

Appendix A

Tile Mapping

Figure A.1 illustrates the geometry of the ACD and the 12 FREE boards shown surrounding the tiles. The representation of a FREE board identifies its name (for example, 4LA, or 2LB) and lists its electronics channels and the tile which is mapped to the channel. By ACD convention, *A* fibres (as represented on a FREE board) have a tile prefix of 0 and *B* fibres have a tile prefix of 1. For example, the *A*-side of the tile numbered 0022 is mapped to channel 15 of FREE board 2LA. The same tile, but its *B*-side, is numbered as 0122 and is mapped to channel 2 of FREE board 2LB. The unassigned channels are shown as *blank*. While these channels aren't mapped to tiles, the GEM pairs up the unassigned channels and *ors* them together, and they go into the trigger decision¹ just as if they were backed by a tile.

1. Suitably masked off by the software responsible for configuring the GEM.





Figure A.1 ACD tile mapping

For best channel utilization of the LVDS receivers used by the GEM, the NA (not assigned) tiles are interleaved in the configuration interface for both input enables and tower assignment. (See Section 2.8 and Section 2.9.3.) A tabular view of the geometry as illustrated by Figure A.1 is presented in Table A.1:

Table A.1 Correspondence between tiles, FREE boards, and tile number

Tile Name	PMT "A"		PMT "B"		Tile Number ¹
	Board	Chnl	Board	Chnl	
000	2LA	6	2LB	11	00
001	2LA	12	2LB	5	01
002	2LA	17	2LB	0	02
003	2RA	6	2RB	11	03
004	2RA	11	2RB	6	04



Table A.1 Correspondence between tiles, FREE boards, and tile number

Tile Name	PMT "A"		PMT "B"		Tile Number ¹
	Board	Chnl	Board	Chnl	
010	2LA	7	2LB	10	05
011	2LA	13	2LB	4	06
012	2RA	4	2RB	13	07
013	2RA	5	2RB	12	08
014	2RA	10	2RB	7	09
020	2LA	8	2LB	9	0A
021	2LA	14	2LB	3	0B
022	2LA	15	2LB	2	0C
023	4LA	15	4LB	2	0D
024	4LA	9	4LB	8	0E
030	4RA	10	4RB	7	0F
031	4RA	5	4RB	12	10
032	4RA	4	4RB	13	11
033	4LA	14	4LB	3	12
034	4LA	8	4LB	9	13
040	4RA	11	4RB	6	14
041	4RA	6	4RB	11	15
042	4LA	17	4LB	0	16
043	4LA	13	4LB	4	17
044	4LA	7	4LB	10	18
NA2	4RA	13	4RB	16	19
NA3	4RA	16	2LB	16	1A
100	2LA	1	1RB	3	1B
101	1LA	6	1RB	7	1C
102	1LA	9	1RB	8	1D
103	1LA	10	1RB	11	1E
104	1LA	14	4RB	1	1F
110	2LA	0	1RB	2	20
111	1LA	5	1RB	6	21



Table A.1 Correspondence between tiles, FREE boards, and tile number

Tile Name	PMT "A"		PMT "B"		Tile Number ¹
	Board	Chnl	Board	Chnl	
112	1LA	8	1RB	9	22
113	1LA	11	1RB	12	23
114	1LA	15	4RB	0	24
120	1LA	0	1RB	1	25
121	1LA	4	1RB	5	26
122	1LA	7	1RB	10	27
123	1LA	12	1RB	13	28
124	1LA	16	1RB	17	29
130	1LA	17	1RB	0	2A
NA4	1LA	1	1RB	16	2B
NA5	1LA	3	1RB	14	2C
200	2LA	5	2LB	12	2D
201	2LA	11	2LB	6	2E
202	2RA	3	2RB	14	2F
203	2RA	7	2RB	10	30
204	2RA	12	2RB	5	31
210	2LA	3	2LB	14	32
211	2LA	10	2LB	7	33
212	2RA	2	2RB	15	34
213	2RA	8	2RB	9	35
214	2RA	14	2RB	3	36
220	2LA	2	2LB	15	37
221	2LA	9	2LB	8	38
222	2RA	0	2RB	17	39
223	2RA	9	2RB	8	3A
224	2RA	15	2RB	2	3B
230	2RA	17	2LB	17	3C
NA6	2LA	16	2LB	13	3D
NA7	2RA	13	2RB	16	3E



Table A.1 Correspondence between tiles, FREE boards, and tile number

Tile Name	PMT "A"		PMT "B"		Tile Number ¹
	Board	Chnl	Board	Chnl	
300	3LA	14	2RB	1	3F
301	3LA	10	3RB	11	40
302	3LA	9	3RB	8	41
303	3LA	6	3RB	7	42
304	4LA	1	3RB	3	43
310	3LA	15	2RB	0	44
311	3LA	11	3RB	12	45
312	3LA	8	3RB	9	46
313	3LA	5	3RB	6	47
314	4LA	0	3RB	2	48
320	3LA	16	3RB	17	49
321	3LA	12	3RB	13	4A
322	3LA	7	3RB	10	4B
323	3LA	4	3RB	5	4C
324	3LA	0	3RB	1	4D
330	3LA	17	3RB	0	4E
NA8	3LA	3	3RB	14	4F
NA9	3LA	1	3RB	16	50
400	4RA	12	4RB	5	51
401	4RA	7	4RB	10	52
402	4RA	3	4RB	14	53
403	4LA	12	4LB	5	54
404	4LA	6	4LB	11	55
410	4RA	14	4RB	3	56
411	4RA	8	4RB	9	57
412	4RA	2	4RB	15	58
413	4LA	11	4LB	6	59
414	4LA	5	4LB	12	5A
420	4RA	15	4RB	2	5B



Table A.1 Correspondence between tiles, FREE boards, and tile number

Tile Name	PMT "A"		PMT "B"		Tile Number ¹
	Board	Chnl	Board	Chnl	
421	4RA	9	4RB	8	5C
422	4RA	0	4RB	17	5D
423	4LA	10	4LB	7	5E
424	4LA	3	4LB	14	5F
430	4RA	17	4LB	17	60
NA0	4LA	2	4LB	15	61
NA1	4LA	16	4LB	16	62
500	3LA	13	1RB	4	63
501	3LA	2	1RB	15	64
502	1LA	2	3RB	15	65
503	1LA	13	3RB	4	66
600	2LA	4	4RB	4	67
601	4RA	1	2LB	1	68
602	2RA	1	4LB	1	69
603	4LA	4	2RB	4	6A
NA10	2RA	16	4LB	13	6B

1. In hexadecimal

