

# “Fake Observing” with SHARP

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Note: Parts of this document are excerpted from the 2012 version of Nicholas Chapman’s now-obsolete “SHARP CheatSheet”

## 1 Introduction

There are times when you want to start up all the SHARP and SHARC computers and run the SHARP observing scripts even though the SHARC cryostat is not cycled. For example, this will test whether the computers are all talking to each other. We call this “fake observing”. Fake observing can be done in the day-time, without moving the telescope more than a few arc-minutes. Use of the chopper is optional. (Since I’m not too sure whether its OK to run the chopper inside the hot daytime dome, I usually don’t turn on the chopper until the dome is fairly wide open and the telescope is a bit cooled off, i.e., near sunset.)

## 2 Setting up for Fake Observing

For fake observing you first turn on the system using the instructions in the “SHARC cheatsheet”, but skipping steps 1, 4, 5, 6a, 6b, 7, 8, and 12-16.

The “SHARC cheatsheet” can be found here:

<http://www.submm.caltech.edu/~sharc/operating/cheatsheet.htm>

Note that you will not see the 3 x 4 12’s of step 9.

Next read the AAZ angle off of the UIP screen (“CSO Telescope Status” window). Type “az XXX.X”, where “XXX.X” is the value of AAZ that you read off of the UIP screen. The telescope should switch from “IDLE” to “TRACKING”.

## 3 Carrying out Fake Observing

Next carry out steps 1.2, 5.1, 5.2 (optionally), and 5.4 of the “SHARP observing instructions” but in step 5.4 do a “SHARP Single File” rather than a “Coarse Dither”. If you are not using the chopper, set the chop throw to some nominal value, e.g., 120 arcseconds.

The “SHARP observing instructions” can be found here:

<http://lennon.astro.northwestern.edu/SHARP/observing.pdf>

## 4 What to Look for when Fake Observing

### 4.1 does the telescope nod when commanded?

If you are using a 120 arcsecond chop, then CHOP AZO on the UIP screen should switch between -60.0 and +60.0 as the telescope nods. If the CHOP AZO remains at zero, contact Hiro.

### 4.2 is the half-wave plate working properly?

The HWP should advance through four positions: 50, 72.5, 95, and 117.5.

When the file is finished you can make sure that the HWP angles that are sent from the EDAS to the IRC via the analog link are being stored correctly in the data files. See step 5.6 of “SHARP observing instructions”.

Repeat the above but with “EDAS\_STATUS” instead of “HWP\_ANGLE”, to verify that this flag drops from 2 V to 0 V during each move.

If there are problems with the HWP see the “troubleshooting” document:

<http://lennon.astro.northwestern.edu/SHARP/troubleshoot.pdf>

Also, if these seem like hardware problems contact Giles, and if they seem like software problems contact Giles, Peter, Darren, Troy, and/or Hiro.

### 4.3 other checks

There are other checks that you can carry out using the sharpinteg program to look at the file. The dointeg script is used to call sharpinteg. If the chop throw does not match the nominal throw used in step 3 above, or if you are not using the chopper at all, then you will have to edit the dointeg script so as to add the “- nc” flag to the sharpinteg call. This will suppress the corresponding error-checking. I think that dointeg lives in the bin subdirectory of user “sharp”.

If you run dointeg, then you can carry out one or both of the tests described in step 5.7 of the “SHARP observing instructions”. (If you are not using the chopper then you can only carry out the first of these tests.)

If you are running the chopper, another test you can do is to make sure that the chopper waveform is being properly stored in the file. This is done using the same procedure as in step 5.6 of “SHARP observing instructions” but use “CHOP\_OFFSET” instead of “HWP\_ANGLE”.

If you find any problems with the checks in this subsection, contact Giles or Darren.

## 5 After your Fake Observing is Done

At the conclusion of “fake observing” you should shut down the system as explained in the “SHARC Cheat-sheet” so that you can later start it up in “real observing” mode.