

COS FUV01 Detector Errors and Recommended Actions

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1. OVERVIEW OF FUV DETECTOR ERRORS

When one or more of the protection tasks or range checking activities in the FUV Detector subsystem detects an anomalous and/or out of limits event – the subsystem responds by issuing one or more error messages in the next housekeeping packet, and – if necessary – safing the appropriate FUV Detector hardware. In many cases, the error message does not indicate that the FUV Detector subsystem is at risk, instead, it is simply indicating that it received an inappropriate request. In other cases, the FUV FSW has itself detected a problem, and has safed it's hardware and is informing the outside world that an error occurred. In a select few cases, the FUV FSW is reporting that the integrity of the FSW has been compromised, and the outside world should respond by resetting the Detector – which will safe the hardware, and allow a fresh copy of the FSW to be loaded into the FUV system.

2. FUV01 ERRORS AND RECOMMENDED ACTIONS

The following table summarizes the Detector Errors and Recommended Actions for the COS FUV01 Detector Subsystem. The Recommended Actions simply describe what is recommended for the FUV Detector subsystem; No attempt has been made to outline recommendations for how the entire COS instrument should respond – as this information is captured elsewhere in the HST documentation scheme.

Table 2-1 : FUV Detector Errors

<u>Error</u>	<u>Description</u>	<u>Error Parameter</u>	<u>Error Response</u>
01	UPLOAD length out of range (<1, >1024)	Command Parameter 2 – Upload Length	Stop Stored Commanding to Detector
02	UPLOAD bad CRC	LFMXFER – Computed Upload CRC	Stop Stored Commanding to Detector
03	DOWNLOAD length out of range (<1, >1024)	Command Parameter 2 – Download Length	Stop Stored Commanding to Detector
04	Command MS-bit must be '1'	Command Serial Number	Stop Stored Commanding to Detector
05	Command opcode must have twin	Command Serial Number	Stop Stored Commanding to Detector
06	Command parameter bad complement	Command Serial Number	Stop Stored Commanding to Detector
11	Illegal command	Command Opcode	Stop Stored Commanding to Detector
13	Command did not complete execution	Command Serial Number	Stop Stored Commanding to Detector
17	8051 Stack Growth error	LFCTIME – FSW timer (1-second counter)	Reset DCE.
1B	Power-On Reset	LFCTIME – FSW timer (1-second counter)	Stop Stored Commanding to Detector
1C	Watchdog Reset	LFCTIME – FSW timer (1-second counter)	Stop Stored Commanding to Detector
1F	Commanded reset failure	LFCTIME – FSW timer (1-second counter)	Stop Stored Commanding to Detector
22	CRP shutdown due to excessive counts in the Fast Event counter (FEC).	Address of CRP circular buffer for SEG that caused shutdown	Stop Stored Commanding to Detector. Download CRP buffer data.
26	AUX current exceeded door current limit. Door motor and actuators safed.	AUXI Reading that caused Shutdown	Stop Stored Commanding to Detector
2A	HV-A current exceeded limit past persistence	Offset into circular buffer for HV-A Current	Stop Stored Commanding to Detector. Download HVI buffer data.
2B	HV-B current exceeded limit past persistence	Offset into circular buffer for HV-B Current	Stop Stored Commanding to Detector. Download HVI buffer data.
2E	Aux current exceeded limit past persistence	Offset into circular buffer for AUX Current	Stop Stored Commanding to Detector. Download HVI buffer data.
2F	OPERATE mode command received while in BOOT mode	Command Opcode	Stop Stored Commanding to Detector
31	Call to unused Interrupt Service Routine (ISR)	Address of Illegal ISR	Reset DCE.
32	Background CRC error	CRC Region with mismatch	Reset DCE.
33	Attempt to set Vtarget > Vmax on Seg A	Illegal VTGT & VMAX combination. VMAX is LSB.	Stop Stored Commanding to Detector
34	Attempt to set Vmax < Vtarget on Seg A	Illegal VTGT & VMAX combination. VMAX is LSB.	Stop Stored Commanding to Detector

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35	Attempt to set $V_{target} > V_{max}$ on Seg B	Illegal VTGT & VMAX combination. VMAX is LSB.	Stop Stored Commanding to Detector
36	Attempt to set $V_{max} < V_{target}$ on Seg B	Illegal VTGT & VMAX combination. VMAX is LSB.	Stop Stored Commanding to Detector