Testing Data:

When the light is on:

Since the current drain is the highest at the brightest mode, I used the highest brightness mode to calculate.

|  |  |
| --- | --- |
|  | Current Drain from the Battery |
| Test 1 | 74.8mA |
| Test 2 | 74.9mA |
| Test 3 | 74.7mA |
| Test 4 | 74.8mA |
| Test 5 | 74.9mA |
| Average Current | 74.82mA |

Battery capacity of 9V Battery: 550 mAh

Battery Life= Battery Capacity/ Average Current =550 mAh/74.82mA =7.35Hr

When the light is on:

|  |  |
| --- | --- |
|  | Current Drain from the Battery |
| Test 1 | 21.3mA |
| Test 2 | 21.1mA |
| Test 3 | 20.7mA |
| Test 4 | 21.0mA |
| Test 5 | 21.3mA |
| Average Current | 21.08mA |

Battery capacity of 9V Battery: 550 mAh

Battery Life= Battery Capacity/ Average Current =550 mAh/21.08mA=26.09Hr

Reference:

“Nine-Volt Battery.” *Wikipedia*, Wikimedia Foundation, 7 Dec. 2018, en.wikipedia.org/wiki/Nine-volt\_ battery.