Datasheet

Radio Frequency Planning Wizard

Overview

RFP stands for radio frequency planning and is a novel add-on wizard that's specific to Visual System Simulator™ (VSS) software. Whether developing satellite communication, cellular, or military radio links, RFP is an essential part of the design process in that it provides greater insight into unwanted signals or spurs generated in a specific bandwidth. In addition to analyzing spurs generated by a lineup of mixers for instance, RFP analyzes the entire RF lineup of common components (amplifiers, mixers, filters, and more) found in radio communication links and can be built up from a selection of commercially available parts or behavioral models.

Features at a Glance

- Seamlessly integrated within VSS

- Provides insight into unwanted signals or spurs in a specified bandwidth

- Analyzes spurs generated by a lineup of mixers

- Analyzes the entire RF lineup of common components in RF links

- Provides first cut of cascaded measurements: NF, P1dB, SNR, IM3, and more

- RF link automatically translates to a VSS system diagram for yield analysis and optimization
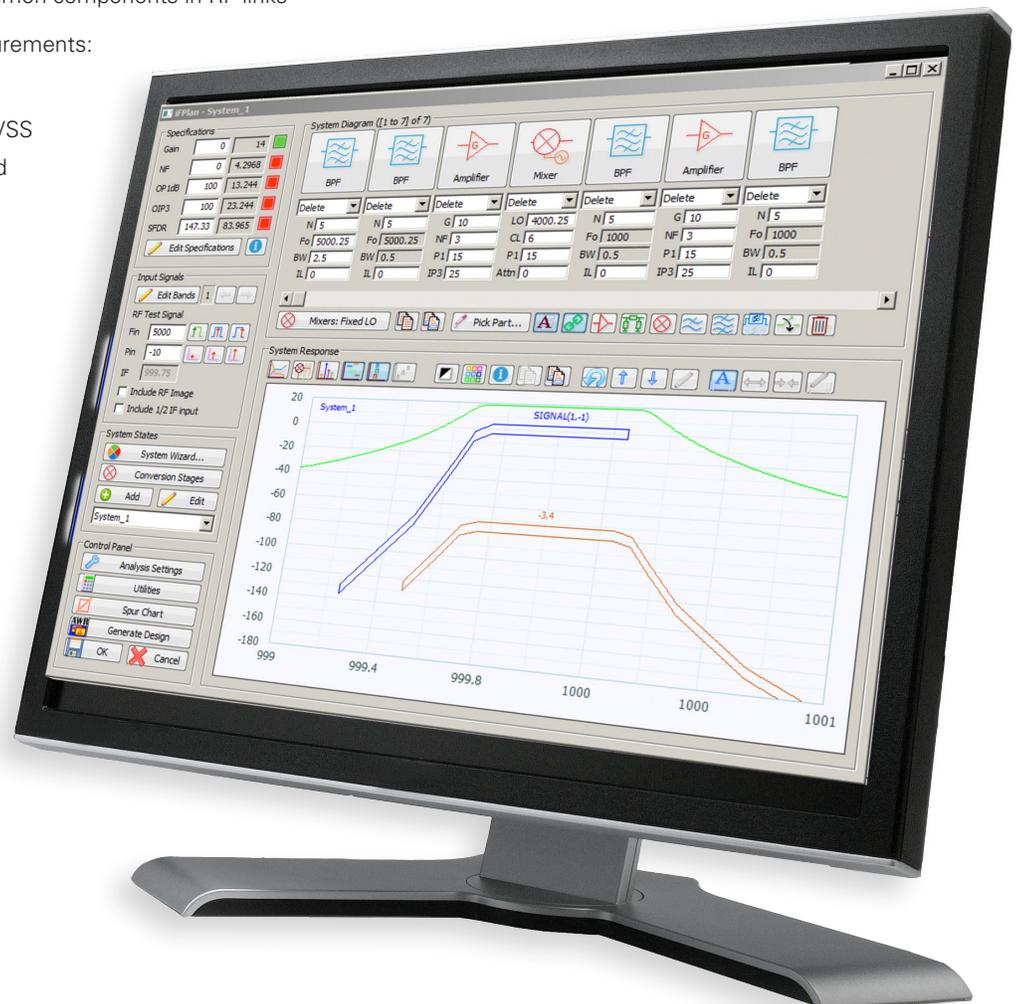
The RFP friendly interface within VSS allows for easy placement of parts and definition of parameters.

NATIONAL INSTRUMENTS™

What Is RFP?

More than a spreadsheet, RFP delves deeper than common spreadsheet analysis calculations and displays clear results with several options when viewing simulations. For example, a tabular result of in-band and out-of-band signals can be generated in real time as a frequency of interest is swept. In addition to showing the particular power levels and frequencies of the signals, the root causes of the signals can also be displayed. In addition, mixer spur charts and traditional spectrum plots can be viewed. Furthermore, RFP gives engineers the first cut of cascaded measurements such as noise figure (NF), gain compression (P1dB), signal-to-noise-ratio (SNR) and third-order intermodulation (IM3), as well as spurious free dynamic range (Figure 1).
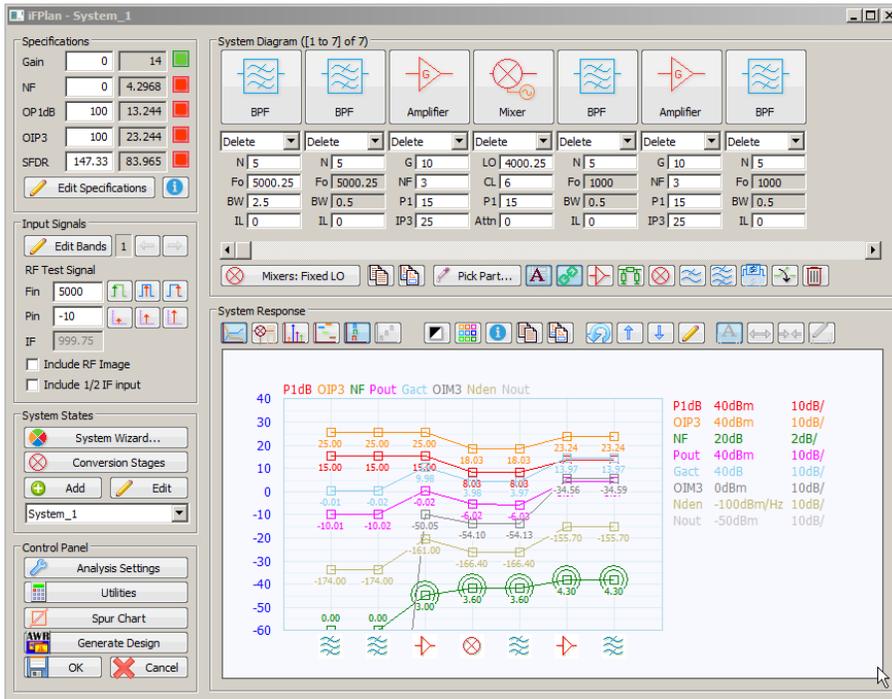

Figure 1: RFP interface showing system response and measurements.

Seamlessly integrated into VSS, RFP launches from a single mouse click to construct the RF link and automatically translate it to a VSS system diagram (Figure 2). VSS can then be used to account for mismatch between components, account for noise at image frequency, and run yield analysis and optimization. Engineers then have a choice of modulated signals and can perform, for example, error vector magnitude (EVM), adjacent channel power ratio (ACPR), and bit error rate (BER) measurements.
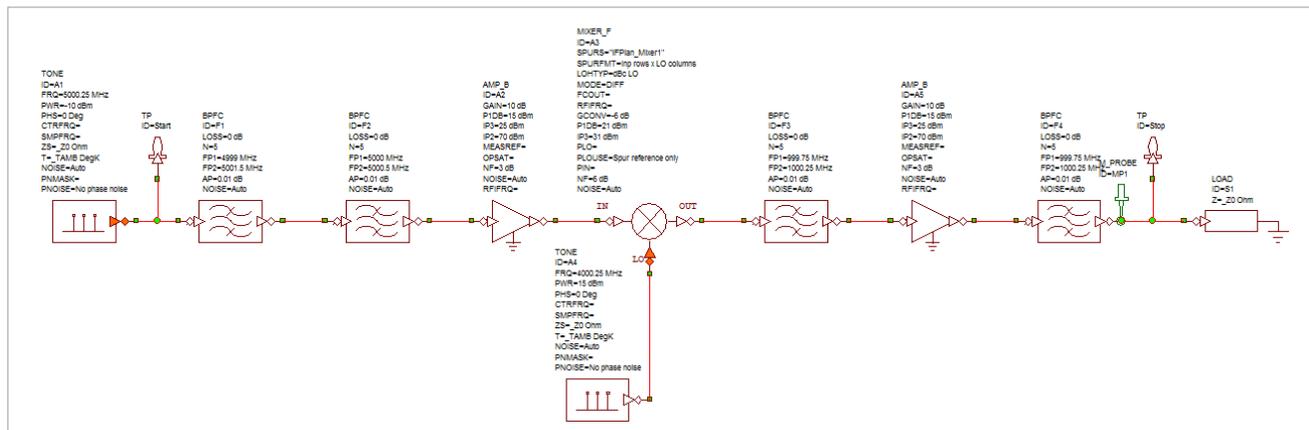

Figure 2: RFP automatically renders the resultant system within the VSS schematic.