STIS observations comprise 22.2% of prime orbits in Cycle 19

Instruments	Prime Orbits Usage	SNAP Orbit Usage
ACS	20.5%	14.5%
COS	17.6%	7.5%
STIS	22.2%	≈0.0% (2 orbits)
WFC3	38.3%	78.0%
FGS	0.1%	0.0%
NICMOS	1.3%	0.0%

STIS Cycle 19 Exposure Time Percentages as a Function of Configuration/Mode

Configuration/Mode	Percentage of STIS Prime Total Exposure Time	Percentage of STIS SNAP Total Exposure Time
CCD	53.4%	0.00%
CCD/Imaging	2.9%	0.00%
CCD/Spectroscopy	50.5%	0.00%
FUV	19.3%	100.0%
FUV/Imaging	1.3%	0.00%
FUV/Spectroscopy	18.0%	100.0%
NUV	27.3%	0.00%
NUV/Imaging	1.0%	0.00%
NUV/Spectroscopy	26.3%	0.00%

STIS Cycle 19 Exposure Time Percentages as a Function of Grating/Mirror

Configuration/Mode	Grating/Mirror	Percentage of STIS Prime Total Exposure Time	Percentage of STIS SNAP Total Exposure Time
STIS/CCD	G230LB	2.4%	0.00%
	G430L	22.3%	0.00%
	G430M	7.3%	0.00%
	G750L	13.1%	0.00%
	G750M	5.4%	0.00%
	MIRROR	2.9%	0.00%
STIS/FUV	E140H	2.4%	0.00%
	E140M	6.3%	100.0%
	G140L	8.1%	0.00%
	G140M	1.2%	0.00%
	MIRROR	1.3%	0.00%
STIS/NUV	E230H	0.9%	0.00%
	E230M	8.3%	0.00%
	G230L	16.7%	0.00%
	G230M	0.4%	0.00%
	MIRROR	1.0%	0.00%

Prop. ID	Title	External	External Parallel	Internal	Frequency	Cycle 18 Allocation
CCD Monitors						
12740	CCD Performance Monitor			14	2x7	14
12741 & 12742	CCD Dark Monitor			732	366x2	730
12743 & 12744	CCD Bias and Readnoise Monitor			366	366x1	365
12765	CCD Hot Pixel Annealing			169*	13x3	39
12766	CCD Spectroscopic Flats			37	various	37
12767	CCD Imaging Flats			8	various	10
12768	CCD Spectroscopic Dispersion Solution Monitor			3	3x1	3
12769	CCD Sparse Field CTE			82	82x1	74
12770	CCD Full Field Sensitivity	1			1x1	1
12771	Slit Wheel Repeatability			1	1x1	1
12772	CCD Spectroscopic Sensitivity Monitor	5			3x1/L, 1x2/M	6
MAMA Monitors						
12773	MAMA Dispersion Solutions			7	7x1	7
12774	MAMA Full Field Sensitivity	3			1x3	3
12775	MAMA Spectroscopic Sensitivity and Focus Monitor COS Observations of Geocoronal Lyman-Alpha Emission	12	5		3x1/L, 1x1/M, 4x2/E	12 + 5
12776	MAMA Dark Monitor			116	2x1 (2/alt. wk) + 2x6 FUV	116
12777	MAMA NUV Flats			11*	11x1	11 (FUV)
12778	MAMA Fold Distribution			2	1x2	2
12779	MAMA Anomalous Recovery			(8)		
Cycle 19 Total		**21**	**5**	**1548**		
Outsourced Calibration and Monitoring						
12567	Bridging STIS's Neutral Density Desert	9			Orbits between Aug 2012 and Oct 2012	
12682	JWST Calibration Standards	13			Orbits between Sept 2012 and Feb 2013	

STIS Cycle 17:
25 programs
68 external orbits
86 parallel orbits
1816 internal orbits
1970 total orbits

STIS Cycle 18:
20 programs
22 external orbits
39 parallel orbits
1370 internal orbits
1431 total orbits

STIS Cycle 19:
18 programs
21 external orbits
5 parallel orbits
1548 internal orbits
1574 total orbits

Number of STIS Cycle 19 GO External Orbits = 577

*Internal parallel orbits > 1800s.
() Indicates orbits if needed, number of orbits not included in Cycle 19 requests.

CCD Performance Monitor
P.I. Michael A. Wolfe

Purpose	To measure the baseline performance of the CCD system.
Description	This activity measures the baseline performance and commandability of the CCD subsystem. Only primary amplifier D is used. Bias and Flat Field exposures are taken in order to measure read noise, CTE (EPER test), and gain. Full frame observations are made. Bias frames are taken in sub-array readouts to check the bias level for ACQ and ACQ/PEAK observations. All orbits < 1800s.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	14 internal orbits, performed in two groups of 7.
Resources Required: Analysis	2 FTE weeks for analysis. Provides baseline measurements of gains, read noise, charge transfer efficiency, and performance verification of sub-array readout capabilities. Provides a rough assessment of changes in flat field features due to dust motes or other particulates.
Products	Possible update of the gain and read out noise values in ccdtab. This also provides a relative measure of CTI via the extended pixel edge response test. Possible flight software updates of table CCDBiasSubtractionValue. Possible report in a STAN and a summary in the end of cycle ISR.
Accuracy Goals	Read-out noise error < 0.2 electrons. Gain error < 0.05 electrons.
Scheduling & Special Requirements	Orbits will occur every 6 months starting in March 2012 and then in September 2012.
Changes from Cycle 18	No changes.

CCD Dark Monitor (Parts 1 & 2)
P.I. Justin Ely

Purpose	Monitor the darks for the STIS CCD.
Description	Obtain darks at GAIN=1 in order to monitor CCD behavior and chart growth of hot and bad pixels. Check how well the anneals work for the CCD. All exposures are internals and fit in occultation orbits. All orbits < 1800s.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	364 (pt1) + 368 (pt2) internal orbits (twice per day)
Resources Required: Analysis	2 FTE weeks; Retrieve and construct superdarks. These superdarks are compared to previous superdarks and the image statistics are checked to see if there are any anomalous statistical deviations.
Products	Weekly CDBS reference files (superdarks) and a summary in the end of cycle ISR.
Accuracy Goals	Superdark rms < 0.012 e-/s. S/N > 1.0
Scheduling & Special Requirements	Two orbits per day.
Changes from Cycle 18	No changes.

CCD Bias and Read Out Noise Monitor (Parts 1 & 2)
P.I. Justin Ely

Purpose	Monitor the bias in the 1x1 bin settings at gain=1, and 1x1 at gain = 4, to build up high S/N superbiases and track the evolution of hot columns. Also GAIN=1, 1x1 biases through AMPS A and C to use in combination with biases taken through AMP D for monitoring of the read noise.
Description	Take full frame bias exposures in the 1x1 bin settings at gain=1, and 1x1 at gain = 4. Take full frame biases through AMPS A and C. All exposures are internals and fit in occultation orbits. All orbits < 1800s.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	182 (pt1) + 184 (pt2) internal orbits
Resources Required: Analysis	2 FTE weeks. Retrieve and construct superbiases. These superbiases are compared to previous superbiases and the image statistics are checked to see if there are any anomalous statistical deviations. Furthermore, acquisition of biases through AMPS A and C will allow the read noise monitor to be accomplished.
Products	Weekly CDBS reference files (superbiases) and a summary in the end of cycle ISR.
Accuracy Goals	Superbias rms < 0.95 e- at gain 1 1x1 and rms < 1.13 e- at gain 4 1x1. S/N > 1.
Scheduling & Special Requirements	One orbit per day.
Changes from Cycle 18	No changes.

CCD Hot Pixel Annealing
P.I. Justin Ely

Purpose	To anneal hot pixels and monitor the effectiveness of the CCD, hot pixel annealing is assessed by measuring the dark current behavior before and after annealing.
Description	The characteristics of the CCD will first be defined by a series of bias, dark and flat-field exposures taken before the anneal. The CCD Thermoelectric cooler will be turned off to allow the CCD detector temperature to rise from ~ -80 C to +5 C. The CCD will be left in the uncooled state for approximately 12 hours. At the end of this period the Thermoelectric cooler is turned back on and the CCD is cooled to its normal operating temperature. Since the CCD on Side-2 does not have thermistor, a 4 hour period, at a minimum, is necessary to ensure that the CCD is cool and stable. After the CCD has stabilized bias, dark and flat-field images will be repeated to check for changes in the CCD characteristics. The flat field exposures will permit evaluation of any window contamination acquired during the annealing period. All visits > 1800s. Pure parallel mode.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	39 internal orbits and all orbits > 1800s.
Resources Required: Analysis	2 FTE weeks
Products	Hot pixel growth rate, median dark count rate, and a summary in the end of cycle ISR.
Accuracy Goals	Measure the growth rate of hot pixels to within 1% if possible.
Scheduling & Special Requirements	Anneals will execute every 4th week using 3 orbits.
Changes from Cycle 18	Decrease exposure time from 3x1200s to 3x1100s to match dark monitor exposure time.

CCD Spectroscopic Flats
P.I. Elena Mason

Purpose	Obtain MR grating flats to determine the pixel-to-pixel variation for spectroscopic observations. Obtain LR grating flats to monitor the low frequency variations in the spectroscopic flats (i.e. dust motes and other CCD defects). The program is virtually identical to program 12405 executed during cycle 18.
Description	We use the tungsten lamp and the MR grating to determine the pixel-to-pixel variation of the STIS CCD in spectroscopic mode. G430M +50CCD or +52x2 are used to "map" the whole sensitive area of the detector. In addition tungsten flats with LR gratings (G430L and G750L) are taken with the purpose of monitoring the stability of the dust motes and other low frequency variations. The "observing" strategy is similar to that for the MR grating, i.e. 50CCD and "stepped-52x2" flats are collected and combined in order to map -at high SNR (>=400)- the whole sensitive area of the detector. The additional LR grating (G750L) is required to increase the SNR on the blue side of the detector. All orbits < 1800s.
Fraction GO/GTO Programs Supported	51% of STIS total exposure time.
Resources Required: Observations	37 internal orbits: 9 for G430M 5216 50CCD, 5 for G430L 4300 50CCD, 3 for G750L 7751 50CCD, 10 for G430M 5216 52x2, 10 for G430L 4300 52x2
Resources Required: Analysis	4 FTE weeks
Products	Reference file and ISR as applicable, and a summary in the end of cycle ISR.
Accuracy Goals	<1% RMS of the final flat image.
Scheduling & Special Requirements	
Changes from Cycle 18	No changes from Cycle 18.

CCD Imaging Flats
P.I. Elena Mason

Purpose	Monitor the IMAGE flat field stability (and the evolution of possible filter and/or detector defects) across the cycle.
Description	Once every seven weeks, obtain a series of imaging CCD flats using the MIRROR with the unfiltered 50CCD aperture and the filtered F28X50LP aperture. These will be used to monitor the characteristics of the CCD response, and to look for the development of new cosmetic defects. The program is a continuation of cycle 18 program 12406 and identical to it, with the exception of the 2 50CORON flats which have now been removed. All orbits < 1800s.
Fraction GO/GTO Programs Supported	3% of STIS total exposure time.
Resources Required: Observations	8 internal orbits
Resources Required: Analysis	2 FTE weeks; we will obtain the flats and monitor both their variations and the development of any cosmetic defects. Will wait for three months worth of data before attempting to build a new flat.
Products	Reference file, ISR, and a summary in the end of cycle ISR.
Accuracy Goals	0.5% pixel-to-pixel (except 0.8% for OII)
Scheduling & Special Requirements	1 orbit every 7 weeks for 50CCD and F28X50LP.
Changes from Cycle 18	Delete 2 orbits for 50CORON observations.

CCD Spectroscopic Dispersion Solution Monitor
P.I. Paule Sonnentrucker

Purpose	To constrain the wavelength and spatial distortion maps
Description	Internal wavecals will be obtained with all 6 gratings (G230LB, G230MB, G430L, G430M, G750L, G750M) supported for use with the CCD. All observations will be obtained with the 52x0.1 aperture, which maps to 2 pixels at the CCD. The HITM1 lamp will be used, rather than the LINE lamp. The HITM1 lamp has a more favorable spatial illumination pattern, dropping by only a factor of 3 at row 900, relative to the peak brightness at row 420. A comparison LINE lamp wavecal is however included with the G430L/4300 grating. All orbits < 1800s.
Fraction GO/GTO Programs Supported	50% of STIS total exposure time.
Resources Required: Observations	3 internal orbits
Resources Required: Analysis	4 FTE weeks
Products	Reference file, ISR, and a summary in the end of cycle ISR.
Accuracy Goals	0.2 pixels; wavelength accuracy for row 900. Wavelength coefficients are tabulated every 32 rows in the CCD dispersion (_dsp) reference file. Exposure times in this program have typically been chosen to yield a S/N ratio of at least 10 per pixel in row 900 after combining 32 rows. This constraint must be satisfied in the left, middle, and right thirds of the image. Existing HITM1 wavecals were used to estimate exposure times assuming no significant degradation since Cycle 18.
Scheduling & Special Requirements	none
Changes from Cycle 18	No changes.

CCD Sparse Field CTE
P.I. Michael A. Wolfe

Purpose	Acquire an accurate correction for parallel register CTE losses that can be used for direct analysis of science data with negligible background. Do measurements for both GAIN settings (1 and 4).
Description	The sparse field CTE will be measured via internal calibration internal lamp observations taken through narrow slits. The strategy of the test is as follows. If there is a CTE effect, charge will be left behind as the image is shifted through pixels during readout. The further the charge needs to be shifted to be read out, the more charge it will lose. Because the A amp and the C amp read out at opposite ends of the CCD, the ratio in image intensity (A amp/C amp) should increase as the image position moves closer to the A amp end (and further from the C amp end). For the parallel CTE measurement, the test will use the the cross disperser slits: 0.05x31NDB and 0.05x31NDA slits, projected on different parts of the detector via an optional parameter that allows the aperture to illuminate various positions on the CCD. The whole series of exposures are executed once for GAIN=1, and once for GAIN=4 to test the effect of different bias voltages. Require 8 orbits for darks (1100s and 60s exposures; gain = 1 and 4) read-out with amps A and C for CTE pixel based correction. All orbits < 1800s.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	82 internal orbits
Resources Required: Analysis	2 FTE weeks
Products	Determine slope for time dependent correction of CTE, possible update of ccdtab reference file, and summary in the end of cycle ISR.
Accuracy Goals	CTE correction coefficients correct the flux to an accuracy of 1%.
Scheduling & Special Requirements	Orbits must be done consecutively.
Changes from Cycle 18	Added 8 orbits to acquire darks.

CCD Full Field Sensitivity
P.I. Julia Roman-Duval

Purpose	To monitor CCD sensitivity over the whole field of view.
Description	Measure a photometric standard star field in Omega Cen in 50CCD annually to monitor CCD sensitivity over the whole field of view. Keep the spacecraft orientation within a suitable range (+/- 5 degrees) to keep the same stars in the same part of the CCD for every measurement. This test will give a direct transformation of the 50CCD magnitudes to the Johnson-Cousins system for red sources. These transformations should be accurate to 1%. The stability of these transformations will be measured to the sub-percent level. These observations also provide a check of the astrometric (CCD coronography) and PSF stability of the instrument over its full field of view. All orbits > 1800s.
Fraction GO/GTO Programs Supported	3% of STIS total exposure time.
Resources Required: Observations	1 external orbit
Resources Required: Analysis	2 FTE weeks
Products	ISR, possible STAN, and summary in the end of cycle ISR.
Accuracy Goals	1%
Scheduling & Special Requirements	ORIENT 310.0D TO 310.0 D; BETWEEN 15-JAN-2012:00:00:00 AND 20-MAR-2012:00:00:00
Changes from Cycle 18	No changes.

Slit Wheel Repeatability
P.I. Chris Long

Purpose	Test the repeatability of the slit wheel by taking a sequence of comparison lamp spectra with grating G230MB (2697) and the three smallest long slits (52X0.2, 52X0.1, and 52X0.05). This is a clone of Cycle 18 Program 12410.
Description	Verify the repeatability of the slit wheel for three STIS slits (52X0.2, 52X0.1, and 52X0.05) by taking images with the Pt/Cr/Ne LINE lamp and the CCD detector. Use the G230MB (2697) grating with the CCD, and rotate the slit wheel among the 3 chosen slits. Detector: CCD Grating: G230MB (2697) Slits: 52x0.2, 52X0.1, 52X0.05 Grating A: 52X0.2 (10 seconds) Grating B: 52X0.1 (10 seconds) Grating C: 52X0.05 (20 seconds) Sequence: A-B-C-B-C-A-A-B-A-C-B-B-A-B-C-B-C-C-A-B-A-C-B-A forward motion: B - 4 times C - 6 times Backward motion: A - 6 times B - 4 times No motion: A/B/C - 1 time. All orbits > 1800s.
Fraction GO/GTO Programs Supported	53% of STIS total exposure time.
Resources Required: Observations	1 internal orbit and orbit > 1800s.
Resources Required: Analysis	1 FTE week
Products	Report and summary in the end of cycle ISR.
Accuracy Goals	0.2 pixel after removing the 0th order shift
Scheduling & Special Requirements	Schedule early in Cycle 19.
Changes from Cycle 18	No changes.

CCD Spectroscopic Sensitivity Monitor
P.I. Azalee Bostroem

Purpose	Monitor the spectroscopic sensitivity of the CCDs using both low- and medium-resolution grating settings to reveal any contamination issues which might affect the spectroscopic throughput.
Description	This calibration program will monitor the spectroscopic sensitivity of CCD spectroscopic settings using the same high-declination calibration standard. Results will be ratioed to the first observations to detect any trends. Every 4 months, the L-modes will be observed at settings which cover both the nominal position and the recommended E1 position which places the spectrum closer to the CCD readout. These visits comprise one orbit each. This program also monitors the medium-resolution gratings, with one visit. This visit takes observations at 2 central wavelength settings of G230MB and G430M, at each of the nominal and E1 pseudo-aperture positions, and at 1 central wavelength setting of G750M (with the addition of an observation at the pseudo-aperture position to that at the nominal position). All orbits > 1800s.
Fraction GO/GTO Programs Supported	50% of STIS total exposure time.
Resources Required: Observations	5 external orbits: 3x1 orbits for L mode monitoring, 2 orbits for 1 visit of M mode monitoring + verification of CTE
Resources Required: Analysis	7 FTE weeks total: 5 FTE weeks for sensitivity analysis and 2 FTE weeks for CTE analysis
Products	Interim reports and ISR on sensitivity and summary in the end of cycle ISR. Update of TDS reference file as appropriate.
Accuracy Goals	Minimum of S/N of 50 at the wavelength of least sensitivity.
Scheduling & Special Requirements	L modes observed every 4th month, M modes observed once.
Changes from Cycle 18	Additional analysis resources for CTE analysis.

MAMA Dispersion Solutions
P.I. Paule Sonnentrucker

Purpose	To constrain the wavelength dispersion solutions.
Description	Internal wavecals will be obtained at primary and secondary central wavelengths chosen to cover Cycle 19 use. There is also overlap with choices of configurations used with previous calibration programs which will enable long-term monitoring. This program uses the LINE lamp for a total of approximately 8 hours, typically at a lamp current of 10 mA, consuming about 0.5% of the 15000 mA-hour lifetime. Extra-deep wavecals are included for some echelle modes and for some first order modes to ensure detection of weak lines. All orbits < 1800s.
Fraction GO/GTO Programs Supported	44% of STIS total exposure time.
Resources Required: Observations	7 internal orbits
Resources Required: Analysis	4 FTE weeks
Products	Possible new reference file and summary in the end of cycle ISR.
Accuracy Goals	0.1 pixels internal wavelength precision.
Scheduling & Special Requirements	none
Changes from Cycle 18	No changes.

MAMA Full Field Sensitivity
P.I. Julia Roman-Duval

Purpose	To monitor the sensitivity of the FUV-MAMA and NUV-MAMA over the full field.
Description	By observing the globular cluster NGC6681 once every year at roughly the same orientation, we will monitor the full-field sensitivity of the MAMA detectors and their astrometric and PSF stability. These observations will be used to look for contamination, throughput changes, or formation of color centers in the photocathode and window that might be missed by spectroscopic monitoring or difficult to interpret in flat-fielding. Although this test is done using MAMA imaging modes, the confirmation of detector stability and uniformity provided by this monitor is important for spectroscopic observations as well. All orbits > 1800s.
Fraction GO/GTO Programs Supported	2% of STIS total exposure time.
Resources Required: Observations	3 external orbits
Resources Required: Analysis	5 FTE weeks
Products	ISR, possible STAN, and a summary in the end of cycle ISR.
Accuracy Goals	Percent level; counting statistics signal-to-noise on bright stars
Scheduling & Special Requirements	Should roughly match most common orient from previous observations. ORIENT 260.0D TO 266.0 D; BEFORE 16-JUN-2012:00:00:00
Changes from Cycle 18	No changes.

MAMA Spectroscopic Sensitivity and Focus Monitor and COS Observations of Geocoronal Lyman-Alpha Emission

P.I. Azalee Bostroem

Purpose	Monitor sensitivity of each MAMA grating mode to detect any change due to contamination or other causes. Also monitor the STIS focus in a spectroscopic and an imaging mode. Also obtain G130M and G140L spectra of the geocoronal Lyman-alpha emission feature with S/N ratios sufficient to trace the line wings.
Description	Obtain exposures in each of the 2 low-resolution MAMA spectroscopic modes every 2 months, in each of the 2 medium-resolution modes once a year, and in each of the 4 echelle modes every 6 months, using unique calibration standards for each mode, and ratio the results to the first observations to detect any trends. In addition, each L-mode sequence will be preceded by two spectroscopic ACQ/PEAKs with the CCD/G230LB and crossed linear patterns, with the purpose of measuring the focus (PSF across the dispersion as a function of UV wavelength); and each M-mode sequence will be preceded by a CCD/F28X50OII direct image also to monitor the focus. All orbits > 1800s. We have received two requests from GOs for high-S/N observations of the geocoronal Lyman-alpha line profile observed with the G130Mand G140L gratings. Such observations would allow users to model and subtract the line wings from their spectra. Observations to date provide insufficient airglow data to construct such profiles. We propose airglow observations totaling 10 ks with each grating. The data will be archived, but must be reduced by the GOs themselves. All orbits > 1800s.
Fraction GO/GTO Programs Supported	44% of STIS total exposure time. 63% of COS total exposure time.
Resources Required: Observations	12 external orbits 5 parallel orbits
Resources Required: Analysis	6.5 FTE weeks for sensitivity, 4 FTE weeks for focus 0 FTE weeks
Products	Interim reports and ISR on sensitivity monitor and summary in the end of cycle ISR. Wavelength-dependent trends for implementation as pipeline corrections. ISR on focus monitors. If the focus quality is found to degrade significantly, a separate program to take corrective action (such as adjustment of the STIS tip/tilt mirror) may be implemented. None. Observers must reduce this data themselves.
Accuracy Goals	Minimum S/N of 50 per resolution element at the wavelength of least sensitivity for L modes, and at the central wavelengths for M and E modes. 10% for focus changes, i.e FWHM of the profile across the dispersion. For G140L, SNR of 4 per pixel at 1200A; for G130M, SNR of 1.5 per pixel at 1213 A.
Scheduling & Special Requirements	Monthly MAMA offsets are to be cancelled and centering returned to nominal for all exposures in this program. L mode exposures 3x, M mode exposures once, echelle exposures 4x. Observations can be obtained as parallels with STIS external calibration observations.
Changes from Cycle 18	Include COS Observations of Geocoronal Lyman-Alpha Emission. No changes.

MAMA Dark Monitor
P.I. Colin Cox

Purpose	This proposal monitors the behavior of the dark current in each of the MAMA detectors. This proposal will provide the primary means of checking on health of the MAMA detectors systems through frequent monitoring of the background count rate. The purpose is to look for evidence of change in the dark rate, indicative of developing detector problems.
Description	Two times every other week one exposure of 1380s is taken with the FUV and NUV MAMAs with the shutter closed. For each detector, the second exposure in the weekly pair should be taken 4.5 to 7.5 orbits after the first exposure of the pair. This ensures they are taken in different parts of the same SAA free interval. The exposures are taken in ACCUM mode. The length of the exposures is chosen to make them parallels. Two times a year a six-exposure sequence of 1314s FUV-MAMA TIME-TAG darks are taken over the course of a single SAA free period. All orbits < 1800s.
Fraction GO/GTO Programs Supported	47% of STIS total exposure time.
Resources Required: Observations	116 internal orbits
Resources Required: Analysis	4 FTE weeks
Products	Reference dark files, ISR, and summary in the end of cycle ISR.
Accuracy Goals	Each measurement will give a statistical uncertainty of 5% for the global dark rate.
Scheduling & Special Requirements	2 orbits per detector, alternating every week, plus 2 groups of 6 exposure sequences of FUV dark measurements over the course of a single SAA-free period.
Changes from Cycle 18	No changes.

MAMA NUV Flats
P.I. Elena Mason

Purpose	This program is aimed at obtaining NUV-MAMA flat-field observations for the construction of pixel-to-pixel flats (p-flats) with a SNR of ~100 per pixel. The flats are obtained with the D2-lamp and the MR gratings G230M. The actual choice of central wavelength and slit combination depends on the observed count level within each exposure. Note that STIS NUV-MAMA flats are taken every other cycle (i.e. during odd number cycles) in order to not drain the D2 lamp lifetime.
Description	Past experience and observations have shown that ~11 visits are sufficient to build a p-flat with the required SNR~100/pix (2x2 "binning", low-res mode). However, the actual instrument setup (central wavelength and slit width) and exposure time might change during the cycle in order to guarantee the needed count-level of ~250000-280000 cps/frame. Past experience and observations have also shown that NUV-MAMA p-flats are mode independent, i.e. they do not depend on the wavelength. Therefore, a high-quality p-flat constructed with G230M suffice all NUV-MAMA spectroscopic and imaging programs. The G230M flats will be taken with the slit at 5 different offset positions in order to illuminate also those detector region which are normally shadowed by the slit bars. The first visit will be performed with G230M centered at 2338A and the slit 52x0.5 (as in program 11862) for which we estimate ~23953cps. The first visit will need an exposure time of 4360. sec. However, from the second or third visit we might move to G230M/ 2419 (which will deliver a factor 1.17 more counts, implying a cps<=279926) and exposure time of 3367sec, in order to possibly save at least 2.5hr of lamp lifetime. All orbits > 1800s.
Fraction GO/GTO Programs Supported	27% of STIS total exposure time.
Resources Required: Observations	11 internal orbits and all orbits > 1800s.
Resources Required: Analysis	4 FTE weeks
Products	A reference file (P-flat) if possible and a summary in the end of cycle ISR.
Accuracy Goals	1.0% (0.5% if combined with all previous P-flats) Comments on Accuracy: Accuracy is per low-res pixel (2x2 high-res pixels)
Scheduling & Special Requirements	Observations in Cycle 18 were not done. We will defer this program to Cycle 19.
Changes from Cycle 18	No program during Cycle 18.

MAMA Fold Distribution
P.I. Tom Wheeler

Purpose	The performance of MAMA microchannel plates can be monitored using a MAMA fold analysis procedure that provides a measurement of the distribution of charge cloud sizes incident upon the anode giving some measure of change in the pulse-height distribution of the MCP and, therefore, MCP gain.
Description	While globally illuminating the detector with a flat field, the valid event (VE) rate counter is monitored while various combinations of row and column folds are selected. The process is implemented using special commanding and is the same for the FUV- and NUV-MAMAs with the exception of the gratings/aperture/lamp combinations used for flat field illumination. This proposal executes the same steps as Cycle 18 proposal 12416 and is described in STIS ISR 98-02R. All orbits > 1800s.
Fraction GO/GTO Programs Supported	47% of STIS total exposure time.
Resources Required: Observations	2 internal orbits
Resources Required: Analysis	0.1 FTE weeks
Products	Fold Analysis findings are reported to the STIS Science Team and V. Argabright of Ball Aerospace after completion of analysis, typically one-two weeks after the execution of the test. A summary in the end of cycle ISR.
Accuracy Goals	Position of the peak in the fold distribution can be measured to about 5% accuracy from this procedure.
Scheduling & Special Requirements	
Changes from Cycle 18	No changes.

MAMA Anomalous Recovery
P.I. Tom Wheeler

Purpose	This proposal is designed to permit a safe and orderly recovery of the FUV- or NUV-MAMA detector after an anomalous shutdown. This is accomplished by using slower-than-normal MCP high-voltage rampings and diagnostics. Anomalous shutdowns can occur because of bright object violations, which trigger the Bright Scene Detection or Software Global Monitors. Anomalous shutdowns can also occur because of MAMA hardware problems.
Description	The recovery procedure consists of three separate tests (i.e. visits) to check the MAMA's health after an anomalous shutdown. Each must be successfully completed before proceeding onto the next. This proposal executes the same steps as Cycle 18 proposal 12429. (1) signal processing electronics check. This reduces amplifier thresholds to 0.28V and monitors the ORCOUNT rate. (2) Slow, intermediate voltage high-voltage ramp-up. The MCP is slow-ramped to a voltage 300V below nominal. A dark time-tag exposure is taken during this partial ramp. A second dark accum exposure is taken where the event counter is cycled through W, X, Y, Z, OR, EV and VE. (3) Ramp-up to full operating voltage. As before, a dark time-tag exposure is taken during this ramp-up. A second dark accum exposure is taken where the event counter is cycled through W, X, Y, A, OR, EV and VE. This is followed by a fold analysis test.
Fraction GO/GTO Programs Supported	47% of STIS total exposure time. This is a contingency procedure only. Up to 6 orbits would be needed if activated.
Resources Required: Observations	contingency program only
Resources Required: Analysis	0.4 FTE weeks
Products	
Accuracy Goals	n/a
Scheduling & Special Requirements	contingency program only
Changes from Cycle 18	No changes.