

V-700 seires

UV/ Vis / NIR Spectrophotometer



V-TOO series

V-730 - Compact size, double beam type, wide dynamic range V-750 - UV/VIS single monochromator, UV-Vis workhorse V-760 - UV/VIS double monochromator model for higher absorbance applications V-770 - UV/VIS/NIR single monochromator model, extended spectral range V-780 - High sensitivity NIR model

Highest throughput optics and widest dynamic range in its class

Optimized performance with high order cut-off filter, ultra-high resolution ADC, 24 bit, aberration-free offset for Sample, Reference and Dark Current, enhancement of dynamic range in NIR wavelength for V-770





Daily maintenance program (standard)

Improved reliability for validation operations, Holmium glass filter (or other standard) can be automatically measured daily with automated data storage, Automatic execution of procedures supporting USP, EP or JP requirements



Maintenance dislay

Energy and space-saving

- Highest energy-saving in its class
- Turn off the unused light source with the ON/OFF source button in the measurement screen
- Save lamp life and electrical power
- All models have a compact frame design which requires minimal bench space

IQ accessories

IQ accessory is the automated recognizing function between accessory and main instrument.

IQ start is automated software program to boot related software when the accessory is mounted.

Spectra band width setting

In V-750, V-760, V-770 and V-780, there are 2 modes L and M. L mode is useful mode for measuring high absorbance sample and stray light reduction to one-third.

M mode is useful mode for measuring micro volume sample with using of micro cell.

Alignment-free lamp replacement

The WI and D2 lamps can be re-installed in exactly the same position.

Position alignment after lamp replacement is not required, and, the instrument can be easily maintained by the user.

Dark Correction

0% transmittance dark correction is useful function to improve measurement accuracy for sample which is low transmittance.

Expand the system for a wide range of sample types and measurements

With over 70 sampling accessories and 30 optional programs.







Spectra Manager II / Spectra Manager CFR

~The cross- platform spectroscopy software for all JASCO spectrophotometers~

Four Measurement modes:

Spectra Measurement, Quantitative measurement, Time-course and Fixed wavelength measurement



Spectra measurement

Quantitative measurement

Fully covered measurement capabilities

- Comprehensive display and analysis of performance indicators, accessory information, measurement parameters and measurement data
- For basic analysis such as peak picking, data smoothing, derivatives to complex application specific analysis such as enzyme activity calculation and film thickness are included as standard
- Convenient support functions: such as JASCO Canvas printing layout designer for custom reports, enhanced data searching with spectrum preview and many other flexible features
- Preset data processing, file saving a-nd printing are automatically executed after measurement is complete.
- Parameters for data processing can be selected from the following Peak detection, Peak height/area (ratio), basic quantitation (User formula) and film-thickness calculation.
- Quantitative measurement and Fixed-wavelength measurement: arithmetic formulas can be input into the parameter settings.
- Quantitative measurement, Spectra Measurement, Quantitative Spectra and Fixed Wavelength measurement: The sample name and comments can be saved together in the measurement order as a sequence.

Analysis Function

- Film thickness or color diagnosis for measured spectra *Not available in Spectra Manager CFR
- Enzyme activity calculation can be applied to any time-course measurement
- JASCO Canvas printing layout designer as standard

FDA 21 CFR Part 11 Version option

Spectra Manager CFR offers full FDA 21 CFR Part 11 complianceand audit trail to guarantee the integrity of electric records, electric signatures and data.

*Some optional programs are not available in the Spectra Manager CFR version. Please contact us for more details.

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Color calculation

New iRM

Comprehensive display of measurement data, accessory information and measurement parameters. Language can be chosen from English or Japanese, user selectable

Color LCD touch panel for intuitive operation

 High clarity Color LCD display makes display of complex data such as spectra or calibration curves easy to read.

- Touch sensitive screen for easy operation.

USB memory

- Portable, high capacity storage and direct data saving
- with USB memory stick.
- Data can be saved using the New iRM in text format for easy transfer to spreadsheet and other post processing software.

Extensive printing functions

- An extensive range of print options can be used with the iRM from typical A4-size and letter size printers and thermal-paper printer for numerical output, to roll paper printer for numerical output and also thermal paper printer for printing of spectra and calibration curves.
- Using the print preview function, the overall view and zoomed view for the print out can be checked on the iRM screen prior to printing.



Four Measurement modes: Spectra Measurement, Quantitative measurement, Time-course and Fixed Wavelength measurement



Data Analysis

Peak detection, vertical/horizontal axis conversion, film thickness and color diagnosis are included in Spectra analysis as standard.



Analysis software for PC included as standard

Data acquired with the iRM can be analyzed using a PC with Spectra Analysis

Functions in Spectra Analysis such as peak detection, vertical/horizontal axis conversion to printing layout designer and data conversion to TEXT format.







Dynamic range

Optimal balance between light intensity and resolution supporting European Pharmacopoeia (EP) Faster response and slew speed Protein / DNA concentration measurement



Spectrum band width 1nm

In European Pharmacopeia, the ratio of spectra between 269nm and 266 must be higher than 1.5. Our test result of Toluene/Hexane spectrum by using of V-730 can be passed in enuogh.



iRM Validation result



• Calibration curve of Caffein

Film thickness measurement of food film

using the single reflection accessory This is available for several measurements.

Film thickness measurement of food film using the SLM-907 single reflection unit was performed.

The V-730 has a wide range of special accessories and optional programs for a broad range of analyses.



• Film thickness calculation of film sample



Wide dynamic range in its class Various accessories combination



Absorbance linearity to 4 AU is achieved in a wide wavelength range

Photometric range up to 4AU is available in a wide range from the UV to Visible regions. The V-700 series offers measurement with a wide dynamic range up to high-absorbance by employing an optimized high-order cut-off filter, the adoption of a 24 bit ultra high-resolution A/D converter and simplified signal processing prior to the A/D conversion.



Color assessment by diffuse reflection measurement of compacted powder

Diffuse reflection measurement using the ISV-922 Integrating sphere unit was performed. The following graphic displays the plot of XY chromaticity diagram within the color diagnostic program of XXXX type.

The integrating sphere is equipped with a light trap for removing the specular component. In case of the dark color measurement, the dark correction function is used.

Micro cell measurement with an optical path of 2mm using the M-mode bandwidth setting of is available. It is useful for measurement of micro liquid samples.









Spectrum of DNA solution



Double monochromator for spectral measurement with reduced stray light



Double Monochromator offers photometric linearity in a wide wavelength range up to 6AU simulation of stray light and calibration curve

Light other than the wavelength of interest reaching a detector is referred to as stray light. As the stray light increases, the absorbance linearity will deteriorate. The new V-700 series designed with an optical system for lower stray light offers a high absorbance linearity across the entire photometric range. The V-760 can measure up to

6AU across the wavelength range from the UV to visible regions.



Measurement down to 187 nm

The lower stray light optical design enables measurement in the UV from 187 nm without an N2 purge Quartz, sapphire and BK-7 are optical materials often used as window materials. The transmittance spectra of these three materials obtained using the FLH-741 film holder are shown above.



Stepscan measurement of optical element samle

The Stepscan is very useful tool to measure kind of samles as bandpath filter which absorbance and transmittance can be changed dramatically.



• Transmittance spectrum of optical materials



• Transmittance spectrum of band path filter



WIde range from 190 to 3200nm

* The range from 2700-3200nm requires the wavelength expansion kit (Option) High efficiency and bright optics achieved using a single grating type monochromator with one grating each for the visible and NIR measurements with sampling accessories can be performed with high accuracy



Measurement of thermal insulation glass

In JIS R 3106 regulation, the evaluation method of thermal insulation glass is defined with measurement of its transmittsannce, reflection index and emissivity. it is possible to measure it with integrating sphere and automated aobsolute reflection accessory and necessary values as transmittance or reflective index can be calculated vt VWST-7734.



•Transmission Spectrum of thermal inulation glass

Wavelength expansion

Optional wavelength expansion kit can expand the measurement wavelength range from 2700 to 3200 nm. Transmittance spectrum of quartz up to 3200 nm for the water peak.



Accurate diffuse reflectance measurement with Integrating sphere

The figure below is the measurement results of a diffuse gray standard SRS-50-010 measured using the ISN-723 60 mm integrating sphere and ILN-725 150mm integrating sphere. The gray standard was evaluated against a Spectralon reference plate. The values and measurement spectra demonstrate excellent agreement.



Reflection spectrum of standard sample

Multivariate analysis

Multivate analysis is widely used for analysis of samples which absobance band of each element can't be separated. There are, PCR / PLS / CLS quantitative measurement, and PCA program

•Transmittance spectrum of crystal sample



High sensitivity and high resolution spectrophotometer using a high sensitivity InGaAs photodiode detector for the NIR region Light source luminance control by digital feedback enables NIR spectra measurement with high sensitivity and high accuracy even when the absorbance fluctuates. A new sealed lamp housing developed by simulating the heat flow suppresses the fluctuation caused by heat from the lamp and enhances measurement stability



High sensitivity measurement in the NIR region

The below figures are the comparison of a 1.3 um band cut-off filter for optical communication measured using the V-770 with cooled PbS photoconductive element detector and the V-780 with cooled InGaAs Photodiode detector. The InGaAs detector offers measurements with much higher S/N than can be achieved using the PbS detector.





High resolution measurement in the NIR region

The InGaAs photodiode as a detector for the NIR range provides a higher resolution measurement in the NIR region.

The figure above is the vibrational spectrum of CO2 gas (pathlength: 100 mm) in the NIR measured using the V-780. Overtones are seen near 1430 nm and also combination tones near 1770 nm. Zooming into the specrum at around 1437 nm shows that the V-780 offers sufficientresolution to see the rotational level in the vibrational spectra.



•Transmittance spectrum of notch filter

Band-gap measurement of Si

Crystalline Si was measured in transmittance mode and the band-gap was calculated to be 1.13 eV which is in good agreement with data found in the literature. This demonstrates that the V-780 is an excellent tool for the evaluation of Solar panel materials.



•Band-gap calculation

Accessories

One drop Accessory SAH-769

Micro volume sample application for Protein and DNA measurement <Specification> MInimum volume 0.6µL (0.2 mm path length)

5µL (1.0 mm path length)



Micro cell holder EMC-709

Both 50µL and 5µL micro cell can be used. <Specification> MInimum volume : 5µL Selectable cells 50uL micro cell (10mm ath length) 5µL micro cell (1mm ath length)



Peristaltic Sipper NPF-782

Sample recycling sipper. It can combined with autosampler as automated analytical system

<Specification>

Path Length: 10mm

Carry over: Less 1% Minimum volume:

- 0.7mL (In low viscosity sample) Wavelength range
 - 220 900nm (V-730, 750, 760) 220 - 2200nm (V-770)
 - 220 1600nm (V-780)

Integrating sphere ISV-922/ISN-923/ISN-901i

Integrating spheres are designed to measure either the diffuse transmittance or diffuse reflectance of a sample. These accessories are provided with a light trap so that the reflectance of samples can be measured with or without the specular reflectance component. <Specification>

Inside dia. of Integrating Sphere: 60mmp

Incident Angle to reflection surface: 0°, approx. 5° Min. sample size (reflection): 20(H)×20(W)×0.5(t)mm Max. sample size (reflection):

- 65(H)×50(W)×25(t)mm Wavelength range:
- 200 870nm (V-730, 750, 760) 200 - 2500nm (V-770) 200 - 1600nm (V-780)

150mm Integrating sphere ILV-924/ILN-925/ILN-902i

- These accessories employ a 150mm dia. integrating sphere to accept larger samples <Specification>
- Inside dia. of Integrating Sphere:150mmφ Incident Angle to reflection surface: approx. 5° Min. sample size (reflection): 20(H)×20(W)×0.5(t)mm
- Max. sample size (reflection): 100(H)×50(W)×30(t)mm
- Wavelength range: 220 850nm (V-750, 760) 220 - 2200nm (V-770) 220 - 1600nm (V-780)





ISV-922

Air-cooled Peltier cell holder EHCS-760

Air-cooled type, it does not need water circulation. <Specification> Optical lenght: 10mm

Temp. control accuracy: ±0.1°C Temp. control range: 10 - 60 °C (at 25°C) Heating radiating system: Air-cooled Temp. setting range: 5 - 70 °C Stirrer system: Integrated variable speed magnetic stirrer (not available for micro cell) Temp. accuracy:





±1 °C (other temp. range)



Water-circulation Peltier cell holder ETCS-761

ETCR-762 (Thermostatted reference)

ETCS-761 and ETCR-762 are provided with water-cooled system to control a wide temperature range (0 - 100°C). <Specification> Path length: 10mm Temp. control accuracy: ±0.1°C Temp. control range: 0 - 100 °C (for cooling water temperature at 20°C) Heating radiating system: Water-cooled (requires water circurator) Temp. setting range: -10 - 110 °C Stirrer system: Integrated variable speed magnetic stirrer (not available for micro cell) Temp. accuracy: ±0.5 °C (20 - 40 °C)

±1 °C (other temp. range)



Water-circulation Peltier cell changer PAC-743 PAC-743R (Thermostatted reference)

The PAC-743/743R allow measurements of the transmittance/absorbance of multiple samples by using dedicated cell blocks with temperature control. <Specification> Temp. control accuracy: ±0.1°C

Temp. control range: 0 - 100 °C (for cooling water temperature at 20°C) Heating radiating system: Water-cooled (requires water circurator)

Temp. setting range: -10 - 110 °C Stirrer system: Integrated variable speed magnetic stirrer (not available for micro cell)

Temp. accuracy: ±0.5 °C (20 - 40 °C) ±1 °C (other temp. range)

Dedicated cell block (Option): 6-position cell block, 8-position cell block 1mm 8-position micro cell block 8-position micro cell block

Automated absolute reflection measurement ARMV-919/ARMN-920/ARMN-921i

Since the angles of the sample stage and the detector can be changed independently, the absolute reflectance and transmittance of a sample can be measured with varied angles of incidence.

<Specification>

Inside dia. of Integrating Sphere: 60mmp Incident angle: 5-60° (Absolute reflectance mode)

0-60° (Transmittance mode) Angle setting: 0.1° step Sample size (Absolute reflectance mode): Min: 20(H)×20(W)×1(t)mm

Max: 70(H)×70(W)×10(t)mm Polarizer: Standard





ARMV-919



for V-750/760/770/780

ILV-924

-			
	V-730	V-750	V-760
Optical system	Rowland off-circle arrangement	Czerny-Turner mount	Czerny-Turner mount
	Single monochromator	Single monochromator	Double monochromator
Light source	Halogen lamp, Deuterium lamp	Halogen lamp, Deuterium lamp	Halogen lamp, Deuterium lamp
Wavelength range	190 to 1100 nm + (0.2 nm (at 666 1 nm)	190 to 900 nm +/ 0.2 nm (zt 666 1 nm)	187 to 900 nm +/ 0.1 nm (at 666.1 nm)
wavelength accuracy	17-0.2 mm (at 050.1 mm)	(7-0.2 mm (at 050.1 mm)	(7-0. F IIII (at 650. F IIII)
Wavelength repeatability Spectral bandwidth (SBW)	+/-0.1 nm 1 nm	+/-0.05 nm 0.1, 0.2, 0.5, 1, 2, 5, 10 nm	+/-0.05 nm 0.1, 0.2, 0.5, 1, 5, 2, 10 nm
		L2, L5, L10 nm (low stray light mode) M1, M2 nm (micro cell mode)	L2, L5, L10 nm (low stray light mode) M1_M2 nm (micro cell mode)
Stray light	1 % (198 nm KCL 12 g/L aqueous solution)	1 % (198 nm KCL 12 g/L aqueous solution)	1 % (198 nm KCL 12 g/L aqueous solution)
	0.02 % (220 nm Nal 10 g/L aqueous solution) 0.02 % (340 nm NaNO2 50 g/L aqueous solution)	0.005 % (220 nm Nal 10 g/L aqueous solution) 0.005 % (340 nm NaNO2 50 g/L aqueous solution)	0.00008 % (220 nm Nal 10 g/L aqueous solution) 0.00008 % (340 nm NaNO2 50 g/L aqueous solution)
	0.02 % (370 nm NaNO2 50 g/L aqueous solution)	0.005 % (370 nm NaNO2 50 g/L aqueous solution)	0.00008 % (370 nm NaNO2 50 g/L aqueous solution)
	SBW: 1 nm	SBW: L2 nm	SBW: L2 nm
Photometric range	-3~3 Abs	-4~4 Abs	-4~6 Abs
Photometric accuracy	+/-0.0015 Abs (0 to 0.5 Abs)	+/-0.0015 Abs (0 to 0.5 Abs)	+/-0.0015 Abs (0 to 0.5 Abs)
	+/-0.3 %T	+/-0.3 %T	+/-0.3 %T
	Tested with NIST SRM 930D	Tested with NIST SRM 930D	Tested with NIST SRM 930D
Photometric repeatability	+/-0.0005 Abs (0 to 0.5 Abs)	+/-0.0005 Abs (0 to 0.5 Abs)	+/-0.0005 Abs (0 to 0.5 Abs)
	+/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D	+/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D	+/-0.0005 Abs (0.5 to 1 Abs) Tested with NIST SRM 930D
Scanning speed	10-8000 nm/min	10~4000 nm/min (8000 nm/min in preview mode)	10~4000 nm/min (8000 nm/min in preview mode)
Slew speed RMS noise	24,000 nm/min 0.00004 Abs	12,000 nm/min 0.00003 Abs	12,000 nm/min 0.00003 Abs
	(0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 1 nm)	(0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)	(0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW: 2 nm)
Baseline stability	0.0004 Abs/hour	0.0003 Abs/hour (Value obtained more than two hours after turning on the source, when the room	0.0003 Abs/hour 0/alue obtained more than two hours after turning on the source, when the room
	temperature is stabilized, wavelength: 250 nm, response: slow)	temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2 nm)	temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2 nm)
Baseline flatness	+/-0.0005 Abs (200 - 1000 nm)	+/-0.0002 Abs (200 -850 nm)	+/-0.0003 Abs (200 - 800 nm)
Detector	Silicon photodiode	Photomultiplier tube	Photomultiplier tube
Standard facilities	IQ accessories, Start button, Analog output	IQ accessories, Start button, Analog output	IQ accessories, Start button, Analog output
Dimensions and weight	Abs/% I meter, Quantitative analysis, Spectrum measurement, Time course measu 486(W)x441(D)x216(H) mm. 15 kg	460(W)x602(D)x268(H) mm. 27 kg	460(W)x602(D)x268(H) mm. 29 kg
Power requirements	120 VA	150 VA	150 VA
Installation requirements	Room temperature: 15-30 Celsius, humidity: below 85%	Room temperature: 15-30 Celsius, humidity: below 85%	Room temperature: 15-30 Celsius, humidity: below 85%
Out of the state of	V-770	V-780	
Optical system	Single monochromator	Single monochromator	
	Fully symmetrical double beam type	Fully symmetrical double beam type	
Light source Wavelength range	Halogen lamp, Deuterium lamp 190 to 2700 nm (3200 nm, option)	Halogen lamp, Deuterium lamp 190 to 1600 nm	
Wavelength accuracy	+/-0.3 nm (at 656.1 nm)	+/-0.3 nm (at 656.1 nm)	
Wavelength repeatability	+/-1.5 nm (at 1312.2 nm) +/-0.05 nm (UV-Vis) +/-0.2 nm (NIR)	+/-1.0 nm (at 1312.2 nm) +/-0.05 nm (UV-Vis) +/-0.1 nm (NIR)	
Spectral bandwidth (SBW)	UV-Vis:	UV-Vis:	
	0.1, 0.2, 0.5, 1, 2, 5, 10 nm 1.2, 1.5, 1.10 nm (low stray light mode)	0.1, 0.2, 0.5, 1, 2, 5, 10 nm 1.2, 1.5, 1.10 nm (low stray light mode)	
	M1, M2 nm (micro cell mode)	M1, M2 nm (micro cell mode)	
	NIR:	NIR:	
	04 08 1 2 4 8 20 40	0.2 0.4 0.5 1 2 4 10 20	
	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 nm (low stray light mode)	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, L4, L10, L20 nm (low stray light mode)	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 nm (low stray light mode) M4, M8 nm (micro cell mode) 1% (108 nm KC1 12 or (l. avuenus solution)	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 nm (low stray light mode) M2, M4 nm (micro cell mode) 1.5, (198 nm KCl, 12 or (la expense solution)	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 Ek, L2D, L4D mm (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm KCL 12 gL aqueous solution) 0.005 % (220 nm Nal 10 gL aqueous solution)	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 110, 120 mm (low stray light mode) M2, M4 nm (micro cell mode) 1 % (198 nm KCL 12 gL aqueous solution) 0.05% % (220 mm Nal 10 gL aqueous solution)	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC.11 2g/L aqueous solution) 0.005 % (201 cm Nat 10 g/L aqueous solution) 0.005 % (201 cm NatO2 50 g/L aqueous solution)	0.2; 0.4; 0.5, 1; 2, 4; 10; 20; 14, 110; 120 m (low stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm KCl. 12 g/L aqueous solution) 0.005 % (220 nm Nati 10 g/L aqueous solution) 0.005 % (220 nm Nati 02 g/L aqueous solution)	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 mm KC.11 2 g/L aqueous solution) 0.005 % (240 nm Na10 2 g/L aqueous solution) 0.005 % (370 nm Na102 50 g/L aqueous solution) 0.005 % (370 nm Na102 50 g/L aqueous solution) 5W: L2 nm	0.2; 0.4; 0.5; 1; 2, 4; 10; 20; 14, 110; 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm KC.112 g/L aqueous solution) 0.005 % (240 nm Na102 50 g/L aqueous solution) 0.005 % (370 nm NaN025 50 g/L aqueous solution) 0.005 % (370 nm NaN025 50 g/L aqueous solution) SBW: L2nm	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 Lk, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC, 12 g/L aqueous solution) 0.005 % (220 nm Nal 10 g/L aqueous solution) 0.005 % (370 nm NaNO2 50 g/L aqueous solution) 0.005 % (370 nm NaNO2 50 g/L aqueous solution) SBW-L2 nm	0.2; 0.4; 0.5; 1; 2, 4; 10; 20; 14; 1(10; 120 m (dow stray light mode) M2; M4 nm (micro cell mode) 19; (198 nm KC.11; 20; Laqueous solution) 0.005 %; (220 nm Na10 g/L aqueous solution) 0.005 %; (340 nm NaNO2 50 g/L aqueous solution) 0.005 %; (370 nm NaNO2 50 g/L aqueous solution) 0.005 %; (370 nm NaNO2 50 g/L aqueous solution) SBW-L2mm	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm KCl. 12 g/L aqueous solution) 0.005 % (201 nm NaNC2 50 g/L aqueous solution) 0.005 % (370 nm NaNC2 50 g/L aqueous solution) 59W : L2 nm 0.04 % (1420 nm: NL220) 0.1 % (1980 nm: CH2872 50 mm cell)	0.2; 0.4; 0.5, 1; 2, 4; 10; 20; 1.4; 1.10; 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm KCl. 12 g/L aqueous solution) 0.005 %; (300 nm NaNC2 50 g/L aqueous solution) 0.005 %; (370 nm NaNC2 50 g/L aqueous solution) SBW: L2nm 0.045 %; (420 nm; NEO) 58W: L4nm	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm KC.1 2 g/L aqueous solution) 0.005 % (300 nm NaIO2 50 g/L aqueous solution) 0.005 % (370 nm NaIO2 50 g/L aqueous solution) SBW: L2 nm 0.04 % (1420 nm: H2O) 0.1 % (1690 nm: CH2Bi2 80 nm cell) SBW: L5 nm	0.2; 0.4; 0.5; 1; 2, 4; 10; 20; 1.4; 1.10; 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm KC.11 2 g/L aqueous solution) 0.005 % (320 nm Na102 50 g/L aqueous solution) 0.005 % (370 nm NaN02 50 g/L aqueous solution)	
Stray light	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 mm (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC1. 12 g/L aqueous solution) 0.005 % (200 nm Na102 50 g/L aqueous solution) 0.005 % (370 nm NaN02 50 g/L aqueous solution) 0.005 % (400 nm NaN02 50 g/L aqueous solution) SBW: L8 nm I/V-Vis -4 Abs	0.2; 0.4; 0.5; 1; 2, 4; 10; 20; 1.4; 1:0; 1.20 m (dow stray light mode) M2; M4 nm (micro cell mode) 1% (198 nm KC1 1; 2g.1; aquecus solution) 0.005 % (200 nm Na102 50 g/L aquecus solution) 0.005 % (370 nm Na1025 50 g/L aquecus solution) 0.005 % (370 nm Na105 50 g/L aquecus solution) 0.00	
Stray light Photometric range	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm Kcl. 12 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 0.005 % (370 nm NaNC2 50 g/L aqueous solution) 0.01 % (1980 nm: NANC2 50 g/L aqueous solution) 0.04 % (1920 nm: CH2872 50 nm cell) SBW: L2 nm UV-Vis: 4-4 Abs NR: 4-3 Abs	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (low stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kcl.12 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 0.005 % (370 nm NaNC2 50 g/L aqueous solution) 58W- L2nm 0.04 % (1420 nm: H2C) S8W: L4nm UV-Vis: -4-4 Abs NR:3-3 Abs	
Stray light Photometric range Photometric accuracy	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm KC1 12 g/L aqueous solution) 0.005 % (307 nm Na102 50 g/L aqueous solution) 0.005 % (307 nm Na10 50 g/L aqueous solution	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1 % (198 nm KC1 12 g/L aqueous solution) 0.005 % (320 nm Na10 2 50 g/L aqueous solution) 0.005 % (370 nm NaN02 50 g/L aqueous solution) 0.005 % (370 nm NaN02 50 g/L aqueous solution) 0.005 % (470 nm NaN02 50 g/L aqueous solution)	
Stray light Photometric range Photometric accuracy	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stary light mode) M4, M8 nm (micro cell mode) 15 (198 nm Ail 0.9 L squeous solution) 0.005 % (270 nm Nail 0.9 L squeous solution) 0.005 % (370 nm Nail 0.9 L squeous solution) 0.005 % (370 nm Nail 0.9 L squeous solution) 0.005 % (370 nm Nail 0.9 L squeous solution) SBW: L2 nm 0.44 % (1420 nm: L420) 0.1 % (1680 nm: CH282 50 nm cell) SBW: L8 nm V/V/W: -4-4 Abs NRF: -3-3 Abs +/-0.0025 Abs (0.5 to 1 Abs) +/-0.0025 Abs (0.5 to 1 Abs) +/-0.35 %	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (low stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kcl. 12 g/L aqueous solution) 0.005 % (220 nm Nai 10 g/L aqueous solution) 0.005 % (270 nm Nai 02 50 g/L aqueous solution) 0.005 % (170 nm Nai 02 50 g/L aqueous solution) SBW: L2nm 0.04 % (1420 nm: H2O) SBW: L4 nm 10/V-Vis: -4- Abs NRE: -3-3 Abs +/-0.0025 Abs (0 to 0.5 Abs) +/-0.0025 Abs (0 to 1 Abs) +/-0.03 % T	
Stray light Photometric range Photometric accuracy	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1 % (198 nm (kol. 1: 2g/L aqueous solution) 0.005 % (201 nm NaIO 2 50 g/L aqueous solution) 0.005 % (301 nm NaIO 2 50 g/L aqueous solution) 0.005 % % mit materia with NSII SRM 9300 0.000 materia solution	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kcl.12 g/L aqueous solution) 0.005 %, (300 nm NaNC2 50 g/L aqueous solution) 0.005 %, (300 nm NaNC2 50 g/L aqueous solution) 58W- L2nm 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 0.05 %, (370 nm NaNC2 50 g/L aqueous solution) 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 0.05 %, (370 nm NaNC2 50 g/L aqueous solution) 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 0.05 %, (370 nm NaNC2 50 g/L aqueous solution) 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 0.05 %, (370 nm NaNC2 50 g/L aqueous solution) 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 0.05 %, (370 nm	
Stray light Photometric range Photometric accuracy Photometric repeatability	0.4, 0.8, 1, 2, 4, 8, 20, 40 Lk, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC1 12 g/L aqueous solution) 0.005 % (200 nm NaNC 25 0g/L aqueous solution) 0.005 % (301 nm NaNC 25 0g/L aqueous solution) 0.005 % (301 nm NaNC 25 0g/L aqueous solution) 0.005 % (310 nm NaNC 25 0g/L aqueous solution) 0.015 // 140 nm: CH202 50 nm cell) 58W : L5 nm 10/V //uz : -4- Abz 10/V //uz : -	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm KC1 12 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 0.005 % (301 nm NaNC2 50 g/L aqueous solution) 1.005 % (301 nm NaNC2 50 g/L aqueous solution) 1.005 % (301 nm NaNC2 50 g/L aqueous solution) 1.0005 Abs (0 10 0.5 Abs) +/0.0005 Abs (0 10 0.5 Abs) +/0.0005 Abs (0 10 0.5 Abs) +/0.0005 Abs (0 10 0.5 Abs)	
Stray light Photometric range Photometric accuracy Photometric repeatability	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stary light mode) M4, M8 mn (micro cell mode) 15, (198, mn (kol, 12 g)L aqueous solution) 0.005 %; (220 mn kel 10 g/L aqueous solution) 0.005 %; (270 mn kel 0.20 g/L aqueous solution) 0.005 %; (370 mn kel 0.20 g/L aqueous solution) 0.005 %; (370 mn kel 0.20 g/L aqueous solution) SBW: L2 nm 0.04 %; (1420 nm: H2O) 0.1 %; (1490 nm: CH2B/2 50 mm cell) SBW: L8 nm V/V Mis: -4 Abs NRF: -3-3 Abs +/0.0025 Abs (0 to 0.5 Abs) +/0.0025 Abs (0 to 0.5 Abs) +/0.0005 Abs (0 to 1.5 Ref)	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (low stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kcl. 12 g/L aqueous solution) 0.005 % (220 nm Nat 10 g/L aqueous solution) 0.005 % (270 nm Nat 02 S0 g/L aqueous solution) 0.005 % (170 nm Nat 02 S0 g/L aqueous solution) SBW: L2nm 0.04 % (1420 nm: H2O) SBW: L4 nm 0.04 % (1420 nm: H2O) SBW: L4 nm 0.04 % (1420 nm: H2O) SBW: L4 nm 0.04 % (1420 nm: H2O) SBW: L4 nm 1.02 % Abs (10 0.5 Abs) +/0.0025 Abs (10 0.5 Abs) +/0.0056 Abs (0.5 to 1 Abs)	
Stray light Photometric range Photometric accuracy Photometric repeatability Scanning speed Silew speed	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 mm (micro cell mode) 1 % (198 mm (low stray light mode) 0.005 %, (270 mm Nat 10 g/L aqueous solution) 0.005 %, (370 nm NatO2 20 g/L aqueous solution) 0.005 %, (370 nm/min in preview mode) 0.000 m/min in preview mode) 0.000 m/min (370 nm NatO2 30 m/min in preview mode) 0.000 m/min (370 nm NatO2 30 m/min (370 nm NatO2 30 m/min) 0.000 m/min	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (low stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kol.12 g/L aqueous solution) 0.005 %, (300 nm NaNC2 50 g/L aqueous solution) 0.04 %, (370 nm NaNC2 50 g/L aqueous solution) 1.04 %, (370 nm NaNC2	
Stray light Photometric range Photometric accuracy Photometric repeatability Scanning speed Siew speed	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC1 12 g/L aqueous solution) 0.005 % (201 nm NaNC 25 0g/L aqueous solution) 0.005 % (301 nm NaNC 25 0g/L aqueous solution) 0.005 % (301 nm NaNC 25 0g/L aqueous solution) 0.015 % (1420 nm: H2O) 0.1 % (1690 nm: CH2Br2 20 nm cell) SBW: L5 nm UV-Vite: -4-4 Abs NRE: -3-3 Abs +/0.0015 Abs (0 to 0.5 Abs) +/0.0015 Abs (0 to 0.5 Abs) +/0.0055 Abs (0 to 0.5 Abs) +/0.0055 Abs (0 to 0.5 Abs) +/0.0056 Abs (0 to 0.5 Abs) +/0.	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.01, 1.20 m (dow stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm KCl 12 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 0.005 % (370 nm NaNC2 50 g/L aqueous solution) 10.005 % (370 nm NaNC 50 g/L aqueous solution) 10.000 m Mance soluti	
Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed Silew speed RMS noise	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 mm (micro cell mode) 15, (198, mm (kol. 12 g/L aqueous solution) 0.005 %; (220 mm kel 10 g/L aqueous solution) 0.005 %; (240 m kel 20 g/L aqueous solution) 0.005 %; (100 m kel 20 g/L aqueous solution) 0.005 %; (140 mm: H2O) 0.1 %; (180 mm: CH2B/2 20 gm cell) SBW: L2 nm 0.4 %; (1420 mm: CH2B/2 20 gm cell) SBW: L8 nm U/V, H2: -4 -4 Abs (V/V): -3 -3 Abs +/0.0025 Abs (01 to 15 Abs) +/-0.0025 Abs (01 to 15 Abs) +/-0.0056 Abs (01 to 15 Abs) +/-0.0056 Abs (05 to 15 Abs) +/-0.0056 A	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 1.4, 1.10, 1.20 m (low stray light mode) M2, M4 nm (micro cell mode) 1.% (198 nm Kol.1 2 g/L aqueous solution) 0.005 % (220 nm Nail 0 g/L aqueous solution) 0.005 % (270 nm Nail 0 g/L aqueous solution) 0.005 % (170 nm Nail 0 g/L aqueous solution) SBW: L2nm 0.04 % (1420 nm: H2O) SBW: L3nm 1.04 % (1420 nm: H2O) 1.04 % (1420 nm; H2O) 1.04 % (1	
Stray light Photometric range Photometric accuracy Photometric repeatability Scanning speed Stew speed RMS noise Baseline stability	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm (micro cell mode) 1% (198 nm (Micro Cell adde) 0.005 % (201 nm Nat 10 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 22 50 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 0.005 % (301 nm Nat 250 g/L aqueous solution) 10 + (0.005 Abs (0 to 0.5 Abs) + + 0.0015 Abs (0 to 0.5 Abs) + + 0.0015 Abs (0 to 0.5 Abs) + + 0.0003 Abs (0 to 10.5 Abs) 10 + 4000 nm/min (8000 nm/min in prevew mode) 10 + V/Vis: 14,000 nm/min in prevew mode) 10 + V/Vis: 44,000 nm/min in prevew mode) 10 + V/Vis: 44,000 nm/min in prevew mode) 10 + V/Vis: 10 + 100 nm/min (0.000 nm/min in prevew mode) 10 + 0.003 Abs (0 nm measurement time: 60 sec, SBW : 2 nm) 0.003 Abs (0 - 0.003 Abs 10 + 100	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 14, 110, 120 m (low stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm Kol L1 g/L aqueous solution) 0.005 % (200 nm NaNC2 50 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 1/0.006 Abs (0 to 0.5 Abs) +/0.006 Abs (0 to 0.5 Abs) +/0.0005 Abs (0 to 0.5 Abs) +/0.0005 Abs (0 to 0.5 Abs) +/0.0005 Abs (0 to 0.5 Abs) +/0.0000 nm/min NRE 24000 nm/min NRE 24000 nm/min 0.0003 Abs (0 nm, measurement time: 60 sec, SBW:2 nm) 0.0003 Abs (0 nm Ams	
Stray light Photometric range Photometric accuracy Photometric repestability Scanning speed Slew speed RMS noise Baseline stability	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stay light mode) M4, M8 nm (micro cell mode) 1% (198 nm KC1 12 g/L aqueous solution) 0.005 % (201 nm Na10 25 0 g/L aqueous solution) 0.005 % (301 nm Na102 25 0 g/L aqueous solution) 0.005 % (301 nm Na102 25 0 g/L aqueous solution) 0.005 % (301 nm Na102 25 0 g/L aqueous solution) 0.01 % (1980 nm: N225 0 g/L aqueous solution) 0.05 % (1420 nm: N225 0 g/L aqueous solution) 0.05 % (371 nm Na102 25 0 g/L aqueous solution) 0.05 % (371 nm Na102 25 0 g/L aqueous solution) 0.05 % (1420 nm: N250 20 g/L aqueous solution) 0.05 % (1420 nm: CH2812 25 nm cell) SBW: L8 nm UV-Vie: -4-4 Abs NR: -3-3 Abs +/0.0015 Abs (15 to 1 Abs) +/0.0025 Abs (0 to 0.5 Abs) +/0.005 Abs (0 to 0.5 Abs) Tested with NIST SRM 390D 10-4000 nm/min (800 nm/min in preview mode) UV-Vie: 12.000 nm/min NR: 0, 400 nm/min 0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW -2 nm) (0 003 Abs-hor (Yalue obtained more than two hours after turning on the source, when the room temperature is stabilized, wavelength: 500 nm. sonones: solut and SRW -2 nm)	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 14, 110, 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm KCl 12 g/L aqueous solution) 0.005 % (200 nm Na102 50 g/L aqueous solution) 0.005 % (370 nm NaN02 50 g/L aqueous solution) 10.005 % % (370 nm NaN02 50 g/L aqueous solution) 10.005 % % (370 nm NaN02 50 g/L aqueous solution) 10.005 % % (370 nm NaN0 50 g/L aqueous solution) 10.005 % % % % % % % % % % % % % % % % % %	
Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed RMS noise Baseline stability	0.4, 0.8, 1, 2, 4, 8, 20, 40 (L8, L20, L40 mo (low stary light mode) M4, M8 mm (micro cell mode) 15, (198, mm (kor.1, 2g)L aqueous solution) 0.005 %, (220 mm Nat 10 g/L aqueous solution) 0.005 %, (240 mm NatO2 20 g/L aqueous solution) 0.005 %, (400 mm NatO2 20 g/L aqueous solution) SBW: L2 nm 0.04 %, (1420 mm: H2O) 0.15 %, (1630 mm: CH2B/2 20 mm cell) SBW: L8 nm UV-Vis: -4 -4 Abs NRC: -3 -2 Abs 10-40024 Abs (0, 56 t 1 Abs) +/-0.0025 Abs (0, 56 t 1 Abs) +/-0.0035 Abs (0 to 0.5 Abs) +/-0.0005 Abs (0 to 0.5 Abs) +/-0.0035 Abs (0 to 0.5 Abs) +/-0.0035 Abs (0 to 1 Abs) +/-0.0035 Abs (0 to 1 Abs) +/-0.0035 Abs (0 to 0.5 Abs) +/-0.0055 Abs (0 t	0.2, 0, 4, 0, 5, 1, 2, 4, 10, 20, 14, 110, 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 15, (198 nm Kell C1 2 g/L aqueous solution) 0.005 %, (220 nm Kell 0 g/L aqueous solution) 0.005 %, (201 nm Kell C2 6 g/L aqueous solution) 0.005 %, (400 nm: KellC2 6 g/L aqueous solution) 0.04 %, (1420 nm: KellC2 SBW: L2nm 0.04 %, (1420 nm: H2O) SBW: L2nm UV-Vis: -4 Abs Mic: -3-5 A(0 to 0.5 Abs) +/0.0025 Abs (0.5 to 1 Abs) +/0.0056 Abs (0 to 0.5 Abs) +/0.0056 Abs (0 to 0.5 Abs) +/0.0056 Abs (0 to 0.5 Abs) +/0.0056 Abs (0 to 10 Abs) 10-4000mm/min (8000mm/min in preview mode) UV-Vis: ±200 mm/min 0.0003 Abs/hour 0.0003 Abs/hour 0.0003 Abs/hour 0.0003 Abs/hour 0.0003 Abs/hour	
Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed Siew speed RMS noise Baseline stability Baseline flatness	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 nm (micro cell mode) 1% (198 nm KCl. 12 g/L aqueous solution) 0.005 % (201 nm NaNC 25 0 g/L aqueous solution) 0.005 % (301 nm NaNC 25 0 g/L aqueous solution) 0.005 % (301 nm NaNC 25 0 g/L aqueous solution) 0.005 % (301 nm NaNC 25 0 g/L aqueous solution) 0.005 % (301 nm NaNC 25 0 g/L aqueous solution) 0.015 % (1420 nm: NaNC 25 0 g/L aqueous solution) 0.015 % (1420 nm: NaNC 25 0 g/L aqueous solution) 0.015 % (1420 nm: NaNC 25 0 g/L aqueous solution) 0.015 % (1420 nm: CH28/2 50 nm cell) SBW: L2 nm UV-Vis: 4-4 Abs N/R: -4-3 Abs 1/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 10 5 Abs) +/-0.005 Abs (0 to 10 5 Abs) +/-0.0005 Abs (0 to 10 5 Abs) +/-0.0005 Abs (0 to 10 5 Abs) 10-4000 nm/min (8000 nm/min in preview mode) UV-Vis: 14,000 nm/min NR: -48,000 nm/min 0.0003 Abs (0 Abs) (0 Abs, wavelength: 500 nm, measurement time: 60 sec, SBW :2 nm) 0.0003 Abs (200 - 2500 nm)	0.2, 0, 4, 0, 5, 1, 2, 4, 10, 20, 14, 110, 120 m (low stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm Kol L1 g/L aqueous solution) 0.005 %, (20 nm NaINC 250 g/L aqueous solution) 0.005 %, (30 nm NaINC 250 g/L aqueous solution) 0.04 %, (370 nm NaINC 250 g/L aqueous solution) 10.4005 Abs (0 10 0.5 Abs) +/0.0025 Abs (0 10 0.5 Abs) +/0.0003 Abs (0 10 0.5 Abs) 14. (3000 nm/min SI TSMM 390D) 10-4000 nm/min (8000 nm/min in preview mode) UV-Vis: 1200 nm/min NIR: 24000 nm/min 0.0003 Abs, wavelength: 500 nm, response. slow and SBW: 2mm) (Value dotained more than two hours after turning on the light source, when the room temperature is stabilized.	
Stray light Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed RMS noise Baseline stability Baseline flatness Detector	0.4, 0.8, 1, 2, 4, 8, 20, 40 L8, L20, L40 m (low stray light mode) M4, M8 mn (micro cell mode) 15 (198 mn K-11 2g /L aqueous solution) 0.005 %; (240 mn NaNO2 50 g/L aqueous solution) 0.005 %; (240 mn NaNO2 50 g/L aqueous solution) 0.005 %; (240 mn NaNO2 50 g/L aqueous solution) SBW: L2 nm 0.04 % (1420 mr: L42D) 0.1 % (1680 mr: CH2B/2 50 mm cell) SBW: L3 nm V/-Vis: 4-4 Abs NRF: 3-3 Abs +/-0.0055 Abs (0 to 0.5 Abs) +/-0.0055 Abs (0 to 0 Abs) +/-0.0055 Abs	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 14, 110, 120 million (loss stray light mode) M2, M4 nm (micro cell mode) 15, (198 nm K-11, 2g)L aqueous solution) 0.005 %; (240 nm NaNC2 50 g/L aqueous solution) 0.005 %; (240 nm NaNC2 50 g/L aqueous solution) SBW: L2nm 0.04 %; (1420 nm: H2C) SBW: L4 nm UV-Vis: -4 - A bs NRE: -3-3 Abs +/0.0025 Abs (0 to 0.5 Abs) +/0.0025 Abs (0 to 0.5 Abs) +/0.0025 Abs (0 to 0.5 Abs) +/0.0026	
Stray light Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed RMS noise Baseline stability Baseline flatness Detector Standard facilities Standard facilities	0.4, 0.8, 1, 2, 4, 8, 20, 40 (L8, L20, L40 m (low stray light mode) M4, M8 mm (micro cell mode) 15, (198, mm (kor.1, 2g.I. aqueous solution) 0.005 % (J20 mm Nat 10 g/L aqueous solution) 0.005 % (J20 mm NatO2 20 g/L aqueous solution) 0.005 % (J40 mm NatO2 20 g/L aqueous solution) 0.04 % (1420 mm: H2O) 0.15 % (1420 mm: CH2B/2 20 mm cell) SBW: L2 im UV-Vis: 4-4 Abs NRC: 3-3 Abs 10, 40 % (0, 50 t 1 Abs) +/-0.0025 Abs (0, 50 t 1 Abs) +/-0.0025 Abs (0 to 0.5 Abs) +/-0.0035 Abs (0 to 0.5 Abs) +/-0.0035 Abs (0 to 10 Abs) +/-0.0035 Abs (0 to 10 Abs) 10-4000 nm/min (8000 nm/min in preview mode) UV-Vis: 12 SBW: L2 im NRC: 4-4 Abs NRC: 4-4 Abs	0.2, 0, 4, 0, 5, 1, 2, 4, 10, 20, 14, 110, 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm Koll, 12 g/L aqueous solution) 0.005 % (300 nm Na10 20 g/L aqueous solution) 0.005 % (300 nm NaN02 50 g/L aqueous solution) 0.005 % (400 nm: NaN02 50 g/L aqueous solution) 0.005 % (1420 nm: NaN02 50 g/L aqueous solution) 10.005 % (1420 nm: NaN02 50 g/L aqueous solution) 10.005 % (1420 nm: NaN02 50 g/L aqueous solution) 10.005 % (1420 nm: NaN0 50 g/L aqueous solution) 10.005 % (0 10 0 5 Abs) +/0.005 Abs (0 10 0 5 Abs) 10.4000mm/min (8000mm/min in preview mode) UV-Vis: 1200 nm/min Nonce Abs 0 Abs varelength: 500 nm, measurement lime: 60 sec; SBW:2 nm) 0.0003 Abs/hour //Oklue obtained more than two hours after turning on the light source, when the room temperature is stabilized, wavelength: 250 nm, response: slow and SBW: 2m.) +/0.0052 Abs (200 - 1800 nm) Photomultiplier tube, Petitier coded InGaAs photodode I aqueosariose; Slath buton, Analog output	
Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed Stew speed RMS noise Baseline stability Baseline flatness Detector Standard program	0.4, 0.8, 1, 2, 4, 8, 20, 40 (B, 120, 120 m (low stray light mode) M4, M8 mm (micro cell mode) 1% (198 mm (kol. 12 g/L aqueous solution) 0.005 % (201 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 0.005 % (301 mm NaNC 25 0 g/L aqueous solution) 1% (1980 mm: CH28r2 25 mm cell) SBW: L2 mm UV-Vis: 4	0.2, 0, 4, 0, 5, 1, 2, 4, 10, 20, 14, 110, 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 1% (198 nm Kol L1 g/L aqueous solution) 0.005 % (300 nm NaNC2 50 g/L aqueous solution) 10.005 % (1420 nm: H2C) SBW: L2nn UV-Vis: 4-4 Abs N/RE3-3 Abs +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to	
Stray light Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning apeed Siew speed RMS noise Baseline stability Baseline flatness Detector Standard facilities Standard facilities Ditanderd facilities Ditander	0.4, 0.8, 1, 2, 4, 8, 20, 40 (L8, L20, L40 m (low stray light mode) M4, M8 mn (micro cell mode) 15 (198 mn Kcl. 12 g/L aqueous solution) 0.005 %; (220 mn Nati 0 g/L aqueous solution) 0.005 %; (270 mn Nati 0 g/L aqueous solution) SBW: L2 nm 0.04 %; (1420 mn: L42D) 0.1 %; (1680 mn: CH28/2 50 mm cell) SBW: L8 nm U/V Vis: -44 Abs NRE: -3-3 Abs +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 0.5 Abs) +/-0.002 Ab	0.2, 0.4, 0.5, 1, 2, 4, 10, 20, 14, 110, 120 moless tray light mode) M2, M4 nm (micro cell mode) 15, (198 nm Kes) 10 gL septeous solution) 0.005 %; (220 nm Kes) 10 gL septeous solution) 0.005 %; (20 nm Kes) 10 gL septeous solution) 0.005 %; (20 nm Kes) 10 gL septeous solution) 0.005 %; (20 nm Kes) 10 gL septeous solution) 0.005 %; (20 nm Kes) 10 gL septeous solution) SBW: L2nm 0.04 %; (1420 nm: H2O) SBW: L2nm UV-Vis: -4 A bb NIR:3-3 Abs +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 0.5 Abs) <tr< td=""><td></td></tr<>	
Stray light Stray light Photometric range Photometric accuracy Photometric accuracy Photometric repeatability Scanning speed RMS noise Baseline stability Baseline flatness Detector Standard facilities Standard program Standard program	0.4, 0.8, 1, 2, 4, 8, 20, 40 (L8, L20, L40 m (low stray light mode) M4, M8 mm (micro cell mode) 15, (198, mm (low stray light mode) M5, (198, mm (low stray light mode) M6, M8 mm (micro cell mode) 10, 005 %, (200 mm Nat 10 g/L aqueous solution) 005 %, (200 mm Nat 20 2 g/L aqueous solution) 005 %, (300 mm Nat 20 2 g/L aqueous solution) 005 %, (300 mm Nat 20 2 g/L aqueous solution) 005 %, (400 mm: H2O) 0, 15 %, (1980 mm: CH2B/2 50 mm cell) SBW: L2 im UV-Vis: 4-4 Abs NRC:	0.2, 0, 4, 0, 5, 1, 2, 4, 10, 20, 14, 110, 120 m (dow stray light mode) M2, M4 nm (micro cell mode) 15, (198 nm Kell C1 2 g/L aqueous solution) 0.005 % (300 nm Na1 0 g/L aqueous solution) 0.005 % (300 nm Na102 50 g/L aqueous solution) 0.005 % (300 nm Na102 50 g/L aqueous solution) 0.005 % (400 nm: Na102 50 g/L aqueous solution) 0.04 % (1420 nm: HzO) SBW: L2nn UV-Vis: -4 Abs Nife: -3-3 Abs Nife: -3-3 Abs 10-4005 Abs (0, 50 1 Abs) +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 0.5 Abs) +/-0.005 Abs (0 to 10.5 Abs) +/-0.005 Abs (0 to 0.5	



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