表格

描述已自动生成

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | θ1L | θ1R | θ2L | θ2R | θ | d |
| Y1 | 1.00 | 290.25 | 110.20 | 249.63 | 69.55 | 20.32 |  |
| 2.00 | 290.25 | 110.15 | 249.62 | 69.55 | 20.31 |  |
| 3.00 | 290.25 | 110.20 | 249.58 | 69.63 | 20.31 |  |
| Y2 | 1.00 | 290.17 | 110.13 | 249.67 | 69.65 | 20.25 |  |
| 2.00 | 290.17 | 110.13 | 249.72 | 69.65 | 20.23 |  |
| 3.00 | 290.17 | 110.13 | 249.72 | 69.77 | 20.20 |  |
| G | 1.00 | 289.03 | 108.98 | 250.82 | 70.78 | 19.10 | 3.34E-06 |
| 2.00 | 289.02 | 108.97 | 250.83 | 70.78 | 19.09 | 3.34E-06 |
| 3.00 | 289.02 | 108.98 | 250.82 | 70.68 | 19.13 | 3.33E-06 |
| B | 1.00 | 285.08 | 105.03 | 254.75 | 74.70 | 15.17 |  |
| 2.00 | 285.08 | 105.05 | 254.75 | 74.72 | 15.17 |  |
| 3.00 | 285.08 | 105.03 | 254.78 | 74.33 | 15.25 |  |
| B4 | 1.00 | 301.50 | 121.43 | 238.40 | 58.33 | 31.55 |  |
| 2.00 | 301.52 | 121.45 | 238.40 | 58.33 | 31.56 |  |
| 3.00 | 301.50 | 121.43 | 238.38 | 58.00 | 31.64 |  |

先将角度和分的数据填入表格，然后使用公式=J2+K2\*(1/60)将角度的60进制转换为10进制。使用公式=(C2-E2+D2-F2)/4计算角度θ。使用公式=2\*546.1\*10^(-9)/SIN(RADIANS(G8))使用绿光计算光栅常量d。可以得到所用光栅是每毫米300（3.00E+02）条刻线的光栅。

2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | θ | λ | λx | λr已知波长 | δ相对误差 |
| Y1 | 1 | 20.31667 | 5.79E-07 | 5.791E-07 | 5.791E-07 | 8.46E-12 |
| 2 | 20.30833 | 5.79E-07 |  |  |  |
| 3 | 20.30833 | 5.79E-07 |  |  |  |
| Y2 | 1 | 20.24583 | 5.77E-07 | 5.768E-07 | 5.770E-07 | 1.68E-10 |
| 2 | 20.23333 | 5.77E-07 |  |  |  |
| 3 | 20.20417 | 5.76E-07 |  |  |  |
| G | 1 | 19.10417 | 5.46E-07 | 5.461E-07 | 5.461E-07 |  |
| 2 | 19.09167 | 5.46E-07 |  |  |  |
| 3 | 19.125 | 5.47E-07 |  |  |  |
| B | 1 | 15.16667 | 4.36E-07 | 4.373E-07 | 4.358E-07 | 1.46E-09 |
| 2 | 15.16667 | 4.36E-07 |  |  |  |
| 3 | 15.25 | 4.39E-07 |  |  |  |
| B4 | 1 | 31.55 | 8.73E-07 | 8.737E-07 |  |  |
| 2 | 31.55833 | 8.73E-07 |  |  |  |
| 3 | 31.6375 | 8.75E-07 |  |  |  |

通过该表格计算相对误差黄（I）波长为579.1nm，黄（II）波长约为577.0nm，蓝光1波长大致为435.8nm，与已知准确波长的相对误差在图中有计算。

3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | θ | d | D |
| Y1 | 1 | 20.31667 |  | 6.391E+05 |
| 2 | 20.30833 |  |  |
| 3 | 20.30833 |  |  |
| Y2 | 1 | 20.24583 |  | 6.388E+05 |
| 2 | 20.23333 |  |  |
| 3 | 20.20417 |  |  |
| G | 1 | 19.10417 | 3.34E-06 |  |
| 2 | 19.09167 | 3.34E-06 |  |
| 3 | 19.125 | 3.33E-06 |  |
| B | 1 | 15.16667 |  |  |
| 2 | 15.16667 |  |  |
| 3 | 15.25 |  |  |
| B4 | 1 | 31.55 |  |  |
| 2 | 31.55833 |  |  |
| 3 | 31.6375 |  |  |
|  |  |  | 3.34E-06 |  |

通过公式=2/H$17/COS(RADIANS(AVERAGE(G2:G4)))可以计算二级校色三氯大概为6.39E+05。