Software Release Notes

Keysight M9393A PXIe Performance Vector Signal Analyzer

KEYSIGHT TECHNOLOGIES

Notices

Copyright Notices

Manual Part Number

M9393-90008

Published By

Keysight Technologies Ground Floor and Second Floor, CP-11 Sector-8, IMT Manesar – 122051 Gurgaon, Haryana, India

Edition

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Regulatory Compliance

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. To review the Declaration of Conformity, go to http://www.keysight.com/go/conformity

Warranty

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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.

The following safety precautions should be observed before using this product and any associated instrumentation. This product is intended for use by qualified personnel who recognize

shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information carefully before using the product.

WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.

The types of product users are:

- Responsible body is the individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring operators are adequately trained.
- Operators use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument.They must be protected from electric shock and contact with hazardous live circuits.
- Maintenance personnel perform routine procedures on the product to keep it operating properly (for example, setting the line voltage or replacing consumable materials). Maintenance procedures are described in the user documentation.The procedures explicitly state if the operator may perform them. Otherwise,they should be performed only by service personnel.
- Service personnel are trained to work on live circuits, perform safe installations, and repair products.Only properly trained service personnel may perform installation and service procedures.

WARNING

Operator is responsible to maintain safe operating conditions. To ensure safe operating conditions, modules should not be operated beyond the full temperature range specified in the Environmental and physical specification. Exceeding safe operating conditions can result in shorter lifespans, improper module performance and user safety issues. When the modules are in use and operation within the specified full temperature range is not maintained, module surface temperatures may exceed safe handling conditions which can cause discomfort or burns if touched. In the event of a module exceeding the full temperature range, always allow the module to cool before touching or removing modules from chassis.

Keysight products are designed for use with electrical signals that are rated Measurement Category I and Measurement Category II, as described in the International Electro-technical Commission (IEC) Standard IEC 60664. Most measurement, control, and data I/O signals are Measurement Category I and must not be directly connected to mains voltage or to voltage sources with high transient over-voltages. Measurement Category II connections require protection for high transient over-voltages often associated with local AC mains connections.Assume all measurement, control, and data I/O connections are for connection to Category I sources unless otherwise marked or described in the user documentation.

Exercise extreme caution when a shock hazard is present. Lethal voltage may be present on cable connector jacks or test fixtures. The American National Standards Institute (ANSI) states that a shock hazard exists when voltage levels greater than 30V RMS, 42.4V peak, or 60VDC are present. A good safety practice is to expect that hazardous voltage is present in any unknown circuit before measuring.

Operators of this product must be protected from electric shock at all times. The responsible body must ensure that operators are prevented access and/or insulated from every connection point. In some cases, connections must be exposed to potential human contact. Product operators in these circumstances must be trained to protect themselves from the risk of electric shock. If the circuit is capable of operating at or above 1000V, no conductive part of the circuit may be exposed.

Do not connect switching cards directly to unlimited power circuits. They are intended to be used with impedance-limited sources. NEVER connect switching cards directly to AC mains. When connecting sources to switching cards, install protective devices to limit fault current and voltage to the card.

Before operating an instrument, ensure that the line cord is connected to a properly grounded power receptacle. Inspect the connecting cables, test leads, and jumpers for possible wear, cracks, or breaks before each use.

When installing equipment where access to the main power cord is restricted, such as rack mounting, a separate main input power disconnect device must be provided in close proximity to the equipment and within easy reach of the operator.

For maximum safety, do not touch the product, test cables, or any other instruments while power is applied to the circuit under test. ALWAYS remove power from the entire test system and discharge any capacitors before: connecting or disconnecting cables or jumpers, installing or removing switching cards, or making internal changes, such as installing or removing jumpers.

Do not touch any object that could provide a current path to the common side of the circuit under test or power line (earth) ground. Always make measurements with dry hands while standing on a dry, insulated surface capable of withstanding the voltage being measured.

The instrument and accessories must be used in accordance with its specifications and operating instructions, or the safety of the equipment may be impaired.

Do not exceed the maximum signal levels of the instruments and accessories, as defined in the specifications and operating information,and as shown on the instrument or test fixture panels, or switching card.

When fuses are used in a product, replace with the same type and rating for continued protection against fire hazard.

Chassis connections must only be used as shield connections for measuring circuits, NOT as safety earth ground connections.

If you are using a test fixture, keep the lid closed while power is applied to the device under test. Safe operation requires the use of a lid interlock.

Instrumentation and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables.

To maintain protection from electric shock and fire, replacement components in mains circuits - including the power transformer, test leads, and input jacks - must be purchased from Keysight. Standard fuses with applicable national safety approvals may be used if the rating and type are the same. Other components that are not safety related may be purchased from other suppliers as long as they are equivalent to the original component (note that selected parts should be purchased only through Keysight to maintain accuracy and functionality of the product). If you are unsure about the applicability of a replacement component, call an Keysight office for information.

WARNING

No operator serviceable parts inside.Refer servicing to qualified personnel. To prevent electrical shock do not remove covers. For continued protection against fire hazard, replace fuse with same type and rating.

PRODUCT MARKINGS:

The CE mark is a registered trademark of the European Community.

Australian Communication and Media Authority mark to indicate regulatory compliance as a registered supplier.

ICES/NMB-001
ISM GRP.1 CLASS A

This symbol indicates product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001). It also identifies the product is an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).

KCC-REM-KST-BLMxxxxx

South Korean Class A EMC Declaration. This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기
기로서 판 매자 또는 사용자는 이 점을 주
의하시기 바라 며 , 가정외의 지역에서
사용하는 것을 목적으 로 합니다.

This product complies with the WEEE Directive marketing requirement. The affixed product label (above) indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE directive Annex 1, this product is classified as “Monitoring and Control instrumentation” product. Do not dispose in domestic household waste. To return unwanted products, contact your local Keysight office, or for more information see http://about.keysight.com/en/companyinfo/environment/takeback.shtml

This symbol indicates the instrument is sensitive to electrostatic discharge (ESD). ESD can damage the highly sensitive components in your instrument. ESD damage is most likely to occur as the module is being installed or when cables are connected or disconnected. Protect the circuits from ESD damage by wearing a grounding strap that provides a high resistance path to ground. Alternatively, ground yourself to discharge any builtup static charge by touching the outer shell of any grounded instrument chassis before touching the port connectors.

This symbol on an instrument means caution, risk of danger. You should refer to the operating instructions located in the user documentation in all cases where the symbol is marked on the instrument.

This symbol indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.

Contents

M9393A Release Notes

Version 2.1

Version 2.1.855.0

Release Date: March 2016

Enhancements

- Support for attenuator type selection using the Attenuator IVI property.
- Support for controlling the RF input path using the AttenuatorMode IVI property.
- Support for Noise Correction in FFT Acquisition Mode using the NoiseCorrection IVI interface.
- M9300A FPGA 1.0.4.0 available – Optional, not currently required for any new software features.

Version 2.0

Version 2.0.225.1

Release Date: January 2016

Enhancements

- Enhanced self-tests and corrections for installed hardware options.
- Enhanced support for external applications software.
- Increased IF frequency range to [200 MHz, 800 MHz] for external wideband digitizers.

Version 2.0.200.0

Release Date: October 2015

Enhancements

- Support for extended frequency range (3.6 GHz - 50 GHz) using option M9365A-FRX. Use of M9169E Programmable Attenuator is recommended for range control, automated field alignments, and self test.
- Support for wideband IF (up to 800 MHz) using option M9365A-WB1 and use of an external wideband digitizer, such as M9202A or M9703A.
- Limited (setup) support for data streaming using the M9202A wideband digitizer. All streaming controls are available from the M9392A VSA Soft Front Panel and IVI interfaces.
- Support for peer-to-peer IQ data transfer from the M9214A Digitizer module to another module that supports peer-to-peer data transfer, such as the M9451A module, using the PeertoPeerPort IVI interface.
- Enhanced self-tests for extended frequency ranges with or without the M9169E Step Attenuator.
- 89600: Power Spectrum speed improvements.

Version 1.2

Version 1.2.1019.1

Release Date: September 2015

Critical Fixes

- Corrected frequency scaling for Soft Front Panel FFT Acquisition mode
- Increased maximum value for Soft Front Panel IQ averaging period to match IVI maximum
- Fixed intermittent glitch on narrowband time trace after using FFT Acquisition mode

Version 1.2.1016.0

Release Date: April 2015

Enhancements

- Support for M9415A Peer To Peer operation. Not supported via IVI.
- Support for M9415A Noise Correction in FFT Acquisition Mode. Not supported via IVI.

Critical Fixes

Defect	Description
385288	LO Feedthrough causes IF Overloads when using Noise Corrections
391319	Interaction with M90XA prevents newer M90XA versions from running

Version 1.1

Version 1.1.522.2

Release Date: March 2015

Enhancement

Improves expected input level accuracy of Field calibration.

Critical Fix

Defect	Description
361207	Fixture Loss Enabled is now set to False on Reset (previously was unchanged)

Version 1.1.518.1

Release Date: February 2015

Enhancement

89600 VSA Software allows driver sharing using M9000 resource manager for multi-channel configurations.

Critical Fixes

Defect	Description
353338	Issue starting system if locale uses comma as decimal separator
357918	LO Nulling intermittently fails on some systems
369709	Issue with field calibration resulting in -0.2 dB flatness error on some units
335725	89600: error reported when IF Dither enabled and Span/RBW ratio too large
353408	89600: error reported when switching between IF Mag & External Trigger in Sequenced Mode
353905	89600: minimum gate length limited to 100 ns in zero span
355118	89600: added VBW limiting in zero span
356920	89600: channel filter was not set correctly for non-power spectrum measurements

Defect	Description
359033	89600: allow higher Span to RBW ratio based on physical memory available

Version 1.1.240.0

Release Date: September 2014

Enhancements

- LabVIEW driver for AgM9393.
- Added IF Dither mode for Stepped Spectrum. See IAgM9393Ex2. SteppedSpectrumAcquisition2.IFDither.*
- Added multi-channel synchronization. See IAgM9393.MultiChannelSync.*

Critical Fixes

Defect	Description
337258	89600: Overlap Percentage error with Gate Trigger and Power Spectrum
339914	Comprehensive alignment failed if initial instrument state is Stepped Spectrum and conversion is image protect

Version 1.0

Version 1.0.80.1

Release Date: August 2014

Critical Fixes

Documentation Defects Fixed:

Defect	Description
320892	RF Attenuation Change is not proportional to Mixer Level Offset change
338088	Document how to do calibration with 89600 and M9393 hardware
338101	Alert user that no signal should be present on the M9393A during calibration

Software Defects Fixed:

Defects	Description
335782	Alignments fail if conversion mode is not set to Auto
337060	Alignments fail if multiple instances of M9393 in the same process
338698	Corrected trigger qualification of wideband burst trigger for IVI and 89600
332857	89600: Reconnecting to M9393 from 89600 fails in certain sequences
335725	89600: Large span to RBW ratios may generate errors
331064	89600: Certain triggered measurements stall if trigger not received in 1 sec
332469	89600: Incorrect power reading at certain settings when using average detector
336180	89600: Corrected handling of trigger delay limits
339074	89600: Minimum span can be less than 800 Hz
337258	89600: Overlap Percentage error with Gate Trigger and Power Spectrum
339305	Trigger Delay and Holdoff is incorrect or causes errors when used with 89600

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