ENGINEERING CHANGE ORDER

Center for Astrophysics & Space Astronomy
University of Colorado, Boulder

ECO No.	COS-082
Date	14 January 2003
Sheet	1 of 2

Drawing/Document Title	Drwg/Doc No.	Revision Letter Current	New	Special Distribution
OP-01	COS-01-0001	19	20	
				Stop Production Now
				❑ Yes
				❑ No

Description of Change:

1. **Page 37 (Rev. 19), Sec. 2.1.3: Replace Table 2.1-1 with the following table plus table notes.**
Rationale: Additional G130M and G160M grating settings are needed to allow greater flexibility in avoiding poor regions near the edges of the MCP active areas. The second G140L setting is slightly altered to allow bluer wavelengths onto segment A; however, the FUV detector must be operated in the HVNOMA mode (single segment operations) for this wavelength setting because the zero-order image will move onto the active area of segment B. The "Central Wavelength" is still the first wavelength that appears on the "red" segment (segment A), but the first useful wavelengths will be roughly 100-200 pixels inside of the edges. The offsets between the G130M/G160M wavelength settings are designed to be in multiples of 4 OSM1 steps, and the offset between the G140L settings is designed to be 6 OSM1 steps.

Optic	Central λ* (Å)	Observed Wavelengths (Å)
G130M	1291	1132-1274,1291-1433
	1300	1141-1283,1300-1442
	1309	**1150-1292,1309-1451**
	1318	1159-1301,1318-1460
	1327	1168-1310,1327-1469

Reason for Change:	Disposition/Effectivity				
Updates to COS operations in OP-01.	To Comply With ECO				
	Use As Is				
	Rework To ECO				
	Scrap And Rebuild				
	Record change Only				
	Other (See Above)				

Prepared By:	Jon Morse	Date	14 Jan 2003	CCB Required	❑Approved
Approved By:		Date		❑Yes ❑No	❑NotApproved
Approved By:		Date			Immediate
Approved By:		Date			Incorporation
Approved By:		Date		❑Class I	❑Yes ❑No
Approved By:		Date		❑Class II	
Approved By:		Date		Completion	
Project Mgr:		Date		Date	

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	Central λ	Observed Wavelengths
G160M	1577	1382-1556,1577-1752
	1589	1394-1568,1589-1764
	1600	**1405-1579,1600-1775**
	1611	1416-1590,1611-1786
	1623	1428-1602,1623-1798
G140L	1105**	<300-970,1105-2253
	1230	**<300-1095,1230-2378**
NCM1	NUV Channel	N/A
NCM1-FF***	NUV Flat-Field	N/A

* The "Central Wavelength" designated for the FUV grating modes is actually the first wavelength that falls onto the long wavelength segment of the FUV detector (segment A), under the premise that the specified wavelength should be one that can actually be observed rather than one that falls in the middle of the "detector gap." The multiple wavelength settings for the G130M and G160M gratings are designed to be offset by multiples of 4 OSM1 rotary steps, and the G140L settings are designed to be offset by 6 OSM1 rotary steps. Wavelength settings in bold-face are the nominal settings that are expected to be utilized most. The NCM1 positions are those that yield the best alignment and focus for the NUV channel optical path.
** The G140L "1105" setting moves the zero-order image onto segment B of the FUV detector, while the useful first-order spectrum falls onto segment A. This setting should be only used in "single-segment operation," with HVNOMA and segment B high-voltage set to low.
*** NCM1-FF is the OSM1 position (rotation and focus) for NCM1 used to perform the NUV flat-field exposures. Due to the offset in the dispersion direction of the flat-field aperture (FCA) from the science apertures (PSA or BOA), much of the light in the flat-field calibration beam would miss the NUV grating on OSM2 with NCM1 placed in its normal position for NUV science operations. The NCM1-FF position is 5 rotation steps reverse of the nominal NCM1 (NUV Channel) science position, which restores the alignment to the NUV gratings and maximizes the throughput.

2. **Page 39 (Rev. 19), Sec. 2.1.4: In Table 2.1-2, change the G230L wavelength settings to the following (i.e., add the "2950" wavelength setting to the table).**
Rationale: The "3000" wavelength setting cuts the Mg II 2796,2804 doublet in half. The new "2950" setting will allow proposers to observe the Mg II 2800 and Mg I 2853 features in one exposure.

Optic	Central λ* (Å)	Observed Wavelengths (Å)
G230L	**2635**	**2435-2834**
	2950	1650-2050,2750-3150
	3000	**1700-2100,2800-3200**
	3360	**2059-2458**

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				❑ No	

3. Page 12 (Rev. 19), Sec. 1.3.3: In Table 1.3-2, add a row in the table for the "2950 Å" wavelength setting of G230L in between the "2635 Å" and "3000 Å" rows, and replace the table Note with the accompanying text.

Central Wavelength Of Stripe B	Stripe A	Stripe B	Stripe C (2nd order)
2950 Å	**1650-2050 Å**	**2750-3150 Å**	(1900-2100 Å)

Note: Wavelengths in bold type are the nominal first-order wavelengths of interest. The "2635", "3000", and "3360" wavelength settings together provide a contiguous first-order spectrum covering 1700-3200Å.