



## NIRSPEC: Flat Lamp Intensity Adjustment

Author	Date	Comment
Jim Lyke	03 May 2007	Original
Jim Lyke	19 Feb 2008	Revised to add intensity increase procedure

**Personnel:** 2 people

- 1 on the summit to manually adjust the flat lamp intensity
- 1 on the network to run the software

**Telescope:** Requires access to K2 RNAS platform

**Tools:** Step stool  
Aluminum Tape

**Goal:** 1) Adjust the NIRSPEC flat lamp intensity such that it does not saturate or cause persistence on the SPEC detector in any observing mode. This allows the EFS “Lamps Only” scripts to work. We want 4000-5000 counts per coadd in a spectral flat of 0.25 seconds (shortest SPEC exposure time). The lamp appears brightest for NIRSPEC-7 with the widest low-resolution slit.

2) Adjust the NIRSPEC flat lamp intensity upwards for observers who are using NIRSPEC-1 or similar short wavelength filters in high resolution mode. This helps take quicker calibrations. Flats using NIRSPEC-1 in high resolution mode take about 3 minutes each at the default brightness.

**Note:** There are two adjustments for the flat lamp: a 2-position toggle switch, and a trimpot. The toggle switch has settings for bright/dim (AO/non-AO). Both switches are normally secured with aluminum tape. These switches are located on top of the calibration unit (cal unit). This is the black, rectangular box located on the front (towards the telescope) of the red NIRSPEC dewar. NIRSPEC is normally covered by a blue tarp with a hole cut in it for the cal cover. To find the switches, proceed to the right side (as viewed from behind NIRSPEC, looking at the telescope). One can reach the switches by stepping on the handling cart or a step stool.

**Procedure 1 for returning lamp to default brightness:**

1. Start NIRSPEC control software
2. Initialize motors
3. Set up for low-res N-7 spectra with the widest slit:
  - a. fil2pos= 18
  - b. slitpos= 11
  - c. echlpos= 179.700
  - d. disppos= 35.7600
  - e. itime=0.25
  - f. coadds=10
4. Close cal cover



5. Insert cal mirror
6. Turn on flat lamp and let it warm up for 1 minute
7. Take a test exposure to determine the starting level—remember to divide the counts by the number of coadds
8. Ensure the toggle switch is in the correct setting (bright/dim for AO/non-AO)
9. Adjust the trimpot in 1/8 to 1/4 turns. Clockwise from above increases brightness
10. Take another test exposure and determine the level
11. Repeat the adjustment and exposure steps until you reach the goal
12. Secure the lamp adjustments with aluminum tape
13. Take another test exposure to verify the taping did not affect the level
14. Replace the blue cover and ensure the cal cover is free to open
15. Take another test exposure to verify the level

**Procedure 2 for increasing lamp brightness:**

1. Start NIRSPEC control software
2. Initialize motors
3. Set up NIRSPEC in observers' configuration:
  - a. filter
  - b. slit
  - c. echelle
  - d. cross-disperser
  - e. itime=1
  - f. coadds=1
4. Close cal cover
5. Insert cal mirror
6. Turn on flat lamp and let it warm up for 1 minute
7. Take a test exposure to determine the starting level—remember to divide the counts by the number of coadds
8. Ensure the toggle switch is in the correct setting (bright/dim for AO/non-AO)
9. Adjust the trimpot in 1/8 to 1/4 turns. Clockwise from above increases brightness
10. Take another test exposure and determine the level
11. Repeat the adjustment and exposure steps until you can reach the goal in 1-10 seconds of exposure time
12. Secure the lamp adjustments with aluminum tape
13. Take another test exposure to verify the taping did not affect the level
14. Replace the blue cover and ensure the cal cover is free to open
15. Take another test exposure to verify the level
16. Instruct observers on count rate at this setting, that “Lamps Only” will saturate the detector, and how to take flats (either manually or with the CAT)