



## Dualband Filter Shootout! Optolong L-eXtreme vs Askar Colour Magic 6nm vs Optolong L-Ultimate

Home > Reviews > Dualband Filter Shootout! Optolong L-eXtreme vs Askar Colour Magic 6nm vs Optolong L-Ultimate

By **Lee Pullen** Published: Oct 29, 2022

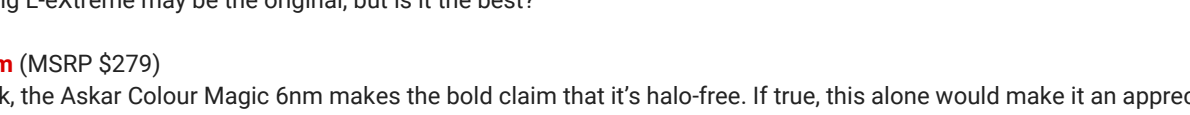
*As the next generation of dualband filters hit the market, we test two of the latest against the most popular original. Which will emerge the winner in this dualband shootout?*



The three dualband filters being tested. The Askar Colour Magic 6nm has the best packaging. Credit: Lee Pullen.

Narrowband imaging used to be the domain of astrophotographers using mono cameras and expensive filters, but the introduction of dualband filters changed this. Designed for use with the One Shot Colour (OSC) cameras, dualband filters allow the simultaneous capture of Hydrogen-alpha and Oxygen III wavelengths using a single filter, opening the window to a host of narrowband targets. They also make OSC imaging from light polluted skies an option since they cut out the vast majority of light pollution.

A new generation of dualband filters has given astrophotographers a new set of tools to choose from. Here I present the results of tests on three 2" mounted dualband filters using my Askar 130PHQ Flatfield Astrograph and ZWO ASI2600MC Pro camera from a Bortle 8 city center.



### The competitors

**Optolong L-eXtreme** (MSRP \$309, but available retail for \$298)

The best known dualband filter to date is the Optolong L-eXtreme. Released two years ago, it helped usher in the era of narrowband imaging for OSC astrophotographers. It features two bandpasses each of 7nm, allowing Hydrogen-alpha and Oxygen III wavelengths through, but blocking other sources of light – notably light pollution. The Optolong L-eXtreme has a good reputation, but is known to suffer from halos around bright stars that are difficult to remove in post-processing. The Optolong L-eXtreme may be the original, but is it the best?

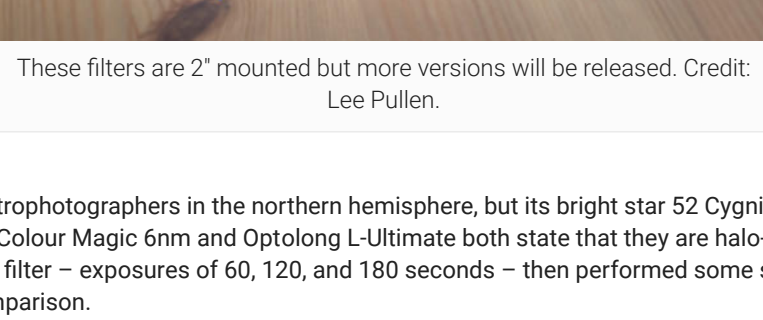
**Askar Colour Magic 6nm** (MSRP \$279)

The new kid on the block, the Askar Colour Magic 6nm makes the bold claim that it's halo-free. If true, this alone would make it an appreciable improvement over the Optolong L-eXtreme. With slightly narrower bandpasses of 6nm, in theory it should also be better at blocking light pollution and improving the all-important signal-to-noise ratio.

**Optolong L-Ultimate** (MSRP \$389)

The most expensive of the dualband filters tested here, and with impressive specifications to match. Boasting bandpasses of just 3nm – much tighter than the Optolong L-eXtreme and Askar Colour Magic 6nm – it also proudly claims to be halo-free. In theory it should be the best of the bunch, but how will it cope under real test conditions?

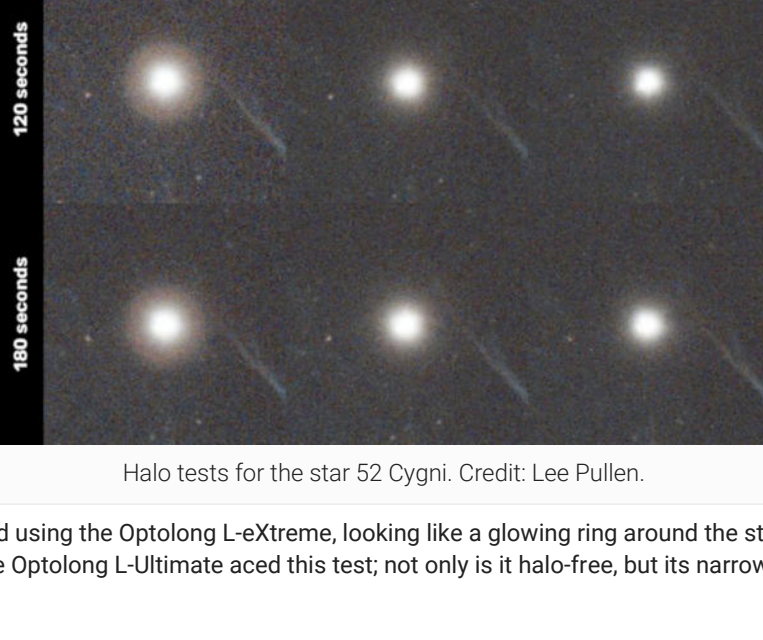
*Note that all three filters work best with slower telescopes, losing effectiveness as speed increases. If your telescope is faster than around f4.0 to f5.6, then it's recommended to consider a "highspeed" variation, where available.*



These filters are 2" mounted but more versions will be released. Credit: Lee Pullen.

### Round one: 52 Cygni halo test

The Witch's Broom is a popular target for astrophotographers in the northern hemisphere, but its bright star 52 Cygni is known to suffer from halos when using dualband filters. Considering that the Askar Colour Magic 6nm and Optolong L-Ultimate both state that they are halo-free, I decided this would be a good first test. I took a series of three images for each filter – exposures of 60, 120, and 180 seconds – then performed some simple processing steps, including an extreme crop into the star, to allow for a comparison.

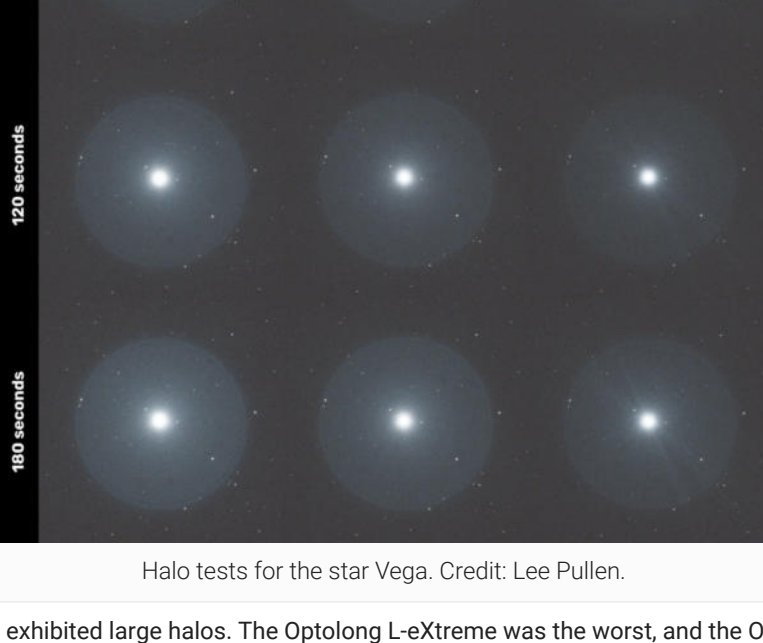


Halo tests for the star 52 Cygni. Credit: Lee Pullen.

Halos are clearly evident in the data captured using the Optolong L-eXtreme, looking like a glowing ring around the star. The Askar Colour Magic 6nm performed very well, with no halos evident. Similarly, the Optolong L-Ultimate aced this test; not only is it halo-free, but its narrow 3nm bandpasses have kept 52 Cygni tight and well-defined.

### Round two: Vega halo test

Vega is the brightest star well-placed in my sky at the moment, so I turned my telescope to it for the next test. This would be an extreme challenge: with such a bright star, and all the light captured by my 130mm refractor, would these new dualband filters still be halo-free?



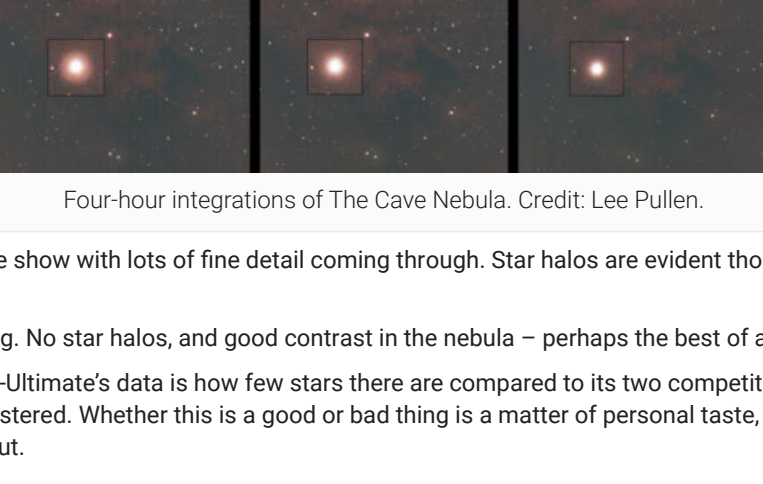
Halo tests for the star Vega. Credit: Lee Pullen.

The short answer: no. All three filters on test exhibited large halos. The Optolong L-eXtreme was the worst, and the Optolong L-Ultimate actually has spikes coming from the star. The Askar Colour Magic 6nm's halos were large but clean.

Perhaps this was too brutal a challenge, and no astrophotographer would actually image Vega in this way, but I wanted to really stress-test these filters so that potential buyers are aware of their limits.

### Round three: The Cave Nebula

I then imaged The Cave Nebula using each filter for a total integration time of four hours each. As with the star halo tests, I performed some basic pre-processing steps just to bring the images to a state where they could be fairly compared.



Four-hour integrations of The Cave Nebula. Credit: Lee Pullen.

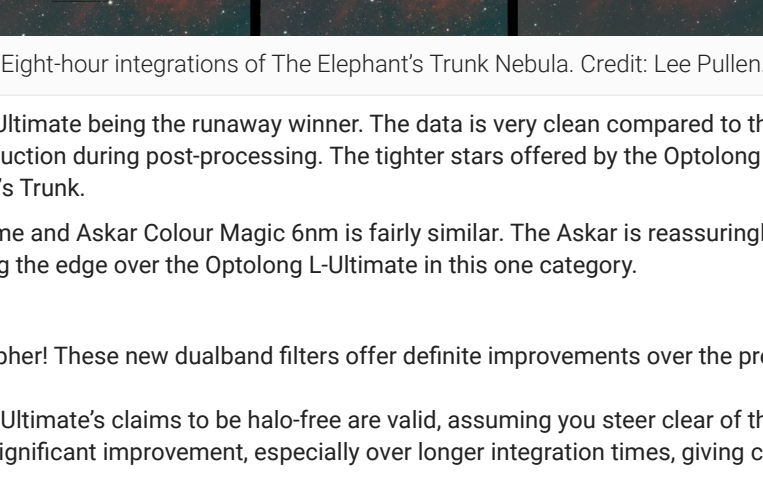
The Optolong L-eXtreme put on an admirable show with lots of fine detail coming through. Star halos are evident though, ready to cause a headache to anyone trying to remove them during processing.

The Askar Colour Magic 6nm was very strong. No star halos, and good contrast in the nebula – perhaps the best of all three, in fact.

The main thing to note about the Optolong L-Ultimate's data is how few stars there are compared to its two competitors. The 3nm bandpasses block so much light that the very faintest of stars aren't registered. Whether this is a good or bad thing is a matter of personal taste, although it favours the current fashion of understated stars to help nebulousity stand out.

### Round four: The Elephant's Trunk Nebula

For the final test I captured eight hours of data per filter for The Elephant's Trunk Nebula.



Eight-hour integrations of The Elephant's Trunk Nebula. Credit: Lee Pullen.

The difference is stark, with the Optolong L-Ultimate being the runaway winner. The data is very clean compared to the Optolong L-eXtreme and Askar Colour Magic 6nm, lessening the need for noise reduction during post-processing. The fainter stars offered by the Optolong L-Ultimate also help to separate the close pairing of stars in the "head" of the Elephant's Trunk.

Performance between the Optolong L-eXtreme and Askar Colour Magic 6nm is tightly similar. The Askar is reassuringly halo-free, and offers good contrast around the edges of the nebula, perhaps even having the edge over the Optolong L-Ultimate in this one category.

### Conclusions and recommendations

It's a great time to be an OSC astrophotographer! These new dualband filters offer definite improvements over the previous generation.

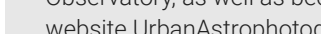
The Askar Colour Magic 6nm and Optolong L-Ultimate's claims to be halo-free are valid, assuming you steer clear of the very brightest stars. The Optolong L-Ultimate's narrow 3nm bandpasses offer a significant improvement, especially over longer integration times, giving clean data and helping to pierce through the light pollution that plagues our cities.

So, which one to buy? Let's say you're after your very first dualband filter. I wouldn't recommend you buy a new Optolong L-eXtreme. If you can afford it, then the Optolong L-Ultimate will give you terrific performance and provide data that's easier to edit. If you're on a budget then consider the Askar Colour Magic 6nm; it's \$110 cheaper than the Optolong L-Ultimate, but will serve you well. There is another possibility though: the current owners of Optolong L-eXtremes may well sell theirs to fund an upgrade, giving you a route into the world of dualband imaging for a knock-down price.

Is it worth upgrading if you're a current owner of an Optolong L-eXtreme? It is, and you'll really notice the difference if you shell out for an Optolong L-Ultimate. The Askar Colour Magic 6nm is a harder recommendation. Its slightly tighter bandpass compared to the Optolong L-eXtreme's 7nm makes its improvement incremental, but if star halos have been bugging you then it's an easier sell.

What about the question we posed right at the beginning: which dualband filter will emerge at the shootout winner? There can be only one, and that crown belongs to the Optolong L-Ultimate.

*Editor's note: Askar has recently released a 3nm version of the Color Magic dualband filter, which will also be testing head-to-head with the Optolong L-Ultimate soon.*



### About Lee Pullen

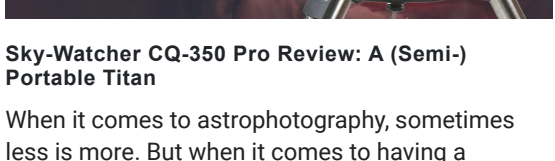


About Lee Pullen

<http://urbanastrophotography.com>

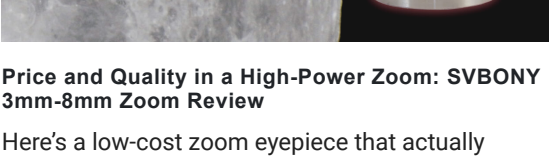
Lee Pullen is a science writer and communicator from the city of Bristol, UK. He has a degree in Astronomy and a master's in Science Communication. He began his career writing for organisations including the Hubble European Space Agency Information Centre and the European Southern Observatory, as well as becoming Staff Writer for the International Year of Astronomy 2009, the world's largest ever science outreach initiative. Lee runs the website UrbanAstrophotography.com

### RELATED POSTS



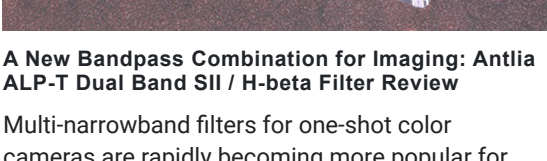
**Sky-Watcher CG-350 Pro Review: A (Semi-Portable Titan)**  
When it comes to astrophotography, sometimes less is more. But when it comes to having a capable mount to drive your gear, sometimes more...

[Read More](#)



**Price and Quality in a High-Power Zoom: SVBONY 3mm-6mm Zoom Review**  
Here's a low-cost zoom eyepiece that actually works well. I was surprised! I've never been a fan of zoom eyepieces. Most suffer from variable...

[Read More](#)

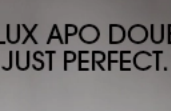


**A New Bandpass Combination for Imaging: Antlia ALP-T Dual Band SII / H-beta Filter Review**  
Multi-narrowband filters for one-shot color cameras are rapidly becoming more popular for their light-pollution-defeating benefits and the speed of using a one-shot color camera...

[Read More](#)

**SUBSCRIBE**  
GET NEWS AND UPDATES WHEN A NEW POST IS PUBLISHED

### FOLLOW US ON



**EVOLUX APO DOUBLETS. JUST PERFECT.**

**PERFECT FOR IMAGING. PERFECT FOR VISUAL. PERFECT FOR TRAVEL.**

**Sky-Watcher**  
OF AMERICA

**CELESTRON**  
**BRING THE UNIVERSE TO YOUR BACKYARD**  
**LEARN MORE**

**Lunatic Astronomical, watching the sky since 2008!**

- Cloud detection - Sky quality measurement - Ambient temperature - Humidity - GPS
- Atmospheric pressure - Wind detection - ASCOM, INDI, INDIGO support

From \$295! **PocketCWX** Best portable weather station

**CloudWatcher** High accuracy Network weather station

**new**  
**NEXDOME PERSONAL OBSERVATORIES**

**YOUR TELESCOPE DESERVES BETTER**

**NEXDOME.COM**

### CONTACT

[info@AstroGearToday.com](mailto:info@AstroGearToday.com)