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| **Lab on Interference and Diffraction**  | **Name** |  |
|  |  |  |
|  | **Date** |  |

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|  | **Partner #1** |  |
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|  | **Partner #2** |  |

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| **Experiment #1 – 2 Slit Interference:** |
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| **Complete and fill in Data Table 01** |
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|  | **Slit Width (mm)** |  | **Distance Slits to sensor (mm)** |  |
|  |  |  |
|  | **Red Light (**$\left(λ=650 nm\right)$ | **Green Light** $\left(λ=515 nm\right)$ |
| **Slit Separation dTheory (mm)** | **0.25** | **0.50** | **0.25** | **0.50** |
| **Location of Central Max (mm)** |  |  |  |  |
| **Location of Left First Bright (mm)** |  |  |  |  |
| **Location of Right First Bright (mm)** |  |  |  |  |
| **Distance from Central Max to Left First Bright y (mm)** |  |  |  |  |
| **Distance from Central Max to Right First Bright y (mm)** |  |  |  |  |
| **Angular Location of Left First Bright θ (degrees)** |  |  |  |  |
| **Angular Location of Right First Bright θ (degrees)** |  |  |  |  |
| **Calculated Slit Separation (from Left) d (mm)** |  |  |  |  |
| **Calculated Slit Separation (from Right) d (mm)** |  |  |  |  |
| **Average Calculated Slit Separation dMeas (mm)** |  |  |  |  |
| **% Error** |  |  |  |  |

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| **Experiment #2 – 1 Slit Diffraction:** |
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| **Complete and fill in Data Table 02** |
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|  |  |  | **Distance Slits to sensor (mm)** |  |
|  |  |  |
|  | **Red Light (**$\left(λ=650 nm\right)$ | **Green Light** $\left(λ=515 nm\right)$ |
| **Slit Width aTheory (mm)** | **0.02** | **0.04** | **0.02** | **0.04** |
| **Location of Central Max (mm)** |  |  |  |  |
| **Location of Left First Dark (mm)** |  |  |  |  |
| **Location of Right First Dark(mm)** |  |  |  |  |
| **Distance from Central Max to Left First Dark y (mm)** |  |  |  |  |
| **Distance from Central Max to Right First Dark y (mm)** |  |  |  |  |
| **Angular Location of Left First Dark θ (degrees)** |  |  |  |  |
| **Angular Location of Right First Dark θ (degrees)** |  |  |  |  |
| **Calculated Slit Width (from Left) a (mm)** |  |  |  |  |
| **Calculated Slit Width (from Right) a (mm)** |  |  |  |  |
| **Average Calculated Slit Width aMeas (mm)** |  |  |  |  |
| **% Error** |  |  |  |  |

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