SVOTek UHC filter test

A few years ago I did a comparative test of UHC Neutron filters, where I found the Lumicon filter to perform the best. However, a new player has appeared – SVOTek with their production Lumicon filters. Has the Lumicon brand found a worthy successor? According to SVOTek, they were a manufacturer of Lumicon filters. Are SVOTek's filters the same as Lumicon's? I decided to check it out.

Time

I conducted the test on September 27, 2016 from 19:30 to 22:00. It was almost the end of September and it was the last sunny evening of the fall, which is suitable for the DS. I thought either I was going to do it now, or wait for the holidays to be over. Well, time to get to work! Time to fight with the nebula.

Conditions

Generally, the conditions were not perfect. It is important, however, that the tests of all the filters were carried out with the same equipment, at the same time and with the same eye. This allowed us to objectively distinguish the differences between these filters. The sky was unfortunately lightened due to a little too early time. But the Swan, especially the Sagittarius,

could not wait any longer. At the end of the session, the sky was already dark, but Sagittarius was already very low. The range I rated 5 magnitude. Seeing was very good. It was windless and warm.

Equipment

As comparison filters I used the Lumicon UHC (older) and the Orion UltraBlock. I use the Sky-Watcher 12 "telescope with ES 30mm, ES 14mm, ES 8.8mm ES.

Test observations

M8 Laguna Nebula
* Without filter: Only the brightest part of the nebula was visible; weak, visible only by peeking.
* Lumicon UHC: Both parts were immediately visible; the lighter part is brightly shown; clearly visible dark space between the two parts; Easily visible shape of the nebula.
* SVOTek UHC: The picture is not different from Lumicon; Differences are hard to come by; Maybe the nebula itself is a bit lighter than the Lumicon.
* Orion UB: image similar to that I got with Lumicon and SVOTek; Differences are hard to come by.

Overall rating: draw.

M20 Trilobar Nebula Clover
* Without filter: invisible.
* Lumicon UHC: Immediately visible shape of the nebula; Looking straight into a homogeneous nebula; averted clearly visible dark belts between the clover flakes; improvement 5/5.
* SVOTek UHC: the nebula visible immediately, as is the case with Lumicon; Maybe less clear than in Lumicon; I could not see the dark indentation; improvement 4/5.
* Orion UB: image comparable to SVOTek; I did not notice dark indentations; improvement 4/5.

Overall rating: the best picture gave Lumicon UHC; However, the Lumicon filter was used in better conditions when Sagittarius was a bit higher than when the other two filters were tested; Hence the better results from Lumicon's filter.

[i] M17 Omega Nebula
* Without filter: clear nebula shape.
* Lumicon UHC: the nebula goes wrong before the eyes! Large, bright, clear shape; picture is great! improvement 4/5.
* SVOTek UHC: image similar to Lumicon; I had the impression that the nebula was "puffing", which I did not notice in Lumicon; It was apparently more detailed; improvement 5/5.
* Orion UB: image a bit like SVOTek, only slightly weaker; improvement 4/5.

Overall rating: I liked the SVOTek UHC filter the most.

M16 Eagle Eagles
* Without filter: something out there...
* Lumicon UHC: clearly visible nebula, you can determine its shape; it nicely contrasts with the background of the open cluster;Improvement 4/5.
* SVOTek UHC: image similar to Lumicon; Difficult to find differences; But the nebula seems a bit brighter than that in Lumicon; improvement 5/5.
* Orion UB: image similar to Lumicon; improvement 4/5.

Overall rating: I liked the SVOTek UHC filter the most.

NGC 6960 and NGC 6992 Veil and Broom Nebula
* Without filter: something out there...
* Lumicon UHC: both nebulas become visible; you can see a clear shape and the characteristic jagged end of the broom and the "fringes" of the veil; improvement 4/5.
* SVOTek UHC: image comparable to Lumicon; You can see a bit more detail, but it's a search to find differences in the image; improvement 5/5.
* Orion UB: image similar to SVOTek; Difficult to find any differences; improvement 5/5.

Overall rating: almost a draw, but I prefer a picture from SVOTek or Orion UB.

NGC 7000 North American Nebula
* Without filter: invisible.
* Lumicon UHC: clearly visible nebula; Visible to all "continent", especially "Gulf of Mexico", as gas bundle; is pretty straight forward; You can admire the various areas of the nebula; improvement 5/5.
* SVOTek UHC: I cannot see the difference in image compared to Lumicon; improvement 5/5.
* Orion UB: I do not see differences in the image compared to Lumicon; improvement 5/5.

Overall rating: draw.

IC 5070 Pelican Nebula
* Without filter: invisible.
* Lumicon UHC: the nebula clearly visible straight ahead; distinctly visible beak shape with eye; improvement 5/5.
* SVOTek UHC: I cannot see the difference in image compared to Lumicon; improvement 5/5.
* Orion UB: I do not see differences in the image compared to Lumicon; improvement 5/5.

Overall rating: draw.

M27 Dumbbell Nebula
* Without filter: very pretty! Beautifully visible on the background of the stars.
* Lumicon UHC: bigger and brighter; the background of the sky was darkening and the number of visible stars decreased; improvement 3/5.
* SVOTek UHC: I cannot see the difference in image compared to Lumicon.
* Orion UB: I do not see differences in the image compared to Lumicon.

Overall rating: draw, but I think I prefer the image of this nebula without a filter.

M57 Ring Nebula
* Without filter: nice "ring" with a dark center.
* Lumicon UHC: darkened the background; the nebula is larger and much brighter; Looking straight ahead, the nebula is rather drenched,
The dark center is visible in the peek.
* SVOTek UHC: I cannot see the difference in image compared to Lumicon; improvement 5/5.
* Orion UB: I do not see differences in the image compared to Lumicon; improvement 5/5.

Overall rating: draw.

Summary

As the test showed, all three filters are noteworthy and command. There are not any big differences in images here, and in the worst conditions hard to tell any big difference between them. I can also say that SVOTEK UHC is the same filter as the Lumicon UHC, and some differences are due to the age of the Lumicon filter (15 years) and thus differences in applied technology.

Thread

You need to mention the quality of the threads of the frame. This does not affect the quality of the image, but the comfort of use. The ideal is the SVOTek thread. There are no threading problems here. Not once did I get caught. This is a pattern to imitate. The second filter, Lumicon UHC, unfortunately falls slightly worse. The current model, which is a bit dated, has a bit of a threaded thread and sometimes jams. But it screws to the end. The third thread, Orion UB, is a real tragedy. Practically always jams and screws only half a turn. This is an example of how a thread should not work, but you can always invest $ 25 and replace the holder with a new one with a good thread. So the solution is possible.

Protective layers

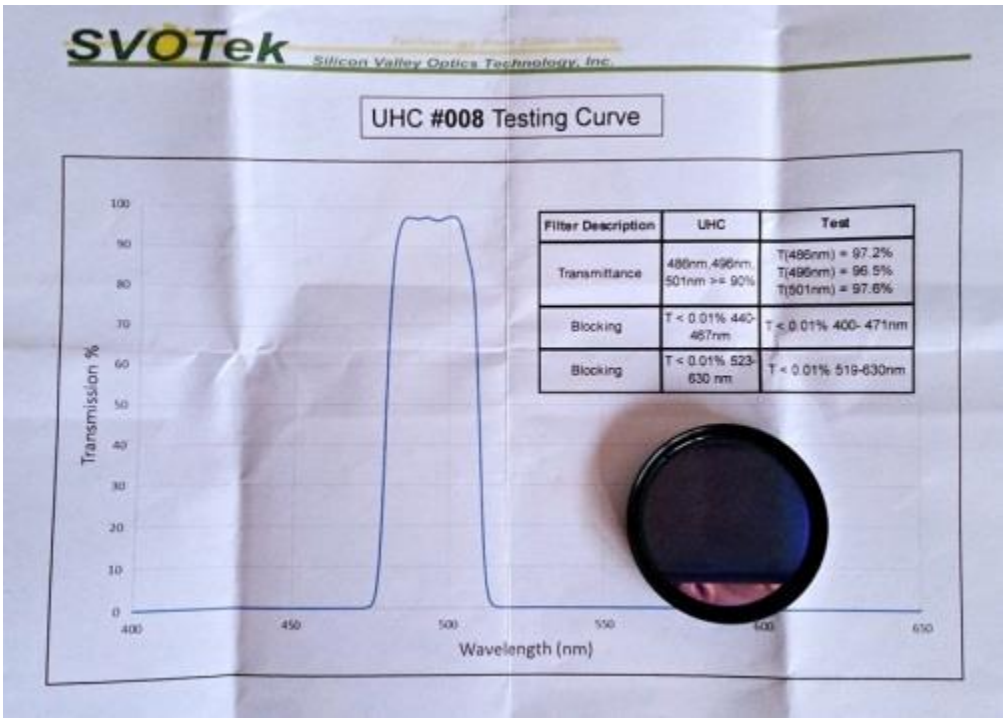
As we know, the first Lumicon filters were quite poorly protected and their layers corrode and discolored after some time, especially at the edges. SVOTek filters have new surface protection, 3rd generation. They were made in expensive ION-beam coating technology instead of the older versions of the e-beam. According to the manufacturer, slides should not discolor on the edges or corrode. The manufacturer also provides perpetual warranty on the quality of the bandwidth and transmission. And this is the biggest plus of SVOTek’s filters. We are sure that nothing will happen after many years of use.

Transmission

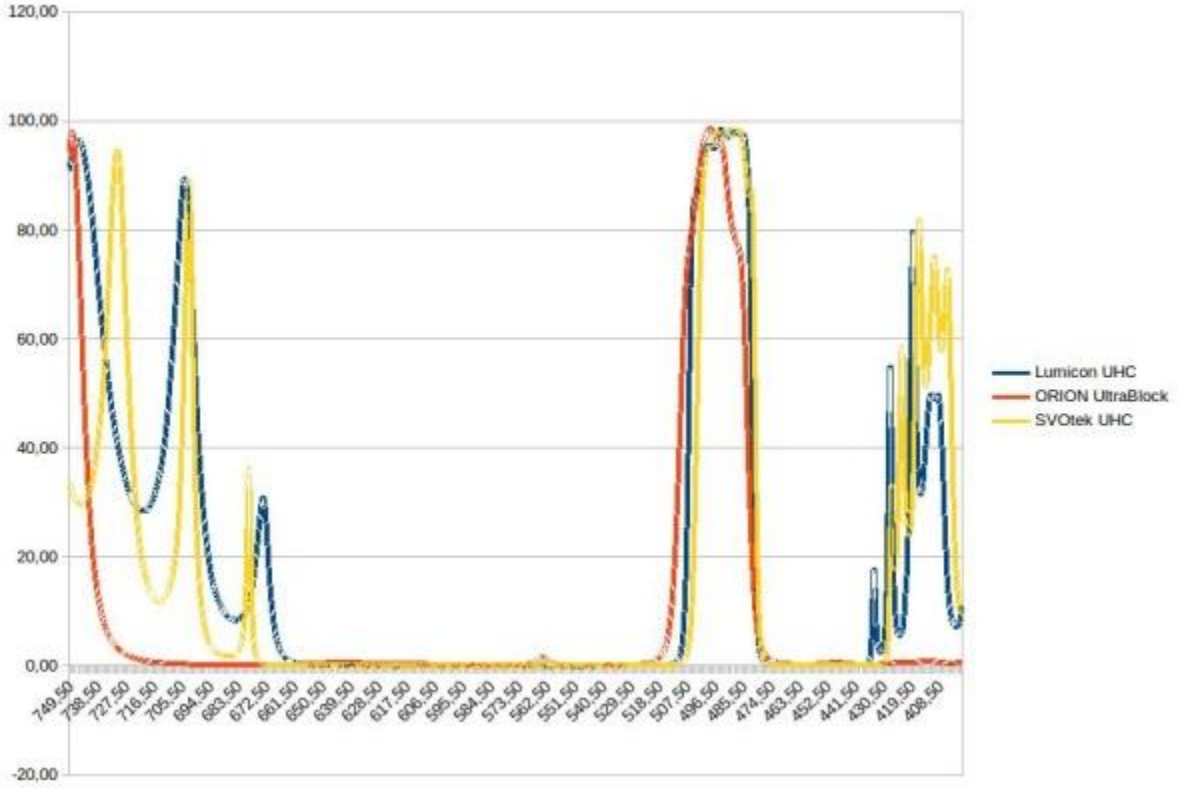
Thanks to courtesy and tests conducted by Zbyszko from Cracow, we can look at the transmission itself of the three tested filters. Based on these measurements, Lumicon and SVOTek filters are the same in terms of transmission and transmittance. Below are charts.

Transmisja [%]	OIII - 501	OIII - 496	Hbeta - 486
Lumicon UHC	94	96	97
SVOTek UHC	91	97	96
Orion UB	96	96	70

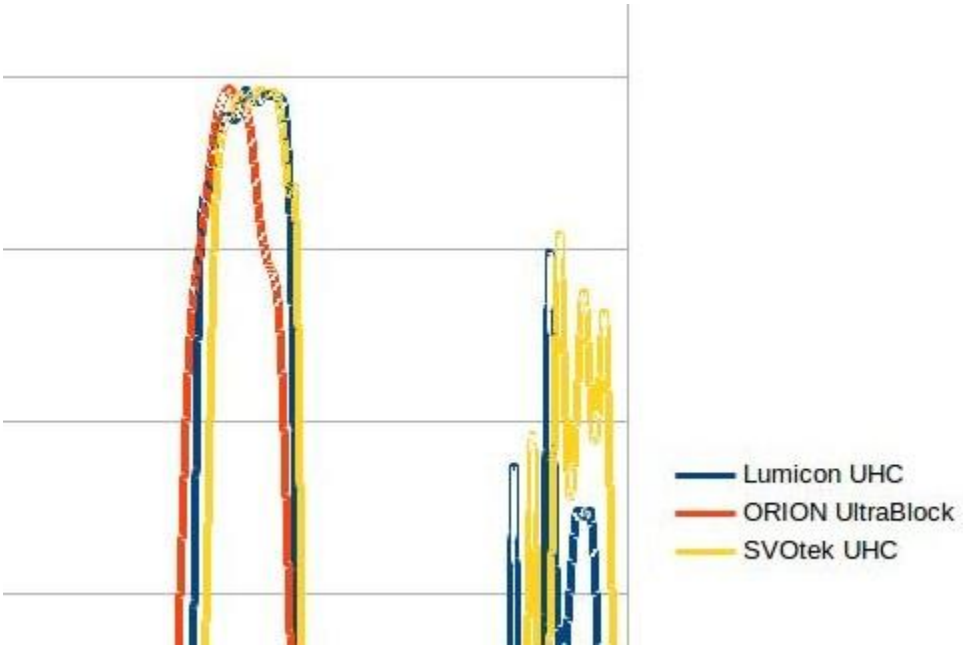
Example of the SVOTek UHC filter chart by manufacturer:



General set of laboratory spectrophotometric measurements made in Cracow:



On the Y axis of the graph there is transmission (up to 100%) and on the X axis the frequency of the light band. Pay attention to the middle of the graph. There Lumicon and SVOTek are practically identical:



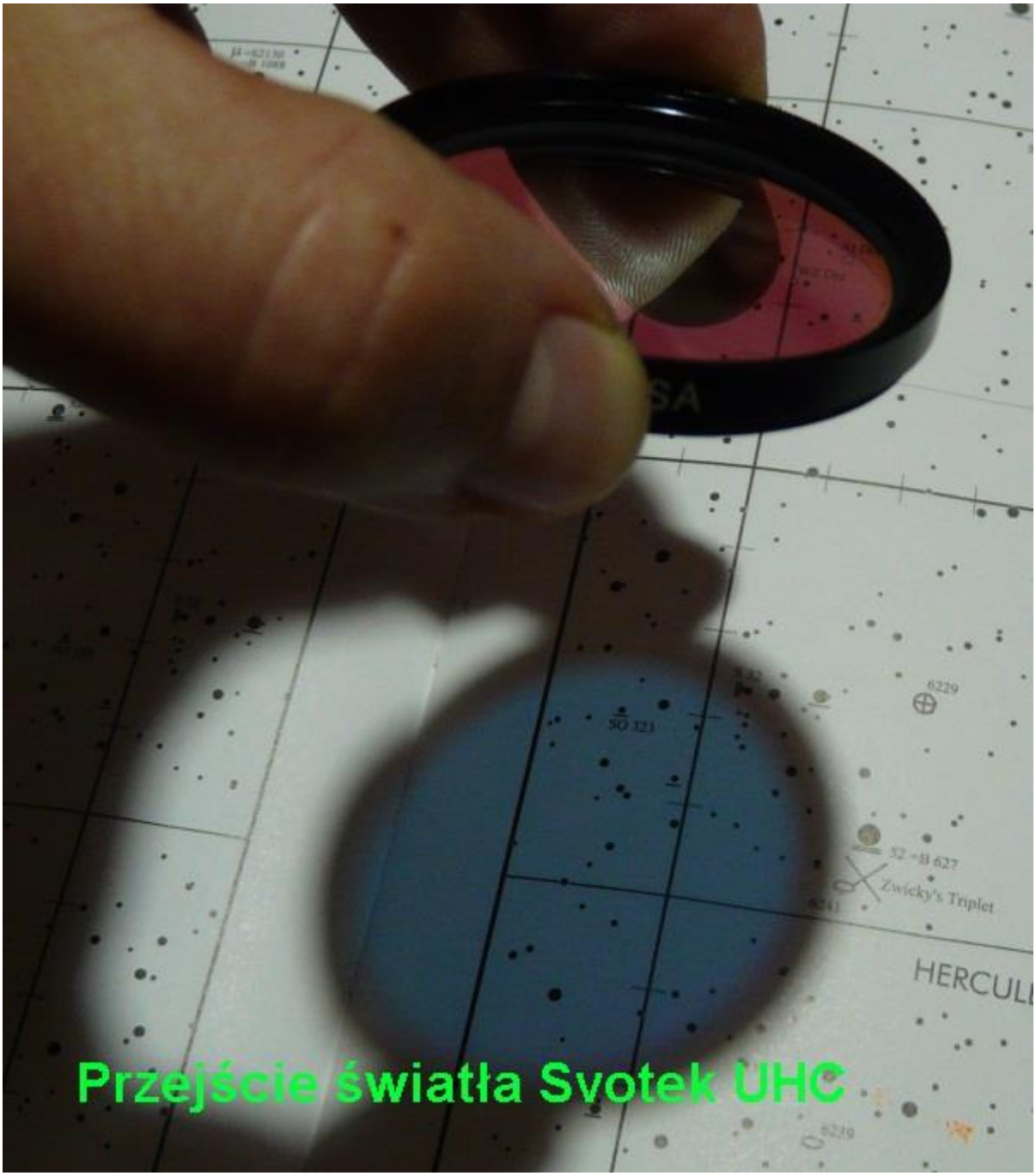
A few photo filters

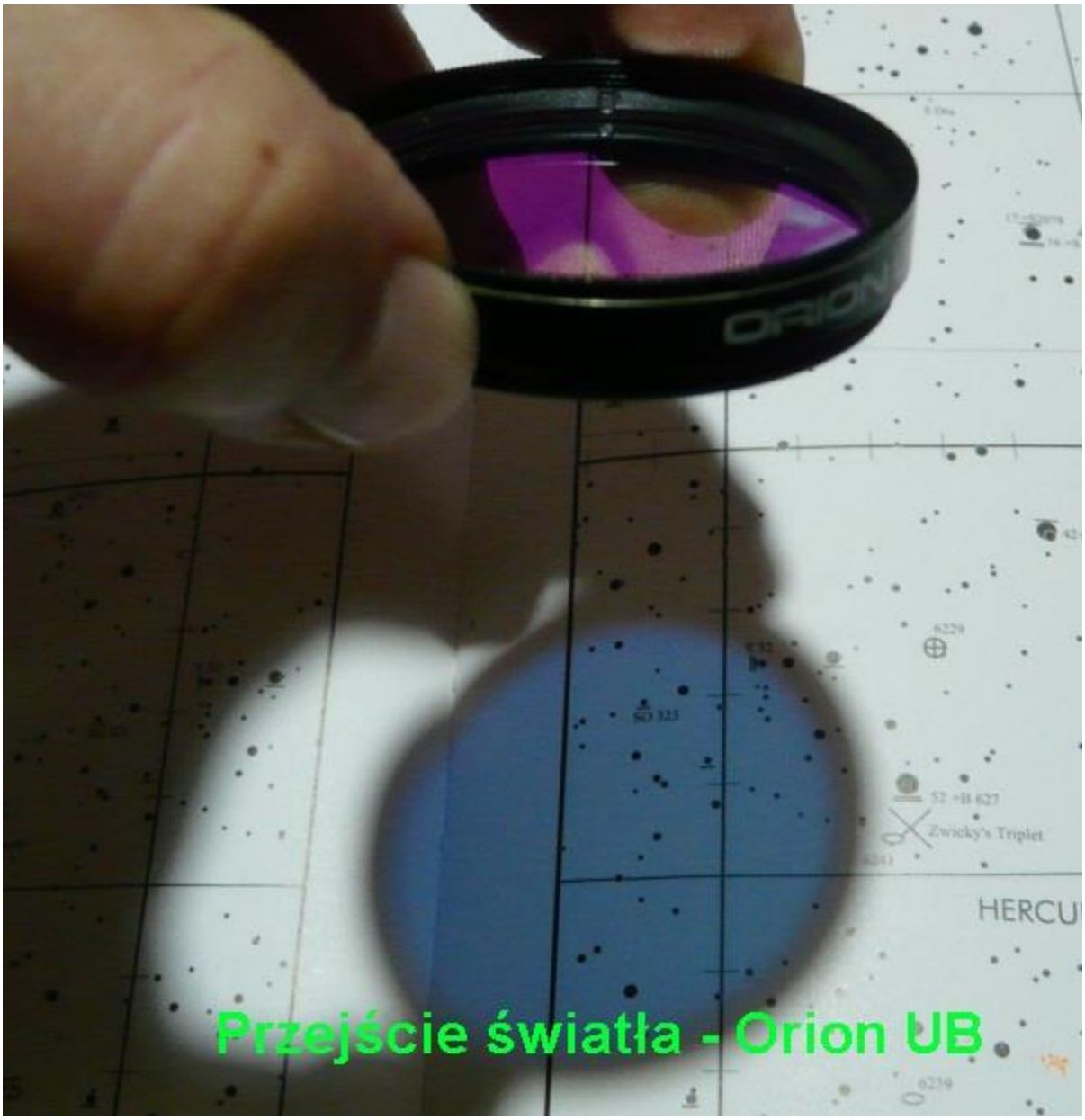
A few photo filters

Filter surface:

Powierzchnia Orion Ultra Block

Light passage through the filter:


Przejście światła Svotek UHC



Lamp light through the filter:


Światło lampy Lumicon UHC


Światło lampy Svotek UHC

Susceptibility to fogging
I do not know if this is the case or not, but during observation I most often saw fogging with the Lumicon UHC filter, and the least often on the SVOTek UHC. Orion UB was somewhere in the middle, but when it fogged up, it fogged up good. It had to be dried longer than the other filters. As if there were not, all filters fog and need to be dried, preferably using a hair dryer.

Bonus - comparison at full moon
Every passionate night sky knows that the DSs are not observed in full. The moon "kills" all nebulae with its glow. I decided to check under these conditions three nebulous filters (no Orion UB on board). The results should be treated only as a curiosity. This is not a test. Observations were made during the September full moon. The observed nebula is the Veil and the Broom in the Swan (NGC 6992 and NGC 6960). Equipment - Synta 12 "and ES 30 mm.

Lumicon OIII Filter
Broom nebula: well visible with a peek, its shape and outline are clearly visible straight ahead.
Veil Nebula: Clearly visible nebula shape peeking out, slightly less straight forward but still visible.

Lumicon UHC filter

Broom nebula: less visible with a peek. Visible shape, but not as clear. Brighter sky background. It is barely visible straight ahead, and not all the time.
Nebula Veil: invisible.

SVOTek UHC Filter
Both invisible nebulae.

No filters
Both invisible nebulae.

SVOTek seems to be brighter than Lumicona UHC and more like Orion UB. Of course, only the comparison of filters is under normal conditions on many objects is an objective summary.

Is it worth purchasing Lumicon UHC, Orion UB,or SVOTek UHC?
It depends. If we already have any of these filters in good condition, it makes no sense. Orion UB is a bit lighter than Lumicon UHC, but similar to SVOTek UHC. Both filters are very good and it is only when the corrosion is reached that there is a significant and visible wear and tear, you should consider replacing the filter with a newer model. I am not going to exchange my 15 year old Lumicona UHC. However, if I buy a new UHC filter now it would be SVOTek. It is followed by excellent protective layers and excellent thread. Aesthetically, I fell in love with it. However, against the background of weaker competition, all three filters are absolutely recommended. I think 90% of novice observers would not notice any difference between them.

Is it worth to buy a nebula filter?
In principle, this question should not be "do?" but when?" buy. The use of a nebular filter greatly expands the viewing capabilities of our telescope, and in a spectacular way! Such images depend on the quality of these objects. Of course, not all DSs are relevant. In many cases, the use of a nebular filter determines whether we see a nebula at all. And if you see the nebula without a filter, then you can see the details of the nebula that you would see in the telescope much better. But this does not apply to all the nebulae. I can say with certainty that a good nebular filter is not simply an add-on, but its possession becomes an absolute essential! I have a feeling that in the near future a lot of such filters will find their home in the passionate observation of the night sky. Lastly, I wish all astronomers and night watchers the opportunity to look at the nebula once more - through these filters. And best by your own filter!

Thanks
I thank the forum colleagues for lending their filters: Amadeus (chavez1976), Kazikowi. Zbyszko (ZP53) for providing the results of laboratory measurements and Peter (picios) for graphics.