

## A5. Cover sheet.

### 1. NUSH Hash

2. Collision-Resistant Hash functions. Proposed security level:

a) *High*. Security level equals to  $2^{(L/2)}$  elementary operations, where L is the hash value length (bits), i.e. at least  $2^{256}$ . An elementary operation is equivalent to hash computation, writing to (reading from) memory and comparison of hash values. Regular birthday attack.

b) *Normal*. Security level equals to  $2^{(L/2)}$ , where L is hash value length (bits), i.e. at least  $2^{128}$ . An elementary operation is equivalent to hash value computation, writing to (reading from) memory and comparison of hash values.

Proposed environment: An eavesdropper knows all the details of the algorithm, can get and write down in memory as many as  $2^{(L/2)}$  different hash values. He can also search through the memory in an efficient way such as a dichotomic search, lexicographic search etc.

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