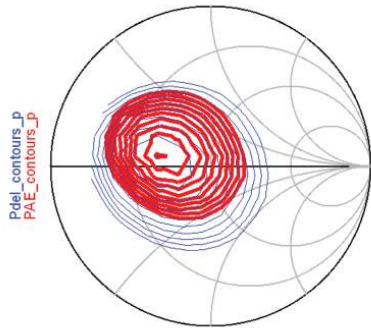


Use the Harmonic Balance simulator in Advanced Design System to analyze and optimize the nonlinear behavior of circuits and RF systems, including X-parameters nonlinear models.

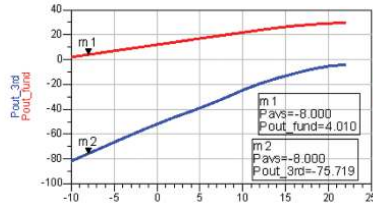
Keysight EEsof EDA W2300 Harmonic Balance Element

PAE (thick) and Delivered Power (thin) Contours

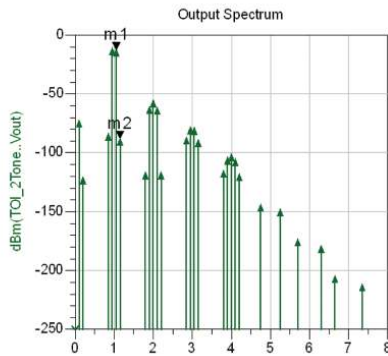
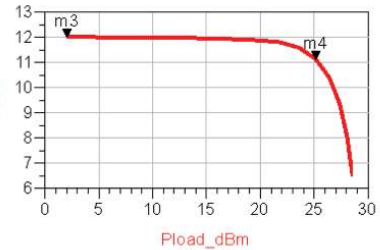


indep(PAE_contours_p) (0.000 to 48.000)
indep(Pdel_contours_p) (0.000 to 53.000)

Fundamental and Third Harmonic versus Source Power



Gain versus Load Power



The W2300 Harmonic Balance Element provides steady-state non-linear simulation and optimization capabilities to the Advanced Design System (ADS), the technology and innovation leader in high-frequency mixed-signal electronic design automation (EDA). It is integrated with Advanced Design System (ADS), the only design simulation platform that enables the co-design of IC, package, and board in high-frequency and high-speed applications. ADS seamlessly integrates system, circuit, and full 3D electromagnetic simulation with Keysight Technologies' test instrumentation, resulting in repeatable, first-pass electronic design success.

The Harmonic Balance (HB) simulator in ADS is the most powerful implementation of the harmonic balance algorithm for non-linear circuit and system simulation on the market. Its capabilities include:

- Unlimited multi-tone, frequency-domain non-linear simulation and optimization.
- Phase-noise analysis.
- Load- and source-pull analysis.
- X-parameter non-linear model simulation under steady-state excitation.
- Power amplifier design guide to synthesize, design and simulate popular amplifier topologies.
- Mixer design guide to synthesize, design and simulate popular mixer topologies.
- Oscillator design guide to synthesize, design, and simulate popular oscillator topologies.
- Analog model development kit to develop customized non-linear behavioral models.

Not all Harmonic Balance simulators equally deliver the combination of convergence, speed, accuracy, and capacity. The ADS Harmonic Balance Element incorporates ingenious automated strategies and algorithms to achieve convergence under the most difficult non-linear conditions that other Harmonic Balance simulators cannot handle.

Keysight's Harmonic Balance Element simulates X-parameter models, the latest Keysight invention that captures the full non-linear characteristics from a non-linear vector network analyzer (NVNA) measurement. The technology lets designers do accurate non-linear designs with measured X-parameters of off-the-shelf components. This capability is unique in the industry.

The simulator's speed and capacity come from the powerful alliance of advanced matrix algorithms and parallel computations on multi-core computers. This allows designers to interactively tune and optimize even the largest non-linear designs quickly.

www.keysight.com/find/eesof-ads

www.keysight.com/find/eesof

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

Americas

Canada	(877) 894 4414
Brazil	55 11 33 51 7010
Mexico	001 800 254 2440
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Other AP Countries	(65) 375 8100

Europe & Middle East

Belgium	32 (0) 2 404 93 40
Denmark	45 45 80 12 15
Finland	358 (0) 10 855 2100
France	0825 010 700* *0.125 €/minute
Germany	49 (0) 7031 464 6333
Ireland	1890 924 204
Israel	972-3-9288-504/544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200-88 22 55
United Kingdom	44 (0) 118 927 6201

For other unlisted countries:

www.keysight.com/find/contactus

(BP-04-23-14)