

Electromagnetic Compatibility

ELECTROMAGNETIC Compatibility (EMC) is an important topic for the radio amateur because it is one of the issues that can cause the most difficulty to the enjoyment of the hobby and the goodwill of the neighbours.

EMC is the avoidance of interference between two pieces of electronic equipment.

Radio transmitters can cause interference to other radio receiving devices and electronic items that are not intended to pick up radio waves but are nonetheless upset by them.

How is interference caused?

THE TRANSMITTER is producing powerful radio signals in a home environment.

Any metalwork, wires and pipes may pick up the signals in the same way as an antenna does, and convey them into a susceptible item of equipment in a way that was not foreseen.

A hi-fi, for example, may be fine in itself and able to tolerate the radio signals. However, as **Fig 25** shows, the loudspeaker leads, the FM radio lead, leads to a separate record or mini-disc unit or even the mains lead can pick up radio signals and convey them into the hi-fi, which then suffers.

The transmitting antenna may be close to a telephone line, especially if it is overhead on a pole. The radio operators' voice might then be heard on the telephone. Possibly an electronic telephone (most are today) will be unable to recall stored numbers when the transmitter is operating.

It is also possible that the transmitter is sending unwanted RF signals back down its mains power lead, and these are then conveyed via the mains wiring into other domestic appliances. Most will probably withstand this, but some may not.

There are so many different scenarios that it is impossible to say in advance just what the effect might be.

What can be done to minimise the problem?

GOOD PRACTICE starts in the radio shack.

There is a lot that can be done to minimise the chances of problems occurring, before having to consider solutions to particular issues. Many of these precautions will also minimise the chance of the

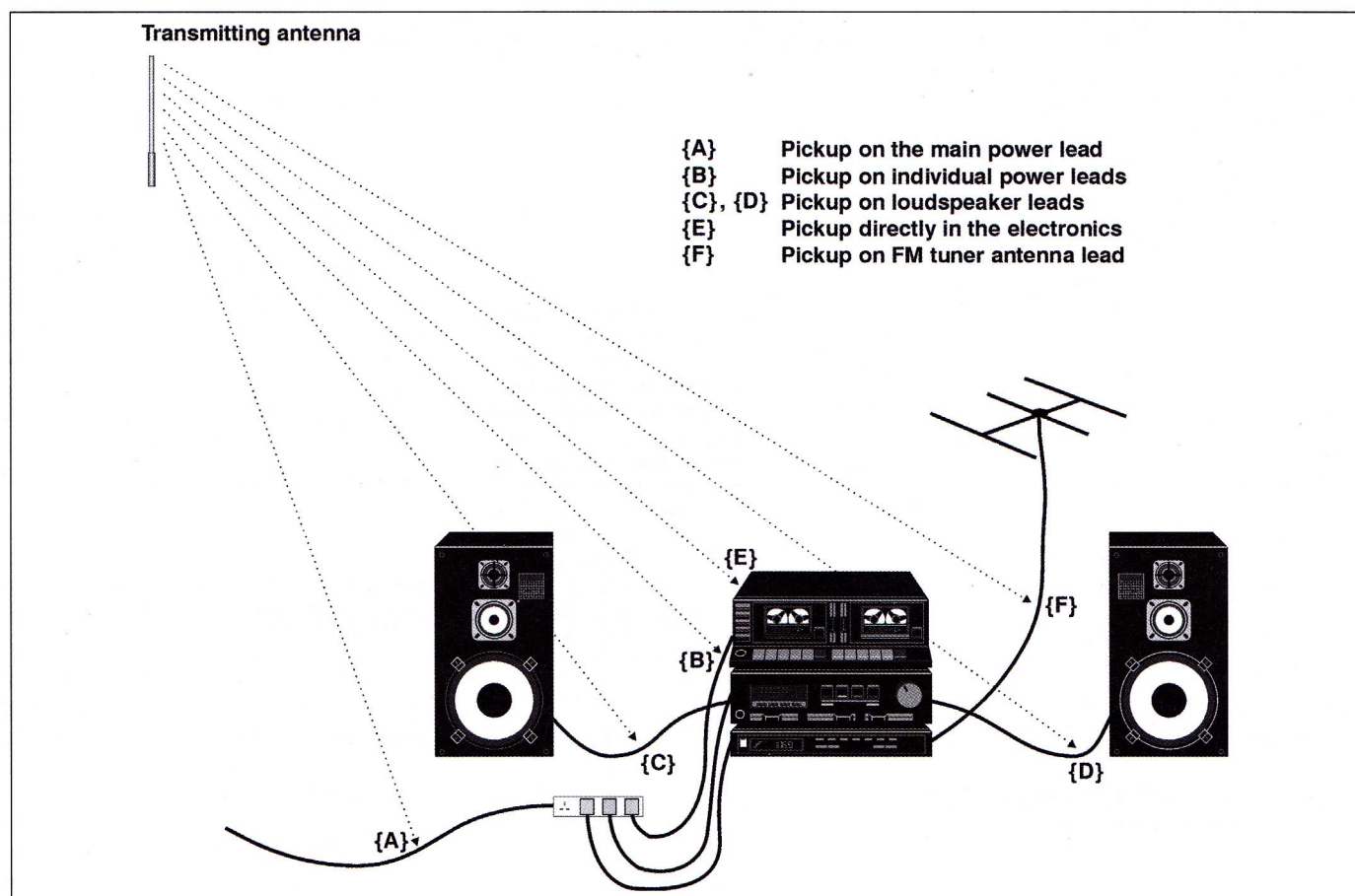


Fig 25: There are a number of ways that a transmitted radio signal can enter a hi-fi.