Our implementation of Speck ran in roughly the same amount of time no matter what the plaintext input size. We were unable to test different key sizes given our current implementation. Because the key size remained at 256 bits, varying the size of the input did not change the running time as the size of the key was the constraining factor. We performed these tests through a virtual connection to CAEN with 1000 trials for each bitsize, all with different random keys.

We have verified our algorithm against the published test vector:

Key: 1f1e1d1c1b1a191817161514131211100f0e0d0c0b0a09080706050403020100

Plaintext: 65736f6874206e49202e72656e6f6f70

Ciphertext: 4109010405c0f53e4eeeb48d9c188f43

As well as testing many random inputs to check that the decryption of the ciphertext matches the original plaintext.