**Description of Change:**

1. **Page 86, section 4.1.5, item 2), first sentence:** Change 4.1.4.3 to 4.1.4.5.

2. **Page 83, section 4.1.4.5:** Replace the existing text with the following text:

   The DCE FSW creates a Global Rate Monitor by routinely comparing the number of photon events counted by the Fast Event Counter (FEC) during a commandable interval against a commandable rate limit. When the count rate exceeds the limit over a given interval, then the DCE FSW autonomously changes state to FUVHVLow. The DCE will remain in the FUVHVLow state until commanded to another state. This rate is usually chosen conservatively to be just above the maximum source count rate allowed. The FEC in the FUV detector is a non-paralyzable counter and is therefore ideal for use as a rate monitor. The Global Rate monitor not only protects against over-illumination, but also the SAA, low-level coronal breakdown, field emission, etc. It also acts as a backup to the HV current monitor. So even though the detector could handle high global rates for longer than 1 second without much gain degradation, the 1-second response time must be maintained to protect the detector for unforeseen failure mechanisms.

   The count rate at which HV is set to FUVHVLow should be set conservatively to be above the maximum allowable count rate for the detector. Rates much higher than the set point (currently set at 20,000 cts/sec per segment for ground testing) indicate a problem, either internal to the detector or due to an operational error (e.g., failure to turn HV down for SAA) and the detector HV is set to FUVHVLow.

**Reason for Change:**

Updates to COS operations in OP-01.
The Global Rate monitor algorithm in the DCE monitors the Fast Event Counter (FEC) which is the counter on the front end of the TDC electronics that counts every event detected (whether "valid" or not) without respect to x,y position on the detector. This counter is read out every second.

The shutdown algorithm can be summarized in the following way: Two parameters are used in the algorithm, trigger count C and samples N. At detector turn-on the flight software sets up a rolling buffer of N elements. Each second the flight software populates an element of the rolling buffer with the FEC value for that segment and computes the average of all the values in the rolling buffer. If the average count rate exceeds C, then the detector HV is set to FUVHVLow. In other terms, the count rate protection algorithm compares a boxcar average against a preset value.

3. **Page 131, Table 5.3-3**: Increase the y regions for the stims to accommodate larger thermally induced drifts in the stim positions. Use the following table cells:

<table>
<thead>
<tr>
<th>STIM Pulse A1</th>
<th>64 x 32</th>
<th>(310,0), (310, 31), (373, 31), (373, 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STIM Pulse A2</td>
<td>64 x 32</td>
<td>(15971, 992), (15971, 1023), (16034, 1023), (16034, 992)</td>
</tr>
<tr>
<td>STIM Pulse B1</td>
<td>64 x 32</td>
<td>(293, 0), (293, 31), (356, 31), (356, 0)</td>
</tr>
<tr>
<td>STIM Pulse B2</td>
<td>64 x 32</td>
<td>(15975, 992), (15975, 1023), (16038, 1023), (16038, 992)</td>
</tr>
</tbody>
</table>

4. **Page 102, Sec. 5.1, after the 1st paragraph and before Sec. 5.1.1**: Add the following sentences as a new paragraph:

Normal operation of the COS mechanisms will be done using “absolute moves.” The mechanism motions commanded during initial on-orbit alignment procedures will be a combination of absolute and relative moves.

5. **Page 25, replace Figure 1.3-13 with the following figure with updated MAMA event word format:**
NUV Image Coordinate System
(NUV MAMA)

Looking Aft in HST Bay 4, at the front of the NUV detector

Diagram not to scale
Only the 3 science spectral stripes are shown on NUV detector

MAMA Event Word input to DIB FSW

MAMA Event Word output by the DIB FSW to Buffer Memory