



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

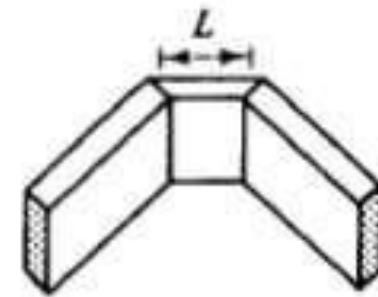
III YEAR/ VI SEMESTER
1

UNIT 1 – MICROWAVE PASSIVE DEVICES

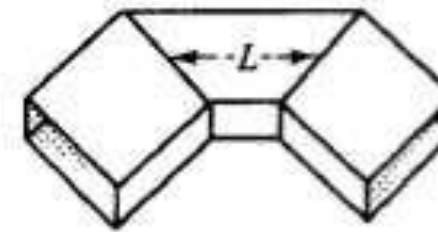
TOPIC – Wave guide Hybrid Tee



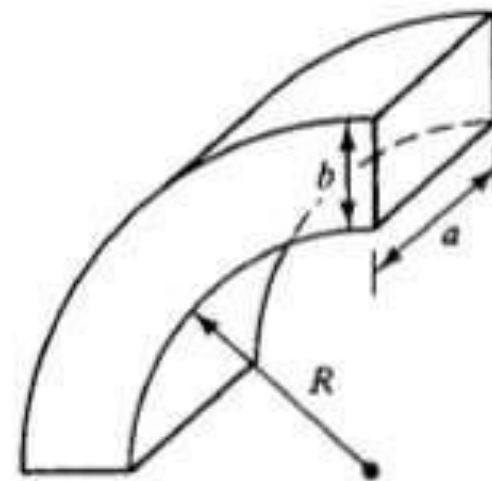
Wave guide Corners, Bends, Twists



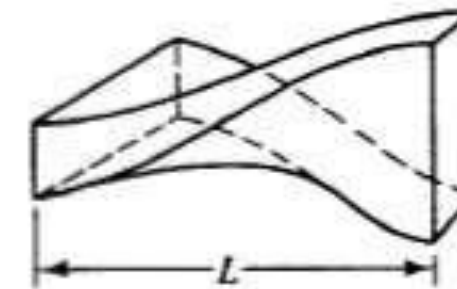
(a)



(b)



(c)



(d)

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



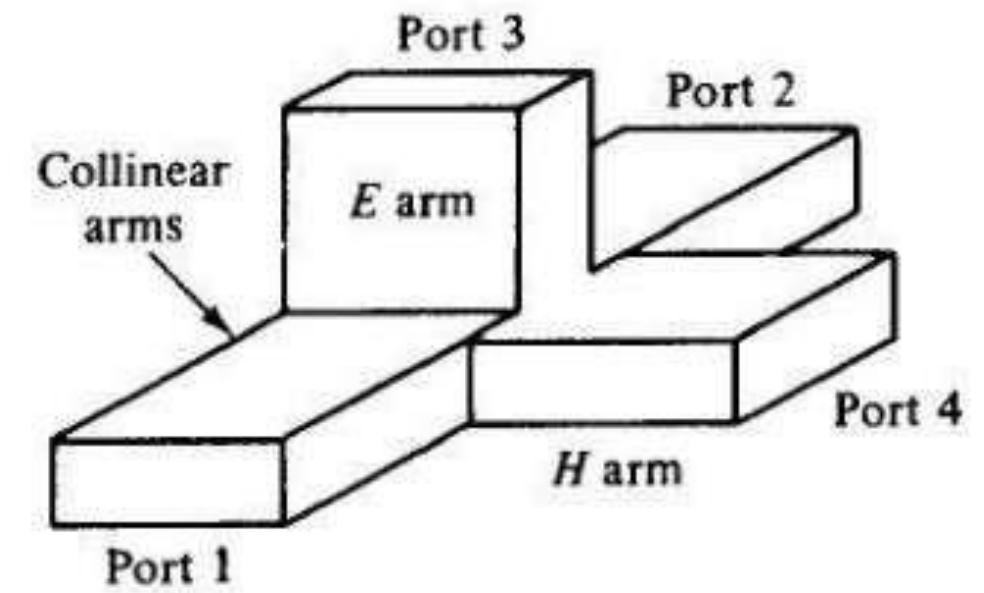
Wave guide Tee

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.





MAGIC TEE



Magic Tee (Hybrid Tees)



MAGIC TEE



A **magic tee** (or **magic T** or **hybrid tee**) is a hybrid or 3 dB coupler used in microwave systems. It is an alternative to the rat-race coupler. In contrast to the rat-race, the three-dimensional structure of the magic tee makes it less readily constructed in planar technologies such as micro strip or strip line.

The magic tee is a combination of E and H plane tees.

Arm 3 forms an H-plane tee with arms 1 and 2.

Arm 4 forms an E-plane tee with arms 1 and 2.

Arms 1 and 2 are sometimes called the *side* or *collinear* arms.

Port 3 is called the *H-plane port*, and is also called the Σ *port*, *sum port* or the *P-port* (for "parallel").

Port 4 is the *E-plane port*, and is also called the Δ *port*, *difference port*, or *S-port* (for "series").

There is no one single established convention regarding the numbering of the ports.

the magic tee must incorporate an internal matching structure.



THANK YOU