

CKKS parameter

N	security level	$\log q$	uSVP	dec	dual
1024	128	25	132.6	165.5	142.3
	192	17	199.9	284.1	222.2
	256	13	262.6	423.1	296.6
2048	128	51	128.6	144.3	133.4
	192	35	193.5	231.9	205.2
	256	27	257.1	327.8	274.4
4096	128	101	129.6	137.4	131.5
	192	70	193.7	213.6	198.8
	256	54	259.7	295.2	270.6
8192	128	202	129.8	130.7	128.0
	192	141	192.9	202.5	196.1
	256	109	258.3	276.6	263.1
16384	128	411	128.2	129.5	129.0
	192	284	192.0	196.8	193.7
	256	220	257.2	265.8	260.7
32768	128	827	128.1	128.7	128.4
	192	571	192.0	194.1	193.1
	256	443	256.1	260.4	260.4

Table 1: The different parameter values shown in the table means following N is the ring dimension, security level is the bit security provided by the chosen parameter value equivalent to that of AES, $\log q$ is the number of bits in the modulus q . *uSVP* represents the bit security against attack using unique shortest vector problem, *dec* represents the bit security against decoding attack and *dual* represents the bit security against dual attack.