

S-Parameter Measurements on Multiport Devices

Agilent Technologies
and In-Phase Technologies

Reduce the time to measure the S-parameters of your high pin count multiport devices

When using a two- or four-port microwave vector network analyzer to measure the S-parameters of multiport devices such as filters or amplifiers you have to constantly reconfigure the connections to the device-under-test (DUT). Since the number of S-parameters to be measured increases with the square of the number of ports this reconfiguration task becomes more complex the higher the pin count of the device. You may have to reconfigure the connections between the DUT and the vector network analyzer many times in order to make all of S-parameter measurements required on a high pin count multiport device.

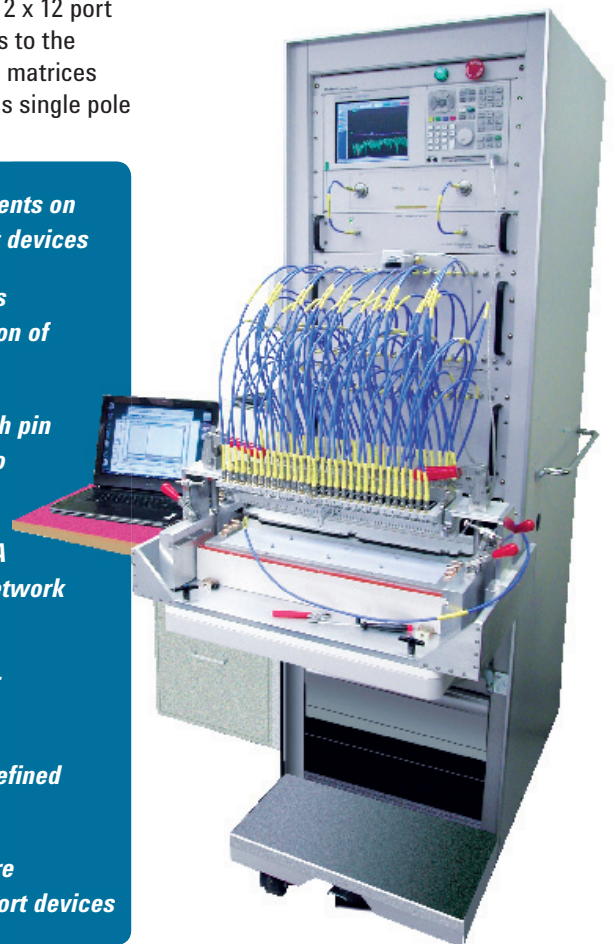
The greater the number of ports, the more time it will take to make the required measurements and the greater the possibility for error when reconfiguring the connections. Automated switch matrices allow a single set of connections to be used for all combinations of measurements. For devices with a relatively small number of ports a switching test system can be easily implemented. Today, however, devices with many ports exist and the challenge of measuring and labelling all combinations of S-parameters for these high pin count multiport devices can be significant.

In-Phase Technologies has addressed these challenges with the MPTS 388 automated test system.

The MPTS 388 utilizes a high pin count switching matrix that can automatically configure S-parameter measurements for devices with up to 216 ports. The test system employs a modular design in which 2 x 36 switch matrices in the test head are connected to a 2 x 12 port chassis, which then connects to the vector network analyzer. The matrices are constructed from low-loss single pole

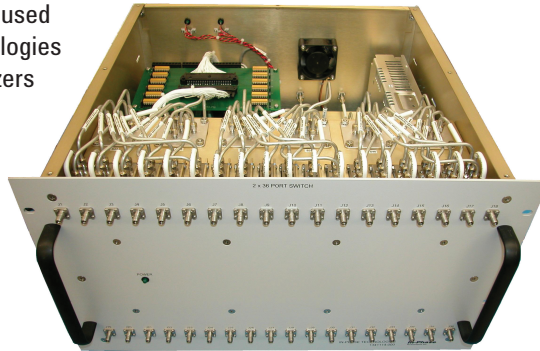
six-throw electromechanical switches and are designed for expansion, up to a total of 216 ports. The test head is attached to the DUT with screw-on connections and matched semi-rigid cables in order to minimize signal losses.

- *S-parameter measurements on high pin count multiport devices*
- *Switching matrix allows automatic reconfiguration of connections*
- *Test system handles high pin count devices with up to 216 ports*
- *Works with Agilent PNA or PNA-X microwave network analyzer*
- *Proprietary software for automated control*
- *Software allows user-defined naming conventions*
- *Reduces time to measure S-parameters on multiport devices*



S-Parameter Measurements on Multiport Devices

The In-Phase test system can be used with all models of Agilent Technologies microwave vector network analyzers including the PNA and PNA-X instruments. It comes with proprietary software that controls the switching, coordinates the measurements from the vector network analyzer and acquires and formats the test data to provide meaningful results. The naming convention used for S-parameters, when testing very high pin count devices, can very quickly become unwieldy. With the software you can set up your signal paths and identify ports using the naming convention relevant to your specific product or company nomenclature.



The In-Phase MPTS 388 test system when matched with an Agilent vector network analyzer allows you to reduce dramatically the time to measure the S-parameters of your high pin count multiport microwave devices.

System Components

Agilent Technologies

N524xA PNA-X microwave vector network analyzers

N522xA PNA microwave vector network analyzers

In-Phase Technologies

MPTS 388 Multiport device automated test system

To learn how this solution can address your specific needs please contact Agilent's solutions partner, In-Phase Technologies, Inc.

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