

SECTION 8

LRS SUBHEADER AND DATA BLOCK FORMAT

8.1 DATA OVERVIEW

EDRGEN shall accept frame synchronized Low Rate Science (LRS) data which has been golay corrected. EDRGEN shall extract the proper science experiment packet from the LRS frame and place into the appropriate location of the data block for the experiment record. EDRGEN shall extract the AACS packet in a like manner from the LRS frame and place into the appropriate location of the AACS record. In addition, EDRGEN shall decommutate the fixed engineering data packet within each LRS frame for selected engineering channels and place into the appropriate location of the experiment record subheader.

Filler and spare bits in the EDR formats shall be binary zeros at all times.

Each instrument shall have a common EDR header (refer to Section 10), a common subheader where appropriate and a unique science data section containing it's own instrument record structure. Each of the following subsections shall define processing, instrument record structure and from which bits of the LRS frame (golay corrected) data is to be acquired.

8.2 EDR PROCESSING

EDRGEN shall extract the AACS, science and science related engineering channels from each LRS minor frame. EDRGEN shall then build individual experiment records and AACS records by combining all minor frames corresponding to a RIM cycle (91 minor frame) placing the start time of the first minor frame into the record header and appending SCET, golay correction flags and data presence indicator flags as indicated in Section 10. An accumulation of summary data shall be performed with the summary of each EDR tape being provided.

EDRGEN shall extract data from the LRS frames using the spacecraft clock (SCLK) count to control the extraction process. The following criteria are to be applied to SCLK count for each LRS minor frame:

- 1) When the SCLK count increments by a value equal to a minor frame (MOD91 count), the program will continue building the current major frame (corresponds to a RIM count).
- 2) When the SCLK is greater than one MOD91 count, but in the the same RIM count, the program will locate the data by minor frame location within the record and update the current major frame, flagging filler blocks.

- 3) When the SCLK count equals or is less than the previous SCLK count, the program shall flag the remainder of the current major frame with filler, output the major frame, and begin updating a new major frame with the current major frame, flagging filler block.
- 4) When the SCLK count increments the RIM count, the program will output the current major frame, flagging filler blocks as necessary. The program will then begin constructing a new major frame with the current minor frame, flagging filler blocks as necessary.
- 5) When any LRS frame, from which data is extracted, contains filler, the extraction function will flag the affected minor frame within the record as containing filler.

8.3 STANDARD EDR SUBHEADER

All low rate science records which require a subheader shall receive a standard subheader. This standard subheader shall contain selected engineering measurements in raw DN values extracted from the engineering packet of the LRS data block (channels from the fixed engineering data only) using a fixed decommutation map. Engineering data from the standalone engineering records shall not be processed for inclusion in the standard science subheaders. Refer to Figure 8-1 for the block format of the standard subheader.

EDR WORD	BITS			
	0	7	8	31
0	E-0001	E-0082	E-0083	E-0740
1	E-0675	E-0676	SPARES	SPARES
2	E-0690	E-0691	E-0692	E-0693
3	E-0715	E-0716	SPARES	SPARES
4	E-0750	E-0751	E-0752	E-0753
5	E-0770	SPARES	SPARES	SPARES
6	E-0785	E-0786	E-0787	E-0788
7	SPARES	SPARES	SPARES	SPARES
8	SPARES	SPARES	SPARES	SPARES
9	SPARES	SPARES	SPARES	SPARES

FIGURE 8-1 STANDARD SUBHEADER FORMAT

8-10 PHOTOPOLARIMETER RADIOMETER SUBSYSTEM (PPR) EXPERIMENT

The PPR EDR science record is designed to a RIM cycle containing 91 minor frames. Each minor frame corresponds to a MOD 91 count. The PPR record shall be placed onto the PPR science EDR along with AACS records in time order. The logical record structure is diagrammed in Figure 8-14.

Processing Start/Stop

Refer to Subsection 8.2.

Record Buildup

PPR science record buildup shall proceed with the extraction from the appropriate bit locations from minor frames 1 through 91 of each RIM cycle. Subsection 8.2 defines the basic data extraction procedure.

Record Header

The PPR record shall receive a standard record header (refer to Section 10).

Record Subheader

The PPR subheader contains engineering measurements in DN extracted from the engineering packet of the LRS data block (channels from the fixed engineering data). Refer to Figure 8-1 on page 8-3.

Data Block

The PPR data block contains data extracted from bits 2736 through bits 2879 of each minor frame from the golay compressed LRS data block of the input SDR record. Specified word locations shall be maintained within the data block. Refer to Figure 8-15 for data block format and GLL-3-280 Appendix A for detailed definition of the data fields.

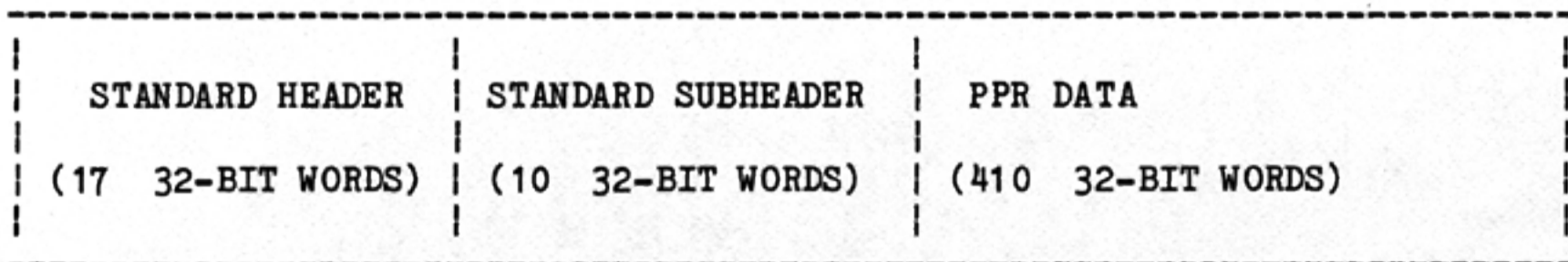


FIGURE 8-14 PPR RECORD

EDR WORD	BITS								BITS							
	0	7	8	15	16	23	24	31	0	7	8	15	16	23	24	31
0	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	INSTR. STATUS MF-1	STAT & SCI. 1 MF-1	PPR SCI DATA 1A MF-1						
2	PPR SCI 1A / 1B MF-1	PPR SCI 1B MF-1	STAT & SCI. 2 MF-1	PPR SCI 2A MF-1	PPR SCI 2A / 2B MF-1	PPR SCI 2B MF-1	STAT & SCI. 3 MF-1	PPR SCI 3A MF-1								
4	PPR SCI 3A / 3B MF-1	PPR SCI 3B MF-1	INSTR. STATUS MF-2	INSTR. STATUS MF-2	INSTR. STATUS MF-2	INSTR. STATUS MF-2	INSTR. STATUS MF-2	INSTR. STATUS MF-2								
6	STAT & SCI. 1 MF-2	PPR SCI 1A MF-2	PPR SCI 1A / 1B MF-2	PPR SCI 1B MF-2	STAT & SCI. 2 MF-2	PPR SCI 2A MF-2	PPR SCI 2A / 2B MF-2	PPR SCI 2B MF-2								
8	STAT & SCI. 3 MF-2	PPR SCI 3A MF-2	PPR SCI 3A / 3B MF-2	PPR SCI 3B MF-2												

THE ABOVE STRUCTURE CONTINUES

FOR MINOR FRAMES 3 THROUGH 90

404					INSTR. STATUS MF-91	INSTR. STATUS MF-91	INSTR. STATUS MF-91	INSTR. STATUS MF-91								
406	INSTR. STATUS MF-91	INSTR. STATUS MF-91	STAT & SCI. 1 MF-91	PPR SCI 1A MF-91	PPR SCI 1A / 1B MF-91	PPR SCI 1B MF-91	STAT & SCI. 2 MF-91	PPR SCI 2A MF-91								
408	PPR SCI 2A / 2B MF-91	PPR SCI 2B MF-91	STAT & SCI. 3 MF-91	PPR SCI 3A MF-91	PPR SCI 3A / 3B MF-91	PPR SCI 3B MF-91	FILLER	FILLER								

FIGURE 8-15 PPR DATA BLOCK FORMAT