post-MOBY262, BS01 out-of-housing w/ no shtr block & no Falcon shtr = cfg 008

Fri | Day 01 | pg. 1 of 1

Page 1 of

MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT Post-L267 LOCATION Rm124@P35

DATE 27Jan2018 OBSERVERS MF

INSTRUMENT BS S/N 01 CONFIG 008

COLLECTOR bare bundle FO #1 DISTANCE jiggey
(mux / position / fiber)

SOURCE Oriel 60000 S/N CONFIG 12in Spectralon sphere

PWR SUPPLY Oriel 68830 S/N CONFIG 1 FC conn'g @ exit port

MULTIMETER S/N SHUNT

LAMP VOLTAGE ~10Vdc CURRENT ~8Adc

LAMP TIME ON 07:47 WARMUP OFF 08:19 TOTAL

WHERE NODE :: DEV : [DIR]

SETUP SKETCH / REMARKS

CCD-17878
shtr op/cl = 35/35 msec
Vert Shift = 4.25 μsec, Horiz = 3MHz
Pre Amp = 4x

Andor SOLIS acq, no Aux data logged

looking for ghost sig as per 25Jan2018 email suggestion from Mike Kehoe

NOTE: I just found the Semrock SP & LP filters!

PROCESSED DATE: 29Jan2018 BY: MF

Time 07:53	Filename -60°C TEC=ON	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
806	s,b 20180127 01:05	5 sec			57	21	only Trk#1 @ sphere, others covered
814	s,b " " 06:10	5 sec					add 450 nm LP filter =
820	d " " 01:05	5 sec	= drk w/ lamp off				Oriel 52086 = DKC ca 1996
821	TEC=off						between lamp & sphere

(21-Feb-05 MF)

Mon | Day 02 | pg. 1 of 1

Page 2 of

MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT Post-L267 LOCATION P35, rm 124
DATE 30 Jan 2018 OBSERVERS MF
INSTRUMENT BS S/N 01 CONFIG 008
COLLECTOR bare FO bundle DISTANCE jig @ Spectralon sphere
(mux / position / fiber)
SOURCE Oriel 6K S/N CONFIG
PWR SUPPLY Oriel S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE 10 Vdc CURRENT
LAMP TIME ON 04:07 WARMUP OFF 05:50 TOTAL

WHERE NODE :: DEV : [DIR]

SETUP SKETCH / REMARKS
Note: adjust iris between lamps & sphere to get ~50k ADU max
For each FO's no-filter sig
same = 3 & 5, 7, 9; adj 11; 13 same as 11 w/ filt
No (intentional) iris adj @ Filter screw-on...
oops! adj 11 after Filter install...

PROCESSED DATE: BY:

Time 04:09	-60 Filename TEC = ON	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
437	s,b20180130 01:05	5s 4x			59	21	T3 no filt
43	05:10						T3 w/ Filt: Oriel 52086
51	11:15	5					T5 no
56	16:20						w/
0502	21:25	5					T7 no
09	26:30						T7 w/
15	31 35	5					T9 no
19	3640						w/
29	41:45	5					T11 no
35	46:50						w/
42	51:55	5					T13 no
546	s,b	56:60	5s				T13 w/
551	d20180130 01:05	5s	= drk/lamp off				T13 drk
557	TEC ORF						

(21-Feb-18 MF)

Tue | Day 03 | pg. 1 of 1

MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT Post-L267 LOCATION P35, nm 124
DATE 30 Jan 2018 OBSERVERS MF

INSTRUMENT B5 S/N 01 CONFIG 008
COLLECTOR bare FO bundle (mux position fiber) DISTANCE jig @ Spectralon sphere

SOURCE Oriel 6k S/N CONFIG
PWR SUPPLY Oriel S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE 10Vdc CURRENT
LAMP TIME ON 420 WARMUP OFF 05:53 TOTAL 93min

WHERE NODE :: DEV : [DIR]

SETUP SKETCH / REMARKS

Semrock FF01-720/SP-25 filter
short-pass, ~~edge~~ λ = 698nm
blocking band, OD > 6 = 720-1100nm

958,36 190 355 622 768 915
T1 T3 T5 T9 T11 T13

PROCESSED DATE: BY:

Time 04:22	-60°C Filename TEC	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
442	s,b20180131 01:05	5sec/4x			59	21	T1 no filter
47	06:10	5s					T1 w/ filt = FF01-720/sp25
55	11:15		Funny notch in saddle			?	T3 no
501	16:20						T3 w/
06	21:25						T5 no
13	26:30						T5 w/
19	31:35						T9 no
25	36:40						T9 w/
31	41:45						T11 no
35	46:50						T11 w/
41	51:55						T13 no
	56:60						T13 w/
0550	s,b 20180131 01:05				59	22	Drk via lamp ON, all FOs covered

(21-Feb-05 MF)

Tue | Day 04 |

MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT Post-L267 LOCATION Tent@P35
DATE 07Feb2018 OBSERVERS MF
INSTRUMENT BS S/N 01 CONFIG 008
COLLECTOR FO #5 (mux position fiber) DISTANCE Jigged
SOURCE Sun S/N CONFIG Spectralon sphere
PWR SUPPLY S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE CURRENT
LAMP TIME ON WARMUP OFF TOTAL
WHERE NODE :: DEV : [DIR]

SETUP SKETCH / REMARKS
reflecting sunlight off mirror into sphere today

PROCESSED DATE: BY:

Time 02:32	Filename -40°C TEC ON (WAS 25)	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
02:48	s,b20180207 01:05	2 sec					
306	s,b 06:10	2 sec	←				→ added long FO between
327	s,b 11:15	2	= reposition long FO to				FO#5 & sphere =
330	d 01:05	20 sec	Flatten 1st loop = entrance port covered				50m x 600μm #01
335	TEC=OFF		& sunlight not steered in				from FISH
			but TS still connected to				w/ SMA@1end, FC@other
			output port				coupled FO#5 to SMA and
							via SMA-FC coupler (duh).

Thur | Day 05

MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT Post-L267 LOCATION Tent
DATE 09 Feb 2018 OBSERVERS MF
INSTRUMENT BS S/N 01 CONFIG 008
COLLECTOR only FO #5 (mux / position / fiber) DISTANCE jig @ sphere
SOURCE Sun S/N CONFIG 12" Spectralon
PWR SUPPLY S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE CURRENT
LAMP TIME ON WARMUP OFF TOTAL
WHERE NODE :: DEV : [DIR]

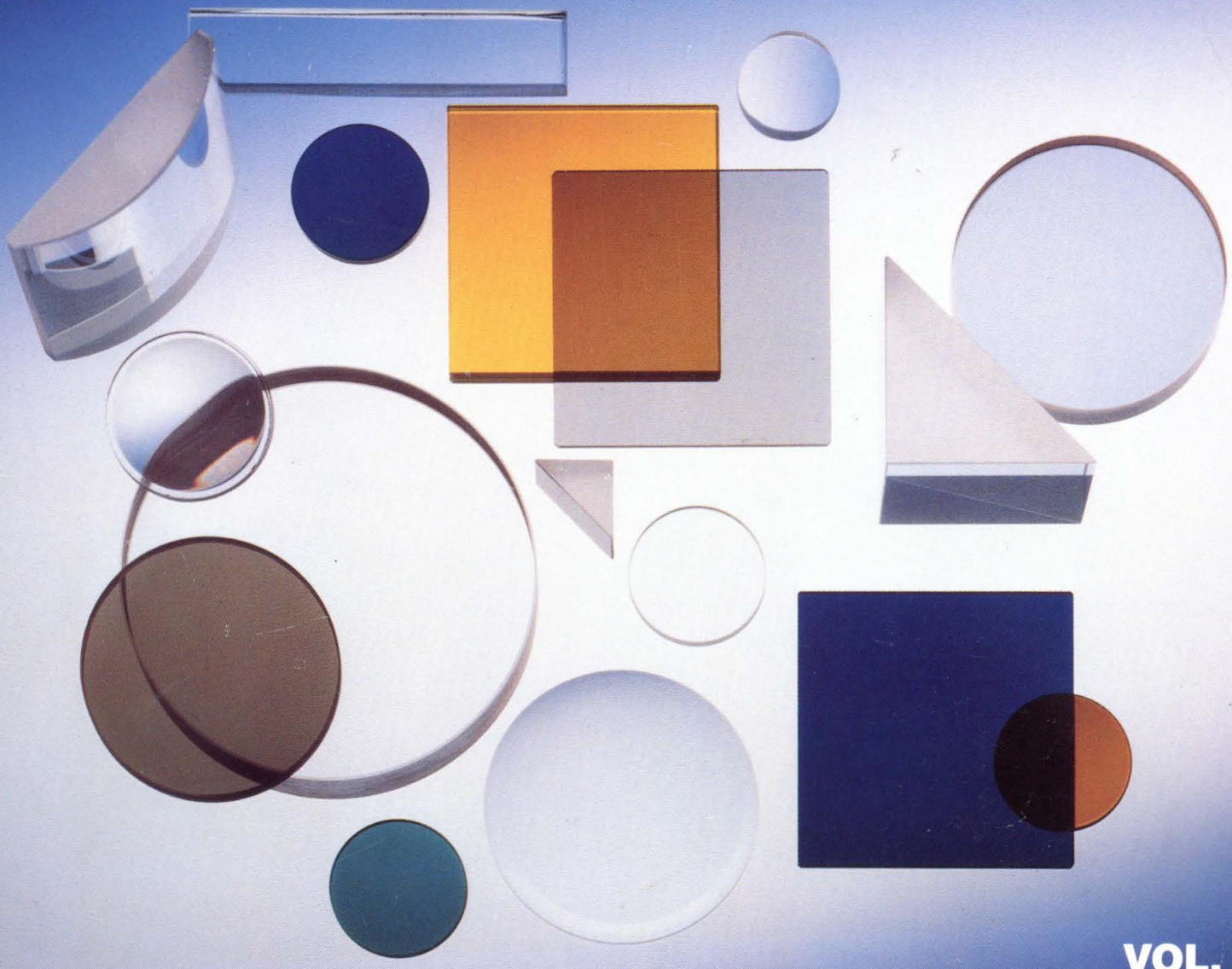
SETUP SKETCH / REMARKS
try orient BS vertical w/ FOs pointing down @ deploy in MOBY (ie K. Voss idea... last year...)
Reflect sunlight into sphere via mirror
= Newport 20D10ER.1
Flat mirror, Pyrex. 50.8mm dia, 1/5 wave
R > 93% avg, 450-700nm
104081 8-3508

PROCESSED DATE: BY:

Time	Filename (was 25°C -40°C TEC ON)	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
01:29							
01:53	s_b20180209 01:05	1.7sec			32	26	50m 600µm FO connected
205	06:10	1,7					long FO dis & re-conn @ FO#5
211	11:15	1,7					add a band @ BS-end of long FO
218	16:20	1.7			33	26	remove 1st band, add band @ sphere end
222	21:25	1.7					no added bands
234	26:30	1.7					BS tipped vertical after long FO dis & re-conn
242	TEC=OFF				33	26	

ORIEL
CORPORATION

Optics & Filters



VOL. III

ORIEL LOW FLUORESCENCE LONG PASS FILTERS

- **Durable construction**
- **1 and 2 inch diameter sizes**

These colored filters exhibit an extremely sharp slope in the transition from absorption to transmission. They also have very low fluorescence. They have applications in precision measurements of luminescence and in radiometry, particularly when the filter must be close to the detector.

CONSTRUCTION

Our low fluorescence filters are comprised of a layer of dyed plastic laminated between two plates of ground and polished glass. They are stable at temperatures up to 70 °C, and are resistant to UV radiation and to weathering.

These filters can be cleaned with a moistened cloth; cleaning with alcohols, ketones, esters and chlorinated solvents should be avoided.

COMPARISON WITH COLORED GLASS FILTERS

We compared the 52104 Low Fluorescence Filter and the 51302 Standard Colored Glass Filter, both with 550 nm cut-on wavelengths. When absorbing UV around 270 nm, the fluorescence from the 51302 Colored Glass Filter was ~7 times that of the 52104 Low Fluorescence Filter. For excitation from 350 to 500 nm, the fluorescence from the 51302 was ~2 times that of the 52104.

Note that many optical components such as lenses and windows, also fluoresce under ultraviolet illumination!

Because of their construction these filters have low power handling capacity (more than adequate for most applications). Avoid using these filters to substitute for colored glass in a beam with an average absorbed power density in excess of 1 W cm^{-2}. High peak power pulses (> 1kW cm^{-2}) can lead to irreversible bleaching.

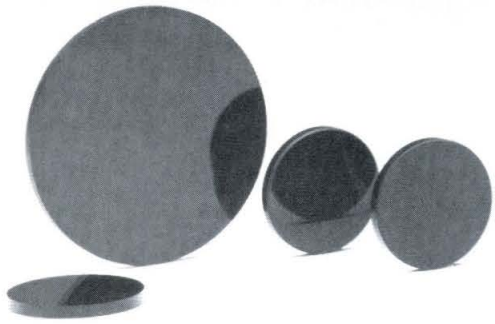
Use these filters as far from the detector as practical to minimize fluorescence.

CUT-ON WAVELENGTH

The wavelength where the internal transmittance is 0.50 is called the **cut-on** wavelength. The wavelength shift as a function of temperature is less for these filters than for solid colored glass filters.

FILTER HOLDERS

Pages 2-48 to 2-49 list inexpensive rod mounted filter holders. The flanged filter holders (Volume II page 270) hold these filters at the input of Oriel Detectors with 1.5 Inch Series female flanges.



Low Fluorescence Long Pass Filters.

SPECIFICATIONS

Dimensions tolerance:	± 0.15 mm
Thickness:	3.0 mm
Material:	Glass/plastic laminated filters
Cut-on wavelength tolerance:	± 2 nm
Surface quality	80 - 50
Parallelism:	2' (0.6 mrad)
Max. temperature:	70 °C

ORDERING INFORMATION

Cut-on Wavelength† (nm)	Reflection Correction Factor	1 Inch (25.4 mm) Diameter		2 Inch (50.8 mm) Diameter	
		Model No.	Price ($)	Model No.	Price ($)
370	0.92	52053	$ 38.00	59155	$ 81.00
380	0.92	52055	$ 38.00	59150	$ 81.00
389	0.92	52057	$ 38.00	59157	$ 81.00
399	0.92	52065	$ 38.00	59160	$ 81.00
408	0.92	52068	$ 38.00	59164	$ 81.00
418	0.92	52075	$ 38.00	59170	$ 81.00
450	0.92	52086	$ 38.00	59180	$ 81.00
470	0.92	52095	$ 38.00	59190	$ 81.00
500	0.92	52101	$ 38.00	59200	$ 81.00
520	0.92	52102	$ 38.00	59202	$ 81.00
550	0.92	52104	$ 38.00	59204	$ 81.00

† **Wavelength where internal transmittance is 0.50.**

Filter Sets

59215	Set of any five 1 inch (25.4 mm) diameter Low Fluorescence Filters	**$ 179.00**
59217	Set of all eleven 1 inch (25.4 mm) diameter Low Fluorescence Filters	**$ 397.00**
59225	Set of any five 2 inch (51 mm) diameter Low Fluorescence Filters	**$ 388.00**
59227	Set of all eleven 2 inch (51 mm) diameter Low Fluorescence Filters	**$ 875.00**

ORIEL
INSTRUMENTS
250 Long Beach Boulevard
Stratford, CT, U.S.A. 06497-0872
Tel.: (203) 377-8282, Fax: (203) 378-2457
E-Mail: 73163.1321 @compuserve.com

PACKING SLIP
409622

10-28-96

SOLD TO:

CLARK, DENNIS
NOAA
5200 AUTH ROAD
ROOM 105
CAMP SPRINGS, MD 20746

SHIP TO:

CLARK, DENNIS
NOAA
5200 AUTH ROAD
ROOM 105
CAMP SPRINGS, MD 20746

SO DATE	SALES ORDER	CUSTOMER PO#	SLM	TERMS	SHIP FROM
10-25-96	170224	DENNIS CLARK		CARD	STFD, CT

FREIGHT	SHIP VIA	WAYBILL#	CARTONS	WEIGHT
PPD & ADD	FED X 1		1	1.00

LI#	ORD	SHIP		BACK	DESCRIPTION	UM
6A	1.0000	1.0000	✓	0.0000	PART# 6H BOX	EA
6B	1.0000	1.0000	✓	0.0000	PART# 52057 1.0 IN DIA. KV389 FILTER	EA
6C	1.0000	1.0000	✓	0.0000	PART# 52068 1.0 DIA. KV408 FILTER	EA
6D	1.0000	1.0000	✓	0.0000	PART# 52086 IR BLOCKING 1 IN DIA 450N	EA
6E	1.0000	1.0000	✓	0.0000	PART# 52102 IR BLOCKING 1 IN DIA 520NM	EA
6F	1.0000	1.0000	✓	0.0000	PART# 52104 IR BLOCKING 1 IN DIA 550NM	EA
7	1.0000	1.0000	✓	0.0000	PART# 6H BOX	EA

PICKED BY:
AT

---> WAVELENGTH SCAN REPORT <---

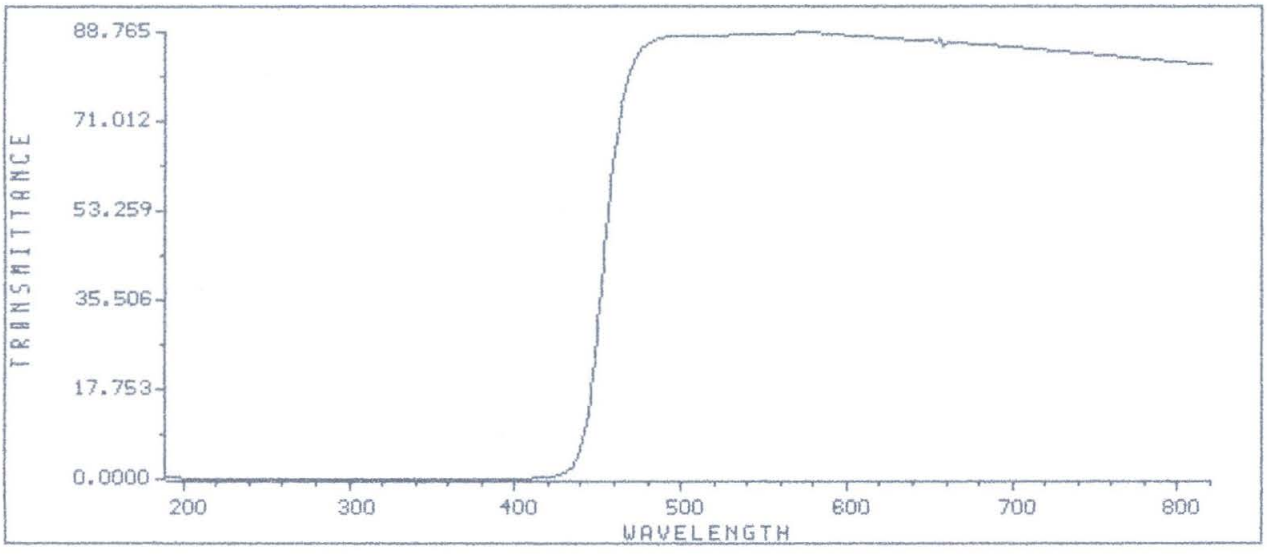
Date : 02-25-1998
Time : 14:37:03
Operator : Roberto Millan

File Name : 52096

Register: A

Sample Name :
Solvent Name :
Concentration : 1.0000
Units :

Function : Transmittance
Wavelength Range : 190 to 820 nm
Integration Time : 1 s
Std Deviation : Off



---> WAVELENGTH SCAN REPORT <---

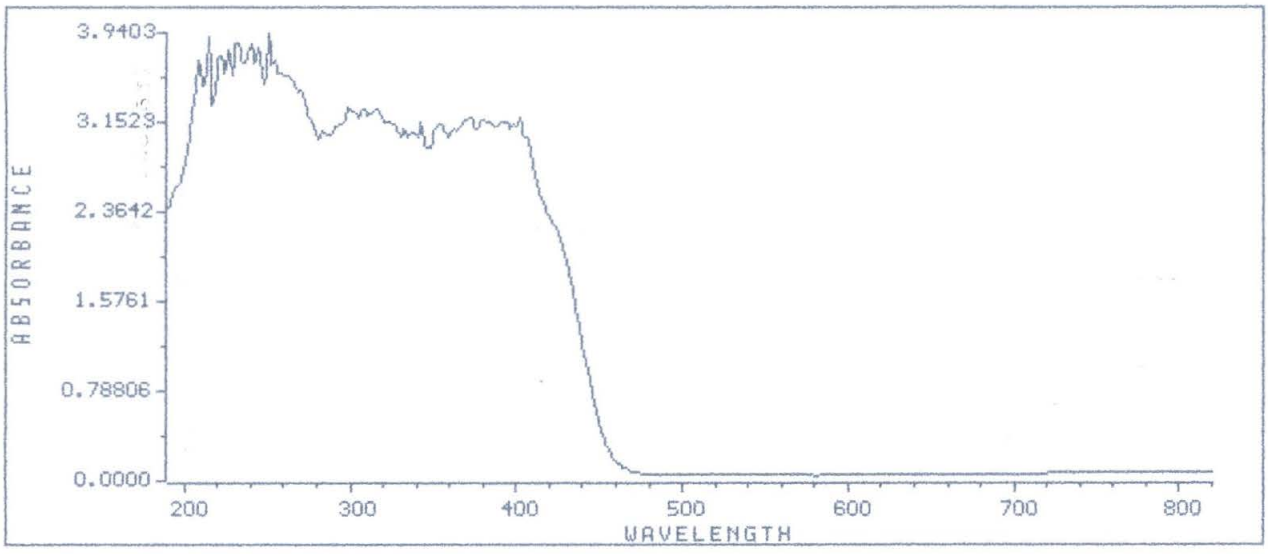
Date : 02-25-1998
Time : 14:33:24
Operator : Roberto Millan

File Name : S2086

Register: A

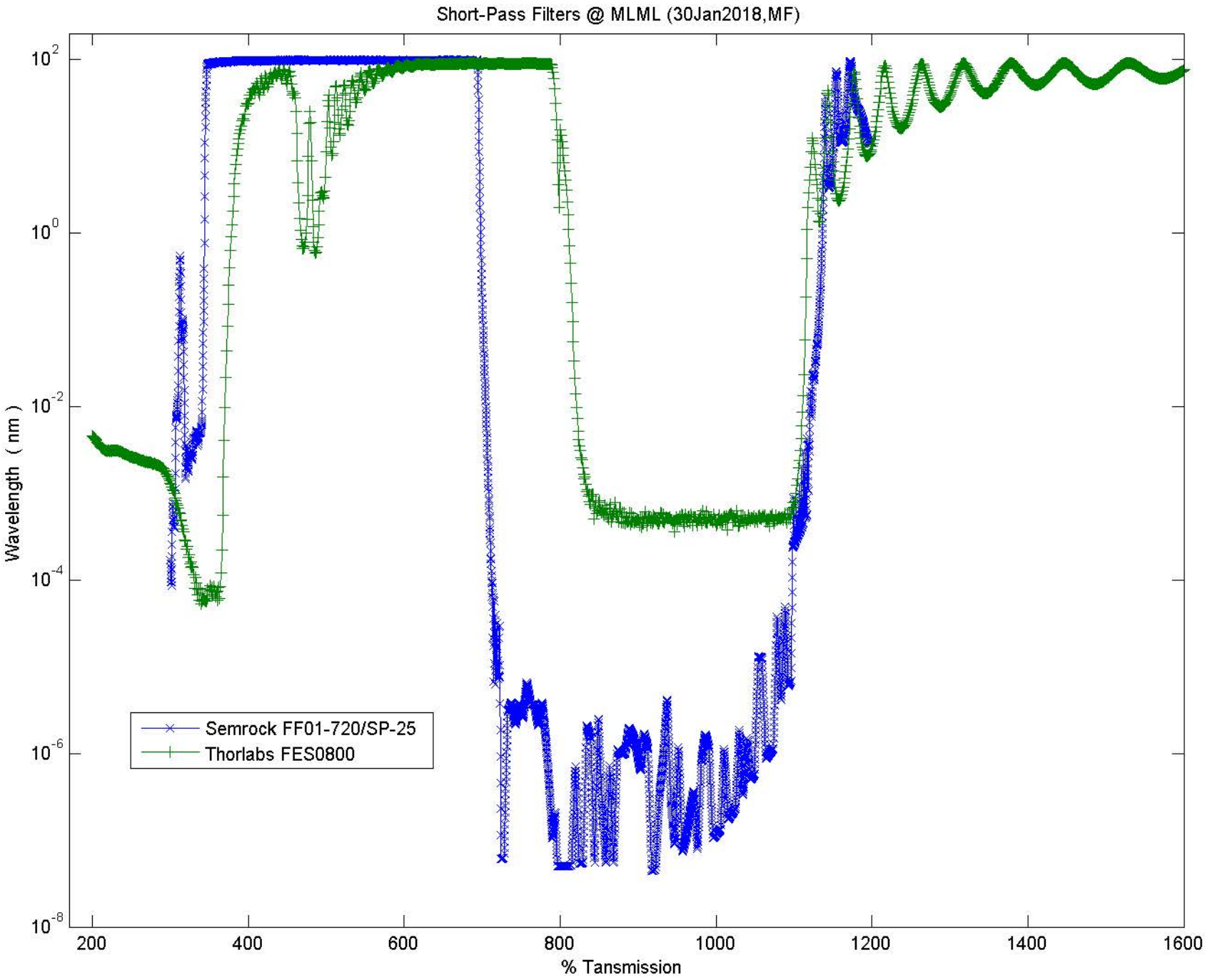
Sample Name :
Solvent Name :
Concentration : 1.0000
Units :

Function : Absorbance
Wavelength Range : 190 to 820 nm
Integration Time : 1 s
Std Deviation : Off

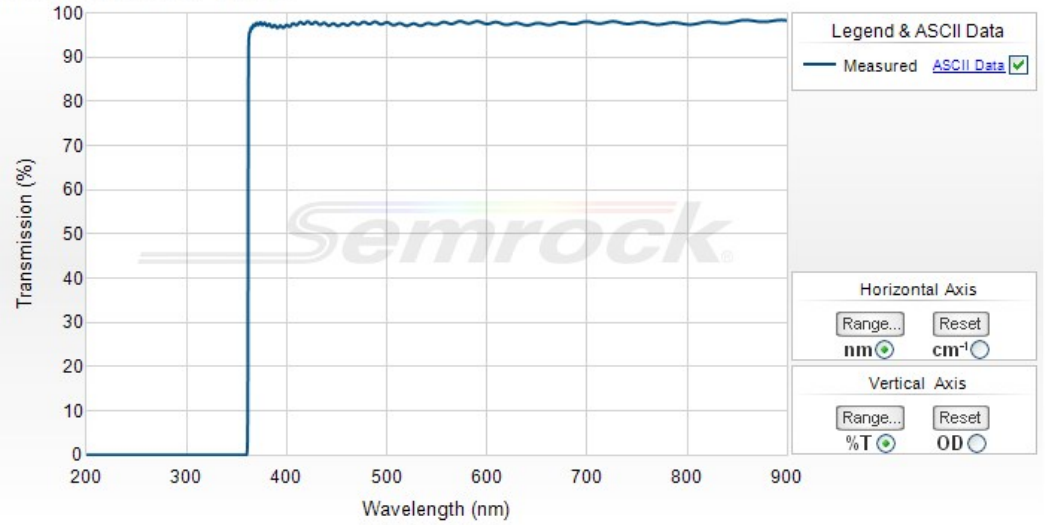



Semrock
EdgeBasic™
P/N:
BLP01-355R-25
Lot:
A15014-415040
W/O:
183424
Semrock


Semrock
BrightLine ® Multiphoton Filter
PN: FF01-720/SP-25
Lot: 415272-415274
W/O: 185527
U.S. Patent #6,809,859, 7,411,679 & Pending
Semrock


Short-Pass Filters @ MLML (30Jan2018,MF)
Wavelength (nm)
% Tansmission
Semrock FF01-720/SP-25
Thorlabs FES0800
10^{2}
10^{0}
10^{-2}
10^{-4}
10^{-6}
10^{-8}
200
400
600
800
1000
1200
1400
1600

355 nm EdgeBasic™ best-value long-pass edge filter
Part Number: BLP01-355R-25



Semrock, Inc
3625 Buffalo Road, Suite 6
Rochester, New York 14624

Main Phone: +1 585.594.7050 (worldwide)
Toll Free Phone: 866.736.7625 (866-SEMROCK)
(within US and Canada)

Your filter spectrum may differ slightly from the typical spectrum above, but is certified to meet the optical specifications noted below.

355 nm EdgeBasic™ best-value long-pass edge filter

EdgeBasic filters offer an ideal combination of performance and value for applications including Raman spectroscopy and fluorescence imaging and measurements. They offer exceptional laser-line blocking and high transmission for Raman applications that do not require measuring the smallest possible Raman shifts and when cost is an issue.

Part Number	Size	Price[1]	Stock Status
BLP01-355R-25	25 mm x 3.5 mm	$355	In Stock

Don't see a size you need? Contact us for custom sizing – available in less than a week (sizing fee applies).

1) US domestic pricing only. If you are ordering from outside the US, please contact your nearest regional distributor for the correct list price.

Optical Specifications

Specification	Value
Transmission Band 1	T_{avg} > 93% 364.9 – 900 nm
Edge Wavelength 1	361 nm
Blocking Band 1	OD_{avg} > 5 200 – 300 nm
Blocking Band 2	OD_{abs} > 6 300 – 355 nm
Transition Width (nm)	8.9 nm
Transition Width (cm-1)	687 cm^{-1}

General Filter Specifications

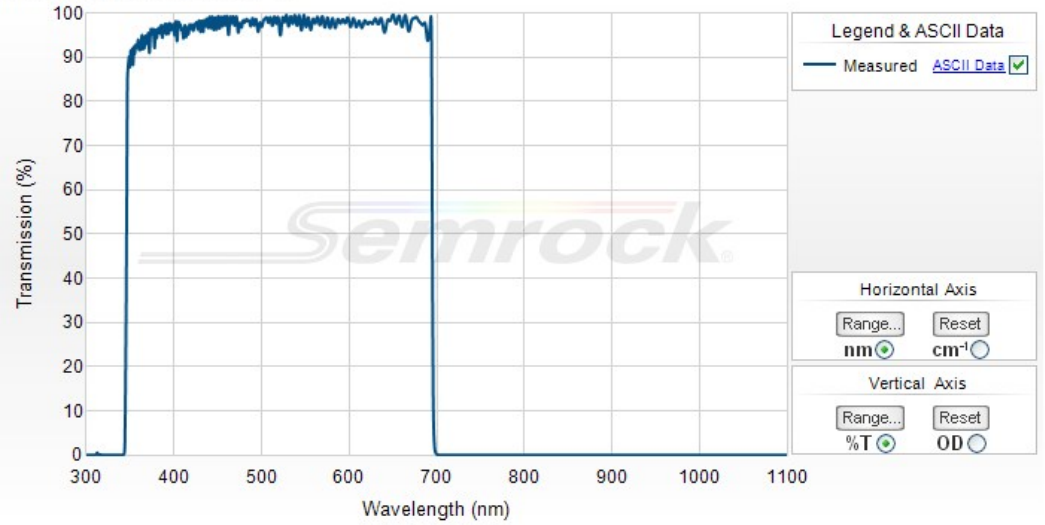
Specification	Value
Laser Wavelength 1	355 nm
Laser Wavelength 1 (low)	355 nm
Laser Wavelength 1 (high)	355 nm
Angle of Incidence	0 ± 2 degrees
Cone Half-angle	5 degrees
Optical Damage Rating	Not tested
Filter Effective Index	1.99 Understanding 'Effective Index of Refraction' n_{eff}

Physical Filter Specifications (applies to standard sized parts; contact us regarding other sizes)

Specification	Value
Transverse Dimensions (Diameter)	25 mm
Transverse Tolerance (mounted)	+ 0.0 / – 0.1 mm
Filter Thickness (Mounted)	3.5 mm
Filter Thickness Tolerance (Mounted)	± 0.1 mm
Clear Aperture	≥ 22 mm
Scratch-Dig	60-40

Scratch-Dig	80-40
Substrate Thickness (unmounted)	2.0 mm
Substrate Thickness Tolerance (unmounted)	± 0.1 mm
Orientation	Arrow on ring indicates preferred direction of propagation of light

720 nm blocking edge BrightLine® multiphoton short-pass emission filter
Part Number: FF01-720/SP-25



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(within US and Canada)

Your filter spectrum may differ slightly from the typical spectrum above, but is certified to meet the optical specifications noted below.

720 nm blocking edge BrightLine® multiphoton short-pass emission filter

Ultrahigh-performance multiphoton fluorescence filters that accommodate a wide range of fluorescence dyes. Designed to be a fixed component in any multiphoton or nonlinear (harmonic-generation) microscope, so that when desired individual, narrower bandpass filters can be added without having to worry about the near-IR blocking of these filters. The transmission bands of these short-pass emitters are so wide, they appear clear at normal incidence.

Part Number	Size	Price[1]	Stock Status
FF01-720/SP-25	25 mm x 3.5 mm	$925	In Stock

Don't see a size you need? Contact us for custom sizing – available in less than a week (sizing fee applies).

1) US domestic pricing only. If you are ordering from outside the US, please contact your nearest regional distributor for the correct list price.

Optical Specifications

Specification	Value
Transmission Band 1	T_{avg} > 90% 350 – 690 nm
Edge Wavelength 1	698 nm
Blocking Band 1	OD_{avg} > 6 720 – 1100 nm

General Filter Specifications

Specification	Value
Angle of Incidence	0 ± 5 degrees
Cone Half-angle	7 degrees
Optical Damage Rating	Testing has proven to show no signs of degradation when exposed to at least 6.0 W of power from an unfiltered xenon arc lamp over a 25 mm diameter (corresponding to 1.2 W/cm2) for over 500 hrs.
Filter Effective Index	2 Understanding 'Effective Index of Refraction' n_{eff}

Physical Filter Specifications (applies to standard sized parts; contact us regarding other sizes)

Specification	Value
Transverse Dimensions (Diameter)	25 mm
Transverse Tolerance (mounted)	+ 0.0 / – 0.1 mm
Filter Thickness (Mounted)	3.5 mm
Filter Thickness Tolerance (Mounted)	± 0.1 mm
Clear Aperture	≥ 22 mm
Scratch-Dig	60-40
Substrate Thickness (unmounted)	2.0 mm
Substrate Thickness Tolerance (unmounted)	± 0.1 mm
Orientation	Orientation does not affect performance; therefore there is no arrow on the ring to denote a preferred orientation