Piertech 2, Piertech 3 and Piertech 4 Height Adjustable Pier Polar Alignment Repeatability Test

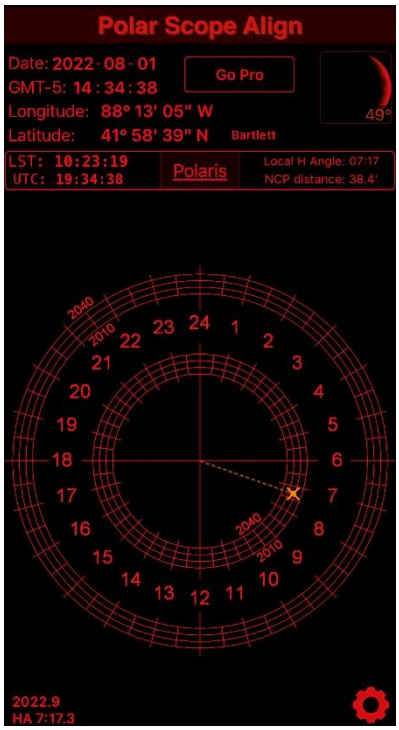
The Piertech height adjustable telescope piers have been tested using a permanently mounted pier with cement J bolts anchors embedded in wet cement. The picture below shows a correctly installed pier anchor plate.

Piertech 3 Anchor Plate Shown Installed

For this test, a Piertech 3 was used. Exact results were also obtained using the Piertech 2 and Piertech 4. The picture below shows the fully loaded piertech 3 properly installed for this test. The load consists of a Astro Physics AP1600 with tandem refractor telescopes. A OS 152mm and a Lunt 152mm telescope.

Fully Loaded Piertech 3 shown above for testing the Polar alignment repeatability

The testing method was accomplished using a Astro Physics RAPAS telescope mounted onto the AP1600 mount. Once the RAPAS is aligned with Polaris using the Polar Scope Align Application, we demonstrated that the polar alignment was retained while raising and lowering the telescope pier. A brief explanation of what the Polar Scope Align Application is as follows; The application shows the location of Polaris on the chart while viewing through the polar telescope at the viewing time of day. The goal is to move the mount both in Azimuth and Declination (not the pier) to place Polaris in the position shown on the application chart as shown below. Once this is done, the mount is aligned and the exercise outlined does not have to be repeated.



Polar Align application screen shown above.

The picture above shows the position of Polaris (yellow cross) shown just after 7 on the 24 scale. As the day progresses, the location of Polaris moves on the chart. We demonstrated, that moving the pier up and down for any given time of the day resulted in Polaris being directly as shown on the chart, meaning that the polar alignment is retained even though the pier is raised and lowered due to the precision of the telescope pier design. This was repeated first on a daily basis and then on a weekly basis. We routinely check it on a monthly basis in the event that the cement pillar below the pier shifts due to the temperature swings here in the Midwest. So far the polar alignment has been retained over 1 years time.

The picture below shows the AstroPhysics RAPAS polar alignment scope mounted onto the AP1600 mount that is supported by the PT3 height adjustable telescope pier. This arrangement was a solid testing method that demonstrated the polar alignment repeatability at every height of the telescope pier.

RAPAS polar alignment scope.