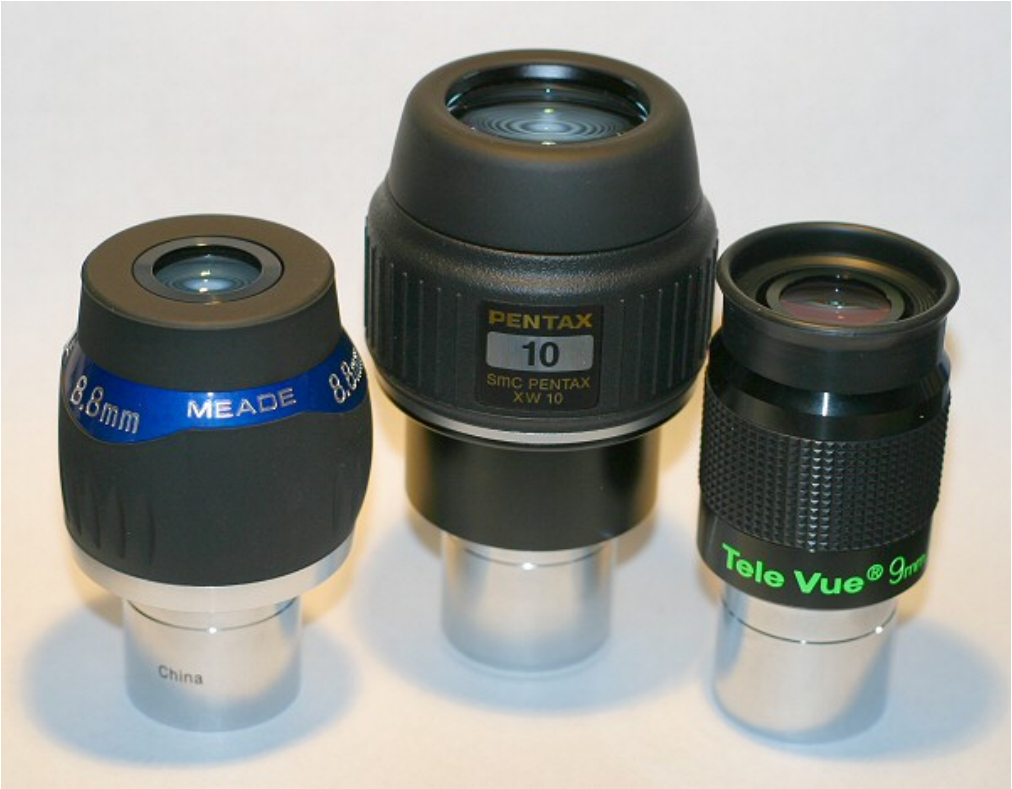
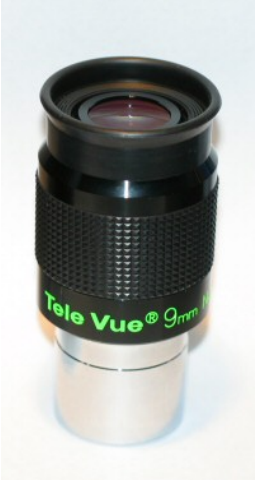
9mm (ish) UltraWide Shootout: Meade 8.8 5000, Pentax 10mm XW, Nagler 9mm t6 Plus – the old and the new – compared!

Tom Trusock – 5/05



Ask anyone what the best ultra wides on the market are, and I'd bet money that the answer would include Tele Vue, Pentax or Meade.

Thanks to Astronomics, Cloudy Nights recently had a chance to put these three head to head in the 9-10mm range. So let's take an in-depth look at the contenders.

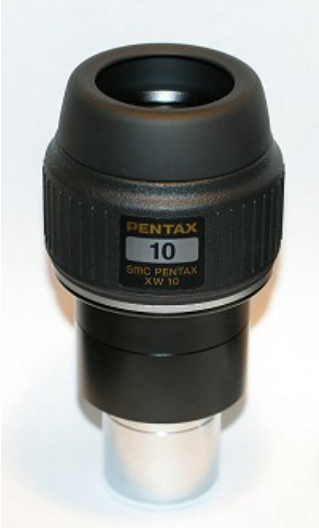


Tele Vue 9mm t6	
Eye lens	18.5 mm
Field lens	15 mm
AFOV	82 deg
Weight	7 oz
Includes	Caps

First up is the Tele Vue 9mm T6. This design replaced the venerable t1 Naglers in the Tele Vue line up. The t1's had a very long run, and even today are still quite popular on the used market. The primary complaints with the 9mm t1 were probably it's relatively low throughput and large size. The T6 has changed that – it's smaller lighter and brighter. The T6 sports 13mm of eye relief, and while this is a bit tight if you wear glasses,

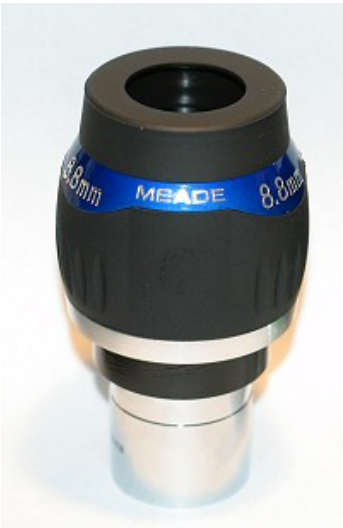
it's just about perfect for the rest of us. The 82 deg AFOV is a nice touch – probably the defacto standard for ultra wide fields. Some folks complain they can't see the field stop, but curiously I've never had any problem – not that I spend a lot of time looking at the field stop anyway. The type 6 Nagler has also been gaining a reputation as a planetary eyepiece – and with good reason. The new design is incredibly sharp. While I still find that a dedicated/specialized planetary eyepiece can outperform the Naglers, it's a near thing. The t6 Naglers are 1.25" eyepieces and work very well in binoviewers. The T6's have a hard rubber eyecup that serves to help block some (but not all) ambient light. The barrel features a safety undercut. Fit and finish is as you would expect for a product at this price point. Excellent.

Pentax 10mm XW	
Eye lens	33.5 mm
Field lens	16.5 mm
AFOV	70 deg
Weight	14 oz
Includes	Caps



This replacement for the XL series offers an improved field of view – 70 deg vs 65. It continues with the Pentax legendary eye relief - providing a very comfortable 20mm. If you have to wear glasses while observing, and are looking to decide between these 4 eyepieces, look no further. This is the wide field eyepiece for you. The XW's large size and massive eye lens element will also engender it to people who like a "picture window" view. The XW also offers their now traditional screw up eyecup. Unfortunately, while some folks report good results, I'd have to say the Pentax eyepieces are just not well suited for binoviewing due to their large size. Somewhat surprisingly though, I found the 70 deg AFOV of the XW's to be very immersive. Even though it's not as large as the Meade's or the Tele Vue's, I never once felt cramped. The barrel features a safety undercut. Fit and finish is superb, and the XW comes with caps and a bolt case for protection.

Meade 8.8 5000 UWA	
Eye lens	19 mm
Field lens	15 mm
AFOV	82 deg
Weight	10 oz
Includes	Caps



Meade 5k's are the newcomer on the block. They recently abandoned their vaunted series 4000 line up and manufacturer – moving production from Japan to China and incorporating a new optical design in the process. The new eyepiece is a bit more ergonomic than the old and makes liberal use of rubber and plastic throughout. Fit and finish leaves a little to be desired. The twist eyecup (very similar to the Pentax unit) is greased for easier action. Unfortunately, this action smears the grease around the barrel, leaving a thin film every time you move the eyecup up or down. Ironically, I felt the action of the

eyecup was too easy, and would prefer a stiffer unit – most emphatically without the grease. As shown in the photos, there was also a scratch on the side of the barrel in the sample reviewed. While fit and finish items like this tend not to affect the views, they do affect the sense of ownership, and are ill befitting a product of this caliber.

Comparisons

I used these eyepieces in several different telescopes over the course of a couple of months. They saw service at f4.5, f6, f7(ish), f7.5 and f8.6. Deep sky comparisons were done on a number of targets – from multiple and binary stars, to planetary and reflection nebulae. For lunar and planetary comparisons, I spent time with them on Jupiter, Saturn and Luna – frequently observing in twilight as well as night.

Right off the bat, I'd have to say the most comfortable eyepiece for mono viewing in the lineup was the Pentax XW. It's generous eye relief, adjustable eyecup and large eye lens ensured that it scored big in that area. If you wear glasses, you might as well stop reading right here and get yourself an XW. Alternately, you can consider a Radian (which I'm not reviewing in this article). For the rest – well – read on.

While the 5k is listed as having more eye relief than the t6 Naglers, I actually found the two quite comparable in use, with the 5k having perhaps a touch less. I found that I needed to leave the eye guard of the 5k screwed all the way down in order to see the entire field – thus, for all intents and purposes, there was no eye guard in use. Overall I found the Nagler second most comfortable to use, and the Meade last – but not by much.

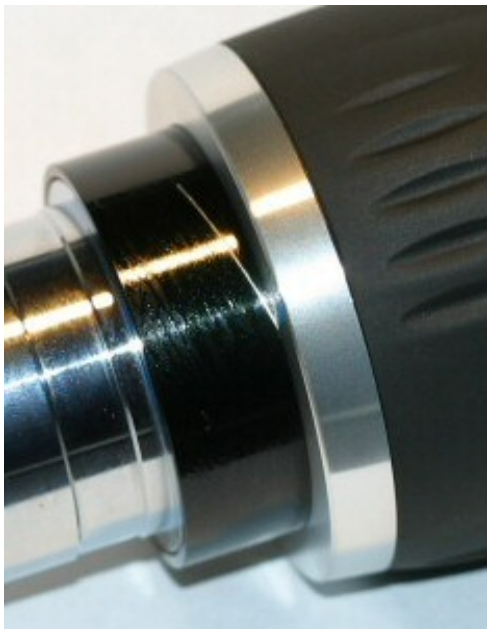
I didn't experience any problems with spherical aberration of the exit pupil (kidney bean) with the Nagler, but I'm a long time Nagler user and that may play into it. There was a minor amount with both the Pentax and the Meade eyepieces – slightly more with the Meade, but neither being really terrible. This is something most users would probably adapt to after just a few sessions.

I didn't notice significant amounts of rectilinear distortion (pincushion or barrel) or astigmatism in any of the eyepieces. Off axis color was present and similar in the Meade 5k and the Tele Vue t6 – slightly more was visible in the Pentax XW's.

DSO performance was similar between all three eyepieces. All three delivered good views at nearly any focal lengths, although I felt the Nagler and the Pentax dealt with a shallow light cone (faster scopes) ever so slightly better. This was evident in their extreme edge correction on the faster scopes.

If I had to give the edge in contrast, it would probably be a tie between the Nagler and the Pentax with the Meade trailing close behind. The Pentax and Nagler were very close – optically (on contrast) the Nagler won, but considering it's also a shorter focal length and providing a touch greater magnification, I suspect the actual contrast provided by the two designs is extremely close.

On lunar and planetary, I found the only major optical flaw in the Meade 5k – when panning near the moon (and not in every position) the moon would telegraph its position by washing the field of view and throwing up a column of light. It was the worst case of out of field reflection I've ever seen in an eyepiece. Fortunately, it seems to be limited to pretty specific positions / relationships around bright objects, and it's possible that many users won't notice or be bothered by this – depending on their intended uses. It was particularly bad with my 18" Obsession – probably due to the open truss design. Different design and baffling in various refractors helped reduce the stray light getting to the eyepiece itself, but the problem was still noticeable.



Note the grease and the scratch on the Series 5000

This effect is somewhat noticeable in other eyepieces as well – the Pentax showed a hint but to a much lesser extent – several orders of magnitude less. In no way did I judge it objectionable in the XW. The T6 was better yet.

All three eyepieces presented very nice crisp views of the moon itself – even the 5k, after you got by the out of field reflection.

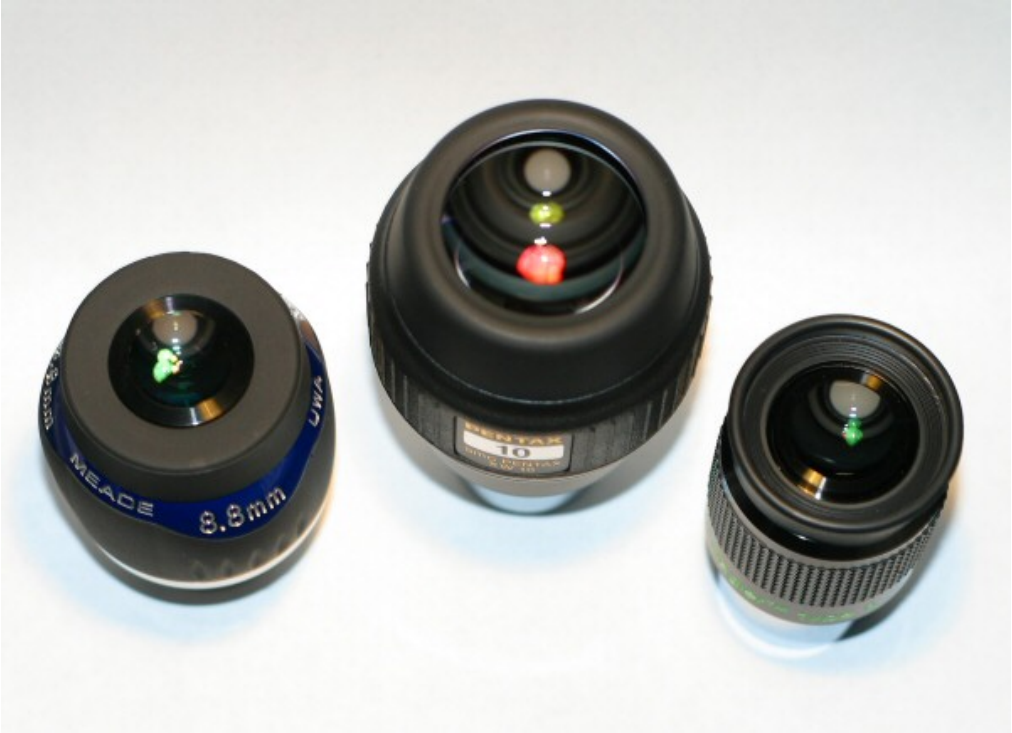
To determine the eyepieces ability to Barlow, I used a Tele Vue 2x Barlow, and another surprise awaited me.

Although all the eyepieces barlowed well; once again, I found myself facing quality control issues with the Meade. When barlowed, I brought a different focal plane into focus, and was stuck with several large dust elements in view. Upon inspection, the dust was found to be internal to the eyepiece and thus not removable without dissembling the eyepiece. When used without the Barlow, these dust motes were not visible. They would not be cause for concern if barlowing on DSO's, however, I was mainly interested in lunar viewing. Here, it's a pain. Surprisingly, there was a very minor amount of dust visible in the barlowed Pentax as well, although it was only one piece, and much smaller – therefore, far less intrusive. There was no sign of dust in the TeleVue eyepiece, either barlowed or unbarlowed. The two most comfortable eyepieces when barlowed were the TeleVue and Pentax. I felt both the Meade and the Pentax were somewhat more sensitive to eye placement when barlowed.

And the winner is….

Choosing an eyepiece is a very subjective thing. You will be influenced by your particular equipment, tastes, viewing habits and pocketbook. If you are an audiophile, it's like choosing speakers. You can read the specs all you want, but to get an idea of

what you really like and how it performs, there's no substitute for seeing for yourself. I'd recommend that you try to get to some star parties this summer and do just that.



What's more, even though I talk about generalizations here, please keep in mind that I'm not discussing the entire line. When I say the Tele Vue Naglers, please read that as the 9mm Tele Vue Nagler t6. It's important to compare specific eyepieces – particularly if the design of the line is not scaled. What's said about one may or may not apply to others in the line.

With that in mind, here are the "winners" as I determined them.

For my money, the best eyepiece in the whole lineup is the Tele Vue Nagler. Al really did well with the t6 design. It's small, lightweight, and has throughput and yields great contrast. These are spectacular medium to high power eyepieces for all types of observing, both DSO as well as lunar and planetary. I felt the t6's were the best of the three when coupled with a barlow. Their small size also lends itself well to binoviewer use.

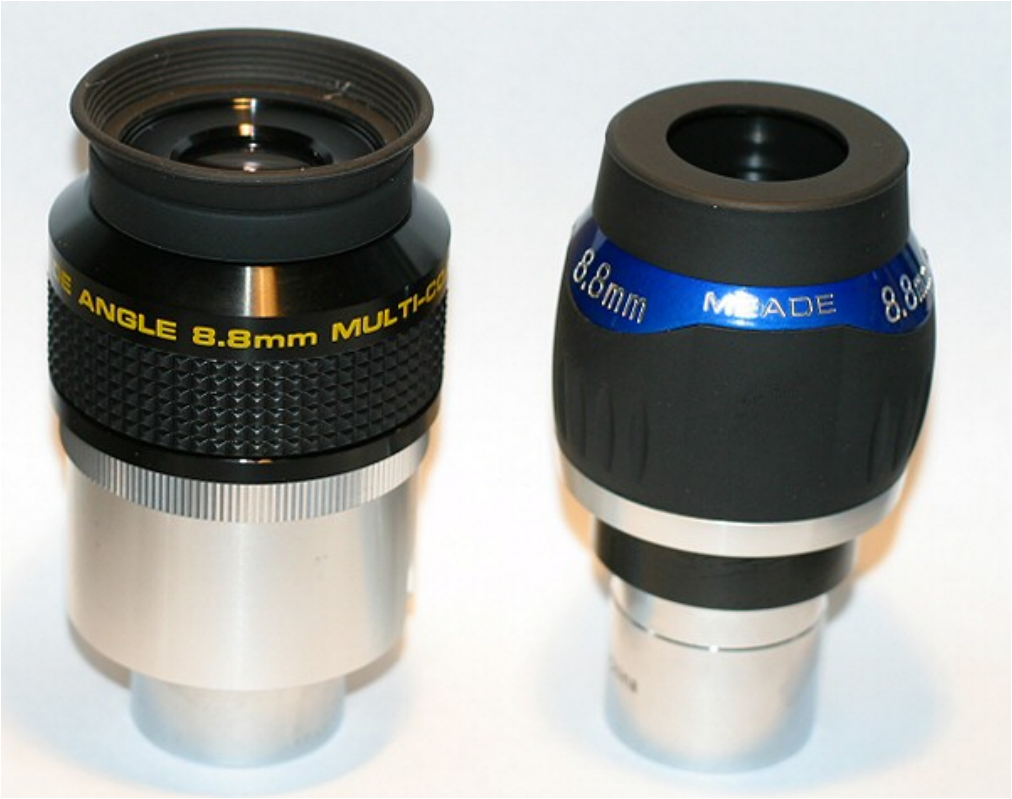
The very very close runner up was the Pentax XW. This could easily have been in first place if I'd worn glasses or was more concerned about comfort. The 12 deg difference in AFOV was not an issue at all – in fact, I felt the Pentax was probably the most subjectively immersive eyepiece between all three. This was due in no small part to the combination of its huge eye lens and adjustable eyecup. Contrast and throughput were very similar to the Tele Vue t6, but it's a huge eyepiece; it takes up a lot of space in your kit, and is twice as heavy as the t6.

Last place I'd award to the Meade 5000. Overall, I feel the optical design of the eyepiece is good, but there seem to be either implementation or quality control issues. Perhaps both. On the other hand, I can't be extremely harsh on the eyepiece. Considering its price point, I have to give it a little more leeway. Its about 1/3 less expensive than either of its competitors, and that's not chicken feed. There does however, come a point where you begin to think you've spent this much, you might as well spend a bit more and get the best. This is a rather subjective area – and is best determined by the individual.

Bottom line – if you can't afford the Pentax or the TeleVue, the Meade 5000's make an acceptable substitute, but there do seem to be some quality control issues. Interestingly, other reviews and owners in the online forums seem to be split on the "column of light" issue, and this may be a quality control problem that does not exist in every eyepiece. It may also be that because of the very specific nature of the problem, some owners just haven't noticed it yet. In any case, be sure to purchase from a reputable vendor.

If you want to be certain you have the absolute best ultra wide eyepiece on the field, cost no object, I'd opt for a TeleVue Nagler or a Pentax XW.

Afterthoughts: Series 4000 vs Series 5000



Given the vast amount of inexpensive Chinese equipment in the marketplace, there was a certain amount of worry when it became clear that Meade intended to go to China instead of Japan for its next series of premium eyepieces. Chinese optics have the benefit of

being extremely inexpensive, but a reputation of iffy quality control. Meade was obviously thinking about both its bottom line and passing the saving on to its consumers with this move.

Never the less – the astronomy world wondered what was going to happen to the UWA line as a whole. The 4000 UWA eyepieces are, by nearly any definition, a classic.

Mindful of this, I was also loaned a series 4000 for comparison.

Right out of the box, the differences in fit and finish were obvious. The older series 4000 was up to the same standards as both the TeleVue and Pentax, and therefore a step above the new series 5000. The 4000 is much larger and has a satisfying heft to it. The rubber eyecup, while not adjustable, is similar to many of the other eyecups on the market.

I made a point of looking for the glare issue I'd seen in the 5k – and didn't find anything even close. The 4k was pretty much as sharp as the 5k, and overall, a great eyepiece. The one area where the 5k did have a clear lead was in light transmission – the 5k was noticeably brighter.

There was no noticeable dust in the 4k – either barlowed or unbarlowed.

So the big question is: are the 5k's a step forward or a step back?

Ironically, the answer appears to be both. In fit and finish there's little question – at least based on the samples I've seen. The 4k's are clearly superior here. However – the new optical design seems to be a step in the right direction – it's just as sharp or sharper, much smaller and lighter and provides greater throughput. It does need an improved internal light baffling system however.

Meade could have hit a home run with this one – instead they choose to cut costs and opted to just put a man on base. If you have a nice set of 4000's UWA's (and are pleased with their performance) you won't gain much by moving to the 5000's except in size and weight.

Discuss this Article in the CloudyNights Forums