SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

OPTICAL AND MICROWAVE ENGINEERING

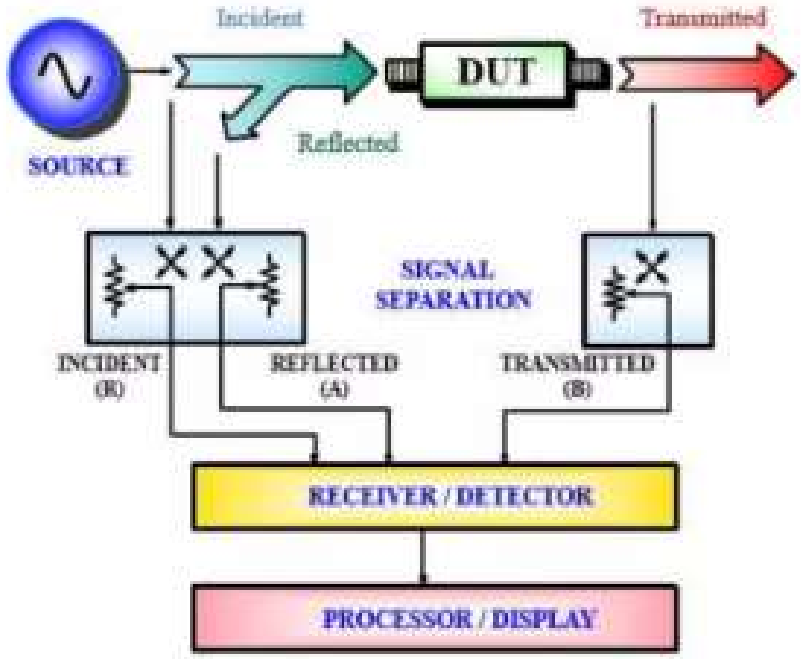
III YEAR/ VI SEMESTER

UNIT 3 – MICROWAVE MEASUREMENTS

TOPIC– NETWORK ANALYZER

NETWORK ANALYSIS

1. Used by designers to measure the electrical performance of devices
2. When systems are conveying signals with information content, we need
   1. maximum efficiency
   2. minimum distortion.
3. Vector network analysis is a method of accurately characterizing such components by measuring their effect on the amplitude and phase of swept-frequency and swept-power test signals. [1]



Vector Network Analyzer

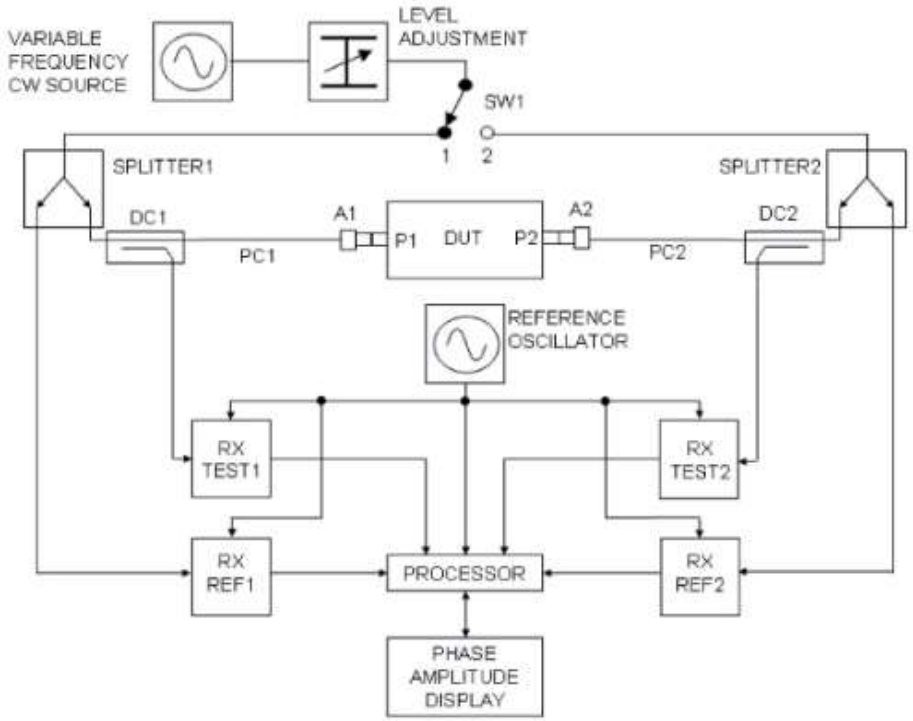
WORKING

VNA Working can be understood in four phases:

- VNA Stimulus
- Signal Separation
- Receiver & Signal Detection
- Processor & Display

WORKING: VNA ANALYSER STIMULUS

1. VNA is an active instrument
2. Generates test signal and then measures the response
3. Sources can be
    1. Open Loop VCO
        1. Good Phase Noise Performance
        2. Low Frequency Accuracy and Flexibility
    2. Digitally synthesized
        1. More Expensive than VCO
        2. Provide exact Frequency signal


VARIABLE
FREQUENCY
CW SOURCE
LEVEL
ADJUSTMENT
SW1
1
2
SPLITTER1
SPLITTER2
DC1
A1
P1
DUT
P2
A2
DC2
PC1
PC2
REFERENCE
OSCILLATOR
RX
TEST1
RX
TEST2
RX
REF1
PROCESSOR
RX
REF2
PHASE
AMPLITUDE
DISPLAY

THANK YOU