

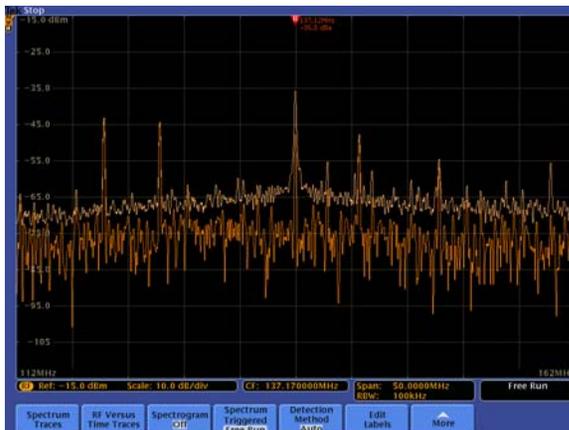
# Troubleshooting Power Distribution in Embedded Designs

## Your Challenges:

Modern switch-mode power supplies can often be the source of both low and high frequency noise in your embedded design. Poor quality power supplies can cause multiple sources of EMI in any design. Poor quality power can adversely effect system performance in multiple domains. Diagnosing EMI issues in high-current low-voltage power supplies is difficult with traditional spectrum analyzers.

## Tektronix Advantage:

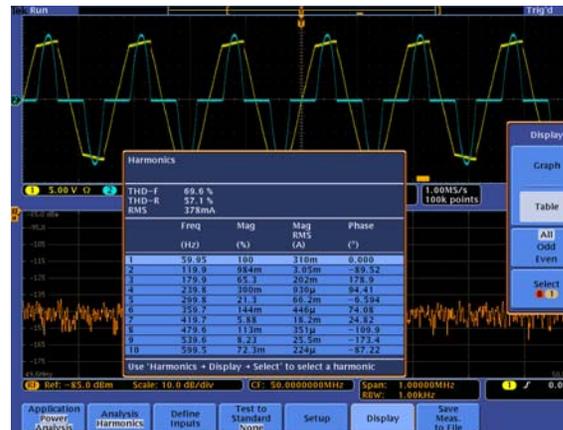
The MDO4000B is the only instrument that can measure voltage, current, and RF at the same time.



Quickly see spectral emissions with the integrated spectrum analyzer in the MDO4000B Series.

The integrated spectrum analyzer in the MDO4000B makes it possible to monitor the effects of current harmonics in both the time and frequency domains.

For the first time ever, you can capture time-correlated analog, digital, and RF signals for a complete system view of your device. See both the time and frequency domain in a single glance. View the RF spectrum at any point in time to see how it changes over time or with device state. Solve the most complicated design issues, quickly and efficiently, with an instrument as integrated as your design.



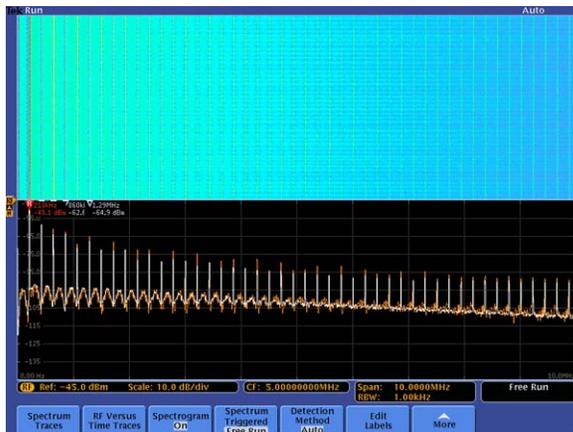
Use the same instrument to automate power measurements (such as harmonics, power quality) and view the spectrum for effects of the power supply on the design.

## Unique Benefits of Tektronix Solutions:

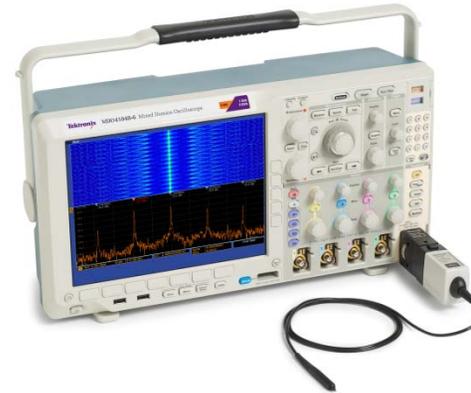
- The MDO4000B is the only instrument that incorporates a spectrum analyzer, oscilloscope, and logic analyzer as well as power quality measurements in a single, compact package.
- The MDO4000B can isolate and correlate unintended power supply events to RF emissions.
- The MDO4000B can simultaneously monitor variations in switching power supplies and RF emissions caused by changing load conditions.
- Easily look at high and low frequency events at the same time with up to 3 GHz of capture bandwidth.
- Tektronix offers a wide variety of probes to address voltage and current measurements for the analog and spectrum analyzer inputs of the MDO4000B.

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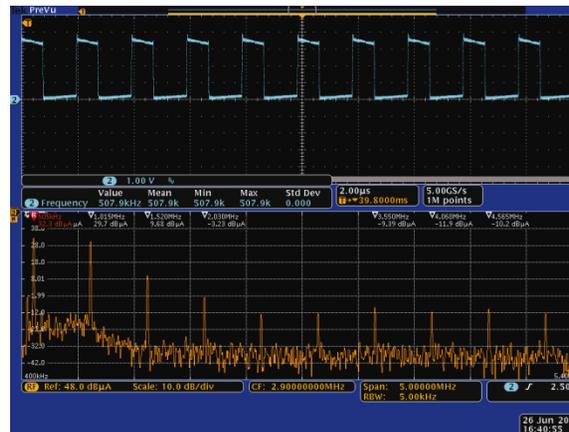
The MDO4000B from Tektronix allows you to isolate and correlate power supply events to RF emissions. The MDO can simultaneously monitor the variations in switching power supplies and RF emissions caused by changing load conditions.



A spectrogram is a view of relative amplitudes in a spectrum as seen over time. The spectrogram display provides an intuitive color map showing how your signal varies over time. You can even go back and compare previously acquired data.



MDO4000B with TPA-N-VPI adapter enables true signal browsing on the spectrum analyzer input - such as directly probing the DC rail to observe a DC converter's spectral content.



Simultaneously view the signal at the switching transistor and the noise from the power supply switcher.

## More Information:

### Datasheet:

- MDO4000B Series

### Videos:

- MDO4000B Series Virtual Tour
- Advanced RF and Cross Domain Triggering
- Complete Analysis of Wide Bandwidth Systems
- MDO4000B Spectrum Analyzer vs. Scope FFT
- Hunting Noise Sources in Wireless Embedded Designs
- Debug of a WLAN Power Amplifier
- [www.youtube.com/user/w2aew](http://www.youtube.com/user/w2aew)
- and more at [www.tek.com/mdo4000b](http://www.tek.com/mdo4000b)

### Literature:

- Fundamentals of the MDO4000B Series (application note)
- Secrets Behind MDO4000B Spectrum Analyzer Dynamic Range (application note)
- Troubleshooting EMI problems: To Peak or NOT to Peak (white paper)
- Troubleshooting common EMI problems (white paper)
- Probing Consideration for Low Voltage Measurement such as Ripple (application note)
- MDO4000B Series vs. Traditional Scope FFTs (fact sheet)
- Hunting Noise Sources in Wireless Embedded Systems (application note)
- and more at [www.tek.com/mdo4000b](http://www.tek.com/mdo4000b)

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