



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

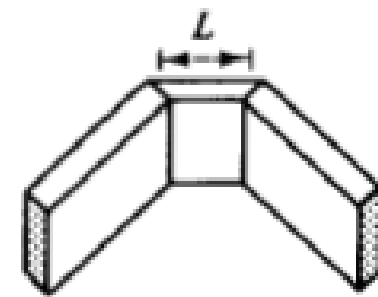
1

UNIT 1 – MICROWAVE PASSIVE DEVICES

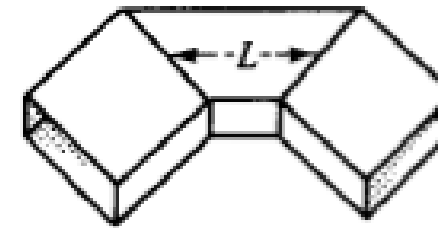
TOPIC – Wave guide Corners, Bends, Twists



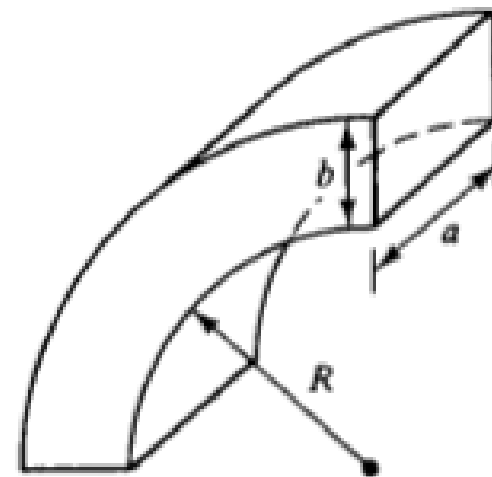
Wave guide Corners, Bends, Twists



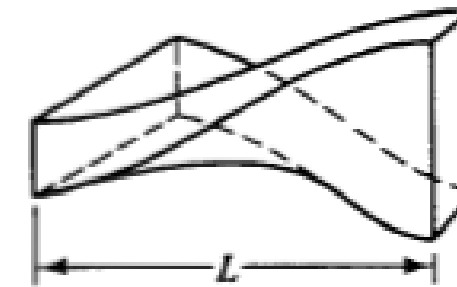
(a)



(b)



(c)



(d)

Waveguide corner, bend, and twist. (a) E-plane corner. (b) H-plane corner. (c) Bend. (d) Continuous twist



Wave guide Tee

A Waveguide Tee is a 3-port device that can be used to either divide or combine power in a waveguide system. It is formed when three waveguide tubes are connected in the form of the English alphabet 'T'. This is where its name is derived from.



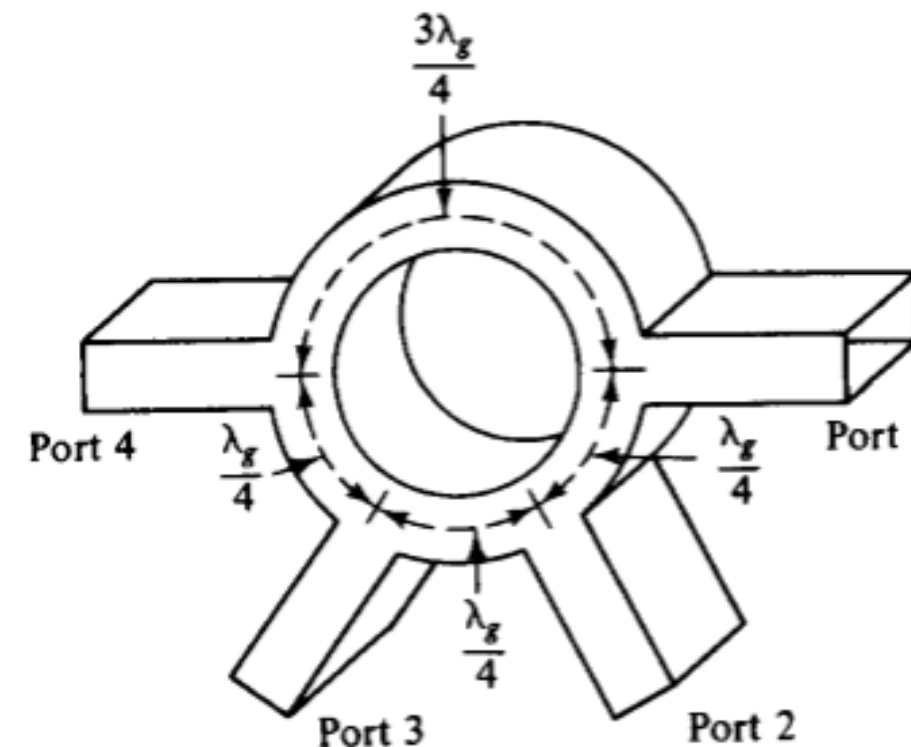


Hybrid Ring



- A hybrid ring consists of an annular line of proper electrical length to sustain standing waves, to which four arms are connected to a proper intervals by means of series or parallel junctions.
- Figure shows hybrid ring with series junctions.
- The hybrid ring has characteristics similar to that of Magic Tee. When a wave is fed in to port 1 it will appear at port 3 because the difference of phase shifts for waves travelling in clock wise is 180° . So the waves are cancelled at port 3.
- The same reason for the waves fed in to port 2 will not emerge at port 4 and so on.
- The S Matrix for hybrid Ring is as shown

$$\mathbf{S} = \begin{bmatrix} 0 & S_{12} & 0 & S_{14} \\ S_{21} & 0 & S_{23} & 0 \\ 0 & S_{32} & 0 & S_{34} \\ S_{41} & 0 & S_{43} & 0 \end{bmatrix}$$





THANK YOU