

# List of full sensitivity spaced seeds for at most 4 mismatches

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Each spaced seed  $s$  is a periodic seed ( $b$  is a periodic block). It consists of  $n_b$  repetitions of the block and first  $n_d$  symbols of the blocks. Other parameters:  $w$  is the weight of the periodic seed,  $n_m$  is the maximum number of mismatches allowed to achieve the full sensitivity,  $L_{min}$  is the minimum length of a read required for the found seed.

We used the following selection criteria:

- by setting  $n_m$  and the length  $L$  of a read, we found all seeds of a maximum weight  $w$ ;
- for a given weight  $w$  we found the shortest length  $L_{min}$  of reads when we are able to find seeds;
- among all seeds found for  $n_m$ ,  $w$  and  $L_{min}$ , we used only seeds of maximum length.

If a seed  $s$  is found, then its reverse version  $\bar{s}$  (all digits are in the reverse order) can also be used. To form the seeds below lists of seed blocks  $b$  were used. Those blocks were found for sizes from 10 to 50 for  $n_m = 3, 4, \dots, 9$  and from 10 to 70 for  $n_m = 2$ . For each block size only sequences of maximum weight were used. There is a possibility that in a future longer seed blocks can be found and new spaced seeds can be formed for a given weight  $w$  (it will be possible to use them for shorter reads, i.e.  $L_{min}$  will be smaller).

- 1)  $n_m = 4, w = 16, L_{min} = 54, n_b = 2, n_d = 4$ ,  
 $b = 11110010000001000$ ,  
 $s = 11110010000001000111100100000010001111$
- 2)  $n_m = 4, w = 16, L_{min} = 54, n_b = 2, n_d = 4$ ,  
 $b = 11110000010001000$ ,  
 $s = 11110000010001000111100000100010001111$
- 3)  $n_m = 4, w = 17, L_{min} = 55, n_b = 1, n_d = 10$ ,  
 $b = 11010111110000000001000$ ,  
 $s = 110101111100000000010001101011111$
- 4)  $n_m = 4, w = 18, L_{min} = 59, n_b = 1, n_d = 14$ ,  
 $b = 10001101011111000000000$ ,  
 $s = 1000110101111100000000010001101011111$
- 5)  $n_m = 4, w = 19, L_{min} = 62, n_b = 2, n_d = 6$ ,  
 $b = 1101110100000010000$ ,  
 $s = 1101110100000010000110111010000010000110111$
- 6)  $n_m = 4, w = 19, L_{min} = 62, n_b = 2, n_d = 6$ ,  
 $b = 1011110000100001000$ ,  
 $s = 10111100001000010001011110000100001000101111$
- 7)  $n_m = 4, w = 20, L_{min} = 64, n_b = 2, n_d = 8$ ,  
 $b = 1101110100000010000$ ,  
 $s = 110111010000001000011011101000001000011011101$
- 8)  $n_m = 4, w = 21, L_{min} = 66, n_b = 2, n_d = 7$ ,  
 $b = 11010110000101001000$ ,  
 $s = 11010110000101001000110101100001010010001101011$
- 9)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7$ ,  
 $b = 1110111110010011000010110101000$ ,  
 $s = 11101111100100110000101101010001110111$
- 10)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7$ ,  
 $b = 1101111100100110000101101010001$ ,  
 $s = 11011111001001100001011010100011101111$
- 11)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7$ ,  
 $b = 1011111001001100001011010100011$ ,  
 $s = 10111110010011000010110101000111011111$

- 12)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7,$   
 $b = 1011111011001110000110101001000,$   
 $s = 10111110110011100001101010010001011111$
- 13)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7,$   
 $b = 1111101100111000011010100100010,$   
 $s = 11111011001110000110101001000101111101$
- 14)  $n_m = 4, w = 22, L_{min} = 68, n_b = 1, n_d = 7,$   
 $b = 1111011001110000110101001000101,$   
 $s = 11110110011100001101010010001011111011$
- 15)  $n_m = 4, w = 23, L_{min} = 69, n_b = 1, n_d = 8,$   
 $b = 1110111110010011000010110101000,$   
 $s = 111011111001001100001011010100011101111$
- 16)  $n_m = 4, w = 23, L_{min} = 69, n_b = 1, n_d = 8,$   
 $b = 1101111100100110000101101010001,$   
 $s = 110111110010011000010110101000111011111$
- 17)  $n_m = 4, w = 23, L_{min} = 69, n_b = 1, n_d = 8,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011111011$
- 18)  $n_m = 4, w = 24, L_{min} = 70, n_b = 1, n_d = 9,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111$
- 19)  $n_m = 4, w = 25, L_{min} = 73, n_b = 1, n_d = 12,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001$
- 20)  $n_m = 4, w = 25, L_{min} = 73, n_b = 1, n_d = 12,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011$
- 21)  $n_m = 4, w = 25, L_{min} = 73, n_b = 1, n_d = 12,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111$
- 22)  $n_m = 4, w = 26, L_{min} = 74, n_b = 1, n_d = 13,$   
 $b = 1111101100111000011010100100010,$   
 $s = 11111011001110000110101001000101111101100111$
- 23)  $n_m = 4, w = 27, L_{min} = 76, n_b = 1, n_d = 15,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111$
- 24)  $n_m = 4, w = 28, L_{min} = 79, n_b = 1, n_d = 18,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111$
- 25)  $n_m = 4, w = 28, L_{min} = 79, n_b = 1, n_d = 18,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101$
- 26)  $n_m = 4, w = 28, L_{min} = 79, n_b = 1, n_d = 18,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111$
- 27)  $n_m = 4, w = 29, L_{min} = 81, n_b = 1, n_d = 20,$   
 $b = 1011001111100011011101010000100,$   
 $s = 101100111110001101110101000010010110011111000110111$

- 28)  $n_m = 4, w = 29, L_{min} = 81, n_b = 1, n_d = 20,$   
 $b = 1100111110001101110101000010010,$   
 $s = 110011111000110111010100001001011001111100011011101$
- 29)  $n_m = 4, w = 29, L_{min} = 81, n_b = 1, n_d = 20,$   
 $b = 1011010100011101111100100110000,$   
 $s = 101101010001110111110010011000010110101000111011111$
- 30)  $n_m = 4, w = 30, L_{min} = 83, n_b = 1, n_d = 22,$   
 $b = 1011001111100011011101010000100,$   
 $s = 10110011111000110111010100001001011001111100011011101$
- 31)  $n_m = 4, w = 30, L_{min} = 83, n_b = 1, n_d = 22,$   
 $b = 1100111110001101110101000010010,$   
 $s = 11001111100011011101010000100101100111110001101110101$
- 32)  $n_m = 4, w = 31, L_{min} = 85, n_b = 1, n_d = 24,$   
 $b = 1011001111100011011101010000100,$   
 $s = 1011001111100011011101010000100101100111110001101110101$
- 33)  $n_m = 4, w = 32, L_{min} = 88, n_b = 1, n_d = 27,$   
 $b = 1001011001111100011011101010000,$   
 $s = 1001011001111100011011101010000100101100111110001101110101$
- 34)  $n_m = 4, w = 32, L_{min} = 88, n_b = 1, n_d = 27,$   
 $b = 1011010100011101111100100110000,$   
 $s = 1011010100011101111100100110000101101010001110111110010011$
- 35)  $n_m = 4, w = 32, L_{min} = 88, n_b = 1, n_d = 27,$   
 $b = 1101010010001011111011001110000,$   
 $s = 1101010010001011111011001110000110101001000101111101100111$
- 36)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001011001111100011011101010000,$   
 $s = 100101100111110001101110101000010010110011111000110111010100001$
- 37)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011001111100011011101010000100,$   
 $s = 101100111110001101110101000010010110011111000110111010100001001$
- 38)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100111110001101110101000010010,$   
 $s = 110011111000110111010100001001011001111100011011101010000100101$
- 39)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001111100011011101010000100101,$   
 $s = 100111110001101110101000010010110011111000110111010100001001011$
- 40)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111100011011101010000100101100,$   
 $s = 111110001101110101000010010110011111000110111010100001001011001$
- 41)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111000110111010100001001011001,$   
 $s = 111100011011101010000100101100111110001101110101000010010110011$
- 42)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110001101110101000010010110011,$   
 $s = 111000110111010100001001011001111100011011101010000100101100111$
- 43)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100011011101010000100101100111,$   
 $s = 110001101110101000010010110011111000110111010100001001011001111$

- 44)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000110111010100001001011001111,$   
 $s = 100011011101010000100101100111110001101110101000010010110011111$
- 45)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101110101000010010110011111000,$   
 $s = 110111010100001001011001111100011011101010000100101100111110001$
- 46)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011101010000100101100111110001,$   
 $s = 101110101000010010110011111000110111010100001001011001111100011$
- 47)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110101000010010110011111000110,$   
 $s = 111010100001001011001111100011011101010000100101100111110001101$
- 48)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101010000100101100111110001101,$   
 $s = 110101000010010110011111000110111010100001001011001111100011011$
- 49)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010100001001011001111100011011,$   
 $s = 101010000100101100111110001101110101000010010110011111000110111$
- 50)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010000100101100111110001101110,$   
 $s = 101000010010110011111000110111010100001001011001111100011011101$
- 51)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000010010110011111000110111010,$   
 $s = 100001001011001111100011011101010000100101100111110001101110101$
- 52)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011010100011101111100100110000,$   
 $s = 101101010001110111110010011000010110101000111011111001001100001$
- 53)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101010001110111110010011000010,$   
 $s = 110101000111011111001001100001011010100011101111100100110000101$
- 54)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010100011101111100100110000101,$   
 $s = 101010001110111110010011000010110101000111011111001001100001011$
- 55)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010001110111110010011000010110,$   
 $s = 101000111011111001001100001011010100011101111100100110000101101$
- 56)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000111011111001001100001011010,$   
 $s = 100011101111100100110000101101010001110111110010011000010110101$
- 57)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110111110010011000010110101000,$   
 $s = 111011111001001100001011010100011101111100100110000101101010001$
- 58)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101111100100110000101101010001,$   
 $s = 110111110010011000010110101000111011111001001100001011010100011$
- 59)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011111001001100001011010100011,$   
 $s = 101111100100110000101101010001110111110010011000010110101000111$

- 60)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111100100110000101101010001110,$   
 $s = 11111001001100001011010100011101111001001100001011010100011101$
- 61)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111001001100001011010100011101,$   
 $s = 11110010011000010110101000111011110010011000010110101000111011$
- 62)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110010011000010110101000111011,$   
 $s = 111001001100001011010100011101111100100110000101101010001110111$
- 63)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100100110000101101010001110111,$   
 $s = 110010011000010110101000111011111001001100001011010100011101111$
- 64)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001001100001011010100011101111,$   
 $s = 100100110000101101010001110111110010011000010110101000111011111$
- 65)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001100001011010100011101111100,$   
 $s = 100110000101101010001110111110010011000010110101000111011111001$
- 66)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100001011010100011101111100100,$   
 $s = 110000101101010001110111110010011000010110101000111011111001001$
- 67)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000010110101000111011111001001,$   
 $s = 100001011010100011101111100100110000101101010001110111110010011$
- 68)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101010010001011111011001110000,$   
 $s = 110101001000101111101100111000011010100100010111110110011100001$
- 69)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010100100010111110110011100001,$   
 $s = 101010010001011111011001110000110101001000101111101100111000011$
- 70)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1010010001011111011001110000110,$   
 $s = 101001000101111101100111000011010100100010111110110011100001101$
- 71)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001000101111101100111000011010,$   
 $s = 100100010111110110011100001101010010001011111011001110000110101$
- 72)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000101111101100111000011010100,$   
 $s = 100010111110110011100001101010010001011111011001110000110101001$
- 73)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011111011001110000110101001000,$   
 $s = 101111101100111000011010100100010111110110011100001101010010001$
- 74)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011111011001110000110101001000101$
- 75)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1111011001110000110101001000101,$   
 $s = 111101100111000011010100100010111110110011100001101010010001011$

- 76)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110110011100001101010010001011,$   
 $s = 111011001110000110101001000101111101100111000011010100100010111$
- 77)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1101100111000011010100100010111,$   
 $s = 110110011100001101010010001011111011001110000110101001000101111$
- 78)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1011001110000110101001000101111,$   
 $s = 101100111000011010100100010111110110011100001101010010001011111$
- 79)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100111000011010100100010111110,$   
 $s = 110011100001101010010001011111011001110000110101001000101111101$
- 80)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1001110000110101001000101111101,$   
 $s = 100111000011010100100010111110110011100001101010010001011111011$
- 81)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1110000110101001000101111101100,$   
 $s = 111000011010100100010111110110011100001101010010001011111011001$
- 82)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1100001101010010001011111011001,$   
 $s = 110000110101001000101111101100111000011010100100010111110110011$
- 83)  $n_m = 4, w = 33, L_{min} = 93, n_b = 2, n_d = 1,$   
 $b = 1000011010100100010111110110011,$   
 $s = 100001101010010001011111011001110000110101001000101111101100111$
- 84)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011$
- 85)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011$
- 86)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111$
- 87)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111$
- 88)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100011011101010000100101100111,$   
 $s = 1100011011101010000100101100111110001101110101000010010110011111$
- 89)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101110101000010010110011111000,$   
 $s = 1101110101000010010110011111000110111010100001001011001111100011$
- 90)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011$
- 91)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101010000100101100111110001101,$   
 $s = 1101010000100101100111110001101110101000010010110011111000110111$

- 92)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011$
- 93)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011$
- 94)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111$
- 95)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011$
- 96)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111$
- 97)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111$
- 98)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100100110000101101010001110111,$   
 $s = 1100100110000101101010001110111110010011000010110101000111011111$
- 99)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100001011010100011101111100100,$   
 $s = 1100001011010100011101111100100110000101101010001110111110010011$
- 100)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101010010001011111011001110000,$   
 $s = 1101010010001011111011001110000110101001000101111101100111000011$
- 101)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011$
- 102)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111$
- 103)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111$
- 104)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1101100111000011010100100010111,$   
 $s = 1101100111000011010100100010111110110011100001101010010001011111$
- 105)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100111000011010100100010111110,$   
 $s = 1100111000011010100100010111110110011100001101010010001011111011$
- 106)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011$
- 107)  $n_m = 4, w = 34, L_{min} = 94, n_b = 2, n_d = 2,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111$

- 108)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111100011011101010000100101100,$   
 $s = 11111000110111010100001001011001111100011011101010000100101100111$
- 109)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111000110111010100001001011001,$   
 $s = 11110001101110101000010010110011111000110111010100001001011001111$
- 110)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110001101110101000010010110011,$   
 $s = 11100011011101010000100101100111110001101110101000010010110011111$
- 111)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110101000010010110011111000110,$   
 $s = 11101010000100101100111110001101110101000010010110011111000110111$
- 112)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011110010011000010110101000111$
- 113)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111100100110000101101010001110111$
- 114)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111001001100001011010100011101111$
- 115)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110010011000010110101000111011,$   
 $s = 11100100110000101101010001110111110010011000010110101000111011111$
- 116)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111101100111000011010100100010111$
- 117)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1111011001110000110101001000101,$   
 $s = 11110110011100001101010010001011111011001110000110101001000101111$
- 118)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110110011100001101010010001011,$   
 $s = 11101100111000011010100100010111110110011100001101010010001011111$
- 119)  $n_m = 4, w = 35, L_{min} = 95, n_b = 2, n_d = 3,$   
 $b = 1110000110101001000101111101100,$   
 $s = 11100001101010010001011111011001110000110101001000101111101100111$
- 120)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111100011011101010000100101100,$   
 $s = 111110001101110101000010010110011111000110111010100001001011001111$
- 121)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111000110111010100001001011001,$   
 $s = 111100011011101010000100101100111110001101110101000010010110011111$
- 122)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111100100110000101101010001110,$   
 $s = 11111001001100001011010100011101111001001100001011010100011101111$
- 123)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111001001100001011010100011101,$   
 $s = 11110010011000010110101000111011110010011000010110101000111011111$



- 124)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011111011001110000110101001000101111$
- 125)  $n_m = 4, w = 36, L_{min} = 96, n_b = 2, n_d = 4,$   
 $b = 1111011001110000110101001000101,$   
 $s = 111101100111000011010100100010111110110011100001101010010001011111$
- 126)  $n_m = 4, w = 37, L_{min} = 97, n_b = 2, n_d = 5,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111$
- 127)  $n_m = 4, w = 37, L_{min} = 97, n_b = 2, n_d = 5,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111$
- 128)  $n_m = 4, w = 37, L_{min} = 97, n_b = 2, n_d = 5,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111$
- 129)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1110111110010011000010110101000,$   
 $s = 111011111001001100001011010100011101111100100110000101101010001110111$
- 130)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1101111100100110000101101010001,$   
 $s = 110111110010011000010110101000111011111001001100001011010100011101111$
- 131)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1011111001001100001011010100011,$   
 $s = 101111100100110000101101010001110111110010011000010110101000111011111$
- 132)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1011111011001110000110101001000,$   
 $s = 101111101100111000011010100100010111110110011100001101010010001011111$
- 133)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011111011001110000110101001000101111101$
- 134)  $n_m = 4, w = 38, L_{min} = 99, n_b = 2, n_d = 7,$   
 $b = 1111011001110000110101001000101,$   
 $s = 111101100111000011010100100010111110110011100001101010010001011111011$
- 135)  $n_m = 4, w = 39, L_{min} = 100, n_b = 2, n_d = 8,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111$
- 136)  $n_m = 4, w = 39, L_{min} = 100, n_b = 2, n_d = 8,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111$
- 137)  $n_m = 4, w = 39, L_{min} = 100, n_b = 2, n_d = 8,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011$
- 138)  $n_m = 4, w = 40, L_{min} = 101, n_b = 2, n_d = 9,$   
 $b = 1110111110010011000010110101000,$   
 $s = 11101111100100110000101101010001110111110010011000010110101000111011111$
- 139)  $n_m = 4, w = 41, L_{min} = 104, n_b = 2, n_d = 12,$   
 $b = 1110111110010011000010110101000,$   
 $s = 11101111100100110000101101010001110111110010011000010110101000111011111001$

- 140)  $n_m = 4, w = 41, L_{min} = 104, n_b = 2, n_d = 12,$   
 $b = 1111101100111000011010100100010,$   
 $s = 11111011001110000110101001000101111101100111000011010100100010111110110011$
- 141)  $n_m = 4, w = 41, L_{min} = 104, n_b = 2, n_d = 12,$   
 $b = 1111011001110000110101001000101,$   
 $s = 11110110011100001101010010001011111011001110000110101001000101111101100111$
- 142)  $n_m = 4, w = 42, L_{min} = 105, n_b = 2, n_d = 13,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011111011001110000110101001000101111101100111$
- 143)  $n_m = 4, w = 43, L_{min} = 107, n_b = 2, n_d = 15,$   
 $b = 1011111011001110000110101001000,$   
 $s = 10111110110011100001101010010001011111011001110000110101001000101111101100111$
- 144)  $n_m = 4, w = 44, L_{min} = 110, n_b = 2, n_d = 18,$   
 $b = 1100111110001101110101000010010,$   
 $s = 11001111100011011101010000100101100111110001101110101000010010110011111000110111$
- 145)  $n_m = 4, w = 44, L_{min} = 110, n_b = 2, n_d = 18,$   
 $b = 1111100011011101010000100101100,$   
 $s = 11111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 146)  $n_m = 4, w = 44, L_{min} = 110, n_b = 2, n_d = 18,$   
 $b = 1101010001110111110010011000010,$   
 $s = 11010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 147)  $n_m = 4, w = 45, L_{min} = 112, n_b = 2, n_d = 20,$   
 $b = 1011001111100011011101010000100,$   
 $s = 1011001111100011011101010000100101100111110001101110101000010010110011111000110111$
- 148)  $n_m = 4, w = 45, L_{min} = 112, n_b = 2, n_d = 20,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101$
- 149)  $n_m = 4, w = 45, L_{min} = 112, n_b = 2, n_d = 20,$   
 $b = 1011010100011101111100100110000,$   
 $s = 1011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 150)  $n_m = 4, w = 46, L_{min} = 114, n_b = 2, n_d = 22,$   
 $b = 1011001111100011011101010000100,$   
 $s = 101100111110001101110101000010010110011111000110111010100001001011001111100011011101$
- 151)  $n_m = 4, w = 46, L_{min} = 114, n_b = 2, n_d = 22,$   
 $b = 1100111110001101110101000010010,$   
 $s = 110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 152)  $n_m = 4, w = 47, L_{min} = 116, n_b = 2, n_d = 24,$   
 $b = 1011001111100011011101010000100,$   
 $s = 10110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 153)  $n_m = 4, w = 48, L_{min} = 119, n_b = 2, n_d = 27,$   
 $b = 1001011001111100011011101010000,$   
 $s = 10010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 154)  $n_m = 4, w = 48, L_{min} = 119, n_b = 2, n_d = 27,$   
 $b = 1011010100011101111100100110000,$   
 $s = 10110101000111011111001001100001011010100011101111100100110000101101010001110111110010011$
- 155)  $n_m = 4, w = 48, L_{min} = 119, n_b = 2, n_d = 27,$   
 $b = 1101010010001011111011001110000,$   
 $s = 11010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$

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- 204)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$   
1
- 205)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
1
- 206)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
1
- 207)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
1
- 208)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100011011101010000100101100111,$   
 $s = 1100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111$   
1
- 209)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101110101000010010110011111000,$   
 $s = 1101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001$   
1
- 210)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
1
- 211)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101010000100101100111110001101,$   
 $s = 1101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011$   
1
- 212)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101$   
1
- 213)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
1
- 214)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
1
- 215)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
1
- 216)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
1

- 217)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
1
- 218)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100100110000101101010001110111,$   
 $s = 1100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$   
1
- 219)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100001011010100011101111100100,$   
 $s = 1100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001$   
1
- 220)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101010010001011111011001110000,$   
 $s = 1101010010001011111011001110000110101001000101111101100111000011010100100010111110110011100001$   
1
- 221)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
1
- 222)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
1
- 223)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$   
1
- 224)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1101100111000011010100100010111,$   
 $s = 1101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$   
1
- 225)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100111000011010100100010111110,$   
 $s = 1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
1
- 226)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
1
- 227)  $n_m = 4, w = 50, L_{min} = 125, n_b = 3, n_d = 2,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
1
- 228)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
11
- 229)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
11

- 230)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 11
- 231)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 11
- 232)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 11
- 233)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 11
- 234)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 11
- 235)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 11
- 236)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 11
- 237)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 11
- 238)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$   
 11
- 239)  $n_m = 4, w = 51, L_{min} = 126, n_b = 3, n_d = 3,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 11
- 240)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 111
- 241)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 111
- 242)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 111



- 243)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 111
- 244)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 111
- 245)  $n_m = 4, w = 52, L_{min} = 127, n_b = 3, n_d = 4,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 111
- 246)  $n_m = 4, w = 53, L_{min} = 128, n_b = 3, n_d = 5,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 1111
- 247)  $n_m = 4, w = 53, L_{min} = 128, n_b = 3, n_d = 5,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 1111
- 248)  $n_m = 4, w = 53, L_{min} = 128, n_b = 3, n_d = 5,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 1111
- 249)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 110111
- 250)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 101111
- 251)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1011111001001100001011010100011,$   
 $s = 1011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111$   
 011111
- 252)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$   
 011111
- 253)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 111101
- 254)  $n_m = 4, w = 54, L_{min} = 130, n_b = 3, n_d = 7,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 111011
- 255)  $n_m = 4, w = 55, L_{min} = 131, n_b = 3, n_d = 8,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 1101111

- 256)  $n_m = 4$ ,  $w = 55$ ,  $L_{min} = 131$ ,  $n_b = 3$ ,  $n_d = 8$ ,  
 $b = 1101111100100110000101101010001$ ,  
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011011111$
- 257)  $n_m = 4$ ,  $w = 55$ ,  $L_{min} = 131$ ,  $n_b = 3$ ,  $n_d = 8$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111011$
- 258)  $n_m = 4$ ,  $w = 56$ ,  $L_{min} = 132$ ,  $n_b = 3$ ,  $n_d = 9$ ,  
 $b = 1110111110010011000010110101000$ ,  
 $s = 111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 259)  $n_m = 4$ ,  $w = 57$ ,  $L_{min} = 135$ ,  $n_b = 3$ ,  $n_d = 12$ ,  
 $b = 1110111110010011000010110101000$ ,  
 $s = 111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001$
- 260)  $n_m = 4$ ,  $w = 57$ ,  $L_{min} = 135$ ,  $n_b = 3$ ,  $n_d = 12$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 11111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011110110011$
- 261)  $n_m = 4$ ,  $w = 57$ ,  $L_{min} = 135$ ,  $n_b = 3$ ,  $n_d = 12$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111$
- 262)  $n_m = 4$ ,  $w = 58$ ,  $L_{min} = 136$ ,  $n_b = 3$ ,  $n_d = 13$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111$
- 263)  $n_m = 4$ ,  $w = 59$ ,  $L_{min} = 138$ ,  $n_b = 3$ ,  $n_d = 15$ ,  
 $b = 1011111011001110000110101001000$ ,  
 $s = 101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$
- 264)  $n_m = 4$ ,  $w = 60$ ,  $L_{min} = 141$ ,  $n_b = 3$ ,  $n_d = 18$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 11001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111000110111$
- 265)  $n_m = 4$ ,  $w = 60$ ,  $L_{min} = 141$ ,  $n_b = 3$ ,  $n_d = 18$ ,  
 $b = 1111100011011101010000100101100$ ,  
 $s = 11111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011110001101110101$
- 266)  $n_m = 4$ ,  $w = 60$ ,  $L_{min} = 141$ ,  $n_b = 3$ ,  $n_d = 18$ ,  
 $b = 1101010001110111110010011000010$ ,  
 $s = 110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 267)  $n_m = 4$ ,  $w = 61$ ,  $L_{min} = 143$ ,  $n_b = 3$ ,  $n_d = 20$ ,  
 $b = 1011001111100011011101010000100$ ,  
 $s = 10110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111$
- 268)  $n_m = 4$ ,  $w = 61$ ,  $L_{min} = 143$ ,  $n_b = 3$ ,  $n_d = 20$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111100011011101$



- 282)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 $1100011011101010000100101100111$
- 283)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1100011011101010000100101100111,$   
 $s = 1100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111$   
 $1000110111010100001001011001111$
- 284)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1000110111010100001001011001111,$   
 $s = 1000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111$   
 $0001101110101000010010110011111$
- 285)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1101110101000010010110011111000,$   
 $s = 1101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001$   
 $1011101010000100101100111110001$
- 286)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1011101010000100101100111110001,$   
 $s = 1011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011$   
 $0111010100001001011001111100011$
- 287)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 $1101010000100101100111110001101$
- 288)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1101010000100101100111110001101,$   
 $s = 1101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011$   
 $1010100001001011001111100011011$
- 289)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1010100001001011001111100011011,$   
 $s = 1010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111$   
 $0101000010010110011111000110111$
- 290)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1010000100101100111110001101110,$   
 $s = 1010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101$   
 $0100001001011001111100011011101$
- 291)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1000010010110011111000110111010,$   
 $s = 1000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$   
 $0000100101100111110001101110101$
- 292)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1011010100011101111100100110000,$   
 $s = 1011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001$   
 $0110101000111011111001001100001$
- 293)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101$   
 $1010100011101111100100110000101$
- 294)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1010100011101111100100110000101,$   
 $s = 1010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011$   
 $0101000111011111001001100001011$

- [illegible]

- [illegible]

- 321)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 $1100001101010010001011111011001$
- 322)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
 $1000011010100100010111110110011$
- 323)  $n_m = 4, w = 65, L_{min} = 155, n_b = 4, n_d = 1,$   
 $b = 1000011010100100010111110110011,$   
 $s = 1000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$   
 $0000110101001000101111101100111$
- 324)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$   
 $10011111000110111010100001001011$
- 325)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011$
- 326)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $11100011011101010000100101100111$
- 327)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 $11000110111010100001001011001111$
- 328)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100011011101010000100101100111,$   
 $s = 1100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111$   
 $10001101110101000010010110011111$
- 329)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101110101000010010110011111000,$   
 $s = 1101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001$   
 $10111010100001001011001111100011$
- 330)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 $11010100001001011001111100011011$
- 331)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101010000100101100111110001101,$   
 $s = 1101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011$   
 $10101000010010110011111000110111$
- 332)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101$   
 $10101000111011111001001100001011$
- 333)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $110111111001001100001011010100011$

- 334)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $10111110010011000010110101000111$
- 335)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 $11110010011000010110101000111011$
- 336)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $11100100110000101101010001110111$
- 337)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 $11001001100001011010100011101111$
- 338)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100100110000101101010001110111,$   
 $s = 1100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$   
 $10010011000010110101000111011111$
- 339)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100001011010100011101111100100,$   
 $s = 1100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001$   
 $10000101101010001110111110010011$
- 340)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101010010001011111011001110000,$   
 $s = 1101010010001011111011001110000110101001000101111101100111000011010100100010111110110011100001$   
 $10101001000101111101100111000011$
- 341)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011$
- 342)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $11101100111000011010100100010111$
- 343)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$   
 $11011001110000110101001000101111$
- 344)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1101100111000011010100100010111,$   
 $s = 1101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$   
 $10110011100001101010010001011111$
- 345)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100111000011010100100010111110,$   
 $s = 1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
 $10011100001101010010001011111011$
- 346)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 $11000011010100100010111110110011$



- 347)  $n_m = 4, w = 66, L_{min} = 156, n_b = 4, n_d = 2,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
 $10000110101001000101111101100111$
- 348)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $111100011011101010000100101100111$
- 349)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $111000110111010100001001011001111$
- 350)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 $110001101110101000010010110011111$
- 351)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 $110101000010010110011111000110111$
- 352)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110111110010011000010110101000,$   
 $s = 11101111100100110000101101010001110111100100110000101101010001110111100100110000101101010001$   
 $110111110010011000010110101000111$
- 353)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111100100110000101101010001110,$   
 $s = 111110010011000010110101000111011110010011000010110101000111011111001001100001011010100011101$   
 $111100100110000101101010001110111$
- 354)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111001001100001011010100011101,$   
 $s = 111100100110000101101010001110111100100110000101101010001110111110010011000010110101000111011$   
 $111001001100001011010100011101111$
- 355)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 $110010011000010110101000111011111$
- 356)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $111101100111000011010100100010111$
- 357)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $111011001110000110101001000101111$
- 358)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$   
 $110110011100001101010010001011111$
- 359)  $n_m = 4, w = 67, L_{min} = 157, n_b = 4, n_d = 3,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 $110000110101001000101111101100111$

- 360)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $1111000110111010100001001011001111$
- 361)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $1110001101110101000010010110011111$
- 362)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111100100110000101101010001110,$   
 $s = 111110010011000010110101000111011110010011000010110101000111011111001001100001011010100011101$   
 $1111001001100001011010100011101111$
- 363)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $1110010011000010110101000111011111$
- 364)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $1111011001110000110101001000101111$
- 365)  $n_m = 4, w = 68, L_{min} = 158, n_b = 4, n_d = 4,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $1110110011100001101010010001011111$
- 366)  $n_m = 4, w = 69, L_{min} = 159, n_b = 4, n_d = 5,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011111$
- 367)  $n_m = 4, w = 69, L_{min} = 159, n_b = 4, n_d = 5,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 $11110010011000010110101000111011111$
- 368)  $n_m = 4, w = 69, L_{min} = 159, n_b = 4, n_d = 5,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111$
- 369)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111100100110000101101010001110111$
- 370)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 11011111100100110000101101010001,$   
 $s = 11011111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $1011111001001100001011010100011101111$
- 371)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 1011111001001100001011010100011,$   
 $s = 1011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111$   
 $0111110010011000010110101000111011111$
- 372)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$   
 $0111110110011100001101010010001011111$

- 373)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 1111101100111000011010100100010,$   
 $s = 111110110011100001101010010001011110110011100001101010010001011111011001110000110101001000101$   
 $111101100111000011010100100010111101$
- 374)  $n_m = 4, w = 70, L_{min} = 161, n_b = 4, n_d = 7,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $1110110011100001101010010001011111011$
- 375)  $n_m = 4, w = 71, L_{min} = 162, n_b = 4, n_d = 8,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111001001100001011010100011101111$
- 376)  $n_m = 4, w = 71, L_{min} = 162, n_b = 4, n_d = 8,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $10111110010011000010110101000111011111$
- 377)  $n_m = 4, w = 71, L_{min} = 162, n_b = 4, n_d = 8,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011$
- 378)  $n_m = 4, w = 72, L_{min} = 163, n_b = 4, n_d = 9,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $110111110010011000010110101000111011111$
- 379)  $n_m = 4, w = 73, L_{min} = 166, n_b = 4, n_d = 12,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $110111110010011000010110101000111011111001$
- 380)  $n_m = 4, w = 73, L_{min} = 166, n_b = 4, n_d = 12,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $111101100111000011010100100010111110110011$
- 381)  $n_m = 4, w = 73, L_{min} = 166, n_b = 4, n_d = 12,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $111011001110000110101001000101111101100111$
- 382)  $n_m = 4, w = 74, L_{min} = 167, n_b = 4, n_d = 13,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $1111011001110000110101001000101111101100111$
- 383)  $n_m = 4, w = 75, L_{min} = 169, n_b = 4, n_d = 15,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$   
 $011111011001110000110101001000101111101100111$
- 384)  $n_m = 4, w = 76, L_{min} = 172, n_b = 4, n_d = 18,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$   
 $100111110001101110101000010010110011111000110111$
- 385)  $n_m = 4, w = 76, L_{min} = 172, n_b = 4, n_d = 18,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $111100011011101010000100101100111110001101110101$

- 386)  $n_m = 4, w = 76, L_{min} = 172, n_b = 4, n_d = 18,$   
 $b = 1101010001110111110010011000010,$   
 $s = 110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 387)  $n_m = 4, w = 77, L_{min} = 174, n_b = 4, n_d = 20,$   
 $b = 1011001111100011011101010000100,$   
 $s = 10110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111$
- 388)  $n_m = 4, w = 77, L_{min} = 174, n_b = 4, n_d = 20,$   
 $b = 1100111110001101110101000010010,$   
 $s = 11001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101$
- 389)  $n_m = 4, w = 77, L_{min} = 174, n_b = 4, n_d = 20,$   
 $b = 1011010100011101111100100110000,$   
 $s = 10110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 390)  $n_m = 4, w = 78, L_{min} = 176, n_b = 4, n_d = 22,$   
 $b = 1011001111100011011101010000100,$   
 $s = 1011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101$
- 391)  $n_m = 4, w = 78, L_{min} = 176, n_b = 4, n_d = 22,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 392)  $n_m = 4, w = 79, L_{min} = 178, n_b = 4, n_d = 24,$   
 $b = 1011001111100011011101010000100,$   
 $s = 101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 393)  $n_m = 4, w = 80, L_{min} = 181, n_b = 4, n_d = 27,$   
 $b = 1001011001111100011011101010000,$   
 $s = 100101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 394)  $n_m = 4, w = 80, L_{min} = 181, n_b = 4, n_d = 27,$   
 $b = 1011010100011101111100100110000,$   
 $s = 10110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011110010011$
- 395)  $n_m = 4, w = 80, L_{min} = 181, n_b = 4, n_d = 27,$   
 $b = 1101010010001011111011001110000,$   
 $s = 11010100100010111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$
- 396)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1001011001111100011011101010000,$   
 $s = 10010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001$
- 397)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1011001111100011011101010000100,$   
 $s = 10110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001$
- 398)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1100111110001101110101000010010,$   
 $s = 11001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$

- [illegible]



- 425)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1001100001011010100011101111100,$   
 $s = 1001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001$
- 426)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1100001011010100011101111100100,$   
 $s = 1100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001$
- 427)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1000010110101000111011111001001,$   
 $s = 1000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011$
- 428)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1101010010001011111011001110000,$   
 $s = 1101010010001011111011001110000110101001000101111101100111000011010100100010111110110011100001$
- 429)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1010100100010111110110011100001,$   
 $s = 1010100100010111110110011100001101010010001011111011001110000110101001000101111101100111000011$
- 430)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 10100100010111111011001110000110,$   
 $s = 10100100010111111011001110000110101001000101111101100111000011010100100010111110110011100001101$
- 431)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 10010001011111101100111000011010,$   
 $s = 10010001011111101100111000011010100100010111110110011100001101010010001011111011001110000110101$
- 432)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1000101111101100111000011010100,$   
 $s = 1000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001$
- 433)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$
- 434)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$
- 435)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$
- 436)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$
- 437)  $n_m = 4, w = 81, L_{min} = 186, n_b = 5, n_d = 1,$   
 $b = 1101100111000011010100100010111,$   
 $s = 1101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$





- 451)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1101010000100101100111110001101$ ,  
 $s = 110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111$

452)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1101010001110111110010011000010$ ,  
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011$

453)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1110111110010011000010110101000$ ,  
 $s = 111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$

454)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1101111100100110000101101010001$ ,  
 $s = 11011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$

455)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1111100100110000101101010001110$ ,  
 $s = 111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$

456)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1111001001100001011010100011101$ ,  
 $s = 11110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$

457)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1110010011000010110101000111011$ ,  
 $s = 111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$

458)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1100100110000101101010001110111$ ,  
 $s = 110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$

459)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1100001011010100011101111100100$ ,  
 $s = 110000101101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011$

460)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1101010010001011111011001110000$ ,  
 $s = 110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111000011$

461)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$

462)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111000011010100100010111$

463)  $n_m = 4$ ,  $w = 82$ ,  $L_{min} = 187$ ,  $n_b = 5$ ,  $n_d = 2$ ,  
 $b = 1110110011100001101010010001011$ ,  
 $s = 111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$

- 464)  $n_m = 4, w = 82, L_{min} = 187, n_b = 5, n_d = 2,$   
 $b = 1101100111000011010100100010111,$   
 $s = 110110011100001101010010001011111011001110000110101001000101111011001110000110101001000101111$   
 $101100111000011010100100010111110110011100001101010010001011111$
- 465)  $n_m = 4, w = 82, L_{min} = 187, n_b = 5, n_d = 2,$   
 $b = 1100111000011010100100010111110,$   
 $s = 1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
 $100111000011010100100010111110110011100001101010010001011111011$
- 466)  $n_m = 4, w = 82, L_{min} = 187, n_b = 5, n_d = 2,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 $110000110101001000101111101100111000011010100100010111110110011$
- 467)  $n_m = 4, w = 82, L_{min} = 187, n_b = 5, n_d = 2,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
 $100001101010010001011111011001110000110101001000101111101100111$
- 468)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 11111000110111010100001001011001,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $1111000110111010100001001011001111100011011101010000100101100111$
- 469)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $1110001101110101000010010110011111000110111010100001001011001111$
- 470)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 $1100011011101010000100101100111110001101110101000010010110011111$
- 471)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 $1101010000100101100111110001101110101000010010110011111000110111$
- 472)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $1101111100100110000101101010001110111110010011000010110101000111$
- 473)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 $1111001001100001011010100011101111100100110000101101010001110111$
- 474)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $1110010011000010110101000111011111001001100001011010100011101111$
- 475)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1110010011000010110101000111011,$   
 $s = 1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 $1100100110000101101010001110111110010011000010110101000111011111$
- 476)  $n_m = 4, w = 83, L_{min} = 188, n_b = 5, n_d = 3,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11111011001110000110101001000101111101100111000011010100100010111$

- [illegible]



- 503)  $n_m = 4$ ,  $w = 91$ ,  $L_{min} = 200$ ,  $n_b = 5$ ,  $n_d = 15$ ,  
 $b = 1011111011001110000110101001000$ ,  
 $s = 101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$
- 504)  $n_m = 4$ ,  $w = 92$ ,  $L_{min} = 203$ ,  $n_b = 5$ ,  $n_d = 18$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 11001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111000110111$
- 505)  $n_m = 4$ ,  $w = 92$ ,  $L_{min} = 203$ ,  $n_b = 5$ ,  $n_d = 18$ ,  
 $b = 1111100011011101010000100101100$ ,  
 $s = 11111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011110001101110101$
- 506)  $n_m = 4$ ,  $w = 92$ ,  $L_{min} = 203$ ,  $n_b = 5$ ,  $n_d = 18$ ,  
 $b = 1101010001110111110010011000010$ ,  
 $s = 11010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$
- 507)  $n_m = 4$ ,  $w = 93$ ,  $L_{min} = 205$ ,  $n_b = 5$ ,  $n_d = 20$ ,  
 $b = 1011001111100011011101010000100$ ,  
 $s = 10110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111$
- 508)  $n_m = 4$ ,  $w = 93$ ,  $L_{min} = 205$ ,  $n_b = 5$ ,  $n_d = 20$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111100011011101$
- 509)  $n_m = 4$ ,  $w = 93$ ,  $L_{min} = 205$ ,  $n_b = 5$ ,  $n_d = 20$ ,  
 $b = 1011010100011101111100100110000$ ,  
 $s = 10110101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$
- 510)  $n_m = 4$ ,  $w = 94$ ,  $L_{min} = 207$ ,  $n_b = 5$ ,  $n_d = 22$ ,  
 $b = 1011001111100011011101010000100$ ,  
 $s = 1011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101$
- 511)  $n_m = 4$ ,  $w = 94$ ,  $L_{min} = 207$ ,  $n_b = 5$ ,  $n_d = 22$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 512)  $n_m = 4$ ,  $w = 95$ ,  $L_{min} = 209$ ,  $n_b = 5$ ,  $n_d = 24$ ,  
 $b = 1011001111100011011101010000100$ ,  
 $s = 101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 513)  $n_m = 4$ ,  $w = 96$ ,  $L_{min} = 212$ ,  $n_b = 5$ ,  $n_d = 27$ ,  
 $b = 1001011001111100011011101010000$ ,  
 $s = 100101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$
- 514)  $n_m = 4$ ,  $w = 96$ ,  $L_{min} = 212$ ,  $n_b = 5$ ,  $n_d = 27$ ,  
 $b = 1011010100011101111100100110000$ ,  
 $s = 101101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110010011$
- 515)  $n_m = 4$ ,  $w = 96$ ,  $L_{min} = 212$ ,  $n_b = 5$ ,  $n_d = 27$ ,  
 $b = 1101010010001011111011001110000$ ,  
 $s = 110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$

- [illegible]







- 555)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 111101100111000011010100100010111110110011100001101010010001011110110011100001101010010001011110110011100001101010010001011$

556)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1110110011100001101010010001011$ ,  
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111000011010100100010111$

557)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1101100111000011010100100010111$ ,  
 $s = 11011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$

558)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1011001110000110101001000101111$ ,  
 $s = 101100111000011010100100010111111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111$

559)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1100111000011010100100010111110$ ,  
 $s = 1100111000011010100100010111111011001110000110101001000101111101100111000011010100100010111111011001110000110101001000101111101$

560)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1001110000110101001000101111101$ ,  
 $s = 100111000011010100100010111111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011$

561)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1110000110101001000101111101100$ ,  
 $s = 111000011010100100010111111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$

562)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1100001101010010001011111011001$ ,  
 $s = 110000110101001000101111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$

563)  $n_m = 4$ ,  $w = 97$ ,  $L_{min} = 217$ ,  $n_b = 6$ ,  $n_d = 1$ ,  
 $b = 1000011010100100010111110110011$ ,  
 $s = 10000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111$

564)  $n_m = 4$ ,  $w = 98$ ,  $L_{min} = 218$ ,  $n_b = 6$ ,  $n_d = 2$ ,  
 $b = 1100111110001101110101000010010$ ,  
 $s = 110011111000110111101010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$

565)  $n_m = 4$ ,  $w = 98$ ,  $L_{min} = 218$ ,  $n_b = 6$ ,  $n_d = 2$ ,  
 $b = 11111000110111101010000100101100$ ,  
 $s = 1111100011011110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$

566)  $n_m = 4$ ,  $w = 98$ ,  $L_{min} = 218$ ,  $n_b = 6$ ,  $n_d = 2$ ,  
 $b = 1111000110111010100001001011001$ ,  
 $s = 11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111100011011101010000100101100111$

567)  $n_m = 4$ ,  $w = 98$ ,  $L_{min} = 218$ ,  $n_b = 6$ ,  $n_d = 2$ ,  
 $b = 11100011011110101000010010110011$ ,  
 $s = 111000110111101010000100101100111110001101111010100001001011001111100011011110101000010010110011111000110111101010000100101100111$

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- 594)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1111001001100001011010100011101$ ,  
 $s = 111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111001001100001011010100011101111$

595)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1110010011000010110101000111011$ ,  
 $s = 11100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111001001100001011010100011101111$

596)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111000011010100100010111$

597)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101100111000011010100100010111$

598)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1110110011100001101010010001011$ ,  
 $s = 11101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111011001110000110101001000101111$

599)  $n_m = 4$ ,  $w = 99$ ,  $L_{min} = 219$ ,  $n_b = 6$ ,  $n_d = 3$ ,  
 $b = 1110000110101001000101111101100$ ,  
 $s = 111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$

600)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111100011011101010000100101100$ ,  
 $s = 11111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111$

601)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111000110111010100001001011001$ ,  
 $s = 11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111$

602)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111100100110000101101010001110$ ,  
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111001001100001011010100011101111$

603)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111001001100001011010100011101$ ,  
 $s = 111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111001001100001011010100011101111$

604)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111011001110000110101001000101111$

605)  $n_m = 4$ ,  $w = 100$ ,  $L_{min} = 220$ ,  $n_b = 6$ ,  $n_d = 4$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011110110011100001101010010001011111$

606)  $n_m = 4$ ,  $w = 101$ ,  $L_{min} = 221$ ,  $n_b = 6$ ,  $n_d = 5$ ,  
 $b = 1111100011011101010000100101100$ ,  
 $s = 111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111$



- 618)  $n_m = 4, w = 104, L_{min} = 225, n_b = 6, n_d = 9,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $111$
- 619)  $n_m = 4, w = 105, L_{min} = 228, n_b = 6, n_d = 12,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $111001$
- 620)  $n_m = 4, w = 105, L_{min} = 228, n_b = 6, n_d = 12,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110$   
 $110011$
- 621)  $n_m = 4, w = 105, L_{min} = 228, n_b = 6, n_d = 12,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $11101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
 $100111$
- 622)  $n_m = 4, w = 106, L_{min} = 229, n_b = 6, n_d = 13,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110$   
 $1100111$
- 623)  $n_m = 4, w = 107, L_{min} = 231, n_b = 6, n_d = 15,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$   
 $01111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$   
 $101100111$
- 624)  $n_m = 4, w = 108, L_{min} = 234, n_b = 6, n_d = 18,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$   
 $10011111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $111000110111$
- 625)  $n_m = 4, w = 108, L_{min} = 234, n_b = 6, n_d = 18,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110$   
 $001101110101$
- 626)  $n_m = 4, w = 108, L_{min} = 234, n_b = 6, n_d = 18,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101$   
 $10101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101$   
 $000111011111$
- 627)  $n_m = 4, w = 109, L_{min} = 236, n_b = 6, n_d = 20,$   
 $b = 1011001111100011011101010000100,$   
 $s = 1011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001001$   
 $01100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100$   
 $11111000110111$
- 628)  $n_m = 4, w = 109, L_{min} = 236, n_b = 6, n_d = 20,$   
 $b = 1100111110001101110101000010010,$   
 $s = 1100111110001101110101000010010110011111000110111010100001001011001111100011011101010000100101$







01010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101010  
00010010110011111000110111

- 650)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1010000100101100111110001101110,$   
 $s = 1010000100101100111110001101110101000010010110011111000110111010100001001011001111100011011101$   
 $01000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101000$   
 $01001011001111100011011101$
- 651)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1000010010110011111000110111010,$   
 $s = 1000010010110011111000110111010100001001011001111100011011101010000100101100111110001101110101$   
 $00001001011001111100011011101010000100101100111110001101110101000010010110011111000110111010100001$   
 $00101100111110001101110101$
- 652)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1011010100011101111100100110000,$   
 $s = 1011010100011101111100100110000101101010001110111110010011000010110101000111011111001001100001$   
 $01101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101101$   
 $01000111011111001001100001$
- 653)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1101010001110111110010011000010,$   
 $s = 1101010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101$   
 $10101000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101$   
 $00011101111100100110000101$
- 654)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 10101000111011111100100110000101,$   
 $s = 10101000111011111100100110000101101010001110111110010011000010110101000111011111001001100001011$   
 $01010001110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010$   
 $00111011111001001100001011$
- 655)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 10100011101111110010011000010110,$   
 $s = 10100011101111110010011000010110101000111011111001001100001011010100011101111100100110000101101$   
 $01000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000$   
 $11101111100100110000101101$
- 656)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1000111011111001001100001011010,$   
 $s = 1000111011111001001100001011010100011101111100100110000101101010001110111110010011000010110101$   
 $00011101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $10111110010011000010110101$
- 657)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $11100100110000101101010001$
- 658)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1101111100100110000101101010001,$   
 $s = 1101111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $10111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 $11001001100001011010100011$
- 659)  $n_m = 4, w = 113, L_{min} = 248, n_b = 7, n_d = 1,$   
 $b = 1011111001001100001011010100011,$   
 $s = 1011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111$   
 $011111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$   
 $10010011000010110101000111$





- [illegible]



- 702)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111101$   
 $100111000011010100100010111$
- 703)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1110110011100001101010010001011,$   
 $s = 1110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111$   
 $1101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111011$   
 $001110000110101001000101111$
- 704)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1101100111000011010100100010111,$   
 $s = 1101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$   
 $10110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110$   
 $011100001101010010001011111$
- 705)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1100111000011010100100010111110,$   
 $s = 1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
 $10011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
 $100001101010010001011111011$
- 706)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1110000110101001000101111101100,$   
 $s = 1110000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001$   
 $11000011010100100010111110110011100001101010010001011111011001110000110101001000101111101100111000$   
 $011010100100010111110110011$
- 707)  $n_m = 4, w = 114, L_{min} = 249, n_b = 7, n_d = 2,$   
 $b = 1100001101010010001011111011001,$   
 $s = 1100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011$   
 $10000110101001000101111101100111000011010100100010111110110011100001101010010001011111011001110000$   
 $110101001000101111101100111$
- 708)  $n_m = 4, w = 115, L_{min} = 250, n_b = 7, n_d = 3,$   
 $b = 1111100011011101010000100101100,$   
 $s = 1111100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110$   
 $0011011101010000100101100111$
- 709)  $n_m = 4, w = 115, L_{min} = 250, n_b = 7, n_d = 3,$   
 $b = 1111000110111010100001001011001,$   
 $s = 1111000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011$   
 $11100011011101010000100101100111110001101110101000010010110011111000110111010100001001011001111100$   
 $0110111010100001001011001111$
- 710)  $n_m = 4, w = 115, L_{min} = 250, n_b = 7, n_d = 3,$   
 $b = 1110001101110101000010010110011,$   
 $s = 1110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111$   
 $11000110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111000$   
 $1101110101000010010110011111$
- 711)  $n_m = 4, w = 115, L_{min} = 250, n_b = 7, n_d = 3,$   
 $b = 1110101000010010110011111000110,$   
 $s = 1110101000010010110011111000110111010100001001011001111100011011101010000100101100111110001101$   
 $11010100001001011001111100011011101010000100101100111110001101110101000010010110011111000110111010$   
 $1000010010110011111000110111$
- 712)  $n_m = 4, w = 115, L_{min} = 250, n_b = 7, n_d = 3,$   
 $b = 1110111110010011000010110101000,$   
 $s = 111011111001001100001011010100011101111100100110010100011101111100100110000101101010001$



- 723)  $n_m = 4, w = 116, L_{min} = 251, n_b = 7, n_d = 4,$   
 $b = 1111001001100001011010100011101,$   
 $s = 1111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $11100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111100$   
 $10011000010110101000111011111$
- 724)  $n_m = 4, w = 116, L_{min} = 251, n_b = 7, n_d = 4,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110$   
 $11001110000110101001000101111$
- 725)  $n_m = 4, w = 116, L_{min} = 251, n_b = 7, n_d = 4,$   
 $b = 1111011001110000110101001000101,$   
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011$   
 $11101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$   
 $10011100001101010010001011111$
- 726)  $n_m = 4, w = 117, L_{min} = 252, n_b = 7, n_d = 5,$   
 $b = 11111000110111101010000100101100,$   
 $s = 11111000110111101010000100101100111110001101110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110$   
 $001101110101000010010110011111$
- 727)  $n_m = 4, w = 117, L_{min} = 252, n_b = 7, n_d = 5,$   
 $b = 1111100100110000101101010001110,$   
 $s = 1111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 $11110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110$   
 $010011000010110101000111011111$
- 728)  $n_m = 4, w = 117, L_{min} = 252, n_b = 7, n_d = 5,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110$   
 $110011100001101010010001011111$
- 729)  $n_m = 4, w = 118, L_{min} = 254, n_b = 7, n_d = 7,$   
 $b = 1110111110010011000010110101000,$   
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $11011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011$   
 $11100100110000101101010001110111$
- 730)  $n_m = 4, w = 118, L_{min} = 254, n_b = 7, n_d = 7,$   
 $b = 11011111100100110000101101010001,$   
 $s = 11011111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011$   
 $101111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$   
 $11001001100001011010100011101111$
- 731)  $n_m = 4, w = 118, L_{min} = 254, n_b = 7, n_d = 7,$   
 $b = 1011111001001100001011010100011,$   
 $s = 1011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111$   
 $011111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$   
 $10010011000010110101000111011111$
- 732)  $n_m = 4, w = 118, L_{min} = 254, n_b = 7, n_d = 7,$   
 $b = 1011111011001110000110101001000,$   
 $s = 1011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001$   
 $01111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111$   
 $10110011100001101010010001011111$
- 733)  $n_m = 4, w = 118, L_{min} = 254, n_b = 7, n_d = 7,$   
 $b = 1111101100111000011010100100010,$   
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$







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11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110  
1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111

965)  $n_m = 4$ ,  $w = 148$ ,  $L_{min} = 313$ ,  $n_b = 9$ ,  $n_d = 4$ ,  
 $b = 1111011001110000110101001000101$ ,  
 $s = 1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111$

966)  $n_m = 4$ ,  $w = 149$ ,  $L_{min} = 314$ ,  $n_b = 9$ ,  $n_d = 5$ ,  
 $b = 111111000110111101010000100101100$ ,  
 $s = 1111110001101111010100001001011001111100011011110101000010010110011111000110111010100001001011001$   
 $11110001101110101000010010110011111000110111010100001001011001111100011011101010000100101100111110$   
 $00110111010100001001011001111100011011101010000100101100111110001101110101000010010110011111$

967)  $n_m = 4$ ,  $w = 149$ ,  $L_{min} = 314$ ,  $n_b = 9$ ,  $n_d = 5$ ,  
 $b = 11111100100110000101101010001110$ ,  
 $s = 11111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101$   
 $11110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111110$   
 $01001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$

968)  $n_m = 4$ ,  $w = 149$ ,  $L_{min} = 314$ ,  $n_b = 9$ ,  $n_d = 5$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $11110110011100001101010010001011111011001110000110101001000101111101100111000011010100100010111110$   
 $11001110000110101001000101111101100111000011010100100010111110110011100001101010010001011111$

969)  $n_m = 4$ ,  $w = 150$ ,  $L_{min} = 316$ ,  $n_b = 9$ ,  $n_d = 7$ ,  
 $b = 1110111110010011000010110101000$ ,  
 $s = 1110111110010011000010110101000111011111001001100001011010100011101111100100110000101101010001$   
 $1101111100100110000101101010001110111100100110000101101010001110111110010011000010110101000111011$   
 $1110010011000010110101000111011111001001100001011010100011101111100100110000101101010001110111$

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971)  $n_m = 4$ ,  $w = 150$ ,  $L_{min} = 316$ ,  $n_b = 9$ ,  $n_d = 7$ ,  
 $b = 1011111001001100001011010100011$ ,  
 $s = 1011111001001100001011010100011101111100100110000101101010001110111110010011000010110101000111$   
 $011111100100110000101101010001110111110010011000010110101000111011111001001100001011010100011101111$   
 $1001001100001011010100011101111100100110000101101010001110111110010011000010110101000111011111$

[illegible]

973)  $n_m = 4$ ,  $w = 150$ ,  $L_{min} = 316$ ,  $n_b = 9$ ,  $n_d = 7$ ,  
 $b = 1111101100111000011010100100010$ ,  
 $s = 1111101100111000011010100100010111110110011100001101010010001011111011001110000110101001000101$   
 $1111011001110000110101001000101111101100111000011010100100010111110110011100001101010010001011110$   
 $1100111000011010100100010111110110011100001101010010001011111011001110000110101001000101111101$

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