

I looked at the reviews short tube achromats, and the 80ED refractors of various manufacturers, searching for something good at a reasonable price (my initial price point was about \$500). Short tube achromats were inexpensive, but many online reviews indicated that false color was an issue, and that their inexpensive design, fit and finish, and quality control left something to be desired. I read good reviews about the Celestron and Orion 80ED scopes, raving about great views with little or no false color, and better but not great fit and finish. They sounded good but they were much longer than what I wanted, and they were sold at an attractive price point but didn't have everything I would need. By the time I added on a good diagonal, a finder scope and appropriate bracket, and a decent bag to carry it in, the cost was much higher. I spotted the William Optics Package deal, a limited time offer of \$599 for a "Semi-Apochromatic" short tube refractor, which included everything I needed and wanted.



Shot using eyepiece projection using a 26mm plossl, no filter

I was worried about the false color of a "semi-Apo". Is it an APO or not? Is there false color or not? I read the reviews about the superb quality of the William Optics products, including a review on Astromart about the ZenithStar 80 and decided that this was the deal for me. I emailed William Optics directly and got very fast replies to all my questions. I then ordered the package. I also ordered the 1.25" VR-1, violet reduction filter to go along with it in case I found that the violet fringing was too distracting. The scope arrived via UPS as promised, and was packaged very nicely. I had also talked to WO directly and received extremely courteous and professional help on the phone. They had won me over in the customer service category already.

I had a chance to check everything out, and was very impressed with the quality of all of the components. There are no plastic parts on this package, anywhere. Everything is machined metal, with a solid feel to it. The 2 inch crayford focuser rotates smoothly, and precisely. The finish on the scope and all other parts is of a quality that one would expect on a scope that is much more expensive. Quality Control had clearly checked each item, and passed (at least that's what the stickers said). The white finish is elegant, and the gold cap and trim is very classy looking. The finder scope was already placed in the bracket which is nicely manufactured, and fits and looks perfect for this telescope. I looked through the finder scope, and it has a very clear and crisp image and crosshairs. Having never seen an illuminated finder scope, I was eager to try it. I tried it with the batteries in, positive side up, just like I was told, and gently turned on the switch. I didn't see anything light up. I tried again, and even tried it with the batteries in the wrong way and still, nothing lit up. Since the batteries were in a bag, but not in retail packaging I thought that perhaps they were bad, and sure enough, my voltmeter read next to nothing on both of the 3 volt lithium CR1632 batteries. A quick email to WO, had two more on the way without even a question, which arrived in two days and worked perfectly. Adjustment of the alignment of the finder scope is accomplished easily with three nylon tipped thumbscrews, which turn smoothly and will not mar the finish. The eyecup is a super soft rubber design, and it came with nicely made soft rubber caps, for both front and rear elements. And most importantly, the views through the finder scope were crisp and clear.



Shot with VR-1 filter

I attached the telescope to the standard 1/4 20 camera mount on my tripod. The attached L-Bracket is very solid, and nicely finished in black paint. I then removed the 1 ¼ inch adapter from the focuser and attached the 2 inch WO dielectric diagonal. The diagonal is a top quality, very nicely manufactured machined all metal design. I have read review on this diagonal, which said that it was one of the best out there. It sells for \$200 on its own, and I can see why. It too came with its own 1 ¼ inch adapter, and nice fitting end caps. The only decent quality eyepiece that I initially had was a 26mm Meade 3000 series plossl given to me as a gift by a very dear friend. Thanks again – you know who you are. I was very pleased with the daytime views, and found that the focusing was so smooth, that even on this short focal length design, the focusing was a pleasure. It was very easy to glide into focus from either direction, and guite easy to tell when precise focus had been achieved. So far, everything looked good. Now it was time to test the image quality, so I looked at the chimney on the roof two houses away. I could barely see some Chromatic

Aberrations, including purple color fringing just on the edges of the highest contrast areas. But I really had to look hard to see it. It was there, but at this power, 19X, it was virtually impossible for me to see much less find offensive or distracting. It was time to see if the camera could see it. I hooked up the Canon 20D using a T-adapter, and T-ring, and found that I really had to go to the end of the focuser travel (which is quite long) in order to reach focus. I suspected this would be the case, and it might be worth spending a couple of dollars for a 2 inch tube extension, an inch would be plenty. I was able to focus, but only after nudging out the 1 ¼ inch adapter, and T-adapter, rather than seating them all the way in as I originally did. It made me a bit nervous having my expensive DSLR hanging there, but the copper tension ring in the focuser held the T-adapter very securely. I set the camera to aperture priority, automatic white balance, and shot a picture. Then I took out the WO VR-1 filter and attached it to the t-adapter and shot a picture. The views were of course much greener than before, as all the purple highlights had been filtered out. The results of the picture is shown and labelled accordingly. These images are cropped and sized to 100% pixel size, and clearly show the extent to which you can expect to see (or not see) the chromatic aberration.



Without filter, cropped and zoomed to 100%

Next it was on to night time viewing, and the moon was the first target. Again, a series of views, and pictures, both with and without the VR-1 filter are shown below. I am very pleased with the quality of the optics so far. I examined a number of stars and found collimation to be dead on from the factory. The contrast, even in my heavily light polluted skies of the western Chicago suburbs was excellent. I've included several full moon shots, taken when skies were mediocre at best, but both the standard views, and cropped 100% views show that chromatic aberration is well under control.

SUMMARY

Overall fit and finish: Excellent, because every component is nicely crafted and manufactured. Optical Quality: Again, excellent, because it appears to have very good optics.

Focuser: Outstanding, since the nicely machined smooth, fully rotatable crayford style focuser is a joy to use.

Diagonal: Again, outstanding, since its manufacturing

and optical quality are superb. I can see why these sell for \$200.

Finder scope and bracket: Very nice, although it would be nicer to have a larger finder scope, the 6x30 fits nicely with my travel needs, and the lighted crosshairs is just plain cool to use. Mounting it to the scope is quick and secure, but I wish it had a slot to position the same each time, which would prevent having to realign it each time.

Backpack bag: Very nice, as it has custom cut foam for everything included, and removable eyepiece pieces for enough 2 inch and 1 ¼ inch eyepieces to satisfy most users. I'm not sure how the foam will hold up over time, but the bag is a very durable heavy gauge well sewn nylon design.



With VR-1 filter, cropped and zoomed to 100% Overall, I would highly recommend this package to anyone who has similar needs to mine. It will truly be a Jack of All trades for my needs, including being a high quality but not overly expensive travel scope, a very nice spotting scope, and a nice 500mm fixed focal ratio camera lens. In the future, I will be set when I someday buy a 8 inch or larger SCT scope, as this will serve to compliment it nicely as a piggybacked guide scope, widefield scope, or astrophotography scope.

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