

# Installation Note

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## Agilent E4406A VSA Transmitter Tester A22A2 Flash Memory Replacement Kit



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E4406-90267

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## Description

This kit provides the hardware, software, and installation instructions necessary for replacing the A22A2 Flash Memory assembly. This kit can be used to replace either the 30 MB, 48 MB, or the 64 MB Flash Memory assembly.

The replacement Flash Memory assembly in this kit contains the latest operating system (O.S.) and core firmware required for basic instrument operation.

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**NOTE** Not all optional measurement personalities are loaded on the replacement Flash Memory assembly. See “Installing Measurement Personality Firmware” in this document.

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The utilities disk and blank floppy disk supplied will be used to transfer the configuration and calibration files from the instrument’s existing Flash Memory assembly onto the replacement flash memory assembly. The utilities disk will (usually) be used for upgrading from 30 MB or 48 MB memory on functioning instruments.

If the existing A22A2 Flash Memory assembly is damaged, it may not be possible to save the configuration and calibration files. See the *“Agilent E4406A VSA Series Transmitter Tester Service Guide,”* for details on how to recover from a Flash Memory failure, or return the instrument to your local service center for recalibration.

If the Flash Memory assembly is being replaced at the same time that an optional measurement personality is being enabled, the following procedure explains how to load the license key numbers into the instrument’s memory.

It is possible to unintentionally uninstall measurement personalities (the license key number is deleted, disabling the personality). See “Installing a License Key Number” at the back of this installation note to learn how to reinstall license key numbers.

The entire installation requires about 1.5 hours and should be performed by a qualified technician.

### A22A2 Flash Memory Kit Contents:

Item Number	Agilent Part Number	Description
1	E4406-60236	A22A2 Flash Memory assembly (cannot be ordered separately)
2	0380-4163	Flash memory assembly standoffs (4)
3	E4406-10008	E4406A Transmitter Tester Utilities Disk (3 1/2-inch floppy)
4	0950-3456	Blank disk (DOS-formatted 3 1/2-inch floppy)
5	this install note	Installation Note, Agilent E4406A Transmitter Tester A22A2 Flash Memory Replacement Kit

## Equipment Required

Description	Agilent Part Number
T-10 TORX screwdriver	8710-1623
T-15 TORX screwdriver	8710-1622
T-20 TORX screwdriver	8710-1615
Static-free work area	n/a

## Installation Procedure

### Step 1. Documenting available measurement personalities

- A. Set the power switch to **ON** (1) and verify that the auto align routine passes. This is done to determine the status of the instrument before the Flash Memory is replaced.
- B. Press the front-panel **MODE** key.

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**NOTE** Personality names may be displayed on softkeys, even if they are not available to run. This happens when firmware for a personality is loaded, but not licensed.

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- C. Select each personality option listed on the softkeys to ensure the personality is licensed. The personality will load and the name will be displayed in the system bar, located at the top of the instrument screen, if the personality is licensed. If the personality is not licensed, the instrument will default to the Basic Spectrum mode. Write down the names of all the available (licensed) personalities.

### Step 2. Loading the utilities program

- A. Ensure that the E4406A Transmitter Tester Utilities Disk is write-protected. The “slider” in the corner of the disk should be set so you can see through the small window.
- B. Insert the utilities disk into the disk drive of the transmitter tester.
- C. Cycle the instrument’s power (off, then back on).
- D. After the instrument boots up, the following message will appear on the screen:

```
*****
*
*
*           E4406A Utilities Disk
*           VSA Serial Number:  US38430092
*           Front Panel Key UP-ARROW is equivalent to Y
*           Front Panel Key DOWN-ARROW is equivalent to N
*****
```

```
Remove VSA UTILS disk
Insert a BLANK DOS formatted disk
Proceed to Save [y/n]
```

### **Step 3. Saving Flash Memory configuration files**

- A. Remove the utilities disk and insert the blank DOS-formatted disk included in the kit.
- B. Select “y” by pressing the UP-ARROW on the instrument’s front panel. Press the front-panel **Enter** key to save the configuration files.

Saving the configuration files allows you to save the license key numbers, the IP address, the host name, and the synthesizer calibration values stored in the current Flash Memory.

- C. Messages will appear on the screen as the files are saved. When the message, “Remove Floppy Disk and Recycle Power . . . .” is displayed, remove the floppy disk from the disk drive and set the instrument to Standby (0).
- D. Label the floppy disk with the instrument model and serial number. The floppy disk can hold the configuration files for only one instrument.

### **Step 4. Removing the processor assembly**

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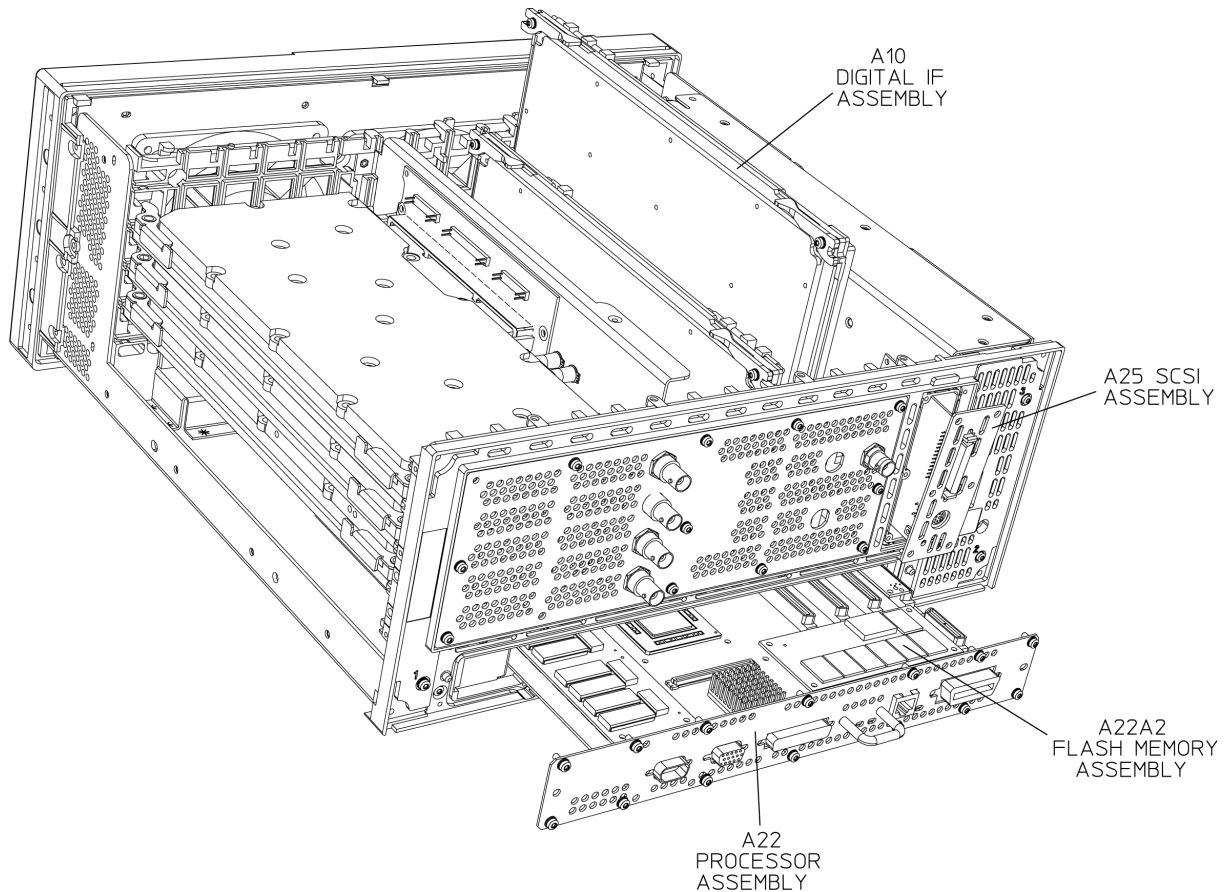
**NOTE**            The A22 Processor assembly is removed from the rear of the instrument. However, some assemblies inside the instrument enclosure must be disconnected from the processor assembly before it can be removed.

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- A. Disconnect the instrument from the ac power and remove all of the rear-panel cables.
- B. Remove both the left and the right strap handles from the instrument using a T-20 TORX screwdriver.
- C. Using a T-15 TORX screwdriver, remove the 4 screws that secure the rear feet.
- D. Place the instrument upside down. Remove the 4 bottom feet by lifting the tabs and sliding the feet in the direction indicated by the arrows.
- E. Pull the cover off towards the rear of the instrument. Place the instrument topside up.
- F. Remove the Top Brace (“L” -shaped inner cover) by removing the 7 top screws and the 10 side screws. Use a T-10 TORX screwdriver. The 7 top screws are flat-heads and the 10 side screws are pan-heads. Be careful not to mix them when re-assembling the instrument.
- G. Locate and unseat the A10 Digital IF assembly and the A7 BaseBand IQ assembly (if present). (See Figure 1.) It is not necessary to completely remove the assembly from the instrument or disconnect any of the cables connected to the digital IF assembly. The assembly must be pulled up far enough to clear the processor board enclosure when removing the A22 Processor assembly.
- H. Locate the A25 SCSI assembly and remove the 6 screws that secure it to the rear frame. (See Figure 1.) Unseat the A25 SCSI assembly. It is not necessary to completely remove the assembly. It must be pulled up far enough to clear the processor board enclosure when removing the A22 Processor assembly.
- I. On the rear of the instrument, remove the 14 screws that secure the A22 Processor assembly to the rear frame. (See Figure 1.)

- J. Carefully pull out the processor assembly using the handle on the processor plate. There are standoffs on the bottom of the processor board that could be damaged or come loose if they catch on the instrument frame when the processor is being removed.

**Figure 1. Replacing the Flash Memory Assembly**



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**Step 5. Removing and replacing the A22A2 Flash Memory assembly**

- A. Orient the A22 Processor assembly so its rear-panel plate is facing you. Locate the A22A2 Flash Memory assembly. (See Figure 1.)
- B. Cut the 4 plastic standoffs with diagonal pliers or a utility knife. Carefully lift the A22A2 Flash Memory assembly to avoid damaging the connector on the processor assembly.
- C. Remove the remains of the 4 plastic standoffs using long-nosed pliers.
- D. When replacing the plastic standoffs, insert the end with the short snap lock into the processor assembly PC board.

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**CAUTION** When installing the A22A2 Flash Memory assembly, do NOT press on the center of the board to seat it. Pressing on the center of the assembly could result in damage to the PC board traces or components on the PC board.

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E. Locate the replacement A22A2 Flash Memory assembly, E4406-60070, included in the kit. Carefully align the A22A2 assembly over the plastic standoffs and the mating connector on the processor assembly. Press down on the 4 corners of the A22A2 assembly until the plastic standoffs click into place. Ensure that the connector is properly mated.

**Step 6. Reinstalling all assemblies, covers, and feet**

A. Slide the A22 Processor assembly back into the instrument, making sure that the processor board is properly mated with the motherboard.

B. Reinstall the 14 screws that secure the A22 Processor assembly to the rear frame.

C. Reseat the A10 Digital IF, A7 BaseBand IQ (if present), and A25 SCSI assemblies and secure the SCSI assembly with the 6 screws removed earlier.

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**CAUTION** Ensure that all of the flexible coaxial cables are routed so they will not be pinched when the Top Brace is reinstalled. Pinched cables could cause instrument failures.

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D. Carefully position the Top Brace on the instrument. Install the 7 flat-head top screws and the 10 pan-head side screws using a T-10 TORX screwdriver. The recommended torque is 9 inch-pounds.

E. Slide the cover back onto the instrument from the rear. The seam on the cover should be on the bottom. Be sure that the cover seats into the gasket groove in the front frame.

F. Attach the 4 rear feet using a T-15 TORX screwdriver. The recommended torque is 21 inch-pounds.

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**NOTE** When re-installing the bottom feet, make sure that the 2 feet that have the tilt stands are installed toward the front of the instrument.

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G. Reinstall the 4 bottom feet by pressing them into the holes in the instrument cover and sliding in the opposite direction of the arrows until they click into place.

H. Using a T-20 TORX screwdriver, reinstall the strap handles on the sides of the instrument. The recommended torque is 21 inch-pounds.

I. Reconnect all of the external cables, including the power cable.

## **Step 7. Restoring the Flash Memory files**

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**NOTE**      The instrument power must be off (Standby) before inserting the floppy disk.

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- A. Insert the floppy disk, on which you saved the configuration files, into the transmitter tester disk drive.
- B. Set the power switch to ON (1).
- C. During the instrument boot up process, the transmitter tester firmware will identify the floppy disk and autoload the configuration files. Messages will appear onscreen as the files are restored.
- D. After the configuration files have been restored, a message will appear instructing you to "remove disk and cycle power."

## **Step 8. Verify installation**

- A. Press the front-panel **MODE** key.
- B. Ensure that each option documented earlier is shown in the softkeys and is available when its softkey is pressed. (Refer to Step 1.)
- C. If the softkey is grayed out and the words, "Not Installed" appear, this means the option is licensed, but not loaded into the replacement Flash board. See "Installing Measurement Personality Firmware" in this document.
- D. The A22A2 Flash Memory assembly replacement is now complete.



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## Installing a License Key Number

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**NOTE** Follow this procedure to reinstall a license key number which has been deleted during the uninstall process, or lost due to a memory failure.

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To install a license key number for the selected option, use the following procedure:

1. Press **System, More(1 of 3), More(2 of 3), Install, Choose Option**. Pressing the **Choose Option** key will activate the alpha editor menu. Use the alpha editor to enter the letters (upper-case) and the front-panel numeric keyboard to enter the numbers (if required) for the option designation, then press the **Done** key. As you enter the option, you will see your entry in the active function area of the display.
2. Press **License Key**. Entering the license key number will require entry of both letters and numbers. Use the alpha editor to enter letters. Use the front-panel numeric keyboard to enter numbers. You will see your entry in the active function area of the display. When you have completed entering the license key number, press the **Done** key.
3. Press the **Install Now** key after you have entered the active license key number and the personality option. When pressed, a message may appear in the function area of the display which reads, "Insert disk and power cycle the instrument". Disregard this message. Press the **No** key only if you wish to cancel the installation process. If you want to proceed with the installation, press the **Yes** key and cycle the instrument power off and then on.

## Finding the License Key Number

You can find the license key number(s) in several places:

1. If a measurement personality is to be installed in the field, the license key number appears on the license key certificate included in the retrofit kit.
2. The instrument can be queried by pressing **System, More(1 of 3), More(2 of 3), Install, Choose Option**. Then enter the three-character option designator and press **Done**. The license key number will appear in the **License Key** softkey.
3. The "Getting Started" section of the "Agilent E4406A User's Guide" contains a table in which the owner should have listed all of the installed options and their license key numbers.
4. Your nearest Agilent Technologies Sales or Service office has access to an instrument license key number data base for the Agilent E4406A Transmitter Tester.

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## Installing Measurement Personality Firmware

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**NOTE** Follow this procedure to re-install measurement personality firmware that is not included in the replacement Flash board.

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To install measurement personality firmware, use the following procedure:

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**NOTE** You will need a PC with a LAN connection to complete step 1.

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1. Go to the following location using a web browser:

`http://www.agilent.com/find/vsa`

2. Navigate to the firmware download pages, as follows:

a. Click on “Support”

b. Click on Agilent E4406A VSA Transmitter Tester Firmware Upgrade.

3. Follow the instructions for loading the PC version of the firmware upgrade program.