Approximations of Insignis SSD & eMMC Expected Lifespans

JEDEC defined the endurance rating TBW (TeraByte Written) for indicating the number of terabytes an SSD can be written. This is an approximation of an SSD's expected lifespan. To calculate the TBW of an SSD, the following equation is applied:

TBW = [(NAND Endurance) x (SSD Capacity)] / WAF

NAND Endurance:

NAND endurance refers to the P/E (Program/Erase) cycle of a NAND flash.

SSD Capacity:

The SSD capacity is the specific capacity in total of a SSD.

Write Amplification Factor (WAF) is a numerical value representing the ratio between the amount of data that a SSD controller needs to write and the amount of data that the host's flash controller writes. A better WAF, which is near 1, guarantees better endurance and lower frequency of data written to flash memory. The equation to calculate the WAF is:

WAF = (Lifetime write to flash) / (Lifetime write to host)

eMMC Configurations		TeraByte Written (TBW)
15nm MLC 4GB	pSLC	58TB
	MLC	5TB
15nm MLC 8GB	pSLC	116TB
	MLC	11TB
15nm MLC 16GB	pSLC	229TB
	MLC	22TB
15nm MLC 32GB	pSLC	614TB
	MLC	49TB
15nm MLC 64GB	pSLC	1492TB
	MLC	91TB

SSD Capacity	TeraByte Written (TBW)
32GB	81TB
64GB	135TB
128GB	264TB
256GB	541TB
512GB	1148TB
1024GB	2180TB

Note: TBW will vary based on usage pattern. Actual customer workload conditions can significantly impact this approximation. Please contact info@insignis-tech.com to discuss your application and/or request additional information regarding write endurance.