

## Answers for Assignment 2: Managing Energy Modes

1. When the Blue Gecko can only go down to EM0:  
Average current for a complete period is 5.01 mA.  
Average current for LED OFF state is 4.89 mA.  
Average current for LED ON state is 5.37 mA.
2. When the Blue Gecko can only go down to EM1:  
Average current for a complete period is 3.31 mA.  
Average current for LED OFF state is 3.27 mA.  
Average current for LED ON state is 3.76 mA.
3. When the Blue Gecko can only go down to EM2:  
Average current for a complete period is 41.86  $\mu$ A.  
Average current for LED OFF state is 1.83  $\mu$ A.  
Average current for LED ON state is 468.8  $\mu$ A.
4. Period in milliseconds of the LED blinking using EM2 using the Average Current “selected range” markers is 2.23 seconds.  
The on-time in milliseconds of the LED using the Average Current while limited to EM2 is 175 ms.  
Therefore, duty cycle comes to be  $0.175/2.23 = 0.0785$ .
5. When the Blue Gecko can only go down to EM3:  
Average current for a complete period is 41.67  $\mu$ A.  
Average current for LED OFF state is 1.52  $\mu$ A.  
Average current for LED ON state is 464.65  $\mu$ A.
6. Period in milliseconds of the LED blinking using EM2 using the Average Current “selected range” markers is 2.21 seconds.  
The on-time in milliseconds of the LED using the Average Current while limited to EM2 is 176 ms.  
Therefore, duty cycle comes to be  $0.176/2.21 = 0.0796$ .