

# HCAL Source Test Data Format

E. Hazen, J. Rohlf - Boston University

1/16/02

## 1 File Format

A data file consists of a header, a data section and a trailer. The data section is a stream of data blocks, and may begin and/or end in the middle of a block.

Header Size (currently = 2)
Data Size (in 32-bit words)
. . Data Section . .
Trailer Size (in 32-bit words)
. . Trailer (ascii text) . .

Notes:

1. The trailer size is given in 32-bit words, while the actual trailer may not be an integer number of 32-bit words. Thus, after reading **count** words, there may be 1-3 extra bytes remaining in the file.
2. The trailer data *is not null-terminated*.. Thus before treating it as a string in C one should add a null byte

## 2 Data Block Format

**NOTE: Block size is currently 0xfb words per block, not 0x8000 as shown. Decoding programs should not depend on any particular block size.**

(16-bit) WORD #	Byte 1	Byte 0
0x0000	0x00	block_no[7..0]
0x0001	0x0000 (user data)	
0x0002	block_no[15..0]	
0x0003	block_no[31..16]	
0x0004	Data word 0	
0x0005	Data word 1	
...	...	...
0x8003	Data word 0x7fff	
0x8004	0x0000	
0x8005	block_no[7..0]	0x00

HTR to DCC Source Test Block Format  
*As Transmitted*

(32-bit) WORD #	Byte 3	Byte 2	Byte 1	Byte 0
0x0000	user data		0x00	block_no[7..0]
0x0001	block_no[31..0]			
0x0002	Data word 1		Data word 0	
...				
0x4001	Data word 0x7FFF		Data word 0x7FFE	
0x4002	block_no[7..0]	ERRORS	word_count	

HTR to DCC Source Test Block Format  
*After PCI Read from LRB*

ERRORS	bit 0 – corrected link error bit 1 – uncorrected link error bit 2 – block size overflow bit 3 – block number header/trailer mismatch bit 4 – FIFO empty with no trailer seen bit 5 – FIFO over 50% full - data stripped bit 6 – block structure error (missing header/trailer) bit 7 – odd 16-bit word count
word_count	Number of words in block