

Technical Evaluation Report “Behavior of DCE FSW HV State Bits (LFHSTATE)”

Date:	January 18, 2001
Document Number:	COS-11-0013
Revision:	Revision A
Contract No.:	NAS5-98043
CDRL No.:	SE-05

Prepared By:	Kenneth Brownsberger K. Brownsberger, COS Sr. Software Scientist, CU/CASA	1-25-00 Date
Approved By	W. Clement, COS FUV Detector FSW Engineer, GSFC	Date
Approved By	G. Gaines G. Gaines, COS FUV Detector Systems Engineer, UCB/SSL	1-20-00 Date
Approved By:	Grant Blue G. Blue, COS Software & Operations Manager, BATC	1-25-00 Date
Approved By:	John. Andrews J. Andrews, COS Experiment Manager, CU/CASA	1-28-00 Date



Center for Astrophysics & Space Astronomy
 University of Colorado
 Campus Box 593
 Boulder, Colorado 80309

REVISIONS

Letter	ECO No.	Description	Check	Approved	Date
-		Initial Release		KB	1-25-00
A	COS-052	Changes detailed on ECO			

Original Release Name	Date	THE UNIVERSITY OF COLORADO At Boulder The Center for Astrophysics and Space Astronomy															
Drawn: K. Brownsberger	1-12-00	Technical Evaluation Report “Behavior of DCE FSW HV State Bits (LFHSTATE)”															
Reviewed:		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Size</td> <td style="width: 20%;">Code Indent No.</td> <td style="width: 25%;">Document No.</td> <td style="width: 20%;">Rev</td> </tr> <tr> <td style="text-align: center;">A</td> <td></td> <td style="text-align: center;">COS-11-0013</td> <td style="text-align: center;">A</td> </tr> <tr> <td colspan="2">Scale: N/A</td> <td></td> <td></td> </tr> </table>				Size	Code Indent No.	Document No.	Rev	A		COS-11-0013	A	Scale: N/A			
Size	Code Indent No.					Document No.	Rev										
A						COS-11-0013	A										
Scale: N/A																	
Approved:																	

Table of Contents

1. Background	1
2. Behavior of LFHSTATE.....	2

1. BACKGROUND

The COS/FUV detector DCE Flight Software (FSW) reports the status of the detector's high voltage power supply through several hardware and software talkbacks. The exact behavior of these talkbacks will eventually be described in the DCE Software Design Document (COS-UCB-009). The purpose of this memo is to capture the behavior of DCE FSW HV State Bits (LFHSTATE), which was agreed upon by the individuals developing the DCE Software Design Document.

It is understood that DCE HV talkbacks will change as a result of HV commands sent to the DCE by the CS FSW (or the FUV detector EGSE), or through autonomous action taken by the DCE FSW. As the DCE HV State Bits (LFHSTATE) are not simply a reported value from hardware registers or latches, the behavior of LFHSTATE must be clearly defined for all of the recognized events which can change the state of DCE High Voltage. The following section contains a matrix which shows the eight defined states for LFHSTATE, and the eleven recognized "events" that can change the value of LFHSTATE.

2. BEHAVIOR OF LFHSTATE

The following table describes how the HV State Bits (LFHSTATE) behave with respect to the eleven recognizable "events" which can drive HV State Transitions. For example, if LFHSTATE is 0 (HV Power OFF), and the command LFHVPWRON (Event B) is sent to the DCE FSW, then the new value of LFHSTATE will be 7 (HV Power ON).

		New LFHSTATE, as a result of one of the following "Events"										
		A	B	C	D	E	F	G	H	I	J	K
Current LFHSTATE	0	0	7	0	0	0	0	0	0	0	0	0
	1	0	7	0	1	2	3	4	6	4	0	0
	2	0	7	0	1	2	3	4	6	4	0	0
	3	0	7	0	1	2	3	4	6	4	0	0
	4	0	7	0	1	2	3	4	6	4	0	0
	5	0	7	0	1	2	3	4	6	4	0	0
	6	0	7	0	1	2	3	4	6	4	0	0
	7	0	7	0	1	2	3	4	6	4	0	0

HV states:

- 0 - HV Power OFF
- 1 - HV NOMA
- 2 - HV NOMB
- 3 - HV NOM
- 4 - HV LOW (or CRP)
- 5 - invalid
- 6 - HV SET
- 7 - HV Power ON

Recognized "Events" which can drive HV State Transitions:

- A - POR – FUV Detector Power ON Reset
- B – LFHVPWR command to power ON HV
- C - LFHVPWR command to power OFF HV
- D - LFHSTATE command to HV NOMA state
- E - LFHSTATE command to HV NOMB state
- F - LFHSTATE command to HV NOM state
- G - LFHSTATE command to HV LOW state
- H - LFHVSET command to any HV level
- I - CRP Trigger, Segment A and/or B.
- J - WatchDog Reset or Commanded Reset
- K - HVI/AUXI Shutdown, Segment A and/or B.