L3 Data from the FRC
1 October, 2003

1. Format

Given below is the format of data transferred from the BC associated with an FRC to L3 on a L2 accept. Two categories of data are transferred: normal events (headers and trailer only) and Full Readout Events (headers, T/R Data and trailer).

1.1 Normal Readout Events

Data – Byte 3					Data – Byte 2					Data – Byte 1				Data – Byte 0			
31				24	23				16	15			8	7			0
0					0					Source (BC ID)				L1_BX			
L1_QUAL										0				L1_BX			
L1_BX					LTB error flags					FRC error flags				word count (exclude L3)			
Total Word Count (count from 1) for all words including *Checksum Error*																	
Vertical Parity (32-bit checksum)																	
Checksum Error (1=error, 0=ok)																	

Table 1: Format of L3 data sent out from the FRC's BC for normal readout events. The first word and last three words (in pink) are L3-specific information.

1.2 Full Readout Events

Full readout events are defined by either bits 0 or 3 in the L1 Qualifiers being set (see [1] for details of the L1 Qualifiers). In these events the full T/R Data [2] is passed to L3.

Data – Byte 3					Data – Byte 2				Data – Byte 1				Data – Byte 0			
31				24	23			16	15			8	7			0
0					0				Source (BC ID)				L1_BX			
L1_QUAL									0				L1_BX			
H. Format	O. Format		Object Length					Header Length				Number of Objects			
L1_TURN						L1_BX					L2 Data Type				
L2 Status Bits						Firmware Minor Ver				Firmware Major Ver.					
H Doublet (0-43)		I	0	D	Trig Sector Addr (0-79)		C	Ptbin	Ext Pt	T	L	Err Code	R	RA PSC		
H Doublet (0-43)		I	0	D	Trig Sector Addr (0-79)		C	Ptbin	Ext Pt	T	L	Err Code	R	RA PSC		
H Doublet (0-43)		I	0	D	Trig Sector Addr (0-79)		C	Ptbin	Ext Pt	T	L	Err Code	R	RA PSC		
Vertical Parity (16-bit words)							Data Type				L1_BX					
pad					pad				pad				pad			
pad					pad				pad				pad			
pad					pad				pad				pad			
L1_BX					LTB error flags				FRC error flags				word count (exclude L3)			
Total Word Count (count from 1) for all words including *Checksum Error*																
Vertical Parity (32-bit checksum)																
Checksum Error (1=error, 0=ok)																

Table 2: Format of the L3 data from the FRC's BC for full readout events. The first word and last three words (in pink) are L3-specific information.

2. References

1. see http://www.nevis.columbia.edu/~evans/L2mu/slic/data_flow/L1quals.html
2. see *T/R Data Format* document