

Software  
Release Notes

Keysight  
M9391A PXIe  
Vector  
Signal Analyzer





## Copyright Notice

© Keysight Technologies 2013 - 2016 No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Keysight Technologies, Inc. as governed by United States and international copyright laws.

## Manual Part Number

M9391-90008 Published

By Keysight Technologies

Ground Floor and Second Floor, CP-11

Sector-8, IMT Manesar – 122051

Gurgaon, Haryana, India Edition

Edition 2.1, December, 2016

## Warranty

THE MATERIAL CONTAINED IN THIS DOCUMENT IS PROVIDED “AS IS,” AND IS SUBJECT TO BEING CHANGED, WITHOUT NOTICE, IN FUTURE EDITIONS. FURTHER, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, KEYSIGHT DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH REGARD TO THIS MANUAL AND ANY INFORMATION CONTAINED HEREIN, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KEYSIGHT SHALL NOT BE LIABLE FOR ERRORS OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, USE, OR PERFORMANCE OF THIS DOCUMENT OR OF ANY INFORMATION CONTAINED HEREIN. SHOULD KEYSIGHT AND THE USER HAVE A SEPARATE WRITTEN AGREEMENT WITH WARRANTY TERMS COVERING THE MATERIAL IN THIS DOCUMENT THAT CONFLICT WITH THESE TERMS, THE WARRANTY TERMS IN THE SEPARATE AGREEMENT SHALL CONTROL.

KEYSIGHT TECHNOLOGIES DOES NOT WARRANT THIRD-PARTY SYSTEMLEVEL (COMBINATION OF CHASSIS, CONTROLLERS, MODULES, ETC.) PERFORMANCE, SAFETY, OR REGULATORY COMPLIANCE, UNLESS SPECIFICALLY STATED. **Technology Licenses**

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

## U.S. Government Rights

The Software is “commercial computer software,” as defined by Federal Acquisition Regulation (“FAR”) 2.101. Pursuant to FAR 12.212 and 27.405-3 and Department of Defense FAR Supplement (“DFARS”) 227.7202, the U.S. government acquires commercial computer software under the same terms by which the software is customarily provided to the public. Accordingly, Keysight provides the

Software to U.S. government customers under its standard commercial license, which is embodied in its End User License Agreement (EULA), a copy of which can be found at

<http://www.keysight.com/find/sweula>.

The license set forth in the EULA represents the exclusive authority by which the U.S. government may use, modify, distribute, or disclose the Software. The EULA and the license set forth therein, does not require or permit, among other things, that Keysight: (1) Furnish technical information related to commercial computer software or commercial computer software documentation that is not customarily provided to the public; or (2) Relinquish to, or otherwise provide, the government rights in excess of these rights customarily provided to the public to use, modify, reproduce, release, perform, display, or disclose commercial computer software or commercial computer software documentation. No additional government requirements beyond those set forth in the EULA shall apply, except to the extent that those terms, rights, or licenses are explicitly required from all providers of commercial computer software pursuant to the FAR and the DFARS and are set forth specifically in writing elsewhere in the EULA. Keysight shall be under no obligation to update, revise or otherwise modify the Software. With respect to any technical data as defined by FAR 2.101, pursuant to FAR 12.211 and 27.404.2 and DFARS 227.7102, the U.S. government acquires no greater than Limited Rights as defined in FAR 27.401 or DFAR 227.7103-5 (c), as applicable in any technical data. **Safety Notices**

### CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

## WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

# Contents

- Version 2.1 ..... 5
  - Version 2.1.240.2 ..... 5
    - Enhancements ..... 5
    - Critical Fixes ..... 5
  - Version 2.1.230.1 ..... 5
    - Critical Fixes ..... 5
  - Version 2.1.221.0 ..... 5
    - Enhancements ..... 5
    - Critical Fixes ..... 6
- Version 2.0 ..... 6
  - Version 2.0.279.0 ..... 6
    - Enhancements ..... 6
    - Critical Fixes ..... 6
- Version 1.2 ..... 6
  - Version 1.2.403.0 ..... 6
    - Enhancements ..... 6
    - Critical Fixes ..... 7
  - Version 1.2.417.1 ..... 7
    - Enhancements ..... 7
    - Critical Fixes ..... 7
- Version 1.1 ..... 8
  - Version 1.1.300.0 ..... 8
    - Enhancements ..... 8
    - Critical Fixes ..... 8

# M9391 Release Notes

- [Version 2.1](#)
- [Version 2.0](#)
- [Version 1.2](#)
- [Version 1.1](#)

## Version 2.1

### Version 2.1.240.2

Release Date: March 2017

#### Enhancements

- New FPGA bits for M9300A, M9301A and M9350A with improved stability and support for new memory module.

#### Critical Fixes

- "Drive BP 10MHz Reference" checkbox is added to M9391 SFP. This is equivalent of IVI-COM's Modules.Reference.BackPlaneReferenceEnabled property.

### Version 2.1.230.1

Release Date: December 2015

#### Critical Fixes

- Fixed interaction between applications using shared Reference or shared Synthesizer that may result in self test failures.
- Fixed triggered multi-channel record mode with 89600 VSA Software.

### Version 2.1.221.0

Release Date: July 2015

#### Enhancements

- Added support for eight PXI VSAs in two chassis sharing a single controller. The following configurations are supported:
  - Time-synchronous multi-channel operations using independent Local Oscillators (LOs).
  - Time-synchronous and phase coherent multi-channel operations using output from a single LO routed through a V2802A LO Distribution Network to split the signal to the eight channels.

- Improved multi-channel timing synchronization performance.

## Critical Fixes

- Several calibration and alignment fixes to correct timing and phase errors in multi-channel operations.

## Version 2.0

### Version 2.0.279.0

Release Date: May 2015

## Enhancements

- Updated help file, added IVI-2014 Compliance, rebranded as Keysight Technologies.
- Added support for a maximum of 4 PXI VSAs in a single chassis sharing a single controller.
- Improved multichannel timing synchronization performance.
- Added phase synchronous operation via M9301A Synthesizer sharing capability, along with new IVI method and properties:
  - Calibration2.LOLevelAlignment.AlignLoLevel
  - Modulation3.BasebandPhase adjustment
  - Modules.Synthesizer3.SharedRole
  - Modules.Synthesizer.OutputPort
- Added Reference3.AlignExternalReferenceAnd10MHzOut method to align phase of the 10 MHz Output with the External Reference input.

## Critical Fixes

- Fix to enable using Modules.Reference.ProgrammableOutputTrigger properties when sharing M9300A Reference between multiple instruments.

## Version 1.2

### Version 1.2.403.0

Release Date: August 2014

## Enhancements

- Added support for 89600 VSA Software stepped spectrum measurement (Option 89601B-SSA).
- Added MultiChannelSync IVI interface and MultiChannel C# example to enable direct utilization of multi-channel capability. Previous 1.1.300.0 release offered multi-channel support via 89600 VSA software only.
- Improved speed performance.

- Eliminated AgModularVSA IVI interface. All functionality is now accessed directly via the AgM9391 interface.
- M9214A FPGA 1.0.2.3 available – Optional, not currently required for any new software features.
- M9300A FPGA 1.0.1.0 available – Optional, not currently required for any new software features.

### Critical Fixes

- Fix enabling Modules.Reference.ProgrammableOutputTrigger properties to take effect.
- Fixed issue causing a ReadIQData() exception after running an IF Flatness alignment.

**NOTE** This release is not binary compatible with prior releases of the IVI-C driver. Programs using the C/C++ IVI-C driver must be recompiled for this version of the driver. Similarly, programs compiled with this version of the driver will not be compatible with older versions of the IVI-C driver. This incompatibility is due to renumbering of attribute constants defined in the AgM9391.h include file.

**NOTE** M9300A-related documentation is available only after installing the M938x software, available at [www.keysight.com/find/M9381A-driver](http://www.keysight.com/find/M9381A-driver). (When you run the M938x installer, you may install only the M9300A related files if you wish.)

### Version 1.2.417.1

Release Date: January 2014

### Enhancements

Features added for 89600 VSA Software power spectrum measurements (Option 89601B-SSA):

- Zero span measurements (power vs time)
- Sweep trigger
- IF Magnitude trigger (for gating and sweep trigger)
- Equivalent sweep time
- Enable higher Span/RBW ratios when using a 64 bit process
- Support M9000 resource manager sharing with multi-channel configurations

### Critical Fixes

- Fixture Loss table is disabled but tables are no longer cleared by ResetDefaultProperties() or Reset().
- Fix to enable IF Filter alignment even when M9300A Reference module is not located in the system timing slot.

# Version 1.1

Version 1.1.300.0

Release Date: October 2013

## Enhancements

- Added multi-channel support via 89600 VSA software
- Added FFT Acquisition Mode for faster power measurements

## Critical Fixes

- Fixes to improve Fixture Loss performance
- Fixes IVI Config Store to remember options and "simulate" mode – Improved IF flatness calibration





This information is subject to change without notice. © Keysight Technologies 2013 - 2016 Edition 2.1, December, 2016

M9391-90008 [www.keysight.com](http://www.keysight.com)

