



## Product Demo

# RIGOL Presents: New Solutions for Affordable Pre-Compliance Testing

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### **Chris Armstrong**

Chris Armstrong is the Director of Product Marketing & SW Applications at Rigol Technologies North America. Chris brings more than 15 years of experience in test & measurement from sensitive measurement applications to multipurpose benchtop test to integrating complete systems that control instrumentation across a number of interfaces. Chris has obtained a Bachelor of Science in Computer Science & Engineering from the University of Toledo and an MBA from Case Western Reserve University.

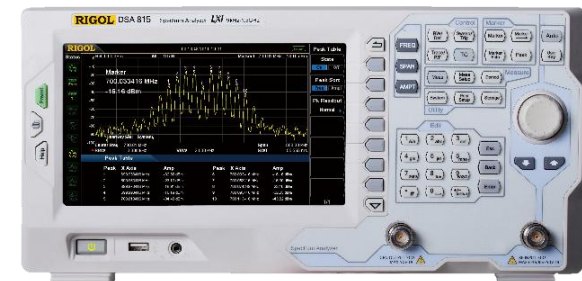
# Affordable Pre-Compliance

The value of Pre-Compliance testing

- Spend less on visits to the compliance test lab
- Stay on schedule by avoiding late stage design changes
- Improve product design with as you go testing
- Stay in front of potential issues with early detection and problem solving

What we will show in this demonstration

- What tools and methods are suggested for getting the most out of your Pre-Compliance tests
- Which options and techniques are most important to quickly and easily finding EMI issues



# Looking for potential issues

## Radiated Pre-Compliance real time bench test

*Early in the design cycle testing for areas of concern*

- Setup the spectrum analyzer for responsive measurements

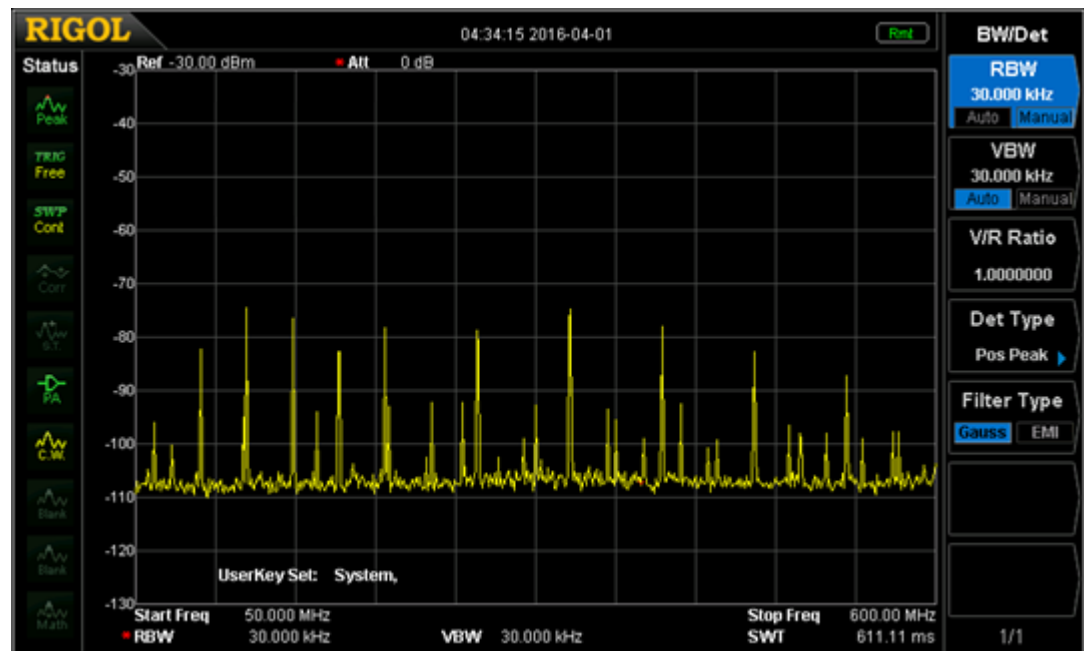
Starting from a default setup:

- Turn off the input attenuator
- Turn on the RF Preamplifier
- Adjust the RBW
- Set the span for the test

Connect a Near Field Probe:

- Probe areas of interest on your board, enclosure, or device

For these basic bench tests leave the analyzer in its standard detection mode



- This gives you fast, responsive measurements. While actively sniffing with a near field probe, there is little advantage to EMI filters or specialized bandwidth settings

# Testing for immunity

## Pre-Compliance immunity evaluation

*Early in the design cycle testing for areas of concern*

- Add a high power signal generator to hunt for areas of weakness

Starting from our previous setup:

- Add a RF source with Amplitude modulation
- Connect it to a second antenna or near field probe

With the analyzer:

- Probe areas of interest on your board, enclosure, or device while trying to cause a failure with the signal source
- You are looking for device failures as well as resonant points that could cause issues
- This may give you other areas of interest in your enclosure or device from the standard radiated testing. Monitor all these areas as your design develops



# Standardized, relative testing

Radiated Pre-Compliance real time standardized bench tests

*Making and testing incremental improvements*

- Set up the spectrum analyzer for accuracy and repeatability

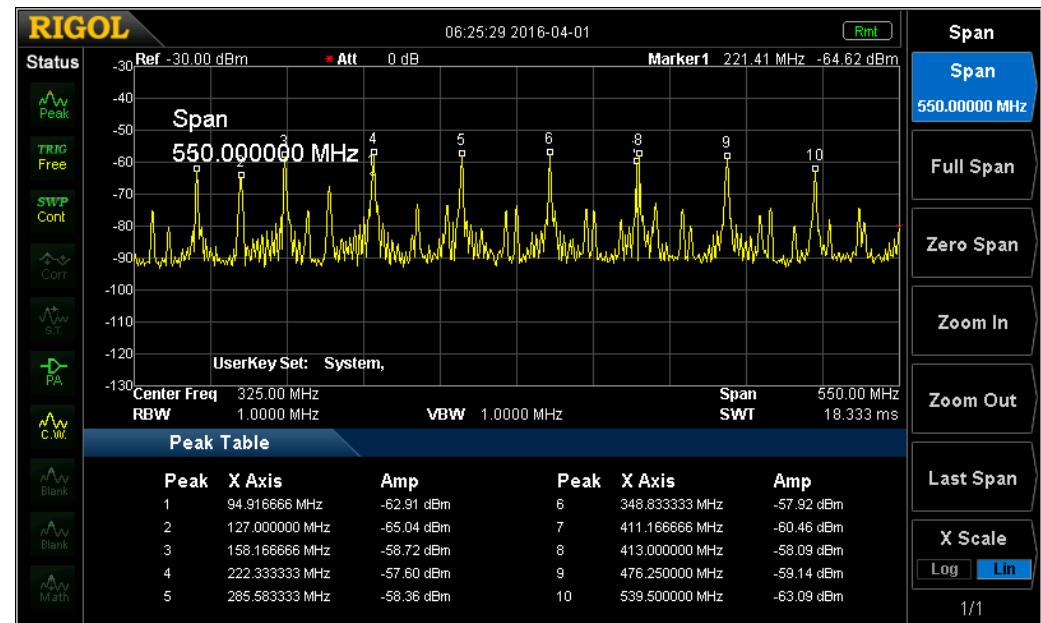
Starting from our first setup:

- Select the Peak detector
- Switch to accuracy mode
- Set the RBW to 100 kHz

Connect a Fixed position

Near Field Probe or an antenna:

- Test the same orientation and position from your device with the same antenna and compare board versions



- Use the peak table to highlight areas of interest
- This gives you more repeatable measurements and lets you more accurately compare board revisions to monitor improvements.



# Remote Pre-Scanning with EMI SW

Radiated Pre-Compliance real time standardized bench tests

*Improve measurements with a chamber or repeatable test site*

- Connect to the Spectrum Analyzer remotely

Starting from our last setup:

- Set values in the test software
- Conduct the tests in a chamber or repeatable test site or room
- Use the remote software to isolate the instrumentation from human interference too

Connect a fixed probe or characterized far field antenna using a standard setup:



- Enable limit lines or traces to compare tests
- Conduct a DUT OFF test to be aware of background RF signals
- This improves relative measurements and approaches test lab conditions as your product nears completion

# Final Scanning with EMI Software

Radiated Pre-Compliance real time standardized bench tests

*Finalize expectations for compliance at the lab*

Starting from our last setup:

- Target areas of interest during the pre-scans
- Final scan targeted sections with the EMI filter and EMI bandwidths activated

Same device and setup from Previous measurements



- Verify final results will meet your device's requirements with enough margin before sending the unit out for compliance testing

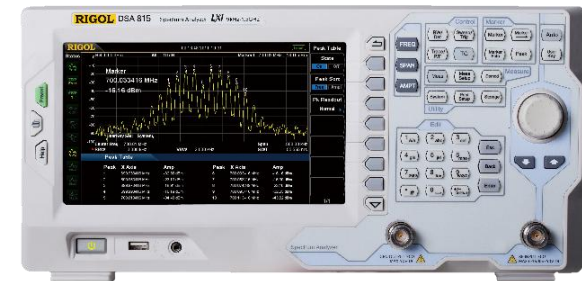
# Affordable Pre-Compliance

From affordable hardware to software, accessories, and solutions RIGOL provides everything you need for complete Pre-Compliance design evaluation.

Products discussed in this demonstration:

## DSA800 series Spectrum Analyzers

up to 7.5 GHz with a tracking generator  
DANL as low as -161 dBm  
starting at \$1295



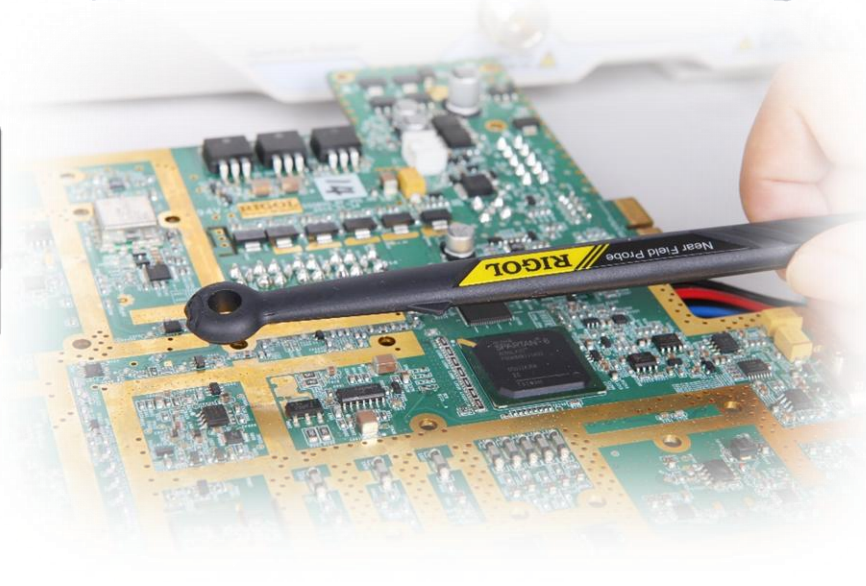
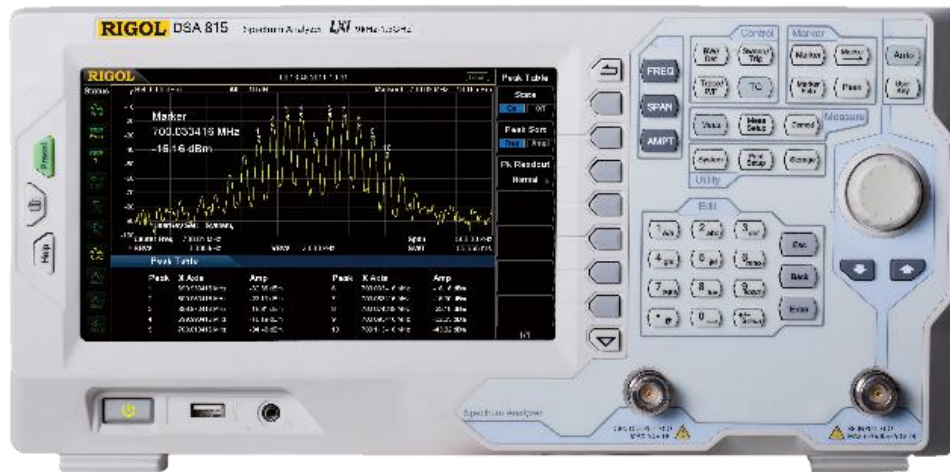
## DSG800 and DSG3000 series RF Signal Sources

up to 6 GHz  
high power output up to +25 dBm  
Amp, Freq, Phase, and Pulse modulations  
Starting at \$1999





# Rigol EMC Test Solutions



**New Promotion now available: Buy a Spectrum Analyzer and a RF Signal Source and get 10% off both**



**Thank you for attending our demonstration**

## New Solutions for Affordable Pre-Compliance Testing

For sales, support, or additional questions please  
Contact RIGOL Technologies at:

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