit rate not visible in status bar for option G08.
360417	M8061A: exception when issuing a SCPI command while auto-sync is executing.
360420	HF jitter spectrum and therefore jitter amplitudes incorrect on M8051A when controlling via PCIe.
357921	Can't change bit rate if jitter injection amplitude is too high.
361634	Jitter Tolerance Measurement: Not reaching 1ui when SSC is present.
361787	HF jitter amplitudes too small for data rates below 1Gb/s.

Known limitations

354552	<p>When using the M8061A a low transition density of the pattern can lead to an alignment failure between the M8041A and M8061A modules. ("Error ID: 16123057 Description: Failed to align the connection from M1.DataOut1 to M2.DataIn1. Check there is a cable connected and that the complement output of M1.DataOut1 is properly terminated.").</p>
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Workaround:

- Select a PRBS pattern and force an input alignment by changing the data rate.
- Change the pattern back after the alignment succeeded.

Release 1.5.2.2

Released Date:	30 October 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.5.2.2.exe

New features

- Support for the M8061A module.
- Compliant interactive link training including de-emphasis negotiation for PCIe3 on channel one.
- Pattern Memory extended to 2G/bit per channel.
- 128b/132b coding and SKPOS handling for USB 3.1.

Known limitations

- After changing to mux mode on the M8061A remotely wait for an additional 5 seconds after the system reports 'running state' before executing further commands.
- Defect 354552
When using the M8061A a low transition density of the pattern can lead to an alignment failure between the M8041A and M8061A modules.
("Error ID: 16123057 Description: Failed to align the connection from M1.DataOut1 to M2.DataIn1. Check there is a cable connected and that the complement output of M1.DataOut1 is properly terminated.").

Workaround:

- Select a PRBS pattern and force an input alignment by changing the data rate.
- Change the pattern back after the alignment succeeded.

Release 1.0.12.12

Released Date:	25 September 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.12.12.exe

Fixed defects

350887 Data Output Glitches when generating squelch signal.

Release 1.0.10.10

Released Date:	20 August 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.10.10.exe

New features

The M8070A software supports jitter profile alignment capability on M8051 Data Module.

Release 1.0.9.8

Released Date:	11 August 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.9.8.exe

New features

The M8070A software supports an add-on plug-in that generates C-PHY signals so as to test the DUTs that are compatible to this new standard.

Release 1.0.8.6

Released Date:	31 July 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.8.6.exe

Fixed defects

- License handling for C-Phy.
- USB factory setting improved and verified with real device.
- M8051A HF Jitter sources supported.
- DMI amplitude change adjust amplitude range correctly.

Release 1.0.6.4

Released Date:	23 July 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.6.4.exe

Fixed defects

336454 Fixed issue supporting 1 channel configuration and option UED.

Release 1.0.4.2

Released Date:	10 July 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.4.2.exe

Fixed defects

331013 SCPI commands ...:TCEN and ...:ACEN lock up.
Plug-in loading fails if version does not match.
Overload Indicator does not work.

330359 Arbitrary SSC causes exception error message.

330573 Factory Patterns & Settings updated.

Release 1.0.0.0

Released Date:	27 June 2015
Operating System:	Microsoft Windows 7 (64 bit) SP1, Microsoft Windows 8 (64 bit) Microsoft Windows 8.1 (64 bit)
Controller requirements:	Embedded PC: Choose M8020A-BU1 for a pre-installed embedded controller M9536A including pre-installation of M8070A software and module licenses. Otherwise: M9536A 1-slot AXIe embedded controller, choose options for Windows 7 or 8, 8 or 16 GB RAM, USB External PC: USB connection recommended between external PC and AXIe chassis. Minimum of 8 GB RAM recommended. For PCIe connectivity please refer to list of tested PCs for AXIe Technical Note, pub no. 5990-7632EN
Display resolution:	Minimum requirement 1024 x 768
Software pre-requisites:	Keysight IO Library rev. 16.3 or above AXIe Chassis Firmware (Embedded System Module (ESM) from Agilent Technologies) greater than or equal version 1.3.41
File Name:	M8070A_Setup_1.0.0.0.exe

Initial Release

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