

MODIFICATION AVAILABLE – PERFORMANCE ENHANCEMENT  
CHARGEABLE TO CUSTOMER SERVICE / RELIABILITY  
ENHANCEMENT CHARGEABLE TO CONTRACT IF THERE IS ONE.

**89410A-01U**

# **S E R V I C E N O T E**

Supersedes:  
89410A-01T

## Agilent Technologies 89410A Vector Signal Analyzer

**Serial Numbers: 0000A00000/US40514946**

### **89410A firmware revision history**

**To Be Performed By: Customer**

#### **Parts Required:**

<b>P/N</b>	<b>Description</b>
89400-84401	89400 Series Firmware Update Kit

## ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:		
<b>MODIFICATION AVAILABLE</b>		
ACTION CATEGORY:	AGREEABLE TIME	X PERFORMANCE ENHANCEMENT <input type="checkbox"/> SERVICE / RELIABILITY ENHANCEMENT
LOCATION CATEGORY:	X CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE <input type="checkbox"/> SERVICE CENTER	AVAILABLE UNTIL: March 2004
AUTHOR: DWH    PRODUCT LINE: 12		
ADDITIONAL INFORMATION:		

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**Situation:**

The 89400 Firmware Update Kit includes the firmware updates for the 89410A, 89440A, 89441A, and 89441V.

The firmware update kit can also be ordered as a 'U' option:

89410U option UE2

89441U option UE2

Here is a list by revision of important changes:

**A.09.01**

- Support added for A21 ADC assembly and A71 Passthrough assembly.

**A.08.25**

Resolved defects:

- Instruments with flat panel LCD display can hang up due to a graphics signal processor memory overflow.

**A.08.23**

- Support added for flat panel LCD display, A47 DSP/Display assembly, A81 Front Panel assembly, and A82 Display Interface assembly.
- Support added for modified A20 ADC assembly. Refer to service note 89410A-10 for more details. Date code 4103 or greater of the A20 assembly will not work with previous firmware revisions.

Resolved defects:

- Pulse search defect when used with 89450A Radio Test Personality.

**A.08.10**

- Added support for 8FSK and 16FSK modulation formats.
- Added IQ Quadrature Skew and Gain Imbalance calculations.

Resolved defects:

- X11 window could cause the instrument to hang in some situations.

**A.08.00**

- Added support for option 080, 3GPP W-CDMA analysis.
- Option B7A enhancements, including measurement filter and ISI removal.
- Bluetooth modulation format preset added.

**A.07.01**

Resolved defects:

- No adaptive EQ in 89441V.
- FSK summary table shows peak Mag Err always at symbol zero.
- Problems with waveform math in EDGE demod mode.

**A.07.00**

- Added support for option B79, ARIB 1.0-1.2 W-CDMA analysis
- Added support for option B7A, Enhanced data rates for GSM evol. (EDGE)
- Option AYJ removed, adaptive equalization included with option AYA.

## A.06.10

- Support added for special option 89450A H02.

## Resolved defects:

- Incorrect bits reported in 8VSB symbol table with 4096 result length

## A.06.01

## Resolved defects:

- Cannot change state definition for normal QPSK constellation.
- Time capture playback while in ch1+jch2 mode indicates incorrect span.
- Help text changes.

## A.06.00

- Support added for option B73, W-CDMA code domain power measurements for experimental system.
- Support added for option UTH, 20 MB extended ram and IO.
- CCDF power measurements added.
- Support added for E9285A K02 in instruments without option AYH.

## A.05.20

- Added RHO measurement for QPSK and OQPSK formats.
- SCPI command added to query the current time capture position. "TCAPTURE2:POSITION?"

## Resolved defects:

- Time capture position incorrect in ch1+jch2 mode.
- PSD of FM Demod gives incorrect results.

## A.05.10

- Added support for 89441V.
- Service keys added for 89441A/V troubleshooting.

## Resolved defects:

- Instrument hangs with remote X11 display enabled.
- GPIB Device Clear hangs the bus.

## A.05.02

## Resolved defect:

- Calibration failures can occur when switching to RF wideband mode (8 MHz) in the 89441A due to excessive LO feedthrough. This defect was introduced with revision A.05.00.

## A.05.01

## Resolved defect:

- Uninitialized value in preClk filter can result in no data for CDMA base measurements. This defect was introduced with revision A.05.00.

## A.05.00

- Offset QPSK demodulation added to option AYA.
- IS-95 CDMA compatible filters added to option AYA.
- Adaptive Equalization added to option AYH and also available as option AYJ. Option AYJ has been added to the product structure for customers who do not want to buy AYH to get the Adaptive

Equalization feature.

- 8 MHz Bandwidth mode for 89441A added to option AYH. This was previously only available with the 89440A.
- Extended Arbitrary Source Length. Maximum memory length for arbitrary source has been increased by a factor of four. Data registers that hold trace buffers can now be assigned to the source.
- Peak-to-Average Power Statistics. A new marker function for time domain traces.

Resolved defects:

- EVM to include the effect on error due to IQ origin offset.
- Search lengths for the standard setups have been set at 400 symbols.
- Incorrect center/start frequency when recalling state.

NOTE: Firmware A.05.00 and greater requires a revision B or greater memory board. An 89410A with serial number prefix 3416A or greater has a revision B memory board installed. The memory board revision can also be verified by displaying the test log. To display the test log press [System Utility], [more], [diagnostics], [test log on]. The part number for the exchange memory board is 89410-69542.

The revision B memory board will also require a CPU upgrade. Incorrect installation of the CPU will result in the loss of options. The part number for the exchange CPU board is 89410-69540.

Service center installation of the CPU and memory board is recommended. This cost is not included with the boards and must be quoted separately.

#### A.04.21

Resolved defect:

- 89450A DMCA Radio Personality will not run without option AYH installed. This defect was introduced with revision A.04.00.
- The 4-FSK sync search function works incorrectly when used with user-defined state definitions.

#### A.04.20

- Support added for A45 assemblies with new VRAM. Datecode 3552 or greater of the A45 assembly will not work with previous firmware revisions.

#### A.04.12

Resolved defect:

- Trace A shows wrong annotation color after preset.

#### A.04.11

- Support added for external DC offset.
- Command added to read SNR from option AYH summary table.

Resolved defects:

- External calibration does not preset to off.

- X11 hardkeys are not visible when using Solaris 2.3 Xwindow.
- Xwindow is unnamed.

## A.04.10

- Support added for the 89451A Radio Test Personality

## Resolved defects:

- Correction vector for arb spans off by 0.5 dB.
- Bad measurement data when switching measurement data types.
- Trigger level affected by external cal.

## A.04.01

## Resolved defect:

- Calibration not taking place when selecting or deselecting AYH wide band mode using GPIB.

## A.04.00

- Support added for the 89400 series option AYH Digital Video Modulation Analysis

## A.03.02

## Resolved defect:

- Update utility causes error message and halts update process.

## A.03.01

## Resolved defect:

- Boot ROM timing causes intermittent blank display during power-on process.

## A.03.00

## New capabilities added:

- Four level FSK demodulation for option AYA Vector Modulation Analysis
- Z-axis markers for option AYB Waterfall and Spectrograms
- Speed improvement to the DOS file system
- Support added for the 8770 Arbitrary Waveform Synthesizer which is to be used with the 89441A with option AY8 Internal RF Source.

## Resolved defects:

- 89441A scalar measurements produce incorrect results
- Calibration interrupts of averaged measurements
- Recall of trace buffer does not recall scan variable information
- Phase jitter in source triggered chirp measurements
- Instrument Basic commands PRINT Array(\*) and OUTPUT @File;Array(\*) do not work
- External keyboard locks instrument entering alpha-numeric text
- Arbitrary source breaks if 0 volt data is in data register
- LO Null failure messages when an 89410A is first mated with a 89430A or 89431A.
- Auto calibration does not finish if calibration table is invalid
- The "no data?" message is displayed and measurement continues when LO unlocks.

- LO unlock error message does not show up in Fault Log.
- RCR-27C requires reducing result length in PDC

## A.02.06

- Support added for the 89441A option AY8 (Internal RF Source) and the 89450A DMCA Application Personality

## A.02.05

- This revision improved the calibration and correction software for the 89441A.

## A.02.04

- Support added for enhanced IF triggering capabilities in the 89410A and 89440A

## A.02.03

- Support added for enhanced IF triggering capabilities in the 89441A
- Support added for A20 A/D Converter Rev:\_5
- Support added for the A50 Digital Filter, revision C

## Resolved defect:

- Traces saved with older versions of firmware cannot be recalled

A.02.02 This code revision was not released or shipped in any analyzers.

A.02.01 This code revision was not released or shipped in any analyzers.

## A.02.00

- Support added for the 89431A

## A.01.04

- Support added for the A42 Memory assembly, revision C
- Support added for the A40 CPU assembly, revision B

## A.01.03

## Resolved defects:

- Various analyzer setups cause analyzer lockups
- \*OPC in single sweep digital demodulation measurements not working
- Band power markers off by  $\sqrt{2}$  in digital demodulation mode
- ColorPro plotters hang on trace displays with bandpower markers

## A.01.02

## Resolved defect:

- Calibration timing problem causing intermittent calibration pad failures

## A.01.01

- Support added for changes to the A45 DSP/Display Controller assembly

- Diagnostic enhancements added for A55 Sample RAM assembly

Resolved defects:

- Characters lost during time capture dump to the SYSTEM INTERCONNECT port
- Trigger jitter causing calibration failures
- Calibration failure after NVRAM clear
- IBASIC memory failure
- Key presses causing Fatal System Error

A.01.00

- Support added for the release of the following options:
  - AYA Vector Modulation Analysis
  - AYB Waterfall and Spectrogram
  - UFG 4 MByte Extended RAM and Additional I/O
  - UG7 Advanced LAN Support

A.00.05

- Access to hardware option soft keys now requires password.
- Calibration failures have been caused by hardware options being changed to 'installed' when the hardware was not present.

A.00.04

Resolved defects:

- False overload indicator while using the math function
- Percent modulation units of saved data incorrect
- IBASIC program cannot be continued after pause
- Lengthy status messages causing R.I.P. Tombstone to appear

A.00.03

- Support added for the A56 Expanded Sample RAM assembly
- Source accuracy and flatness improved
- [ Meas Restart ] does not start time capture
- Band power reading for demodulation time data incorrect

A.00.02

Resolved defect:

- Power-on pulsing to analyzer's gate arrays incorrect. If new or exchange assemblies are installed in analyzer, the analyzer will probably fail.

A.00.01

This is the first code shipped to customers.

**Solution/Action:**

STEP 1. Determine if the analyzer needs the firmware upgrade.

- 1 Set the power switch to ON.
- 2 After the analyzer finishes its power-up calibration routine, press the following keys:
  - [ System Utility ]
  - [ more ]
  - [ firmware version ]

- 3 If the Revision ID code is A.09.01 or greater, you may not need to update the firmware.

STEP 2. Order firmware update kit for your analyzer and install new firmware.

The firmware installation procedure for the 89400 Series analyzers is straightforward. The analyzers are equipped with reprogrammable operating firmware which can be reprogrammed using the analyzer's internal disk drive.