

Installation Note

Agilent Technologies ESA-E Series Spectrum Analyzers RF Preamplifier (Option 1DS) Retrofit Kit



Agilent Technologies

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RF Preamplifier (Option 1DS)

Products Affected:	ESA E4401B ESA E4402B ESA E4404B ESA E4405B ESA E4407B
Serial Numbers:	US00000000/US99999999
Options:	1DS
To Be Performed By:	(X) Agilent Service Center (X) Personnel Qualified by Agilent (X) Customer
Estimated Installation Time:	0.5 Hours
Estimated Adjustment and Verification Time:	1.5 Hours
Additional Recommended Task:	Agilent recommends a full calibration be performed to verify instrument specifications

Introduction

This kit contains the parts and instructions to install Option 1DS. No tools are required.

To ensure that this newly installed option is functioning properly, the procedure that follows includes the requirement of performing certain adjustments and performance verification tests. However, the completion of these tests does not guarantee that the instrument meets all advertised specifications.

Software is required to perform the required adjustments, and can be used to automate the performance verification testing. Information on how to obtain this software can be found at: www.agilent.com/find/calibrationsoftware

While Agilent does recommend that a full calibration be performed after the installation of this upgrade, the end user must ultimately determine whether they want this service or not. If a full calibration is required, arrangements regarding the level of calibration must be made between the end user and the calibration provider.

Installation Kit Parts List

Item	Description	Item Number
1	RF Preamplifier Installation Note	this note
2	Option Upgrade Entitlement Certificate	---

Procedure

CAUTION Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation. Refer to the documentation that pertains to your instrument for information about static-safe workstations and ordering static-safe accessories.

Firmware Revision Verification

1. Turn on the analyzer and wait for the power-on alignments to complete. Check that there are no error messages displayed.
2. Press **System, More, Show System**. Make a note of the firmware revision and see if Option B72, Expansion Memory, is listed on the display.
3. If the firmware revision is A.04.00 or later, the firmware does not need to be updated and you can skip steps 4 through 6.
4. If your firmware revision is prior to A.04.00, you must update your analyzer firmware before the license key can be activated.
5. If Option B72, Expansion Memory is installed, you should update the instrument firmware to the latest version using one of the following methods:
 - Download the instrument firmware via the world-wide web at http://www.agilent.com/find/esa_firmware. This entire process of updating firmware will take approximately 45 minutes.
 - Receive the latest firmware update disk set by ordering upgrade Option UE2.
Note: Special instructions in the Agilent ordering configurator should have made you aware of Option UE2 in case access to the internet wasn't available.
6. If Option B72, Expansion Memory is not installed, you should update the instrument firmware to version A.07.06. This is the latest version for instruments that do not have Option B72 installed.
 - Download the instrument firmware via the world-wide web at http://www.agilent.com/find/esa_firmware_std-mem. This entire process of updating firmware will take approximately 45 minutes.
 - Order upgrade Option B72, which includes the expansion memory and the latest ESA firmware upgrade disk set.

Obtaining a License Key and Activating the Option

The entitlement certificate supplied in this kit allows you to obtain a license key from our Agilent website so you can enable this upgrade option. Once you have retrieved the license key, you can begin the process of activating the option

1. Press **System, More, More, Licensing, Option**. When you press **Option**, the alpha editor will be activated. For instructions on using the alpha editor, refer to the *Agilent Technologies ESA Spectrum Analyzers User's Guide*.
2. Use the alpha editor to enter the three-character designation for the option, in this case, "1DS", that you want to activate.
3. Press **Enter** when done.
4. Press **License Key**. When you press **License Key** the alpha editor will be activated.
5. Use the alpha editor and the numeric keypad to enter the 12-character license key number (for example: D7C374DABD5B) for the option that you want to activate.
6. Press **Enter** when done.
7. Press **Activate** to turn on the option.
8. If the option and license key entries were correct, a message stating "Option Activated" will appear on the analyzer display.
9. Press **System, More, Show System** to verify existence of Option 1DS.
10. Press **Preset, FREQUENCY/Channel, Stop Freq, 1 GHz, AMPLITUDE/Y Scale, Int Preamp (On)**. Verify the preamplifier can be set to On.

Perform Adjustments and Performance Tests

Adjustments Required

The adjustments listed below are required following this upgrade installation. These adjustments can only be performed using the software outlined in the Introduction of this installation note. The adjustments must be performed in the order that they are listed below. They must also be done prior to running any performance verification testing.

- Frequency Response

Performance Testing Required

The performance tests listed below are the minimum recommended set that will verify the upgrade just installed is functioning correctly. Performing these tests alone does not guarantee that the instrument meets all advertised performance specifications. The performance test procedures can be found in the ESA Spectrum Analyzer Calibration Guide, or the tests can be performed using the software outlined in the Introduction of this installation note.

- Frequency Response
- Frequency Response (Preamp On)
- Displayed Average Noise Level

NOTE **A full calibration is required to ensure the instrument meets all advertised performance specifications.**
