This document defines the GUVI housekeeping data files. The GUVI Engineering POC generates two types of housekeeping files. File type 1 contains trending items from the GUVI housekeeping packet. File type 2 contains trending items from the spacecraft housekeeping packet. There are 46 parameters in the GUVI housekeeping file, and 10 parameters in the spacecraft housekeeping file. A new housekeeping file is generated for each day. The averaging time for each trending data point is 60 seconds. The files are tab delimited ASCII text files.

GUVI Housekeeping File Definition

File Name: *yyyymmdd*_trendHK.txt
File Type: Tab delimited ASCII text file
Header: The first line contains labels for each parameter.

Parameters:

1. Time

Time in seconds since January 2, 1904 (1904 date system). Divide this value by 86400 to get an Excel compatible date and time.

2. Background Pixel #2

GUVI generates 21 background pixels in imaging mode. The background pixel array consists of 3 along track pixels by 7 cross track pixels. Only four background pixels are saved as trending parameters. Background pixel #2 is the center along track pixel of the first cross track position. Units are counts per 32 limb integration periods (1.088 sec).

3. Background Pixel #8

Background pixel #8 is the center along track pixel of cross track position number 3. Units are counts per 27 disk integration periods (1.674 sec).

4. Background Pixel #14

Background pixel #14 is the center along track pixel of cross track position number 5. Units are counts per 27 disk integration periods (1.674 sec).

5. Background Pixel #20

Background pixel #20 is the center along track pixel of cross track position number 7. Units are counts per 24 disk integration periods (1.488 sec).

6. Dark Count Pixel #1

GUVI generates 4 dark count pixels in imaging and spectrograph modes. All four dark count pixels are saved as trending parameters. Dark pixel #1 is located above the SIS focal plane. Units are counts per scan period.

7. Dark Count Pixel #2

Dark pixel #2 is located below the SIS focal plane. Units are counts per scan period.

8. Dark Count Pixel #3

Dark pixel #3 is located at the long wavelength end of the SIS focal plane. Units are counts per scan period.

9. Dark Count Pixel #4

Dark pixel #4 is located above and below the SIS focal plane. Units are counts per scan period.

10. Detector #1 Current

The main bus current drawn by the DC/DC converter that powers the detector #1 focal plane electronics, high voltage power supply, and tube. Units are Amperes.

11. Detector #1 High Voltage Monitor

The output voltage of the detector #1 high voltage power supply. Units are Volts.

12. Detector #2 Current

The main bus current drawn by the DC/DC converter that powers the detector #2 focal plane electronics, high voltage power supply, and tube. Units are Amperes.

13. Detector #2 High Voltage Monitor

The output voltage of the detector #2 high voltage power supply. Units are Volts.

14. ECU +5 Volt Monitor

The output voltage of the +5 Volt DC/DC converter in the ECU. Units are Volts.

15. ECU Chassis Temperature

The temperature at the ECU chassis baseplate. Units are degrees C.

16. ECU Power Board Temperature

The temperature at the ECU main power board. Units are degrees C.

17. FPE #1 Temperature
The temperature at the Focal Plane Electronics #1. Units are degrees C.

18. FPE #2 Temperature
The temperature at the Focal Plane Electronics #2. Units are degrees C.

19. GUVI Mode
The GUVI operating mode. Maintenance mode = 0. Test mode = 1. Spectrograph mode = 2. Imaging mode = 3. Safe mode = 4. Static Imaging mode = 5. Test/forced convert mode = 6.

20. Housekeeping Reference Voltage
The voltage of the reference source for the housekeeping A/D converter in the ECU. The nominal value is 2.5 Volts. Units are Volts.

21. HVPS #1 Temperature
The temperature at the High Voltage Power Supply #1. Units are degrees C.

22. HVPS #2 Temperature
The temperature at the High Voltage Power Supply #2. Units are degrees C.

23. Nadir Position
The motor step number where the nadir position indicator is detected during an imaging mode scan. Valid in imaging mode only. The nominal nadir position value is 251. Units are motor steps.

24. Scan Motor Current
The current drawn by the SIS scan motor. Units are Amperes.

25. SIS Electronics Temperature
The temperature at the SIS Electronics package. Units are degrees C.

26. SIS Housing Temperature
The temperature at the SIS Housing between the two detector tubes. Units are degrees C.

27. SIS Scan Mirror Temperature
The temperature at the back of the SIS scan mirror. Units are degrees C.

28. Start Position

The motor step number where the start position indicator is detected during an imaging mode scan. Valid in imaging mode only. The nominal start position value is 51. Units are motor steps.

29. Detector #1 Input Rate

The input rate for detector #1. Valid only in test mode and spectrograph mode. Units are counts per integration period.

30. Detector Output Rate

The output rate for the detector in use. Valid only in spectrograph mode. Units are counts per integration period.

31. Integration Count Minimum

The minimum integration count during the cross track scan in imaging mode, or the actual integration count in spectrograph mode. The integration period in seconds = integration count / 1,500,000.

32. Integration Count Maximum

The maximum integration count during the cross track scan in imaging mode, or the actual integration count in spectrograph mode. The integration period in seconds = integration count / 1,500,000.

33. Scan Mirror Heater Telltale

The on/off status of the scan mirror heater. 0 = off, 1 = on.

34. Slit Position

The spectrograph slit position.
Wide = 10, medium = 9, narrow = 6, closed = 5.

35. Yaw Maneuver Flag

The spacecraft yaw maneuver status. 0 = off, 1 = on.

36. SAA Region Flag

The South Atlantic Anomaly region flag. 0 = out, 1 = in SAA region.

37. Polar Region Flag

The polar region flag. 0 = out, 1 = in polar region.

38. Attitude Flag

The spacecraft attitude status.
0 = operational, 1 = nadir pointing, 2 = sun safe.

39. Day/Night Flag
The day/night region flag. 0 = night, 1 = day.

40. Solar Panel Rotation Flag
The solar panel rotation flag. 0 = off, 1 = on.

41. Sun Trip Flag
The GUVI detector sun sensor trip flag. 0 = normal, 1 = sun trip.

42. Error Counter
An accumulated count of the number of error events detected by the GUVI processor. An error occurs when either the high voltage monitor, start position, or nadir position value exceeds the normal limits. The parameters are checked once per scan in imaging mode by the GUVI processor. The counter is cleared when GUVI enters maintenance mode.

43. Input Rate at pixel #16
The input rate for cross track pixel #16 in imaging mode. Units are counts per integration period. Pixel #16 is in the middle of the limb scan. Pixel #1 is the top of the limb scan.

44. Input Rate at pixel #58
The input rate for cross track pixel #58 in imaging mode. Units are counts per integration period. Pixel #58 is near the start of the disk scan.

45. Input Rate at pixel #108
The input rate for cross track pixel #108 in imaging mode. Units are counts per integration period. Pixel #108 is near the center of the disk scan.

46. Input Rate at pixel #158
The input rate for cross track pixel #158 in imaging mode. Units are counts per integration period. Pixel #158 is near the end of the disk scan.

Spacecraft Housekeeping File Definition

File Name: *yyyymmdd*_trendSC.txt
File Type: Tab delimited ASCII text file
Header: The first line contains labels for each parameter.

Parameters:

1. Time
   Time in seconds since January 2, 1904 (1904 date system).

2. ECU Interface Temperature
   The temperature at the spacecraft deck next to the ECU package. Units are degrees C.

3. GUVI Main Bus Voltage
   The voltage level of the +28V main bus at the input to the GUVI instrument. Units are Amperes.

4. GUVI Main Bus Current
   The current drawn by the GUVI instrument from the +28V main bus. It does not include any heater current. Units are Amperes.

5. Scan Motor Temperature
   The temperature at the SIS scan motor. Units are degrees C.

6. HVPS Interface Temperature
   The temperature at the spacecraft deck next to the HVPS packages. Units are degrees C.

7. Operational Heater Current
   The current drawn by the GUVI instrument from the +28V operational heater bus. Units are Amperes.

8. SIS Interface Temperature
   The temperature at the spacecraft deck next to the SIS Housing. Units are degrees C.

9. SIS Housing Temperature
   The temperature at the SIS Housing near the purge connector. Units are degrees C.

10. Survival Heater Current
    The current drawn by the GUVI instrument from the +28V survival heater bus. Units are Amperes.