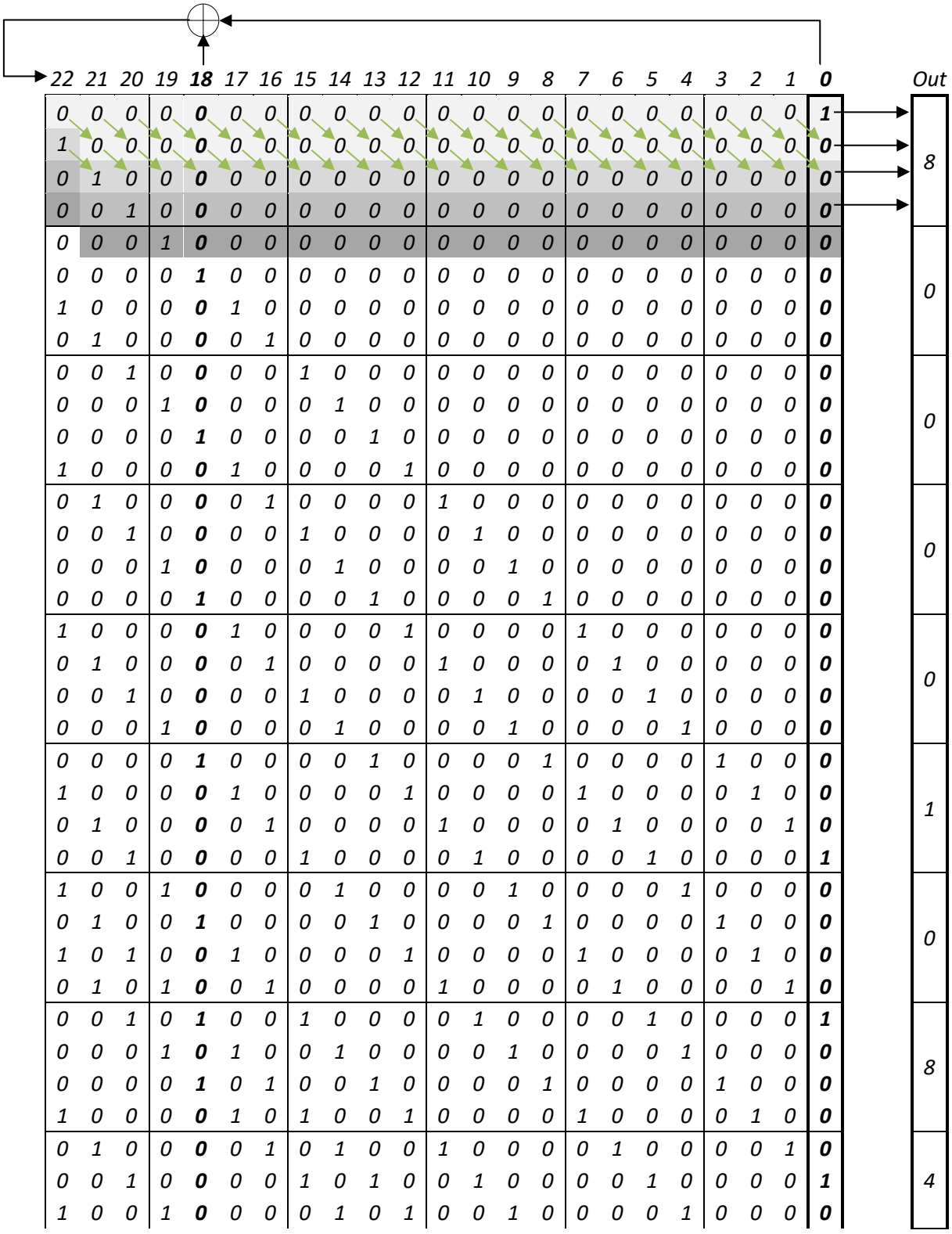
APPENDIX D - EXAMPLE OF LINEAR FEEDBACK SHIFT REGISTER (LFSR) IMPLEMENTATION

The spreading PRN sequences are generated by a method equivalent to a Linear Feedback Shift Register (LFSR) using the generator polynomial G(x) = X23 + X18 + 1. The generator polynomial initialization values for I and Q components for beacon normal mode operation and for beacon self-test mode operation are given in Table 2.2.

This appendix details the generation of the 64 first chips of the normal I-component using the LSFR implementation described in section 2.2.3 with the initialization value 000 0000 0000 0000 0000 0001 (see Table 2.2).

The last column gives the result of the PRN sequence generation (here 8000 0108 4212 84A1, as per Table 2.2).

Figure D-1: Example of LSFR with the generation of the 64 first chips of the normal I-component



22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Out
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	
1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	
0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	
1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	
0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	
0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	
1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	
1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	
0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	
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0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	
1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	
0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	
0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	
1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	

0	1	0	0	**1**	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	**0**	
1	0	1	0	**0**	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	**0**	2
0	1	0	1	**0**	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	**0**	
0	0	1	0	**1**	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	**1**	
0	0	0	1	**0**	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	**0**	
0	0	0	0	**1**	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	**0**	1
1	0	0	0	**0**	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	**0**	
0	1	0	0	**0**	0	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	**0**	
0	0	1	0	**0**	0	0	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	**1**	
1	0	0	1	**0**	0	0	0	1	0	1	0	0	0	1	0	0	0	0	1	0	1	**0**	2
0	1	0	0	**1**	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	**1**	
1	0	1	0	**0**	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	**0**	
1	1	0	1	**0**	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	**1**	
0	1	1	0	**1**	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	**0**	8
0	0	1	1	**0**	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	**0**	
0	0	0	1	**1**	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	**0**	
1	0	0	0	**1**	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	**0**	
1	1	0	0	**0**	1	1	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	**0**	4
0	1	1	0	**0**	0	1	1	0	1	0	0	1	0	0	0	0	0	1	0	1	0	**1**	
1	0	1	1	**0**	0	0	1	1	0	1	0	0	1	0	0	0	0	0	1	0	1	**0**	
0	1	0	1	**1**	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	1	0	**1**	
1	0	1	0	**1**	1	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	1	**0**	A
0	1	0	1	**0**	1	1	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	**1**	
0	0	1	0	**1**	0	1	1	0	0	0	1	1	0	1	0	0	1	0	0	0	0	**0**	
0	0	0	1	**0**	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	0	0	**0**	
0	0	0	0	**1**	0	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	0	**0**	1
1	0	0	0	**0**	1	0	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	**0**	
0	1	0	0	**0**	0	1	0	1	0	1	1	0	0	0	0	1	1	0	1	0	0	**1**	
0	0	1	0	**0**	0	0	1	0	1	0	1	1	0	0	1	0	1	1	0	1	0	**0**	

- END OF APPENDIX D -