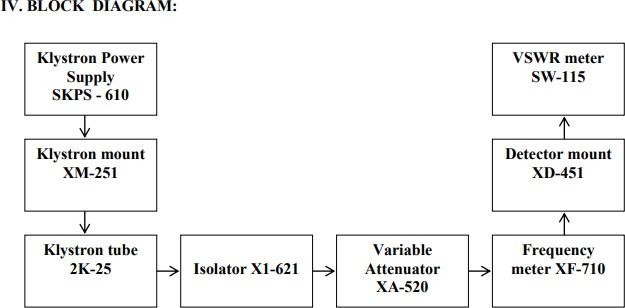
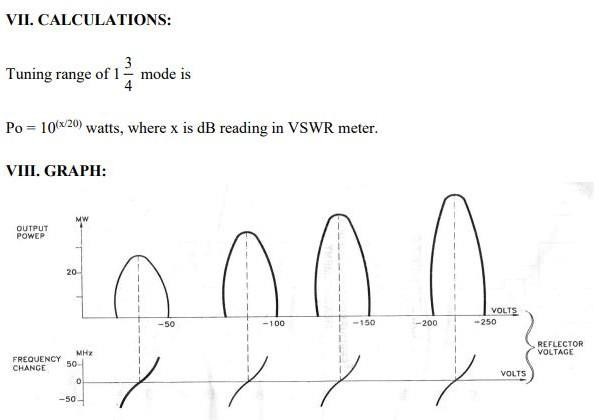
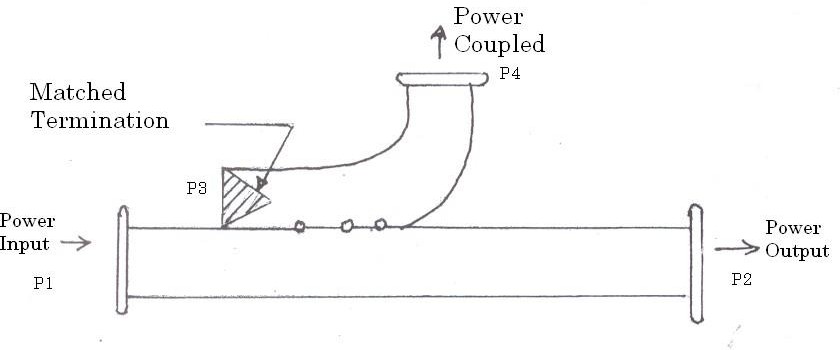
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**TABULATION**



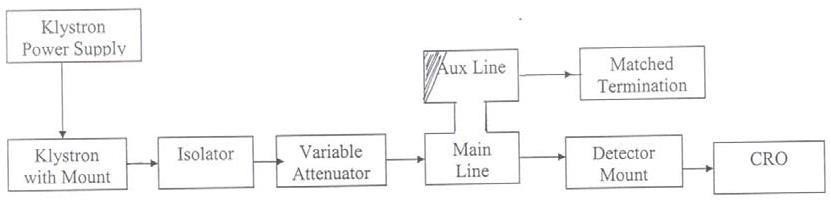
**Figure 1: Directional coupler as a three – port device: Uni directional coupler**

# BLOCK DIAGRAM

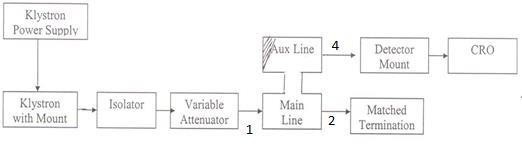
**Mode 3 setup:**

Insertion Loss (V12) measurement

Insertion Loss (V12) measurement

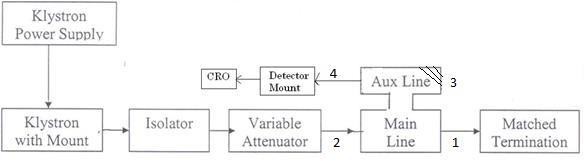


Coupling Factor (V14) measurement



**TABULATION**

# DIRECTIVITY MEASUREMENT

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# BLOCK DIARGAM

**Characteristics of E & H Plane Tee**

Klystron Power Supply

Isolator

Klystron with Motor

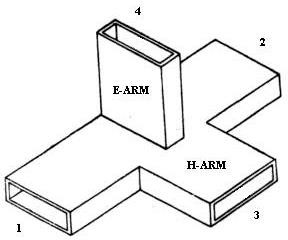
Variable attenuator

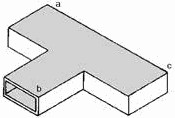
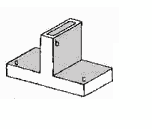
E/H Tee

Detector Mount

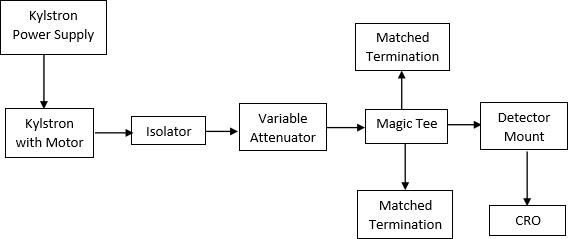
|  |  |  |
| --- | --- | --- |
| Matched  Termination |  | |
|  | CRO |
|  |

# TABULATION:

**E-Plane Tee H- Plane Tee**

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**Characteristics of Magic Tee**

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**Magic Tee**

**TABULATION**

**Calculation of Impedance using Smith Chart**

1. Determine VSWR of the given load from the measurement
2. Draw a VSWR Circle
3. Calculate the shift l in terms of wavelength.
4. Locate the shift point from (0,0) moving clockwise (if l is negative) or anticlockwise (if l is positive) on the circumference.
5. Join the point to the centre of smith chart.
6. The intersection of VSWR circle and the line gives the normalized load impedence (ZL)

**Theoretical Calculations:**

Load impedance **(ZL)** is calculated from the product of normalized impedance and characteristic impedance of slotted line.

# FORMULA

**FORMULA:**

**Characteristics Impedance Z0**

Z0   -(fc/f0))2

*ZL* = zo



1- *j* (*VSWR*) tan l

*VSWR* -*j* tan l

l = (X-Y) / g

Fc  Cutoff frequency

Fc = c/c

c  Cut off wavelength

c = 2a

A  inner broad dimension of waveguide

g = 2(d1  d2) VSWR = Vmax/Vmin

**BLOCK DIAGRAM IMPEDANCE MEASUREMENT**

Movable

short/ Load



**CRO**

Tunable probe

Slotted Section with Probe Carriage

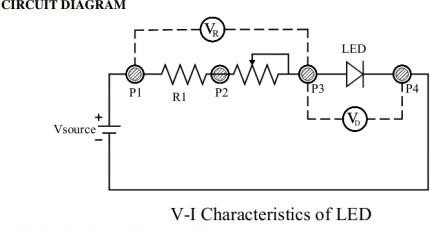
Variable Attenuator

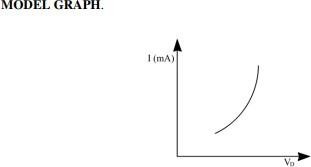
Frequency Meter

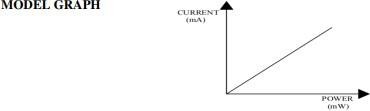
Klystron with Mount

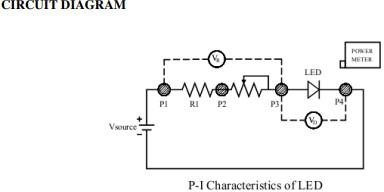
Isolator

Klystron Power Supply

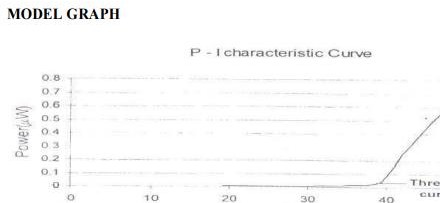


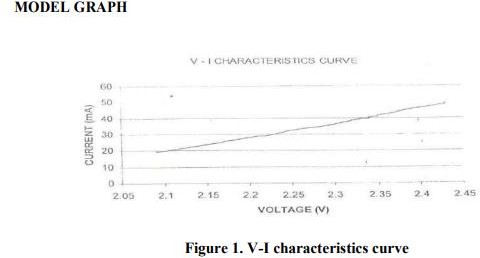
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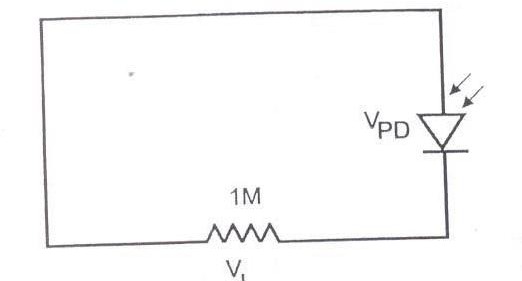
**TABULATION**





**TABULATION**

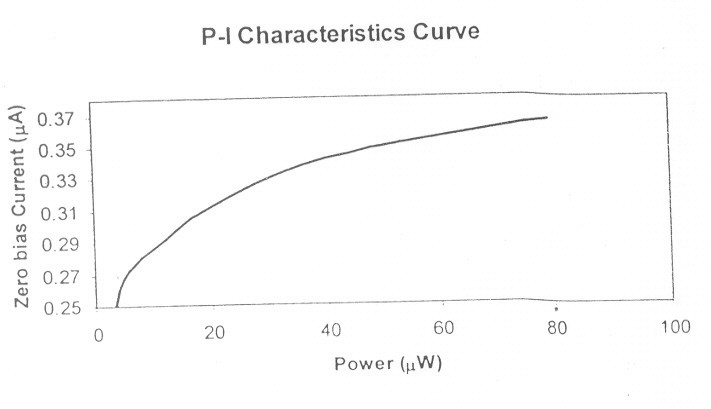
**Photo detector setup**

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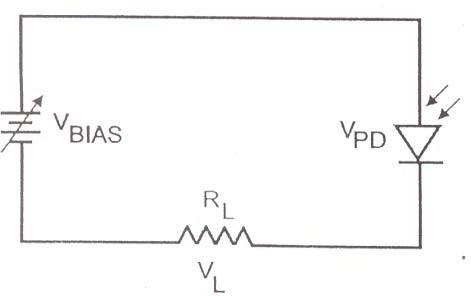
**Figure 1: PD with zero bias configuration**

# TABULATION

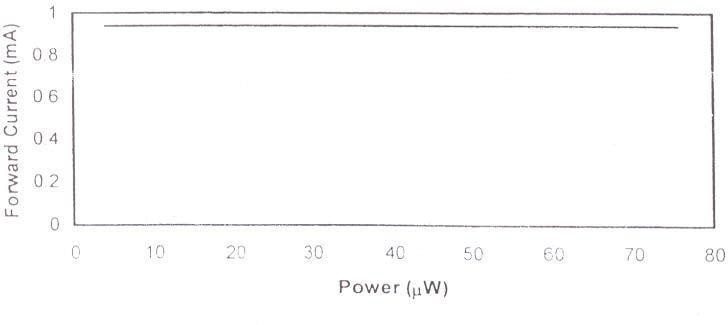
**MODEL GRAPH**

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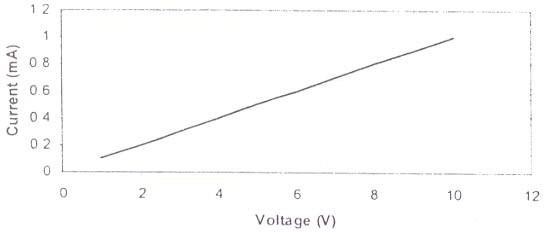
**Figure 2 Power Vs Current graph**



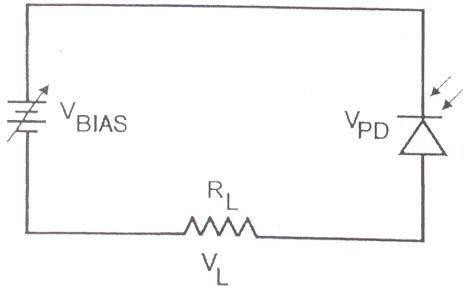
**Figure 3: PD with forward bias configuration**



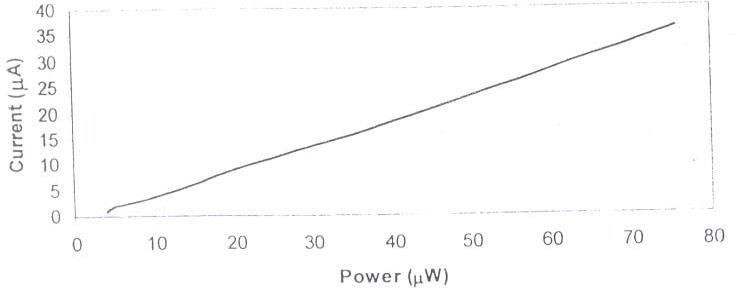
**Figure 4 Power Vs Current graph**



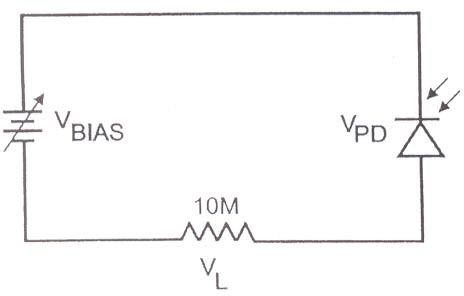
**Fig. 5 Voltage Vs. Current graph**



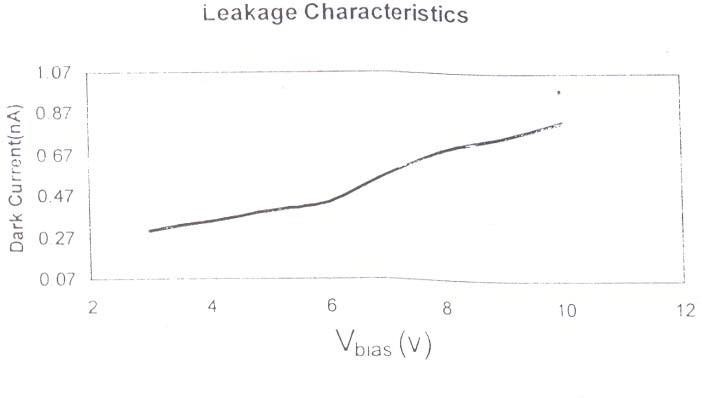
**Figure 6: PD with reverse bias configuration**



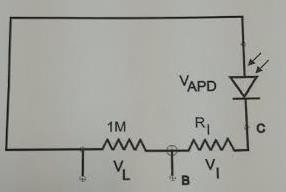
**Figure 7: Power Vs Current graph**



**Figure 8: PD with leakage characteristics**

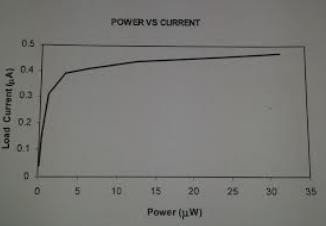


**Figure 9. Voltage Vs Dark Current graph**

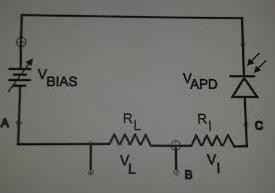


**Figure 1: APD with zero bias configuration**

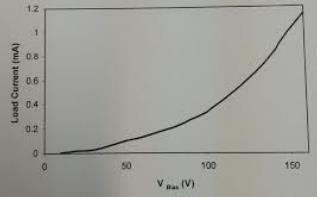
# TABULATION

* + - 1. **MODEL GRAPH**

**Figure 2 Power Vs Current graph**



**Figure 3: APD with reverse bias configuration**



**Figure 4: Bias Voltage Vs Load Current graph**

**Figure 5: APD with leakage characteristics**

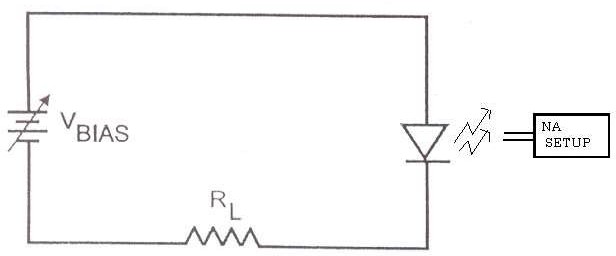


VBIAS

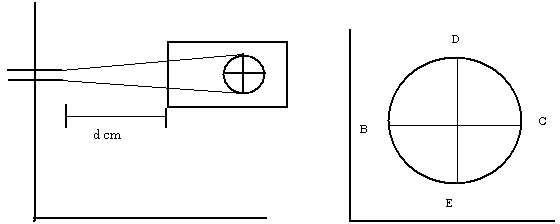
VA

10V

# DIAGRAM

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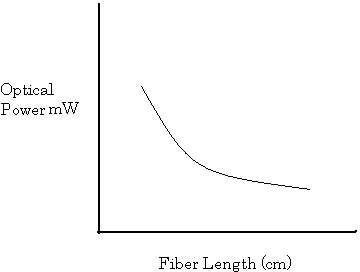
**Figure 1: Numerical aperture setup**



**Figure 2: Numerical aperture**

# TABULATION:

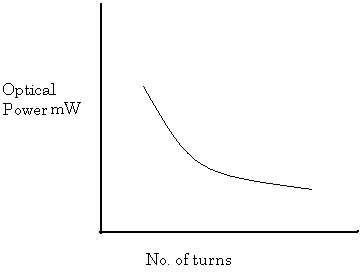
# MODEL GRAPH

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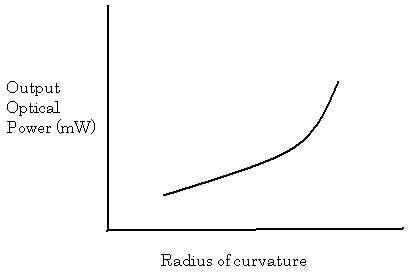
**Figure 1: Optical power vs. Fiber length**

# TABULATION:

# MODEL GRAPH

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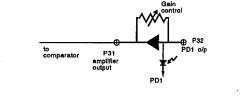
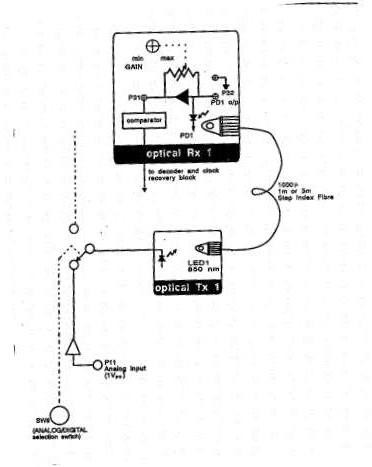
**Figure 1: Optical power vs. No. of turns**



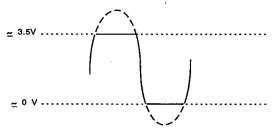
**Figure 2: Optical power vs. Radius of curvature**

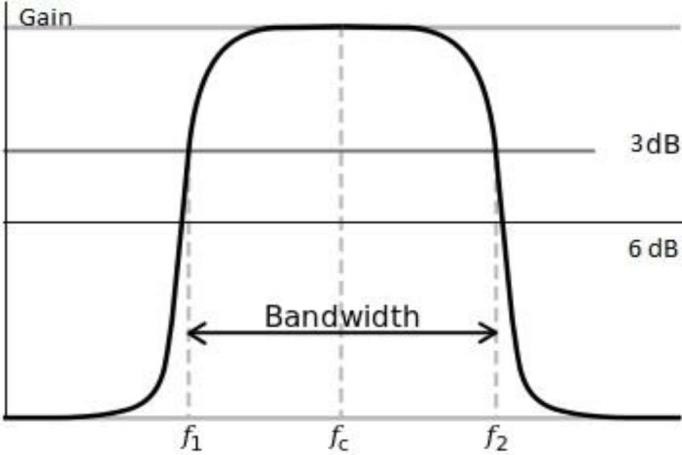
# TABULATION:

**Layout**

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**Figure 1: Gain control**



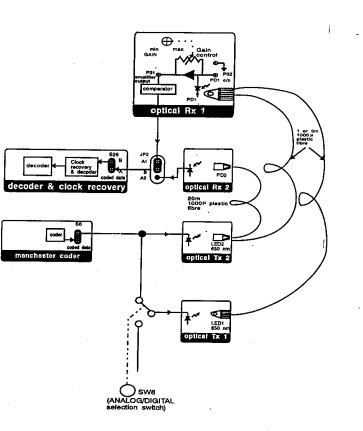
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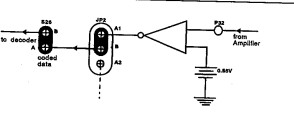
**Model Graph**

# LAYOUT DIAGRAM:

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COMPARATOR TO CONVERT RECEIVED SIGNAL INTO A TTL SIGNAL:

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