



## PRODUCT REVIEW

by Todd Carlson



### THROUGH THE LENS, SHARPLY

Not since 1982, when optics guru Al Nagler of Tele Vue Optics introduced his Nagler eyepiece with its revolutionary 82-degree apparent field of view, has an eyepiece caused as much buzz among backyard astronomers. Now, with an unprecedented 100-degree apparent field of view, the new Tele Vue Ethos eyepiece takes the crown as the eyepiece with the widest field—a field that is not only wide but sharp. Of course, like many luxury items, the Ethos comes at a price: It is one of the most expensive eyepieces ever offered to amateur astronomers, costing more than some decent beginners' telescopes. But being number one at anything is always going to grab attention.



and established a new benchmark in wide-field-eyepiece design that has reigned supreme among wide-angle eyepieces for more than a quarter of a century.

At the 2007 NorthEast Astronomy Forum, a major annual conference and equipment exhibition held earlier this year in Suffern, New York, Tele Vue Optics demonstrated a new addition to its lineup: the Ethos, an eyepiece with a 100-degree AFOV. Tele Vue supplied *SkyNews* with a 13mm Ethos for review.

I can still recall how amazed I was at my first view through a Nagler, but over the years, I have become accustomed to the 82-degree AFOV. The question is, How much difference does the jump from 82 to 100 degrees actually make? Simply put: Quite a bit.

Through my Tele Vue 76mm f/6.3 apochromatic refractor, the 13mm Ethos provides a magnification of 37x with a 2.7-degree field of view. Stars were pin-point edge to edge. No noticeable aberrations could be detected on- or off-axis. When I removed the Ethos and switched to a 13mm Type 6 Nagler (82-degree AFOV), it was almost a letdown. The 50 percent additional celestial real estate afforded by the Ethos was *immediately* apparent. Moreover, the wider field of view through the Ethos presented a more relaxed and pleasing image to the eye.

When using an extreme wide-field eyepiece at low power, it is sometimes difficult to place the eye in the correct position to see the entire field of view. I experienced some minor blackout effects when I first looked through the Ethos, but after a few minutes, as I became accustomed to the eyepiece's "sweet spot" and its comfortable 15mm eye relief, this became a nonissue.

Initially, it was hard to visually grasp the entire field of view unless I pressed my eye firmly against the eyeguard. However, I quickly realized that folding down the eyeguard rectified the problem. Though it may sound like a cliché, it soon seemed as if the eyepiece had disappeared and I was viewing into the depths of space through a panoramic window.

If the telescope has a focal ratio of f/8 or greater, almost (*continued on page 39*)

# Wide-Field Eyepiece Breakthrough?

Is wider better? When it comes to eyepieces, the answer is yes, but only if the whole field of view is in sharp focus. We tested Tele Vue's new 100-degree Ethos design to see whether it measures up.

**M**OST BACKYARD ASTRONOMERS begin with a telescope equipped with two or three Plössl eyepieces or eyepieces of a similar design that offer an apparent field of view (AFOV) of about 50 degrees. These eyepieces are serviceable and provide sharp celestial views, but you can improve your telescope's performance by adding an eyepiece or two with a wider apparent AFOV.

AFOV is the width of the circle presented to your eye as you gaze into the eyepiece. All eyepieces (except zoom eyepieces, which are not widely used in astronomy) have a fixed value for AFOV, which is sometimes engraved on the eyepiece.

If two eyepieces have the same focal length but a different AFOV, the one with the larger AFOV will show more sky, or real field of view, at the same magnification. The downside of this otherwise happy arrangement is that the wider the field, the more costly the eyepiece, if it is to provide sharp images over the entire telescopic field.

The era of ultrawide eyepieces began in the early 1980s with the breakthrough Nagler eyepiece design developed by Al Nagler of Tele Vue Optics. With its 82-degree AFOV, the Nagler eyepiece offered an AFOV 2.7 times the size of the 50-degree eyepiece in terms of area

### PRODUCT SPECIFICATIONS

#### Tele Vue Ethos eyepiece

Can be used in 1.25- or 2-inch diagonals

Focal Length: 13mm

Weight: 20 ounces (580 grams)

Eye Relief: 15mm (Dioptx can be attached)

Price: Approximately \$700 from Canadian dealers

Website: [www.televue.com](http://www.televue.com)

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any eyepiece will provide pleasing images with sharp stars to the edge of the field. The true test of a well-corrected eyepiece is its performance on a “fast” telescope, such as my 12.5-inch f/4.8 Newtonian reflector.

The Ethos passed this test, providing beautifully sharp stars across nearly the entire field. A Newtonian of this focal ratio has inherent coma near the edge of the field of view, but the Ethos handled the job better than the 13mm Type 6 Nagler.

Currently available only in the 13mm focal length, the Ethos is substantially larger than the 13mm Nagler yet, at 20 ounces, is surprisingly light.

Is the Ethos a “must-have” eyepiece?

For some, perhaps. Owners of large Newtonian telescopes will especially appreciate the enhancement of the deep-sky experience. But be forewarned: After viewing through an Ethos, you’ll find all other wide-field eyepieces absolutely narrow by comparison.

This review was not intended to be a contest between the highly acclaimed Nagler and the Ethos. However, the Tele Vue Nagler has set the standard for wide-field eyepieces for over 25 years; therefore, it was only logical to compare the two.

The new Ethos has raised the bar. ■

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