

R&S®NRX

Remote Emulation Application Sheet



1179323802
Version 03

ROHDE & SCHWARZ
Make ideas real



Contents

1	Introduction.....	3
2	Overview.....	4
3	Power sensor substitution.....	5
4	Basics.....	9
4.1	Remote control languages.....	9
4.2	Remote emulation compatibility.....	9
4.2.1	Command compatibility.....	10
4.2.2	IDN and OPT strings.....	10
4.3	Preset and reset.....	11
4.4	Switching on and off.....	11
5	Enabling a remote emulation.....	11
5.1	Modifying remote emulation parameters.....	11
6	Emulating the R&S NRP2.....	13
7	Emulating the R&S NRP.....	13
8	Emulating the Keysight Technologies E4418B/E4419B.....	13
8.1	Limitations.....	14
8.2	Commands.....	14
8.2.1	Interface functions.....	14
8.2.2	IEEE488.2 functions.....	15
8.2.3	Device-specific functions.....	15
8.3	Differences between the emulated instrument and the R&S NRX.....	24
9	Emulating the Keysight Technologies N432A.....	25
9.1	Limitations.....	25
9.2	Commands.....	26
9.2.1	Interface functions.....	26
9.2.2	IEEE488.2 functions.....	26
9.2.3	Device-specific functions.....	27
9.3	Differences between the emulated instrument and the R&S NRX.....	36

10	Emulating the Keysight Technologies N1911A/N1912A.....	37
10.1	Limitations.....	37
10.2	Commands.....	37
10.2.1	Interface functions.....	38
10.2.2	IEEE488.2 functions.....	38
10.2.3	Device-specific functions.....	39
10.3	Differences between the emulated instrument and the R&S NRX.....	52
11	References.....	53
12	Additional information.....	53
13	Ordering information.....	53

1 Introduction

The R&S NRX power meter offers a remote emulation feature that makes it possible to control the instrument by commands other than the built-in native SCPI commands. This feature allows the user to replace power meters, e.g. from other manufacturers, with the R&S NRX power meter without having to change the remote control code.

This application sheet describes how to use the remote emulation feature in general. Furthermore, it describes in detail the remote emulation for each supported instrument, limitations of the individual emulations and the remaining differences between the emulated and the original commands.

Table 1-1: Abbreviated product names

Product short name	Product type	Manufacturer	For details, see
E4418B	Power meter	Keysight Technologies	Chapter 8, "Emulating the Keysight Technologies E4418B/E4419B" , on page 13
E4419B	Power meter	Keysight Technologies	Chapter 8, "Emulating the Keysight Technologies E4418B/E4419B" , on page 13
N432A	Power meter	Keysight Technologies	Chapter 9, "Emulating the Keysight Technologies N432A" , on page 25
N1911A	Power meter	Keysight Technologies	Chapter 10, "Emulating the Keysight Technologies N1911A/N1912A" , on page 37
N1912A	Power meter	Keysight Technologies	Chapter 10, "Emulating the Keysight Technologies N1911A/N1912A" , on page 37

Product short name	Product type	Manufacturer	For details, see
R&S NRX	Power meter	Rohde & Schwarz	This document and the R&S NRX user manual
R&S NRP2	Power meter	Rohde & Schwarz	Chapter 6, "Emulating the R&S NRP2" , on page 13
R&S NRP	Power meter	Rohde & Schwarz	Chapter 7, "Emulating the R&S NRP" , on page 13
R&S NRP power sensors	Power sensor	Rohde & Schwarz	R&S NRPxxS(N)/T(N)/A(N) user manuals
R&S NRP-Zxx	Power sensor	Rohde & Schwarz	R&S NRP-Zxx operating manual

2 Overview

Power meters are often used in automated test applications that are used for at least several years or even decades. Software written for such applications is often used without any or only few modifications during the entire lifetime. Any modification of these applications therefore requires special care to be taken. The replacement of instruments, e.g. due to malfunction, or a standard replacement with a similar instrument from another vendor/manufacturer requires 100 % compatibility, at least in:

- Electrical features
- Functional features
- Remote control features

To fulfill the last requirement, the R&S NRX offers the remote emulation feature.

This feature allows you to control the R&S NRX by using the exact same commands that were implemented in the original instrument. Therefore, the R&S NRX operates in the same way as the original instrument, e.g. a N1911A.

As a result, total costs for maintenance and service for those applications can decrease.

An overview of implemented remote emulations is given in [Table 2-1](#).

Table 2-1: Remote emulations in the R&S NRX

Manufacturer	Instrument	Language
Rohde & Schwarz	R&S NRP	SCPI
	R&S NRX	SCPI
Keysight Technologies	E4418B	SCPI
	E4419B	SCPI
	N432A	SCPI

Manufacturer	Instrument	Language
	N1911A	SCPI
	N1912A	SCPI

3 Power sensor substitution

When a power meter is replaced with the R&S NRX, also the power sensor used along with the power meter needs to be replaced with an appropriate R&S power sensor. Since Rohde & Schwarz offers a comprehensive portfolio of state-of-the-art power sensors, the following tables serve as a guideline to make it easier to select a sensor. The tables give an overview of Keysight Technologies power sensors and propose R&S power sensors that could be used as an adequate substitute. Note that the proposed R&S power sensors do not exactly match the Keysight Technologies sensors in all their specifications. Therefore, we strongly recommend checking the data sheets of the proposed R&S power sensors to find the best substitute that fulfills the application requirements.

Table 3-1: 8480 series thermocouple power sensors and their closest sensor substitutes

Keysight Technologies	Rohde & Schwarz	Note
8481A	R&S NRP18T R&S NRP-Z51	Max. power: +20 dBm
8482A	R&S NRP18T R&S NRP-Z51	Max. power: +20 dBm
8483A	-	75 ohm impedance
8485A	R&S NRP33T R&S NRP-Z52	Max. power: +20 dBm, 3.5 mm connector
R8486A Q8486A V8486A W8486A	R&S NRP110TWG R&S NRP-Z58	WR10 connector 1 mm connector, waveguide adapter required
8487A	R&S NRP50T R&S NRP-Z56	Max. power: +20 dBm, 2.4 mm connector
8481H	R&S NRP18T R&S NRP18S R&S NRP-Z21	Max. power: +20 dBm Diode sensor, max. power: +23 dBm Diode sensor, max. power: +23 dBm
	R&S NRP18S-10 R&S NRP-Z22	Diode sensor, max. power: +33 dBm Diode sensor, max. power: +33 dBm
	R&S NRP18S-20 R&S NRP-Z23	Diode sensor, max. power: +42 dBm Diode sensor

Keysight Technologies	Rohde & Schwarz	Note
8482H	R&S NRP6A R&S NRP-Z92	Diode sensor, max. power: +23 dBm Diode sensor, max. power: +33 dBm
8481B	R&S NRP18S-20 R&S NRP-Z23	Diode sensor, max. power: +42 dBm Diode sensor, max. power: +42 dBm
	R&S NRP18S-25 R&S NRP-Z24	Diode sensor, max. power: +45 dBm Diode sensor
8482B	R&S NRP18S-25 R&S NRP-Z24	Diode sensor, 10 MHz to 18 GHz, max. power +45 dBm Diode sensor, min. frequency: 10 MHz
	R&S NRP6A R&S NRP-Z92	Diode sensor, 8 kHz to 6 GHz, max. power: +23 dBm Diode sensor, max. power: +33 dBm

Table 3-2: 8480 series diode power sensors and their closest sensor substitutes

Keysight Technologies	Rohde & Schwarz	Note
8481D	R&S NRP8S R&S NRP-Z11	Min. power: -70 dBm, max. frequency: 8 GHz Min. power: -67 dBm, max. frequency: 8 GHz
	R&S NRP18S R&S NRP-Z21	Min. power: -70 dBm, max. frequency: 18 GHz Min. power: -67 dBm, max. frequency: 18 GHz
8485D	R&S NRP33S R&S NRP-Z31	Min. power: -70 dBm Min. power: -67 dBm
	R&S NRP110T R&S NRP110TWG R&S NRP-Z58	Thermal sensor, 1 mm connector Thermal sensor, WR10 connector Thermal sensor, 1 mm connector, waveguide adapter required
8487D	R&S NRP50T R&S NRP-Z56	Thermal sensor, min. power -30 dBm, 2.4 mm connector Thermal sensor, min. power: -35 dBm
	R&S NRP-Z85/86	Wideband sensors, max. frequency: 40 GHz, min. power: -60 dBm

Table 3-3: E9300 series average power sensors and their closest sensor substitutes

Keysight Technologies	Rohde & Schwarz	Note
E9300A	R&S NRP18A R&S NRP18S R&S NRP-Z21	
E9301A	R&S NRP6A R&S NRP18A R&S NRP18S R&S NRP-Z11	Max. frequency 6 GHz Max. frequency 18 GHz
E9304A	R&S NRP6A R&S NRP-Z91	Frequency: 8 kHz to 6 GHz Frequency: 9 kHz to 6 GHz

Keysight Technologies	Rohde & Schwarz	Note
E9300H	R&S NRP18S-20 R&S NRP-Z22	Max. power: +33 dBm
E9301H	R&S NRP6A R&S NRP-Z92	Frequency 8 kHz to 6 GHz, max. power +20 dBm Frequency 9 kHz to 6 GHz, max. power +33 dBm
	R&S NRP18A R&S NRP18S R&S NRP-Z11	Max. power: +23 dBm
	R&S NRP18S-10 R&S NRP-Z22	Max. power: +33 dBm
E9300B	R&S NRP18S-20 R&S NRP-Z23	Max. power: +42 dBm
	R&S NRP18S-25 R&S NRP-Z24	Max. power: +45 dBm
E9301B	R&S NRP18S-20 R&S NRP-Z23	Max. power: +42 dBm
	R&S NRP18S-25 R&S NRP-Z24	Max. power: +45 dBm
	R&S NRP18S-10 R&S NRP6A R&S NRP-Z92	Max. power: +33 dBm Max. power: +20 dBm, frequency 8 kHz to 6 GHz Max. power: +33 dBm, frequency 9 kHz to 6 GHz

Table 3-4: E9320 series peak and average power sensors and their closest sensor substitutes

Keysight Technologies	Rohde & Schwarz	Note
E9321A	R&S NRP-Z81	Min. power: -60 dBm
E9322A	R&S NRP-Z81	
E9323A	R&S NRP-Z81	
E9325A	R&S NRP-Z81	Min. power: -60 dBm
E9326A	R&S NRP-Z81	
E9327A	R&S NRP-Z81	

Table 3-5: E4410 series CW power sensors and their closest sensor substitutes

Keysight Technologies	Rohde & Schwarz	Note
E4412A	R&S NRP18S	Min. power: -70 dBm, max. frequency: 18 GHz
	R&S NRP-Z21	Min. power: -67 dBm, max. frequency: 18 GHz
	R&S NRP8S	Min. power: -70 dBm, max. frequency: 8 GHz
	R&S NRP-Z11	Min. power: -67 dBm, max. frequency: 8 GHz
E4413A	R&S NRP33S	Min. power: -70 dBm, max. frequency: 33 GHz, 3.5 mm connector
	R&S NRP-Z31	Min. power: -67 dBm, max. frequency: 33 GHz, 3.5 mm connector



Instead of the R&S NRP-Z11 and R&S NRP-Z21 three-path diode power sensors listed in the above tables, the corresponding R&S NRP-Z211 and R&S NRP-Z221 two-path diode power sensors (dynamic range: -60 dBm to +20 dBm) can be used alternatively.

4 Basics

4.1 Remote control languages

Instruments implement different kinds of remote control languages. These languages are grouped into two basic categories:

- **SCPI-compatible**
Commands are routed directly from the remote interface to the R&S NRX SCPI command processing unit; responses are routed in the reverse direction.
- **Non-SCPI-compatible**
Older instruments often implement a simple, unstructured and non-SCPI-compatible language.



The R&S NRX offers a solution for SCPI-compatible languages only.

Table 4-1: Command examples

Function	N1911A / N1911A SCPI	R&S NRX SCPI
Resetting the instrument.	*RST	*RST
Selecting manual range mode.	:SENS1:RANG 0 :SENS1:RANG:AUTO OFF	:SENS1:RANG 0 :SENS1:RANG:AUTO OFF
Selecting logarithmic units.	:UNIT1:POW DBM :UNIT1:POW:RAT DB	:UNIT1:POW DBM :UNIT1:POW:RAT DB
Triggering a measurement and reading the result value.	:INIT1:CONT OFF :TRIG1:SOUR BUS :INIT1:IMM :TRIG1:IMM :FETC1?	:INIT1:CONT OFF :TRIG1:SOUR BUS :INIT1:IMM :TRIG1:IMM :FETC1?

4.2 Remote emulation compatibility

An emulated instrument having fewer features than, or the same features as, the R&S NRX can be replaced without special care.

However, replacing an emulated instrument having more features than the R&S NRX or features that differ from those of the R&S NRX requires additional care. Do the following:

- Ensure that the R&S NRX complies with the functional requirements.
- Verify that the application code does not use features of the emulated instrument which are not available in R&S NRX.

4.2.1 Command compatibility

In certain remote emulations, the R&S NRX acts as follows:

- Does not support all commands.
- Does not support all parameters of a command.
- Shows a different behavior for a command.

In the command tables of the different remote emulations, the status column gives compatibility information to a command.

Table 4-2: Command compatibility status

Status	Comment
✓	Command implementation is fully compatible.
See item n	Command implementation is not fully compatible. The implementation in the R&S NRX is as follows: <ul style="list-style-type: none"> • Does not support the same parameters as the emulated instrument does. • Has different functionality than the emulated instrument. • Reports an invalid parameter or execution error if possible.
O	Command is implemented without any functionality. The implementation in the R&S NRX is as follows: <ul style="list-style-type: none"> • Ignores setting commands. • Returns default value in query commands. • Does not report errors. • Does not change any operating mode of the instrument. • Does not change any system state of the instrument.
X	Command is not implemented. The implementation in the R&S NRX reports an unknown command error if possible.
+	Command has been added to enhance the functionality of the emulated instrument.

If the application software uses commands that are fully compatible, no special care has to be taken. The application software can be used as is.

If the application software uses commands that are not fully compatible, the application software must be verified and normally also modified. If the required modifications to the application software are infeasible, the R&S NRX cannot be used as replacement for another instrument.

4.2.2 IDN and OPT strings

The remote emulation provides user-defined responses to *IDN? and *OPT? queries. This feature is of informational character only and has no impact on the functionality of the R&S NRX.

4.3 Preset and reset

Changing the remote emulation does not automatically trigger a reset operation to the instrument. Therefore, execute a reset to the R&S NRX manually after changing the remote emulation. Apply the default state of a particular remote emulation as follows:

- Press the [Preset] key on the front panel of the R&S NRX.
- Send the corresponding command using the remote control interface, e.g. the *RST command in SCPI-compatible languages.

4.4 Switching on and off

The selected remote emulation and the user-defined response to *IDN? and *OPT? queries are saved when the R&S NRX is switched off.

When the R&S NRX is switched on again, it starts up with the same settings that were active before it was switched off.

5 Enabling a remote emulation

To use a specific remote emulation, you have to enable it first as follows:

- Manually at the R&S NRX front panel.
- Remotely using SCPI commands.

For a detailed description, refer to the R&S NRX user manual.

5.1 Modifying remote emulation parameters

Use the following commands to modify the remote emulation parameters.

Table 5-1: Commands to modify remote emulation-relevant settings

Command	Comment
SYSTem:IDN:ANSWer <value>	Sets the user-defined response to a *IDN? query. The string-type parameter <value> allows up to 128 characters. Enclose the parameter in single or double quotes.
SYSTem:IDN:ANSWer?	Gets the user-defined response to a *IDN? query.

Command	Comment
SYSTem:IDN:AUTO <value>	<p>Sets the state of the user-defined response to a *IDN? query.</p> <p>If the user-defined response is enabled, the value provided with the SYSTem:IDN <value> command is returned.</p> <p>If the user-defined response is disabled, the factory default setting is returned.</p> <p>The value range of the boolean-type parameter <value> is:</p> <ul style="list-style-type: none"> • ON or 1 • OFF or 0
SYSTem:IDN:AUTO?	Gets the state of the user-defined response to a *IDN? query.
SYSTem:OPT:ANSWer <value>	<p>Sets the user-defined response to a *OPT? query.</p> <p>The string-type parameter <value> allows up to 128 characters. Enclose the parameter in single or double quotes.</p>
SYSTem:OPT:ANSWer?	Gets the user-defined response to a *OPT? query.
SYSTem:OPT:AUTO <value>	<p>Sets the state of the user-defined response to a *OPT? query.</p> <p>If the user-defined response is enabled, the value provided with the SYSTem:OPT <value> command is returned.</p> <p>If the user-defined response is disabled, the factory default setting is returned.</p> <p>The value range of the boolean-type parameter <value> is:</p> <ul style="list-style-type: none"> • ON or 1 • OFF or 0
:SYSTem:OPT:AUTO?	Gets the state of the user-defined response to a *OPT? query.
SYSTem:LANGUage "<value>"	<p>Enables the remote emulation to be used for further communications.</p> <p>The value range of the character-type parameter <value> is:</p> <ul style="list-style-type: none"> • NRX • NRP • NRP2 • E4418B • E4419B • N432A • N1911A • N1912A <p>Attention:</p> <p>The remote emulation is changed immediately after parsing this command. Switching the language does not automatically perform a reset of the device.</p> <p>After sending this command, apply a delay of two seconds to the application software before sending the next command.</p>
SYSTem:LANGUage?	Gets the current remote emulation.



The upper-case and lower-case notation serves to distinguish between the long and the short form of a command. The instrument itself does not distinguish between upper-case and lower-case notation.

6 Emulating the R&S NRP2

The R&S NRP2 command set is compatible to the original R&S NRX command set. For information about commands and parameters, refer to [2].

However, there are some differences in detail, e.g. the interpretation of the SCPI suffix with `INIT`, `TRIGger` and `UNIT` commands. Therefore, the R&S NRX must be switched to emulation mode anyway.

7 Emulating the R&S NRP

The R&S NRP command set is compatible to the original R&S NRX command set. For information about commands and parameters, refer to [1].

However, there are some differences in detail, e.g. the interpretation of the SCPI suffix with `INIT`, `TRIGger` and `UNIT` commands. Therefore, the R&S NRX must be switched to emulation mode anyway.

8 Emulating the Keysight Technologies E4418B/E4419B

The remote emulation is based on the E4418B and E4419B firmware version A1.09.01 and A2.09.01.

One or two sensors connected to plug A or B are supported.

Table 8-1: Sensor/connector mapping

E4418B	R&S NRX
Sensor A	Sensor A

Table 8-2: Sensor/connector mapping

E4419B	R&S NRX
Sensor A	Sensor A
Sensor B	Sensor B

Table 8-3: Sensor/window mapping

E4418B / E4419B	R&S NRX
Upper window / upper measurement	Window 1
Upper window / lower measurement	Window 3

E4418B / E4419B	R&S NRX
Lower window / upper measurement	Window 2
Lower window / lower measurement	Window 4

8.1 Limitations

Display management commands (DISPly subsystem) are currently extremely restricted.

8.2 Commands

The following tables show the current implementation status of each command.

8.2.1 Interface functions

Command syntax	Status
DCL	✓
GET	✓
GTL	✓
IFC	✓
LLO	✓
PPC	X
PPD	X
PPE	X
PPU	X
REN	✓
SDC	✓
SPD	✓
SPE	✓
SRQ	✓

8.2.2 IEEE488.2 functions

Command syntax	Status
*CLS	✓
*DDT	○
*DDT?	○
*ESE	✓
*ESE?	✓
*ESR?	✓
*IDN?	See item 1 in Table 8-4 .
*OPC	✓
*OPC?	✓
*OPT?	✓
*RCL	✓
*RST	✓
*SAV	✓
*SRE	✓
*SRE?	✓
*STB?	✓
*TRG	✓
*TST?	✓
*WAI	✓

8.2.3 Device-specific functions

Command syntax	Status
ABORT[1] 2	✓
CALCulate[1] 2:GAIN[:MAGNitude]	✓
CALCulate[1] 2:GAIN[:MAGNitude]?	✓
CALCulate[1] 2:GAIN:STATe	✓
CALCulate[1] 2:GAIN:STATe?	✓
CALCulate[1] 2:LIMit:CLEar:AUTo	✓
CALCulate[1] 2:LIMit:CLEar:AUTo?	✓
CALCulate[1] 2:Limit:CLEar[:IMMediate]	✓
CALCulate[1] 2:LIMit:FAIL?	✓
CALCulate[1] 2:LIMit:FCOunt?	✓

Command syntax	Status
CALCulate[1] 2:LIMit:LOWer[:DATA]	✓
CALCulate[1] 2:LIMit:LOWer[:DATA]?	✓
CALCulate[1] 2:LIMit:STATe	✓
CALCulate[1] 2:LIMit:STATe?	✓
CALCulate[1] 2:LIMit:UPPer[:DATA]	✓
CALCulate[1] 2:LIMit:UPPer[:DATA]?	✓
CALCulate[1] 2:MATH[:EXPRession]	✓
CALCulate[1] 2:MATH[:EXPRession]?	✓
CALCulate[1] 2:MATH[:EXPRession]:CATalog?	✓
CALCulate[1] 2:RELative[:MAGNitude]:AUTO	✓
CALCulate[1] 2:RELative[:MAGNitude]:AUTO?	✓
CALCulate[1] 2:RELative:STATe	✓
CALCulate[1] 2:RELative:STATe?	✓
CALibration[1] 2[:ALL]	See item 6 in Table 8-4 .
CALibration[1] 2[:ALL]?	
CALibration[1] 2:AUTO	See item 7 in Table 8-4 .
CALibration[1] 2:AUTO?	
CALibration[1] 2:ECONtrol:STATe	X
CALibration[1] 2:ECONtrol:STATe?	X
CALibration[1] 2:RCALibration	X
CALibration[1] 2:RCALibration?	X
CALibration[1] 2:RCFactor	X
CALibration[1] 2:RCFactor?	X
CALibration[1] 2:ZERO:AUTO	✓
CALibration[1] 2:ZERO:AUTO?	✓
CONFigure[1] 2[:SCALar][:POWER:AC]	✓
CONFigure[1] 2[:SCALar][:POWER:AC]:DIFFerence	✓
CONFigure[1] 2[:SCALar][:POWER:AC]:DIFFerence:RELative	✓
CONFigure[1] 2[:SCALar][:POWER:AC]:RATio	✓
CONFigure[1] 2[:SCALar][:POWER:AC]:RATio:RELative	✓
CONFigure[1] 2[:SCALar][:POWER:AC]:RELative	✓
DISPlay:CONtRast	X
DISPlay:CONtRast?	X
DISPlay:ENABle	✓
DISPlay:ENABle?	✓
DISPlay[:WINDow[1] 2]:FORMat	X
DISPlay[:WINDow[1] 2]:FORMat?	X

Command syntax	Status
DISPlay[:WINDow[1] 2]:METer:LOWer	✓
DISPlay[:WINDow[1] 2]:METer:LOWer?	✓
DISPlay[:WINDow[1] 2]:METer:UPPer	✓
DISPlay[:WINDow[1] 2]:METer:UPPer?	✓
DISPlay[:WINDow[1] 2]:RESolution	✓
DISPlay[:WINDow[1] 2]:RESolution?	✓
DISPlay[:WINDow[1] 2]:SElect[1] 2	✓
DISPlay[:WINDow[1] 2]:SElect[1] 2?	✓
DISPlay[:WINDow[1] 2][:STATe]	✗
DISPlay[:WINDow[1] 2][:STATe]?	✗
FETCh[1] 2[:SCALar][:POWer:AC]?	✓
FETCh[1] 2[:SCALar][:POWer:AC]:DIFFerence?	✓
FETCh[1] 2[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
FETCh[1] 2[:SCALar][:POWer:AC]:RATio?	✓
FETCh[1] 2[:SCALar][:POWer:AC]:RATio:RELative?	✓
FETCh[1] 2[:SCALar][:POWer:AC]:RELative?	✓
FORMat[:READings]:BORDER	✓
FORMat[:READings]:BORDER?	✓
FORMat[:READings][:DATA]	✓
FORMat[:READings][:DATA]?	✓
INITiate[1] 2:CONTinuous	✓
INITiate[1] 2:CONTinuous?	✓
INITiate[1] 2[:IMMediate]	✓
MEASure[1] 2[:SCALar][:POWer:AC]?	✓
MEASure[1] 2[:SCALar][:POWer:AC]:DIFFerence?	✓
MEASure[1] 2[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
MEASure[1] 2[:SCALar][:POWer:AC]:RATio?	✓
MEASure[1] 2[:SCALar][:POWer:AC]:RATio:RELative?	✓
MEASure[1] 2[:SCALar][:POWer:AC]:RELative?	✓
MEMory:CATalog[:ALL]?	✓
MEMory:CATalog:STATe?	✓
MEMory:CATalog:TABLE?	✓
MEMory:CLEar[:NAME]	✓
MEMory:CLEar:TABLE	✓
MEMory:FREE[:ALL]?	✓

Command syntax	Status
MEMory:FREE:STATe?	✓
MEMory:FREE:TABLe?	✓
MEMory:NSTATes?	✓
MEMory:STATe:CATalog?	✓
MEMory:STATe:DEFine	✓
MEMory:STATe:DEFine?	✓
MEMory:TABLe:FREQuency	✓
MEMory:TABLe:FREQuency?	✓
MEMory:TABLe:FREQuency:POINts?	✓
MEMory:TABLe:GAIN[:MAGNitude]	✓
MEMory:TABLe:GAIN[:MAGNitude]?	✓
MEMory:TABLe:GAIN[:MAGNitude]:POINts?	✓
MEMory:TABLe:MOVE	✓
MEMory:TABLe:SElect	✓
MEMory:TABLe:SElect?	✓
OUTPut:ROSCillator[:STATe]	✓
OUTPut:ROSCillator[:STATe]?	✓
OUTPut:TTL[1] 2:ACTive	✓
OUTPut:TTL[1] 2:ACTive?	✓
OUTPut:TTL[1] 2:FEED	✓
OUTPut:TTL[1] 2:FEED?	✓
OUTPut:TTL[1 2]:STATe	✓
OUTPut:TTL[1 2]:STATe?	✓
READ[1] 2[:SCALar][:POWER:AC]?	✓
READ[1] 2[:SCALar][:POWER:AC]:DIFFerence?	✓
READ[1] 2[:SCALar][:POWER:AC]:DIFFerence:RELative?	✓
READ[1] 2[:SCALar][:POWER:AC]:RATio?	✓
READ[1] 2[:SCALar][:POWER:AC]:RATio:RELative?	✓
READ[1] 2[:SCALar][:POWER:AC]:RELative?	✓
[SENSe[1] 2]:AVERage:COUNT	✓
[SENSe[1] 2]:AVERage:COUNT?	✓
[SENSe[1] 2]:AVERage:COUNT:AUTO	✓
[SENSe[1] 2]:AVERage:COUNT:AUTO?	✓
[SENSe[1] 2]:AVERage:SDETECT	x
[SENSe[1] 2]:AVERage:SDETECT?	x

Command syntax	Status
[SENSe [1] 2]:AVERage[:STATe]	✓
[SENSe [1] 2]:AVERage[:STATe]?	✓
[SENSe [1] 2]:CORRection:CFACTOR[:INPut][:MAGNitude]	X
[SENSe [1] 2]:CORRection:CFACTOR[:INPut][:MAGNitude]?	X
[SENSe [1] 2]:CORRection:CSET1[:SElect]	See item 9 in Table 8-4 .
[SENSe [1] 2]:CORRection:CSET1[:SElect]?	
[SENSe [1] 2]:CORRection:CSET2[:SElect]	✓
[SENSe [1] 2]:CORRection:CSET2[:SElect]?	✓
[SENSe [1] 2]:CORRection:CSET1:STATe	See item 10 in Table 8-4 .
[SENSe [1] 2]:CORRection:CSET1:STATe?	
[SENSe [1] 2]:CORRection:CSET2:STATe	✓
[SENSe [1] 2]:CORRection:CSET2:STATe?	✓
[SENSe [1] 2]:CORRection:DCYCLe[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:DCYCLe[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:DCYCLe:STATe	✓
[SENSe [1] 2]:CORRection:DCYCLe:STATe?	✓
[SENSe [1] 2]:CORRection:FDOFFset[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:FDOFFset[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:GAIN[1][:INPut][:MAGNitude]	X
[SENSe [1] 2]:CORRection:GAIN[1][:INPut][:MAGNitude]?	X
[SENSe [1] 2]:CORRection:GAIN2[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:GAIN2[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:GAIN3[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:GAIN3[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:GAIN4[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:GAIN4[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:GAIN2:STATe	✓
[SENSe [1] 2]:CORRection:GAIN2:STATe?	✓
[SENSe [1] 2]:CORRection:GAIN3:STATe	✓
[SENSe [1] 2]:CORRection:GAIN3:STATe?	✓
[SENSe [1] 2]:CORRection:LOSS2[:INPut][:MAGNitude]	✓
[SENSe [1] 2]:CORRection:LOSS2[:INPut][:MAGNitude]?	✓
[SENSe [1] 2]:CORRection:LOSS2:STATe	✓
[SENSe [1] 2]:CORRection:LOSS2:STATe?	✓
[SENSe [1] 2]:FREQuency[:CW :FIXed]	✓
[SENSe [1] 2]:FREQuency[:CW :FIXed]?	✓
[SENSe [1] 2]:LIMit:CLEar:AUTO	X
[SENSe [1] 2]:LIMit:CLEar:AUTO?	X

Command syntax	Status
[SENSe[1] 2]:LIMit:CLEar[:IMMediate]	X
[SENSe[1] 2]:LIMit:FAIL?	X
[SENSe[1] 2]:LIMit:FCOut?	X
[SENSe[1] 2]:LIMit:LOWer[:DATA]	X
[SENSe[1] 2]:LIMit:LOWer[:DATA]?	X
[SENSe[1] 2]:LIMit:STATe	X
[SENSe[1] 2]:LIMit:STATe?	X
[SENSe[1] 2]:LIMit:UPPer[:DATA]	X
[SENSe[1] 2]:LIMit:UPPer[:DATA]?	X
[SENSe[1] 2]:POWER:AC:RANGe	✓
[SENSe[1] 2]:POWER:AC:RANGe?	✓
[SENSe[1] 2]:POWER:AC:RANGe:AUTO	✓
[SENSe[1] 2]:POWER:AC:RANGe:AUTO?	✓
[SENSe[1] 2]:SPEed	See item 8 in Table 8-4 .
[SENSe[1] 2]:SPEed?	
[SENSe[1] 2]:V2P	X
[SENSe[1] 2]:V2P?	X
SERvice:OPTion	✓
SERvice:OPTion[?]	✓
SERvice:SENSor[1] 2:CDATe?	✓
SERvice:SENSor[1] 2:CPLace?	X
SERvice:SENSor[1] 2:SNUMber?	✓
SERvice:SENSor[1] 2:TYPE?	X
SERvice:SNUMber	X
SERvice:SNUMber?	✓
SERvice:VERSion:PROcEssor	✓
SERvice:VERSion:PROcEssor?	✓
SERvice:VERSion:SYSTem	✓
SERvice:VERSion:SYSTem?	✓
STATus:DEvice:CONDition?	✓
STATus:DEvice:ENABle	✓
STATus:DEvice:ENABle?	✓
STATus:DEvice[:EVENT]?	✓
STATus:DEvice:NTRansition	✓
STATus:DEvice:NTRansition?	✓
STATus:DEvice:PTRansition	✓
STATus:DEvice:PTRansition?	✓

Command syntax	Status
STATus:OPERation:CONDition?	✓
STATus:OPERation:ENABLE	✓
STATus:OPERation:ENABLE?	✓
STATus:OPERation[:EVENT]?	✓
STATus:OPERation:NTRansition	✓
STATus:OPERation:NTRansition?	✓
STATus:OPERation:PTRansition	✓
STATus:OPERation:PTRansition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:CONDition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:ENABLE	✓
STATus:OPERation:CALibrating[:SUMMARY]:ENABLE?	✓
STATus:OPERation:CALibrating[:SUMMARY][:EVENT]?	✓
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition?	✓
STATus:OPERation:LLFail[:SUMMARY]:CONDition?	See item 5 in Table 8-4 .
STATus:OPERation:LLFail[:SUMMARY]:ENABLE	See item 5 in Table 8-4 .
STATus:OPERation:LLFail[:SUMMARY]:ENABLE?	
STATus:OPERation:LLFail[:SUMMARY][:EVENT]?	See item 5 in Table 8-4 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition	See item 5 in Table 8-4 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition?	
STATus:OPERation:LLFail[:SUMMARY]:PTRansition	See item 5 in Table 8-4 .
STATus:OPERation:LLFail[:SUMMARY]:PTRansition?	
STATus:OPERation:MEASuring[:SUMMARY]:CONDition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABLE	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABLE?	✓
STATus:OPERation:MEASuring[:SUMMARY][:EVENT]?	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition?	✓
STATus:OPERation:SENSE[:SUMMARY]:CONDition?	✓
STATus:OPERation:SENSE[:SUMMARY]:ENABLE	✓
STATus:OPERation:SENSE[:SUMMARY]:ENABLE?	✓
STATus:OPERation:SENSE[:SUMMARY][:EVENT]?	✓

Command syntax	Status
STATus:OPERation:SENSe[:SUMMary]:NTRansition	✓
STATus:OPERation:SENSe[:SUMMary]:NTRansition?	✓
STATus:OPERation:SENSe[:SUMMary]:PTRansition	✓
STATus:OPERation:SENSe[:SUMMary]:PTRansition?	✓
STATus:OPERation:TRIGger[:SUMMary]:CONDition?	✓
STATus:OPERation:TRIGger[:SUMMary]:ENABle	✓
STATus:OPERation:TRIGger[:SUMMary]:ENABle?	✓
STATus:OPERation:TRIGger[:SUMMary][:EVENT]?	✓
STATus:OPERation:TRIGger[:SUMMary]:NTRansition	✓
STATus:OPERation:TRIGger[:SUMMary]:NTRansition?	✓
STATus:OPERation:TRIGger[:SUMMary]:PTRansition	✓
STATus:OPERation:TRIGger[:SUMMary]:PTRansition?	✓
STATus:OPERation:ULFail[:SUMMary]:CONDition?	See item 5 in Table 8-4 .
STATus:OPERation:ULFail[:SUMMary]:ENABle	See item 5 in Table 8-4 .
STATus:OPERation:ULFail[:SUMMary]:ENABle?	
STATus:OPERation:ULFail[:SUMMary][:EVENT]?	See item 5 in Table 8-4 .
STATus:OPERation:ULFail[:SUMMary]:NTRansition	See item 5 in Table 8-4 .
STATus:OPERation:ULFail[:SUMMary]:NTRansition?	
STATus:OPERation:ULFail[:SUMMary]:PTRansition	See item 5 in Table 8-4 .
STATus:OPERation:ULFail[:SUMMary]:PTRansition?	
STATus:PRESet	✓
STATus:QUEStionable:CONDition?	✓
STATus:QUEStionable:ENABle	✓
STATus:QUEStionable:ENABle?	✓
STATus:QUEStionable[:EVENT]?	✓
STATus:QUEStionable:NTRansition	✓
STATus:QUEStionable:NTRansition?	✓
STATus:QUEStionable:PTRansition	✓
STATus:QUEStionable:PTRansition?	✓
STATus:QUEStionable:CALibration[:SUMMary]:CONDition?	✓
STATus:QUEStionable:CALibration[:SUMMary]:ENABle	✓
STATus:QUEStionable:CALibration[:SUMMary]:ENABle?	✓
STATus:QUEStionable:CALibration[:SUMMary][:EVENT]?	✓
STATus:QUEStionable:CALibration[:SUMMary]:NTRansition	✓
STATus:QUEStionable:CALibration[:SUMMary]:NTRansition?	✓
STATus:QUEStionable:CALibration[:SUMMary]:PTRansition	✓
STATus:QUEStionable:CALibration[:SUMMary]:PTRansition?	✓

Command syntax	Status
STATus:QUEStionable:POWer[:SUMMary]:CONDition?	✓
STATus:QUEStionable:POWer[:SUMMary]:ENABle	✓
STATus:QUEStionable:POWer[:SUMMary]:ENABle?	✓
STATus:QUEStionable:POWer[:SUMMary][:EVENT]?	✓
STATus:QUEStionable:POWer[:SUMMary]:NTRansition	✓
STATus:QUEStionable:POWer[:SUMMary]:NTRansition?	✓
STATus:QUEStionable:POWer[:SUMMary]:PTRansition	✓
STATus:QUEStionable:POWer[:SUMMary]:PTRansition?	✓
SYSTem:COMMunicate:GPIB[:SELf]:ADDReSS	✓
SYSTem:COMMunicate:GPIB[:SELf]:ADDReSS?	✓
SYSTem:COMMunicate:SERial:CONTRol:DTR	X
SYSTem:COMMunicate:SERial:CONTRol:DTR?	X
SYSTem:COMMunicate:SERial:CONTRol:RTS	X
SYSTem:COMMunicate:SERial:CONTRol:RTS?	X
SYSTem:COMMunicate:SERial[:RECeive]:BAUD	X
SYSTem:COMMunicate:SERial[:RECeive]:BAUD?	X
SYSTem:COMMunicate:SERial[:RECeive]:BITs	X
SYSTem:COMMunicate:SERial[:RECeive]:BITs?	X
SYSTem:COMMunicate:SERial[:RECeive]:PACE	X
SYSTem:COMMunicate:SERial[:RECeive]:PACE?	X
SYSTem:COMMunicate:SERial[:RECeive]:PARity[:TYPE]	X
SYSTem:COMMunicate:SERial[:RECeive]:PARity[:TYPE]?	X
SYSTem:COMMunicate:SERial[:RECeive]:SBITs	X
SYSTem:COMMunicate:SERial[:RECeive]:SBITs?	X
SYSTem:COMMunicate:SERial:TRANsmIT:AUTO?	X
SYSTem:COMMunicate:SERial:TRANsmIT:BAUD	X
SYSTem:COMMunicate:SERial:TRANsmIT:BAUD?	X
SYSTem:COMMunicate:SERial:TRANsmIT:BITs	X
SYSTem:COMMunicate:SERial:TRANsmIT:BITs?	X
SYSTem:COMMunicate:SERial:TRANsmIT:ECHO	X
SYSTem:COMMunicate:SERial:TRANsmIT:ECHO?	X
SYSTem:COMMunicate:SERial:TRANsmIT:PACE	X
SYSTem:COMMunicate:SERial:TRANsmIT:PACE?	X
SYSTem:COMMunicate:SERial:TRANsmIT:PARity[:TYPE]	X
SYSTem:COMMunicate:SERial:TRANsmIT:PARity[:TYPE]?	X
SYSTem:COMMunicate:SERial:TRANsmIT:SBITs	X
SYSTem:COMMunicate:SERial:TRANsmIT:SBITs?	X

Differences between the emulated instrument and the R&S NRX

Command syntax	Status
SYSTem:ERRor?	See item 2 in Table 8-4 .
SYSTem:LANGuage SYSTem:LANGuage?	See item 3 in Table 8-4 .
SYSTem:LOCal	✓
SYSTem:PRESet	✓
SYSTem:REMote	✓
SYSTem:RINTerface SYSTem:RINTerface?	See item 4 in Table 8-4 .
SYSTem:RWLock	✓
SYSTem:VERSion?	See item 2 in Table 8-4
TRIGger[1] 2:DELay:AUTO	✓
TRIGger[1] 2:DELay:AUTO?	✓
TRIGger[1] 2[:IMMediate]	✓
TRIGger[1] 2:SOURce	✓
TRIGger[1] 2:SOURce?	✓
UNIT[1] 2:POWer	✓
UNIT[1] 2:POWer?	✓
UNIT[1] 2:POWer:RATio	✓
UNIT[1] 2:POWer:RATio?	✓

8.3 Differences between the emulated instrument and the R&S NRX

[Table 8-4](#) lists all remaining differences in command and/or parameter implementation. Take these differences into consideration, since they can lead to necessary modifications of application code parts.

Table 8-4: Details

Item	Comment
1	Response at E4418B is: "Keysight,E4418B,MY< serialnumber>,A1.09.01" Response at E4419B is: "Keysight,E4419B,MY< serialnumber>,A2.09.01"
2	Response data is not mapped to E4418B/E4419B response data range.
3	Additional parameter values are: NRP, NRP2, NRX, N432A, E4418B, E4419B, N1911A, N1912A
4	Parameter values RS232 and RS422 are not supported.

Item	Comment
5	Bits that are not supported: <ul style="list-style-type: none"> • 1: channel A LL or UL fail status • 2: channel B LL or UL fail status
6	R&S power sensors are factory calibrated. Calibration during normal operation is superseded. Zeroing is executed, calibrating is simulated by a delay of 1 s.
7	R&S power sensors are factory calibrated. Calibration during normal operation is superseded. Calibrating is simulated by a delay of 1 s.
8	Parameter value 200 (measurements/s) is not supported.
9	Command is recognized but has no effect. Response is: ""
10	Command is recognized but has no effect. Response is: 0

9 Emulating the Keysight Technologies N432A

One sensor connected to plug A is supported.

Table 9-1: Sensor/connector mapping

N432A	R&S NRX
Sensor A	Sensor A

Table 9-2: Sensor/window mapping

N432A	R&S NRX
Upper window / upper measurement	Window 1
Upper window / lower measurement	Window 3
Lower window / upper measurement	Window 2
Lower window / lower measurement	Window 4

9.1 Limitations

Display management commands (DISP_lay subsystem) are extremely restricted.

9.2 Commands

The following tables show the current implementation status of each command.

9.2.1 Interface functions

Command syntax	Status
DCL	✓
GET	✓
GTL	✓
IFC	✓
LLO	✓
PPC	✗
PPD	✗
PPE	✗
PPU	✗
REN	✓
SDC	✓
SPD	✓
SPE	✓
SRQ	✓

9.2.2 IEEE488.2 functions

Command syntax	Status
*CLS	✓
*DDT	○
*DDT?	○
*ESE	✓
*ESE?	✓
*ESR?	✓
*IDN?	See item 1 in Table 9-3 .
*OPC	✓
*OPC?	✓
*OPT?	✓
*RCL	✓

Command syntax	Status
*RST	✓
*SAV	✓
*SRE	✓
*SRE?	✓
*STB?	✓
*TRG	✓
*TST?	✓
*WAI	✓

9.2.3 Device-specific functions

Command syntax	Status
ABORT [1]	✓
CALCulate [1] 2 3 4 : HOLD : STATE	✓
CALCulate [1] 2 3 4 : HOLD : STATE ?	✓
CALCulate [1] 2 3 4 : FEED [1] 2	✓
CALCulate [1] 2 3 4 : FEED [1] 2 ?	✓
CALCulate [1] 2 3 4 : GAIN [: MAGNitude]	✓
CALCulate [1] 2 3 4 : GAIN [: MAGNitude] ?	✓
CALCulate [1] 2 3 4 : GAIN : STATE	✓
CALCulate [1] 2 3 4 : GAIN : STATE ?	✓
CALCulate [1] 2 3 4 : LIMit : CLear : AUTO	✓
CALCulate [1] 2 3 4 : LIMit : CLear : AUTO ?	✓
CALCulate [1] 2 3 4 : LIMit : CLear [: IMMEDIATE]	✓
CALCulate [1] 2 3 4 : LIMit : FAIL ?	✓
CALCulate [1] 2 3 4 : LIMit : FCOUNT ?	✓
CALCulate [1] 2 3 4 : LIMit : LOWer [: DATA]	✓
CALCulate [1] 2 3 4 : LIMit : LOWer [: DATA] ?	✓
CALCulate [1] 2 3 4 : LIMit : STATE	✓
CALCulate [1] 2 3 4 : LIMit : STATE ?	✓
CALCulate [1] 2 : LIMit : UPPER [: DATA]	✓
CALCulate [1] 2 : LIMit : UPPER [: DATA] ?	✓
CALCulate [1] 2 3 4 : MATH [: EXPReSSion]	✓
CALCulate [1] 2 3 4 : MATH [: EXPReSSion] ?	✓
CALCulate [1] 2 3 4 : MATH [: EXPReSSion] : CATALog ?	✓

Command syntax	Status
CALCulate[1] 2 3 4:RELative[:MAGNitude]:AUTO	✓
CALCulate[1] 2 3 4:RELative[:MAGNitude]:AUTO?	✓
CALCulate[1] 2 3 4:RELative:STATe	✓
CALCulate[1] 2 3 4:RELative:STATe?	✓
CALibration[1]:RCFactor	x
CALibration[1]:RCFactor?	x
CALibration[1]:ZERO:AUTO	✓
CALibration[1]:ZERO:AUTO?	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]:DIFFerence	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]:DIFFerence:RELative	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]:RATio	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]:RATio:RELative	✓
CONFigure[1] 2 3 4[:SCALar][:POWER:AC]:RELative	✓
DISPlay:ENABle	✓
DISPlay:ENABle?	✓
DISPlay:SCReen:FORMat	See item 2 in Table 9-3 .
DISPlay:SCReen:FORMat?	
DISPlay[:WINDow[1] 2]:ANALog:LOWer	✓
DISPlay[:WINDow[1] 2]:ANALog:LOWer?	✓
DISPlay[:WINDow[1] 2]:ANALog:UPPer	✓
DISPlay[:WINDow[1] 2]:ANALog:UPPer?	✓
DISPlay[:WINDow[1] 2]:FORMat	✓
DISPlay[:WINDow[1] 2]:FORMat?	✓
DISPlay[:WINDow[1] 2]:METer:LOWer	✓
DISPlay[:WINDow[1] 2]:METer:LOWer?	✓
DISPlay[:WINDow[1] 2]:METer:UPPer	✓
DISPlay[:WINDow[1] 2]:METer:UPPer?	✓
DISPlay[:WINDow[1] 2]:NUMeric[1] 2:RESolution	✓
DISPlay[:WINDow[1] 2]:NUMeric[1] 2:RESolution?	✓
DISPlay[:WINDow[1] 2]:SELect[1] 2	✓
DISPlay[:WINDow[1] 2]:SELect[1] 2?	✓
DISPlay[:WINDow[1] 2][:STATe]	✓
DISPlay[:WINDow[1] 2][:STATe]?	✓
FETCh[1] 2 3 4[:SCALar][:POWER:AC]?	✓
FETCh[1] 2 3 4[:SCALar][:POWER:AC]:DIFFerence?	✓

Command syntax	Status
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RATio?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RELative?	✓
FORMat[:READings]:BORDER	✓
FORMat[:READings]:BORDER?	✓
FORMat[:READings][:DATA]	✓
FORMat[:READings][:DATA]?	✓
HCOpy:SDUMp:DATA	✓
HCOpy:SDUMp:DATA?	✓
HCOpy:SDUMp:DATA:FORMat	See item 3 in Table 9-3 .
HCOpy:SDUMp:DATA:FORMat?	
LXI:IDENtify[:STATE]	x
LXI:IDENtify[:STATE]?	x
INITiate[1]:CONTinuous	✓
INITiate[1]:CONTinuous?	✓
INITiate[1]:CONTinuous:ALL	✓
INITiate[1]:CONTinuous:ALL?	✓
INITiate[1]:CONTinuous:SEquence[1]	✓
INITiate[1]:CONTinuous:SEquence[1]?	✓
INITiate[1][:IMMediate]	✓
INITiate[1][:IMMediate]:ALL	✓
INITiate[1][:IMMediate]:SEquence[1]	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RATio?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RELative?	✓
MEMory:CATalog[:ALL]?	✓
MEMory:CATalog:STATE?	✓
MEMory:CATalog:TABLE?	✓
MEMory:CLEar[:NAME]	✓
MEMory:CLEar:TABLE	✓
MEMory:FREE[:ALL]?	✓

Command syntax	Status
MEMory:FREE:STATe?	✓
MEMory:FREE:TABLE?	✓
MEMory:NSTATes?	✓
MEMory:STATe:CATalog?	✓
MEMory:STATe:DEFine	✓
MEMory:STATe:DEFine?	✓
MEMory:TABLE:FREQuency	✓
MEMory:TABLE:FREQuency?	✓
MEMory:TABLE:FREQuency:POINts?	✓
MEMory:TABLE:GAIN[:MAGNitude]	✓
MEMory:TABLE:GAIN[:MAGNitude]?	✓
MEMory:TABLE:GAIN[:MAGNitude]:POINts?	✓
MEMory:TABLE:MOVE	✓
MEMory:TABLE:SElect	✓
MEMory:TABLE:SElect?	✓
OUTPut:REcorder[1]:FEED	✓
OUTPut:REcorder[1]:FEED?	✓
OUTPut:REcorder[1]:LIMit:AUTO	✗
OUTPut:REcorder[1]:LIMit:AUTO?	✗
OUTPut:REcorder[1]:LIMit:LOWer	✓
OUTPut:REcorder[1]:LIMit:LOWer?	✓
OUTPut:REcorder[1]:LIMit:UPPer	✓
OUTPut:REcorder[1]:LIMit:UPPer?	✓
OUTPut:REcorder[1][:STATe]	✓
OUTPut:REcorder[1][:STATe]?	✓
OUTPut:ROScillator[:STATe]	✓
OUTPut:ROScillator[:STATe]?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]:RATio?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative?	✓
READ[1] 2 3 4[:SCALar][:POWer:AC]:RELative?	✓
[SENSe[1]]:AVERage:COUNT:VOLT	✓
[SENSe[1]]:AVERage:COUNT: VOLT?	✓

Command syntax	Status
[SENSe[1]]:AVERage:SDEtect	X
[SENSe[1]]:AVERage:SDEtect?	X
[SENSe[1]]:BRESistance	X
[SENSe[1]]:BRESistance?	X
[SENSe[1]]:CORRection:CFACTOR[:INPut][:MAGNitude]	X
[SENSe[1]]:CORRection:CFACTOR[:INPut][:MAGNitude]?	X
[SENSe[1]]:CORRection:CSET1[:SElect]	See item 6 in Table 9-3 .
[SENSe[1]]:CORRection:CSET1[:SElect]?	
[SENSe[1]]:CORRection:CSET2[:SElect]	✓
[SENSe[1]]:CORRection:CSET2[:SElect]?	✓
[SENSe[1]]:CORRection:CSET1:STATe	See item 7 in Table 9-3 .
[SENSe[1]]:CORRection:CSET1:STATe?	
[SENSe[1]]:CORRection:CSET2:STATe	✓
[SENSe[1]]:CORRection:CSET2:STATe?	✓
[SENSe[1]]:CORRection:DCYClE[:INPut][:MAGNitude]	✓
[SENSe[1]]:CORRection:DCYClE[:INPut][:MAGNitude]?	✓
[SENSe[1]]:CORRection:DCYClE:STATe	✓
[SENSe[1]]:CORRection:DCYClE:STATe?	✓
[SENSe[1]]:CORRection:FDOFfset[:INPut][:MAGNitude]	✓
[SENSe[1]]:CORRection:FDOFfset[:INPut][:MAGNitude]?	✓
[SENSe[1]]:CORRection:GAIN[1][:INPut][:MAGNitude]	X
[SENSe[1]]:CORRection:GAIN[1][:INPut][:MAGNitude]?	X
[SENSe[1]]:CORRection:GAIN2[:INPut][:MAGNitude]	✓
[SENSe[1]]:CORRection:GAIN2[:INPut][:MAGNitude]?	✓
[SENSe[1]]:CORRection:GAIN3[:INPut][:MAGNitude]	✓
[SENSe[1]]:CORRection:GAIN3[:INPut][:MAGNitude]?	✓
[SENSe[1]]:CORRection:GAIN4[:INPut][:MAGNitude]	✓
[SENSe[1]]:CORRection:GAIN4[:INPut][:MAGNitude]?	✓
[SENSe[1]]:CORRection:GAIN2:STATe	✓
[SENSe[1]]:CORRection:GAIN2:STATe?	✓
[SENSe[1]]:CORRection:GAIN3:STATe	✓
[SENSe[1]]:CORRection:GAIN3:STATe?	✓
[SENSe[1]]:FREQuency[:CW]:FIXed	✓
[SENSe[1]]:FREQuency[:CW]:FIXed?	✓
[SENSe[1]]:RSElection	X
[SENSe[1]]:RSElection?	X
[SENSe[1]]:RVALue	X
[SENSe[1]]:RVALue?	X

Command syntax	Status
SERvice:BACKlight:BRIGhtness	X
SERvice:BACKlight:BRIGhtness?	X
SERvice:BIST:CALibrator	X
SERvice: BIST:CALibrator?	X
SERvice:BIST:VRF	X
SERvice:BIST:VRF?	X
SERvice:BIST:VCOM	X
SERvice:BIST:VCOM?	X
SERvice:BIST:V0	X
SERvice:BIST:V0?	X
SERvice:CALibrator:ADJust:COUR	X
SERvice:CALibrator:ADJust:COUR?	X
SERvice:CALibrator:ADJust:FINE	X
SERvice:CALibrator:ADJust:FINE?	X
SERvice:DISPlay:BSCReen	X
SERvice:DISPlay:BSCReen?	X
SERvice:DISPlay:BSCReen:SECure:ACTivation	X
SERvice:DISPlay:BSCReen:SECure:ACTivation?	X
SERvice:DISPlay:BSCReen:SECure:DEACTivation	X
SERvice:DISPlay:BSCReen:SECure:DEACTivation?	X
SERvice:FAN:FULL	X
SERvice:FAN:FULL?	X
SERvice:LAN:PHOStname	X
SERvice:FAN:PHOStname?	X
SERvice:OPTion	✓
SERvice:OPTion[?]	✓
SERvice:SECure:ERASE	✓
SERvice:SECure:ERASE?	X
SERvice:SECure:ERASE:STATus?	+
SERvice:SENSor[1] 2:SNUMber?	✓
SERvice:SENSor[1] 2:TYPE?	X
SERvice:SNUMber	X
SERvice:SNUMber?	✓
SERvice:STATe	X
SERvice:STATe?	X
SERvice:VERSion:PROCCessor	✓
SERvice:VERSion:PROCCessor?	✓

Command syntax	Status
SERvice:VERSion:SYSTem	✓
SERvice:VERSion:SYSTem?	✓
STATus:DEvIce:CONDition?	✓
STATus:DEvIce:ENABle	✓
STATus:DEvIce:ENABle?	✓
STATus:DEvIce[:EVENT]?	✓
STATus:DEvIce:NTRansition	✓
STATus:DEvIce:NTRansition?	✓
STATus:DEvIce:PTRansition	✓
STATus:DEvIce:PTRansition?	✓
STATus:OPERation:CONDition?	✓
STATus:OPERation:ENABle	✓
STATus:OPERation:ENABle?	✓
STATus:OPERation[:EVENT]?	✓
STATus:OPERation:NTRansition	✓
STATus:OPERation:NTRansition?	✓
STATus:OPERation:PTRansition	✓
STATus:OPERation:PTRansition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:CONDition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:ENABle	✓
STATus:OPERation:CALibrating[:SUMMARY]:ENABle?	✓
STATus:OPERation:CALibrating[:SUMMARY][:EVENT]?	✓
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition?	✓
STATus:OPERation:LLFail[:SUMMARY]:CONDition?	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:ENABle	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:ENABle?	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY][:EVENT]?	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition?	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:PTRansition	See item 4 in Table 9-3 .
STATus:OPERation:LLFail[:SUMMARY]:PTRansition?	See item 4 in Table 9-3 .
STATus:OPERation:MEASuring[:SUMMARY]:CONDition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABle	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABle?	✓

Command syntax	Status
STATus:OPERation:MEASuring[:SUMMARY][:EVENT]?	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:CONDition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:ENABle	✓
STATus:OPERation:TRIGger[:SUMMARY]:ENABle?	✓
STATus:OPERation:TRIGger[:SUMMARY][:EVENT]?	✓
STATus:OPERation:TRIGger[:SUMMARY]:NTRansition	✓
STATus:OPERation:TRIGger[:SUMMARY]:NTRansition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:PTRansition	✓
STATus:OPERation:TRIGger[:SUMMARY]:PTRansition?	✓
STATus:OPERation:ULFail[:SUMMARY]:CONDition?	See item 4 in Table 9-3 .
STATus:OPERation:ULFail[:SUMMARY]:ENABle	See item 4 in Table 9-3 .
STATus:OPERation:ULFail[:SUMMARY]:ENABle?	
STATus:OPERation:ULFail[:SUMMARY][:EVENT]?	See item 4 in Table 9-3 .
STATus:OPERation:ULFail[:SUMMARY]:NTRansition	See item 4 in Table 9-3 .
STATus:OPERation:ULFail[:SUMMARY]:NTRansition?	
STATus:OPERation:ULFail[:SUMMARY]:PTRansition	See item 4 in Table 9-3 .
STATus:OPERation:ULFail[:SUMMARY]:PTRansition?	
STATus:PRESet	✓
STATus:QUEStionable:CONDition?	✓
STATus:QUEStionable:ENABle	✓
STATus:QUEStionable:ENABle?	✓
STATus:QUEStionable[:EVENT]?	✓
STATus:QUEStionable:NTRansition	✓
STATus:QUEStionable:NTRansition?	✓
STATus:QUEStionable:PTRansition	✓
STATus:QUEStionable:PTRansition?	✓
STATus:QUEStionable:CALibration[:SUMMARY]:CONDition?	✓
STATus:QUEStionable:CALibration[:SUMMARY]:ENABle	✓
STATus:QUEStionable:CALibration[:SUMMARY]:ENABle?	✓
STATus:QUEStionable:CALibration[:SUMMARY][:EVENT]?	✓
STATus:QUEStionable:CALibration[:SUMMARY]:NTRansition	✓
STATus:QUEStionable:CALibration[:SUMMARY]:NTRansition?	✓

Command syntax	Status
STATus:QUESTionable:CALibration[:SUMMARY]:PTRansition	✓
STATus:QUESTionable:CALibration[:SUMMARY]:PTRansition?	✓
STATus:QUESTionable:POWer[:SUMMARY]:CONDition?	✓
STATus:QUESTionable:POWer[:SUMMARY]:ENABle	✓
STATus:QUESTionable:POWer[:SUMMARY]:ENABle?	✓
STATus:QUESTionable:POWer[:SUMMARY][:EVENT]?	✓
STATus:QUESTionable:POWer[:SUMMARY]:NTRansition	✓
STATus:QUESTionable:POWer[:SUMMARY]:NTRansition?	✓
STATus:QUESTionable:POWer[:SUMMARY]:PTRansition	✓
STATus:QUESTionable:POWer[:SUMMARY]:PTRansition?	✓
SYSTem:COMMunicate:GPIB[:SELF]:ADDResS	✓
SYSTem:COMMunicate:GPIB[:SELF]:ADDResS?	✓
SYSTem:COMMunicate:LAN:AIP[:STATe]	X
SYSTem:COMMunicate:LAN:AIP[:STATe]?	X
SYSTem:COMMunicate:LAN:CURRent:ADDResS?	X
SYSTem:COMMunicate:LAN:CURRent:DGATeway?	X
SYSTem:COMMunicate:LAN:CURRent:DNAMe?	X
SYSTem:COMMunicate:LAN:CURRent:SMASk?	X
SYSTem:COMMunicate:LAN:ADDResS	X
SYSTem:COMMunicate:LAN:ADDResS?	X
SYSTem:COMMunicate:LAN:DGATeway	X
SYSTem:COMMunicate:LAN:DGATeway?	X
SYSTem:COMMunicate:LAN:DHCP[:STATe]	X
SYSTem:COMMunicate:LAN:DHCP[:STATe]?	X
SYSTem:COMMunicate:LAN:DNAMe	X
SYSTem:COMMunicate:LAN:DNAMe?	X
SYSTem:COMMunicate:LAN:HNAME	X
SYSTem:COMMunicate:LAN:HNAME?	X
SYSTem:COMMunicate:LAN:MAC?	X
SYSTem:COMMunicate:LAN:REStArt	X
SYSTem:COMMunicate:LAN:SMASk	X
SYSTem:COMMunicate:LAN:SMASk?	X
SYSTem:COMMunicate:TCPIP:CONTRol	X
SYSTem:COMMunicate:TCPIP:CONTRol?	X
SYSTem:DISPlay:BMP?	✓
SYSTem:ERRor?	See item 4 in Table 9-3 .

Differences between the emulated instrument and the R&S NRX

Command syntax	Status
SYSTem:LANGUage SYSTem:LANGUage?	See item 5 in Table 9-3 .
SYSTem:LOCAl	✓
SYSTem:PRESet	✓
SYSTem:REMOte	✓
SYSTem:RWLock	✓
SYSTem:VERSion?	✓
TRIGger[1][:SEQuence[1]]:DELay:AUTO	✓
TRIGger[1][:SEQuence[1]]:DELay:AUTO?	✓
TRIGger[1][:SEQuence[1]]:IMMediate	✓
TRIGger[1][:SEQuence[1]]:SOURce	✓
TRIGger[1][:SEQuence[1]]:SOURce?	✓
UNIT[1] 2 3 4:POWer	✓
UNIT[1] 2 3 4:POWer?	✓
UNIT[1] 2 3 4:POWer:RATio	✓
UNIT[1] 2 3 4:POWer:RATio?	✓

9.3 Differences between the emulated instrument and the R&S NRX

[Table 9-3](#) lists all remaining differences in command and/or parameter implementation. Take these differences into consideration, since they can lead to necessary modifications of application code parts.

Table 9-3: Details

Item	Comment
1	Response at N432A is: "KeysightN432A,MY< serialnumber>,A1.09.01"
2	Parameter EXP is not supported.
3	Parameter PNG is not supported.
4	Response data is not mapped to N432A response data range.
5	Additional parameter values are: NRP, NRP2, NRX, N432A, E4418B, E4419B, N1911A, N1912A
6	Command is recognized but has no effect. Response is: ""
7	Command is recognized but has no effect. Response is: 0

10 Emulating the Keysight Technologies N1911A/N1912A

The remote emulation is based on the N1911A and N1912A firmware version A1.05.04 and A2.05.04.

One or two sensors connected to plug A or B are supported.

Table 10-1: Sensor/connector mapping

N1911A	R&S NRX
Sensor A	Sensor A

Table 10-2: Sensor/connector mapping

N1912A	R&S NRX
Sensor A	Sensor A
Sensor B	Sensor B

Table 10-3: Sensor/window mapping

N1911A / N1912A	R&S NRX
Upper window / upper measurement	Window 1
Upper window / lower measurement	Window 3
Lower window / upper measurement	Window 2
Lower window / lower measurement	Window 4

10.1 Limitations

Explicit switching into trace or statistic mode is required before using commands from those subsystems. Switch by using the following command:

```
DISPlay[:WINDow[1]|2]:FORMat CTRACE | CTABLE | TRACE
```

10.2 Commands

The following tables show the current implementation status of each command.

10.2.1 Interface functions

Command syntax	Status
DCL	✓
GET	✓
GTL	✓
IFC	✓
LLO	✓
PPC	X
PPD	X
PPE	X
PPU	X
REN	✓
SDC	✓
SPD	✓
SPE	✓
SRQ	✓

10.2.2 IEEE488.2 functions

Command syntax	Status
*CLS	✓
*DDT	O
*DDT?	O
*ESE	✓
*ESE?	✓
*ESR?	✓
*IDN?	See item 1 in Table 10-4 .
*OPC	✓
*OPC?	✓
*OPT?	✓
*RCL	✓
*RST	✓
*SAV	✓
*SRE	✓
*SRE?	✓

Command syntax	Status
*STB?	✓
*TRG	✓
*TST?	✓
*WAI	✓

10.2.3 Device-specific functions

Command syntax	Status
ABORt[1] 2	✓
CALCulate[1] 2 3 4 : FEED[1] 2 CALCulate[1] 2 3 4 : FEED[1] 2?	See item 14 in Table 10-4 .
CALCulate[1] 2 3 4 : GAIN[:MAGNitude] CALCulate[1] 2 3 4 : GAIN[:MAGNitude]?	See item 13 in Table 10-4 .
CALCulate[1] 2 3 4 : GAIN:STATe CALCulate[1] 2 3 4 : GAIN:STATe?	See item 13 in Table 10-4 .
CALCulate[1] 2 3 4 : LIMit:CLEar:AUTO	✓
CALCulate[1] 2 3 4 : LIMit:CLEar:AUTO?	✓
CALCulate[1] 2 3 4 : LIMit:CLEar[:IMMEDIATE]	✓
CALCulate[1] 2 3 4 : LIMit:FAIL?	✓
CALCulate[1] 2 3 4 : LIMit:FCOunt?	✓
CALCulate[1] 2 3 4 : LIMit:LOWer[:DATA]	✓
CALCulate[1] 2 3 4 : LIMit:LOWer[:DATA]?	✓
CALCulate[1] 2 3 4 : LIMit:STATe	✓
CALCulate[1] 2 3 4 : LIMit:STATe?	✓
CALCulate[1] 2 3 4 : LIMit:UPPer[:DATA]	✓
CALCulate[1] 2 3 4 : LIMit:UPPer[:DATA]?	✓
CALCulate[1] 2 3 4 : MATH[:EXPRession] CALCulate[1] 2 3 4 : MATH[:EXPRession]?	See item 11 in Table 10-4 .
CALCulate[1] 2 3 4 : MATH[:EXPRession]:CATalog?	See item 11 in Table 10-4 .
CALCulate[1] 2 3 4 : PHOLd:CLEar	✓
CALCulate[1] 2 3 4 : RELative[:MAGNitude]:AUTO	✓
CALCulate[1] 2 3 4 : RELative[:MAGNitude]:AUTO?	✓
CALCulate[1] 2 3 4 : RELative:STATe	✓
CALCulate[1] 2 3 4 : RELative:STATe?	✓
CALibratiOn[1] 2[:ALL] CALibratiOn[1] 2[:ALL]?	See item 10 in Table 10-4 .

Command syntax	Status
CALibration[1] 2:AUTO CALibration[1] 2:AUTO?	See item 9 in Table 10-4 .
CALibration[1] 2:RCALibration CALibration[1] 2:RCALibration?	X X
CALibration[1] 2:RCFactor CALibration[1] 2:RCFactor?	X X
CALibration[1] 2:ZERO:AUTO CALibration[1] 2:ZERO:AUTO?	✓ ✓
CALibration[1] 2:ZERO:NORMAl:AUTO CALibration[1] 2:ZERO:NORMAl:AUTO?	X X
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]	✓
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence	✓
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence: RELative	✓
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]:RATio	✓
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative	✓
CONFigure[1] 2 3 4[:SCALar][:POWer:AC]:RELative	✓
DISPlay:ENABle DISPlay:ENABle?	✓ ✓
DISPlay:SCReen:FORMat DISPlay:SCReen:FORMat?	X X
DISPlay[:WINDow[1] 2]:ANALog:LOWer DISPlay[:WINDow[1] 2]:ANALog:LOWer?	✓ ✓
DISPlay[:WINDow[1] 2]:ANALog:UPPer DISPlay[:WINDow[1] 2]:ANALog:UPPer?	✓ ✓
DISPlay[:WINDow[1] 2]:FORMat DISPlay[:WINDow[1] 2]:FORMat?	X X
DISPlay[:WINDow[1] 2]:METer:LOWer DISPlay[:WINDow[1] 2]:METer:LOWer?	✓ ✓
DISPlay[:WINDow[1] 2]:METer:UPPer DISPlay[:WINDow[1] 2]:METer:UPPer?	✓ ✓
DISPlay[:WINDow[1] 2][:NUMeric[1] 2]:RESolution DISPlay[:WINDow[1] 2][:NUMeric[1] 2]:RESolution?	✓ ✓
DISPlay[:WINDow[1] 2]:SElect[1] 2 DISPlay[:WINDow[1] 2]:SElect[1] 2?	✓ ✓
DISPlay[:WINDow[1] 2][:STATe] DISPlay[:WINDow[1] 2][:STATe]?	✓ ✓

Command syntax	Status
DISPlay[:WINDow[1] 2]:TRACe:FEED	X
DISPlay[:WINDow[1] 2]:TRACe:FEED?	X
FETCh[1] 2 3 4[:SCALar][:POWer:AC]?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RATio?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative?	✓
FETCh[1] 2 3 4[:SCALar][:POWer:AC]:RELative?	✓
FORMat[:READings]:BORDER	✓
FORMat[:READings]:BORDER?	✓
FORMat[:READings][:DATA]	✓
FORMat[:READings][:DATA]?	✓
INITiate[1] 2:CONTInuous	✓
INITiate[1] 2:CONTInuous?	✓
INITiate:CONTInuous:ALL	✓
INITiate:CONTInuous:ALL?	✓
INITiate:CONTInuous:SEQuence[1] 2	✓
INITiate:CONTInuous:SEQuence[1] 2?	✓
INITiate[1] 2[:IMMediate]	✓
INITiate[:IMMediate]:ALL	✓
INITiate[:IMMediate]:SEQuence[1] 2	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:DIFFerence:RELative?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RATio?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RATio:RELative?	✓
MEASure[1] 2 3 4[:SCALar][:POWer:AC]:RELative?	✓
MEMory:CATalog[:ALL]?	✓
MEMory:CATalog:STATe?	✓
MEMory:CATalog:TABLE?	✓
MEMory:CLEar[:NAME]	✓
MEMory:CLEar:TABLE	✓
MEMory:FREE[:ALL]?	✓
MEMory:FREE:STATe?	✓
MEMory:FREE:TABLE?	✓

Command syntax	Status
MEMory:NSTates?	✓
MEMory:STATe:CATalog?	✓
MEMory:STATe:DEFine	✓
MEMory:STATe:DEFine?	✓
MEMory:TABLE:FREQuency	✓
MEMory:TABLE:FREQuency?	✓
MEMory:TABLE:FREQuency:POINts?	✓
MEMory:TABLE:GAIN[:MAGNitude]	✓
MEMory:TABLE:GAIN[:MAGNitude]?	✓
MEMory:TABLE:GAIN[:MAGNitude]:POINts?	✓
MEMory:TABLE:MOVE	✓
MEMory:TABLE:SElect	✓
MEMory:TABLE:SElect?	✓
OUTPut:REcorder[1] 2:FEED	✓
OUTPut:REcorder[1] 2:FEED?	✓
OUTPut:REcorder[1] 2:LIMit:LOWer	✓
OUTPut:REcorder[1] 2:LIMit:LOWer?	✓
OUTPut:REcorder[1] 2:LIMit:UPPer	✓
OUTPut:REcorder[1] 2:LIMit:UPPer?	✓
OUTPut:REcorder[1] 2:STATe	✓
OUTPut:REcorder[1] 2:STATe?	✓
OUTPut:ROScillator[:STATe]	✓
OUTPut:ROScillator[:STATe]?	✓
OUTPut:TRIGger:STATe	✓
OUTPut:TRIGger:STATe?	✓
PSTatistic:CCDF:GAUSSian[:STATe]	✓
PSTatistic:CCDF:GAUSSian[:STATe]?	✓
PSTatistic:CCDF:GAUSSian:MARKer[1] 2[:SET]	x
PSTatistic:CCDF:MARKer:DELta?	x
PSTatistic:CCDF:MARKer[1] 2:DATA?	x
PSTatistic:CCDF:MARKer[1] 2:X	x
PSTatistic:CCDF:MARKer[1] 2:X?	x
PSTatistic:CCDF:MARKer[1] 2:Y	x
PSTatistic:CCDF:MARKer[1] 2:Y?	x
PSTatistic:CCDF:REFerence:DATA?	x
PSTatistic:CCDF:REFerence[:STATe]	x
PSTatistic:CCDF:REFerence[:STATe]?	x

Command syntax	Status
PStatistic:CCDF:REfERENCE:MARKer[1] 2[:SET]	X
PStatistic:CCDF:REfERENCE:MARKer[1] 2[:SET]?	X
PStatistic:CCDF:REfERENCE:POWer:AVErAge?	X
PStatistic:CCDF:REfERENCE:POWer:PEAK?	X
PStatistic:CCDF:REfERENCE:POWer:PTAVErAge?	X
PStatistic[1] 2:CCDF:CONTInuous	X
PStatistic[1] 2:CCDF:CONTInuous?	X
PStatistic[1] 2:CCDF:COUnT	X
PStatistic[1] 2:CCDF:COUnT?	X
PStatistic[1] 2:CCDF:DATA?	X
PStatistic[1] 2:CCDF:DATA:MAX	X
PStatistic[1] 2:CCDF:DATA:MAX?	X
PStatistic[1] 2:CCDF:POWer?	X
PStatistic[1] 2:CCDF:PROBAbility?	X
PStatistic[1] 2:CCDF:STORe:REfERENCE	X
PStatistic[1] 2:CCDF:TABLE?	X
PStatistic[1] 2:CCDF:TRACe[:STATe]	X
PStatistic[1] 2:CCDF:TRACe[:STATe]?	X
PStatistic[1] 2:CCDF:TRACe:MARKer[1] 2[:SET]	X
PStatistic[1] 2:CCDF:TRACe:POWer:AVErAge?	X
PStatistic[1] 2:CCDF:TRACe:POWer:PEAK?	X
PStatistic[1] 2:CCDF:TRACe:POWer:PTAVErAge?	X
READ[1] 2 3 4[:SCALAr][:POWer:AC]?	✓
READ[1] 2 3 4[:SCALAr][:POWer:AC]:DIFFerence?	✓
READ[1] 2 3 4[:SCALAr][:POWer:AC]:DIFFerence:RELAtive?	✓
READ[1] 2 3 4[:SCALAr][:POWer:AC]:RATio?	✓
READ[1] 2 3 4[:SCALAr][:POWer:AC]:RATio:RELAtive?	✓
READ[1] 2 3 4[:SCALAr][:POWer:AC]:RELAtive?	✓
SENSe[1] 2:AVErAge:COUnT	✓
SENSe[1] 2:AVErAge:COUnT?	✓
SENSe[1] 2:AVErAge:COUnT:AUTO	✓
SENSe[1] 2:AVErAge:COUnT:AUTO?	✓
SENSe[1] 2:AVErAge:SDETECT	X
SENSe[1] 2:AVErAge:SDETECT?	X

Command syntax	Status
SENSe[1] 2:AVERage[:STATe]	✓
SENSe[1] 2:AVERage[:STATe]?	✓
SENSe[1] 2:AVERage2:COUNT	X
SENSe[1] 2:AVERage2:COUNT?	X
SENSe[1] 2:AVERage2[:STATe]	X
SENSe[1] 2:AVERage2[:STATe]?	X
SENSe[1] 2:BANDwidth:VIDeo	✓
SENSe[1] 2:BANDwidth:VIDeo?	✓
SENSe[1] 2:BWIDth:VIDeo	✓
SENSe[1] 2:BWIDth:VIDeo?	✓
SENSe[1] 2:BUFFer:COUNT	X
SENSe[1] 2:BUFFer:COUNT?	X
SENSe[1] 2:BUFFer:MTYPe	X
SENSe[1] 2:BUFFer:MTYPe?	X
SENSe[1] 2:CORRection:CFACTOR[:INPut][:MAGNitude]	X
SENSe[1] 2:CORRection:CFACTOR[:INPut][:MAGNitude]?	X
SENSe[1] 2:CORRection:CSET1[:SElect]	See item 16 in Table 10-4 .
SENSe[1] 2:CORRection:CSET1[:SElect]?	
SENSe[1] 2:CORRection:CSET2[:SElect]	✓
SENSe[1] 2:CORRection:CSET2[:SElect]?	✓
SENSe[1] 2:CORRection:CSET1:STATe	See item 17 in Table 10-4 .
SENSe[1] 2:CORRection:CSET1:STATe?	
SENSe[1] 2:CORRection:CSET2:STATe	✓
SENSe[1] 2:CORRection:CSET2:STATe?	✓
SENSe[1] 2:CORRection:DCYClE[:INPut][:MAGNitude]	✓
SENSe[1] 2:CORRection:DCYClE[:INPut][:MAGNitude]?	✓
SENSe[1] 2:CORRection:DCYClE:STATe	✓
SENSe[1] 2:CORRection:DCYClE:STATe?	✓
SENSe[1] 2:CORRection:FDOFFset[:INPut][:MAGNitude]?	✓
SENSe[1] 2:CORRection:GAIN[1][:INPut][:MAGNitude]	X
SENSe[1] 2:CORRection:GAIN[1][:INPut][:MAGNitude]?	X
SENSe[1] 2:CORRection:GAIN2[:INPut][:MAGNitude]	✓
SENSe[1] 2:CORRection:GAIN2[:INPut][:MAGNitude]?	✓
SENSe[1] 2:CORRection:GAIN3[:INPut][:MAGNitude]	✓
SENSe[1] 2:CORRection:GAIN3[:INPut][:MAGNitude]?	✓
SENSe[1] 2:CORRection:GAIN4[:INPut][:MAGNitude]?	✓
SENSe[1] 2:CORRection:GAIN2:STATe	✓
SENSe[1] 2:CORRection:GAIN2:STATe?	✓

Command syntax	Status
SENSe[1] 2:CORRection:GAIN3:STATe	✓
SENSe[1] 2:CORRection:GAIN3:STATe?	✓
SENSe[1] 2:DETEctor:FUNction	✓
SENSe[1] 2:DETEctor:FUNction?	✓
SENSe[1] 2:FREQuency[:CW]:FIXed]	✓
SENSe[1] 2:FREQuency[:CW]:FIXed]?	✓
SENSe[1] 2:FREQuency[:CW]:FIXed]:START	x
SENSe[1] 2:FREQuency[:CW]:FIXed]:START?	x
SENSe[1] 2:FREQuency[:CW]:FIXed]:STEP	x
SENSe[1] 2:FREQuency[:CW]:FIXed]:STEP?	x
SENSe[1] 2:FREQuency[:CW]:FIXed]:STOP	x
SENSe[1] 2:FREQuency[:CW]:FIXed]:STOP?	x
SENSe[1] 2:MRATe SENSe[1] 2:MRATe?	See item 8 in Table 10-4 .
SENSe[1] 2:POWer:AC:RANGe	✓
SENSe[1] 2:POWer:AC:RANGe?	✓
SENSe[1] 2:POWer:AC:RANGe:AUTO	✓
SENSe[1] 2:POWer:AC:RANGe:AUTO?	✓
SENSe[1] 2:SWEep[1] 2 3 4:AUTO	x
SENSe[1] 2:SWEep[1] 2 3 4:AUTO?	x
SENSe[1] 2:SWEep[1] 2 3 4:AUTO:REF1 REF2	x
SENSe[1] 2:SWEep[1] 2 3 4:AUTO:REF1 REF2?	x
SENSe[1] 2:SWEep[1] 2 3 4:OFFSet:TIME	x
SENSe[1] 2:SWEep[1] 2 3 4:OFFSet:TIME?	x
SENSe[1] 2:SWEep[1] 2 3 4:TIME	x
SENSe[1] 2:SWEep[1] 2 3 4:TIME?	x
SENSe[1] 2:TEMPerature?	x
SENSe[1] 2:TRACe:AUToscale	x
SENSe[1] 2:TRACe:LIMit:LOWer	x
SENSe[1] 2:TRACe:LIMit:LOWer?	x
SENSe[1] 2:TRACe:LIMit:UPPer	x
SENSe[1] 2:TRACe:LIMit:UPPer?	x
SENSe[1] 2:TRACe:OFFSet:TIME	x
SENSe[1] 2:TRACe:OFFSet:TIME?	x
SENSe[1] 2:TRACe:TIME	x
SENSe[1] 2:TRACe:TIME?	x
SENSe[1] 2:TRACe:UNIT	x
SENSe[1] 2:TRACe:UNIT?	x

Command syntax	Status
SENSe[1] 2:TRACe:X:SCALE:PDIV	X
SENSe[1] 2:TRACe:X:SCALE:PDIV?	X
SENSe[1] 2:TRACe:Y:SCALE:PDIV	X
SENSe[1] 2:TRACe:Y:SCALE:PDIV?	X
SENSe[1] 2:V2P	X
SENSe[1] 2:V2P?	X
SERVice:BIST:CALibrator	X
SERVice:BIST:CALibrator?	X
SERVice:BIST:CW[1] 2:LINearity	X
SERVice:BIST:CW[1] 2:LINearity?	X
SERVice:BIST:CW[1] 2:LINearity:PERRor?	X
SERVice:BIST:CW[1] 2:ZSET:NUMber?	X
SERVice:BIST:PEAK[1] 2:LINearity	X
SERVice:BIST:PEAK[1] 2:LINearity?	X
SERVice:BIST:PEAK[1] 2:LINearity:PERRor?	X
SERVice:BIST:PEAK[1] 2:ZSET	X
SERVice:BIST:PEAK[1] 2:ZSET:NUMber?	X
SERVice:BIST:TBASe:STATe	X
SERVice:BIST:TBASe:STATe?	X
SERVice:BIST:TRIGger:TEST?	X
SERVice:CALibrator:ADJ:COUR	X
SERVice:CALibrator:ADJ:COUR?	X
SERVice:CALibrator:ADJ:FINE	X
SERVice:CALibrator:ADJ:FINE?	X
SERVice:LAN:PHOSername	X
SERVice:OPTion	✓
SERVice:OPTion?	✓
SERVice:SECure:ERASe	✓
SERVice:SECure:ERASe:STATus?	+
SERVice:SENSor[1] 2:CALFactor	X
SERVice:SENSor[1] 2:CALFactor?	X
SERVice:SENSor[1] 2:CDATe?	X
SERVice:SENSor[1] 2:CORRections:STATe	X
SERVice:SENSor[1] 2:CORRections:STATe?	X
SERVice:SENSor[1] 2:CPLace?	X
SERVice:SENSor[1] 2:FREQuency:MAXimum?	X
SERVice:SENSor[1] 2:FREQuency:MINimum?	X

Command syntax	Status
SERvice:SENSor[1] 2:PCALfactor	X
SERvice:SENSor[1] 2:PCALfactor?	X
SERvice:SENSor[1] 2:POWer:AVERage:MAXimum?	X
SERvice:SENSor[1] 2:POWer:PEAK:MAXimum?	X
SERvice:SENSor[1] 2:POWer:USABLE:MAXimum?	✓
SERvice:SENSor[1] 2:POWer:USABLE:MINimum?	✓
SERvice:SENSor[1] 2:RADc?	X
SERvice:SENSor[1] 2:SNUMber?	X
SERvice:SENSor[1] 2:TNUMber?	X
SERvice:SENSor[1] 2:TYPE?	X
SERvice:SNUMber	X
SERvice:SNUMber?	✓
SERvice:VERSion:PROcESSor	✓
SERvice:VERSion:PROcESSor?	✓
SERvice:VERSion:SYSTem	✓
SERvice:VERSion:SYSTem?	✓
STATus:DEvIce:CONDition?	See item 5 in Table 10-4 .
STATus:DEvIce:ENABle	See item 5 in Table 10-4 .
STATus:DEvIce:ENABle?	
STATus:DEvIce[:EVENT]?	See item 5 in Table 10-4 .
STATus:DEvIce:NTRansition	See item 5 in Table 10-4 .
STATus:DEvIce:NTRansition?	
STATus:DEvIce:PTRansition	See item 5 in Table 10-4 .
STATus:DEvIce:PTRansition?	
STATus:OPERation:CONDition?	✓
STATus:OPERation:ENABle	✓
STATus:OPERation:ENABle?	✓
STATus:OPERation[:EVENT]?	✓
STATus:OPERation:NTRansition	✓
STATus:OPERation:NTRansition?	✓
STATus:OPERation:PTRansition	✓
STATus:OPERation:PTRansition?	✓
STATus:OPERation:CALibrating[:SUMMary]:CONDition?	✓
STATus:OPERation:CALibrating[:SUMMary]:ENABle	✓
STATus:OPERation:CALibrating[:SUMMary]:ENABle?	✓
STATus:OPERation:CALibrating[:SUMMary][:EVENT]?	✓

Command syntax	Status
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:NTRansition?	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition	✓
STATus:OPERation:CALibrating[:SUMMARY]:PTRansition?	✓
STATus:OPERation:LLFail[:SUMMARY]:CONDition?	See item 7 in Table 10-4 .
STATus:OPERation:LLFail[:SUMMARY]:ENABle	See item 7 in Table 10-4 .
STATus:OPERation:LLFail[:SUMMARY]:ENABle?	
STATus:OPERation:LLFail[:SUMMARY][:EVENT]?	See item 7 in Table 10-4 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition	See item 7 in Table 10-4 .
STATus:OPERation:LLFail[:SUMMARY]:NTRansition?	
STATus:OPERation:LLFail[:SUMMARY]:PTRansition	See item 7 in Table 10-4 .
STATus:OPERation:LLFail[:SUMMARY]:PTRansition?	
STATus:OPERation:MEASuring[:SUMMARY]:CONDition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABle	✓
STATus:OPERation:MEASuring[:SUMMARY]:ENABle?	✓
STATus:OPERation:MEASuring[:SUMMARY][:EVENT]?	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:NTRansition?	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition	✓
STATus:OPERation:MEASuring[:SUMMARY]:PTRansition?	✓
STATus:OPERation:SENSe[:SUMMARY]:CONDition?	✓
STATus:OPERation:SENSe[:SUMMARY]:ENABle	✓
STATus:OPERation:SENSe[:SUMMARY]:ENABle?	✓
STATus:OPERation:SENSe[:SUMMARY][:EVENT]?	✓
STATus:OPERation:SENSe[:SUMMARY]:NTRansition	✓
STATus:OPERation:SENSe[:SUMMARY]:NTRansition?	✓
STATus:OPERation:SENSe[:SUMMARY]:PTRansition	✓
STATus:OPERation:SENSe[:SUMMARY]:PTRansition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:CONDition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:ENABle	✓
STATus:OPERation:TRIGger[:SUMMARY]:ENABle?	✓
STATus:OPERation:TRIGger[:SUMMARY][:EVENT]?	✓
STATus:OPERation:TRIGger[:SUMMARY]:NTRansition	✓
STATus:OPERation:TRIGger[:SUMMARY]:NTRansition?	✓
STATus:OPERation:TRIGger[:SUMMARY]:PTRansition	✓
STATus:OPERation:TRIGger[:SUMMARY]:PTRansition?	✓
STATus:OPERation:ULFail[:SUMMARY]:CONDition?	See item 7 in Table 10-4 .

Command syntax	Status
STATus:OPERation:ULFail[:SUMMARY]:ENABLE STATus:OPERation:ULFail[:SUMMARY]:ENABLE?	See item 7 in Table 10-4 .
STATus:OPERation:ULFail[:SUMMARY][:EVENT]?	See item 7 in Table 10-4 .
STATus:OPERation:ULFail[:SUMMARY]:NTRansition STATus:OPERation:ULFail[:SUMMARY]:NTRansition?	See item 7 in Table 10-4 .
STATus:OPERation:ULFail[:SUMMARY]:PTRansition STATus:OPERation:ULFail[:SUMMARY]:PTRansition?	See item 7 in Table 10-4 .
STATus:PRESet	✓
STATus:QUESTionable:CONDition?	✓
STATus:QUESTionable:ENABle STATus:QUESTionable:ENABle?	✓ ✓
STATus:QUESTionable[:EVENT]?	✓
STATus:QUESTionable:NTRansition STATus:QUESTionable:NTRansition?	✓ ✓
STATus:QUESTionable:PTRansition STATus:QUESTionable:PTRansition?	✓ ✓
STATus:QUESTionable:CALibration[:SUMMARY]:CONDition?	✓
STATus:QUESTionable:CALibration[:SUMMARY]:ENABle STATus:QUESTionable:CALibration[:SUMMARY]:ENABle?	✓ ✓
STATus:QUESTionable:CALibration[:SUMMARY][:EVENT]?	✓
STATus:QUESTionable:CALibration[:SUMMARY]:NTRansition STATus:QUESTionable:CALibration[:SUMMARY]:NTRansition?	✓ ✓
STATus:QUESTionable:CALibration[:SUMMARY]:PTRansition STATus:QUESTionable:CALibration[:SUMMARY]:PTRansition?	✓ ✓
STATus:QUESTionable:POWer[:SUMMARY]:CONDition?	See item 6 in Table 10-4 .
STATus:QUESTionable:POWer[:SUMMARY]:ENABle STATus:QUESTionable:POWer[:SUMMARY]:ENABle?	See item 6 in Table 10-4 .
STATus:QUESTionable:POWer[:SUMMARY][:EVENT]?	See item 6 in Table 10-4 .
STATus:QUESTionable:POWer[:SUMMARY]:NTRansition STATus:QUESTionable:POWer[:SUMMARY]:NTRansition?	See item 6 in Table 10-4 .
STATus:QUESTionable:POWer[:SUMMARY]:PTRansition STATus:QUESTionable:POWer[:SUMMARY]:PTRansition?	See item 6 in Table 10-4 .
SYSTem:COMMunicate:GPIB[:SELF]:ADDResS SYSTem:COMMunicate:GPIB[:SELF]:ADDResS?	✓ ✓
SYSTem:COMMunicate:LAN:AIP[:STATe] SYSTem:COMMunicate:LAN:AIP[:STATe]?	x x

Command syntax	Status
SYSTem:COMMunicate:LAN:ADDResS	X
SYSTem:COMMunicate:LAN:ADDResS?	X
SYSTem:COMMunicate:LAN:CURRent:ADDResS?	X
SYSTem:COMMunicate:LAN:CURRent:DGATeway?	X
SYSTem:COMMunicate:LAN:CURRent:DNAMe?	X
SYSTem:COMMunicate:LAN:CURRent:SMASk?	X
SYSTem:COMMunicate:LAN:DGATeway	X
SYSTem:COMMunicate:LAN:DGATeway?	X
SYSTem:COMMunicate:LAN:DHCP[:STATe]	X
SYSTem:COMMunicate:LAN:DHCP[:STATe]?	X
SYSTem:COMMunicate:LAN:DNAMe	X
SYSTem:COMMunicate:LAN:DNAMe?	X
SYSTem:COMMunicate:LAN:HNAME	X
SYSTem:COMMunicate:LAN:HNAME?	X
SYSTem:COMMunicate:LAN:MAC?	X
SYSTem:COMMunicate:LAN:REStArt	X
SYSTem:COMMunicate:LAN:SMASk	X
SYSTem:COMMunicate:LAN:SMASk?	X
SYSTem:DISPlay:BMP?	✓
SYSTem:ERRor?	See item in Table 10-4 .
SYSTem:HELP:HEADers?	✓
SYSTem:LOCAl	✓
SYSTem:PRESet	See item 4 in Table 10-4 .
SYSTem:REBoot	+
SYSTem:REMoTe	✓
SYSTem:RWLock	✓
SYSTem:VERSiOn?	See item 3 in Table 10-4 .
TRACe[1] 2[:DATA]?	X
TRACe[1] 2:DEFine:DURation:REFerence	X
TRACe[1] 2:DEFine:DURation:REFerence?	X
TRACe[1] 2:DEFine:TRANsition:REFerence	X
TRACe[1] 2:DEFine:TRANsition:REFerence?	X
TRACe[1] 2:MEASurement:INSTant:REFerence?	X
TRACe[1] 2:MEASurement:PULSe[1] ... 10:DCYCLe?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:PULSe[1] ... 10:DURation?	See item 15 in Table 10-4 .

Command syntax	Status
TRACe[1] 2:MEASurement:PULSe[1] ... 10:PERiod?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:PULSe[1] ... 10:SEParation?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:TRANSition[1] ... 10:NEGative:DURation?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:TRANSition[1] ... 10:NEGative:OCCurrence?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:TRANSition[1] ... 10:POSitive:DURation?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:TRANSition[1] ... 10:POSitive:OCCurrence?	See item 15 in Table 10-4 .
TRACe[1] 2:MEASurement:REFerence?	X
TRACe[1] 2:STATe	X
TRACe[1] 2:STATe?	X
TRACe[1] 2:UNIT	X
TRACe[1] 2:UNIT?	X
TRIGger[1] 2:COUNT	+
TRIGger[1] 2:COUNT?	+
TRIGger[1] 2:DELAy	+
TRIGger[1] 2:DELAy?	+
TRIGger[1] 2:DELAy:AUTO	✓
TRIGger[1] 2:DELAy:AUTO?	✓
TRIGger[1] 2[:IMMediate]	✓
TRIGger[:SEQuence[1] 2]:COUNT	✓
TRIGger[:SEQuence[1] 2]:COUNT?	✓
TRIGger[:SEQuence[1] 2]:DELAy	✓
TRIGger[:SEQuence[1] 2]:DELAy?	✓
TRIGger[:SEQuence[1] 2]:DELAy:AUTO	✓
TRIGger[:SEQuence[1] 2]:DELAy:AUTO?	✓
TRIGger[:SEQuence[1] 2]:HOLDoff	✓
TRIGger[:SEQuence[1] 2]:HOLDoff?	✓
TRIGger[:SEQuence[1] 2]:HYSTEResis	✓
TRIGger[:SEQuence[1] 2]:HYSTEResis?	✓
TRIGger[:SEQuence[1] 2]:IMMediate	✓
TRIGger[:SEQuence[1] 2]:LEVel	✓
TRIGger[:SEQuence[1] 2]:LEVel?	✓
TRIGger[:SEQuence[1] 2]:LEVel:AUTO	X
TRIGger[:SEQuence[1] 2]:LEVel:AUTO?	X

Differences between the emulated instrument and the R&S NRX

Command syntax	Status
TRIGger[:SEquence[1] 2]:SLOPe	✓
TRIGger[:SEquence[1] 2]:SLOPe?	✓
TRIGger[:SEquence[1] 2]:SOURce	See item 2 in Table 10-4 .
TRIGger[:SEquence[1] 2]:SOURce?	
TRIGger[1] 2:SOURce	See item 2 in Table 10-4 .
TRIGger[1] 2:SOURce?	
UNIT[1] 2 3 4:POWer	✓
UNIT[1] 2 3 4:POWer?	✓
UNIT[1] 2 3 4:POWer:RATio	✓
UNIT[1] 2 3 4:POWer:RATio?	✓

10.3 Differences between the emulated instrument and the R&S NRX

[Table 10-4](#) lists all remaining differences in command and/or parameter implementation. Take these differences into consideration, since they can lead to necessary modifications of application code parts.

Table 10-4: Details

Item	Comment
1	Response at N1911A is: "Keysight, N1911A,MY< serialnumber>,A1.05.04" Response at N1912A is: "Keysight, N1912A,MY< serialnumber>,A2.05.04"
2	Parameter values <code>INTernal[1]</code> and <code>INTernal2</code> are not supported.
3	Response data is not mapped to N1911A/N1912A response data range.
4	Parameters other than <code>DEFault</code> are currently not supported.
5	Bits that are not supported: <ul style="list-style-type: none"> 3: channel A sensor error 4: channel B sensor error
6	Bits that are not supported: <ul style="list-style-type: none"> 3: upper window power 4: lower window power 5: channel A please zero 6: channel B please zero 7: upper window lower measurement power 8: lower window lower measurement power
7	Bits that are not supported: <ul style="list-style-type: none"> 1: channel A UL or LL fail status 2: channel B UL or LL fail status 5: upper window lower measurement power UL or LL fail status 6: lower window lower measurement power UL or LL fail status

Item	Comment
8	Parameter value <code>FAST</code> is not supported.
9	R&S power sensors are factory calibrated, calibration during normal operation is superseded. Zeroing is executed, calibrating is simulated by a delay of 1 s.
10	R&S power sensors are factory calibrated, calibration during normal operation is superseded. Calibrating is simulated by a delay of 1 s.
11	Parameter values " <code>(SENS1-SENS1)</code> ", " <code>(SENS1/SENS1)</code> ", " <code>(SENS2-SENS2)</code> " and " <code>(SENS2/SENS2)</code> " are currently not supported.
12	Parameter/response value is <code>OFF</code> in all cases.
13	Parameter/response value is 0 (dB) in all cases.
14	Parameter values " <code>POW:PTAV</code> ", " <code>POW:MIN</code> " are not supported.
15	Suffix values 2 to 10 are not supported.
16	Command is recognized but has no effect. Response is: ""
17	Command is recognized but has no effect. Response is: 0

11 References

- [1] Rohde & Schwarz, R&S NRP power meter operating manual
- [2] Rohde & Schwarz, R&S NRP2 power meter operating manual
- [3] Rohde & Schwarz, R&S NRX power meter user manual

12 Additional information

This application sheet is updated from time to time. Visit the following website to download the latest version:

www.rohde-schwarz.com/manual/NRX

13 Ordering information

Visit the following website for comprehensive ordering information about the R&S NRX:

www.rohde-schwarz.com/product/nrx