Walking the exhibit hall at IMS2014 last week, I saw numerous active and passive devices in addition to test equipment. How do those passive devices stand up to microwave frequencies? Students looking to learn microwave circuit concepts and use education kits from Eductika.

Eductika consists of five course kits: Two for passive devices, two for active devices, and one for antennas. The passive-device kit that was on display at the Anritsu booth (Figure 1) lets you build passive microwave devices such as filters, couplers, and power dividers.
about microwaves at frequencies to 3 GHz. The kit includes components and an assembly sheet.

Each kit consists of circuit elements, interconnects, RF connectors, and instructions on how to create microwave components. Students can build circuits by connecting elements together. Interconnects are either straight-through or T versions. The RF connectors let you attach a network analyzer for generating input signals and viewing outputs from the circuits.

When asked about bandwidth, sales engineer Thomas Bellon said that you can use the kits with signals up to 3 GHz. That's enough to get the feel for how microwave circuits work. At IMS, a bandpass filter (close-up in Figure 2) was connected to an Anritsu Shockline VSA.

![Figure 2. A bandpass filter constructed from parts in the passive-device kit.](image-url)