

## Widefield Fluorescence Microscope

### System Configuration

Microscope model  
DMi8, Inverted

### Objective Lenses

DRY – air refractive index 1.0003

WATER- refractive index 1.330

OIL- refractive index 1.5180 (23 C)

IMM – refractive index  $1.330 \leq n \leq 1.5180$

Resolution (XY, Z)- for wavelength 550nm

Working Distance – distance between Objective Lens and Cover Glass

Phase Ring – Condenser Annulus for Phase Contrast imaging

IC Prism – the Wollaston prism at the objective lens for DIC imaging

Cond. Prism DIC - the Wollaston prism at the condenser for DIC imaging

Type	HC PL FLUOTAR	Working Distance (um)	11000
Magnification	10	Phase Ring	PH1
Numerical Aperture	0.30	IC Prisms	D1, D, D1-P
Immersion	DRY	Technique	PH1
Resolution XY (um)	1.118	Cond. Prism DIC	K3, K11
Resolution Z (um)	6.111	Number	11506507

Type	HC PL FLUOTAR	Working Distance (um)	33000
Magnification	40	Phase Ring	PH2
Numerical Aperture	0.60	IC Prisms	C1,C,C2,C1-P
Immersion	DRY	Technique	PH2
Resolution XY (um)	0.559	Cond. Prism DIC	K6, K8, K16
Resolution Z (um)	1.528	Number	11506203

Type	HC PI FLUOTAR	Working Distance (um)	2400
Magnification	25	Phase Ring	-
Numerical Aperture	0.95	IC Prisms	D1
Immersion	WATER	Technique	-
Resolution XY (um)	0.353	Cond. Prism DIC	K4
Resolution Z (um)	0.811	Number	11506375

Type	HC PL APO CS2	Working Distance (um)	140
Magnification	63	Phase Ring	-
Numerical Aperture	1.40	IC Prisms	E

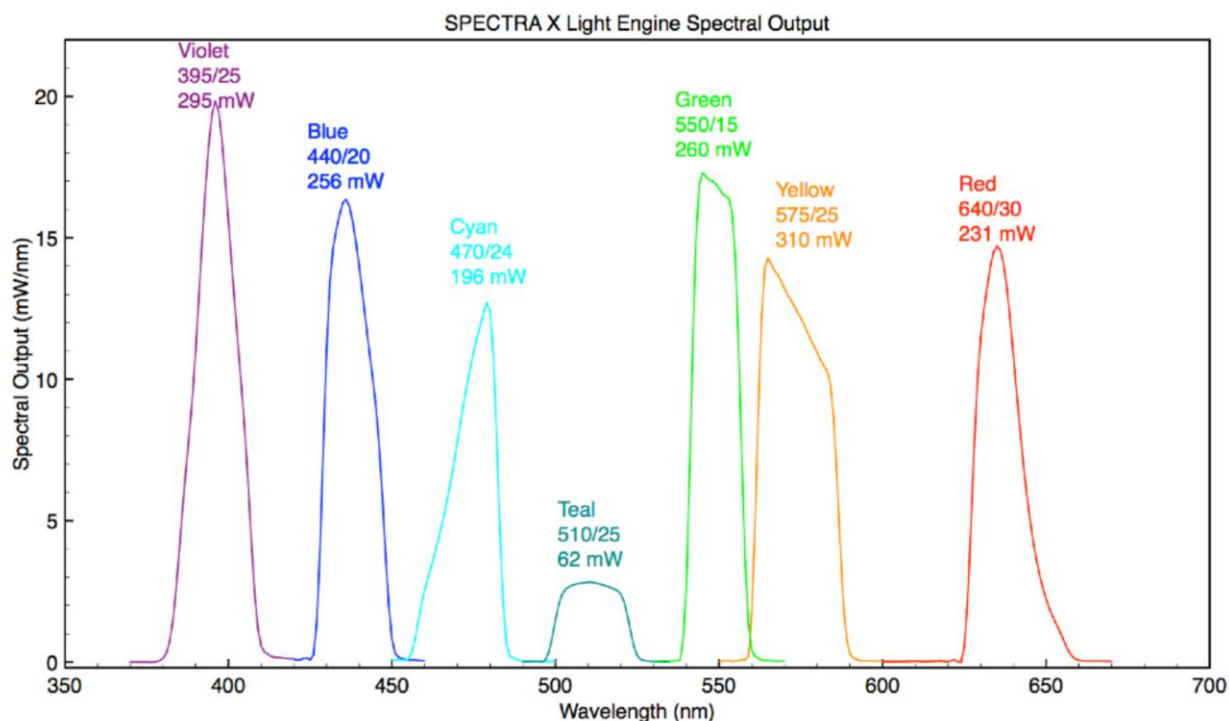
Immersion	OIL	Technique	CS2
Resolution XY (um)	0.240	Cond. Prism DIC	K10
Resolution Z (um)	0.426	Number	11506350

Type	HC PL APO	Working Distance (um)	90
Magnification	100	Phase Ring	PH3
Numerical Aperture	1.40	IC Prisms	D
Immersion	OIL	Technique	PH3
Resolution XY (um)	0.240	Cond. Prism DIC	K10
Resolution Z (um)	0.426	Number	11506381

### Multi-color source of light

Lumencor SpectraX, installed filters (nm): 395/25, 440/20-25, 470/24-25, 510/25-25, 575/25-25, 640/30-25.

Available extra filter 550/15 (nm).



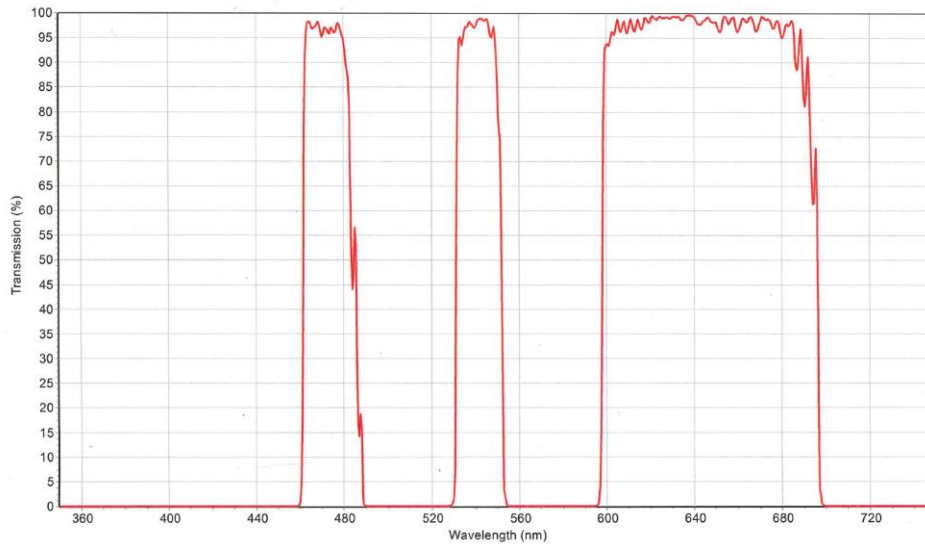
### Transmitted light

Intensity, polarization, and aperture controlled white light

### Filter cubes

Turret Position	Cube Name	Excitation (nm)	Dichroic (nm)	Emission (nm)	Leica Number
1	DAPI395	395/25	LP 425	BP 460/50	11533333
2	GFP	470/40	495	500-550	11525314
3	CFP-YFP-mCherry	436/20, 503/21, 575/25	455, 520, 595	470/25, 535/30, 635/70	Chroma custom
4	YFP	510/25	> 530	550/30	Chroma custom
5	ANALIT-TL	-	-	-	11525300
6	FM4-64	575/25	>610	>610	Chroma custom
not installed	Quad Led	395/25 470/24-25 575/25-25 640/30-25	415, 490 570; 660	412-448 495-535 575-615 670-770	Chroma

Chroma CFP-YFP-mCherry (excitation 436/20, 503/21, 575/25)



Date: 2015-06-05  
 Scan Range: 350.0 nm to 750.0 nm  
 Comments: 8108978  
 ET CFP/YFP/mCherry m  
 25mm Dia Mounted

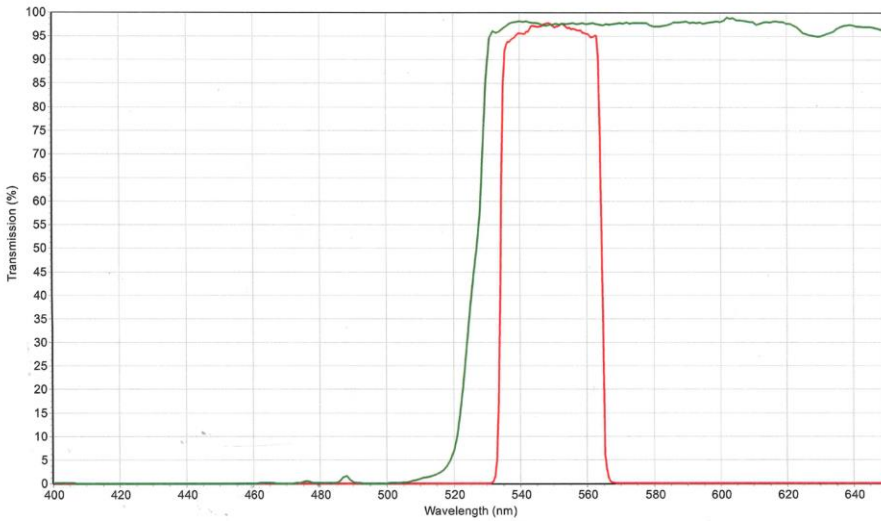
— 291510

Description

Batches / Filepath

291510

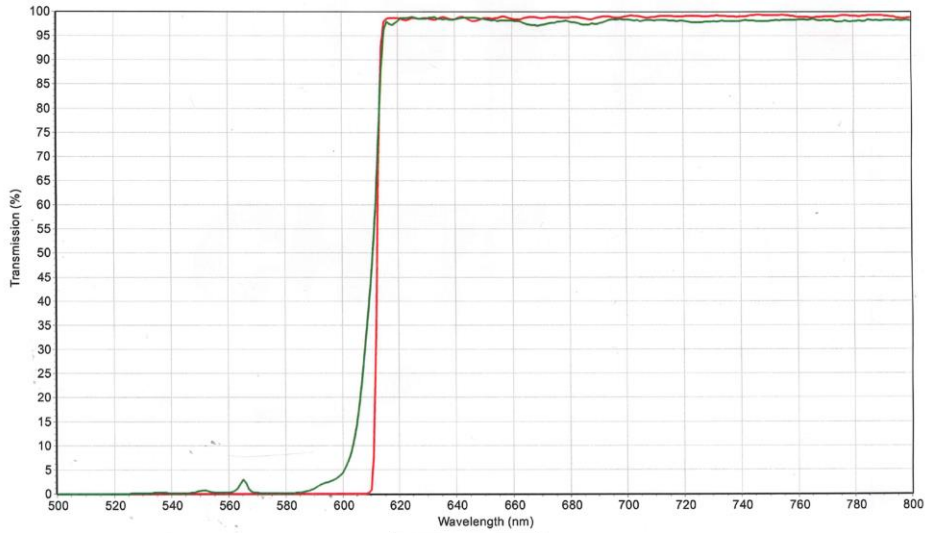
Custom Chroma YFP cube (excitation 510/25 nm)



Date:	2018-01-08	Description	Batches / Filepath
Scan Range:	400.0 nm to 650.0 nm	ET550/30m	308477
Comments:	Custom 550 Set_Leica P_Mounted ET550/30m T525lpxr	T525lpxr	324825

\* no excitation filter

Custom Chroma FM4-64 cube (excitation 575/25 nm)



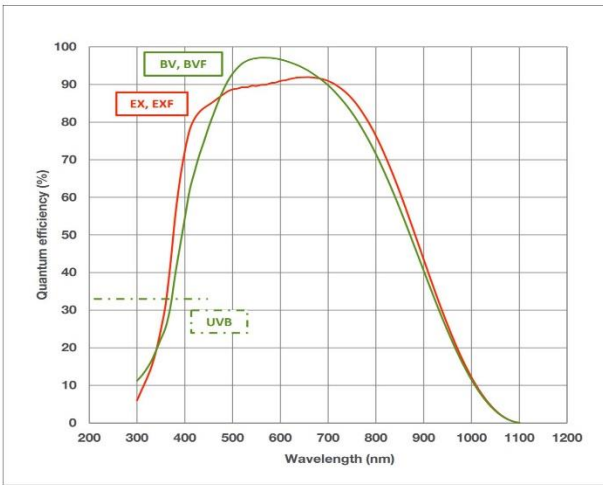
Date:	2018-01-08	Description	Batches / Filepath
Scan Range:	500.0 nm to 800.0 nm	ET610lp	318050
Comments:	Custom 610 Set_Leica P_Mounted ET610lp T610lpxr	T610lpxr	321021

\* no excitation filter

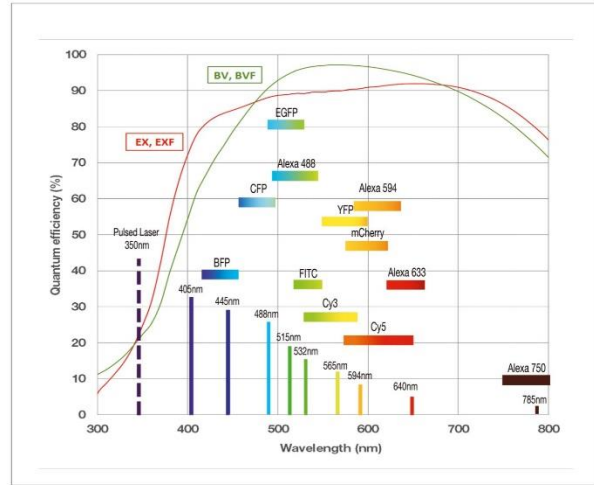
## Camera

Andor EMCCD iXon Ultra 888 EX, number of pixels 1024x1024, 16 Bit digital signal

## Quantum Efficiency (QE) Curve \*\*



## QE vs. Fluorophore Emissions



## Control Software

Leica Application Suite X (LAS X)

## Stage Top Incubator

Tokai Hit, model: INUBG2ATFP-WSKM

Precision control of temperature (37C), gas mix CO2 (5%), and humidity (90%)

## Autofocus system

Adaptive focus, Fast focus

## Motorized

XY Stage, Z focus, objective turret, DIC prisms

## Available Imaging Techniques

Fluorescence imaging

White light imaging

Phase contrast

Differential interference contrast

Focus/Z - stacking

3D image deconvolution

Image stitching

Stage multi-positioning

Time - lapse