



Distance = 15cm

| Frequency(HZ) | Measured Duty Cycle(50%) | Duty cycle range(%) |         |
|---------------|--------------------------|---------------------|---------|
| 5.00E+03      | 41                       | 80                  | 10%-90% |
| 1.00E+04      | 31                       | 70                  | 10%-80% |
| 2.00E+04      | 15                       | 60                  | 10%-70% |
| 3.00E+04      | 0                        | 30                  | 10%-40% |
| 4.00E+04      | 75                       | 50                  | 40%-90% |
| 5.00E+04      | 80                       | 50                  | 40%-90% |
| 6.00E+04      | 88                       | 30                  | 50%-80% |
| 7.00E+04      | 0                        | 20                  | 60%-80% |
| 8.00E+04      | 0                        | 20                  | 60%-80% |
| 9.00E+04      | 0                        | 20                  | 60%-80% |
| 1.00E+05      | 0                        | 10                  | 70%-80% |

 No ambient light&without lens  
 Ambient light&with lens

Distance = 25cm

| Frequency(HZ) | Measured Duty Cycle(50%) | Duty cycle range(%) |         |
|---------------|--------------------------|---------------------|---------|
| 1.00E+04      | 35                       | 70                  | 10%-80% |
| 2.00E+04      | 20                       | 50                  | 10%-60% |
| 3.00E+04      | 5.4                      | 40                  | 10%-50% |
| 4.00E+04      | 16.8                     | 40                  | 10%-50% |
| 5.00E+04      | 7.8                      | 30                  | 10%-40% |
| 6.00E+04      | 0                        | 20                  | 10%-30% |
| 7.00E+04      | 0                        | 10                  | 10%-20% |
| 8.00E+04      | 0                        | 10                  | 10%-20% |
| 9.00E+04      | 0                        | 0                   | 0       |

Distance = 40cm

| Frequency(HZ) | Measured Duty Cycle(50%) | Duty cycle range(%) |         |
|---------------|--------------------------|---------------------|---------|
| 1.00E+04      | 52                       | 80                  | 10%-90% |
| 2.00E+04      | 35                       | 70                  | 10%-80% |
| 3.00E+04      | 26                       | 60                  | 10%-70% |
| 4.00E+04      | 20                       | 50                  | 10%-60% |
| 5.00E+04      | 10                       | 40                  | 10%-50% |
| 6.00E+04      | 7.2                      | 40                  | 10%-50% |
| 7.00E+04      | 45.1                     | 40                  | 30%-70% |
| 8.00E+04      | 44.6                     | 30                  | 30%-60% |
| 9.00E+04      | 44.1                     | 30                  | 30%-60% |
| 1.00E+05      | 43.3                     | 20                  | 40%-60% |
| 1.10E+05      | 42.8                     | 20                  | 40%-60% |
| 1.20E+05      | 42.4                     | 10                  | 40%-50% |
| 1.40E+05      | 41.5                     | 10                  | 40%-50% |