X-Parameter Measurements
Agilent Technologies and Maury Microwave

Reduce design cycles by up to 50% with X-parameter measurements

X-parameters* are increasingly being used in place of S-parameters in the design of nonlinear, large signal devices and circuits such as complex power amplifiers, including multi-stage and Doherty circuits. Unlike S-parameters, X-parameters contain detailed and useful information including the magnitudes and phases of distortion products generated by the nonlinear component in response to large signal conditions.

Agilent's load impedance X-parameters option on the PNA-X nonlinear vector network analyzer (NVNA), when used with Maury Microwave's tuners and software, allows you to measure and simulate nonlinear component behavior as a function of impedance, input power, bias and frequency — at all load impedances.

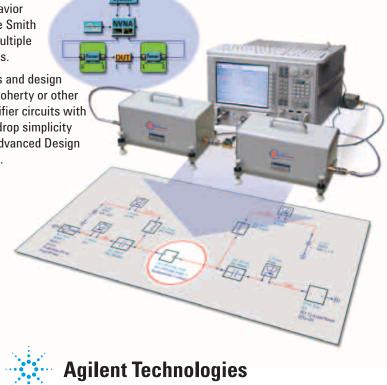This industry-first approach enables engineers to:

- Extend X-parameter design "cascade-ability" to arbitrarily large load mismatches.
- Automatically measure and simulate accurate, linear and nonlinear behavior over the entire Smith chart under multiple load conditions.
- Model devices and design multi-stage, Doherty or other complex amplifier circuits with the drag-and drop simplicity of Agilent's Advanced Design System (ADS).

The arbitrary load impedance X-parameters option of the PNA-X takes the guesswork out of the typical "trial and error" design approach and eliminates the need to "over design" to safeguard against potential errors.

As a result designers of large signal devices and circuits no longer have to compromise on their simulation models. With this new X-parameter measurement solution from Agilent and Maury you can improve your simulation accuracy, minimize the number of design iterations and reduce your overall design time by up to 50%.

- *Use X-parameters instead of S-parameters for large signal, nonlinear devices*
- *X-parameters allow you to characterize large signal devices and circuits*
- *Agilent PNA-X with Maury tuners and software allow X-parameter analysis*
- *Model and design multi-stage complex amplifiers*
- *Simulation models no longer have to be compromised*
- *Reduces design time by up to 50%*

Agilent Technologies

X-Parameter Measurements

Measure and simulate nonlinear component behavior at all load impedances with X-parameters

System Components

Agilent Technologies

N5242A PNA-X	network analyzer
N5242A-400	4 ports, dual source
N5242A-419	Extended power range and bias-tees to 4-port analyzer
N5242A-423	Internal combiner and mechanical switches to 4-port analyzer
N5242A-080	Frequency offset measurements
N5242A-510	Nonlinear component characterization
N5242A-514	Nonlinear X-parameters
U9193C	(2 each required), 26.5 GHz Comb Generator
U2002	26.5 GHz USB power sensor (or other Agilent power meter)

Other options are available; contact your local Agilent sales engineer for more details

Reference documentation publication 5989-8575EN

Maury Microwave

Tuner – select from:

MT981BU	0.4 to 4 GHz
MT982EU30	0.8 to 8 GHz
MT983A01	4 to 26.5 GHz

Plus

MT993B	Power measurement software
MT993D01	X-parameter measurement option

Other options are available; contact Maury Sales for more details

For a complete list of Agilent/Maury Solution Briefs:
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To learn how this solution can address your specific needs please contact Agilent's solutions partner, Maury Microwave

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