

-----  
Mauna Loa Solar Observatory Observer's Log  
-----

Mon Jul 26 17:44:22 GMT 2021

Year: 21 Doy: 207

Observer: berkey

WEATHER COMMENT: berkey: Mon Jul 26 17:45:58 GMT 2021

Temp: 42.6f, Humidity: 83%, Pressure: 28.753in, Wind: 1mph from 282degs, Skies: clouds/fog to the east slowly blowing over the site.

\_\_\_\_end\_\_\_\_

KCOR COMMENT BY berkey: Mon Jul 26 22:07:23 GMT 2021

Looking at possible sources of the changing fringe pattern in Kcor. An inspection of the modulator stage was done, in a follow on from Jan 24 2020. This inspection showed the optics in the modulator could rotate around the z axis as well as piston forward (toward the sun) about 4.3 from their current location. But there was little or no possibility of tip/tilt motion in the stage. Further inspection showed the actually had 2 loose set screws where were tighten to prevent further motion. Before the stage was locked down it was confirmed that the position was returned to reference marks taken before the inspection started.

\_\_\_\_end\_\_\_\_

\*\*KCOR PROBLEM COMMENT BY berkey\*\* : Tue Jul 27 00:02:09 GMT 2021

Post modulator inspection; the the rest of the optics box was inspected for dust and other issues. While shinning a cell phone led flash light up (from modulator toward sun) to check for dust on the bandpass filter some newton ring like interference patterns were noted in the camera side of the filter. Further when the air tool was used to blow off dust the bandpass filter was seen to move/tip up in its mount then fall back down when the air was removed.

It is believed that this interference pattern coupled with the tipping motion could explain the fringe pattern that appears to move across the kcor filed of view as we approach zenith. With the filter moving against gravity as we point to different places on the sky.

To understand why the bandpass filter moves in its mount. The bandpass filter and its adapter rings were removed from the telescope and inspected. Per solidworks the two 2525-SW-1476 Filter adapter rings should hold the Andover filter with a 1mm gap between the two parts; however in our a built the two parts touch.

According to the solidworks model the bandpass filter should be 7mm thick, but as measured (with plastic calipers) the filter holder is 5.7mm (and the glass is ~.5mm thinner). Our quote from Andover specifies a maximum thickness of 7mm but no minimum so I am guessing the model was not updated with the as-built. It looks like we tried to partially prepare for receiving a thinner filter because the model provides for a 1mm between the adapter rings. But this still left us with .3mm of slop for the bandpass filter to move around between the rings.

To correct this problem the sunsize 2525-SW-1476 adapter was hand sanded down by about .5mm giving a ~.2mm gap between the two adapters; and removing any slop from the assembly.

Bandpass filter and corresponding parts have been reinstalled in the telescope.

\_\_\_\_end\_\_\_\_

\*\*UCoMP PROBLEM COMMENT BY berkey\*\* : Tue Jul 27 00:12:56 GMT 2021

UCoMP SGS Keywords were reporting the wrong values due to an array index error. Keywords were getting the value from the proceeding keyword.

Such that

SGSDIMV reported seeing  
SGSDIMS reported Dim Mean  
SGSSUMV reported Dim Std dev

....  
SGSLOOP reported Dec Std dev  
SGSRAZR reported loop fraction.

A fix was applied so that we should now start seeing the proper value in each SGS keyword. During this work the missing S  
GS scintillation seeing estimate was also added to the headers.

\_\_\_\_end\_\_\_\_  
GENERAL COMMENT BY berkey: Tue Jul 27 01:01:09 GMT 2021  
Clouds this morning became fog and rain this afternoon.

No data.  
\_\_\_\_end\_\_\_\_  
ONSITE STAFF: berkey