Proposal ID 8900: CCD Performance Monitor

Plan

Purpose	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 bias level, read noise, CTE, and gain. Numerous bias frames are taken to permit construction of "superbias" frames in which the effects of read noise have been rendered negligible. Full frame and binned observations are made,with binning factors of 2x1, 1x2, 2x2, 4x1, and 4x2. Dark images are taken in 2x2 binning mode; 1x1 binning darks are being taken in the nominal CCD Dark Monitor. Bias frames are taken in subarray readouts to check the bias level for ACQ and ACQ/PEAK observations. All exposures are internals.
Fraction GO/GTO Programs Supported	50%
Resources Required: Observation	42 internal orbits.
Resources Required: Analysis	3 FTE weeks
Products	Possible update of Reference files, flight software, ISR and STAN
Accuracy Goals	Bias level: better than 0.1 ADU at any position within CCD frame; read-out noise negligible. Dark current: good to 0.5 electron/hour. RMS noise level about 0.05 electron per hour per pixel. Systematic error in hot pixels may well exceed this limit.
Scheduling& Special Requirements	First set of visits in December 2001, second set in June 2002, visits 41 to 45 in September 2001

Proposal ID’s 8901 & 8902: CCD Dark Monitor

Plan

Purpose	Monitor the darks for the STIS CCD.
Description	Obtain darks at GAIN=1 in order to monitor CCD behaviour 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
Fraction GO/GTO Programs Supported	50%
Resources Required: Observation	730 internal orbits
Resources Required: Analysis	3 FTE weeks
Products	Updates of the CDBS reference files (weekly superdarks); possibly an ISR.
Accuracy Goals	> 5%. Good in superdarks made from long exposures for all but the hottest pixels, which are well measured (unsaturated) in the daily short exposures
Scheduling& Special Requirements	3901 starts on Dec 2001; 3902 starts on Jun 2002. Visits 41 - 45 on Sept. 2001; 14 visits per week, 2 per day.

Proposal ID 8903 & 8904: CCD Bias Monitor

Plan

Purpose	Monitor the bias in the 1x1, 1x2, 2x1, and 2x2 bin settings at gain=1, and 1x1 at gain = 4, to build up high-S/N superbiases and track the evolution of hot columns.
Description	Take full-frame bias exposures in the 1x1, 1x2, 2x1, and 2x2 bin settings at gain=1, and 1x1 at gain = 4. All exposures are internals and fit in occultation orbits. This proposal consolidates all bias calibration exposures.
Fraction GO/GTO Programs Supported	100% of CCD and 35% of total
Resources Required: Observation	365 internal orbits
Resources Required: Analysis	17 FTE weeks
Products	Updates of the CDBS Superbias reference files; possibly an ISR
Accuracy Goals	Bias level: better than 0.1 ADU at any position within CCD frame; uperbias rms: 0.4 ADU at gain 1 1x1; 0.8 ADU at gain 1 1x2,2x1,2x2; 0.3 ADU at gain 4 1x1
Scheduling& Special Requirements	Start on September 2001 to take over from 8865.

Proposal ID 8905: CCD Read Noise Monitor

Plan

Purpose	Monitor the read noise in all of the on-chip amplifiers (A,B,C,D) to track changes affecting the STIS CCD.
Description	This proposal measures the read noise of the STIS CCD using pairs of bias frames. All amplifiers (A, B, C, D) are used. Full frame and binned observations are made in both Gain 1 and Gain 4, with binning factors of 1x1, 1x2, 2x1 and 2x2.
Fraction GO/GTO Programs Supported	35%
Resources Required: Observation	24 internal orbits
Resources Required: Analysis	4 FTE weeks
Products	ISR
Accuracy Goals	0.05 DN
Scheduling& Special Requirements	Starting on September 2001.

Proposal ID 8906: CCD Hot Pixel Annealing

Plan

Purpose	The effectiveness of the CCD hot pixel annealing process is assessed by measuring the dark current behavior before and after annealing and by searching for any window contamination effects. In addition CTE performance is examined by looking for traps in a low signal level spectroscopic flat. Follows on from proposals 8081/8410/8841.
Description	The chacteristics of the CCD will first be defined by a series of Bias, Dark and flat-field exposures. The CCD Thermoelectric cooler (TEC) will then be turned off to allow the CCD detector temperature to rise (from about -80C to +5C). The CCD will be left in the uncooled state for approximately 12 hours. At the end of this period, the TEC will be turned back on and the CCD cooled down to its normal operating temperature. Bias, Dark and flat-field images will be repeated to check for changes in the CCD characteristics. Because the CCD window is on the CCD housing and not bonded to the chip, the window is actually warmest when the CCD is being cooled (because the TEC power warms the housing and coldest during the TEC-off annealing process). The flat field exposures will permit evaluation of any window contamination acquired during the annealing period. Should continue on from the monthly scheduling of program 8841.
Fraction GO/GTO Programs Supported	35%
Resources Required: Observation	156 external parallel orbits
Resources Required: Analysis	3 FTE weeks
Products	Reference files, (flats, darks and biases), updates to hot pixel tables, reports and postings to the Web..
Accuracy Goals	n/a
Scheduling& Special Requirements	Start on Sept 17, 2001, continue every 4 weeks through Aug 26, 2001

Proposal ID 8907: CCD Spectroscopic Flats

Plan

Purpose Obtain CCD flats on the STIS CCD in spectroscopic mode.

Description Using both the internal tungsten and deuterium lamps, take a series of flats at specified tilts to obtain high S/N flats for delivery to the STIS pipeline. The program is designed to achieve good S/N at all wavelengths by taking numerous exposures with peak counts of 80000 electrons each at GAIN=4 (or 20000 electrons at GAIN=1) for most gratings, with exceptions noted below. For observations taken with a slit, special commanding is used to place the fiducial bars in 5 different locations in the image so that they can be removed in a combined flat. At least 5 iterations are made of each exposure for cosmic ray removal. One grating is monitored monthly for changes (G430M, 5216 Angstroms, GAIN=1 and 4). The tungsten lamps are used. One grating (G750M, 6581 Angstroms), is observed twice at GAIN=1 with the tungsten lamps. The following observations are each made once in the cycle at GAIN=4: G750L with the tungsten lamps. (Peak per exposure is 32000 electrons.) G430M at 5216 Angstroms with the tungsten lamps. G430L with the tungsten lamps and the deuterium lamp, to get good S/N across the wavelength range. G230MB at 2557 and 3115 Angstroms with the deuterium lamp, since the 2557 tilt is substantially different from the rest. G230LB with the deuterium lamp. Monitor continues from cycle 9 proposal 8845.

Fraction GO/GTO Programs Supported 30%

Resources Required: Observation 79 internal orbits

Resources Required: Analysis 4 FTE weeks

Products reference files; ISR

Accuracy Goals <5%

Scheduling& Special Requirements Monthly for G750M throughout cycle, once for all other gratings

Proposal ID 8908: CCD Imaging Flats

Plan

Purpose	Investigate flat-field stability over a monthly period.
Description	Obtain a series of CCD flats using the MIRROR and no aperture every month to monitor the characteristics of the CCD response. Also look for the development of new cosmetic defects. Get flats for F28XOII and F28XOIII. Based on SMOV 7099. Continuation of 7634, with OII and OIII filters added.
Fraction GO/GTO Programs Supported	30%
Resources Required: Observation	18 internal orbits
Resources Required: Analysis	6 FTE weeks
Products	PFL reference files; ISR
Accuracy Goals	0.05% pixel-to-pixel (except 0.8% for OII)
Scheduling& Special Requirements	Monthly visits for 50CCD and F28X0II; F28XOIII and F28XOII every 6 months..

Proposal ID 8909: CCD Dispersion Solutions

Plan

Purpose	To obtain deep engineering wavecals for all CCD gratings at several wavelength centers as a yearly monitor of derived dispersion solutions.
Description	Wavelength dispersion solutions will be determined on a yearly basis as part of a long-term monitoring program (program 7650 was executed in Cycle 7, 8413 was executed in Cycle 8, 8848 was executed in Cycle 9). Deep engineering wavecals for each CCD grating will be obtained. Wavelength centers will be selected at extreme and central settings of each grating. Intermediate settings will also be taken to check the reliability of derived dispersion solutions. Only Prime modes will have been selected for observation in this program. The purely internal wavelength calibrations will be taken using the Pt/Cr-Ne line lamp and the appropriate 2-pixel wide long slit, 52x0.1; GAIN=4.
Fraction GO/GTO Programs Supported	Cycle 7: 38% Cycle 8: 51% (of prime props w/ STIS exposures) Cycle 9: 50% (fraction of visits of prime props w/ STIS exposures) Cycle 10: unknown at this time.
Resources Required: Observation	4 internal orbits
Resources Required: Analysis	4 FTE weeks
Products	DSP Reference file
Accuracy Goals	0.2 pixels. A S/N~100 was obtained for SMOV proposal 7077 for the peak of the stronger spectral lines to ensure accurate Gaussian fitting. Exposure times were selected in that proposal to provide less than 30,000 counts at the peak in order to prevent significant non-linearity effects.
Scheduling& Special Requirements	Before SM3B

Proposal ID 8910: CCD Sparse Field CTE Internal

Plan

Purpose	Establish (and improve with time) 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 D amp and the B amp read out at opposite ends of the CCD, the ratio in image intensity (B amp/D amp) should increase as the image position moves closer to the B amp and (and further from the D amp end). For the parallel CTE measurement, the test will use the cross-disperser slits: 0.05X29, 0.05x31NDB, and 0.05x31NDA slits, projected on different parts of the detector via special commanding of the slit wheel. The whole series of exposures are executed once for GAIN=1, and once for GAIN=4 to test the effect of different bias voltages.
Fraction GO/GTO Programs Supported	33%
Resources Required: Observation	64 external orbits
Resources Required: Analysis	3 FTE weeks
Products	ISR, algorithm for calibration and coefficients.
Accuracy Goals	1%; CTE correction coeffs will be determined to a relative 1% accuracy; photometry should not be limited by 1% accuracy after correction for CTE.
Scheduling& Special Requirements	September 2001. First two visits are CVZ

Proposal ID 8911: CCD Sparse Field CTE External

Plan

Purpose Establish an accurate correction for low count level non-linearity (CTE) that can be used for direct analysis of science data.

Description An exploratory Cycle 7 calibration proposal (7666) has been used to show that at low count levels the STIS CCD shows significant suppression of counts. The intensity and position dependence of the effect is consistent with CTE. (See Gilliland, Goudfrooij, and Kimble 1999, PASP, 111, 1009) A number of questions/issues came up in analyzing the existing calibration data that can only be pursued with more extensive observations: (1) This program will determine if suppression exists at higher background levels. (2) An x-dependence will be tested for. (3) Accurate results will be obtained for both spectroscopy and imaging modes. The best parts of the Cyc 8 CTE test (8415) are retained and strengthened while dropping one less robust visit.
The basic technique is to observe a sparse field of stellar sources (~500-1000 imaging, ~50 spectroscopy). Exposures are cycled through at short, medium and long exposures (X5 steps). For the two targets (NGC6752 - imaging, NGC346 - spectroscopy) the observations are done in the CVZ and the cycle of short to long exposures is repeated X3 in one CVZ orbit assuring that a subset of the exposures will be obtained at significantly higher sky background levels. Analysis consists of ratioing extracted counts at the different exposure times and seeking a solution (based on Stetson 1998, PASP, 110, 1448 equations) for CTE correction coefficients that linearizes the full set of counts.
Half of the total data set will be obtained using Amp B allowing for robust measurement of the parallel CTE with a well-posed, simpler technique of comparing object counts detected with these symmetric Amps.

Fraction GO/GTO Programs Supported 30%

Resources Required: Observation 6 external orbits

Resources Required: Analysis 2 FTE weeks

Products ISR or PASP paper; algorithm for calibration and coefficients.

Accuracy Goals CTE correction coeffs will be determined to a relative 1% accuracy; photometry should not be limited by 1% accuracy after correction for CTE.

Scheduling& Special Requirements First two visits are CVZ. For both Visits it would be good to set the Bright Earth Avoidance angle to 16 degrees and schedule the orbit at this limiting time.

Proposal ID 8912: CCD Full-Field Sensitivity Monitor

Plan

Purpose	Monitor CCD sensitivity over the whole field of view.
Description	Measure a photometric standard star field in Omega Cen in 50CCD mode every few months 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. The second observation is performed at an orientation rotated by 180 degrees with respect to the other observations to study the effect of CTE (to first order). 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 and PSF stability of the instrument over its full field of view. Follow on to 8847.
Fraction GO/GTO Programs Supported	40%
Resources Required: Observation	2 external orbits
Resources Required: Analysis	2 FTE weeks
Products	ISR, STAN, IHB
Accuracy Goals	1%
Scheduling& Special Requirements	One visit about every six months. Orient at 130 to 154 and 310 to 359.

Proposal ID 8913: Slit Wheel Repeatability

Plan

Purpose	To check the stability of the STIS slit wheel by taking a sequence of comparison lamp spectra with grating G230M (3055) and 3 different slits.
Description	Verify the repeatability of the slit wheel for 3 STIS slits (52X0.2, 52X0.1, and 52X0.05) by taking images with the Pt/Cr/Ne lamp and the MAMA detector. Use the G230M (3055) grating with the NUV-MAMA, and rotate the slit wheel among the 3 chosen slits.
Fraction GO/GTO Programs Supported	100%
Resources Required: Observation	1 internal orbit
Resources Required: Analysis	2 days
Products	ISR
Accuracy Goals	0.1 pixel
Scheduling& Special Requirements	Between March and May 2002.

Proposal ID 8914: CCD Sensitivity Monitor

Plan

Purpose	Monitor sensitivity of each CCD grating mode to detect any change due to contamination or other causes. Also monitor the STIS focus in an imaging mode.
Description	Obtain exposures in each of the 3 low-resolution CCD spectroscopic modes every 3 months, and in each of the 3 medium-resolution modes every 6 months, using the same high-declination calibration standard, and ratio the results to the first observations to detect any trends. Also repeat one of the M mode exposures with Gain=4. In addition, each quarterly L sequence will be preceded by a CCD/F28X50OII direct image to monitor the focus.
Fraction GO/GTO Programs Supported	100%
Resources Required: Observation	6 prime orbits
Resources Required: Analysis	3 FTE weeks
Products	Interim reports and ISRs on sensitivity and focus monitors. Wavelength-dependent trends for implementation of pipeline corrections.
Accuracy Goals	2% at wavelength of least sensitivity
Scheduling& Special Requirements	1 orbit every 3 months for L modes 1 additional orbit every 6 months for M modes

Proposal ID 8924: CCD PSFs & LP Filter Curve Calibration

Plan

Purpose	Primary goals are to better constrain the long wavelength CCD imaging throughput as a function of wavelength and to fill out the collection of deep dithered PSF images.
Description	Take high S/N G230LB, G430L, and G750L spectra, and well dithered, photometric 50CCD and F28X50LP images of the F8 star CPD-60D7585 = SAO 255271, and an early K star with V near 10.5. The measured spectral energy distributions will be compared to the imaging count rates and used to improve our understanding of the wavelength dependant throughput for the CCD imaging modes. We need such data for stars of various colors because STIS has such wide imaging bandpasses it is difficult to constrain the sensitivity vs. wavelength with only the usual hot WD standards. We will also obtain deep dithered images of the K star to add to the PSF library, filling out a gap in our color distribution.
Fraction GO/GTO Programs Supported	11%
Resources Required: Observation	3 external orbits
Resources Required: Analysis	3 FTE weeks
Products	Revision to CDBS and SYNPHOT throughput tables. Individual and coadded images to be added to STIS PSF library. STAN report, ISR, and IHB updates as appropriate.
Accuracy Goals	2% goal for photometric accuracy of 50CCD & 50LP modes. Actual S/N of individual exposures will be 100:1.
Scheduling& Special Requirements	Before Aug. 01, 2001

Proposal ID 8925: Coronographic PSFs

Plan

Purpose	We propose filling in a gap in the STIS coronagraphic PSF library with observations of two, nearby, minimally reddened, single, isolated F stars at the two most commonly used wedge positions WEDGEA1.0, and WEDGEA1.8.
Description	Analysis of STIS coronagraphic imagery has shown that color mis-matches between the science target and the PSF star become significant for delta ((B-V)=0.08), with systematic errors introduced by the mismatch dominating PSF subtraction residuals and precluding detection of circumstellar nebulosity, or its reliable interpretation. We propose filling in a gap in the PSF library over 0.2<B-V<0.7 with observations of one (B-V)=0.37 and one (B-V)=0.5 star. A similar gap from 0.9<B-V<1.6 will be filled in as part of a cycle 10 GO program (9136). The observations will be made at WEDGE-A1.0 and WEDGE-A1.8.
Fraction GO/GTO Programs Supported	0%
Resources Required: Observation	2 external orbits
Resources Required: Analysis	1 FTE weeks
Products	PSF images, ISR
Accuracy Goals	1%; The S/N of each CR-SPLIT=8 observation set will be comparable to that obtained in typical GO/GTO coronagraphic observations. The goal is to have the individual subexposures as well exposed as possible without saturating anywhere in the image (<30000 DN everywhere).
Scheduling& Special Requirements	HR413 should be observed as CVZ target.

Proposal ID 8927: CTE Effect on EWs of Absorption Lines in Spectra of Gal.

Plan

Purpose	Measure CTI in the spectroscopic image of an extended source with absorption lines, for application to science observations of galaxies. Examine effects of CTI on absorption line profiles.
Description	Make long-slit spectroscopic images of a nearby luminous galaxy with a bright nucleus. Use the G430L grating to get a wide range of counts across the spectrum (near zero at the blue end). Make the observations with the newly defined aperture at row 900 to place the spectrum near the D amp and far from the B amp. Make readouts with both amplifiers to measure CTI-induced differences dependent on the readout distance. Use an along-the-slit dither instead of CR-SPLIT to take care of hot pixels as well as CR
Fraction GO/ GTO Programs Supported	23% of CCD; 11% of total
Resources Required: Observation	2 external orbits
Resources Required: Analysis	1 FTE week
Products	ISR
Accuracy Goals	For a single column in a 7-row extraction: 4.1% at the depth of the Ca H and K lines, 2.3% at the peak 2.4% at the depth of the G band, 1.9% at the peak 1.7% at the depth of the Mg b line, 1.5% at the peak. Greater (more easily measured) CTI at lower signal levels helps compensate for lower S/N at lower signal levels. Measurements were made from a spectrum in the archive.
Scheduling& Special Requirements	when the row 900 "aperture" is available

Proposal ID 8928: STIS PSFs at Pseudo-Apertures

Plan

Purpose	Measure PSFs for the sepctroscopic pseudo-apertures with the CCD for stars of different spectral types.
Description	Spectroscopic PSF Measurements are performed for the new pseudo-apertures located near CCD row 900, which are made available to ameliorate CCD CTE losses. We plan to acquire a set of deep spectroscopic images of isolated point sources with STIS for the purpose of correcting spectroscopic science observations for dispersed residual scattered light along the slit from the (point-like) central object. PSFs are obtained for the 52x0.05E1, 52x0.1E1, 52x0.2E1, and 52x0.5E1 slits. Every CCD Low-resolution grating is being used, as well as heavily used Medium-resolution modes. Two bright stars will be observed: A G dwarf and a K giant. These spectral types are similar to those of popular science projects using the pseudo-apertures for which accurate knowledge of the PSF is important. For very hot stars or AGNs, PSFs can be constructed from data taken within the cycle 10 calibration proposal "Spectroscopic Sensitivity Workout: First-Order Modes". Acquire target stars and perform peak-up for the 52X0.05E1 position. Then take deep exposures for the G230LB, G430L, G430M/4961, G750L, G750M/6581, and G750M/8561 modes. Reach ~15,000 electrons in the central pixel and use GAIN=4 to profit from the larger dynamic range than GAIN=1. Exposures are taken using the slits 52x0.05E1, 52x0.1E1, 52x0.2E1, and 52x0.5E1.
Fraction GO/GTO Programs Supported	0%
Resources Required: Observation	4 external orbits
Resources Required: Analysis	3 FTE weeks
Products	PSFs on web, IHB, STAN
Accuracy Goals	5% at 1e-6 of central flux.
Scheduling& Special Requirements	Before SM3B

Proposal ID 8929: First-order LSFs for Pseudo-Aperture Locations

Plan

Purpose	Measure the LSFs for the CCD spectroscopic modes at the new pseudo-aperture locations.
Description	The aim of this proposal is to measure the LSFs at the pseudo-aperture locations of the CCD modes. For the G750L and G430L gratings, the observations will be done with a point source with emission lines (V1016 Cyg). For the M-modes, point sources with emission lines are mostly unsuitable because of line-width constraints. So a diffuse source with narrow emission lines (Hen 1357, which has an abundance of emission lines from UV to IR, with line widths of the order of 8 km/s) will be observed with the 0.05 arcsec slit. The observed LSFs can then be convolved using the L-mode observations with different slits at appropriate wavelengths. In addition, a point source with narrow absorption lines (51 Peg) will also be observed using different slits for the M-modes. A few observations will be taken at the central location of the slit for comparison and rederivation of the LSFs.
Fraction GO/GTO Programs Supported	10%
Resources Required: Observation	12 external orbits
Resources Required: Analysis	6 FTE weeks
Products	ISR
Accuracy Goals	0.1 pixels
Scheduling& Special Requirements	

Proposal ID 8930: Effect of the optical baffles on STIS CCD imaging.

Plan

Purpose	The count levels will be compared with contributions expected from the PSF and any extra scattering components will be investigated.
Description	The optical baffles around the edge of the STIS detector may affect some images. This proposal will investigate whether the baffle structures scatter light from the stars outside the CCD detector into the detector's field of view, and if so, by how much. In addition, this proposal will also investigate whether an effective coronographic capability can be established by partial closing of the detector and placing the bright star at the closed part of the detector. Thus this proposal has two parts: The first part (1st visit) is to investigate the effect of the stars outside the STIS CCD detector on the STIS images. The idea would be to image a bright star at various positions outside the field and check for scattered light on the detector. This part will include two exposures taken with the star at the occulted part of the LP-filter. The second part (second visit) is to attempt to place a bright star on the edge of a partially aperture, and check for any scattering components by the aperture. If the scattering is small, this method may be used as a very effective coronographic aperture
Fraction GO/GTO Programs Supported	~2%
Resources Required: Observation	3 external orbits
Resources Required: Analysis	2 FTE weeks
Products	Web, IHB
Accuracy Goals	1% scattering due to baffle structures.
Scheduling& Special Requirements	Visit 01 before Sept 2001

Proposal ID 8917: STIS MAMA Dispersion Solution Check

Plan

Purpose To obtain deep engineering wavecals for all MAMA gratings at several wavelength centers as a yearly monitor of derived dispersion solutions.
For Cycle 10 we have added additional settings for which no on-orbit engineering wavecal data exists as yet. These settings are secondary grating tilts that have been used by PIs. The settings (with engineering wavecal exposure times in parentheses) are as follows:
E230M 2124 (159 s), 2415 (136 s)
E230H 1913(936 s),1963(734 s), 2063(513 s), 2163(445 s), 2363(456 s), 2413(457 s), 2463(1267 s),2563(750 s), 2613(647 s), 2663(743 s), 2862(732 s), 2962(145 s)
E140H 1343(386 s),1380(388 s),1489(313 s),1526(348 s),1562(452 s)

Description Wavelength dispersion solutions will be determined on a yearly basis as part of a long-term monitoring program. Deep engineering wavecals for each MAMA grating will be obtained. Wavelength centers will be selected at extreme and central settings of each grating. Intermediate settings will also be taken to check the reliability of derived dispersion solutions. Only Prime modes have been selected for observation in this program. The purely internal wavelength calibrations will be taken using the Pt/Cr-Ne (CIM) line lamp and the appropriate 2 pixel wide supported slit. Total exposure time in this proposal: 16155 s. Total exposure time in Cycle 9 Phase 2 (8859): 6148 s

Fraction GO/GTO Programs Supported 23.7%

Resources Required: Observation 10 internal orbits

Resources Required: Analysis 2 FTE weeks

Products A STIS ISR providing the derived wavelength dispersion solutions for the configurations specified. Updates to CDBS will be made as necessary.

Accuracy Goals 0.1 pixels; Count rates and exposure times are based upon previous calibration observations, or from pre-flight testing. Exposure times based on the IDT pre-flight testing tables are designed to ensure 2e5 cts in the E230M, and 1e5 cts in the E230H mode.

Scheduling& Special Requirements before 1 Nov 2001 (i.e. prior to SM3B)

Proposal ID 8918 MAMA Full-Field Sensitivity

Plan

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 6 months at roughly the same orientation (to keep the same stars in the same area of the detectors) we will monitor the full field sensitivity of the MAMA detectors and also monitor the astrometric and PSF stability. These observations will be used to look for contamination, throughput changes, or formation of colour centers in the photocathode and window that might be missed by spectroscopic monitoring or difficult to interpret in flatfielding.
Fraction GO/GTO Programs Supported	21% of all STIS prime + parallel proposals (i.e. all STIS MAMA proposals), based on Cycle 9 proposals
Resources Required: Observation	6 external orbits
Resources Required: Analysis	10 FTE weeks
Products	ISRs, phometric and astrometric accuracy and stabilitiy information for GOs and reference files.
Accuracy Goals	1%
Scheduling& Special Requirements	

Proposal ID 8919: MAMA Sensitivity and Focus Monitor

Plan

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.
Description	Obtain exposures in each of the 2 low-resolution MAMA spectroscopic modes monthly, in each of the 2 medium-resolution modes every 2 months, 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 monthly L 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 bimonthly M sequence will be preceded by a CCD/F28X50OII direct image also to monitor the focus.
Fraction GO/GTO Programs Supported	100%
Resources Required: Observation	22 external orbits
Resources Required: Analysis	8 FTE weeks
Products	Interim reports and ISR on sensitivity monitor. 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 an adjustment of the STIS tip/tilt mirror) may be implemented.
Accuracy Goals	Minimum S/N of 50 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
Scheduling& Special Requirements	1 orbit monthly for L modes plus focus monitor; 1 orbit every 2 months for M modes plus image; 2 orbits every 6 months for E modes .

Proposal ID 8920: MAMA Dark Monitor

Plan

Purpose	This test performs the routine monitoring of the MAMA detector dark noise. 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 detector problems developing. Follow-on to proposal 8843.
Description	Two times a week 1, 23min, exposure is taken with the FUV and NUV MAMAs with the shutter closed. The exposures are taken in ACCUM mode. The length of the exposures is chosen to make them parallels.
Fraction GO/GTO Programs Supported	65%
Resources Required: Observation	208 internal orbits
Resources Required: Analysis	8 FTE weeks
Products	CDBS DRK files; ISR
Accuracy Goals	1%; Each measurement will give a statistical uncertainty of 1% for the global dark rate.
Scheduling& Special Requirements	Schedule two visits per week for each detector. Adjust schedule to follow completion of 8843.

Proposal ID 8921: MAMA Fold Distribution

Plan

Purpose	The performance of MAMA microchannel plates can be monitored using a MAMA fold analysis procedure. The fold analysis provides a measurement of the distribution of charge cloud sizes incident upon the anode giving some measure of changes 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 procedure 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 the flat fields. The procedure is described in STIS ISR 98-02
Fraction GO/GTO Programs Supported	50%
Resources Required: Observation	4 internal orbits
Resources Required: Analysis	3 days
Products	The Engineering Team releases it’s Fold Analysis findings biannually.
Accuracy Goals	95%
Scheduling& Special Requirements	This proposal should execute in the spring and fall every year.

Proposal ID 8922: MAMA FUV Flats

Plan

Purpose This program will obtain FUV-MAMA flat-field observations with the Kr lamp for the construction of pixel-to-pixel flats with a S/N of 100 per low-res pixel.

Description This program will obtain a set of FUV-MAMA flat-field observations with sufficient counts to construct pixel-to-pixel flat fields (P-flats) for all modes. Approximately 10 visits will be required to construct a P-flat with S/N = 100 per low-res pixel. Experience with pre-flight and on-orbit monitoring flats show that the flat-field characteristics are in large measure color- and mode-independent, so that high-quality P-flats constructed with the G140M settings should suffice for all FUV-MAMA spectroscopic and imaging programs. This Cycle-10 calibration program calls for obtaining flats with G140M at 1387 Ang with 5 SLIT-STEP positions to illuminate regions of the detector normally shadowed by the slit fiducial bars. The most recent global count rate with the 52x0.05 aperture and a cenwave of 1420 was 227,720 count/s (o6bo07myq). After 3 remaining exposures in the Cycle 9 program are executed, the count rate is expected to have declined to 218,600 count/s. This is still too high to allow use of the 52x0.1 aperture and cenwave of 1470, which would roughly double the global count rate. Using using a cenwave of 1387 will bring the count rate back up to 228,200 count/s.

Fraction GO/GTO Programs Supported 35%

Resources Required: Observation 10 internal orbits

Resources Required: Analysis 4 FTE weeks

Products reference file (P-flat), ISR

Accuracy Goals 1.0% (0.6% if combined with all previous P-flats). Accuracy is per low-res pixel (2x2 high-res pixels)

Scheduling& Special Requirements Best if observations occur after servicing mission 3B, or about one year after the Cycle 8 flats have concluded, whichever is last. This will permit an analysis of the effect of the elevated s/c temperature on the lamp output. Visits should be scheduled such that at least 6 hours elapse between the end of one visit and the beginning of the next, in order to let the lamps cool sufficiently.

Proposal ID 8923: MAMA NUV Flats

Plan

Purpose This program will obtain NUV-MAMA flat-field observations with the D2 lamp for the construction of pixel-to-pixel flats with a S/N of 100 per low-res pixel.

Description This program will obtain a set of NUV-MAMA flat-field observations with sufficient counts to construct pixel-to-pixel flat fields (P-flats) for all modes. Approximately 10 visits will be required to construct a P-flat with S/N = 100 per low-res pixel. Experience with pre-flight and on-orbit monitoring flats show that the flat-field characteristics are in large measure color- and mode-independent, so that high-quality P-flats constructed with the G230M settings should suffice for all NUV-MAMA spectroscopic and imaging programs. This Cycle-10 calibration program calls for obtaining flats with G230M at 2579 Ang with 5 SLIT-STEP positions to illuminate regions of the detector normally shadowed by the slit fiducial bars. The most recent global count rate with the 52x0.2 aperture and a cenwave of 2419 was 196536 count/s (o6bp04jdq). After 6 remaining exposures in the Cycle 9 program are executed, the count rate is expected to have declined to 210,200 count/s. Using using a cenwave of 2579 will bring the count rate back up to 262,500 count/s.

Fraction GO/GTO Programs Supported 40%

Resources Required: Observation 10 internal orbits

Resources Required: Analysis 4 FTE weeks

Products reference file (P-flat), ISR

Accuracy Goals 1.0% (0.5% if combined with all previous P-flats). Accuracy is per low-res pixel (2x2 high-res pixels)

Scheduling& Special Requirements Best if observations occur after servicing mission 3B, or about one year after the Cycle 8 flats have concluded, whichever is last. This will permit an analysis of the effect of the elevated s/c temperature on the lamp output. Visits should be scheduled such that at least 6 hours elapse between the end of one visit and the beginning of the next, in order to let the lamps cool sufficiently.

Proposal ID 8915: Spectroscopic Absolute Sensitivity: Echelle Gratings

Plan

Purpose	We will observe the flux standard G191B2B, obtaining echelle spectra in all primary and intermediate wavelength settings. For many of the intermediate wavelength settings, this will be the first STIS observation of a flux standard. By comparing observed and model spectra, we will construct calibration reference files describing spectroscopic sensitivity.
Description	We will obtain a peak S/N ratio of 30 per resolution element for E140M, E140H, and E230M, and a peak S/N ratio of 20 for E230H. The spectra will be noisier than previous flux calibration data, but all central wavelengths will be covered with sufficient S/N to obtain sensitivity curves accurate to better than 0.1% for all echelle orders.
Fraction GO/GTO Programs Supported	16% all echelle observations
Resources Required: Observation	18 external orbits
Resources Required: Analysis	
Products	New CDBS absolute sensitivities for echelle modes.
Accuracy Goals	Peak S/N ratio of 20 per resolution element for E230H. Peak S/N ratio of 30 per resolution element for all other modes. Tests with existing calibration spectra indicate that a fourth order polynomial is adequate to describe the ripple or blaze of echelle orders. Monte Carlo analysis indicates a maximum error of 0.1% in a fourth order polynomial fitted to data with a peak S/N ratio of 20 per resolution element. Errors of 0.1% are well below other sources of error in our flux calibration procedure.
Scheduling& Special Requirements	High priority. As of April 2001, 41% of archival E230M spectra and 16% of all archival echelle spectra were obtained with intermediate wavelength settings. Most of the intermediate wavelength settings have only ground calibration data based on models. This results in 15% discontinuities in flux in regions of order overlap. This is by far the largest source of error in our current flux calibration. These observations will reduce the error by a factor of 3-5, and hence should be scheduled promptly.

Proposal ID 8931: STIS FUV/NUV MAMA Anomalous Recovery

Plan

Purpose	This proposal is designed to permit recovery of the NUV or FUV MAMA detector after an anomalous shutdown.
Description	Anomalous shutdowns can occur as a result of bright object violations which trigger the Bright Scene Detection or Software Global Monitors. Anomalous shutdowns can also occur as a result of MAMA hardware problems. The anomalous procedure consists of three procedures, a signal processing electronics check, high voltage ramp-up to an intermediate voltage and high voltage ramp-up to the full operating voltage. During each of the two high voltage ramp-ups, diagnostics are performed during dark and flat field ACCUMs.
Fraction GO/GTO Programs Supported	25%
Resources Required: Observation	N/A
Resources Required: Analysis	4 days
Products	N/A
Accuracy Goals	N/A
Scheduling& Special Requirements	As needed

Proposal ID 8916: Spectroscopic Absolute Sensitivity: First-Order Gratings

Plan

Purpose	We will observe the primary flux standards G191B2B, GD71 and GD153, obtaining first-order spectra in all supported (primary + secondary) wavelength settings. For many wavelength settings, this will be the first STIS observation of a primary flux standard. By comparing observed and model spectra, we will construct calibration reference files describing spectroscopic sensitivity.
Description	For the MAMA & CCD L-modes, we will obtain S/N = 100 spectra to get a good measurement of the STIS throughput. For the FUV-MAMA L modes, this will be performed at both the current MSM default location (3" below the repeller wire) and the old (before Sep 1998) default location (3" above the repeller wire), for accurate cross-calibration. 1% accuracy for this cross-calibration requires measurements for 2 stars at several epochs. We propose to obtain 1 epoch with GD71 (which was observed once in an earlier cycle as well) and 5 epochs with GD153. For the M modes, we will obtain a peak S/N ratio of 25 per resolution element per exposure for G140M and G230M, and a peak S/N ratio of 50 per exposure for G230MB, G430M, and G750M (to mitigate CTE losses for the CCD). These spectra will be noisier than previous flux calibration data, but all central wavelengths will be covered with sufficient S/N to obtain sensitivity curves accurate to better than 0.1% for all settings.
Fraction GO/ GTO Programs Supported	41% first order spectra
Resources Required: Observation	22 external orbits
Resources Required: Analysis	
Products	New CDBS absolute sensitivity reference files; ISR.

Plan

Accuracy Goals	<1%; Tests with existing calibration spectra indicate that a fourth order polynomial is adequate to describe the blaze function of the gratings. Monte Carlo analysis indicates a maximum error of 0.1% in a fourth order polynomial fitted to data with a peak S/N ratio of 20 per resolution element. Errors of 0.1% are well below other sources of error in our flux calibration procedure. The total error (including time dependences of throughput and CTE for the CCD) will stay below 1%.
Scheduling& Special Requirements	High priority. As of April 2001, 41% of archival first-order spectra were obtained with wavelength settings that don't have direct throughput measurements yet. Those wavelength settings have only ground calibration data based on models. These observations will reduce uncertainties significantly, and hence should be scheduled promptly.

Proposal ID 8926: Filter Throughput Monitor

Plan

Purpose	To check the wavelength dependant throughput of the more commonly used STIS imaging filters. The intent is to repeat this monitor every other year.
Description	This program takes slitless spectra through the more commonly used MAMA and CCD filters to check for any change in the wavelength dependant filter throughputs. These observations repeat a subset of those done in Cycle 7 STIS/CAL programs 7657 and 7661. This program only does observations at the standard target position and does NOT check ND filters, redleaks, or the F25LYA filter. We have added new G430M observations with 50CCD and F28X50OIII that will allow the wavelength dependance of this very narrow filter to be better resolved. One orbit is needed for the NUV and FUV MAMA filter measurements and one orbit for the CCD filters.
Fraction GO/ GTO Programs Supported	41% first order spectra
Resources Required: Observation	2 external orbits
Resources Required: Analysis	2 FTE weeks
Products	Updates to throughput curves, STAN, & ISR if any significant changes are found.
Accuracy Goals	1%; For most modes the spectra will have S/N100:1 at peak of throughput curve.
Scheduling& Special Requirements	