

Problem How many check bits are needed to transmit 124 bits of data using Hamming code?

Solution 8 check bits are needed.

If there are n check bits, there can be at most $2^n - n - 1$ data bits. Guessing n to be 7 (the integer \log_2 of 124), $2^7 - 7 - 1 = 128 - 7 - 1 = 120$. So, 7 bits are not enough. You need 8 check bits.