

Agilent UV-Visible Spectrophotometer Equivalence Guide



Introduction

The Cary 60 UV-Visible spectrophotometer and the Cary 8454 UV-Visible spectrophotometer have equivalent performance specifications, capabilities and system features. Both systems are supported by optional 21 CFR Part 11 software packages, and dedicated instrument validation software which includes pharmacopeia test suites.

The following tables provide a comparison of the regulatory and system features of the Cary 8454 and Cary 60 spectrophotometer systems.

Table 1. Comparison of how the Cary 60 and Cary 8454 spectrophotometer systems meet the hardware and software requirements for UV-Vis systems in regulatory environments.

Regulation	Requirement	Cary 60 UV-Vis system	Cary 8454 UV-Vis system
21 CFR Part 11 EU Annex 11	Data security in a protected database for application method and result files	✓	Files protected by Windows Security
	Data integrity and traceability with system and application audit trails	✓	✓
	Electronic signatures	✓	✓
	Access only for registered users	✓	✓
	Configurable levels of application access and user permissions for efficient workflows	✓	Three inbuilt user profiles
	Archival capabilities	✓	User SOP
United States Pharmacopeia (USP) British/European Pharmacopeia (BP/EP) Chinese Pharmacopeia	Wavelength accuracy and precision	✓	✓
	Photometric accuracy and linearity	✓	✓
	Stray light	✓	✓
	Resolution	✓	✓

Table 2. Comparison between the Cary 60 and Cary 8454 spectrophotometer systems showing equivalent system features and capabilities.

System Feature	Cary 60 UV-Vis system	Cary 8454 UV-Vis system
Optical design	Xenon flash lamp typically lasts 10 years, minimizing lamp replacement and instrument revalidation costs, no warm up time and only flashes when measurement is taken	Tungsten and deuterium lamps require regular replacement and instrument revalidation, must warm up for optimum performance
Wavelength range	190 – 1100 nm	190 – 1100 nm
Sample access	Room light immunity enables the instrument to be operated with sample compartment open or closed	Open sampling area provides quick and easy access to samples
Spectral bandwidth	Fixed spectral bandwidth (1.5 nm) ideal for most common liquid samples providing optimum light throughput and meeting pharmacopeia regulations	Fixed spectral bandwidth (1.0 nm) ideal for most common liquid samples providing optimum light throughput and meeting pharmacopeia regulations
Measurement type	Full wavelength scan in less than 3 seconds	Full wavelength scan in less than 3 seconds
Accessories available	Multicell	Multicell
	Thermostatted cell holder	Thermostatted cell holder
	Long pathlength cells	Long pathlength cells
	Fiber optics and microvolumes	
	Solid sample holders	
Application software	Cary WinUV application focused software for: ·collecting spectra, ·determining concentration (calibration curves) and ·kinetics.	UV-visible ChemStation application focused software for: ·collecting spectra, ·determining concentration (calibration curves) and ·kinetics.

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This information is subject to change without notice.