Dish Surface Holography and Dish Surface Optimization System Tests

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The AUG11 and later versions of the Dish Surface Optimization System (DSOS) control software provide various ways to modify the shape of the primary mirror to test the FTS and OoF holography systems, as well as the DSOS itself. After preparing and initializing the DSOS in the standard way, a script *HOLOtester* can be used to operate and modify the behavior of the DSOS. Without any argument, *HOLOtester* is identical to one of the regular observing scripts *DSOSfastagent*. Optional arguments allow for the target length of the standoffs to be changed from that determined by the past FTS holography measurements for a particular elevation angle, either relatively to the model or absolutely from the baseline length. The change can be applied to each standoff, quadrant, or entire dish surface using the Zernike polynomials (SEP11 and after). A few examples are shown below.

To push out the standoff 52 by 25 μm, execute the *HOLOtester* script as follows:

```
HOLOtester␣52@L+=25
```

To push out the quadrant 3 entirely by 25 μm, execute the following:

```
HOLOtester␣Q3@L+=25
```

To add the defocus term of the Zernike polynomials (Z_2^0) with the amplitude of 25 μm, execute the following:

```
HOLOtester␣Z2,0@L+=25
```

Note that all the relative correction terms, including the Zernike polynomials, are additive. So for example, the above three deformation can be combined as follows:

```
HOLOtester␣52@L+=25␣Q3@L+=25␣Z2,0@L+=25
```

Please consult the help text of the *DSOScontrol* program for other argument options by executing the following:

```
DSOScontrol␣-h
```