Pre-Delivery Resonon Test Report

Identification Data	
Date	September 8th, 2016
Resonon SN	100124-4
Instrument Name	RS4
Andor Camera SN	CCD-19348

Configuration
Filters Installed
1. 540-900 nm bandpass filter. See Figure 1.
Sensors Installed
1. 10K Ohm Thermister: Digikey part # 615-1010-ND; 3 units. 2. Humidity Sensor: Digikey part # 480-3294-1-ND
Fiber bundle info: Leoni 800 µm core fibers. See Figure 2.
Grating: Aug. 2015 batch. See Fig. 3.

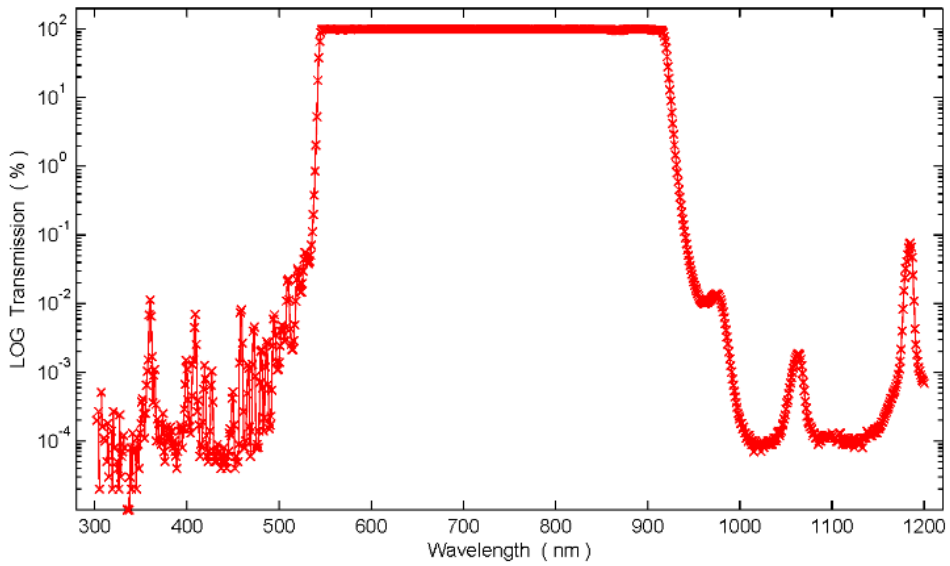


Figure 1: Bandpass filter on front face of 1st prism

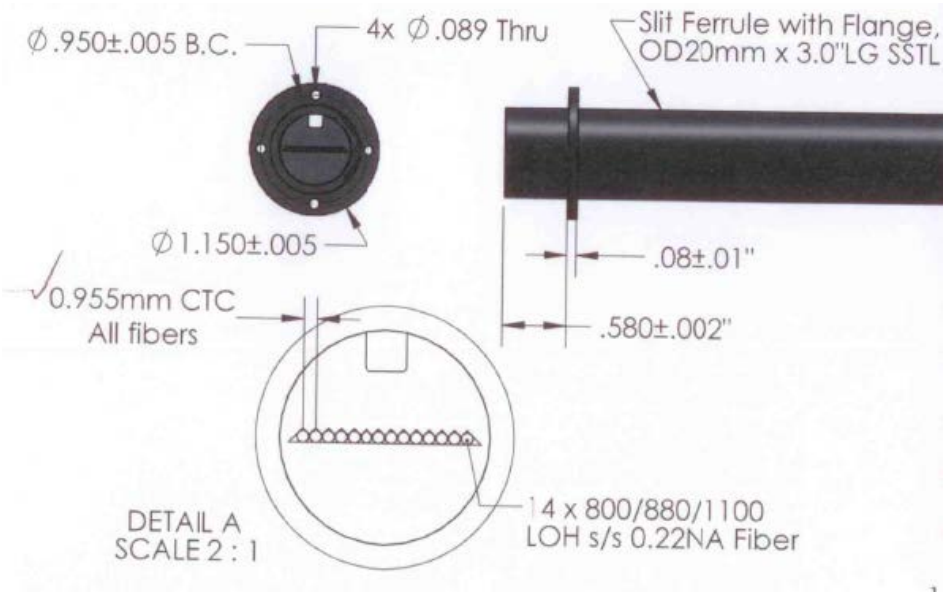
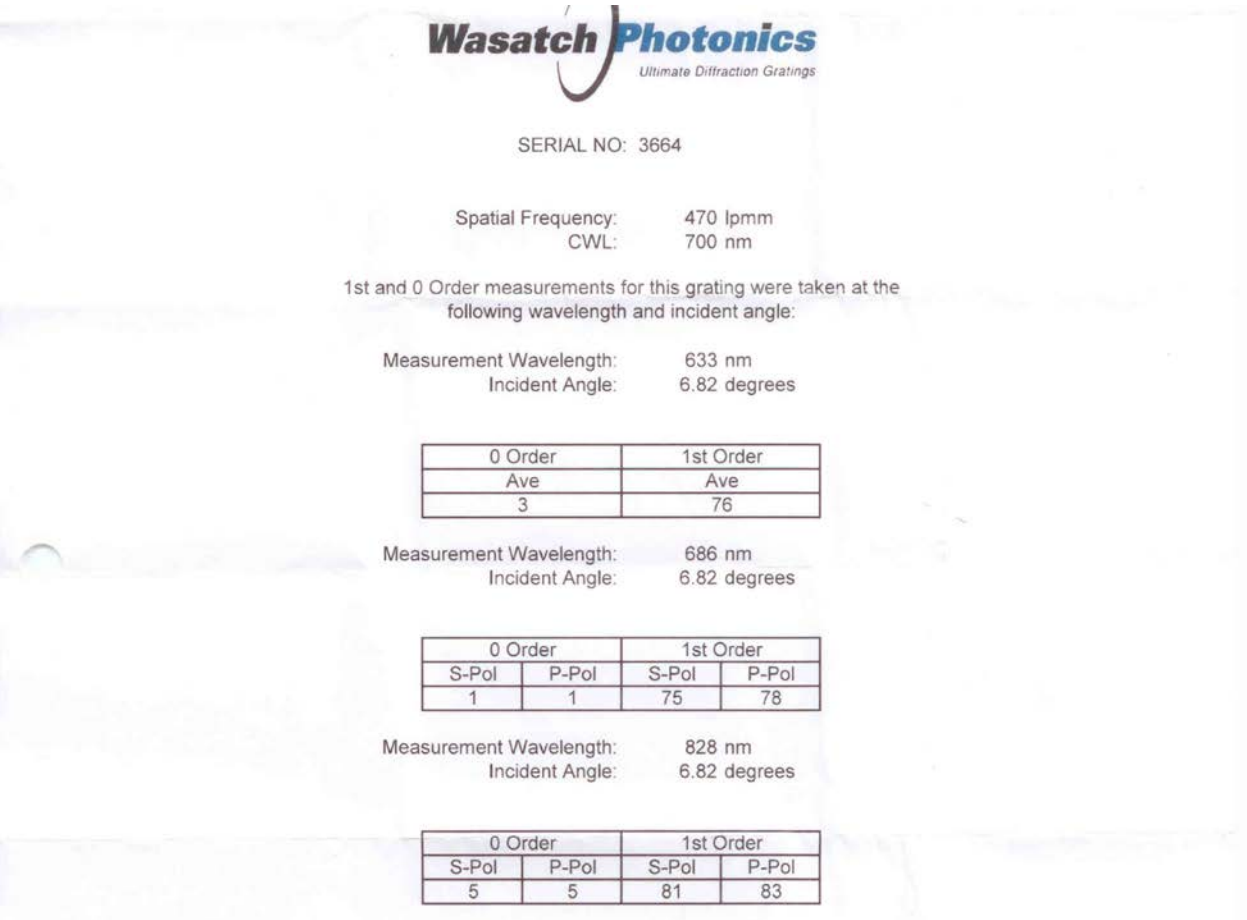


Figure 2: Leoni Fiber details



Wasatch Photonics
Ultimate Diffraction Gratings

SERIAL NO: 3664

Spatial Frequency: 470 lpmm
CWL: 700 nm

1st and 0 Order measurements for this grating were taken at the following wavelength and incident angle:

Measurement Wavelength: 633 nm
Incident Angle: 6.82 degrees

0 Order	1st Order
Ave	Ave
3	76

Measurement Wavelength: 686 nm
Incident Angle: 6.82 degrees

0 Order		1st Order	
S-Pol	P-Pol	S-Pol	P-Pol
1	1	75	78

Measurement Wavelength: 828 nm
Incident Angle: 6.82 degrees

0 Order		1st Order	
S-Pol	P-Pol	S-Pol	P-Pol
5	5	81	83

Figure 3: Grating efficiency

Test Summary	
Smile (Peak to Trough)	
@ 587 nm	.6 pixels (See Fig. 4)
@ 705nm	.3 pixels (See Fig. 5)
Keystone (Peak to Trough)	
Channel 1	.5 pixels (See Fig. 6)
Channel 7	1.5 pixels (See Fig. 7)
Channel14	6 pixels (See Fig. 8)
Spectral Resolution (FWHM)	
@ 587 nm	~1 nm (See Fig. 9)
@ 705 nm	~1 nm (See Fig. 9)
* automatic script measured FWHM close to .5 nm, as shown in Figure 9, but manual Gaussian peak fitting arrive at 1 nm.	
Stability (“shake” test)	

1 pixel shift. See Table 2

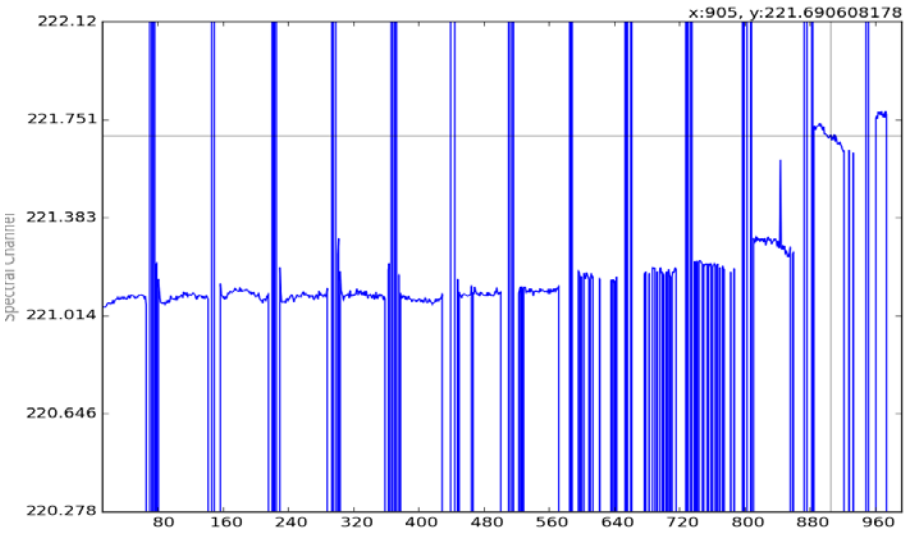


Figure 4: Smile at 587 nm. Horizontal axis is spatial channels and vertical axis is spectral.

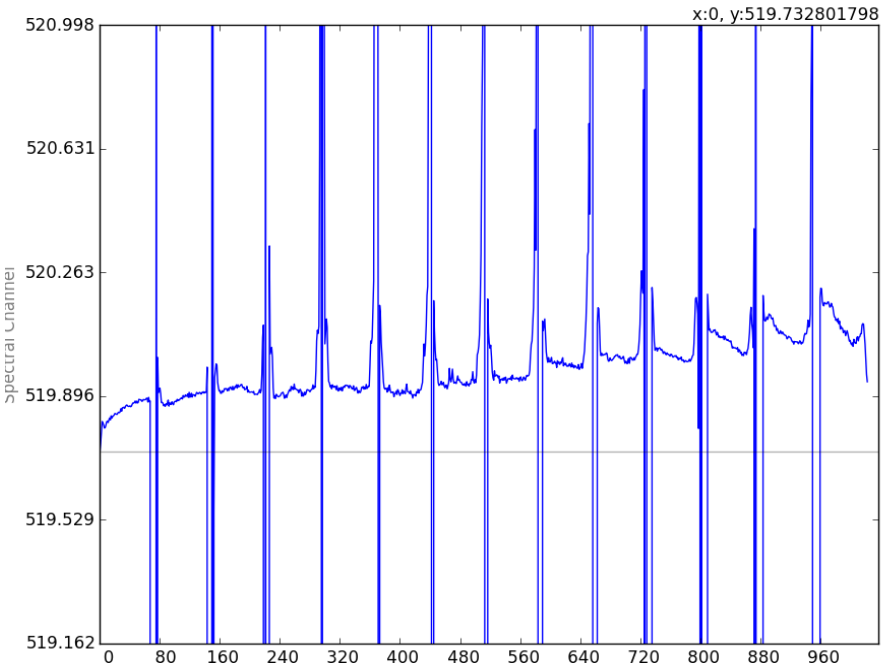


Figure 5: Smile at 705 nm.

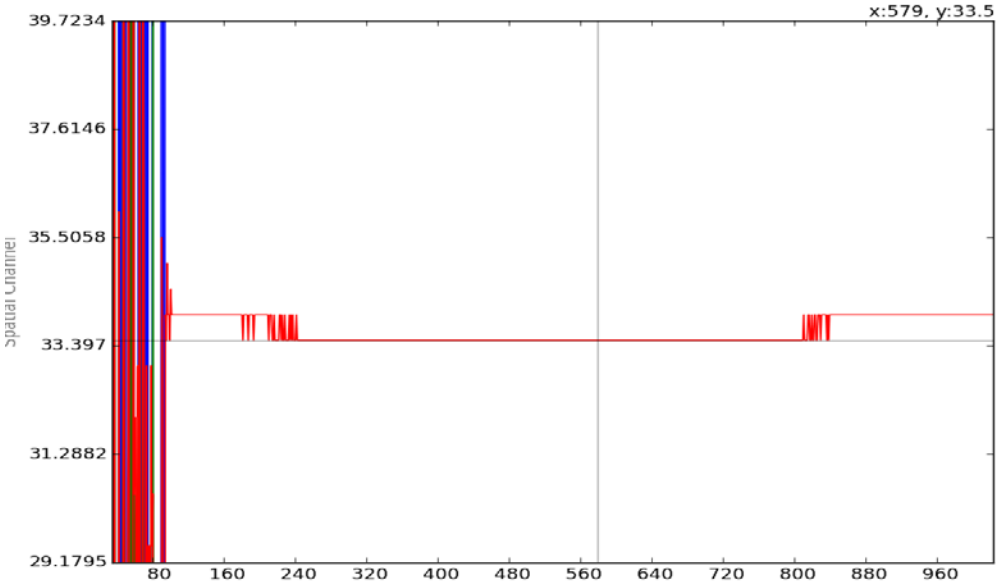


Figure 6: Channel 1 keystone. Horizontal axis is spectral channels and vertical axis is spatial.

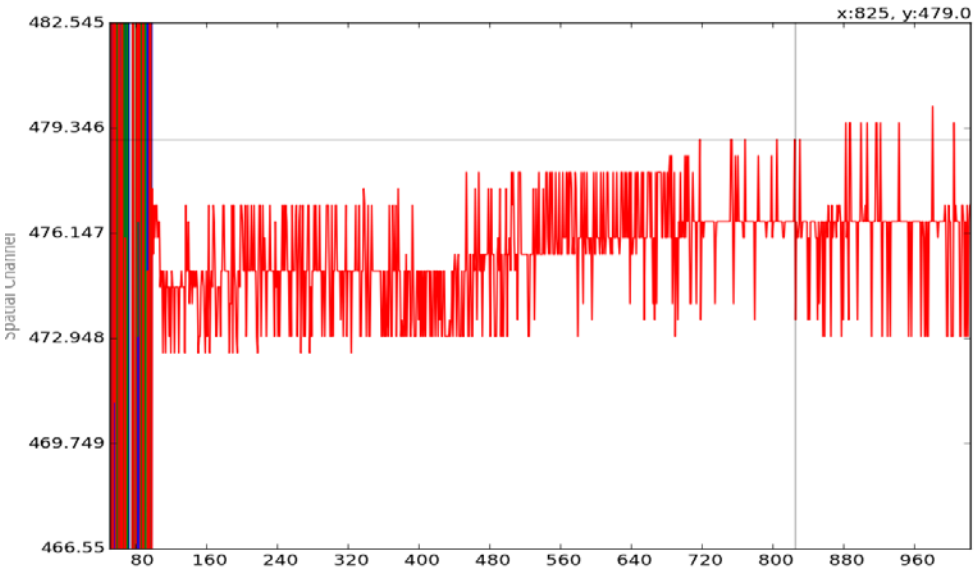


Figure 7: Channel 7 tilt

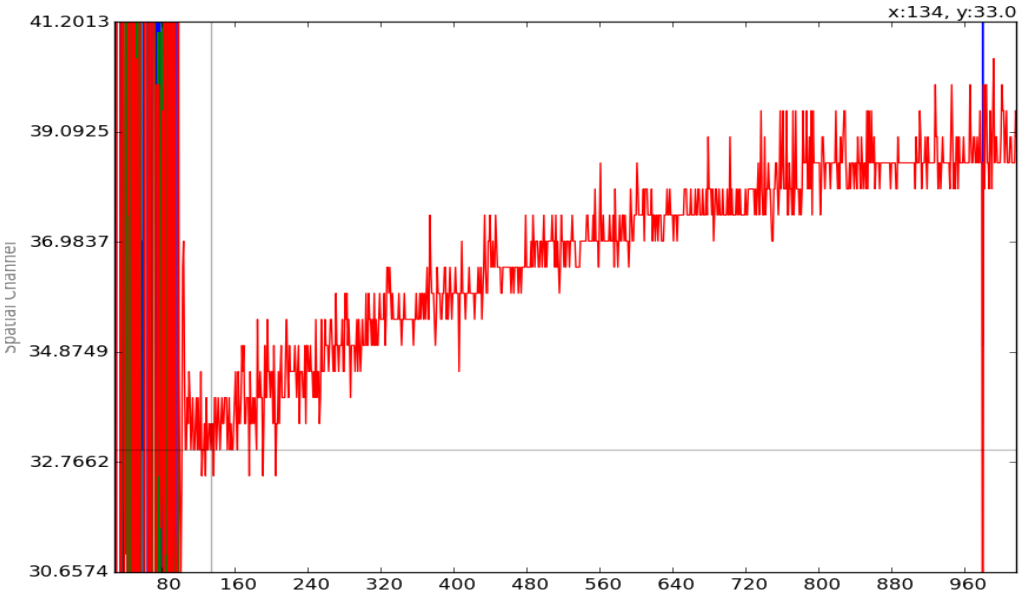


Figure 8: Channel 14 keystone.

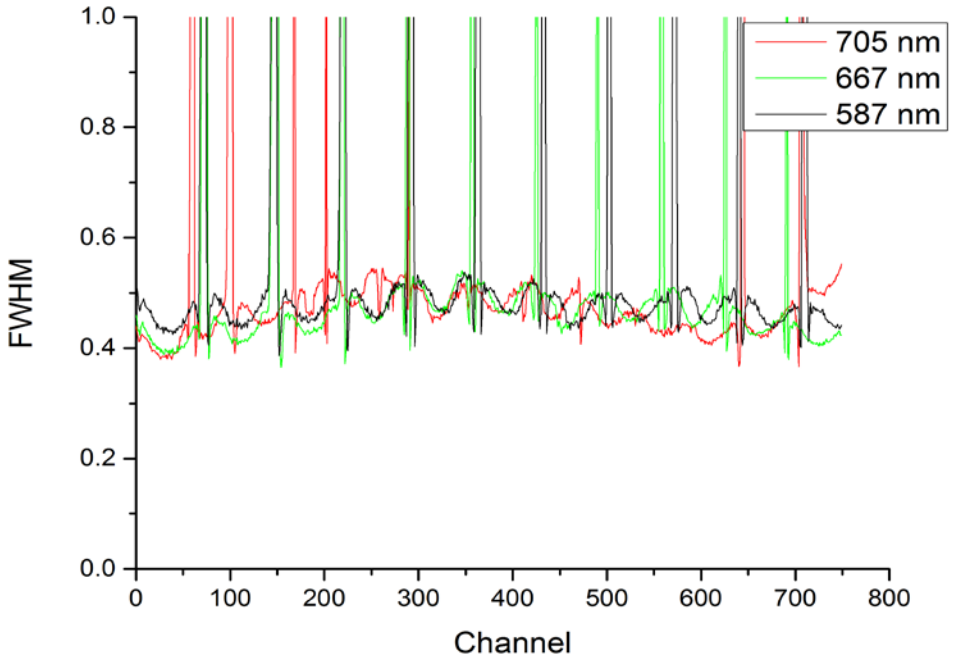


Figure 9: Spectral widths vs. spatial position. Manual Guassian peak fitting calculated a FWHM of 1 nm.

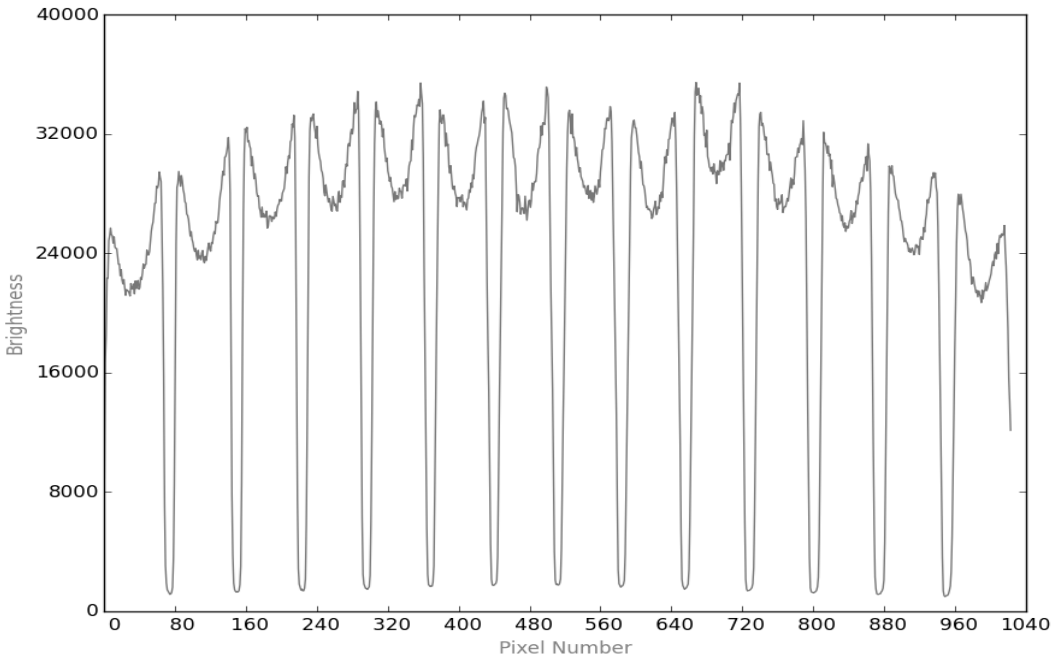


Figure 10: Cross section of fibers.

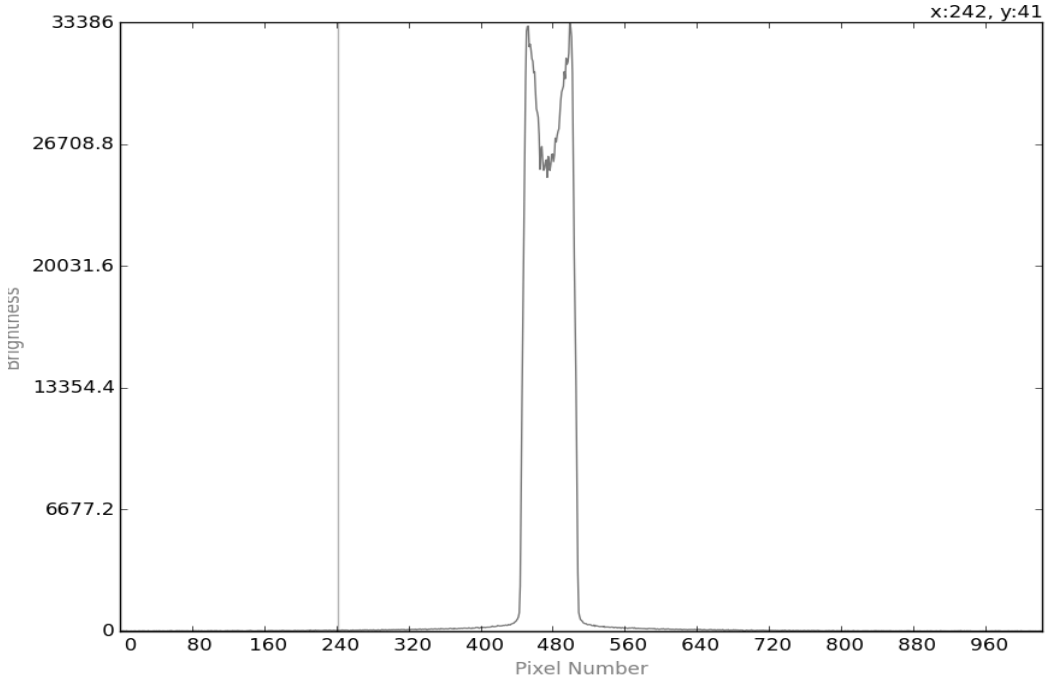


Figure 3: Cross section of channel 7.

Table 2: Results of shaker test before and after a four hour "shake" on the shaker table.						
	Pre Shake Pixel Position	Pre Shake FWHM	Post Shake Pixel Position	Post Shake FWHM	Change in Position	Change in FWHM
587 nm	220	~.5nm	221	~.5nm	1	0
667 nm	422	~.5nm	423	~.5nm	1	0
705 nm	519	~.5nm	520	~.5nm	1	0