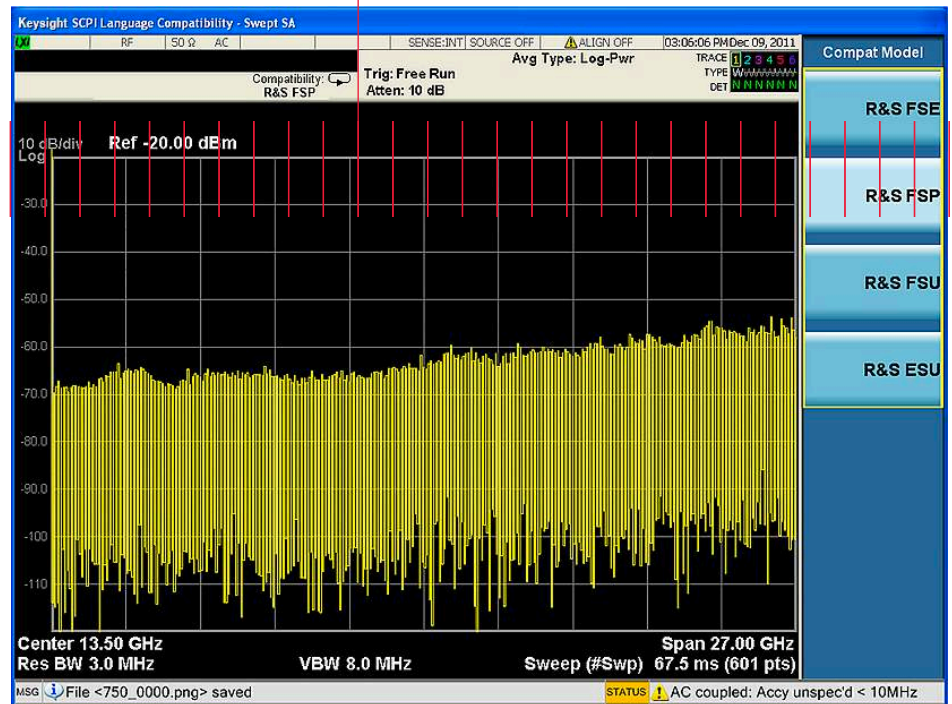# Keysight Technologies
# N9062A SCPI Command Language Compatibility

## X-Series Measurement Application

Demo Guide



This document will guide you through the setup process for a Keysight Technologies, Inc. X-Series signal analyzer (PXA, MXA and EXA) with the SCPI language compatibility measurement application.

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# Compatible SCPI Commands

The SCPI language compatibility measurement application transforms the X-Series signal analyzers (PXA, MXA and EXA) into SCPI commands compatibility mode by supporting over 278 SCPI commands from R&S FSP/FSU/FSE spectrum analyzers. This application enables the X-Series signal analyzers to understand the following SCPI commands from R&S FSP/FSU/FSE spectrum analyzers:

– General-purpose spectrum analysis settings: frequency, span, amplitude, RBW, VBW, sweep, detectors, trace averaging, data format and more

– General marker, delta marker, marker noise, band power, power density functions

– Limit line and limit check functions

– Limit check for spectrum emission measurements

– Power measurements: channel power, ACP

– Statistical measurement function: CCDF

– Trace data transfer and IQ data handling
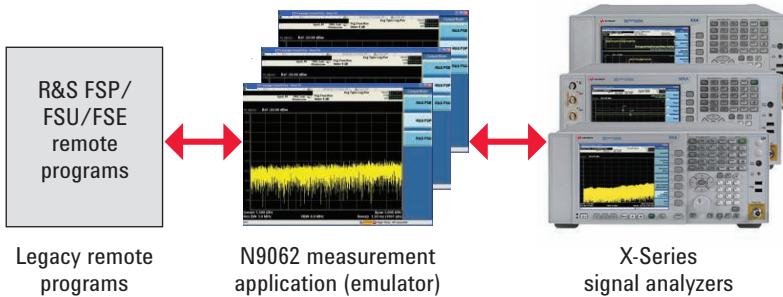
– File saving and screen copy



Figure 1. A simplified working block diagram for the SCPI language compatibility measurement application

Legend: Legacy remote programs — R&S FSP/FSU/FSE remote programs — N9062 measurement application (emulator) — X-Series signal analyzers

## What is SCPI?

SCPI is an ASCII-based instrument command language designed for test and measurement instruments, with the goal of reducing automatic test equipment (ATE) program development time. SCPI accomplishes this goal by providing a consistent programming environment control and data usage. This consistent programming environment is achieved by using defined program messages, instrument responses, and data formats across all SCPI instruments. By providing a consistent programming environment, replacing one SCPI instrument with another SCPI instrument in a system will generally require less effort than with non-SCPI instruments. SCPI is not a standard which completely provides for interchangeable instrumentation. SCPI helps move toward interchangeability by defining instrument commands and responses, but not functionality, accuracy, resolution and other factors. For more information about SCPI, visit www.keysight.com/find/learnscpi

# Demonstration Preparation

This demonstration utilizes an X-Series signal analyzer with N9062A-2FP measurement application (F/W revision A.06.06 or greater). When N9062A-2FP is licensed, the SCPI language compatibility mode is available.

The following software and accessories are used for demonstration in this document:

– Two LAN cables

– One PC with Keysight IO library suite (revision 15.1 or greater)

In the document, keystrokes surrounded by [ ] indicate front-panel hardkeys; softkeys located on the right edge of the display are surrounded by { }.

# Demonstration

## Connect the X-Series signal analyzer and your PC to a LAN

In this demonstration guide, the Keysight IO library connection expert is used.

| Instructions | Keystrokes |
|---|---|
| Add the IP address of the X-Series signal analyzer into the LAN connection panel of the connection expert software. | The IP address of the X-Series signal analyzer can be shown by pressing **[System] > {Show} > {System}** |

## Enter the SCPI language compatibility measurement mode

There are two ways to access the SCPI language compatibility measurement mode.

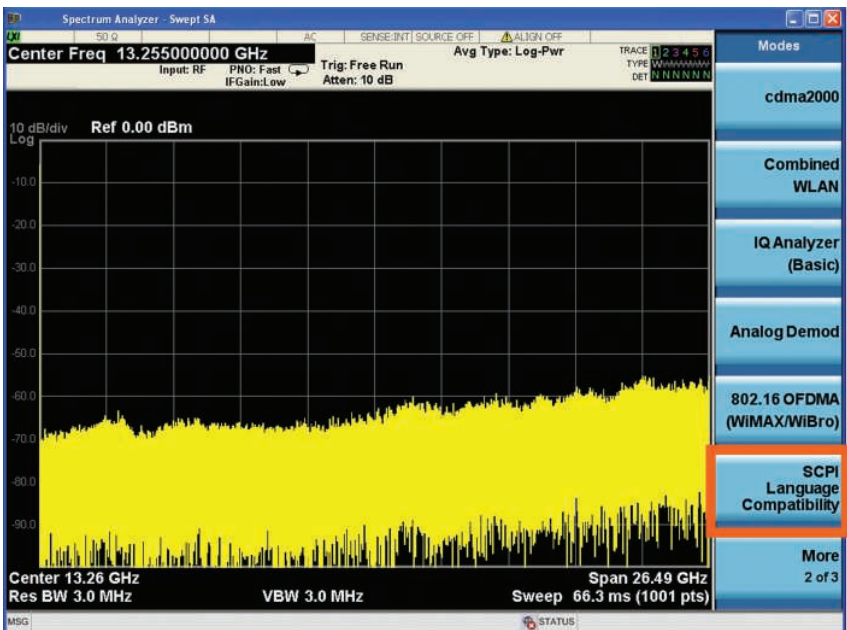| Instructions | Keystrokes |
|---|---|
| 1. Front panel access | Press **[Mode] > {SCPI Language Compatibility}** to switch the X-Series from spectrum analyzer mode to the N9062A SCPI language |
| 2. Remote access | To invoke SCPI Language Compatibility mode, enter either of the following commands:<br> :INST SCPIRLC<br> :INST:NSELect 270 |



*Figure 2. Front panel access for SCPI compatibility mode*

## Select compatibility model

There are two ways to select a compatible model.

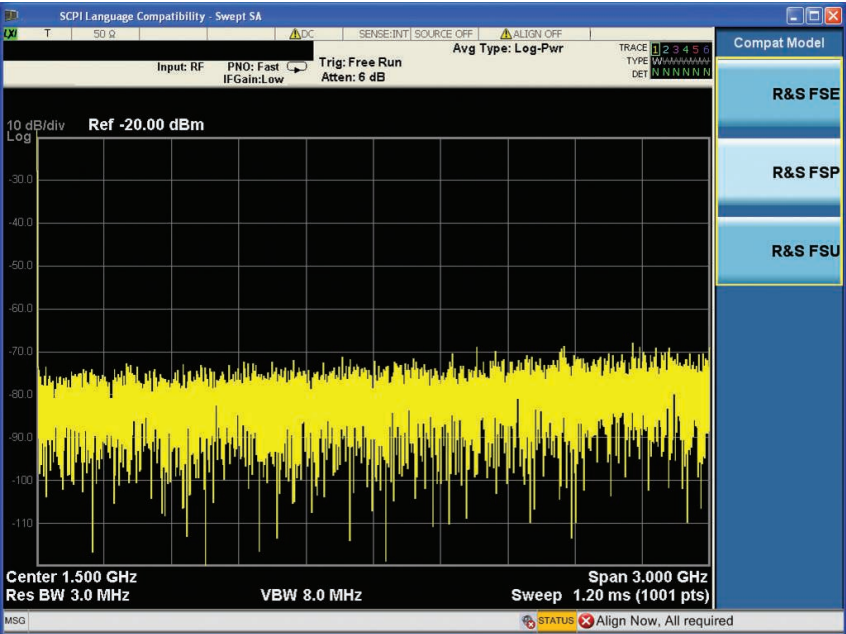| Instructions | Keystrokes |
|---|---|
| 1. Front panel access | Press **[Mode Setup] > {Compatibility model}** to select a model you want to emulate. Three compatibility models are available: R&S FSP, FSU and FSE spectrum analyzers |
| 2. Remote access | Sending the following command from your PC to the X-Series signal analyzer sets the compatible model remotely: SENS:RLC:TYPE FSE | FSU | FSP |



*Figure 3. Front panel access for selecting a compatible model*

## Set the IDN response (optional)

IDN response allows you to set or query the Mode IDN Response type to: compatible model, system or user defined. For example, if you choose the IDN response as {system}, the query *IDN? returns the instrument information of your X-Series signal analyzer.

You can choose either front panel access or remote access to set the IDN response.

| Instructions | Keystrokes |
|---|---|
| 1. Front panel access | Press **[Mode Setup] > {Model IDN Response}** to select an IDN response model you want to use in your program |
| 2. Remote access | Sending the following command from your PC to the X-Series signal analyzer sets the IDN response remotely: SENS:RLC:IDN:TYPE SYSTem | COMPatibility | USER |

# Additional Resources

## Begin using the compatible SCPI commands

The SCPI command language compatibility measurement application supports over 278 SCPI commands from the FSE/FSP/FSU instruments and 16 of IEEE488.2 standard SCPI commands.

## Literature

For more information about this measurement application, visit **www.keysight.com/find/n9062a** and download the *N9062A SCPI Language Compatibility User Guide*, literature number N9062-90001.

## Web

Product page:
www.keysight.com/find/N9062A

X-Series signal analyzers:
www.keysight.com/find/X-Series

X-Series measurement applications:
www.keysight.com/find/X-Series_apps

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www.keysight.com/find/mykeysight
A personalized view into the information most relevant to you.

www.lxistandard.org
LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Keysight is a founding member of the LXI consortium.

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Keysight Channel Partners
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Get the best of both worlds: Keysight's measurement expertise and product breadth, combined with channel partner convenience.

www.keysight.com/find/n9062a

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