



## Technical Advisory – TA 340062-001US

### “Percentage Used” Life Indicator is Non-Linear at the Beginning of Intel® Optane™ SSD DC P4800X/P4801X Usage

**April 30, 2019**

#### Description

Intel has received customer reports that “Percentage Used” life Indicator is non-linear at the beginning of the Intel® Optane™ SSD DC P4800X/P4801X usage.

This behavior is by design. The non-linearity is a function of the wider wear leveling range compared with Intel's NAND-based SSDs. This initial period of time when the SMART “Percentage Used” indicator is not incrementing provides the user some additional endurance, typically less than 5%.

Product Code	Intel® Optane™ SSD
SSDPED1K375GA10	P4800X375G
SSDPED1K375GA01	P4800X375G
SSDPE21K375GA10	P4800X375G
SSDPE21K375GA01	P4800X375G
SSDPE21K750GA10	P4800X750G
SSDPE21K750GA01	P4800X750G
SSDPED1K750GA10	P4800X750G
SSDPED1K750GA01	P4800X750G
SSDPE21K100GA01	P4801X100G
SSDPE21K100GA10	P4801X100G
SSDPED1K015TA10	P4800X015T
SSDPED1K015TA01	P4800X015T

#### Problem Statement

The “Percentage Used” life indicator is non-linear on Intel® Optane™ SSD DC P4800X/P4801X Series at the beginning of the drive's usage.

Even after performing write workloads for a couple of days, the customers may still see the “Percentage Used” indicator value as 0:

```
# issdcm -drive_index 1 -get_log 2 | grep Used
Percentage Used: 0
```

Non-linearity behavior also impacts timed workload parameters (log page 0xCA, 0xE2-0xE4).



## Root Cause

The wider wear leveling range of Intel® Optane™ SSDs is due to the higher endurance capability of the Intel® Optane™ memory media. The “Percentage Used” parameter will reflect accurate values once a minimum number of wear leveling events are performed.

By design, Intel over-provisions a percentage of the Intel® Optane™ memory; this makes the reflected value of the “Percentage Used” life indicator non-linear at the beginning of the drive’s usage. This indicator will reflect accurate values after a certain level of wear has been reached.

### Intel Recommendations:

1. For Intel® Optane™ SSD DC P4800X/P4801X Series, you may observe the SMART attribute “Percentage Used” staying at “0” for a while after you begin using the SSD; this is not a cause for concern.
2. The “Percentage Used” indicator will start to increment after performing the equivalent of several thousand drive writes. Depending on workload and drive capacity, it may take multiple weeks of continuous writes to reach this point.

Please contact your Intel Sales Representative if you require more specific information about this issue.

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