

# UV- TS 2080Plus

Spectrophotometer Double Beam



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The UV-TS 2080Plus spectrophotometer double beam applies a new optical bench, with 5-speed adjustable bandwidth ARM chip control and data processing, 8-inch color touch-screen which displays menu and spectral curve and can analyze spectrum test data. It's quite easy for user and computer interaction. The instrument can perform following operations, including photometry, automatic scanning spectral measurement, quantitative analysis, dynamic analysis, and multi-wavelength measurement.

## ►► Features:

- New optical platform, enabling the host machine with excellent optical properties, metering performance, low stray light and noise, high metering accuracy and stability.
- Unique system of deuterium and tungsten lamp installation, facilitating the light source to automatically switch to the best position, and allowing users to operate the instrument, replace the light source and maintain the instrument more conveniently, accurately and safely.
- Sophisticated hardware and software design, empowering the instrument with powerful spectral data processing and storage capabilities, and performing following functions, including automatic scanning of measured spectrum, multi-wavelength (1-3  $\lambda$ ) measurement, kinetic measurement, Quantitative analysis, time course measurement, fixed wavelength measurement, validation, Daily maintenance 1-3 curve fitting, 1-4 derivative spectra, spectra printing and storage and data analysis.
- 8-inch color touch-screen, with a good user-machine interface, easy-to-operate.
- Standard functions include IQ Accessories, Start button, Analog output
- USB communication port.

## ►► Standard Accessories

Operation manual	1
Quartz cuvette 1cm	2pcs
Power cable	1
Fuse	2pcs

## ►► Optional Accessories

- UV WIN8 Spectrum data processing software

TS 2080Plus	
Photometry	Double Beam
Monochromator Type	Czerny-Turner
Focal Length	200mm
Grating	1600 lines/mm
Detector	Dual Silicon Photodiodes
Spectrum Bandwidth	0.2nm, 0.5nm, 1nm, 2nm, 4nm, 5nm
Wavelength Setting	8-inch color touch-screen
Wavelength Display	0.1nm
Wavelength Range	190-1100nm
Wavelength Accuracy	±0.1nm (at 656.1 nm)
Wavelength Reproducibility	±0.1nm
Scanning Speed	Fast-Medium-Slow, upto 10000 nm/min
Stray Light	≤0.02%T( at 220nm NaI, 340nm NaNo <sub>2</sub> ), 1% (198 nm KCl)
Photometric Range	Absorbance -3 to 3 Abs Transmittance 0% To 300%
Photometric Accuracy	±0.3%T, ±0.0015 Abs (0-0.5A), ±0.0025 Abs (0.5-1A)
Photometric Reproducibility	≤0.15%T 0.0005Abs (0-0.5A) 0.0002Abs (0.5-1A)
Baseline flatness	≤±0.0001 A(190-1100nm)
Baseline Stability	±0.0003 Abs
Baseline deviation absorbance	±0.0005
Baseline Correction	Automatic
Slew speed	24000 nm/min
Noise	0.000016 A (0 Abs, 500nm)
Drifting	≤0.0005 Abs/h (250nm and 500nm after 2h warm up)
COM Port	USB
Light Source	Hamamatsu D2 lamp, Osram halogen tungsten
lampPower	Ac220V±22V 50Hz±1Hz, 200W
Packaging Size	740mm x 630mm x 450mm, 35kg
System dimension	59cm x 46cm x 25cm
Scan Ordinate Modes	Absorbance, % transmittance, % Reflectance, Kubelka-Munk, log (1/R), log (Abs), Abs*Factor, Intensity
Resolution	0.2nm
Data Intervals	10, 5, 2, 1.0, 0.5, 0.2, 0.1 nm
Display Range	-0.3 to 4.0A
Solutions (EP/BP/TGA)	±0.010A (60 mg/L K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> )
Room Temperature	15-37°C
Humidity	80%

## Regulatory compliances



## Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



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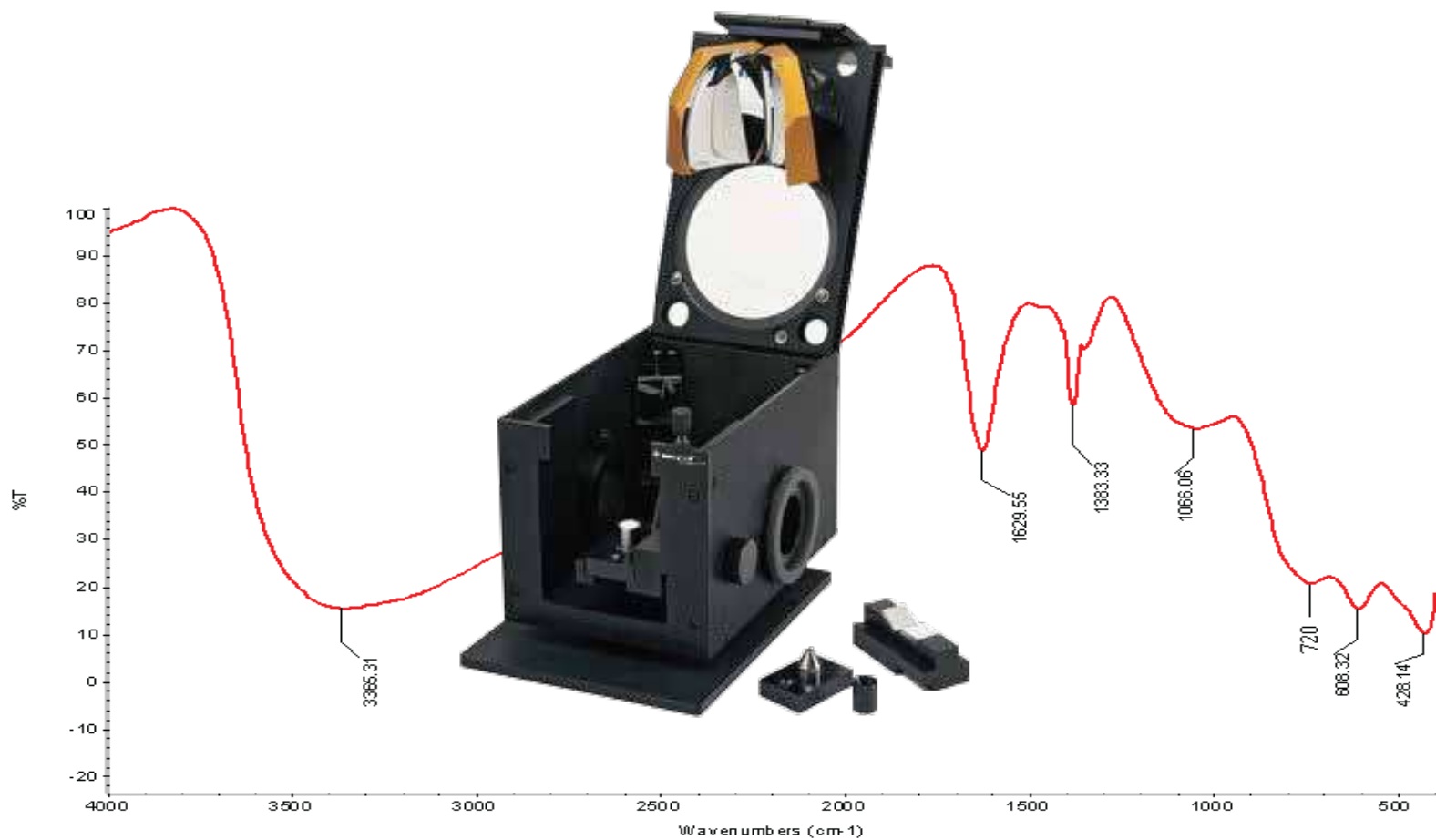
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# Diffuse Reflectance Spectro ( DRS) Accessory



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Analytical Technologies Diffuse Reflectance Accessory is ideal for the characterisation of small quantities of solid materials or powders. Traditional diffuse reflectance accessories require large volumes of powders or solids approximately 0.5in. in diameter. The Praying Mantis Accessory allows a diffuse reflectance measurement on samples as small as 3mm in diameter.

## ►► Description

Optional reaction chambers allow you to access temperatures from liquid nitrogen to 600°C and pressures from high vacuum to 500 psi. Run reaction gases through the system to study catalysts under reaction conditions.

### High-Performance Design

- Uses all-aluminum coated optics rather than traditional integrating spheres in its design
- Integrating spheres limit the wavelength range in the ultraviolet region
- All-specular optical system uses the full wavelength range of the instrument down to 190nm.
- Can be used with our Spectrophotometers, which has an upper wavelength range of 1100nm, providing extended wavelength coverage in the NIR region without having to purchase a more expensive UV-Visible or NIR instrument

### Flexible Sampling Options

- The sample chamber can be purged with an inert gas such as dry nitrogen, which allows the characterisation of samples that may be oxygen- or moisture-sensitive
- Optional reaction chambers are also available for the study of samples at a wide variety of temperatures and pressures
- Temperatures can be controlled from -150° to +600°C, and variable vacuum control is available

### Convenient Analysis

- Can be used with the sample compartment open for added convenience when mounting and removing samples
- Also for mounting the low/high temperature reaction chamber for temperature studies

### Compatible with:

- For use with the Analytical Technologies UV-Visible Spectrophotometers



## Integrating Sphere Components



[www.analyticalgroup.net](http://www.analyticalgroup.net)

ATL's 3819C (4 port spheres) and 3819D (3 port) Series Integrating Spheres are offered in sizes ranging from 2" to 6" in diameter with three different types of diffuse reflectance materials. They are designed to provide greater configuration flexibility, including a robust port frame design, compatible with many attachments and accessories. ATL also carries an extensive list of 3819M series accessories compatible with the 3819C and 3819D spheres, including port plugs, port reducers, port frame reducers, fiber adapters, ATL photo-diode detector adapters, sample holders, and base plates.

- New! Gold spheres ideal for mid-IR wavelength applications
- Total collection of light and spatial integration - useful for divergent and non-symmetrical beams
- Measurements insensitive to exact detector positioning
- Signal attenuation, advantageous in measurement of high-power beams
- High reflectance coating avoids direct damage from the first strike of the beam
- Thermally stable
- High UV-VIS-NIR reflectance





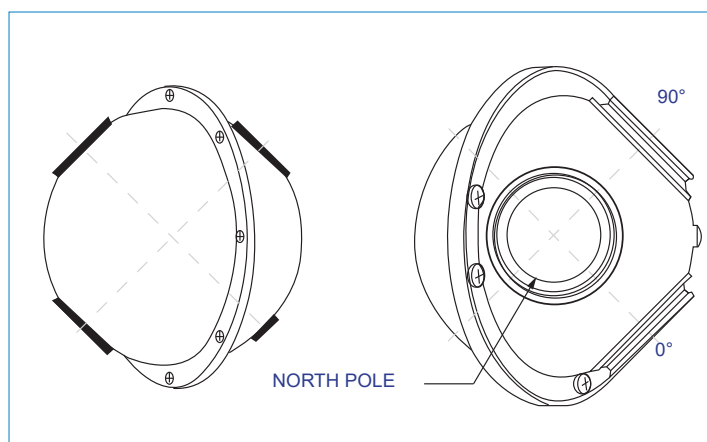
## ►► Sphere Materials

ATL provides three different types of inner-sphere materials to meet various requirements of users: Spectralon™, Spectrafect™, and gold. The Spectrafect™ coating has an effective range from 300 nm to 2400 nm, with reflectivity of >97% at 600 nm. It is a cost effective and adequate for most radiation measurement applications. The unmatched environmental stability and highperformance of the Spectralon™ based spheres are derived from their rugged monolithic thermoplastic material and are superior to coated integrating spheres. In addition, their high damage threshold surface can be cleaned with distilled water. Hydrophobic, chemically inert and thermally stable to 350°C, Spectralon™ Spheres can be used in more demanding environments, including underwater and high or low temperature processes. At the same time, reflectance exceeding 95% from 250–2500 nm, 98% from 310–2100 nm, and 99% from 400–1500 nm make them ideal for even the most demanding measurements from the ultraviolet to the near infrared.

The gold coated spheres are optimized to provide high level of diffuse reflectance from the longer 800 nm to 20  $\mu\text{m}$  (>90% at 800 nm, > 94% at 1550 nm) wavelength range. Its damage threshold is 4 times greater than Spectralon.

## ►► Flat Black Coating

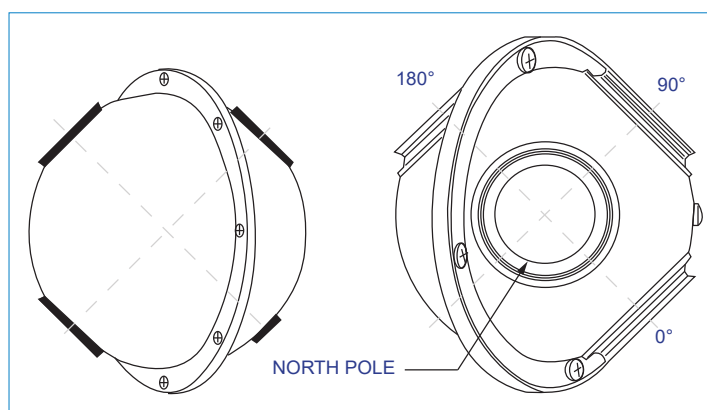
Accessory products are available not only in either Spectralon™, Spectrafect™, or gold, but also in Flat Black type coating in some cases. Flat Black type highly absorbs light and is used to imitate an open port, which does not have any reflection, but to reduce introduction of ambient light into the sphere.



3819D 3-Port sphere port locations. Note that a 2" sphere shell is cubic.

## ►► Accessories

Various type os sphere accessories with different types of reflectance materials. Port expanders and reduces change the clear aperture size of a port. A port frame reducer reduces the clear aperture as well, however, an additional accessory can be mounted on the port frame. Port plugs are used to block an unused port. Also available are the detector adapters to mount ATL's 818 and 918D series photodiode detectors, fiber adapters, and base plates.



3819C 4-Port sphere port locations. Note that a 2" sphere shell is cubic.

## ►► Sphere Port Sizes

### 3-Port Spheres

Model (3 Port Spheres)	0 Deg Port	90 Deg Port	North Pole Port
3819D-GL-3	1.0 in.	1.0 in.	1.0 in.
3819D-GL-4	1.5 in.	1.0 in.	1.0 in.
3819D-GL-6	2.5 in.	1.0 in.	1.0 in.
3819D-SF-4	1.5 in. (w/ 1 in. port frame reducer)	1.0 in.	1.0 in.
3819D-SF-6	2.5 in. (w/ 1 in. port frame reducer)	1.0 in.	1.0 in.
3819D-SL-2	1.0 in.	0.5 in.	0.5 in.
3819D-SL-3.3	1.5 in. (w/ 1 in. port frame reducer)	1.0 in.	1.0 in.
3819D-SL-5.3	2.5 in. (w/ 1 in. port frame reducer)	1.0 in.	1.0 in.

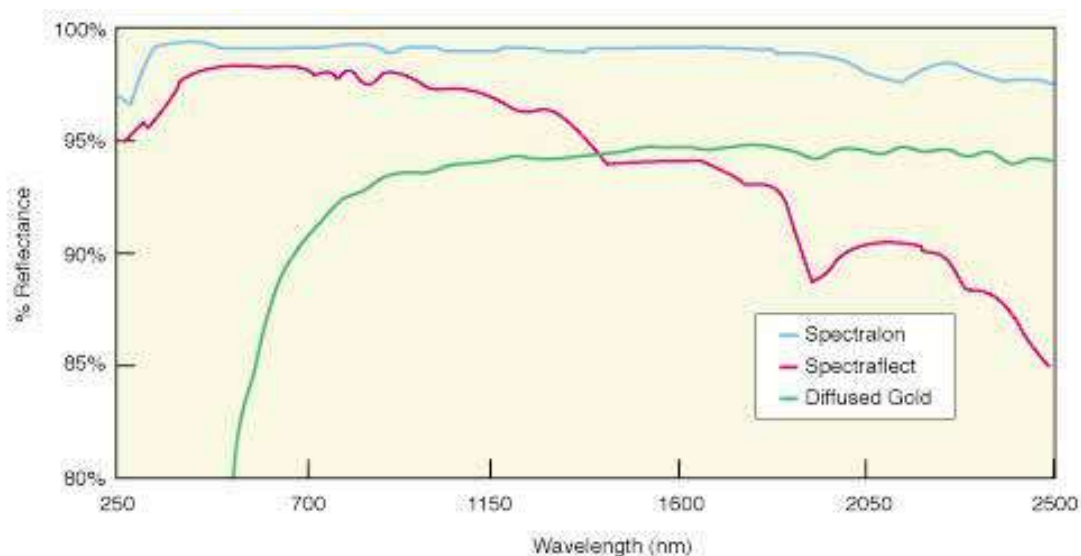
### 4-Port Spheres

Model (4 Port Spheres)	0 Deg Port	90 Deg Port	180 Deg Port	North Pole Port
3819C-GL-3	1.0 in.	1.0 in.	1.0 in.	1.0 in.
3819C-GL-4	1.5 in.	1.0 in.	1.0 in.	1.0 in.
3819C-GL-6	2.5 in.	1.0 in.	1.0 in.	1.0 in.
3819C-SF-4	1.5 in. (w/ 1.5 in. port plug)	1.0 in.	1.0 in.	1.0 in.
3819C-SF-6	2.5 in. (w/ 2.5 in. port plug)	1.0 in.	1.0 in.	1.0 in.
3819C-SL-2	1.0 in. (w/ 1.0 in. port plug)	0.5 in.	0.5 in.	0.5 in.
3819C-SL-3.3	1.5 in. (w/ 1.5 in. port plug)	1.0 in.	1.0 in.	1.0 in.
3819C-SL-5.3	2.5 in. (w/ 2.5 in. port plug)	1.0 in.	1.0 in.	1.0 in.

Note that certain models come with accessories premounted. Refer to the table above for details.

Model (4 Port Spheres)	Sphere Diameter	Coating Type	Thermal Limit
3819C-SF-4, 3819D-SF-4	4-Inches	Spectrafect™	100
3819C-SF-6, 3819D-SF-6	6-Inches	Spectrafect™	100
3819C-SL-2, 3819D-SL-2	2-Inches	Spectralon™	350
3819C-SL-3.3, 3819D-SL-3.3	3.3-Inches	Spectralon™	350
3819C-SL-5.3, 3819D-SL-5.3	5.3-Inches	Spectralon™	350
3819C-GL-3, 3819D-GL-3	=1,Dimensions	Spectralon™	=1,Thermal Limit
3819C-GL-4, 3819D-GL-4	=3,Dimensions	Spectralon™	=3,Thermal Limit
3819C-GL-6, 3819D-GL-6	=5,Dimensions	Spectralon™	=5,Thermal Limit

## ►► Integrating Sphere Coatings



Typical Characteristics for Sphere Coatings

## Port Expanders and Reducers

3819-PC-0.5	0.5 to 1.0 in. Port Expander
3819M-B-0.06-0.5	Integrating Sphere Port Reducer, 0.5 to 0.0625 inch, Flat Black
3819M-B-0.12-0.5	Integrating Sphere Port Reducer, 0.5 to 0.125 inch, Flat Black
3819M-B-0.12-1.0	Integrating Sphere Port Reducer, 1 to 0.125 inch, Flat Black
3819M-B-0.25-0.5	Integrating Sphere Port Reducer, 0.5 to 0.25 inch, Flat Black
3819M-B-0.25-1.0	Integrating Sphere Port Reducer, 1 to 0.25 inch, Flat Black
3819M-B-0.50-1.0	Integrating Sphere Port Reducer, 1 to 0.5 inch, Flat Black
3819M-B-0.75-1.0	Integrating Sphere Port Reducer, 1 to 0.75 inch, Flat Black
3819M-B-11-1.0	Integrating Sphere Port Reducer, 1 inch port reducer to 11 mm

## Detector Adaptors

3819-DA	3819M-SM1-1.0
3819M-DAT	Detector Adaptor for 918(D) Series, to 1in Port
3819M-CM-1.0	Port Plug, 1.0 inch, Spectrafect, 3819 Series
3819M-SM1-1.0	SMA Fiber Adaptor, 1 inch, Flat Black, 3819 Series

## Base Plates

3819M-B4	Base Plate, 3819 Integrating Sphere, 4 x 4 inch
3819M-B6	Base Plate, 3819 Integrating Sphere, 6 x 6 inch
3819M-B8	Base Plate, 3819 Integrating Sphere, 8 x 8 inch

## Port Frame Reducers and Sample Holder

3819M-PFR-SF-1.5	Port Frame Reducer, 1.5 to 1 inch, Spectrafect, 3819M Series
3819M-SAM-1.0	Sample Holder, 1 inch port, External Mounting, 3819 Series
3819M-PFR-1.0-2.5	Port Frame Reducer, 2.5 to 1 inch, Spectrafect, 3819M Series
3819M-G-0.50-1.0	Port Reducer 1" to 0.5", Diffused Gold, 3819 Series

## Fiber Adaptors

3819M-FC-0.5	FC Fiber Adaptor, 0.5 inch Port, Flat Black, 3819 Series
3819M-FC-1.0	FC Fiber Adaptor, 1 inch Port, Flat Black, 3819 Series
3819M-LC-0.5	LC Fiber Adaptor, 0.5 inch Port, Flat Black, 3819 Series
3819M-LC-1.0	LC Fiber Adaptor, 1 inch Port, Flat Black, 3819 Series
3819M-SMA-0.5	SMA Fiber Adaptor, 0.5 inch, Flat Black, 3819 Series
3819M-SMA-1.0	SMA Fiber Adaptor, 1 inch, Flat Black, 3819 Series
3819M-ST-0.5	ST Fiber Adaptor, 0.5 inch, Flat Black, 3819 Series
3819M-ST-1.0	ST Fiber Adaptor, 1 inch, Flat Black, 3819 Series
3819M-SMA-0.5G	SMA Fiber Adaptor, 0.5 inch, Flat Black, 3819 Series
3819M-SMA-1.0G	SMA Fiber Adaptor, 1 inch, Flat Black, 3819 Series

## Port Plugs

3819M-PP-SF-0.5	Port Plug, 0.5 inch, Spectrafect, 3819 Series
3819M-PP-SF-1.0	Port Plug, 1.0 inch, Spectrafect, 3819 Series
3819M-PP-SF-1.5	Port Plug, 1.5 inch, Spectrafect, 3819 Series
3819M-PP-SF-2.5	Port Plug, 2.5 inch, Spectrafect, 3819 Series
3819M-PP-SL-0.5	Port Plug, 0.5 inch, Spectralon, 3819 Series
3819M-PP-SL-1.0	Port Plug, 1.0 inch, Spectralon, 3819 Series
3819M-PP-SL-1.5	Port Plug, 1.5 inch, Spectralon, 3819 Series
3819M-PP-SL-2.5	Port Plug, 2.5 inch, Spectralon, 3819 Series
3819M-PP-1.0	Port Plug, 1.0 inch, Spectrafect, 3819 Series
3819M-PP-2.5	Port Plug, 1.0 inch, Spectrafect, 3819 Series
3819M-PP-GL-1.0	Port Plug, 1.0 inch, Diffused Gold, 3819 Series
3819M-PP-GL-0.5	Port Plug, 1.0 inch, Diffused Gold, 3819 Series

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DSC/TGA



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Reader/Washer



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