HESSI Science Telemetry Header Definition
HSI_IDPU_021C.doc
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1. Introduction

The science telemetry packets, including the Monitor Rates, Fast Rates, and Events packets, include a 6-byte science header. The purpose of this header is to provide whatever information is needed to interpret the science data, so that references to the state-of-health telemetry can be minimized. In particular, anything that happens quickly or automatically that effects the interpretation of the science data needs to be included.

This specification is not exhaustive. Another document shall describe the final format of where bits are and how to interpret them when the header is coded.

2. Header Data

The header shall include the following information:

Quantity	Bits	Comments
IDPU Control Version Number	8	The encoding of the rest of the header may vary from one version of the IDPU software to another, as well as how the instrument is run, so this value may be required for decoding the header as well as the data. This version number shall be incremented for a change of software or the Detector Interface Control Table (see HSI_IDPU_020)
Attenuator State	4	Thin in, Thin out, Thick In, and Thick Out position switches. Note that while the attenuators is moving, neither switch will be active
SSR State	4	Encoded SSR capacity state, 0-8, as described in document HSI_IDPU_020. This information is used for decoding the decimator state
Cryocooler Main Drive level	8	The drive level may effect detector noise
Cold Plate Temperature	8	Better that 1°K resolution, over the range 60-110°K, average of the two cold-plate temperature sensors. Can saturate above 110°K.
IDPU Temperature	8	Temperature of the Detector Interface Electronics
CP Heater Power	1	1=on, 0=off
HV Power	1	1=on, 0=off
Actuator Power	1	1=on, 0=off
Spare	1	
Fast Rates Enable	1	1=enabled, 0=disabled
InSun	1	1=in sun, 0=in eclipse (from S/C)
Transmitting	1	1=transmitter on, 0=off (from S/C)
Spare	1	

3. Timing

Event packets shall be generated from 10-2000 per second. Fast Rates packets are generated at about 180 per second. The header information needs to be updated in a timely manner, or large quantities of data will have the wrong information. This is particularly relevant to things that change quickly, such as the attenuators. An update rate of 8-16Hz is minimum.