

Instrument Software Revision History

Keysight M9421A VXT PXIe Vector Transceiver

□ M9421A (VXT PXIe Vector Transceiver)

Version M.35.04 (Release Date Apr, 2023)

Issues Resolved:

- Negative trigger delays out of range caused some program. (XSA-30485)
- A signal appears on another frequency when setting the signal at one frequency. (XSA-30764)
- ktM9420_Apply API time is longer than expectation. (XSA-33493)

Enhancement:

- SCPI command to track waveform revision
- E License Support on VXT1
- VMA Enhancements
 - Add DAB Mode 2/3/4 presets
 - Add CDR Tx Mode1, Spectrum 9 preset
 - MIMO based on recording playback
- PA Test Enhancements
 - Support Invert Spectrum feature in PA measurements
 - Remove Idle part from waveform in ILC DPD algorithm
 - Add more PA results in DPD Iteration view: ACP Offset B, PA Out Power, Crest Factor Out
 - Support Crest Factor Reduction (CFR) for reference waveform
 - Support LTE Demod EVM and standard preset
- 5GNR Enhancements
 - MIMO TAE composite result calculation based on all allocations
 - New R17 FR1 35 MHz and 45 MHz CBW (BW_channel) definitions with Apply Preset
 - New R17 FR2-2 120, 480, and 960 kHz SCS support (up to 2000 MHz CBW) with Apply Preset (No DL NR-TM RB Allocation preset yet)

- MISO TAE Accuracy enhancement to pico second level
- Apply Preset to add FR1 ACP/SEM limits: $6.0 < f \leq 7.125$ GHz range
- Apply Preset to add FR2 ACP/SEM limits: $43.5 < f \leq 48.2$ GHz range
- NR-V2X Enhancements
 - R16 V2X/D2D SideLink support - Apply Preset
 - V2X support PSSCH PTRS
 - N9085EM4E NR-V2X Support on VXTs
- WLAN 11be Enhancements
 - Support non-HT duplication mode in preamble puncture PPDU
- WLAN Enhancements
 - Modulation Format preset to "Auto" for 802.11a/b/g/j/p; "SIG Syms" for others
 - Meas Internal preset to 2794 chips for 802.11b/g (DSSS/CCK/PBCC); 16 symbols for others
 - Result Length and Max Result Length presets to 2816 chips for 802.11b/g (DSSS/CCK/PBCC); 16 symbols for others
 - Symbol Clock Error Compensation coupling setting to OFF when switching to 11n/ac, ON when switching to 11ax/be
 - [WLAN 11ax/11be] Use common name for 11ax/be Demod Info file template for manual RU allocation configuration
 - Add a new demod parameter Burst Detect Window Length to handle signals with less than 1us idle part

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Version M.31.04 (Release Date Apr, 2022)

Issues Resolved:

- LaunchModularTRX doesn't work due to VISA discovery exception
- Failed to switch to 5GNR mode after launch X-apps by IVI driver

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Version M.31.03 (Release Date Dec, 2021)

Enhancement:

- WLAN 11be MIMO support
- LTE-Advanced FDD/TDD Measurement (N9080EM0E) ACP support Interfering Signal exclude range setting
- Bluetooth Measurement (N9081EM0E)
Support Bluetooth AoA test with CTE

Issues Resolved:

- Fixed ACPR test result repeatability issue

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Version M.30.04 (Release Date Aug, 2021)

Enhancement:

- WLAN 802.11be:
MRU support (compressed mode) and EHT-SIG decode.
Support autodetection between 11be (OFDM) and 11b (CCK).
Update Spectral Flatness masks.
Add Burst Duty Cycle measurement and results.
Support Optimize EVM in IQ Waveform measurement.
Support CRC decoding, MCS14/15 autodetection, Phase Rotation, EHT-TB PDU and DL OFDMA/MU PDU.
- N9054EM0E VMA Custom OFDM: Support N7608C scp file recall and 802.11ay preset

Issues Resolved:

- Failed to initialize IVI driver on 2nd round
- Failed to load file 'Agilent.Physics.HardwareManagerProxy.dll' during FPGA update
- Inconsistent demodulation for BT LE signal when Freq Offset is high
- Failed to initialize module after Initialize > Close then Initialize by IVI Driver

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Version M.28.04 (Release Date Jan, 2021)

Enhancement:

- Allow results to be displayed as Watts in ACP measurement
- Enhance Auto-range in IQ Waveform in 5G NR measurement (N9085EM0E)
- Support additional Custom IQ parameters in VMA Digital Demodulation (N9054EM0E)
- Support PDSCH decoding when RB Auto-Detect Mode = Power Based in LTE-A FDD/TDD measurement (N9080EM0E and N9082EM0E)
- Support PDSCH decoding when RB Auto-Detect Mode = Power Based
- Support NPDCCH decoding in NB-IoT measurement (N9080EM3E)

Issues Resolved:

- Installer throws exception and cannot be installed in some occasions
- Failed to Initialize Module Using IVI-C Driver in some occasions
- Receiver WaitForData can't return True when PlayARb is called after Arm() in IVI driver

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Version M.27.03 (Release Date Sep, 2020)

Enhancement:

- Support Touch UI for Vector Modulation Analyzer measurement mode (VMA) (N9054EM0E)
- Support Touch UI for Analog Demodulation measurement mode (N9063EM0E)
- Support Touch UI for Noise Figure measurement mode (N9069EM0E)
- Support Touch UI for GSM/EDGE measurement mode (N9071EM0E)
- Support Touch UI for Cellular V2X (based on LTE-A FDD) measurement mode (N9080EM4E)
- Support Touch UI for W-CDMA/HSPA+ measurement mode (N9073EM0E)
- Support Touch UI for GSM/EDGE measurement mode (N9071EM0E)
- Support external pre-amplifier, noise source with Touch UI
- 5G NR Measurement (N9085EM0E) Support PAVT
- Spectrum Analysis mode
 - ACP measurement: support ACP calculation by selecting trace, either 1, 2, or 3
 - SEM measurement: support WBW digitizer up to WBDIF path
- IQ Analyzer mode
 - Save IQ data in various file formats (such as .mat)
- WLAN measurement mode (N9077EM0E, N9077EM1E)
 - Support Common Pilot Error in EVM metrics, 4096 QAM demodulation
- Bluetooth measurement mode (N9081EM0E)
 - Support NFE in ACP and other power measurements

Issues Resolved:

- Memory leak when using IVI driver to initialize the Module
- External Gain BTS not behaving as expected in LTE FDD measurement mode
- The “prototype – limited sale allowed” title shows on released version
- SA hangs up after switching into measurement IQ waveform under mode GSM/EDGE1, LTE, WCDMA, 1XEV-D0
- Power up errors when plug in a USB preamplifier in the controller

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Version M.25.58 (Release Date May, 2020)

Issues Resolved:

- Software crashes launch when switching to IQ Waveform measurement mode in traditional UI
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Version M.25.56 (Release Date Feb, 2020)

Enhancement:

- Support Touch UI for Bluetooth Measurement mode (N9081EM0E)
- Support Touch UI for Sequence Analyzer mode (N9065EM1E and N9065EM0E)
- Analog Demodulation Measurement (N9063EM0E)
 - Support PEP result for AM DSB signal
 - Support IQ data capture/playback
- LTE-Advanced FDD/TDD Measurement (N9080EM0E and N9082EM0E) Support IQ data capture/playback
- NB-IoT Measurement (N9080EM3E)
 - Support Non-anchor carrier demodulation
 - Support EUTRA carrier cell ID in In-band different PCI mode
- 5G NR Measurement (N9085EM0E)
 - Preset to Standard enhancement with NR-TM June 2019
 - UL/DL Tx On/Off Time Mask: Support of 3GPP 2019-6
 - Assumed Adjacent Channel
- WLAN 802.11ax Measurement (N9077EM1E)
 - Preamble punctuation to make 11ax co-exist with legacy WLAN formats
- Support "Recording Playback" in MIMO for WLAN Measurement mode

Issues Resolved:

- RFIO port switching fails in sequence mode
 - Command "CORR:CSET:ALL:DEL" becomes much slower than previous software version
 - Application crash with OutOfMemoryException when running 4 VXT with 4 XApps with 5G-NR mode
 - Intermittent hang-up after running IVI-COM program in several loops
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Version M.23.09 (Release Date June, 2019)

Enhancement:

- Support Touch UI in WLAN measurement mode
- Support Sequence Analyzer for MS (Uplink) (Softkey only)
- Support binary waveform file playback by IVI driver

Issues Resolved:

- Source fails to arm in single trigger model when loading specific waveform sequence file
 - Measurement speed issue over time
 - PXI trigger doesn't work after changing gate source from periodic timer
 - Exceptions caused by FEC Self-test when starting VSA application for VXT • File "DeviceIO.config" is not properly configured
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Version M.21.13 (Release Date Sep, 2018)

Enhancement:

- Support Touch UI in IQ Analyzer, LTE LTE-A TDD/FDD and 5G NR measurement mode
- ACP measurement
Integration Pass Band -6dB
- WLAN 802.11ax V2.2
EVM & symbol clock error Pass/Fail limit updates
Single Acquisition in Auto Detection
- LTE-Advanced FDD
R13: UL PUCCH format 4/5 demodulation

Issues Resolved:

- WLAN Sequence Mask measurement result is not correct when overlap function is enable
- Source Output Shifts After Initialization
- 8x8 MIMO EVM can't work at first time switch from sequence mode

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Version M.20.37 (Release Date June, 2018)

- Support Windows 10 operating system
- Support M8920A Radio Test Set

Enhancement:

- LTE-A FDD
NB-IoT LTE-A Pro R13 enhancement eMTC
LTE-A Pro R13 enhancement
- WLAN 802.11ax
L-SIG symb, CPE degree, Packet Extension Duration

Issues Resolved:

- MIMO state saved under M.18.xx version cannot run under M.19.xx version
 - State File Doesn't Recall All Parameters in NB-IoT Measurement Mode
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Version M.19.56 (Release Date Dec, 2017)

Issues Resolved:

- Incorrect SCPI command for RFIO HD port control
 - Marker out (as trigger) synchronization issue
 - Jitter issue of 200 MHz clock edge between backplane 10 MHz edge
 - 3 dB error of the readout in multi-offset versus single offset when testing GSM ORFS
 - Video Trigger hold off can't work under SEQAN mode • Compatibility issue with M9010A chassis
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Version M.19.31 (Release Date Aug, 2017)

- Support following features for application software
- Bluetooth 5.0:
Decode Advertisement packet and device ID

Coded 1Ms/s (#4.6.10 and #4.6.11)

- WLAN 802.11ax: Optimize EVM
In band emission
SIG-A decoding
- NB-IoT:
In-band mode
TAE
Standard Preset for ACP/SEM/CHP/OBW
DL EVM traces
Repetition and multi-RU

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Version M.19.07 (Release Date Apr, 2017)

- Support "Y" license.
- Bluetooth 5.0 support Y9081A-3FP
- 802.11ax Y9077A-8FP
- NB-IoT & eMTC Y9080B-3FP

Issues Resolved:

- WLAN mode - ACLR need support the gate method "FFT" but the menu is gray and the method can set to "LO" and "VID" via SCPI
- Sequence Analyzer Mode help file not available

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Version M.18.41 (Release Date Feb, 2017)

Issues Resolved:

- Added WLAN MIMO EVM vs symbol for channel display
 - Fixed the Source Sequence list play issue
 - Fixed memory leakage issue when switching to Eq Imp Response view under WLAN MIMO measurement
 - Fixed WLAN MIMO 8x8 random sync issue
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Version M.18.34 (Release Date Dec, 2016)

- Added MIMO support for WLAN application

Issues Resolved:

- Fixed N9077A license description issue in system
 - Corrected M9420A IVI drivers' name.
 - Fixed User Info Summary view via SCPI commands
 - Fixed temperature recording incorrect issue of RF Response alignment
 - Fixed input marker delay issue in IQ mode
 - Fixed the source RMS value sync issue
 - Max frequency is incorrect when only install option "504" and "B40"
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Version M.18.04 (Release Date Aug, 2016)

- Added support to M9421A

Issues Resolved:

- Fixed trigger line setting conflict issue
- Fixed the trigger and data acquisition timing issue after switching between IVI driver and XSA

- Fixed filter implementation issue of FFT acquisition mode

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Version M.16.57 (Release Date Mar, 2016)

Issues Resolved:

- Cannot recognize the waveform marker files with extensions .MARKERS
- Fixed RF blanking Marker Polarity issue
- Removed the “*PRELIMINARY*” from the title of SFP
- Installation failure on fresh PC

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Version M.16.50 (Release Date Nov, 2015)

Initial release