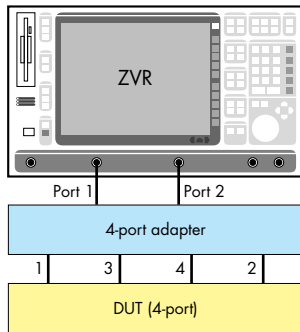


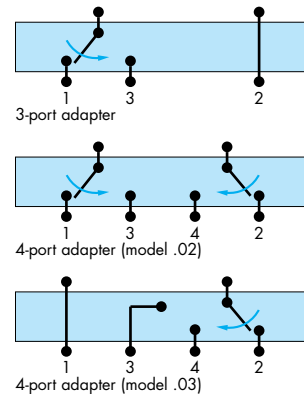
A two-port device can be connected to test ports 1 and 2 of **Vector Network Analyzer ZVR** for measurement of its S-parameters. If the device has more than two ports however (eg an antenna diplexer with three ports or directional coupler with four ports), it is necessary to change the cabling by hand to be able to measure all the scattering parameters. With the **3-Port Adapter** and new **4-Port Adapters** available as accessories (ZVR-B8 and -B14) this time-consuming procedure can be avoided. Switchover between the different ports is then made with the aid of fast electronic switches.



## Fast S-parameter measurements on four-port devices

The **3-port adapter** has an electronic switch at port 1, thus extending it to two ports, while port 2 is directly connected through without switchover. The new **4-port adapters** contain two electronic switches and come in two versions: model .02 has a switch each for extending port 1 and port 2 of the analyzer. It can be used for measurements on 4-port DUTs such as directional couplers. All reflection coefficients as well as most of the transmission parameters of a 4-port DUT can thus be measured without having to reconnect it. Due to the design of the adapter the transmission between ports 1 and 3 and between ports 2 and 4 cannot be measured. If this is required, eg for antenna junction boxes, where the transmission between one input and three outputs has to be measured, use of model .03 is recommended. It has a different internal structure and was specially designed for the above type of 4-port devices under test.

In all cases, the ports that are not through-connected are terminated for low reflection by internal 50 Ω thin-film resistors. The adapters are driven with the aid of an optional rear-panel connector of the analyzer, via which the electronic switches are actuated according to the active display channel of the network analyzer. System-error calibration can be made for each independent display channel to



achieve high measurement accuracy. Switchover between channels is so fast that the traditionally high measurement and display speed of the analyzers of the ZVR family is fully maintained.

Dr Olaf Ostwald

Reader service card 155/06