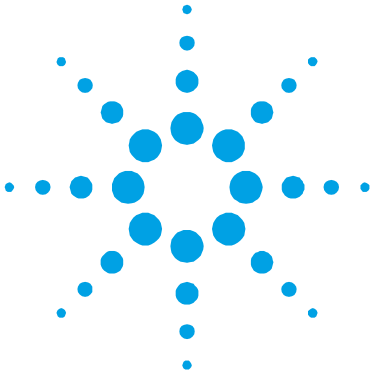

Cary Eclipse

Site Preparation Guide

Agilent Technologies

Notices

Manual Part Number

8510174000

Edition

Sixth edition, September 2016

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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.

Request for Installation

All preparations have been completed. Please arrange for the installation to be completed as soon as possible. I understand that if the installation site is not prepared in accordance with the enclosed instructions, additional installation charges may apply.

Company name: _____

Company address: _____

_____

_____

Name: _____

Position: _____

Telephone: _____

Preferred installation date: _____

Signed: _____

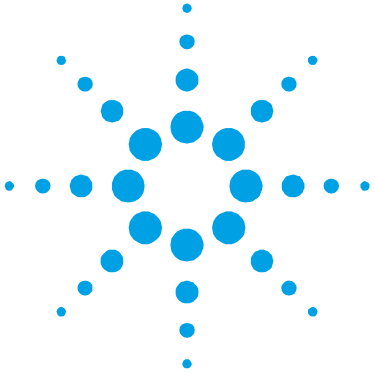
Date: _____

Site preparation checklist

Your site must meet all requirements before you request installation. Before unpacking the boxes, complete each requirement listed in the table. After completing each requirement, place a check in the appropriate checkbox. Ensure you compare each item inside the boxes with the packing list supplied with the boxes.

Requirements	☑
The work area has been prepared and meets requirements (see Chapter 3).	☐
The power supply meets requirements (see Chapter 4).	☐
The optional nitrogen optics purge gas supply meets requirements (see Chapter 5).	☐
The Cary Eclipse and any accessories are on site (see Chapter 6).	☐
The computer system meets requirements, and the Microsoft Windows operating system and Internet Explorer 9 (minimum) have been installed (see Chapter 7).	☐
A quartz fluorescence cell is available.	☐
Operator training is required (see Chapter 8).	☐

Contents



1. Introduction

The Agilent Cary Eclipse fluorescence spectrophotometer is designed to provide a complete analysis system for fluorescence, phosphorescence and chemiluminescence measurements. All Cary Eclipse instruments are tested and proven to specification before dispatch from the manufacturing plant.

This guide contains general information relevant to the preparation of an installation site, and details the facilities that must be provided to ensure that the system can be properly and safely operated. Detailed operating procedures are provided in the Cary Eclipse Software Help, and in the User's Guide supplied with the instrument.

Installation of the Cary Eclipse is carried out by Agilent trained and qualified field service engineers. Before the representative attends your site to perform the installation, complete the site preparation checklist on Page 4.

Typical installation for a standard Cary Eclipse system will be completed in approximately two hours and the system will be ready for use. However, this time will be extended if the system includes major accessories. The installation time can be kept to a minimum by ensuring proper site preparation and easy access to all equipment.

NOTE The remainder of this manual contains information such as the environmental requirements and technical specifications for the Cary Eclipse, and it should not be discarded — keep this manual for future reference.

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2. Safety Practices and Hazards

Warning and Information symbols

The following triangular symbols appear in conjunction with warnings on the spectrofluorometer and associated documentation. The hazard they depict is shown below each symbol:

Broken glass

Corrosive liquid

Ejecting parts

Electrical shock

Eye hazard

Fire hazard

Heavy weight (danger to feet)

Heavy weight (danger to hands)

Hot surface

Moving parts

Noxious gas

The following symbol may be used on warning labels attached to the instrument. When you see this symbol, refer to the relevant operation or service manual for the correct procedure referred to by that warning label.

CE compliant products

The Cary Eclipse has been designed to comply with the requirements of the Electromagnetic Compatibility (EMC) Directive and the Low Voltage (electrical safety) Directive (commonly referred to as the LVD) of the European Union.

Agilent has confirmed that each product complies with the relevant directives by testing a prototype against the prescribed European Norm, EN, and standards.

Proof that a product complies with the directives is indicated by:

- The CE marking appearing on the rear of the product.
- The documentation package that accompanies the product, containing a copy of the Declaration of Conformity. This declaration is the legal declaration by Agilent that the product complies with the directives and also shows the EN standards to which the product was tested to demonstrate compliance.

Electromagnetic compatibility

EN55011/CISPR11

Group 1 ISM equipment: group 1 contains all ISM equipment in which there is intentionally generated and/or used conductively coupled radio- frequency energy which is necessary for the internal functioning of the equipment itself.

Class A equipment is equipment suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

This device complies with the requirements of CISPR11, Group 1, Class A as radiation professional equipment. Therefore, there may be potential difficulties in ensuring electromagnetic compatibility in other environments, due to conducted as well as radiated disturbances.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

1. Relocate the radio or antenna.
2. Move the device away from the radio or television.
3. Plug the device into a different electrical outlet, so that the device and the radio or television are on separate electrical circuits.
4. Make sure that all peripheral devices are also certified.
5. Make sure that appropriate cables are used to connect the device to peripheral equipment.
6. Consult your equipment dealer, Agilent Technologies, or an experienced technician for assistance.

Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

ICES/NMB-001

This ISM device complies with Canadian ICES- 001.

Cet appareil ISM est conforme à la norme NMB-001 du Canada.

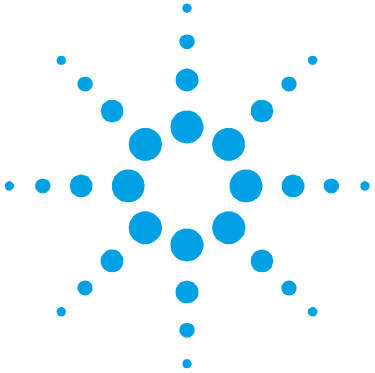
South Korean Class A EMC declaration

A 급 기기 (업무용 방송통신기자재)

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

이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주

의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으 로 합니다 .



3. Work Area

Suitability

The Cary Eclipse instrument is suitable only for indoor use. It is suitable for these categories:

- Installation category II
- Pollution degree 2
- Equipment class I

Environmental conditions

You are responsible for providing an acceptable operating environment. Attention paid to the operating environment will ensure the continued high performance of your Cary Eclipse instrument. The instrument warranty will be made void if the equipment is operated in sub-standard conditions.

Table 1. Suitable conditions during instrument transportation, non-operation and operation

Condition	Altitude (m, ft)	Temperature (°C, °F)	Relative humidity, non-condensing (%)
Non-operating (transport)	0–2133, 0–7000	5–45, 41–113	20–80
Operating within performance specifications	0–853, 0–2800 853–2133, 2800–7000	10–35, 50–95 10–25, 50–77	8–80

CAUTION Operating specifications for the computer, monitor, and printer may differ from those required for the instrument. You must check the literature provided with these devices and arrange the operating environment to suit the complete system.

Temperature

Air-conditioning is recommended. The room should be temperature-controlled if your analyses are particularly sensitive.

For optimum analytical performance, it is recommended that the ambient temperature of the work area be between 20 and 25 °C (68 and 77 °F) and be held constant to within ±2 °C throughout the entire working day.

NOTE As work area temperature increases, system reliability decreases. All electronic components generate heat while operating. This heat must be dissipated to the surrounding air if the components are to correctly operate.

Humidity

The relative humidity of the operating environment should be between 8 and 80% with no condensation. Operating a Cary Eclipse in very low humidity may result in the accumulation and discharge of static electricity, which shortens the life of electronic components. Operating at high humidity will produce condensation and result in short circuits.

Agilent recommends that your work area is equipped with a temperature/humidity monitor. This will ensure that your work area is always in conformance with the temperature and humidity specifications.

Particulate matter and fumes

Sample preparation areas and materials storage facilities should be located in a separate room. For optimum performance, the area should have a dust-free, low humidity atmosphere. A layer of dust on the electronic components could act as an insulating blanket and reduce heat transfer to the surrounding air.

CAUTION The Cary Eclipse is designed for operation in clean air conditions. The work area must be free of all contaminants that could have a degrading effect on the instrument components. Dust, acid and organic vapors must be expelled from the work area.

Exhaust system

It is your responsibility to provide an adequate exhaust system. An exhaust system is not required for normal operation of the instrument but should be installed if substances giving off toxic vapors are to be analyzed.

Workbench

The Cary Eclipse system is designed to sit on a workbench that is wide enough to allow easy access to all system units and sturdy enough to support their combined weight.

Table 2. Equipment weights and dimensions

System unit	Weight (kg, lb)	Width (mm, in)	Depth (mm, in)	Height (mm, in)
Cary Eclipse	31, 68	600, 24	610, 24	280, 11
Computer (typical)	20, 44	520, 20	520, 20	400, 16
Printer (typical)	5.5, 12	380, 15	300, 12	120, 5

The bench tops should be large enough to permit a free circulation of air around each device. Remember to provide space for the computer, monitor and printer.

The workbench should be approximately 90 centimeters (36 inches) high.

Table 3. Recommended space behind and in front of the system

Recommendation	Purpose	Recommended distance
Allow adequate space behind the system	Provide clear space for air circulation, gas, electrical and communication connections.	110–200 mm, 4–8 in
Allow adequate space in front of the system.	Some accessories attach to the front of the instrument. These may overhang the bench if adequate space is not allowed.	150 mm, 6 in (when using the Extended Sample Compartment and thermostatted accessories).

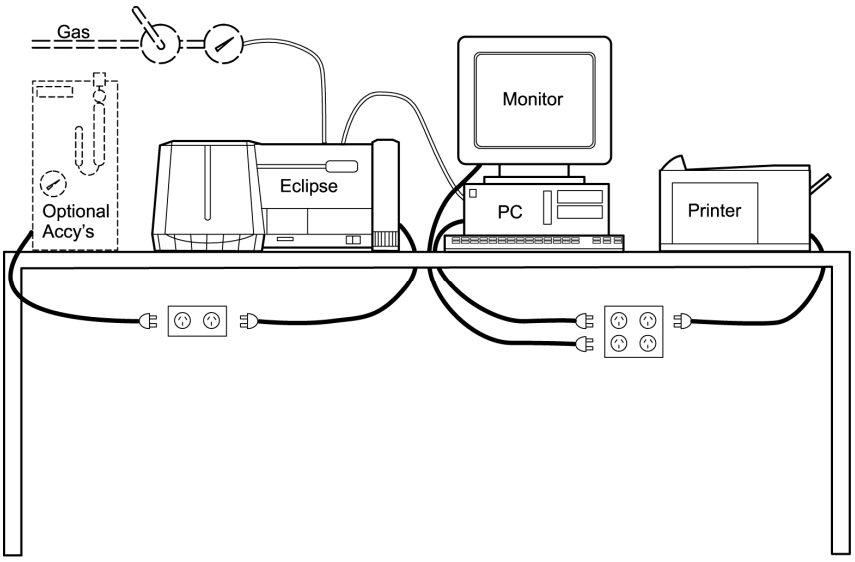


Figure 1. Recommended system layout

NOTE The gas line is required only if nitrogen purging of the optical windows and sample compartment are required.
Optional accessories may or may not require a power connection.

To avoid damage from spillage of the samples being analyzed, the bench tops should be covered with a material that is corrosion-resistant and impervious to liquids.

Vibration

Ensure that workbenches are free from vibration. If possible, any equipment generating vibration during operation should be installed on the floor rather than alongside the system on the workbench.

☑ After the work area has been prepared and requirements have been met, check the checklist box: *The work area has been prepared and meets requirements.*

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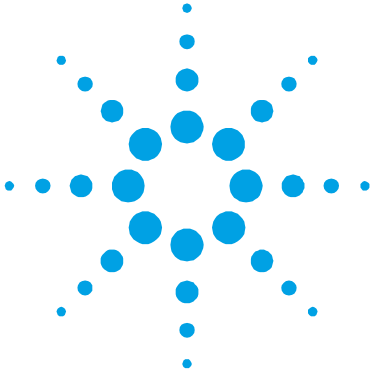

4. Electrical Specifications

Mains supply

The installation of electrical power supplies must comply with the rules and/or regulations imposed by local authorities responsible for the supply of electrical energy to the workplace.

WARNING

Electrical Shock Hazard

Good electrical grounding is essential to avoid potentially hazardous shock hazards. A 3-wire outlet with ground connection must be provided for the instrument. Ensure that power outlets are earth-grounded at the grounding pin.

All power supplies must be single phase AC (alternating current) voltage, three wire system (active, neutral, earth) and should be terminated at an appropriate power outlet receptacle that is within reach of the instrument power cord assembly. For safety reasons, a separate power outlet receptacle should be provided for each unit in the system. Do not use extension cords or outlet adapters.

All Cary Eclipse instruments are supplied with a 2 meter (6 feet, 6 inch) long power cord and three-pin plug assembly that is compatible with common standards applicable in most areas.

Avoid using power supplies from a source that may be subject to electrical or RF interference from other services; for example, large electric motors, elevators, and welders.

Table 4. Mains voltage requirements

System unit	Required supply voltage	Power rating (typical)
Cary Eclipse	100–240 VAC, 50–60 Hz	180 VA
Computer	100, 120, 220, 240 VAC, 50/60 Hz	300 VA
Printer	100, 120, 220, 240 VAC, 50/60 Hz	100 VA

NOTE This table is indicative only. Refer to the literature provided with the computer and printer for details of individual power requirements.

Fuses

Two fuses are used in the Cary Eclipse. Both are of type:

T3.15 AH 250 V IEC [2] Sheet 5 5 x20 mm

NOTE For safety reasons, any other internal fuse or circuit breaker is not operator-accessible, and should be replaced only by Agilent authorized personnel.

NOTE Fuse information on the rear of the instrument is the most up-to-date.

External connections

Consult your computer, monitor and printer manuals for details of their individual cabling requirements, as well as the Cary Eclipse User's Guide for details of the electrical connections required for operating the optional accessories.

Mains inlet coupler

3/2 A 120/250 VAC 50–60 Hz IEC type

Mains power cord

Country	Mains power cord	Plug
Australia	10 A 250 VAC	Complies with AS3112
USA	10 A 125 VAC	Complies with NEMA 5–15P
Europe	6 A 250 VAC	Complies with CEE7 sheet vii or NFC61.303 VA

Rear

IEEE 488 (GPIB Cary Eclipse system connection)

Front

25-way D-range (external accessory connection)

Sample compartment

25-way D-range (internal accessory connection)
15-way D-range (internal accessory connection)
9-way D-range (internal accessory connection)

After the power supply requirements have been met, check the checklist box: *The power supply meets requirements.*

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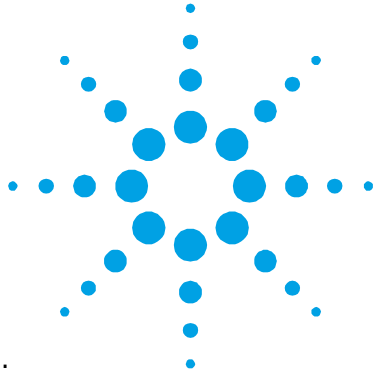


5. Optional Nitrogen Supply

The Cary Eclipse is fitted with a connection point for purging of the sample compartment windows and sample compartment. Purging may be required when using low temperature accessories that could cause condensation to form on the windows or cells as they cool. More details are provided in the Cary Eclipse Software Help.

Nitrogen supplies are not available from Agilent, but may be obtained from commercial suppliers. Liquid nitrogen (in conjunction with a heat exchanger) is recommended because it is generally less costly than compressed nitrogen and is of better quality. Where compressed nitrogen must be used, the gas must be dry, oil-free and uncontaminated.

CAUTION Do not use compressed nitrogen from a supplier who uses oil or water in the compression process. These methods leave fine particles of oil or water suspended in the nitrogen that may be deposited on the instrument optics. Only use nitrogen from a supplier who fills containers from immersion pumps that are lubricated with liquid nitrogen.

NOTE The instrument warranty will be void if damage is caused by the use of contaminated nitrogen.

All gas supply installations must comply with the rules and/or regulations that are imposed by the local authorities responsible for the supply of compressed gas energy to the workplace.

Portable cylinders containing gas under pressure should be kept vertical and firmly secured to a rigid structure. The storage area must be well ventilated. Never locate gas cylinders near a source of ignition or in a position that is subject to direct heat. Gas storage cylinders often incorporate a pressure relief device, which will discharge the gas at a pre-determined temperature, usually around 52 °C (125 °F).

If gases are to be plumbed from a remote storage area to the instrument site, ensure that the local outlets are fitted with shut-off valves and suitable regulators that are easily accessible to the instrument operator.

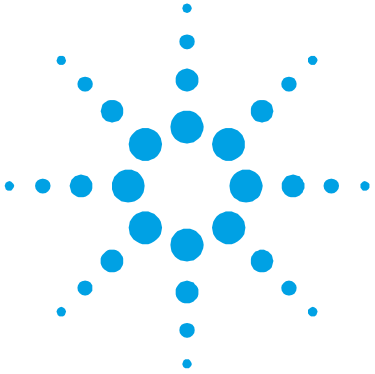
Nitrogen supply tubing should be clean, flexible plastic tubing of 6 millimeters (1/4 inch) internal diameter (polyvinylchloride or equivalent).

CAUTION Do not use rubber tubing, as this is usually treated internally with talc, which will be carried into and contaminate the instrument optics.

Operating pressure for the nitrogen purging system is recommended at up to 70 kPa (10 psi). Use a suitable regulator and gauge assembly to ensure that the nitrogen supply is maintained at correct pressure.

The nitrogen system should include a manifold assembly with inlet from the supply and two outlets for connection to the instrument. Manifold outlets should each be fitted with a stop valve and flow meter for control of gas flow to the instrument. Flow meters should be adjustable for flow rates of 0 to 30 liters per minute (0 to 64 cubic feet per hour).

☑ After the optional nitrogen optics purge gas supply requirements have been met, check the checklist box: *The optional nitrogen optics purge gas supply meets requirements.*



6. Equipment On Site

Insurance

As the carrier's liability ceases when the equipment is delivered, Agilent recommends that the instrument owner arranges separate insurance to cover transportation from the delivery point to the installation site. The delivery point will vary according to the carrier, the shipping method and in some cases the terms of sale. Some carriers will deliver only to their own distribution center, while others may deliver to the actual installation site.

In-house transit routes

Before arranging for delivery of the Cary Eclipse to your facility, make sure that all passages to the site of installation are at least 1.1 meter (3.6 feet) wide. Allow additional room for maneuvering the shipping container around corners and/or through doors. Vertical, horizontal and turning clearances should be calculated from the shipping carton dimensions of the spectrofluorometer, which is the largest unit in any system configuration.

Table 5 Shipping weights and dimensions

System unit	Weight (kg, lb)	Width (mm, in)	Depth (mm, in)	Height (mm, in)
Cary Eclipse	54, 119	820, 32	760, 30	560, 22
Computer (typical)	34, 75	1200, 48	600, 24	320, 23
Printer (typical)	7.5, 17	580, 23	550, 22	320, 17

Inspecting for transit damage

Transit damage can be obvious or concealed and in either case will be admitted by the carrier only if it is reported within the terms of the carrier's agreement. For any claims against damage in transit, these general rules apply:

- Before accepting delivery, you must inspect the packages for signs of obvious damage. The nature of any obvious damage must be noted on the carrier's waybill, which then must be countersigned by a representative of the carrier.
- Within the time limit stated in the terms and conditions of carriage, a further inspection must be made for concealed damage. If any damage is found at this stage, the carrier must be notified in writing. You must retain all packaging material for subsequent inspection by a representative of the carrier.
- A copy of any damage report must be forwarded to the Agilent sales office dealing with the supply of the equipment.

WARNING

Heavy Weight Hazard

Many of the packages are large and heavy. To avoid the chance of injury to personnel or accidental damage to the equipment, always use two or more people when handling the packages or lifting equipment into position. NEVER attempt to lift the packages alone.

Unpacking

After accepting delivery, take the equipment to the installation site, and check the conditions of the boxes. Agilent instruments are inherently robust and the packaging is designed to prevent internal damage. However, the contents form part of a precision measuring system and all packages should be handled with care. In transit, sharp jolts must be avoided and the packages should not be unnecessarily inverted or tilted. Markings on the shipping cartons generally indicate which side of the package should be kept on top.

WARNING

Heavy Weight Hazard

Many of the packages are large and heavy. To avoid the chance of injury to personnel or accidental damage to the equipment, always use two or more people when handling the packages or lifting equipment into position. NEVER attempt to lift the packages alone

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Do not discard any packaging components or filler materials.

☑ After the inpsection requirements have been met, check the checklist box: *The Cary Eclipse and any accessories are on site.*

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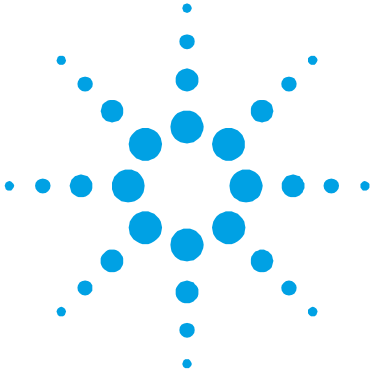

7. Computer System Requirements

Recommended configuration

Agilent can supply a computer for the Cary Eclipse WinFLR software in the recommended configuration (see Table 6). We strongly recommend this option to ensure the computer matches the configuration used during software evaluations. The computer will be formatted, partitioned and loaded with Microsoft Windows. All software disks and manuals will be supplied.

Better computer components, for example, processor type, amount of memory, screen size and resolution, operating system version, and so on, can be substituted for those listed.

Table 6. Recommended minimum computer requirements

Specifications	Desktop PC	Notebook PC
Processor	3.20 GHz, 8 MB cache, 4 cores	2.4 GHz, 3 MB cache, 2 cores
Memory	4 GB RAM	
Storage	500 GB HDD	
Graphics	Screen resolution of 1280x768 running in 96 dpi	
Optical Drive	DVD-ROM drive	
Audio	Integrated Audio	
Other	1 serial port, 1 USB port	
Operating System	Windows 7 Pro 64-bit SP1, Windows 10 Pro 64-bit	

Recommended printer

You can use any printer supported by your Microsoft Windows operating system.

IEEE 488.2 interface

The Cary instruments require a GPIB-USB-HS converter to be attached to the computer. One will usually be included in your instrument order. If you need to order a converter, please contact your local Agilent representative for ordering information.

NOTE The NI (National Instruments) AT-GPIB card will not work with the Cary Eclipse WinFLR software.

NOTE The NI PCI-IEEE card will not fit inside a small form factor PC or notebook PC and therefore cannot be used.
If you are updating your computer/software and you have a NI IEEE-GPIB card you can continue to use this as long as the computer selected has a full PCI slot available. If not, you will need to contact your local Agilent provider to purchase a NI USB-GPIB-HS converter.

Interconnecting cables

The monitor, printer, keyboard and spectrophotometer are connected to the computer via cables that plug into the back of the computer. The spectrophotometer is connected via a USB-GPIB-HS converter provided with the instrument. Consult your monitor, printer and keyboard manuals for details of their individual cabling requirements.

Setting up your computer

Agilent Cary Eclipse WinFLR software has been validated on the Agilent Cary Eclipse Fluorescence spectrophotometer. The Cary Eclipse WinFLR software has been validated using the HP Model z230 and z240 PC with Microsoft Windows users who are members of the Administrator Group and Users Group.

When setting up your own computer for use with the Cary Eclipse WinFLR software, ensure that:

- Windows 7 Pro 64-bit SP1, or Windows 10 Pro 64-bit is installed and all devices such as sound card and CD-ROM are working.
- Microsoft Internet Explorer version 9* or later has been installed.
- You have set your computer screen desktop area resolution to at least 1260 x 768 pixels and have set the color palette to at least High Color.

The Cary Eclipse WinFLR software uses functionality provided by Microsoft Internet Explorer. You do not need to use this as your Web browser. If your company rules prevent the installation of Internet Explorer, you can use another browser, with some loss in functionality.

NOTE The Agilent representative will install the Cary Eclipse WinFLR software. However, installation of a Windows operating system is not included as part of the standard instrument installation.

After the computer requirements have been met, check the checklist box: *The Microsoft Windows operating system is installed.*

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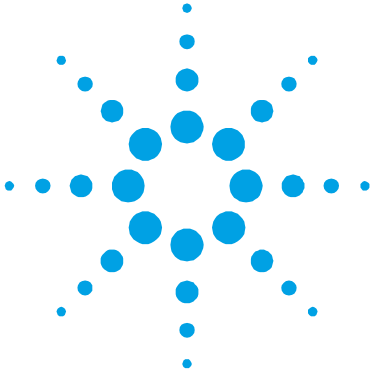

8. Operator Training

Depending on the services ordered, during the installation procedure, the Agilent field service engineer may demonstrate the basic operating procedures. The engineer however, is not necessarily experienced in complex analytical routines and is not authorized to conduct extensive training.

To ensure that you maximize the benefit of witnessing the installation performance tests, operator training should be completed before your equipment is installed. It is strongly recommended that you take advantage of the special training courses that are conducted at various locations by the Agilent customer support and sales organization.

In some areas, it may be possible to arrange for operator training to be carried out after installation, using your own instrument. To investigate this possibility, contact your local Agilent sales and service office.

The initial software installation and preliminary operational tests will take your Agilent representative around one hour. The results from these tests can be directly compared against the same tests completed at the factory before shipment.

NOTE You must have a working knowledge of the computer operating system, as this type of instruction is not provided by Agilent. The literature supplied with the Cary Eclipse provides step-by-step instructions for setting up the system and detailed operating instructions for the analysis procedures — it does not include instructions for operation of the computer.

☑ If operator training is required, check the checklist box: *Operator training is required.*

www.agilent.com

In This Guide

The guide describes the following:

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- Work Area
- Electrical Specifications
- Optional Nitrogen Supply
- Equipment On Site
- Computer System Requirements
- Operator Training

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Issue 6

Agilent Technologies