SHARK-NIR

Template Manual

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1 Introduction

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2 Parameters description

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2.1 `detectorSetup`

DIT Set Exposure Time (DIT)
DIT (in seconds) for all exposures: target and sky. 0: minimum value, 21600: maximum value.

NCOADDS Set Number of Coadditions
Number of read frames to sum together. Acceptable value must be positive integer.

NDIT Set Number of DITs
Number of science target frames (NDITs). Acceptable value must be positive integer.

NDROPS Set Number of Drops
Number of drop frames per group in the ramp. Acceptable value must be non-Negative integer.

NEXP Number of Exposures
Determines the number of exposures. 1: minimum value.

NEXTASBG Next as BG
1: next image will be used as background, 0: next image will not be used as background.

NGROUPS Set Number of Groups
Number of groups per ramp (number of read frames + number of drop frames). Acceptable value must be positive integer.

NREADS Set Number of Reads
Number of read frames per group in the ramp. Acceptable value must be positive integer.

PREVASBG Previous as BG
1: previous image will be used as background, 0: previous image will not be used as background.

READOUT Set Read-Out Mode
Detector readout mode for the image. Allowed options for this parameters are:

- 1000x1000
- 128x128
- 256x256
- Bottom
- Center
- Full_Image
- PD_wollaston_stripe_large

- PD_wollaston_stripe_small
- Top
- coro_stripe
- fake_readout_1

SAVE Data Frames
> 1: image file will be saved, 0: image file will not be saved.

XMAX Maximum of X-axis
> Maximum value in X-direction. 0: minimum value, 1200: maximum value.

XMIN Minimum of X-axis
> Minimum value in X-direction. 0: minimum value, 1200: maximum value.

YMAX Maximum of Y-axis
> Maximum value in Y-direction. 0: minimum value, 1200: maximum value.

YMIN Minimum of Y-axis
> Minimum value in Y-direction. 0: minimum value, 1200: maximum value.

2.2 `telescopeSetup`

AODEC AO in DEC
> Adaptive optics in declination. Value must be float.

AOMODE AO Mode
> Adaptive optics mode. Allowed options for this parameters are:

- NORMAL
- OFF
- REPOINT
- SKIPALL
- SKIPREF
- SKIPSTART
- SKIPSTARTREPOINT

AORA AO in RA
> Adaptive optics in right ascension. Value must be float.

BinocularFlag Binocular Flag
> Binocular flag. Allowed options for this parameters are:

- CANCELSYNCOFFSET
- CANCELSYNCPRESET
- CLEARPRESET

- OFF
- ON
- SYNCPRESET

CoordinateSystem Coordinate System
Target coordinate system. Allowed options for this parameters are:

- AZALT
- DETXY
- GALACTIC
- RADEC

Epoch Epoch
Epoch expressed as year.

Equinox Equinox
Coordinates Equinox [year].

GSDEC Guide Star DEC
Guide star DEC.

GSRA Guide Star RA
Guide star RA.

MoveType Move Type
Movement Type. Allowed options for this parameters are:

- ABS
- ABSCS
- REL
- RELCS

OBJDEC Target DEC
Declination coordinate for the Target.

OBJECTNAME Target Object Name
Name of the target object.

OBJEQUIN Target Coordinate System Equinox
Target coordinate system equinox.

OBJMAG Target Mag
Magnitude of the target

OBJRA Target RA
Right Ascension coordinate for the Target.

OFFSET Offset
>   telescope offset.

PMAODEC PM of AO in DEC
>   Proper motion of AO in DEC. -1000: minimum value, 1000: maximum value.

PMAORA PM of AO in RA
>   Proper motion of AO in RA. 0: minimum value, 6.283185: maximum value.

PMDEC Target DEC Proper Motion
>   proper motion declination. -1000: minimum value, 1000: maximum value.

PMGSDEC Guide Star DEC Proper Motion
>   proper motion of guide star in DEC. -1000: minimum value, 1000: maximum value.

PMGSRA Guide Star RA Proper Motion
>   proper motion of guide star in RA. 0: minimum value, 6.283185: maximum value.

PMRA Target RA Proper Motion
>   proper motion right ascension. -70: minimum value, 70: maximum value.

TelescopeMode Telescope Mode
>   Telescope mode. Allowed options for this parameters are:
>   - ACQUIRE
>   - ACTIVE
>   - ADAPTIVEACE_ACTIVE
>   - ADAPTIVEACE_GUIDE
>   - ADAPTIVEACE_TRACK
>   - ADAPTIVEICE_ACTIVE
>   - ADAPTIVEICE_GUIDE
>   - ADAPTIVEICE_TRACK
>   - ADAPTIVETTM_ACTIVE
>   - ADAPTIVETTM_GUIDE
>   - ADAPTIVETTM_TRACK
>   - GUIDE
>   - INTERFEROMETRIC
>   - NONE
>   - STATIC
>   - TRACK

TelescopeSide Telescope Side

Telescope side. LEFT: SHARK, RIGHT: SHARK. Allowed options for this parameters are:

- BOTH
- LEFT
- RIGHT

2.3 `tiptiltCtrlSetup`

ABSOLUTE Absolute

True: absolute. False: relative.

METRIC Optimization metric

Optimization metric: minimizing Strehl ratio or Encircled Energy fraction Allowed options for this parameters are:

- EE_frac
- Strehl

REPEAT Repeat

Repeat.

STEP STEP

STEP: Step of tip or tilt appiled to DM (STEP 0.01 = 1/2 pix movement on SCICAM).

TTACTUATORMAPFILE TipTilt Actuator Map File

Actuator map file.

TTACTUATORSIGNMAPFILE TipTilt Actuator Sign Map File

Actuator sign map file.

TTBIASFILE TipTilt Bias File

Bias File.

TTCAMCMD TipTilt Camera Command

Technical camera command.

TTCAMTINT TipTilt Camera Integration Time

Camera integration time. 0.0: minimum value.

TTCENTROIDGAINX TipTilt Gain on Centroid X

TipTilt gain on centroid X-direction.

TTCENTROIDGAINY TipTilt Gain on Centroid Y

TipTilt gain on centroid Y-direction.

TTCENTROIDORIGX TipTilt Centroid X Origin
> X origin position in [-1, 1] coordinates.

TTCENTROIDORIGY TipTilt Centroid Y Origin
> Y origin position in [-1, 1] coordinates.

TTDIAGDECIMATION TipTilt Diagnostic Decimation
> Diagnostic decimation factor. 0: minimum value, 65535: maximum value.

TTDIAGENABLED TipTilt Diagnostic Enabled
> Enable diagnostic on BCU.

TTDIAGRECORDIPV4 TipTilt Diagnostic Record IP
> IP address of host to receive diagnostic.

TTDIAGRECORDMAC TipTilt Diagnostic Record MAC
> MAC address of host to receive diagnostic.

TTDIAGRECORDPORT TipTilt Diagnostic Record Port
> Diagnostic record port. 1: minimum value, 65535: maximum value.

TTDMFLATFILE TipTilt DM Flat File
> Flat file.

TTDMMAXPOWER TipTilt DM Maximum Power
> Maximum power allowed to DM. 0.0: minimum value, 40.0: maximum value.

TTDMMODESNUM TipTilt DM Modes Number
> Number of modes in zonal influence matrix. 2: minimum value, 128: maximum value.

TTDMMODES TipTilt DM Modes
> DM modes.

TTDMOUTPUTENABLED TipTilt DM Output Enabled
> 1: Deformable mirror output enabled.

TTFRAMERATE TipTilt Frame Rate
> Frame Rate for technical camera. 1: minimum value, 2000: maximum value.

TTHISTORYENABLED TipTilt History Enabled
> 1: enabled history file.

TTJUMBOFRAMESENABLED TipTilt Jumbo Frames
> 1: Jumbo frames enabled. 0: Jumbo frames are not enabled.

TTLOOPENABLED TipTilt Loop Enabled
> 1: control loop enabled.

TTLOOPMODE TipTilt Loop Mode
> Loop mode. 1: minimum value.

TTM2CFILE TipTilt Mirror 2 File
> Mirror 2 file.

TTMASTERDECENABLED TipTilt Master Decimation Enabled
> 1: Master decimation enabled, 0: Master decimation not enabled.

TTMASTERDECIMATION TipTilt Master Decimation
> Master decimation factor on diagnostic. 0: minimum value, 65535: maximum value.

TTMAXCENTROIDVAL TipTilt Maximum Centroid Value
> Maximum centroid value.

TTMAXTTCOMMAND TipTilt Maximum Command
> Maximum tiptilt command.

TTMINCENTROIDVAL TipTilt Minimum Centroid Value
> Minimum centroid value.

TTMINTHRESHOLD TipTilt Minimum Threshold
> Minimum Threshold. 0.0: minimum value.

TTMINTTCOMMAND TipTilt Minimum Command
> Minimum tiptilt command.

TTNSLOPEPIXELS TipTilt Slope Pixels
> Slope Pixels.

TTPIDPAR PID Parameters
> PID Parameters

TTPIXELDECIMATION TipTilt Pixel Decimation
> Frame saving decimation factor. 0: minimum value, 65535: maximum value

TTPIXELENABLED TipTilt Pixel Enabled
> 1: saving frames on memory enabled.

TTPIXELGAINFILE TipTilt Pixel Gain File
> Gain factor for each pixel in which centroid is calculated.

TTPIXELGAINMODE TipTilt Pixel Gain Mode
> Enumerated pixel gain mode. Allowed options for this parameters are:
> - FILEGAIN
> - FLATGAIN
> - GAUSSGAIN
> - POINTGAIN

TTPIXELGAINRADIUS TipTilt point gain radius
> Point gain radius.

TTPOINTGAINY TipTilt Point gain Y
Point gai center y.

TTPXTODSM TipTilt PX To DSM
1: Transfered pixels to DSM memory.

TTRTCMDENABLED TipTilt RTC Command Enabled
1: Real Time Computer command enabled.

TTSAVEALLFRAMES TipTilt Save All Frames
Save all the Frames.

TTSAVEASBIAS TipTilt Save Bias
1: Saved as bias frames. 0: bias frames will be not saved.

TTTESTTIME TipTilt Test Time
Duration of time history-based on lab test in microseconds. 2000: minimum value, 60000000: maximum value.

TTTIMEHISTLEN TipTilt Time History Length
Number of history lines, if history is enabled.

TTTIMEHISTORYFILE TipTilt Time Histort File
History time file.

TTUPDATEBIAS TipTilt Update Current bias
1: Update bias on RTC. 0: Do not update bias on RTC.

TTWINCOLS TipTilt Window Columns
Number of columns for technical camera windowing. 8: minimum value, 512: maximum value.

TTWINCOORDX TipTilt Window Coordinate X
Distance in rows from first px in full frame. 0: minimum value, 640: maximum value.

TTWINCOORDY TipTilt Window Coordinate Y
Distance in columns from first px in full frame. 0: minimum value, 512: maximum value.

TTWINROWS TipTilt Window Rows
Number of rows for technical camera windowing. 4: minimum value, 640: maximum value.

VECTOR_10 Coma X
Coma X. positive: to left, negative: to right.

VECTOR_11 TriY
Trefoil Y.

VECTOR_12 TriO
Trefoil X.

VECTOR_13 Spherical
Spherical.

VECTOR_14 Astigmatism Y II
Astigmatism Y II.

VECTOR_15 Astigmatism O II
Astigmatism O II.

VECTOR_16 Tetrafoil Y
Tetrafoil Y.

VECTOR_17 Tetrafoil X
Tetrafoil X.

VECTOR_18 Coma X II
Coma X II.

VECTOR_19 Coma Y II
Coma Y II.

VECTOR_1 Reserved Tip
Tip reserved by the RTC.

VECTOR_20 Trefoil O II
Trefoil O II.

VECTOR_21 Trefoil Y II
Trefoil Y II.

VECTOR_22 Penta Y
Pentafoil Y.

VECTOR_23 Penta X
Pentafoil X.

VECTOR_24 Spherical II
Spherical II.

VECTOR_25 Astigmatism O III
Astigmatism O III.

VECTOR_26 Astigmatism Y III
Astigmatism Y III.

VECTOR_27 Tet O II
Tetrafoil O II.

VECTOR_28 Tet Y II
   Tetrafoil Y II.

VECTOR_29 Esa Y
   Esafoil Y

VECTOR_2 Reserved Tilt
   Tilt reserved by the RTC.

VECTOR_30 Esa X
   Esafoil X.

VECTOR_31 Com Y III
   Coma Y III

VECTOR_32 Com X III
   Coma X III.

VECTOR_33 Trefoil Y III
   Trefoil Y III.

VECTOR_34 Trefoil O III
   Trefoil O III.

VECTOR_35 Pentafoil X II
   Pentafoil X II.

VECTOR_36 Pentafoil Y II
   Pentafoil Y II.

VECTOR_37 Epta Y
   Eptafoil Y.

VECTOR_38 Epta X
   Eptafoil X.

VECTOR_3 Tip
   Tip. positive: down, negative: up.

VECTOR_4 Tilt
   Tilt. positive: to right, negative: to right.

VECTOR_5 Piston
   Piston

VECTOR_6 Defocus
   Defocus.

VECTOR_7 AstO
   Astigmatism O.

VECTOR_8 AstY
  Astigmatism Y.

VECTOR_9 ComY
  Coma Y. positive: down, negative: up.

2.4 `instrumentSetup`

ADC1_PosAng ADC1 Position Angle
  ADC1 prisms position angle. Value must be float. Allowed options for this parameters are:

  - min_disp
  - other

ADC2_PosAng ADC2 Position Angle
  ADC2 prisms position angle. Value must be float. Allowed options for this parameters are:

  - min_disp
  - other

ADC_Mode ADC Mode
  Atmospheric dispersion corrector mode (2 positions). Allowed options for this parameters are:

  - OFF
  - ON

AMOUNT AMOUNT
  AMOUNT.

APODIZER_W Apodizer Wheel
  Apodizer wheel (8 positions). Allowed options for this parameters are:

  - HOLE
  - HOLE2
  - HOLE3
  - Lens_PD_neg
  - Lens_PD_pos
  - SP1_APO
  - SP2a_APO
  - SP2b_APO

CAL_FF_LAMP Calibration FlatField Lamp
  Calibration flatfield lamp (2 positions). Allowed options for this parameters are:

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- OFF

- ON

CAL_FIBER_DEFOCUS_LAMP Calibration Fiber Defocus Lamp

Calibration fiber defocus lamp (2 positions). Allowed options for this parameters are:

- OFF

- ON

CAL_FIBER_DEP Calibration Fiber Deployer

Calibration fiber deployer. Allowed options for this parameters are:

- DEFOCUS_IN

- FOCUS_IN

- NO_FIBERS

CAL_FIBER_FOCUS_LAMP Calibration Fiber Focus Lamp

Calibration fiber focus lamp (2 positions). Allowed options for this parameters are:

- OFF

- ON

CAL_FILTER_DEP Calibration Filter Deployer

Calibration Filter Deployer (2 positions). IN: closed, OUT: opened. Allowed options for this parameters are:

- IN

- OUT

CAL_MIRROR_DEP Calibration Mirror Deployer

Calibration mirror deployer (2 positions). IN: closed, OUT: opened. Allowed options for this parameters are:

- IN

- OUT

CORO_SLIT_W Coronagraphic Slit Wheel

Coronagraphic masks and slits wheel (9 positions). Allowed options for this parameters are:

- FQPM

- GAUSS

- HOLE

- SLIT1

- SLIT2

- SP1_FPM
- SP2a_FPM
- SP2b_FPM
- WINDOW

DB_FILT_W Dual Band Filter Wheel

Dual Band filter wheel (5 positions). Allowed options for this parameters are:

- ContH-FeII
- ContJ-PaB
- H2-H3
- Phase_Diversity_Couple
- WINDOW

DROT_Mode Derotator Mode

Derotator mode (2 positions). PUPIL: derotator off, FIELD: derotator on. Allowed options for this parameters are:

- FIELD_FIXED: you can edit the position of the derotator (DROT_PosAng) from which the derotation starts.
- FIELD_FREE: puts itself in the ideal position to maximize the derotation time.
- PUPIL: you can edit the position of the derotator (DROT_PosAng) and it won't move from there.

DROT_PosAng Derotator Position Angle

Derotator position angle. Value must be float.

FiltComb Filter Combination

Scientific Filter Combinations. Allowed options for this parameters are:

- BBH_NBFeII
- BBH_ND3
- BBH_ND4
- BBJ_NBFeII
- BBJ_ND3
- BBJ_ND4
- BBY_NBFeII
- BBY_ND3
- BBY_ND4
- HOLE_HOLE
- HOLE_NBContH

- HOLE_NBContJ
- HOLE_NBFeII
- HOLE_NBHeI
- HOLE_NBPaB
- HOLE_ND3
- HOLE_ND4
- NBH2_NBFeII
- NBH2_ND3
- NBH2_ND4
- NBH3_NBFeII
- NBH3_ND3
- NBH3_ND4
- ND2_HOLE
- ND2_NBContH
- ND2_NBContJ
- ND2_NBFeII
- ND2_NBHeI
- ND2_NBPaB
- ND2_ND3
- ND2_ND4

INBEAM_DEP Input Beam Deployer
   Deployable arm for input beam selector (2 positions). IN: closed, OUT: opened.
   Allowed options for this parameters are:

- IN
- OUT

INBEAM_TT Input Beam TipTilt
   TipTilt adjustment entrance folding mirror (2 positions). IN: closed, NPOS_2:
   Named position. Allowed options for this parameters are:

- IN
- NPOS_2

INBEAM_TT_X Input Beam TipTilt X
   Input beam tiptilt mirror X-axis. Value must be float.

INBEAM_TT_Y Input Beam TipTilt Y
   Input beam tiptilt mirror Y-axis. Value must be float.

InstrumentMode Instrument Mode

SHARK-NIR allows the Instrument modes. Allowed options for this parameters are:

- CI
- DI
- GEN
- LSS

LAMP_TEL_SIM Simulation Lamp

Simulation lamp (2 positions). Allowed options for this parameters are:

- OFF
- ON

LYOT_GRISM_W Lyot Grism Wheel

Lyot stops wheel (7 positions). Allowed options for this parameters are:

- FQPM_LYOT_STOP
- GAUSS_LYOT_STOP
- GRISM
- HOLE
- PRISM
- SP_LYOT_STOP
- WOLLASTON

MaskComb Mask Combination

Coronagraphic techniques combinations of masks depend on the scientific observation. Allowed options for this parameters are:

- CI_FQPM
- CI_GAUSS_LYOT
- CI_HOLE
- CI_SP1
- CI_SP1_DB
- CI_SP2a
- CI_SP2a_DB
- CI_SP2b
- CI_SP2b_DB
- DI_DB
- DI_HOLE
- LSS_LR_Close

- LSS_LR_Distant
- LSS_MR_Close
- LSS_MR_Distant

ND_FILT_W Neutral Density Filter Wheel
Neutral density filter wheel (8 positions). Allowed options for this parameters are:

- HOLE
- OD0_2
- OD0_5
- OD1
- OD1_3
- OD2
- OD3
- OD4

PUPIL_LENS_DEP Pupil Lens Deployer
Pupil Lens Deployer (2 positions). IN: INSERT, OUT: OUT. Allowed options for this parameters are:

- IN
- OUT

SCI_FILT_W1 1st Scientific Filter Wheel
1st scientific filter wheel (8 positions). Allowed options for this parameters are:

- BB_H
- BB_J
- BB_Y
- HOLE
- HOLE2
- NB_H2
- NB_H3
- ND2

SCI_FILT_W2 2nd Scientific Filter Wheel
2nd scientific filter wheel (8 positions). Allowed options for this parameters are:

- HOLE
- NB_ContH
- NB_ContJ

- NB_FeII
- NB_HeI
- NB_PaB
- ND3
- ND4

SHUTTER Entrance Shutter

Entrance shutter. IN: closed, OUT: opened. Home position is IN. Allowed options for this parameters are:

- IN
- OUT

STEPS STEPS

STEPS.

3 Template parameters

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3.1 `SHARKNIR_cal_Flux`

Based on `SHARKNIR_gen_tiptilt_offset_and_scicam` python script.
Before the observation the star is behind the coronagraph, then an offset is applied (keep same observing setup, i.e., filter) to move the star out of the coronagraphic mask. The derotator mode should be tracking the field with possible adjustment of the angle to prevent the star from rotating around the coronagraph. ND filter is required for bright targets to prevent detector saturation (ND filter to be chosen by the user according to target magnitude).

Relevant script comments:

- `CHECK IF LOOP IS CLOSED`
- `IF LOOP IS CLOSED: MOVE CENTROID`
- `Retrieving RTC centroid origin`
- `OPEN REAL-TIME TT LOOP`
- `Pass centroid to the RTC`
- `MOVE DM`
- `SHOW RTC SETUP`
- `SAVE MODES`
- `APPLY THE DM DISPLACEMENT`
- `Setup + image`
- `IF LOOP IS CLOSED: PUT BACK CENTROID ORIGIN`
- `Pass centroid to the RTC`
- `IF LOOP IS OPEN: MOVE DM BACK`
- `CLOSE REAL-TIME TT LOOP`

3.1.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
READOUT	NO	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
VECTOR_4	NO	1
ABSOLUTE	YES	false
VECTOR_1	YES	0
VECTOR_10	YES	0
VECTOR_11	YES	0
VECTOR_12	YES	0
VECTOR_13	YES	0
VECTOR_14	YES	0
VECTOR_15	YES	0
VECTOR_16	YES	0
VECTOR_17	YES	0
VECTOR_18	YES	0
VECTOR_19	YES	0
VECTOR_2	YES	0
VECTOR_20	YES	0
VECTOR_21	YES	0
VECTOR_22	YES	0
VECTOR_23	YES	0
VECTOR_24	YES	0
VECTOR_25	YES	0
VECTOR_26	YES	0
VECTOR_27	YES	0
VECTOR_28	YES	0
VECTOR_29	YES	0
VECTOR_3	YES	0
VECTOR_30	YES	0
VECTOR_31	YES	0
VECTOR_32	YES	0
VECTOR_33	YES	0
VECTOR_34	YES	0
VECTOR_35	YES	0
VECTOR_36	YES	0
VECTOR_37	YES	0
VECTOR_38	YES	0
VECTOR_5	YES	0
VECTOR_6	YES	0
VECTOR_7	YES	0
VECTOR_8	YES	0
VECTOR_9	YES	0

3.2 `SHARKNIR_cal_InstrumentBackground`

Based on `SHARKNIR_gen_base` python script.
At the end of the science observation, close the SHARK-NIR entrance shutter, leave the instrument in the same setup of the science OBs just executed and take an exposure with the same DIT of the science OB and NDIT=5.
Relevant script comments:

- `SHOW INSTRUMENT SETUP`

- `LAMPS SETUP`

- `START INSTRUMENT SETUP`

- `CONVERTING DIT INTO SCICAM PARAMS`

- `SHOW DETECTOR SETUP`

- `START SASHA SETUP`

- `WAIT INSTRUMENT SETUP`

- `CHECK LAMPS STATUS`

- `WAIT SASHA SETUP`

- `EXPOSING SASHA`

- `SHOW IMAGES STATS`

3.2.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	DI
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	ND2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	5
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.3 SHARKNIR_cal_SkyBackground

Based on `SHARKNIR_cal_SkyBackground` python script.
Observe a blank field close to the science target (separation 10-20 arcsec, offset given by the telescope). Same set-up as normal science observations but AO is not running. Coronagraph employed, according to the observations. A list of telescope offsets is added to reach an empty field and jitter.
Relevant script comments:

- `TRANSFORM COORDINATES TO RAD`

- `SEND TELESCOPE OFFSET`

- `SETUP + IMAGE`

- `SEND TELESCOPE OFFSET BACK`

3.3.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NCOADDS	NO	1
NDIT	NO	1
READOUT	NO	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
CoordinateSystem	NO	RADEC
OFFSETX	NO	0
OFFSETY	NO	0
BinocularFlag	YES	OFF
MoveType	YES	REL
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.4 `SHARKNIR_cal_TelescopeFlatField`

Based on `SHARKNIR_gen_base` python script.
This calibration is performed through sky observation in order to record a flat (that include telescope large scale transmission variations) on the detector. The filters will be the same used for the observed scientific targets. We plan to have 5 different exposure times for each filter or a single exposure and using the up-the-ramp readout mode (as for the instrument flat).
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

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- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.4.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_MIRROR_DEP	YES	OUT
MaskComb	YES	CI_HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	[u'1', u'1']
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	5
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

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3.5 `SHARKNIR_cal_mon_Ghost`

Based on `SHARKNIR_cal_mon_Ghost` python script.
Inserts the point source lamp and acquires 2 exposures: the first one is a non-saturated exposure (DET.DIT and DET.NDIT), the second one is a saturated exposure. Maybe all the ramp of single acquisition is used.

Relevant script comments:

- `Recalling BASE template:  SETUP + IMAGE`

- `Recalling BASE template:  SETUP + IMAGE`

3.5.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	`WINDOW`
MaskComb	NO	`DI_HOLE`
SCI_FILT_W1	NO	`ND2`
SCI_FILT_W2	NO	`ND3`
ADC_Mode	YES	`OFF`
CAL_FF_LAMP	YES	`OFF`
CAL_FIBER_DEFOCUS_LAMP	YES	`OFF`
CAL_FIBER_DEP	YES	`FOCUS_IN`
CAL_FIBER_FOCUS_LAMP	YES	`ON`
CAL_FILTER_DEP	YES	`OUT`
CAL_MIRROR_DEP	YES	`IN`
DROT_Mode	YES	`PUPIL`
ND_FILT_W	YES	`HOLE`
PUPIL_LENS_DEP	YES	`OUT`
SHUTTER	YES	`IN`

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	`1`
NDIT	NO	`1`
NDROPS	NO	`0`
NGROUPS	NO	`1`
NREADS	NO	`1`
READOUT	NO	`Full_Image`
SAVE	YES	`1`

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.6 `SHARKNIR_cal_tec_NCPA_PD`

Based on `SHARKNIR_cal_tec_NCPA_PD` python script.
We have 6 Phase Diversity setup (focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+), this tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position.
Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `First LOOP (FOCUSED STAR)`

- `PAUSE / RESUME`

- `Second LOOP (DEFOCUSED STAR)`

- `ONERA CODE in IDL, using IDL bridges`

3.6.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
LYOT_GRISM_W	NO	SP_LYOT_STOP
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	10
NCOADDS	YES	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.7 SHARKNIR_cal_tec_NCPA_PD_argos

Based on SHARKNIR_cal_tec_NCPA_PD_argos python script.
Usually the PaB scientific filter is used. We have 6 Phase Diversity setup (focus

fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+), this tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position.

Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `First LOOP (FOCUSED STAR)`

- `PAUSE / RESUME`

- `Second LOOP (DEFOCUSED STAR)`

- `ONERA CODE in IDL, using IDL bridges`

3.7.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
LYOT_GRISM_W	NO	SP_LYOT_STOP
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	10
NGROUPS	NO	2
NREADS	NO	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.8 `SHARKNIR_cal_tec_NCPA_PD_lab`

Based on `SHARKNIR_cal_tec_NCPA_PD_lab` python script.

Internal fiber sources are used. We have 6 Phase Diversity setup (focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+), this tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position.

Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `LOOP FOCUS FIBER: SETUP + IMAGE`

- `LOOP DEFOCUS FIBER: SETUP + IMAGE`

- `ONERA CODE in IDL, using IDL bridges`

3.8.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
LYOT_GRISM_W	NO	SP_LYOT_STOP
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	NB_H2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NDIT	YES	10
NGROUPS	YES	2
NREADS	YES	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.9 SHARKNIR_cal_tec_NCPA_trial

Based on `SHARKNIR_cal_tec_NCPA_trial` python script.
NCPA estimation using Trial and Error approach. Baseline setup is 11 steps per mode, with steps of 0.01um RMS shape of DM, 5 images per step. SP Lyot stop is inserted. The template doesn't make any instrument setup. Camera setup: 128x128,

NGROUPS=2, NREADS=1, NDROPS=0.

Relevant script comments:

- START AND WAIT INSTRUMENT AND SASHA SETUP

- SHOW RTC SETUP

- SAVE MODES

- Retrieving RTC centroid origin

- CHECK FOR ABSOLUTE OR RELATIVE DISPLACEMENT

- LOOP FOR EVERY MODE

- LOOP FOR EVERY STEP

- Pass centroid to the RTC

- APPLY THE DM DISPLACEMENT

- EXPOSING SASHA

- MEASURE THE IMAGE

- FITTING FILES FOR THIS MODE

- APPLY OPTIMIZED MODES TO DM

3.9.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
STEPS	NO	5

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Center
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
ABSOLUTE	NO	true
METRIC	NO	EE_frac
VECTOR_10	NO	0
VECTOR_11	NO	0
VECTOR_12	NO	0
VECTOR_13	NO	0
VECTOR_14	NO	0
VECTOR_15	NO	0
VECTOR_16	NO	0
VECTOR_17	NO	0
VECTOR_18	NO	0
VECTOR_19	NO	0
VECTOR_20	NO	0
VECTOR_21	NO	0
VECTOR_22	NO	0
VECTOR_23	NO	0
VECTOR_24	NO	0
VECTOR_25	NO	0
VECTOR_26	NO	0
VECTOR_27	NO	0
VECTOR_28	NO	0
VECTOR_29	NO	0
VECTOR_3	NO	0
VECTOR_30	NO	0
VECTOR_31	NO	0
VECTOR_32	NO	0
VECTOR_33	NO	0
VECTOR_34	NO	0
VECTOR_35	NO	0
VECTOR_36	NO	0
VECTOR_37	NO	0
VECTOR_38	NO	0
VECTOR_4	NO	0
VECTOR_6	NO	0
VECTOR_7	NO	0
VECTOR_8	NO	0
VECTOR_9	NO	0
VECTOR_1	YES	0
VECTOR_2	YES	0
VECTOR_5	YES	0

3.10 `SHARKNIR_cal_tec_NCPA_wollaston`

Based on `SHARKNIR_cal_tec_NCPA_wollaston` python script.
The Phase_Diversity_Couple filter is inserted in DB_FILT_W. The WOLLASTON prism is inserted in the LYOT_GRISM_W. Two different CCD frame dimension are used. We have 6 Phase Diversity setup (focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+), this tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position.

Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `First LOOP (FOCUSED STAR)`

- `PAUSE / RESUME`

- `Second LOOP (DEFOCUSED STAR)`

- `ONERA CODE in IDL, using IDL bridges`

3.10.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	`NB_H2`
SCI_FILT_W2	NO	`ND3`
ADC_Mode	YES	`OFF`
CAL_FF_LAMP	YES	`OFF`
CAL_FIBER_DEFOCUS_LAMP	YES	`OFF`
CAL_FIBER_DEP	YES	`NO_FIBERS`
CAL_FIBER_FOCUS_LAMP	YES	`OFF`
CAL_FILTER_DEP	YES	`OUT`
CAL_MIRROR_DEP	YES	`OUT`
CORO_SLIT_W	YES	`WINDOW`
DB_FILT_W	YES	`Phase_Diversity_Couple`
DROT_Mode	YES	`PUPIL`
LYOT_GRISM_W	YES	`WOLLASTON`
ND_FILT_W	YES	`HOLE`
PUPIL_LENS_DEP	YES	`OUT`
SHUTTER	YES	`OUT`

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	10
NGROUPS	NO	2
NREADS	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.11 `SHARKNIR_cal_tec_NCPA_wollaston_lab`

Based on `SHARKNIR_cal_tec_NCPA_wollaston_lab` python script.
The internal focus fiber source is used. The Phase_Diversity_Couple filter is inserted in DB_FILT_W. The WOLLASTON prism is inserted in the LYOT_GRISM_W. Two different CCD frame dimension are used. We have 6 Phase Diversity setup (focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+), this tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position.
Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `LOOP FOCUS FIBER: SETUP + IMAGE`

- `LOOP DEFOCUS FIBER: SETUP + IMAGE`

- `ONERA CODE in IDL, using IDL bridges`

3.11.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	Phase_Diversity_Couple
DROT_Mode	YES	PUPIL
LYOT_GRISM_W	YES	WOLLASTON
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	NB_H2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NDIT	YES	10
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.12 SHARKNIR_ci_acq

Based on `SHARKNIR_gen_acq` python script.
Description of this template.
Relevant script comments:

- TELESCOPE PRESET

- Choose alignment type

- CHECK!!! LAB TEST!!!!

- Choose alignment

- Apo Alignment

- Lyot Alignment FOR CI and LSS

- Lyot Alignment for DI

- PSF Alignment

- START AND WAIT INSTRUMENT SETUP

3.12.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
MaskComb	NO	CI_FQPM
ND_FILT_W	NO	OD2
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	CI

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
AODEC	NO	0
AOMODE	NO	REPOINT
AORA	NO	0
CoordinateSystem	NO	RADEC
Epoch	NO	2018.3
Equinox	NO	J2000
GSDEC	NO	0
GSRA	NO	0
OBJDEC	NO	None
OBJECTNAME	NO	None
OBJEQUIN	NO	2000
OBJRA	NO	None
PMAODEC	NO	0
PMAORA	NO	0
PMDEC	NO	0
PMGSDEC	NO	0
PMGSRA	NO	0
PMRA	NO	0
TelescopeMode	NO	ADAPTIVEACE_TRACK
BinocularFlag	YES	OFF
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.13 `SHARKNIR_ci_mon_DetectorPersistence`

Based on `SHARKNIR_ci_mon_DetectorPersistence` python script.
Record a background exposure (10 seconds), then one highly saturated exposure; then
a long series (XX of exposures with source off
Relevant script comments:

- `Instrument background with DIT=10s`

- `Setup + image with custom parameters`

- `Switching off all lamps + DIT=3600 image`

3.13.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	ND2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	FOCUS_IN
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	CI
LYOT_GRISM_W	YES	HOLE
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	5
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.14 `SHARKNIR_ci_obs`

Based on `SHARKNIR_gen_base` python script.
Description of this template.
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.14.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
ADC_Mode	YES	ON
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
InstrumentMode	YES	CI
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NCOADDS	NO	1
NDIT	NO	1
READOUT	NO	Center
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.15 SHARKNIR_di_acq

Based on SHARKNIR_gen_acq python script.
Description of this template.
Relevant script comments:

- TELESCOPE PRESET

- Choose alignment type

- CHECK!!! LAB TEST!!!!

- Choose alignment

- Apo Alignment

- Lyot Alignment FOR CI and LSS

- Lyot Alignment for DI

- PSF Alignment

- START AND WAIT INSTRUMENT SETUP

3.15.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
LYOT_GRISM_W	NO	HOLE
ND_FILT_W	NO	OD2
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CORO_SLIT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	DI

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
AODEC	NO	0
AOMODE	NO	REPOINT
AORA	NO	0
BinocularFlag	NO	OFF
CoordinateSystem	NO	RADEC
Epoch	NO	2018.3
Equinox	NO	J2000
GSDEC	NO	0
GSRA	NO	0
OBJDEC	NO	None
OBJECTNAME	NO	None
OBJEQUIN	NO	2000
OBJRA	NO	None
PMAODEC	NO	0
PMAORA	NO	0
PMDEC	NO	0
PMGSDEC	NO	0
PMGSRA	NO	0
PMRA	NO	0
TelescopeMode	NO	ADAPTIVEACE_TRACK
BinocularFlag	YES	OFF
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.16 `SHARKNIR_di_mon_DetectorGain`

Based on `SHARKNIR_di_mon_DetectorGain` python script.
This calibration is performed using the FF internal lamp. Different filters (BB filters: BB_H, BB_Y, BB_J) and integration times, NDIT=5 for each filter Flat Field.
Relevant script comments:

- `Setup + image with BB_H`

- `Setup + image with BB_J`

- `Setup + image with BB_Y`

3.16.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FF_LAMP	YES	ON
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	IN
CORO_SLIT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	DI
LYOT_GRISM_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Full_Image
NDIT	YES	5

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.17 SHARKNIR_di_mon_MaskRepeatability

Based on `SHARKNIR_di_mon_MaskRepeatability` python script.
Acquire an image for each mask (apodizer, fpm and lyot stop) and of an internal psf ref by using 128x128 frame, at the end of the template, the centroid coordinate

will be printed. These is the order of the images acquired: APO_SP1, APO_SP2a, APO_SP2b, LYOT_GAUSS, LYOT_FQPM, LYOT_SP, CORO_FQPM, CORO_GAUSS, CORO_SP1, CORO_SP2a, CORO_SP2b, SLIT1, SLIT2, psf_ref_128x128.

Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `Apply RTC shape (flat)`

- `LOOP APO MASKS`

- `Setup + image`

- `DETERMINE APO CENTER`

- `LOOP LYOT MASKS`

- `Setup + image`

- `DETERMINE LYOT CENTER`

- `LOOP CORO MASKS`

- `Setup + image`

- `DETERMINE CORO CENTER`

- `TAKE PSF REFERENCE IMAGE`

- `RETRIEVE POSITION OF PSF`

- `Summary of the results`

3.17.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
ND_FILT_W	YES	OD2
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	YES	1
NDIT	YES	1
NDROPS	YES	0
NGROUPS	YES	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.18 SHARKNIR_di_obs

Based on SHARKNIR_gen_base python script.
Description of this template.
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.18.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
InstrumentMode	YES	DI
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NCOADDS	NO	1
NDIT	NO	1
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.19 `SHARKNIR_gen_LampsOff`

Based on `SHARKNIR_gen_base` python script.
Switch off the internal lamps (CAL_FF_LAMP, CAL_FIBER_FOCUS_LAMP, CAL_FIBER_DEFOCUS_L
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.19.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	OFF

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.20 SHARKNIR_gen_Preset

Based on SHARKNIR_gen_Preset python script.
Description of this template.
Relevant script comments:

- TRANSFORM COORDINATES TO RAD

- SETUP

- STOP ANY PREVIOUS TRACKING

- OPEN REAL-TIME TT LOOP

- PRESET TELESCOPE

- TRACK

3.20.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	NO	OFF
DROT_Mode	NO	FIELD_FREE
DROT_PosAng	NO	90

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value
AOMODE	NO	OFF
BinocularFlag	NO	OFF
OBJDEC	NO	31 15 30.1
OBJECTNAME	NO	Star
OBJMAG	NO	11
OBJRA	NO	17 21 13.11
PMDEC	NO	0
PMRA	NO	0
TelescopeMode	NO	TRACK
CoordinateSystem	YES	RADEC
Equinox	YES	j2000
OBJEQUIN	YES	2000
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.21 `SHARKNIR_gen_abort`

Based on `SHARKNIR_gen_abort` python script.
Description of this template.
Relevant script comments:

- `Aborting all motors and scicam`

3.21.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.22 `SHARKNIR_gen_acq`

Based on `SHARKNIR_gen_acq` python script.
Description of this template.
Relevant script comments:

- `TELESCOPE PRESET`

- `Choose alignment type`

- `CHECK!!! LAB TEST!!!!`

- `Choose alignment`

- `Apo Alignment`

- `Lyot Alignment FOR CI and LSS`

- `Lyot Alignment for DI`

- `PSF Alignment`

- `START AND WAIT INSTRUMENT SETUP`

3.22.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DROT_PosAng	NO	0.0
MaskComb	NO	LSS_LR_Distant
ND_FILT_W	NO	OD2
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	LSS
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
AODEC	NO	0
AOMODE	NO	REPOINT
AORA	NO	0
BinocularFlag	NO	OFF
CoordinateSystem	NO	RADEC
Epoch	NO	2018.3
Equinox	NO	J2000
GSDEC	NO	0
GSRA	NO	0
OBJDEC	NO	None
OBJECTNAME	NO	None
OBJEQUIN	NO	2000
OBJRA	NO	None
PMAODEC	NO	0
PMAORA	NO	0
PMDEC	NO	0
PMGSDEC	NO	0
PMGSRA	NO	0
PMRA	NO	0
TelescopeMode	NO	ADAPTIVEACE_TRACK
BinocularFlag	YES	OFF
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.23 `SHARKNIR_gen_base`

Based on `SHARKNIR_gen_base` python script.
Description of this template.
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.23.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.24 `SHARKNIR_gen_cal_InstrumentFlatField`

Based on `SHARKNIR_gen_base` python script.
Shutter closed, source: Flat Field lamp (FF_LAMP); same configuration of the instrument of the scientific observations performed during the night. DIT and NDIT characterized for each scientific filter (5 flux levels requested, of the order of 15**Relevant script comments:**

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.24.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
ND_FILT_W	NO	HOLE
SCI_FILT_W1	NO	ND2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FF_LAMP	YES	ON
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	IN
CORO_SLIT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	DI
LYOT_GRISM_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	5
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.25 `SHARKNIR_gen_cal_StarCenter`

Based on `SHARKNIR_gen_cal_StarCenter` python script.
Description of this template.
Relevant script comments:

- `Waffle activation`

- `Setup + image`

3.25.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	ND2
SCI_FILT_W2	NO	ND3
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
DB_FILT_W	YES	WINDOW
InstrumentMode	YES	GEN
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
DIT	NO	0.83
NDIT	NO	1
READOUT	NO	128x128
NCOADDS	YES	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.26 `SHARKNIR_gen_cal_spiral`

Based on `SHARKNIR_gen_cal_spiral` python script.
Description of this template.
Relevant script comments:

- START AND WAIT INSTRUMENT AND SASHA SETUP

- RTC Preparation

- Retrieving RTC centroid origin

- Take an image on RTC

- Calculate centroid on RTC

- Normalize values to [-1, +1]

- SPIRAL LOOP

- Pass centroid to the RTC

- Take an image on RTC

- EXPOSING SASHA

- PUT BACK CENTROID ORIGIN

- Pass centroid to the RTC

- Take an image on RTC

- Calculate centroid on RTC

- Normalize values to [-1, +1]

3.26.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W2	NO	HOLE
PUPIL_LENS_DEP	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NDROPS	NO	0
NGROUPS	NO	1
NCOADDS	YES	1
NDIT	YES	1
NREADS	YES	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
REPEAT	NO	10
STEP	NO	0.2
ABSOLUTE	YES	false

3.27 `SHARKNIR_gen_cal_spiral_with_pupil`

Based on `SHARKNIR_gen_cal_spiral_with_pupil` python script.
Description of this template.
Relevant script comments:

- START AND WAIT INSTRUMENT AND SASHA SETUP

- RTC Preparation

- SPIRAL LOOP

- APPLY THE DM DISPLACEMENT

- Setup + image

- Setup + image

- APPLY THE DM DISPLACEMENT

3.27.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value
NDROPS	NO	1
NCOADDS	YES	1
NDIT	YES	1
NGROUPS	YES	2
NREADS	YES	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
REPEAT	NO	10
STEP	NO	0.2
ABSOLUTE	YES	false

3.28
SHARKNIR_gen_cal_spiral_with_pupil_and_centroidorigin

Based on `SHARKNIR_gen_cal_spiral_with_pupil_and_centroidorigin` python script.
Description of this template.
Relevant script comments:

- START AND WAIT INSTRUMENT AND SASHA SETUP

- RTC Preparation

- Retrieving RTC centroid origin

- Take an image on RTC

- Calculate centroid on RTC

- Normalize values to [-1, +1]

- SPIRAL LOOP

- Pass centroid to the RTC

- Take an image on RTC

- FOCUS SETUP + IMAGE

- DEFOCUS SETUP + IMAGE

- EXPOSING SASHA

- PUT BACK CENTROID ORIGIN

- Pass centroid to the RTC

- Take an image on RTC

- Calculate centroid on RTC

- Normalize values to [-1, +1]

3.28.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value
NDROPS	NO	0
NGROUPS	NO	1
NCOADDS	YES	1
NDIT	YES	1
NREADS	YES	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
REPEAT	NO	10
STEP	NO	0.2
ABSOLUTE	YES	false

3.29 `SHARKNIR_gen_focus`

Based on `SHARKNIR_gen_focus` python script.
Description of this template.
Relevant script comments:

- START AND WAIT INSTRUMENT AND SASHA SETUP

- LOOP FOR EVERY STEP

- APPLY NEW FOCUS VALUE AND TAKE AN IMAGE

- APPLY NEW FOCUS VALUE

- EXPOSING SASHA

- MEASURE THE IMAGE

- FITTING FILES FOR THIS THROUGH FOCUS

- APPLY OPTIMIZED MODES TO DM

- APPLY NEW FOCUS VALUE

- APPLY NEW FOCUS VALUE

3.29.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
AMOUNT	NO	2.2
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
STEPS	NO	5
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	FOCUS_IN
CAL_FIBER_FOCUS_LAMP	YES	ON
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	HOLE
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
LYOT_GRISM_W	YES	HOLE
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
NCOADDS	YES	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
METRIC	NO	EE_frac

3.30 `SHARKNIR_gen_init`

Based on `SHARKNIR_gen_init_and_park` python script.
Initialize internal motors, except ADC. Initialize INBEAM_TT.
Relevant script comments:

- SET TECCAM TEMPERATURE

- INIT ALMOST ALL DEVICES

- WAIT ALMOST ALL DEVICES

- START AND WAIT INSTRUMENT AND SASHA SETUP

3.30.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	OFF
INBEAM_TT	YES	IN

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.31 `SHARKNIR_gen_mon_ThermalBackground`

Based on `SHARKNIR_gen_base` python script.
Shutter closed, lamps off, no scientific filters, ND2+ND3 filters. Acquire images DIT 85s NDIT 15 –> NCOADDS 1, NDIT 15, NDROPS 0, NGROUPS 20, NREADS 1, READOUT Full_Image.
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.31.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	DI
LYOT_GRISM_W	YES	HOLE
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	ND2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	YES	1
NDIT	YES	15
NDROPS	YES	0
NGROUPS	YES	20
NREADS	YES	1
READOUT	YES	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.32 `SHARKNIR_gen_obs`

Based on `SHARKNIR_gen_base` python script.
Description of this template.
Relevant script comments:

- SHOW INSTRUMENT SETUP

- LAMPS SETUP

- START INSTRUMENT SETUP

- CONVERTING DIT INTO SCICAM PARAMS

- SHOW DETECTOR SETUP

- START SASHA SETUP

- WAIT INSTRUMENT SETUP

- CHECK LAMPS STATUS

- WAIT SASHA SETUP

- EXPOSING SASHA

- SHOW IMAGES STATS

3.32.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
MaskComb	NO	CI_HOLE
ND_FILT_W	NO	HOLE
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
ADC_Mode	YES	ON
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
DROT_Mode	YES	PUPIL
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Full_Image
SAVE	NO	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.33 SHARKNIR_gen_park

Based on `SHARKNIR_gen_init_and_park` python script.
Shutter closed. Lamps switched off. Bearing at 140 degree. INBEAM_DEP OUT.
Relevant script comments:

- SET TECCAM TEMPERATURE

- INIT ALMOST ALL DEVICES

- WAIT ALMOST ALL DEVICES

- START AND WAIT INSTRUMENT AND SASHA SETUP

3.33.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	OFF
DROT_Mode	YES	PUPIL
DROT_PosAng	YES	140.0
INBEAM_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.34 SHARKNIR_gen_tec_CloseLoop

Based on `SHARKNIR_gen_tec_CloseLoop` python script.
Description of this template.
Relevant script comments:

- Take an image on RTC

- Calculate centroid on RTC

- Normalize values to [-1, +1]

- Pass centroid to the RTC

- Change Gain on RTC

- CLOSE REAL-TIME TT LOOP

- Return this

3.34.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTCAMTINT	NO	0.000994919
TTPIXELGAINMODE	NO	POINTGAIN
TTPIXELGAINRADIUS	NO	15

3.35 SHARKNIR_gen_tec_OpenLoop

Based on SHARKNIR_gen_tec_OpenLoop python script.
Description of this template.
Relevant script comments:

- OPEN REAL-TIME TT LOOP

3.35.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.36 SHARKNIR_gen_tec_PD_reconstructor

Based on `SHARKNIR_gen_tec_PD_reconstructor` python script.
We have 6 Phase Diversity setup: focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+. This tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position. The template acquires 10 images for each PD setup (60 images) without aberration (VECTOR). If the aberration are edited in the template, it also acquires 10 images for each PD setup (60 images) for each edited aberration. Since it acquires images both for positive and negative amount of aberration, for each aberration 60*2 = 120 images are acquired.
Relevant script comments:

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `SHOW RTC SETUP`

- `Apply RTC shape (flat)`

- `Call custom template method`

- `SAVE MODES`

- `LOOP FOR EVERY MODE`

- `First we appy positive val, then negative val`

- `Apply RTC shape`

- `Call custom template method`

- `LOOP FOCUS FIBER: SETUP + IMAGE`

- `LOOP DEFOCUS FIBER: SETUP + IMAGE`

3.36.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
LYOT_GRISM_W	NO	SP_LYOT_STOP
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	NB_H2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NDIT	YES	10
NGROUPS	YES	2
NREADS	YES	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
ABSOLUTE	NO	true
VECTOR_10	NO	0
VECTOR_11	NO	0
VECTOR_12	NO	0
VECTOR_13	NO	0
VECTOR_14	NO	0
VECTOR_15	NO	0
VECTOR_16	NO	0
VECTOR_17	NO	0
VECTOR_18	NO	0
VECTOR_19	NO	0
VECTOR_20	NO	0
VECTOR_21	NO	0
VECTOR_22	NO	0
VECTOR_23	NO	0
VECTOR_24	NO	0
VECTOR_25	NO	0
VECTOR_26	NO	0
VECTOR_27	NO	0
VECTOR_28	NO	0
VECTOR_29	NO	0
VECTOR_30	NO	0
VECTOR_31	NO	0
VECTOR_32	NO	0
VECTOR_33	NO	0
VECTOR_34	NO	0
VECTOR_35	NO	0
VECTOR_36	NO	0
VECTOR_37	NO	0
VECTOR_38	NO	0
VECTOR_7	NO	0
VECTOR_8	NO	0
VECTOR_9	NO	0
VECTOR_1	YES	0
VECTOR_2	YES	0
VECTOR_3	YES	0
VECTOR_4	YES	0
VECTOR_5	YES	0
VECTOR_6	YES	0

3.37 `SHARKNIR_gen_tec_PD_wollaston`

Based on `SHARKNIR_gen_tec_PD_wollaston` python script.
The Phase_Diversity_Couple filter is inserted in DB_FILT_W. The WOLLASTON prism is inserted in the LYOT_GRISM_W. We have 6 Phase Diversity setup: focus fiber, focus fiber+PDlens-, focus fiber+PDlens+, defocus fiber, defocus fiber+PDlens-, defocus fiber+PDlens+. This tempalte uses them to create a PD reconstructor by also adding amount of aberrations for each VECTOR (both positive and negative of the specified amount). If all aberrations are set to 0, the template will still acquire images with the 6 different setups, with the DM in best flat position. The template acquires 10 images for each PD setup (60 images) without aberration (VECTOR). If the aberration are edited in the template, it also acquires 10 images for each PD setup (60 images) for each edited aberration. Since it acquires images both for positive and negative amount of aberration, for each aberration 60*2 = 120 images are acquired.
Relevant script comments:

- `START SASHA SETUP`

- `SHOW RTC SETUP`

- `Apply RTC shape (flat)`

- `Call custom template method`

- `SAVE MODES`

- `LOOP FOR EVERY MODE`

- `First we appy positive val, then negative val`

- `Apply RTC shape`

- `Call custom template method`

- `LOOP FOCUS FIBER: SETUP + IMAGE`

- `LOOP DEFOCUS FIBER: SETUP + IMAGE`

3.37.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	Phase_Diversity_Couple
DROT_Mode	YES	PUPIL
LYOT_GRISM_W	YES	WOLLASTON
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SCI_FILT_W1	YES	NB_H2
SCI_FILT_W2	YES	ND3
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NDIT	YES	10
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
ABSOLUTE	NO	true
VECTOR_10	NO	0
VECTOR_11	NO	0
VECTOR_12	NO	0
VECTOR_13	NO	0
VECTOR_14	NO	0
VECTOR_15	NO	0
VECTOR_16	NO	0
VECTOR_17	NO	0
VECTOR_18	NO	0
VECTOR_19	NO	0
VECTOR_20	NO	0
VECTOR_21	NO	0
VECTOR_22	NO	0
VECTOR_23	NO	0
VECTOR_24	NO	0
VECTOR_25	NO	0
VECTOR_26	NO	0
VECTOR_27	NO	0
VECTOR_28	NO	0
VECTOR_29	NO	0
VECTOR_30	NO	0
VECTOR_31	NO	0
VECTOR_32	NO	0
VECTOR_33	NO	0
VECTOR_34	NO	0
VECTOR_35	NO	0
VECTOR_36	NO	0
VECTOR_37	NO	0
VECTOR_38	NO	0
VECTOR_7	NO	0
VECTOR_8	NO	0
VECTOR_9	NO	0
VECTOR_1	YES	0
VECTOR_2	YES	0
VECTOR_3	YES	0
VECTOR_4	YES	0
VECTOR_5	YES	0
VECTOR_6	YES	0

3.38 SHARKNIR_gen_tec_PSFAlignment

Based on `SHARKNIR_gen_tec_PSFAlignment` python script.
Description of this template.
Relevant script comments:

- Reset RTC tiptilt

- PREPARE SETUP TO CHECK CORO CENTER

- Setup + image

- DETERMINE CORO CENTER

- PREPARE SETUP WITHOUT CORO

- START AND WAIT INSTRUMENT AND SASHA SETUP

- Close loop

- Retrieving RTC centroid origin

- EXPOSING SASHA

- ITERATIONS TO ALIGN PSF

- EXPOSING SASHA

- RETRIEVE POSITION OF PSF

- COMPUTE DISPLACEMENT

- CHECK IF CONVERGED

- Transform to teccam delta

- Pass centroid to the RTC

- Putting back the mask

3.38.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
MaskComb	NO	CI_GAUSS_LYOT
ND_FILT_W	NO	OD1_3
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
DB_FILT_W	YES	WINDOW
InstrumentMode	YES	CI
PUPIL_LENS_DEP	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.39 `SHARKNIR_gen_tec_PSFAlignment_lab`

Based on `SHARKNIR_gen_tec_PSFAlignment_lab` python script.
Questo e' il PSFAlignment

Relevant script comments:

- Reset RTC tiptilt

- PREPARE SETUP TO CHECK CORO CENTER

- Setup + image

- DETERMINE CORO CENTER

- PREPARE SETUP WITHOUT CORO

- START AND WAIT INSTRUMENT AND SASHA SETUP

- Close loop

- Retrieving RTC centroid origin

- EXPOSING SASHA

- ITERATIONS TO ALIGN PSF

- EXPOSING SASHA

- RETRIEVE POSITION OF PSF

- COMPUTE DISPLACEMENT

- CHECK IF CONVERGED

- Transform to teccam delta

- Pass centroid to the RTC

- Putting back the mask

3.39.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
MaskComb	NO	CI_GAUSS_LYOT
ND_FILT_W	NO	OD0_5
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	ON
CAL_FILTER_DEP	YES	OUT
InstrumentMode	YES	CI
PUPIL_LENS_DEP	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTCAMTINT	NO	0.000994919
TTPIXELGAINMODE	NO	POINTGAIN
TTPIXELGAINRADIUS	NO	15

3.40 `SHARKNIR_gen_tec_PSFAlignment_tiptilt`

Based on `SHARKNIR_gen_tec_PSFAlignment_tiptilt` python script.
Description of this template.
Relevant script comments:

- Reset RTC tiptilt

- PREPARE SETUP TO CHECK CORO CENTER

- Setup + image

- DETERMINE CORO CENTER

- PREPARE SETUP WITHOUT CORO

- START AND WAIT INSTRUMENT AND SASHA SETUP

- Close loop

- Retrieving RTC centroid origin

- EXPOSING SASHA

- ITERATIONS TO ALIGN PSF

- EXPOSING SASHA

- RETRIEVE POSITION OF PSF

- COMPUTE DISPLACEMENT

- CHECK IF CONVERGED

- APPLY THE DM DISPLACEMENT

- Close loop

- Putting back the mask

3.40.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
MaskComb	NO	CI_GAUSS_LYOT
ND_FILT_W	NO	OD1_3
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
DB_FILT_W	YES	WINDOW
InstrumentMode	YES	CI
PUPIL_LENS_DEP	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.41 `SHARKNIR_gen_tec_PSFAlignment_tiptilt_lab`

Based on `SHARKNIR_gen_tec_PSFAlignment_tiptilt_lab` python script.
Description of this template.
Relevant script comments:

- `Reset RTC tiptilt`

- `PREPARE SETUP TO CHECK CORO CENTER`

- `Setup + image`

- `DETERMINE CORO CENTER`

- `PREPARE SETUP WITHOUT CORO`

- `START AND WAIT INSTRUMENT AND SASHA SETUP`

- `Close loop`

- `Retrieving RTC centroid origin`

- `EXPOSING SASHA`

- `ITERATIONS TO ALIGN PSF`

- `EXPOSING SASHA`

- `RETRIEVE POSITION OF PSF`

- `COMPUTE DISPLACEMENT`

- `CHECK IF CONVERGED`

- `APPLY THE DM DISPLACEMENT`

- `Close loop`

- `Putting back the mask`

3.41.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DB_FILT_W	NO	WINDOW
MaskComb	NO	CI_GAUSS_LYOT
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	ON
CAL_FILTER_DEP	YES	OUT
InstrumentMode	YES	CI
PUPIL_LENS_DEP	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	YES	128x128
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTCAMTINT	NO	0.000994919
TTPIXELGAINMODE	NO	POINTGAIN
TTPIXELGAINRADIUS	NO	15

3.42 `SHARKNIR_gen_tec_PupilApoAlignment`

Based on `SHARKNIR_gen_tec_PupilApoAlignment` python script.
This is the APO alignment template. Description of this template.
Relevant script comments:

- PREPARE SETUP FOR ROTATION ALIGNMENT

- Setup + image

- DETERMINE APO SPIDER CENTER AND ORIENTATION

- PREPARE SETUP FOR MASK ALIGNMENT

- START AND WAIT INSTRUMENT AND SASHA SETUP

- DETERMINE LBT SPIDER ORIENTATION

- GET CURRENT DROT

- SETUP DEROT TO ABS POS

- ITERATIONS TO ALIGN PUPILS

- EXPOSING SASHA

- RETRIEVE POSITION OF PUPIL

- GET CURRENT DROT

- COMPUTE DISPLACEMENT

- GET CURRENT INBEAM_TT

- CHECK IF CONVERGED

- SUM AND APPLY THE DISPLACEMENT

- ITERATIONS TO ROTATE PUPILS

- EXPOSING SASHA

- CHECK CENTERING AND CLOCKING

- GET CURRENT DROT

- CHECK IF CONVERGED

- SETUP DEROT TO ABS POS

- SAVE RESIDUAL DISPLACEMENT X,Y

3.42.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
APODIZER_W	NO	SP2a_APO
SCI_FILT_W1	NO	HOLE
SCI_FILT_W2	NO	HOLE
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	OUT
CAL_MIRROR_DEP	YES	OUT
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	CI
LYOT_GRISM_W	YES	HOLE
ND_FILT_W	YES	OD1_3
PUPIL_LENS_DEP	YES	IN

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
NCOADDS	YES	1
READOUT	YES	Center
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.43 `SHARKNIR_gen_tec_PupilLyotAlignment`

Based on `SHARKNIR_gen_tec_PupilLyotAlignment` python script.
Description of this template.
Relevant script comments:

- SETUP FOR LYOT CENTER CHECK

- Setup + image

- DETERMINE LYOT CENTER

- PREPARE SETUP FOR LBT orientation

- Setup + image

- ITERATIONS TO ALIGN PUPILS

- EXPOSING SASHA

- DETERMINE LBT PUPIL CENTER

- GET CURRENT DROT

- COMPUTE DISPLACEMENT

- GET CURRENT INBEAM_TT

- CHECK IF CONVERGED

- SUM AND APPLY THE DISPLACEMENT

- END OF THE LOOP

- SAVE RESIDUAL DISPLACEMENT X,Y

3.43.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
LYOT_GRISM_W	NO	FQPM_LYOT_STOP
ADC_Mode	YES	OFF
APODIZER_W	YES	HOLE
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CORO_SLIT_W	YES	WINDOW
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	CI
ND_FILT_W	YES	OD1_3
PUPIL_LENS_DEP	YES	IN
SCI_FILT_W2	YES	HOLE

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	YES	Center
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.44 SHARKNIR_gen_tec_TargetPos

Based on SHARKNIR_gen_tec_TargetPos python script.
Description of this template.
Relevant script comments:

- Retrieving RTC centroid origin

- Pass centroid to the RTC

- Retrieving RTC centroid origin

3.44.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTCENTROIDORIGX	NO	0.0
TTCENTROIDORIGY	NO	0.0

3.45 `SHARKNIR_gen_tiptilt_dark`

Based on `SHARKNIR_gen_tiptilt_dark` python script.
Description of this template.
Relevant script comments:

- START AND WAIT INSTRUMENT SETUP

- Take an image on RTC

3.45.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SHUTTER	NO	IN
CAL_FF_LAMP	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_FOCUS_LAMP	YES	OFF

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTTESTTIME	NO	1000000
TTDIAGDECIMATION	YES	0
TTDIAGENABLED	YES	true
TTLOOPENABLED	YES	false
TTPIXELDECIMATION	YES	0
TTPIXELENABLED	YES	1
TTSAVEASBIAS	YES	true
TTUPDATEBIAS	YES	true

3.46 `SHARKNIR_gen_tiptilt_gain`

Based on `SHARKNIR_gen_tiptilt_gain` python script.
Description of this template.
Relevant script comments:

- `Change Gain on RTC`

3.46.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTPIXELGAINMODE	NO	POINTGAIN
TTPIXELGAINRADIUS	NO	5

3.47 `SHARKNIR_gen_tiptilt_init`

Based on `SHARKNIR_gen_tiptilt_init` python script.
Write the parameters (such as DM flat, actuator mapping, clock loop etc.) in OS but
NOT on RTC.
Relevant script comments:

- `REAL-TIME RTCTT INIT`

- `REAL-TIME RTCTT INIT`

- `SETUP REAL-TIME RTCTT`

- `START REAL-TIME RTCTT`

3.47.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
TTACTUATORMAPFILE	NO	BAX479-DM97-map.dat
TTACTUATORSIGNMAPFILE	NO	BAX479-DM97-sign.dat
TTBIASFILE	NO	dark64x64_1000Hz+20deg_14_02_22.dat
TTCAMTINT	NO	0.000994919
TTCENTROIDGAINX	NO	-4.249796
TTCENTROIDGAINY	NO	3.7651188
TTCENTROIDORIGX	NO	-0.0000
TTCENTROIDORIGY	NO	0.0000
TTDIAGDECIMATION	NO	0
TTDIAGENABLED	NO	true
TTDIAGRECORDIPV4	NO	192.168.61.113
TTDIAGRECORDMAC	NO	4c:d9:8f:a0:22:44
TTDIAGRECORDPORT	NO	8001
TTDMFLATFILE	NO	dm_command_2022-11-22-05-45-54_int_140b_90el_T1C
TTDMMAXPOWER	NO	10
TTDMOUTPUTENABLED	NO	1
TTDOWNLOADDSPCODE	NO	true
TTFRAMERATE	NO	1000
TTHISTORYENABLED	NO	0
TTLOOPENABLED	NO	0
TTM2CFILE	NO	20220603-Zernike-FullPupil-Arcetri-1u-rms-4rtc.da
TTMASTERDECENABLED	NO	true
TTMAXCENTROIDVAL	NO	+1
TTMAXTTCOMMAND	NO	3
TTMINCENTROIDVAL	NO	-1
TTMINTHRESHOLD	NO	100
TTMINTTCOMMAND	NO	-3
TTNSLOPEPIXELS	NO	4096
TTPIXELDECIMATION	NO	49
TTPIXELENABLED	NO	1
TTPIXELGAINFILE	NO	flat_gain_64x64.dat
TTPIXELGAINMODE	NO	FLATGAIN
TTRTCMDENABLED	NO	0
TTTIMEHISTLEN	NO	50000
TTTIMEHISTORYFILE	NO	TimeHistory.dat
TTWINCOLS	NO	64
TTWINCOORDX	NO	224
TTWINCOORDY	NO	212
TTWINROWS	NO	64

3.48 SHARKNIR_gen_tiptilt_offset_and_scicam

Based on SHARKNIR_gen_tiptilt_offset_and_scicam python script.
Description of this template.
Relevant script comments:

- CHECK IF LOOP IS CLOSED

- IF LOOP IS CLOSED: MOVE CENTROID

- Retrieving RTC centroid origin

- OPEN REAL-TIME TT LOOP

- Pass centroid to the RTC

- MOVE DM

- SHOW RTC SETUP

- SAVE MODES

- APPLY THE DM DISPLACEMENT

- Setup + image

- IF LOOP IS CLOSED: PUT BACK CENTROID ORIGIN

- Pass centroid to the RTC

- IF LOOP IS OPEN: MOVE DM BACK

- CLOSE REAL-TIME TT LOOP

3.48.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
VECTOR_3	NO	1
ABSOLUTE	YES	false

3.49 `SHARKNIR_gen_tiptilt_setup_and_start`

Based on `SHARKNIR_gen_tiptilt_setup_and_start` python script.
Applies the parameters written by SHARKNIR_gen_tiptilt_init on RTC and applies
them.
Relevant script comments:

- `REAL-TIME RTCTT INIT`

- `REAL-TIME RTCTT INIT`

- `SETUP REAL-TIME RTCTT`

- `START REAL-TIME RTCTT`

3.49.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.50 SHARKNIR_gen_tiptilt_shutdown

Based on SHARKNIR_gen_tiptilt_shutdown python script.
Description of this template.
Relevant script comments:

- REAL-TIME RTCTT SHUTDOWN

- REAL-TIME RTCTT SHUTDOWN

3.50.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value

DetectorSetup

Parameter	Hidden	Value

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.51 SHARKNIR_lss_acq

Based on SHARKNIR_gen_acq python script.
Description of this template.
Relevant script comments:

- TELESCOPE PRESET

- Choose alignment type

- CHECK!!! LAB TEST!!!!

- Choose alignment

- Apo Alignment

- Lyot Alignment FOR CI and LSS

- Lyot Alignment for DI

- PSF Alignment

- START AND WAIT INSTRUMENT SETUP

3.51.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
DROT_PosAng	NO	0.0
MaskComb	NO	LSS_LR_Distant
ND_FILT_W	NO	OD2
SCI_FILT_W1	NO	NB_H2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	PUPIL
InstrumentMode	YES	LSS
SHUTTER	YES	OUT

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDIT	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
AODEC	NO	0
AOMODE	NO	REPOINT
AORA	NO	0
BinocularFlag	NO	OFF
CoordinateSystem	NO	RADEC
Epoch	NO	2018.3
Equinox	NO	J2000
GSDEC	NO	0
GSRA	NO	0
OBJDEC	NO	None
OBJECTNAME	NO	None
OBJEQUIN	NO	2000
OBJRA	NO	None
PMAODEC	NO	0
PMAORA	NO	0
PMDEC	NO	0
PMGSDEC	NO	0
PMGSRA	NO	0
PMRA	NO	0
TelescopeMode	NO	ADAPTIVEACE_TRACK
BinocularFlag	YES	OFF
TelescopeSide	YES	LEFT

TipTiltCtrlSetup

Parameter	Hidden	Value

3.52 `SHARKNIR_lss_cal_AbsoluteFlux`

Based on `SHARKNIR_gen_tiptilt_offset_and_scicam` python script.
Description of this template.
Relevant script comments:

- CHECK IF LOOP IS CLOSED

- IF LOOP IS CLOSED: MOVE CENTROID

- Retrieving RTC centroid origin

- OPEN REAL-TIME TT LOOP

- Pass centroid to the RTC

- MOVE DM

- SHOW RTC SETUP

- SAVE MODES

- APPLY THE DM DISPLACEMENT

- Setup + image

- IF LOOP IS CLOSED: PUT BACK CENTROID ORIGIN

- Pass centroid to the RTC

- IF LOOP IS OPEN: MOVE DM BACK

- CLOSE REAL-TIME TT LOOP

3.52.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
VECTOR_3	NO	1
ABSOLUTE	YES	false

3.53 `SHARKNIR_lss_cal_FluxCalibration`

Based on `SHARKNIR_gen_tiptilt_offset_and_scicam` python script.
Description of this template.
Relevant script comments:

- CHECK IF LOOP IS CLOSED

- IF LOOP IS CLOSED: MOVE CENTROID

- Retrieving RTC centroid origin

- OPEN REAL-TIME TT LOOP

- Pass centroid to the RTC

- MOVE DM

- SHOW RTC SETUP

- SAVE MODES

- APPLY THE DM DISPLACEMENT

- Setup + image

- IF LOOP IS CLOSED: PUT BACK CENTROID ORIGIN

- Pass centroid to the RTC

- IF LOOP IS OPEN: MOVE DM BACK

- CLOSE REAL-TIME TT LOOP

3.53.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
VECTOR_3	NO	1
ABSOLUTE	YES	false

3.54 `SHARKNIR_lss_cal_RemoveTelluric`

Based on `SHARKNIR_gen_tiptilt_offset_and_scicam` python script.
Description of this template.
Relevant script comments:

- `CHECK IF LOOP IS CLOSED`

- `IF LOOP IS CLOSED: MOVE CENTROID`

- `Retrieving RTC centroid origin`

- `OPEN REAL-TIME TT LOOP`

- `Pass centroid to the RTC`

- `MOVE DM`

- `SHOW RTC SETUP`

- `SAVE MODES`

- `APPLY THE DM DISPLACEMENT`

- `Setup + image`

- `IF LOOP IS CLOSED: PUT BACK CENTROID ORIGIN`

- `Pass centroid to the RTC`

- `IF LOOP IS OPEN: MOVE DM BACK`

- `CLOSE REAL-TIME TT LOOP`

3.54.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
ND_FILT_W	NO	HOLE

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NDIT	NO	1
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value
VECTOR_3	NO	1
ABSOLUTE	YES	false

3.55 `SHARKNIR_lss_cal_Wavelength`

Based on `SHARKNIR_lss_cal_Wavelength` python script.
FF lamp with 5lambda filter inserted + slit + grism/prism. A background with lamps switched off is required. Acquire 1 slit image + Acquire 1 background image, same DIT.
Relevant script comments:

- `Setup + image with custom parameters`

- `Switching off all lamps + DIT=3600 image`

3.55.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
CAL_FILTER_DEP	NO	IN
DB_FILT_W	NO	WINDOW
MaskComb	NO	LSS_LR_Distant
ND_FILT_W	NO	HOLE
SCI_FILT_W1	NO	ND2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_MIRROR_DEP	YES	IN
DROT_Mode	YES	FIELD_FREE
InstrumentMode	YES	LSS
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NCOADDS	NO	1
NDIT	NO	1
READOUT	YES	Center
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.56 SHARKNIR_lss_mon_SpectraResolution

Based on `SHARKNIR_lss_mon_SpectraResolution` python script.
FF lamp with 5lambda filter inserted + slit + grism/prism. A background with lamps
switched off is required. Acquire 1 slit image + Acquire 1 background image, same

DIT.

Relevant script comments:

- Setup + image with custom parameters

- Switching off all lamps

3.56.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
MaskComb	NO	LSS_LR_Distant
SCI_FILT_W1	NO	ND2
SCI_FILT_W2	NO	ND3
ADC_Mode	YES	OFF
CAL_FF_LAMP	YES	ON
CAL_FIBER_DEFOCUS_LAMP	YES	OFF
CAL_FIBER_DEP	YES	NO_FIBERS
CAL_FIBER_FOCUS_LAMP	YES	OFF
CAL_FILTER_DEP	YES	IN
CAL_MIRROR_DEP	YES	IN
DB_FILT_W	YES	WINDOW
DROT_Mode	YES	FIELD
InstrumentMode	YES	LSS
ND_FILT_W	YES	HOLE
PUPIL_LENS_DEP	YES	OUT
SHUTTER	YES	IN

DetectorSetup

Parameter	Hidden	Value
NCOADDS	NO	1
NDROPS	NO	0
NGROUPS	NO	1
NREADS	NO	1
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value

TipTiltCtrlSetup

Parameter	Hidden	Value

3.57 `SHARKNIR_lss_obs`

Based on `SHARKNIR_gen_base` python script.
Description of this template.
Relevant script comments:

- `SHOW INSTRUMENT SETUP`

- `LAMPS SETUP`

- `START INSTRUMENT SETUP`

- `CONVERTING DIT INTO SCICAM PARAMS`

- `SHOW DETECTOR SETUP`

- `START SASHA SETUP`

- `WAIT INSTRUMENT SETUP`

- `CHECK LAMPS STATUS`

- `WAIT SASHA SETUP`

- `EXPOSING SASHA`

- `SHOW IMAGES STATS`

3.57.1 Parameters table

InstrumentSetup

Parameter	Hidden	Value
SCI_FILT_W1	NO	`HOLE`
SCI_FILT_W2	NO	`HOLE`
ADC_Mode	YES	`ON`
CAL_FF_LAMP	YES	`OFF`
CAL_FIBER_DEFOCUS_LAMP	YES	`OFF`
CAL_FIBER_DEP	YES	`NO_FIBERS`
CAL_FIBER_FOCUS_LAMP	YES	`OFF`
CAL_FILTER_DEP	YES	`OUT`
CAL_MIRROR_DEP	YES	`OUT`
InstrumentMode	YES	`LSS`
PUPIL_LENS_DEP	YES	`OUT`
SHUTTER	YES	`OUT`

DetectorSetup

Parameter	Hidden	Value
DIT	NO	1
NCOADDS	NO	1
NDIT	NO	1
READOUT	NO	Full_Image
SAVE	YES	1

TelescopeSetup

Parameter	Hidden	Value
OBJECTNAME	NO	test

TipTiltCtrlSetup

Parameter	Hidden	Value