9 How to Submit a Spitzer Proposal

The Call for Proposals and the Spot User's Guide, both available on the SSC website, provide important information on many things relevant for proposal submission. The SSC provides a mandatory template (available on the same web page as the Call itself) for observers to use in preparing their PDF proposal attachment. Proposers must use the template—there are no exceptions. Note that the inclusion of an Observation Summary Table is mandatory, and a tool is online from the Proposal Kit webpage on the SSC website for creating this Table from your AORs. If you read no other documentation, be sure to *read the template instructions and follow them*. That is the best advice we can give for submitting a successful proposal!

A step-by-step proposal submission guide is available online at http://ssc.spitzer.caltech.edu/warmmission/propkit/propsubmission/. That page has many embedded links to other resources. The content from this website is repeated below, along with some hints and tips for creating good proposals.

9.1 Planning Stages

- Think of some science that has to be done with Spitzer after the cryogen runs out.

- Read all of the relevant documentation (and there is a fair amount of it). The six most essential documents are Call for Proposals (CP), Warm Spitzer Observer's Manual (SOM), Spot User's Guide, Warm Reserved Observations Catalog (ROC), the Leopard User's Guide, and the Warm Spitzer Observing Rules. Many other helpful documents are also available for download in the Proposal Kit area of the SSC web site.

- Download and install Spot. Do this early! Get to know your Spot and the Spitzer science instruments well before the deadline of the Call.

- Check the Reserved Observations Catalog (ROC). Avoid duplicating approved observations. Duplications are generally not allowed. See the Observing Rules for more details on duplication of approved observations. It's always best to use Leopard to search the ROC.

- Check that your favorite target(s) are not too bright or too faint for Spitzer. Remember that the sky background can be significant at some infrared wavelengths. Sensitivity charts are available in the Spitzer Observer's Manual and in the Proposal Kit area (see the Tools page). Observers can use Spot and/or IRSKY to estimate the infrared sky background in regions of interest.

- Use Spot to fill out the AOT to create AORs. (There are lots of examples of how to do this on this site; particularly in the document you are reading now!) Check the visibility of your observations, especially if you need to use an observational constraint (hints and tips about constraints). Use Spot to visualize your AORs—this is always a good thing to do. Are they doing what you expected?

- Start writing the scientific and technical justification. This must be in PDF format when submitted as part of the proposal. See the Call for Proposals for details on what to include in the justification. All of this information must be in a PDF file that is less than 10 MB total.

- Early on, open the Proposal Tool in Spot (see more below). Fill in some information and save it to disk. This is the coversheet part of the proposal. Get comfortable editing the information and changing it if needed.

9.1.1 Hints and Tips

Spitzer Proposal Submission is a one-phase process (for exceptions, see the CP). Proposers for Spitzer observing time must include the details of their proposed observations in the form of AORs. By reading this Cookbook, you are well on your way to preparing final AORs to submit with your proposal.

Your scientific and technical justification must be in PDF format. Note that there is a file size limit of 10 MB (see the Call). In practice, what this means is that ultra-high resolution color figures may not be allowed to be submitted in your proposal! If you are having trouble making things fit, note that resolution of any figures need not be more than 300 dpi; also try black-and-white figures, rather than color.

Note that your proposal will be provided to the peer reviewers in CD-ROM form. This means that a reasonable fraction of the proposal reviewers will be reading your proposal on a computer screen. There are a few very easy tips for creating screen-readable PDF documents available online at http://ssc.spitzer.caltech.edu/warmmission/propkit/cp/pdf/ . Anyone not reading your proposal on the computer screen will most likely have sent it to a black-and-white printer. Make sure your color figures are also intelligible in black-and white (which, by the way, also helps color-blind readers decipher your plots).

9.2 Proposal Submission

- Think of a nifty shorthand proposal user name (not your personal username) for your proposal. It must be unique within the Spitzer mission. Check the ROC list of science programs for proposal user names other observers have used. Also think of a password. You will need to use this proposal user name and password to update your submitted proposal (possible throughout the Call, see below) and to modify your approved proposal, if necessary. Be sure to use usernames and passwords you can remember, or log them somewhere.

- Start up Spot.

- Load the AORs to be submitted into Spot. Be sure there are not any junk or test AORs, just the good ones you want to be executed with Spitzer if your proposal is approved.

- Open the Proposal Tool from the Tools menu in Spot. **Please note that if you are submitting a DDT proposal, you do not use Spot. See http://ssc.spitzer.caltech.edu/warmmission/ddttoo/howddt/ .**

- Load your coversheet file into the Proposal Tool (File →Open Proposal), or input the information that is requested. Double-check that the information looks correct, especially the Hours Requested and the justification file that is to be submitted.

- Click on the Submit menu in the Proposal Tool and select Submit proposal to SSC.

- Save your coversheet file, as requested by Spot. Name it something you will remember, such as username_submitted_01oct08.cs. Spot will save the file with your chosen proposal user name (that you're about to enter in the next step) included within it. You will need to use this particular saved coversheet file to submit any modifications to your proposal.

- Enter the proposal user name and password and your email address (used by SSC in case a problem is detected during submission).

- Spot will inform you when it has successfully submitted the proposal to the SSC. You will also receive a confirmation via email.

9.2.1 Hints and Tips

Because you can update your proposal during the Call (see below), and because this process of getting your basic information into the database can take several minutes during periods of extremely heavy load, it will make things easier if you submit a preliminary proposal and get into the database early on.

Don't choose any password you would like to keep ultra secure—don't use a PIN, don't use expletives or pejoratives—others, besides yourself, will see these. This password will be emailed to the Principal Investigator (PI) and Technical Contact (TC) of your proposal if changes to your program are required.

Are you writing the proposal, but you expect someone else (a grad student? someone who spends less time on travel than you do?) to be doing the nitty gritty work of the program? Put that person in as the Technical Contact (TC) for the program. This may make your life easier later on—for example, only PIs and TCs are authorized to make decisions or changes to accepted programs, and if the SSC later requires a quick decision on something, maybe your TC will be around when you are not.

Spot is very conducive to experimentation when creating AORs. However, all of the AORs in the AOR window are submitted with your proposal. Make sure any junk or test AORs have been deleted from your final set.

Make sure that the total hours requested in the cover sheet is what you expect it to be. This number is NOT automatically grabbed from the Spot window for several very good reasons, not the least of which is that for Exploration Science programs, a complete set of AORs is not required. If you discuss other amounts of time in your proposal, these other numbers are likely to be ignored in favor of the number entered here on your coversheet.

Confirmation email is sent to the PI, the TC, and the person self-identifying as submitting the proposal. Make sure there aren't any typos in your email addresses, otherwise you won't get this confirmation email.

9.3 Updating Your Submitted Proposal

At any time during the Call for Proposals you may modify any aspect of your submitted proposal, except proposal user name and password. You can submit a revised justification, an updated set of AORs, or corrected coversheet information.

- Start up Spot.
- Load in new set of AORs if updating AORs.
- Open the Proposal Tool under the Tools menu in Spot.
- Read in the coversheet file saved from earlier submission (i.e., username_submitted_01oct08.cs) by clicking on File → Open Proposal.
- Make any desired changes to the coversheet information. Be sure the Hours Requested entered is accurate and that the Tool is pointing to the proper justification file (if submitting an updated file).
- Click on the Submit menu and then Update proposal at SSC.
- Enter your password and email address when requested.
- Spot will again require you to save your coversheet file. Call it something useful like username_submitted_10oct08.cs.
- Spot will inform you when it has successfully transferred your updated proposal to the SSC. You will also receive an email confirmation.
- You may submit as many updates as needed prior to the deadline of the Call for Proposals. Submissions after the deadline will be automatically rejected by the software and an error message will be returned by Spot.

9.3.1 Hints and Tips

At any time during the Call for Proposals you may modify any aspect of your submitted proposal, except proposal user name and password. You can submit a revised justification, an updated set of AORs, or corrected coversheet information.

Because you can update your proposal during the Call, and because this process of getting your basic information into the database can take several minutes during periods of extremely heavy load, it will make things easier if you submit a preliminary proposal and get into the database early on.

9.4 Common Errors and FAQs

We provide a list of Frequently Asked Questions, particularly, regarding Proposals and the Proposal Kit. A link to our FAQ is on our main page: http://ssc.spitzer.caltech.edu/ . Please take 5 minutes to quickly read through these to prevent either the failure of your observations, or your proposal being rejected entirely.

10 Appendix: Conversion of Units

A number of units are employed in astronomy for photometry, including:

magnitude

W m^{-2} $micron^{-1}$

W cm^{-2} $micron^{-1}$

erg $second^{-1}$ cm^{-2} $micron^{-1}$

erg $second^{-1}$ cm^{-2} $Å^{-1}$

The purpose of this section is to explicitly tabulate the conversion formulae among them.

First, recall that 1 Jy $\equiv 10^{-26}$ W m^{-2} $Hz^{-1} \equiv 10^{-26}$ erg $second^{-1}$ cm^{-2} Hz^{-1}

10.1 Conversion Between Flux Densities

The spectral flux density, F_ν, is defined as the energy per unit area, per unit time, per unit frequency at frequency n and is related to the object magnitude as

$$F_\nu \equiv dF/d\nu = F_{\nu_0} 10^{-0.4m} \quad (7)$$

where m is the magnitude, and $F\nu_0$ is the zero-point flux in a given photometric band. In the cgs system, F_ν is in Jy. Then

$$F_\lambda \equiv dF/d\lambda = \frac{dF}{d\nu}\frac{d\nu}{d\lambda} = F_\nu a_\lambda/\lambda^2 \quad (8)$$

The conversion factor, a_λ, is not really mysterious; it is simply 1 Jy · c, the speed of light, expressed in the appropriate units. For completeness, we tabulate a_λ for various unit choices for F_λ. The results are displayed in Table 5 (where λ is in μm**).**

Table 5: The conversion between F_ν and F_λ where where λ is in μm

F_λ	a_λ
erg $second^{-1}$ cm^{-2} $Å^{-1}$	3×10^{-13}
erg $second^{-1}$ cm^{-2} $micron^{-1}$	3×10^{-9}
W cm^{-2} $micron^{-1}$	3×10^{-16}
W m^{-2} $micron^{-1}$	3×10^{-12}

10.2 *Converting Between Flux Density and Magnitudes*

Table 6: The photometric zeropoints for the Spitzer/IRAC instrument

λ (μm)	$F_{\nu 0}$ (Jy)	$F_{\lambda 0}$ (erg second^{-1} cm^{-2} micron^{-1})
3.6	280.9	6.50×10^{-8}
4.5	179.7	2.66×10^{-8}

The conversion between magnitudes and flux density F_ν is given explicitly in equation 7. All we need is to specify the zero-point flux, $F\nu_0$.

The zero-point flux, $F\nu_0$, is determined for a number of photometric systems. In Table 6 we tabulate the zeropoints, $F\nu_0$ and $F_0 = a_\lambda F_{\nu 0}\} / \lambda_2$, for IRAC.

In Table 7, we display the zeropoints in the 2MASS passbands (see http://www.ipac.caltech.edu/2mass/releases/second/doc/sec4_5.html).

Table 7: The photometric zeropoints in the 2MASS filters

Band	λ (μm)	$F_{\nu 0}$ (Jy)
J	**1.235**	1594
H	**1.662**	1024
Ks	**2.159**	666.7

In Table 8 we tabulate the zeropoints, $F\nu_0$ and $F_0 = a_\lambda F_{\nu 0}\} / \lambda_2$, adopted for NICMOS, based on the CIT system (Beckwith et al., 1976, ApJ, 208, 390).

Table 8: The photometric zeropoints in the CIT system

Band	λ (μm)	$F_{\nu 0}$ (Jy)	$F_{\nu 0}$ (erg second^{-1} cm^{-2} micron^{-1})
V	**0.56**	3540	3.39×10^{-5}
R	**0.70**	2870	1.76×10^{-5}
I	**0.90**	2250	8.83×10^{-6}
J	**1.25**	1670	3.20×10^{-6}
H	**1.65**	980	1.08×10^{-6}
K	**2.2**	620	3.84×10^{-7}
L	**3.4**	280	7.26×10^{-8}
M	**4.8**	150	1.95×10^{-8}
N	**10.1**	37	1.09×10^{-9}
Q	**20.0**	10	7.5×10^{-11}

In Table 9, we display the zeropoints in the Johnson UBVRI+ system (see: Allen's Astrophysical Quantities, Fourth Edition, 2001, Arthur N. Cox (ed.), Springer-Verlag; Campins, Rieke, & Lebofsky 1985, AJ, 90, 896; Rieke, Lebofsky & Low 1985, AJ, 90, 900).

We have developed an online magnitude ↔flux density converter. Check the SSC tools website: http://ssc.spitzer.caltech.edu/warmmission/propkit/pet/ .

Table 9: The photometric zeropoints in the Johnson UBVRI+ system

Band	λ (μm)	F_{v0} (Jy)
U	**0.36**	1823
B	**0.44**	4130
V	**0.55**	3780
R	**0.71**	2941
I	**0.97**	2635
J	**1.25**	1603
H	**1.60**	1075
K	**2.22**	667
L	**3.54**	288
M	**4.80**	170
N	**10.6**	36
O	**21.0**	9.4

10.3 Conversion Among Surface Brightness Units

Typically in IR astronomy, surface brightness is measured in

magnitude/arcsec^2

Jy/arcsec^2

MJy/steradian.

The conversion between the latter two is straightforward:

$$S_\nu[Jy/arc\sec^2] = 2.35\times10^{-5} S_\nu[MJy/sr] \quad (9)$$

Converting between Jy/arcsec^2 and magnitude/arcsec^2 is also straightforward. Using equation 7 we have

$$S_\nu[mag/sq.arc\sec] = 2.51\times\log_{10}(F_{\nu_0}) - \log_{10}(S_\nu[Jy/sq.arc\sec]) \quad (10)$$

and hence

$$S_\nu[mag/sq.arc\sec] = 2.51\times\{\log_{10}(F_{\nu_0}) - \log_{10}(S_\nu[Jy/sq.arc\sec]) + 4.63\} \quad (11)$$

For example, in the K-band, $F\mathrm{n}_0$ = 620 Jy (see In Table 8 we tabulate the zeropoints, *Fv0* and *F0= aλFv0}* / λ2, adopted for NICMOS, based on the CIT system (Beckwith et al., 1976, ApJ, 208, 390).

Table 8) and hence

$$18 mag/sq.arc\sec = 3.9\times10^{-5} Jy/sq.arc\sec = 1.7 MJy/sr \quad (12)$$

11 Appendix: The AORs

We include here the AORs developed in the various preceding chapters. The ascii files ready to be loaded into Spot, can be downloaded from the SSC website: http://ssc.spitzer.caltech.edu/warmmission/propkit/cookbook/ .

11.1 Deep Imaging AORs

```
#  Please edit this file with care to maintain the
#  correct format so that SPOT can still read it.
#  Generated by SPOT on:  8/6/2008     17:7:20

HEADER: FILE_VERSION=17.0, STATUS = PROPOSAL

      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC Mapping - a2218 center position
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  Abell 2218
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=16h35m53.99s,  DEC_LAT=+66d13m00.2s,
PM_RA=0.0", PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=49, START_POINT=10
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=11079.2, SLEW_TIME=399.1,
SETTLE_TIME=410.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=4075, DOWNLINK_VOLUME=15119600, VERSION=S18.0.1
INTEGRATION_TIME:
IRAC_3_6=4900.0,IRAC_4_5=4900.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC Mapping - a1689 center position
```

```
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  Abell 1689
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=13h11m34.20s,  DEC_LAT=-1d21m55.5s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=49, START_POINT=10
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=11075.0, SLEW_TIME=394.9,
SETTLE_TIME=410.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=4075, DOWNLINK_VOLUME=15119600, VERSION=S18.0.1
INTEGRATION_TIME:
IRAC_3_6=4900.0,IRAC_4_5=4900.0,IRAC_5_8=0.0,IRAC_8_0=0.0




     AOT_TYPE:  IRAC Post-Cryo Mapping
    AOR_LABEL:  IRAC Mapping - a665 center position
   AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  Abell 665
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=8h30m45.19s,  DEC_LAT=+65d52m55.3s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=49, START_POINT=10
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=11075.9, SLEW_TIME=395.8,
SETTLE_TIME=410.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=4075, DOWNLINK_VOLUME=15119600, VERSION=S18.0.1
INTEGRATION_TIME:
IRAC_3_6=4900.0,IRAC_4_5=4900.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC Mapping - ac114 center position
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  AC114
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=22h58m52.34s,  DEC_LAT=-34d46m54.6s,
PM_RA=0.0", PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=49, START_POINT=10
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=11074.4, SLEW_TIME=394.3,
SETTLE_TIME=410.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=4075, DOWNLINK_VOLUME=15119600, VERSION=S18.0.1
INTEGRATION_TIME:
IRAC_3_6=4900.0,IRAC_4_5=4900.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC Mapping - Cl0024+16 center position
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  ZwCl0024.0+16.52
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=0h26m36.01s,  DEC_LAT=+17d08m36.1s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=49, START_POINT=10
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
```

```
RESOURCE_EST: TOTAL_DURATION=11073.8, SLEW_TIME=393.7,
SETTLE_TIME=410.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=4075, DOWNLINK_VOLUME=15119600, VERSION=S18.0.1
INTEGRATION_TIME:
IRAC_3_6=4900.0,IRAC_4_5=4900.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

11.2 Survey AORs

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#  Please edit this file with care to maintain the
#  correct format so that SPOT can still read it.
#  Generated by SPOT on:  8/7/2008     18:23:14

HEADER: FILE_VERSION=17.0, STATUS = PROPOSAL

      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRACPC scan center
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  Trapezium
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=5h35m19.92s,  DEC_LAT=-5d23m06.0s,
PM_RA=0.0020", PM_DEC=-0.0010", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: YES
            FRAME_TIME: 6.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=3, START_POINT=85
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
MAP: TYPE=RECTANGULAR, ROWS=13, COLS=13, ROW_STEP=260.0,
COL_STEP=260.0,
     ORIENT=ARRAY, ROW_OFFSET=0.0,COL_OFFSET=0.0,N_CYCLE=1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=10381.2, SLEW_TIME=2661.6,
SETTLE_TIME=2311.0, SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=22285, DOWNLINK_VOLUME=153312744, VERSION=S18.0.1
INTEGRATION_TIME: IRAC_3_6=18.0,IRAC_4_5=18.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

11.3 SSO AORs

```
#  Please edit this file with care to maintain the
#  correct format so that SPOT can still read it.
#  Generated by SPOT on:  8/18/2008     12:4:23

HEADER: FILE_VERSION=17.0, STATUS = PROPOSAL

      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC-PC Asbolus
    AOR_STATUS:  new

 MOVING_TARGET:  YES
   TARGET_TYPE:  MOVING SINGLE
   TARGET_NAME:  8405 Asbolus
     EPHEMERIS:  NAIF_ID=2008405, NAIF_NAME=8405 Asbolus
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=9, START_POINT=1
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=2560.2, SLEW_TIME=88.1, SETTLE_TIME=77.0,
SLEW_OVERHEAD=515.0, SPECIAL_OVERHEAD=0.0, UPLINK_VOLUME=1217,
DOWNLINK_VOLUME=3023920, VERSION=S18.1.0
INTEGRATION_TIME:
IRAC_3_6=900.0,IRAC_4_5=900.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  IRAC-PC Asbolus Shadow
    AOR_STATUS:  new

 MOVING_TARGET:  YES
   TARGET_TYPE:  MOVING SINGLE
   TARGET_NAME:  8405 Asbolus
     EPHEMERIS:  NAIF_ID=2008405, NAIF_NAME=8405 Asbolus
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 100.0
        DITHER_PATTERN: TYPE=Cycling, N_POSITION=9, START_POINT=1
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
```

```
RESOURCE_EST: TOTAL_DURATION=2560.2, SLEW_TIME=88.1, SETTLE_TIME=77.0,
SLEW_OVERHEAD=515.0, SPECIAL_OVERHEAD=0.0, UPLINK_VOLUME=1217,
DOWNLINK_VOLUME=3023920, VERSION=S18.1.0
INTEGRATION_TIME:
IRAC_3_6=900.0,IRAC_4_5=900.0,IRAC_5_8=0.0,IRAC_8_0=0.0




CONSTRAINT: TYPE=SHADOW, NAME=Shadow-0000, SHADOW_BEFORE_PRIMARY=NO
RANGE_START: DAYS=0, TIME=00:16:00
  RANGE_END: DAYS=3, TIME=00:00:00
       AORS: AOR_PRIMARY=IRAC-PC Asbolus, AOR_SHADOW=IRAC-PC Asbolus
Shadow
```

11.4 Time Series AORs

```
#  Please edit this file with care to maintain the
#  correct format so that SPOT can still read it.
#  Generated by SPOT on:  4/11/2013     19:51:14

HEADER: FILE_VERSION=17.0, STATUS = PROPOSAL

      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  Warm IRAC Exoplanet Observation
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 11
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=1774.5536, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=582, DOWNLINK_VOLUME=761915, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=1408.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
TIMING1:  START_DATE=2012 Nov 4, START_TIME=07:04:16, END_DATE=2012 Nov
4, END_TIME=07:34:16
TIMING2:  START_DATE=2012 Nov 7, START_TIME=11:40:04, END_DATE=2012 Nov
7, END_TIME=12:10:04
TIMING3:  START_DATE=2012 Nov 10, START_TIME=16:15:52, END_DATE=2012
Nov 10, END_TIME=16:45:52
TIMING4:  START_DATE=2012 Nov 13, START_TIME=20:51:40, END_DATE=2012
Nov 13, END_TIME=21:21:40
TIMING5:  START_DATE=2012 Nov 17, START_TIME=01:27:28, END_DATE=2012
Nov 17, END_TIME=01:57:28
TIMING6:  START_DATE=2012 Nov 20, START_TIME=06:03:16, END_DATE=2012
Nov 20, END_TIME=06:33:16
TIMING7:  START_DATE=2012 Nov 23, START_TIME=10:39:04, END_DATE=2012
Nov 23, END_TIME=11:09:04
TIMING8:  START_DATE=2012 Nov 26, START_TIME=15:14:53, END_DATE=2012
Nov 26, END_TIME=15:44:53
TIMING9:  START_DATE=2012 Nov 29, START_TIME=19:50:41, END_DATE=2012
Nov 29, END_TIME=20:20:41
TIMING10:  START_DATE=2012 Dec 3, START_TIME=00:26:29, END_DATE=2012
Dec 3, END_TIME=00:56:29
TIMING11:  START_DATE=2012 Dec 6, START_TIME=05:02:17, END_DATE=2012
Dec 6, END_TIME=05:32:17




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit2
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
          READOUT_MODE: SUBARRAY
                 ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit3
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit4
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
```

```
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit5
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit6
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
```

```
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0




     AOT_TYPE:  IRAC Post-Cryo Mapping
    AOR_LABEL:  visit7
   AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0
```

```
      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit8
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
        DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 333
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=43457.355, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=639, DOWNLINK_VOLUME=23065245, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=42624.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  visit9
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED CLUSTER - OFFSETS
   TARGET_NAME:  XO-3b
  COORD_SYSTEM:  Equatorial J2000
     POSITION1:  RA_LON=4h21m52.7040s,  DEC_LAT=+57d49m00.840s, PM_RA=-
0.0050", PM_DEC=0.0020", EPOCH=2000.0
     OFFSET_P2:  EAST_ROW_PERP=-0.352",   NORTH_COL_PARA=0.064"
OFFSETS_IN_ARRAY:  YES
OBSERVE_OFFSETS_ONLY:  YES
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

  PCRS_PEAK_UP:  RA_OFFSET=0.0",  DEC_OFFSET=0.0",  FLUX_DENSITY=9.91
         READOUT_MODE: SUBARRAY
                ARRAY: 36u=YES, 45u=NO
       DATA_COLLECTION: 36u=YES, 45u=NO
```

```
            HI_DYNAMIC: NO
            FRAME_TIME: 2.0
         DITHER_PATTERN: TYPE=none
 N_FRAMES_PER_POINTING: 58
SPECIAL: IMPACT = none, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=7857.3535, SLEW_TIME=18.5,
SETTLE_TIME=13.653619, SLEW_OVERHEAD=180.0, SPECIAL_OVERHEAD=0.0,
UPLINK_VOLUME=589, DOWNLINK_VOLUME=4017370, VERSION=S19.0.2
INTEGRATION_TIME:
IRAC_3_6=7424.0,IRAC_4_5=0.0,IRAC_5_8=0.0,IRAC_8_0=0.0




CONSTRAINT: TYPE=CHAIN, NAME=Chain-0000
AORS: AOR1=Warm IRAC Exoplanet Observation,
      AOR2=visit2,
      AOR3=visit3,
      AOR4=visit4,
      AOR5=visit5,
      AOR6=visit6,
      AOR7=visit7,
      AOR8=visit8,
      AOR9=visit9
```

11.5 Target of Opportunity AORs

```
#  Please edit this file with care to maintain the
#  correct format so that SPOT can still read it.
#  Generated by SPOT on:  8/18/2008     15:24:1

HEADER: FILE_VERSION=17.0, STATUS = PROPOSAL

      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  ToO - IRAC epoch1
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  M31 red variable
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=0h43m02.43s,  DEC_LAT=+41d12m56.2s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 12.0
         DITHER_PATTERN: TYPE=Gaussian5
           DITHER_SCALE: medium
```

```
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = medImpactToo1, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=9815.5, SLEW_TIME=39.0, SETTLE_TIME=38.0,
SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=9360.0, UPLINK_VOLUME=848,
DOWNLINK_VOLUME=1663156, VERSION=S18.1.0
INTEGRATION_TIME: IRAC_3_6=60.0,IRAC_4_5=60.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  ToO - IRAC epoch2
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  M31 red variable
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=0h43m02.43s,  DEC_LAT=+41d12m56.2s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
            FRAME_TIME: 12.0
        DITHER_PATTERN: TYPE=Gaussian5
          DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = medImpactToo1, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=9815.5, SLEW_TIME=39.0, SETTLE_TIME=38.0,
SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=9360.0, UPLINK_VOLUME=848,
DOWNLINK_VOLUME=1663156, VERSION=S18.1.0
INTEGRATION_TIME: IRAC_3_6=60.0,IRAC_4_5=60.0,IRAC_5_8=0.0,IRAC_8_0=0.0




      AOT_TYPE:  IRAC Post-Cryo Mapping
     AOR_LABEL:  ToO - IRAC epoch3
    AOR_STATUS:  new

 MOVING_TARGET:  NO
   TARGET_TYPE:  FIXED SINGLE
   TARGET_NAME:  M31 red variable
  COORD_SYSTEM:  Equatorial J2000
      POSITION:  RA_LON=0h43m02.43s,  DEC_LAT=+41d12m56.2s, PM_RA=0.0",
PM_DEC=0.0", EPOCH=2000.0
OBJECT_AVOIDANCE:  EARTH = YES, OTHERS = YES

          READOUT_MODE: FULL_ARRAY
                 ARRAY: 36u=YES, 45u=YES
       DATA_COLLECTION: 36u=YES, 45u=YES
            HI_DYNAMIC: NO
```

```
            FRAME_TIME: 12.0
         DITHER_PATTERN: TYPE=Gaussian5
           DITHER_SCALE: medium
 N_FRAMES_PER_POINTING: 1
SPECIAL: IMPACT = medImpactToo1, LATE_EPHEMERIS = NO,SECOND_LOOK = NO
RESOURCE_EST: TOTAL_DURATION=9815.5, SLEW_TIME=39.0, SETTLE_TIME=38.0,
SLEW_OVERHEAD=215.0, SPECIAL_OVERHEAD=9360.0, UPLINK_VOLUME=848,
DOWNLINK_VOLUME=1663156, VERSION=S18.1.0
INTEGRATION_TIME: IRAC_3_6=60.0,IRAC_4_5=60.0,IRAC_5_8=0.0,IRAC_8_0=0.0



CONSTRAINT: TYPE=FOLLOW_ON, NAME=FollowOn-0000
RANGE_START: DAYS=5, TIME=00:00:00
  RANGE_END: DAYS=10, TIME=00:00:00
       AORS: AOR_FIRST=ToO - IRAC epoch1, AOR_SECOND=ToO - IRAC epoch2


CONSTRAINT: TYPE=FOLLOW_ON, NAME=FollowOn-0001
RANGE_START: DAYS=18, TIME=00:00:00
  RANGE_END: DAYS=25, TIME=00:00:00
       AORS: AOR_FIRST=ToO - IRAC epoch2, AOR_SECOND=ToO - IRAC epoch3
```