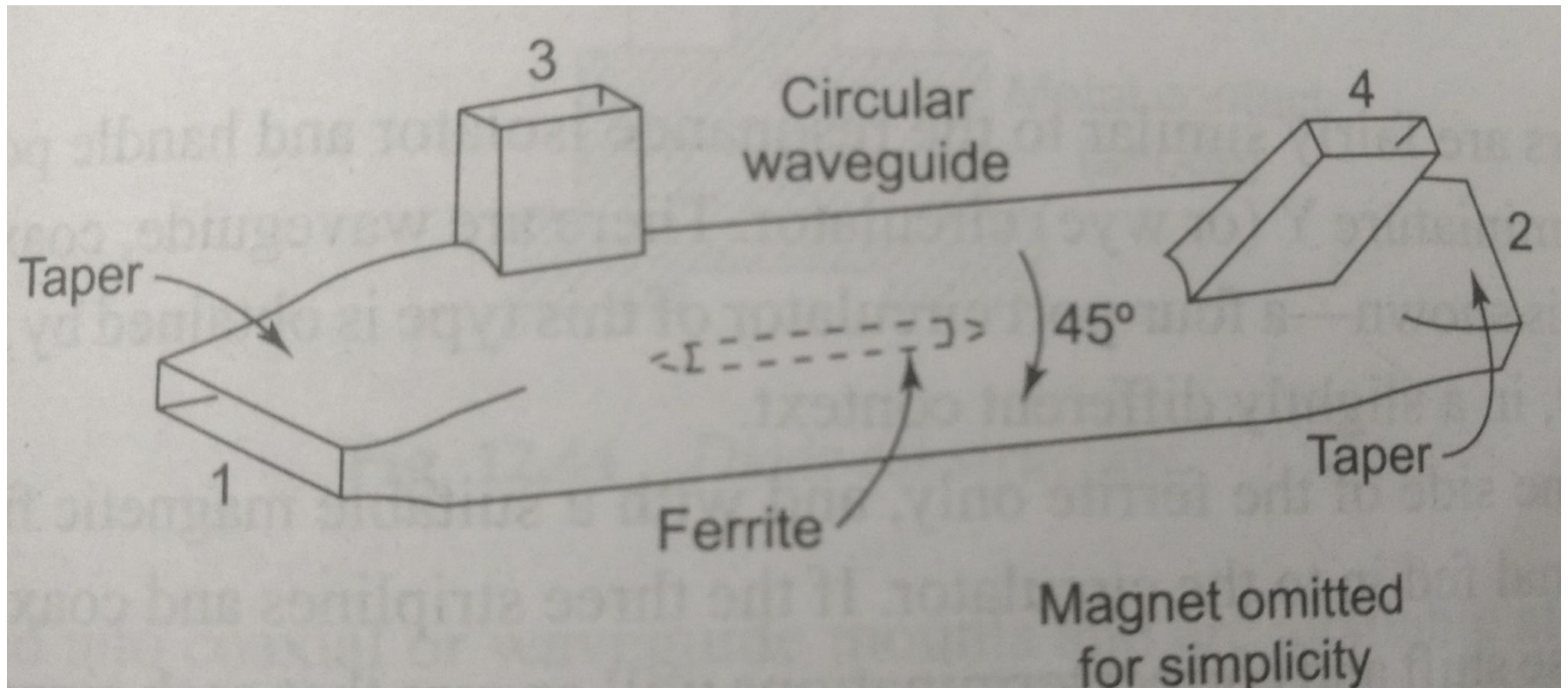


Circulators

- A circulator is a multi port junction in which the wave can travel from one port to next immediate port in one direction only.
- Commonly used circulators are three-port or four-port devices although more number of ports is possible.

CIRCULATOR



CIRCULATOR

- Allow complete transmission between adjacent arm taken in one sense of circulation only
- TE₁₀ mode incident in –
arm1- exist linearly polarised TE₁₁ mode in circular
- This wave rotate 45°-ferrites
- Therefore excites TE₁₀ mode in arm 2
- Thus wave entering in arm 1 has correct polarisation to be issued out of two & not in arm 3 & arm4

3 PORT Y JUNCTION CIRCULATOR:

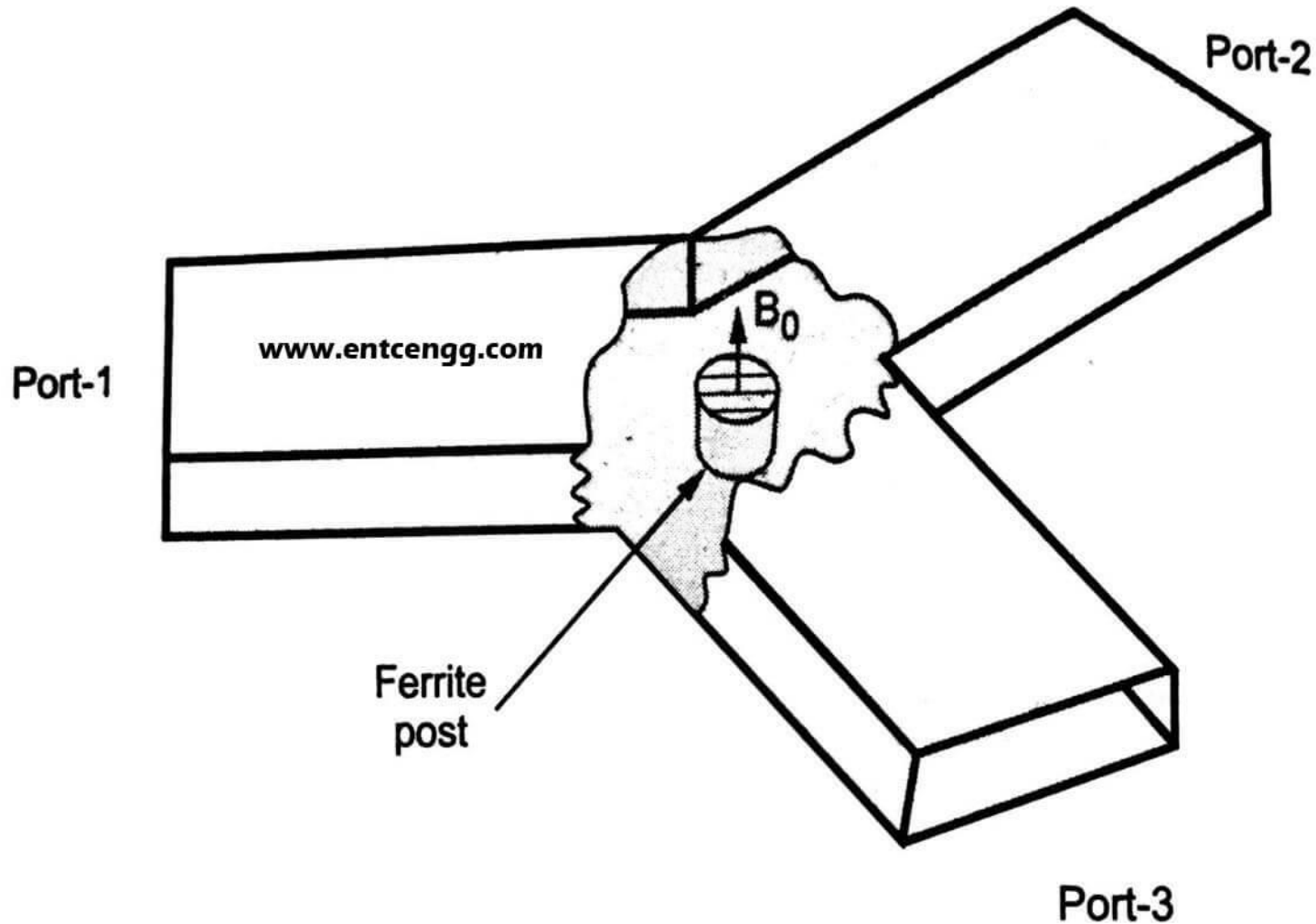


Fig. 2.6.4 Three port circulator

A 3 port circulator is a symmetrical Y-type junction of three identical waveguides with an axially magnetized ferrite post placed at the center.

The ferrite post is magnetized by static B_0 field along the axis.

It provides the necessary nonreciprocal property.

The junction can be matched by placing suitable tuning element in each arm.

It is an essential component used to isolate the input and output in negative resistance amplifier. Three port circulators are also used to couple a transmitter to various receivers.

Thanks.....