saturate. This effect can be noticed on the oscilloscope by a flattening of the waveform and on the multimeter by a severe "leveling-off" of the voltage reading. If the waveform is already saturated, turn down the gain on the receiver to just below the saturation point.

6.Turn the receiver arm to the smallest possible angle (about 30°) and the foam hub to half that value. Record the voltage from the oscilloscope and/or the multimeter and the angle between the arms. Increase the angle of the receiver 6° and that of the cube 3°. Again, measure the voltage and the angle. This stepping procedure insures that the angle of incidence and reflection remain équal. Continue stepping through 180°. Return to the angles where large voltages appeared and make further measurements using a smaller stepping procedure — move the receiver 2° and the cube 1°.

7. Repeat steps 5-6 for the diagonal planes.

Computation and Analysis

1. Calculate the distance between the Bragg planes for both cube orientations.

2. Find an expression relating the angle measured ϕ and the Bragg Reflection angle.

3. What limit is imposed on the wavelength by the Bragg Reflection equation? How could you increase the number of orders observed?

4. Make a plot of voltage versus Bragg Reflection angle θ for both cases. Calculate the theoretical values of the angles for which Bragg Reflection will occur. Compare the peak values to the theoretical values you calculated. Can you explain any disagreements?

Maintenance

No special maintenance is needed for the Bragg Reflection Cube Set. Should any difficulty occur that can not be corrected, contact Central Scientific Company. So that we may best serve you, please do not return the apparatus or any of its parts before receiving authorization from Central Scientific Company.

Replacement Parts

Description	Cat. No.
Alignment Disk Assembly	06860-20
Extension Connector Assembly	06860-ᴧ
Foam Hub Assembly	06860-17
Foam Square	06860-00
Rail Indicator Assembly	06860-03
Steel Balls	06860-18

Recommended Accessories

Description	Cat. No.
3cm Microwave Optics Set	36811
Digital Multimeter	32098
Oscilloscope	32046
Sweepable Function Generator	31574

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