

Remote Emulation with the R&S®SMBV100B Vector Signal Generator Application Note

Products:

| R&S®SMBV100B

The R&S®SMBV100B vector signal generator 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 signal generators, e.g. from other manufacturers, with the R&S®SMBV100B without having to change the remote control code.

This application note 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.

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1 Abbreviations

The following abbreviations are used in this application note:

- AF2023 2023 signal generator from Aeroflex / IFR / Marconi
- AF2024 2024 signal generator from Aeroflex / IFR / Marconi
- AF2030 2030 signal generator from Aeroflex / IFR / Marconi
- AF2031 2031 signal generator from Aeroflex / IFR / Marconi
- AF2032 2032 signal generator from Aeroflex / IFR / Marconi
- AF2040 2040 signal generator from Aeroflex / IFR / Marconi
- AF2041 2041 signal generator from Aeroflex / IFR / Marconi
- AF2042 2042 signal generator from Aeroflex / IFR / Marconi
- AF2050 2050 signal generator from Aeroflex / IFR / Marconi
- AF2051 2051 signal generator from Aeroflex / IFR / Marconi
- AF2052 2052 signal generator from Aeroflex / IFR / Marconi
- AF3416 3416 signal generator from Aeroflex / IFR / Marconi
- AN68017 68017 signal generator from Anritsu
- AN68037 68037 signal generator from Anritsu
- E4428 E4428 signal generator from Agilent Technologies
- E4438 E4438 signal generator from Agilent Technologies
- E8257 E8257 signal generator from Agilent Technologies
- E8663 E8663 signal generator from Agilent Technologies
- N5181 N5181 signal generator from Agilent Technologies
- N5182 N5182 signal generator from Agilent Technologies
- N5172 N5172 signal generator from Agilent Technologies
- N5173 N5173 signal generator from Agilent Technologies
- 83620 83620 signal generator from Agilent Technologies
- 83630 83630 signal generator from Agilent Technologies
- 83640 83640 signal generator from Agilent Technologies
- 83650 83650 signal generator from Agilent Technologies
- HP8340 8340 signal generator from Hewlett-Packard / Agilent Technologies
- HP8341 8341 signal generator from Hewlett-Packard / Agilent Technologies
- HP8642 8642 signal generator from Hewlett-Packard / Agilent Technologies
- HP8643 8643 signal generator from Hewlett-Packard / Agilent Technologies
- HP8644 8644 signal generator from Hewlett-Packard / Agilent Technologies
- HP8645 8645 signal generator from Hewlett-Packard / Agilent Technologies
- HP8647 8647 signal generator from Hewlett-Packard / Agilent Technologies
- HP8648 8648 signal generator from Hewlett-Packard / Agilent Technologies
- HP8656 8656 signal generator from Hewlett-Packard / Agilent Technologies
- HP8657 8657 signal generator from Hewlett-Packard / Agilent Technologies
- HP8662 8662 signal generator from Hewlett-Packard / Agilent Technologies
- HP8664 8664 signal generator from Hewlett-Packard / Agilent Technologies
- HP8665 8665 signal generator from Hewlett-Packard / Agilent Technologies
- HP8673 8673 signal generator from Hewlett-Packard / Agilent Technologies
- RC3102 3102 signal generator from Racal-Dana
- RC9087 9087 signal generator from Racal-Dana
- PA8303 8303 signal generator from Panasonic
- SMBV100A R&S®SMBV100A signal generator from Rohde & Schwarz
- SMBV100B R&S®SMBV100B signal generator from Rohde & Schwarz
- SML R&S®SML signal generator from Rohde & Schwarz
- SMT R&S®SMT signal generator from Rohde & Schwarz
- SMY R&S®SMY signal generator from Rohde & Schwarz

2 Overview

Measuring instruments used in commercial test systems for applications such as testing of mobile radio base stations typically have a much longer lifespan than the test system itself. Some five to seven years of usage is normal prior to replacement. On the other hand, test systems for use in aerospace & defense applications can have a typical lifespan of 25 years or even more. If standard measuring instruments with a lifespan that is significantly less than this time frame are used in such test systems, an obvious question is how to handle maintenance, repair, calibration and even replacement of the instruments that are no longer supported by their manufacturer. Moreover, the test program sets used in such test systems are generally certified, which makes it very time-consuming and costly to modify and reaccept them.

A feasible strategy to solve this problem is the migration with new measuring instruments that emulate the discontinued instruments.

This migration approach is saves time and is cost-effective. It involves replacing obsolete measuring instruments with new ones that emulate their functionality and programming.

The requirements for the new instruments revolve around the electrical and functional features of the instruments to be emulated as well as the test programs, which ideally should not require any modifications.

To fulfill the last requirement, the SMBV100B offers the remote emulation feature.

Remote emulation means that the SMBV100B will understand the programming commands of the emulated instrument and also emulate the behavior as fully as possible.

Most instruments from other manufacturers in the category of the SMBV100B are emulated by the SMBV100B. An overview of actually implemented remote emulations is given in the following table:

| Remote emulations in the SMBV100B | | | |
|-----------------------------------|-------------|----------|---------|
| Manufacturer | Instrument | Language | Section |
| Aeroflex | AF2023 | SCPI | 5 |
| | AF2024 | | |
| IFR Marconi | AF2030 | SCPI | 6 |
| | AF2031 | | |
| | AF2032 | | |
| | AF2040 | | |
| | AF2041 | | |
| | AF2041(ILS) | | |
| | AF2041(VOR) | | |
| | AF2042 | | |
| | AF2050 | | |
| | AF2051 | | |
| | AF2052 | | |
| | AF3416 | SCPI | 7 |
| Anritsu | AN68017 | SCPI | 8 |
| | AN68037 | | |

| Remote emulations in the SMBV100B | | | |
|--|------------|----------|---------|
| Manufacturer | Instrument | Language | Section |
| Keysight Technologies Agilent Technologies Hewlett-Packard | E4428 | SCPI | 9 |
| | E4438 | | |
| | N5181 | SCPI | 10 |
| | N5182 | | |
| | N5172 | | |
| | N5173 | | |
| | E8257 | SCPI | 11 |
| | E8663 | | |
| | HP8340 | Non-SCPI | 12 |
| | HP8341 | | |
| | 83620 | SCPI | 13 |
| | 83630 | | |
| | 83640 | | |
| | 83650 | | |
| | HP8642 | Non-SCPI | 14 |
| | HP8643 | SCPI | 15 |
| | HP8644 | | |
| | HP8645 | | |
| | HP8664 | | |
| | HP8665 | | |
| HP8647 | SCPI | 16 | |
| HP8648 | | | |
| HP8656 | Non-SCPI | 17 | |
| HP8657 | | | |
| HP8662 | SCPI | 18 | |
| HP8673 | Non-SCPI | 19 | |
| Racal-Dana | RC3102 | Non-SCPI | 20 |
| | RC9087 | | |
| Panasonic | PA8303 | Non-SCPI | 21 |
| Rohde & Schwarz | SMBV100A | SCPI | 22 |
| | SML01 | SCPI | 23 |
| | SML02 | | |
| | SML03 | | |
| | SMT03 | SCPI | 24 |
| | SMY01 | SCPI | 25 |
| | SMY02 | | |

3 Basics

3.1 Remote Control Languages

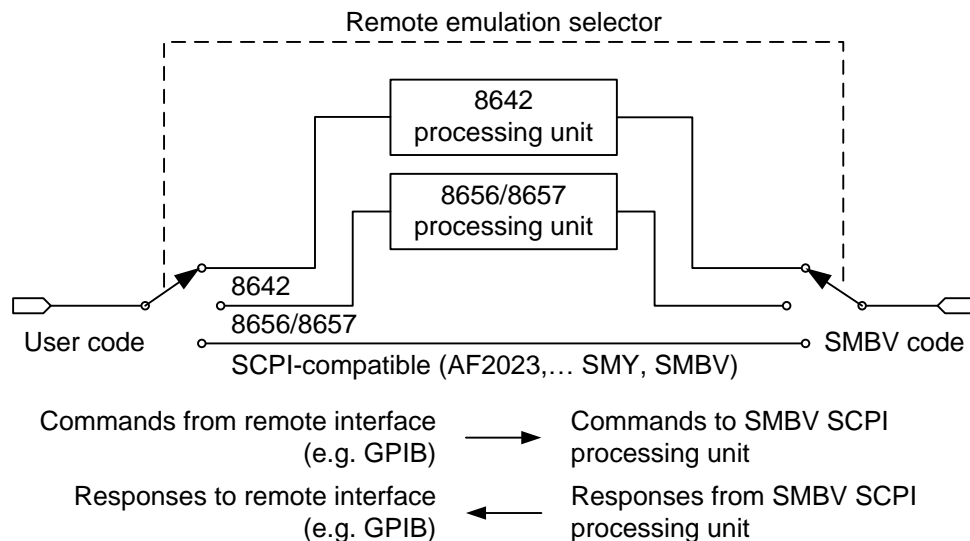
Instruments implement different kind of remote control languages. These languages are grouped into two basic categories:

- SCPI-compatible
- Non-SCPI-compatible

| Command examples | | | | |
|----------------------------|--------------------|--------------------|--------------------|------------------|
| Function | HP8642 Non-SCPI | HP8657 Non-SCPI | AF2023 SCPI | SMBV100B SCPI |
| Resetting the instrument | PR | PR | *RST | *RST |
| Clearing the system status | | CS | *CLS | *CLS |
| Setting the RF frequency | CW10MZ | FR10MZ | :CFRQ:VALUE 10MHZ | :FREQ 10MHZ |
| Setting the RF power | AP-10DB | PL-10DM | :RFLV:VALUE -10DBM | :POW -10DBM |
| Activating the RF output | ON | R3 | :RFLV:ON | :OUTP 1 |

Older instruments often implement a simple, unstructured and non-SCPI-compatible language, whereas modern instruments implement usually a complex, well structured and SCPI-compatible language.

The SMBV100B offers a solution for both kinds of languages using specialized processing units in non-SCPI-compatible languages:



3.1.1 SCPI-Compatible Languages

Commands are routed directly from the remote interface to the SMBV100B SCPI command processing unit; responses are routed in the reverse direction.

3.1.2 Non-SCPI-Compatible Languages

Commands are routed from the remote interface to the SMBV100B SCPI command processing unit through a remote emulation specific processing unit; responses are routed in the reverse direction.

This specific processing unit parses the non-SCPI-compatible commands with reference to the corresponding syntax and translates them into SCPI-compatible ones. The unit also reformats the responses with respect to the requirements of the emulated instrument.

3.2 Remote Emulation Compatibility

An emulated instrument having fewer features than, or the same features as, the SMBV100B can be replaced without special care.

However, replacing an emulated instrument having more features than the SMBV100B or features that differ from those of the SMBV100B requires additional care. The user must

- ensure that the SMBV100B complies with the functional requirements
- verify that application code does not use features in the emulated instrument which are not available in the SMBV100B





3.2.1 Command Compatibility

Most of the remote emulations in the SMBV100B implement all commands of the original instrument. However, e.g. due to functional differences in hardware, in certain remote emulations the SMBV100B

- does not support all commands
- does not support all parameters of a command
- implements a different behavior for a command

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

| Command compatibility status | |
|------------------------------|---|
| Status | Comment |
| ✓ | Command implementation is fully compatible. |

| Command compatibility status | |
|---|--|
| Status | Comment |
|  See item n | Command implementation is not fully compatible. The implementation in the SMBV100B <ul style="list-style-type: none"> • does not support the same parameter(s) as the emulated instrument does • has different functionality than the emulated instrument • reports an invalid parameter or execution error if possible |
|  | Command is implemented without any functionality. The implementation in the SMBV100B <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 |
|  | Command is not implemented. The implementation in the SMBV100B 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 applications 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 SMBV100B cannot be used as replacement for another instrument.

3.2.2 IDN / 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 SMBV100B.

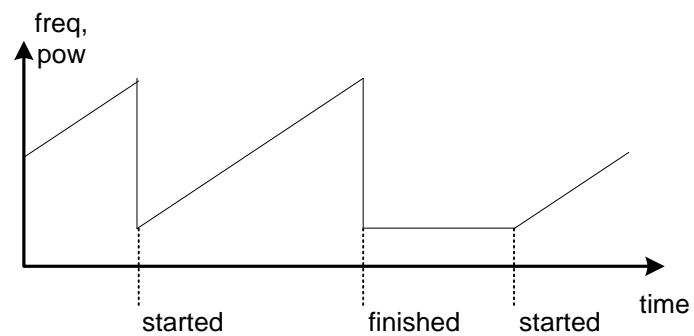
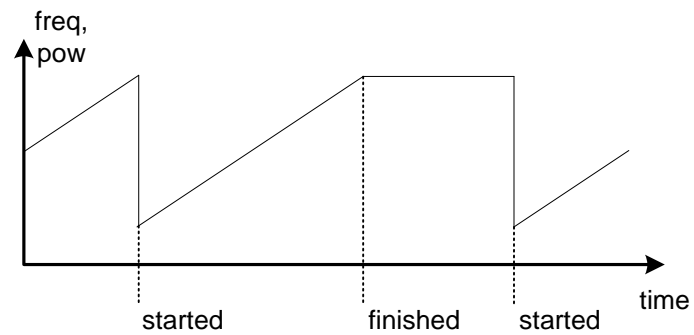
3.2.3 Timing

The remote emulation cannot provide exact timing compatibility with the emulated instrument, since timing is a hardware-related property.

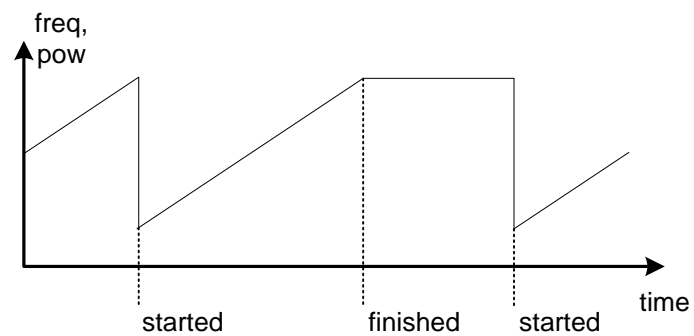
3.2.4 Sweep Operation

In the different sweep operating modes, often the behavior when a sweep has finished can be configured.

In some of the emulated instruments, the corresponding signal can be configured to remain at the stop value (upper figure) or to retrace to the start value (lower figure):

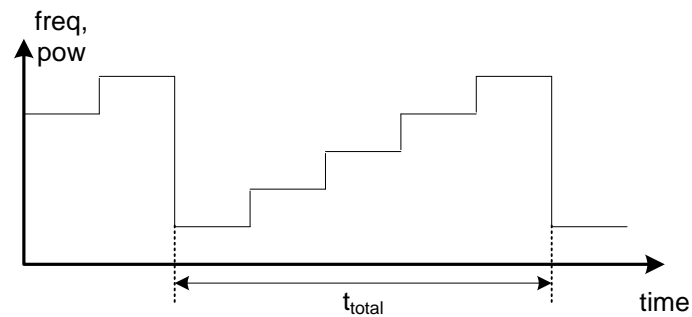


In the SMBV100B, however, the corresponding signal always remains at the stop value:



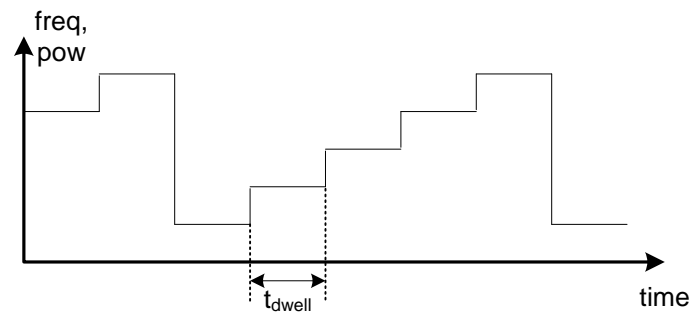
If this feature is undesirable, the user application code has to be changed.

Some of the emulated instruments implement sweep operations with a constant total sweep time:



Changing the start, stop or steps parameter of the sweep operation does not have an impact on the total sweep time.

In the SMBV100B, all sweep operations are based on the dwell time:



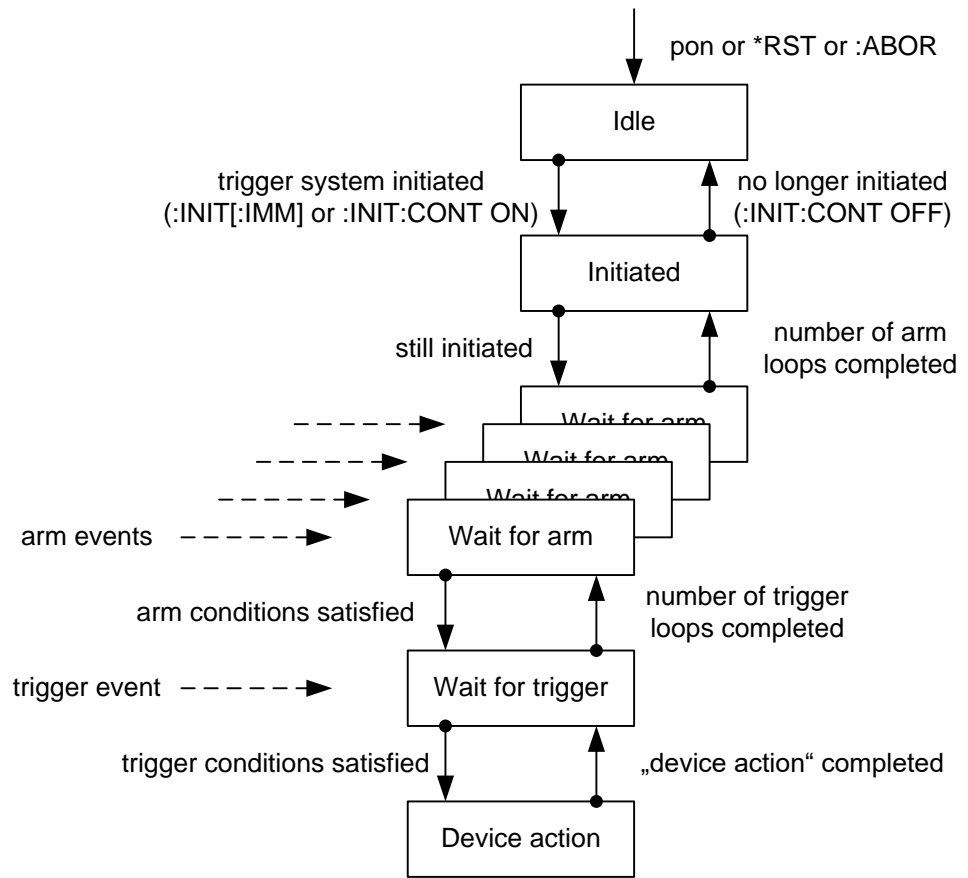
Changing the start, stop or steps parameter directly affects the total sweep time.

$$n_{steps} = \left\lceil \frac{f_{stop} - f_{start}}{f_{step}} \right\rceil + 1$$

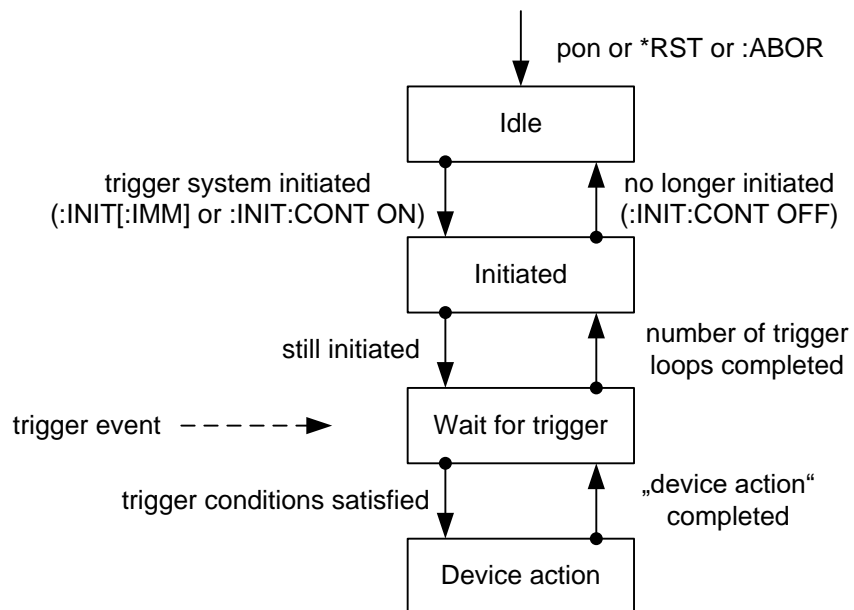
$$t_{total} = n_{steps} \cdot t_{dwell}$$

3.2.5 Trigger Control

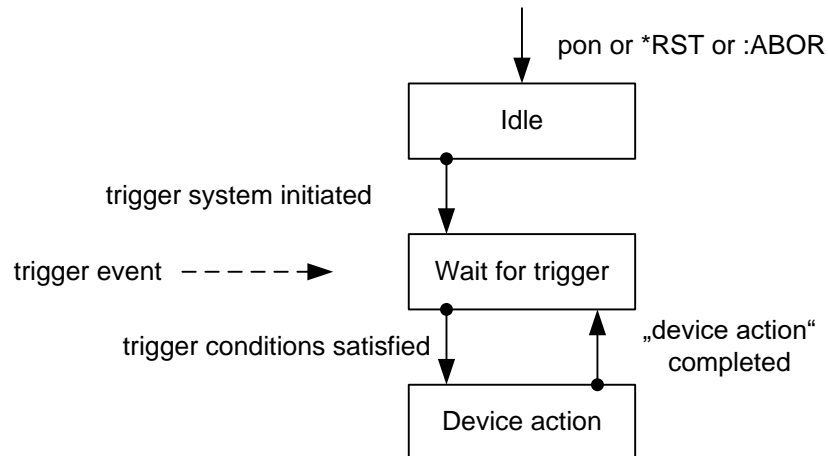
In signal generators with sweeping features, all sweep operating modes use the trigger control system. The figure below shows the SCPI trigger control system proposal:



Some of the emulated instruments implement a simplified trigger control system:



Other emulated instruments and also the SMBV100B implement the trigger control system shown in the following figure:

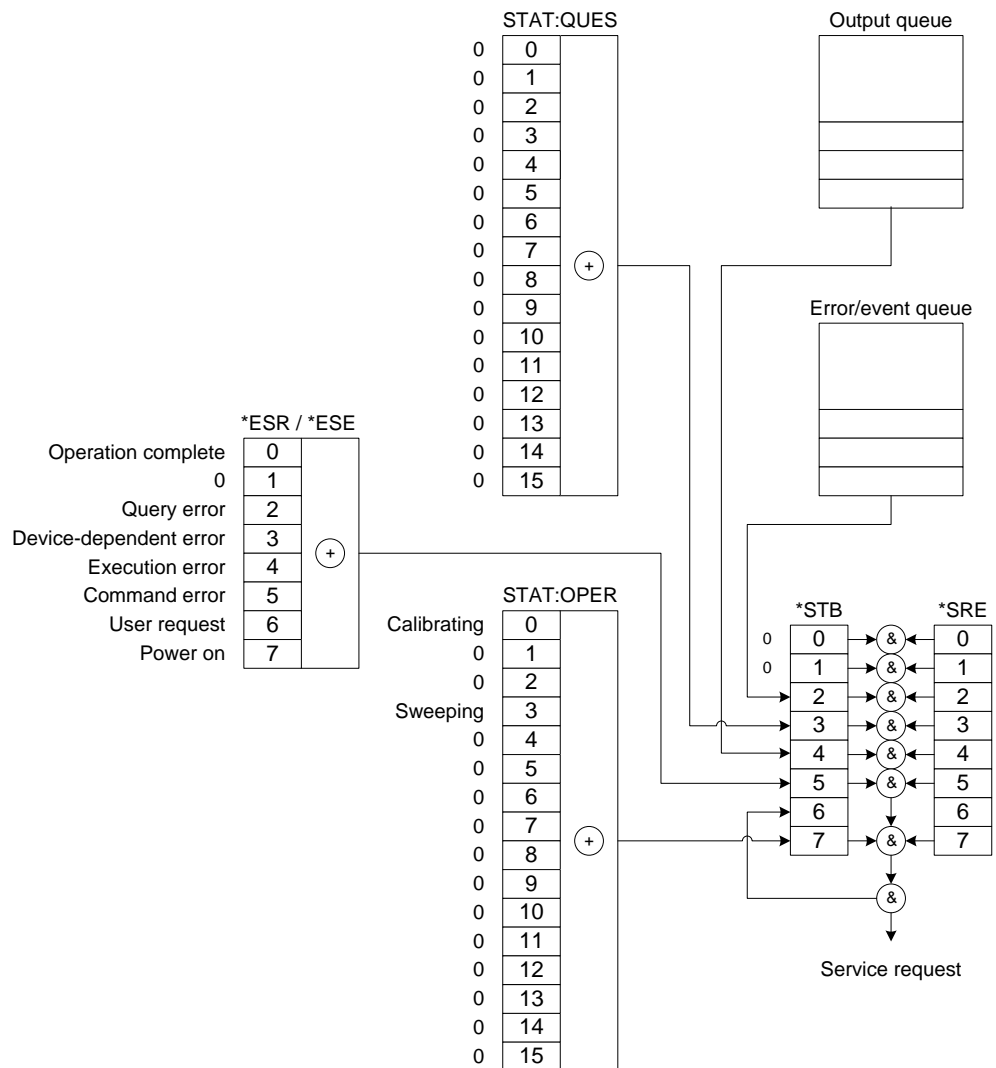


The main difference between the emulated instrument's and the SMBV100B's trigger control system is that there is no "Initiated" state in the SMBV100B. The SMBV100B implementation assumes that the trigger system is initiated automatically in the "Idle" state. As a result, any sweep operation in the SMBV100B, once activated, can only be controlled by internal or external trigger events.

This has an important impact on the user application. Application code that requires an "Initiated" state in the trigger control system must be adapted.

3.2.6 Status and Error Reporting

The SMBV100B implements the minimal status and error reporting system required by the SCPI proposal. The following figure shows the status and error reporting model:



Some of the emulated instruments implement a more detailed status and error reporting system. Since the additional information stored in that system is not available in the SMBV100B, application code that uses the additional information must be changed.

3.3 Preset / Reset

Changing the remote emulation does not automatically trigger a reset operation to the instrument. Therefore it is strongly recommended to manually execute a reset to the SMBV100B after changing the remote emulation.

To apply the default of a particular remote emulation, the user must send the corresponding command via the remote control interface, e.g. the *RST command in SCPI-compatible languages.

3.4 Power Down / Power Up

The selected remote emulation and the user-defined responses to *IDN? and *OPT? queries are saved when the instrument is switched off. When the instrument is switched on again, it starts up with the same settings that were active before it was switched off.

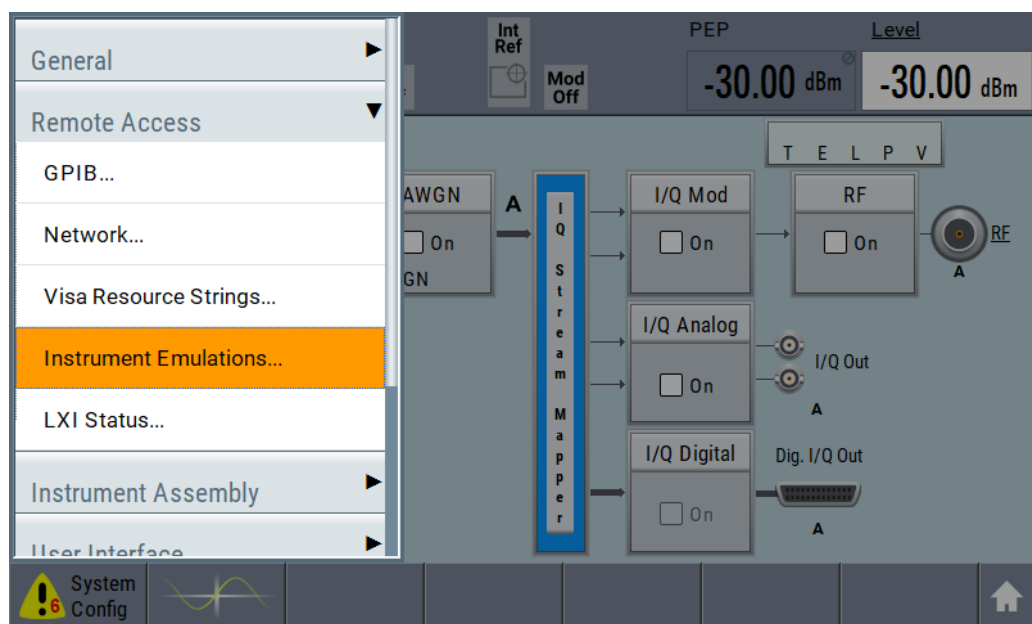
4 Activating a Remote Emulation

In order to use a specific remote emulation, it must first be activated by the user. Activation is done either

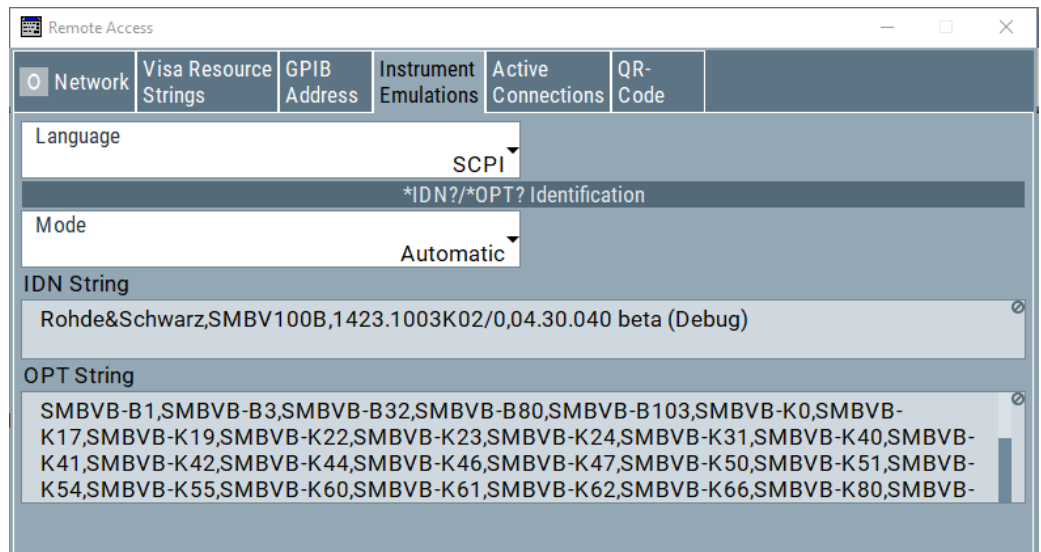
- manually using the SMBV100B front panel
- remotely using SCPI commands

4.1 Manual Operation

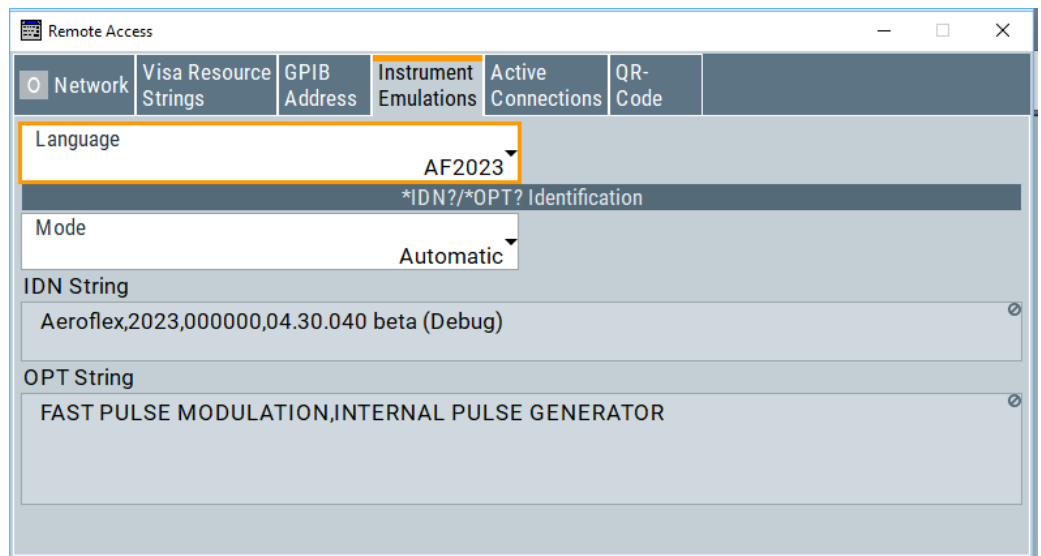
On the SMBV100B front panel, press the SETUP key to open the Menu tree:



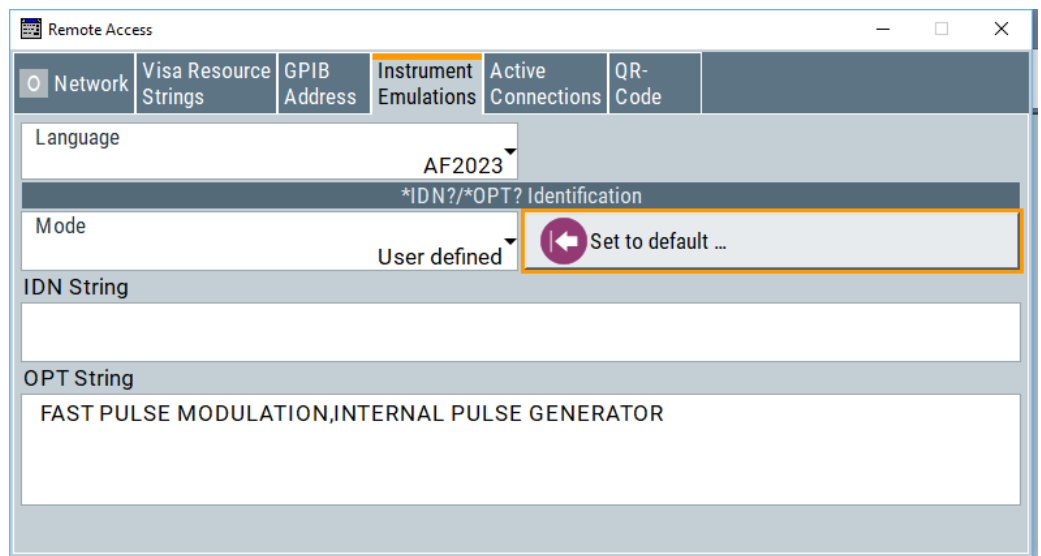
In the Menu tree, select Remote Access... and open the Instrument Emulations tab. In the dialog, set up the remote emulation specific parameters:



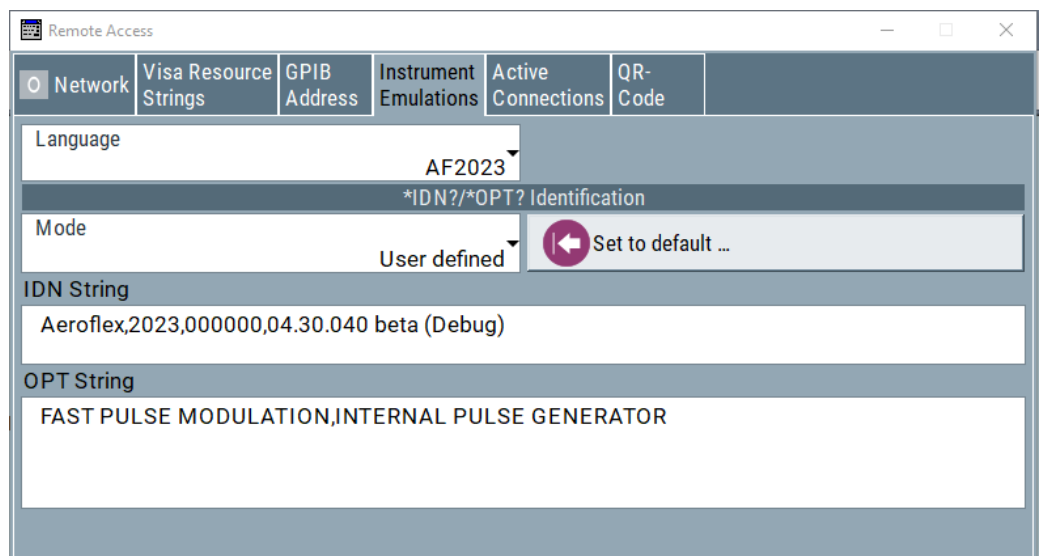
Select the Language and open the drop-down list. Pick an item from the list and confirm the selection:



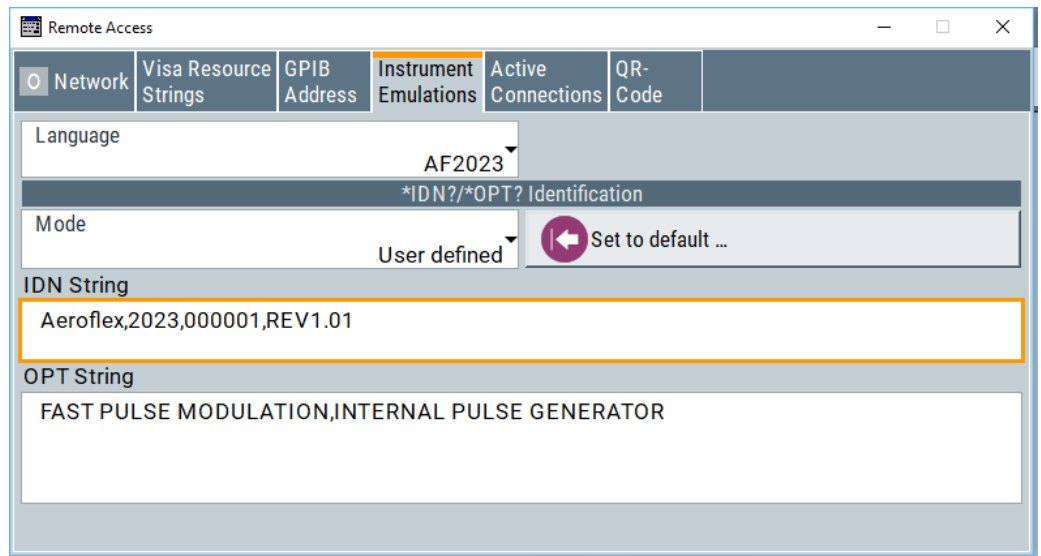
Select the Mode and open the drop-down list. Pick either "Automatic" or "User defined" from the list and confirm the selection. In "Automatic" mode, the response text to *IDN? and *OPT? queries is generated by the signal generator itself. In "User defined" mode, the response text to *IDN? and *OPT? queries must be entered in the corresponding IDN string and/or OPT string text boxes:



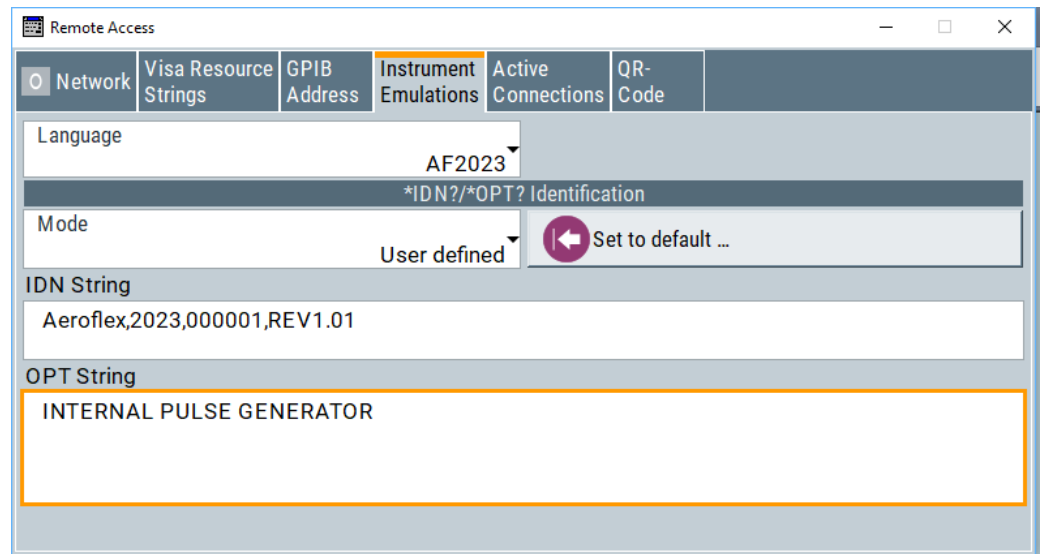
In “User defined” mode, press the “Set to default...” button to preset the corresponding IDN string and/or OPT string text boxes with the default settings from the selected remote emulation:



Then select the IDN String text box and edit the response text to *IDN? queries. When finished, confirm the text:



Finally select the OPT String text box and edit the response text to *OPT? queries. When finished, confirm the text:



4.2 Remote Operation

When the SMBV100B uses a non-SCPI-compatible language, the remote emulation cannot be changed remotely. The emulation needs to be changed manually.

When the SMBV100B uses an SCPI-compatible language, use the following commands to modify the remote emulation parameters:

| Commands to modify remote emulation relevant settings | |
|---|---|
| Command | Comment |
| :SYSTem:IDENt <value> | Sets the state of the identification mode. If the identification mode is set to USER, the value provided with the command :SYSTem:IDN <value> is returned on an *IDN? query and the value provided with the command :SYSTem:OPT <value> is returned on *OPT? query. If the identification mode is set to AUTO, the factory default setting is returned on a *IDN? query or an *OPT? query. The value range of character-type parameter <value> is <ul style="list-style-type: none"> AUTO USER |
| :SYSTem:IDENt? | Gets the state of the identification mode. |
| :SYSTem:IDN <value> | Sets the user-defined response to an *IDN? query. The string-type parameter <value> allows up to 128 characters. The parameter has to be enclosed in single or double quotes. |
| :SYSTem:IDN? | Gets the user-defined response to an *IDN? query. |
| :SYSTem:OPT <value> | Sets the user-defined response to a *OPT? query. The string-type parameter <value> allows up to 128 characters. The parameter has to be enclosed in single or double quotes. |
| :SYSTem:OPT? | Gets the user-defined response to a *OPT? query. |

| Commands to modify remote emulation relevant settings | |
|---|--|
| Command | Comment |
| :SYSTem:LANGUage <value> | <p>Activates the remote emulation to be used for further communications. The value range of the string-type parameter <value> is:</p> <ul style="list-style-type: none"> • "AF2023", "AF2024" • "AF2030", "AF2031", "AF2032", "AF2040", "AF2041", "AF2041(ILS)", "AF2041(VOR)", "AF2042", "AF2050", "AF2051", "AF2052" • "AF3416" • "AN68017", "AN68037" • "E4428", "E4438" • "N5181", "N5182", "N5172B", "N5173" • "HP8642" • "HP8643", "HP8643", "HP8644", "HP8664", "HP8665" • "HP8647", "HP8648" • "HP8656", "HP8657" • "PA8303" • "RC3102", "RC9087" • "SMBV100A" • "SML01", "SML02", "SML03" • "SMT03" • "SMY01", "SMY02" • "EXIT" <p>Attention: The remote emulation is changed immediately after parsing this command. Succeeding commands such as *WAI, *OPC or *OPC? are not allowed, since these commands may not be a part of the newly selected command set. Therefore, this command must be the one and only command in a program message unit. After sending this command, a delay of two seconds must be applied to the application software before the next command is sent. The parameter value "EXIT" must be used to return to the native SCPI command set of the instrument.</p> |
| :SYSTem:LANGUage? | Gets the current active remote emulation. |

Note:

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.

5 Emulating the Aeroflex 2023/2024

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| AM[1][:DEPTH] value | ✓ |
| AM[1]:DN | ✓ |
| AM[1]:EXTAC | ✓ |
| AM[1]:EXTALC | ✘ |
| AM[1]:EXTDC | ✓ |
| AM[1]:INC value | ✓ |
| AM[1]:INT | ✓ |
| AM[1]:MODF[:VALUE] value | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| AM[1]:MODF:DN | ✓ |
| AM[1]:MODF:INC value | ✓ |
| AM[1]:MODF:PHASE value | ✗ |
| AM[1]:MODF:RETN | ✓ |
| AM[1]:MODF:SIN | ✓ |
| AM[1]:MODF:SQR | ✗ |
| AM[1]:MODF:TRI | ✗ |
| AM[1]:MODF:UP | ✓ |
| AM[1]:MODF:XFER | ✓ |
| AM[1]:OFF | ✓ |
| AM[1]:ON | ✓ |
| AM[1]:RETN | ✓ |
| AM[1]:UP | ✓ |
| AM[1]:XFER | ✓ |
| AM[1]? | ✓ |
| BLANK OFF | ✓ |
| BLANK ON | ✓ |
| BLANK? | ✓ |
| CCR? | ✗ |
| CFRQ[:VALUE] value | ✓ |
| CFRQ:DN | ✓ |
| CFRQ:INC value | ✓ |
| CFRQ:MODE | ✓ |
| CFRQ:PHASE value | ✓ |
| CFRQ:RETN | ✓ |
| CFRQ:START | ✓ |
| CFRQ:STOP | ✓ |
| CFRQ:TIME | ✓ |
| CFRQ:UP | ✓ |
| CFRQ:XFER | ✓ |
| CFRQ? | ✓ |
| CSE value CSE? | ✗ |
| CSR? | ✗ |
| DCFMNL | ✓ |
| ERROR? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | 👉 |
| FM[1][:DEVN] value | ✓ |
| FM[1]:DN | ✓ |
| FM[1]:EXTAC | ✓ |
| FM[1]:EXTALC | ✗ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| FM[1]:EXTDC | ✓ |
| FM[1]:INC value | ✓ |
| FM[1]:INT | ✓ |
| FM[1]:MODF[:VALUE] value | ✓ |
| FM[1]:MODF:DN | ✓ |
| FM[1]:MODF:INC value | ✓ |
| FM[1]:MODF:PHASE value | ✗ |
| FM[1]:MODF:RETN | ✓ |
| FM[1]:MODF:SIN | ✓ |
| FM[1]:MODF:SQR | ✗ |
| FM[1]:MODF:TRI | ✗ |
| FM[1]:MODF:UP | ✓ |
| FM[1]:MODF:XFER | ✓ |
| FM[1]:OFF | ✓ |
| FM[1]:ON | ✓ |
| FM[1]:RETN | ✓ |
| FM[1]:UP | ✓ |
| FM[1]:XFER | ✓ |
| FM[1]? | ✓ |
| FSTD value Remark: INT, EXT10DIR are supported. | ✗ |
| FSTD? | ✓ |
| GPIB value | ✓ |
| HCR? | ✗ |
| HSE value HSE? | ✗ |
| HSR? | ✗ |
| KLOCK | ✓ |
| KUNLOCK | ✓ |
| MODE value Remark: Only the following mode combinations are supported: AM1 FM1 PM1 PULSE AM1, FM1 AM1, PM1 PULSE, FM1 PULSE, PM1 PULSE, FM1 PULSE, PM1 | ✗ |
| MODE? | ✓ |
| MOD:OFF | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| MOD:ON | ✓ |
| MOD? | ✓ |
| OPER? | ✓ |
| OUTPUT:DISABLE | ✗ |
| OUTPUT:ENABLE | ✗ |
| PM[1]:[:DEVN] value | ✓ |
| PM[1]:DN | ✓ |
| PM[1]:EXTAC | ✓ |
| PM[1]:EXTALC | ✗ |
| PM[1]:EXTDC | ✓ |
| PM[1]:INC value | ✓ |
| PM[1]:INT | ✓ |
| PM[1]:MODF[:VALUE] value | ✓ |
| PM[1]:MODF:DN | ✓ |
| PM[1]:MODF:INC value | ✓ |
| PM[1]:MODF:PHASE value | ✗ |
| PM[1]:MODF:RETN | ✓ |
| PM[1]:MODF:SIN | ✓ |
| PM[1]:MODF:SQR | ✗ |
| PM[1]:MODF:TRI | ✗ |
| PM[1]:MODF:UP | ✓ |
| PM[1]:MODF:XFER | ✓ |
| PM[1]:OFF | ✓ |
| PM[1]:ON | ✓ |
| PM[1]:RETN | ✓ |
| PM[1]:UP | ✓ |
| PM[1]:XFER | ✓ |
| PM[1]? | ✓ |
| PULSE:EXT | ✓ |
| PULSE:INT | ✓ |
| PULSE::MODF[:VALUE] value | ✓ |
| PULSE:OFF | ✓ |
| PULSE:ON | ✓ |
| PULSE? | ✓ |
| RFLV[:VALUE] value | ✓ |
| RFLV:DN | ✓ |
| RFLV:INC value | ✓ |
| RFLV:LIMIT:DISABLE | ✓ |
| RFLV:LIMIT:ENABLE | ✓ |
| RFLV:LIMIT[:VALUE] value | ✓ |
| RFLV:LIMIT:SAVE | ✗ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| RFLV:OFF | ✓ |
| RFLV:OFFS:DISABLE | ✓ |
| RFLV:OFFS:ENABLE | ✓ |
| RFLV:OFFS:SAVE | ✘ |
| RFLV:OFFS:VALUE value | ✓ |
| RFLV:ON | ✓ |
| RFLV:RETN | ✓ |
| RFLV:TYPE value | ✓ |
| RFLV:UNITS value | ✓ |
| RFLV:UP | ✓ |
| RFLV:XFER | ✓ |
| RFLV? | ✓ |
| RFLV:LIMIT? | ✓ |
| RFLV:OFFS? | ✓ |
| SCR? | ✘ |
| SSE value SSE? | ✘ |
| SSR? | ✘ |
| SWEEP:CFRQ:INC value | ✓ |
| SWEEP:CFRQ:LOGINC value | ✓ |
| SWEEP:CFRQ:START value | ✓ |
| SWEEP:CFRQ:STOP value | ✓ |
| SWEEP:CFRQ:TIME value | ✓ |
| SWEEP:CONT Remark: Identical to SWEEP:GO. | ✘ |
| SWEEP:DN | ✓ |
| SWEEP:GO | ✓ |
| SWEEP:HALT | ✓ |
| SWEEP:MODE value | ✓ |
| SWEEP:RESET | ✓ |
| SWEEP:TRIG value Remark: OFF, START, STEP are supported. | ✘ |
| SWEEP:TYPE value | ✓ |
| SWEEP:UP | ✓ |
| SWEEP:XFER | ✘ |
| SWEEP? | ✓ |
| SWEEP:CFRQ? | ✓ |

6 Emulating the Aeroflex 2030-2032, 2040-2042

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.



| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |
| *PUD value | ✎ |
| *PUD? | ✎ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| AM[1 2] [:DEPTH] value | ✓ |
| AM[1 2]:DN | ✓ |
| AM[1 2]:EXT1AC | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| AM[1 2]:EXT2AC | ✓ |
| AM[1 2]:EXT1ALC | ✓ |
| AM[1 2]:EXT2ALC | ✓ |
| AM[1 2]:EXT1DC | ✓ |
| AM[1 2]:EXT2DC | ✓ |
| AM[1 2]:INC value | ✓ |
| AM[1 2]:INTF1 | ✓ |
| AM[1 2]:INTF2 | ✓ |
| AM[1 2]:INTF3 | ✓ |
| AM[1 2]:INTF4 | ✓ |
| AM[1 2]:INTF5 | ✓ |
| AM[1 2]:INTF6 | ✓ |
| AM[1 2]:OFF | ✓ |
| AM[1 2]:ON | ✓ |
| AM[1 2]:RETN | ✓ |
| AM[1 2]:UP | ✓ |
| AM[1 2]:XFER | ✓ |
| AM[1 2]? | ✓ |
| BLANK value Remark: 0, 1, 4 are supported. | ✎ |
| BACKL:ON | ✓ |
| BACKL:OFF | ✓ |
| CFRQ[:VALUE] value | ✓ |
| CFRQ:DN | ✓ |
| CFRQ:INC value | ✓ |
| CFRQ:PHASE value | ✓ |
| CFRQ:RETN | ✓ |
| CFRQ:UP | ✓ |
| CFRQ:XFER | ✓ |
| CFRQ? | ✓ |
| CCR? | ✘ |
| CSE value CSE? | ✘ |
| CSR? | ✘ |
| DATE? | ✓ |
| DCFMNL | ✓ |
| ELAPSED? | ✓ |
| ERASE:ALL | ✓ |
| ERASE:CFRQ | ✓ |
| ERASE:FULL | ✓ |
| ERASE:PART | ○ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| ERASE:SEQT | ○ |
| ERASE:SWEEP | ✓ |
| ERROR? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | ✎ |
| FM[1 2]:[DEVN] value | ✓ |
| FM[1 2]:DN | ✓ |
| FM[1 2]:EXT1AC | ✓ |
| FM[1 2]:EXT2AC | ✓ |
| FM[1 2]:EXT1ALC | ✓ |
| FM[1 2]:EXT2ALC | ✓ |
| FM[1 2]:EXT1DC | ✓ |
| FM[1 2]:EXT2DC | ✓ |
| FM[1 2]:INC value | ✓ |
| FM[1 2]:INTF1 | ✓ |
| FM[1 2]:INTF2 | ✓ |
| FM[1 2]:INTF3 | ✓ |
| FM[1 2]:INTF4 | ✓ |
| FM[1 2]:INTF5 | ✓ |
| FM[1 2]:INTF6 | ✓ |
| FM[1 2]:OFF | ✓ |
| FM[1 2]:ON | ✓ |
| FM[1 2]:RETN | ✓ |
| FM[1 2]:UP | ✓ |
| FM[1 2]:XFER | ✓ |
| FM[1 2]? | ✓ |
| FSTD value Remark: INT10 , EXT5, EXT10 are supported. | ✎ |
| FSTD? | ✓ |
| HCR? | ✘ |
| HOPSEQ | ○ |
| HSE value HSE? | ✘ |
| HSR? | ✘ |
| IMODE value Remark: NORMAL, SWEEPER are supported. | ✎ |
| INTF1 2 3 4 5 6[:FREQ] value | ✓ |
| INTF1 2 3 4 5 6:CTC1 | ✘ |
| INTF1 2 3 4 5 6:CTC2 | ✘ |
| INTF1 2 3 4 5 6:DN | ✓ |
| INTF1 2 3 4 5 6:INC value | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| INTF1 2 3 4 5 6:PHASE value | x |
| INTF1 2 3 4 5 6:SIN | ✓ |
| INTF1 2 3 4 5 6:SQU | x |
| INTF1 2 3 4 5 6:RETN | ✓ |
| INTF1 2 3 4 5 6:TEMP | x |
| INTF1 2 3 4 5 6:TRI | ☞ |
| INTF1 2 3 4 5 6:UP | ✓ |
| INTF1 2 3 4 5 6:USER | x |
| INTF1 2 3 4 5 6:XFER | ✓ |
| INTF1 2 3 4 5 6? | ✓ |
| KLOCK | ✓ |
| KUNLOCK | ✓ |
| LF:GEN | ✓ |
| LF:MON | ✓ |
| LF:ON | ✓ |
| LF:OFF | ✓ |
| LF? | ✓ |
| LFGF[:VALUE] value | ✓ |
| LFGF:DN | ✓ |
| LFGF:INC value | ✓ |
| LFGF:RETN | ✓ |
| LFGF:SIN | ✓ |
| LFGF:SQU | x |
| LFGF:TRI | ☞ |
| LFGF:UP | ✓ |
| LFGF:XFER | ✓ |
| LFGF? | ✓ |
| LFGL[:VALUE] value | ✓ |
| LFGL:DN | ✓ |
| LFGL:INC value | ✓ |
| LFGL:RETN | ✓ |
| LFGL:UNITS value Remark: V, MV, UV are not supported. | ☞ |
| LFGL:UP | ✓ |
| LFGL:XFER | ✓ |
| LFGL? | ✓ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| MODE value Remark: Only the following mode combinations are supported: AM1 FM1 PM1 PULSE AM1,AM2 AM1,FM1 AM1,PM1 FM1,FM2 PM1,PM2 PULSE,FM1 PULSE,PM1 |  |
| MODE? | ✓ |
| MOD:OFF | ✓ |
| MOD:ON Remark: Re-enables previously enabled analogous modulations. |  |
| MOD? | ✓ |
| OPER? | ✓ |
| PGEN:DELAY value | ✗ |
| PGEN:D_DELAY value | ✓ |
| PGEN:RATE value | ✓ |
| PGEN:SOURCE value | ✓ |
| PGEN:STATE value | ✓ |
| PGEN:TRIGGER value | ✓ |
| PGEN:WIDTH value | ✓ |
| PM[1 2]:[.DEVN] value | ✓ |
| PM[1 2]:DN | ✓ |
| PM[1 2]:EXT1AC | ✓ |
| PM[1 2]:EXT2AC | ✓ |
| PM[1 2]:EXT1ALC | ✓ |
| PM[1 2]:EXT2ALC | ✓ |
| PM[1 2]:EXT1DC | ✓ |
| PM[1 2]:EXT2DC | ✓ |
| PM[1 2]:INC value | ✓ |
| PM[1 2]:INTF1 | ✓ |
| PM[1 2]:INTF2 | ✓ |
| PM[1 2]:INTF3 | ✓ |
| PM[1 2]:INTF4 | ✓ |
| PM[1 2]:INTF5 | ✓ |
| PM[1 2]:INTF6 | ✓ |
| PM[1 2]:OFF | ✓ |
| PM[1 2]:ON | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| PM[1 2]:RETN | ✓ |
| PM[1 2]:UP | ✓ |
| PM[1 2]:XFER | ✓ |
| PM[1 2]? | ✓ |
| PULSE:CAL:ENABLE | ✗ |
| PULSE:CAL:DISABLE | ✗ |
| PULSE:OFF | ✓ |
| PULSE:ON | ✓ |
| PULSE? | ✓ |
| PULSE:CAL? | ✗ |
| RCL:CFRQ value | ✓ |
| RCL:FULL value | ✓ |
| RCL:FXCF value | ✓ |
| RCL:PART value | ○ |
| RCL:PXCF value | ○ |
| RCL:SEQT value | ○ |
| RCL:SWEEP value | ✓ |
| RFLV[:VALUE] value | ✓ |
| RFLV:DN | ✓ |
| RFLV:HYST:DISABLE | ✓ |
| RFLV:HYST:ENABLE | ✓ |
| RFLV:HYST? | ✓ |
| RFLV:INC value | ✓ |
| RFLV:LIMIT[:VALUE] value | ✓ |
| RFLV:LIMIT:DISABLE | ✓ |
| RFLV:LIMIT:ENABLE | ✓ |
| RFLV:LIMIT:SAVE | ✗ |
| RFLV:OFF | ✓ |
| RFLV:OFFS:DISABLE | ✓ |
| RFLV:OFFS:ENABLE | ✓ |
| RFLV:OFFS:OFF | ✓ |
| RFLV:OFFS:ON | ✓ |
| RFLV:OFFS:SAVE | ✗ |
| RFLV:OFFS:VALUE value | ✓ |
| RFLV:ON | ✓ |
| RFLV:OVER:DISABLE | ○ |
| RFLV:OVER:ENABLE | ○ |
| RFLV:OVER? | ○ |
| RFLV:RETN | ✓ |
| RFLV:TYPE value | ✓ |
| RFLV:UNITS value | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| RFLV:UP | ✓ |
| RFLV:XFER | ✓ |
| RFLV? | ✓ |
| RFLV:HYST? | ✗ |
| RFLV:LIMIT? | ✓ |
| RFLV:OFFS? | ✓ |
| SCR? | ✗ |
| SSE value SSE? | ✗ |
| SSR? | ✗ |
| STO:CFRQ value | ✓ |
| STO:FULL value | ✓ |
| STO:PART value | ○ |
| STO:SEQT value | ○ |
| STO:SWEEP value | ✓ |
| SWEEP:CALC | ✗ |
| SWEEP:CFRQ:MKRNUM value | ✓ |
| SWEEP:CFRQ:MKROFF | ✓ |
| SWEEP:CFRQ:MKRON | ✓ |
| SWEEP:CFRQ:START value | ✓ |
| SWEEP:CFRQ:STEP value | ✓ |
| SWEEP:CFRQ:STOP value | ✓ |
| SWEEP:CFRQ:TIME value | ✓ |
| SWEEP:CFRQ:VALUE value | ✓ |
| SWEEP:CONT Remark: Identical to SWEEP:GO. | ✎ |
| SWEEP:DN | ✎ |
| SWEEP:GO | ✓ |
| SWEEP:HALT | ✓ |
| SWEEP:INTF:MKRNUM value | ○ |
| SWEEP:INTF:MKROFF | ○ |
| SWEEP:INTF:MKRON | ○ |
| SWEEP:INTF:START value | ✓ |
| SWEEP:INTF:STEP value | ✓ |
| SWEEP:INTF:STOP value | ✓ |
| SWEEP:INTF:TIME value | ✓ |
| SWEEP:INTF:VALUE value | ○ |
| SWEEP:LFGF:MKRNUM value | ○ |
| SWEEP:LFGF:MKROFF | ○ |
| SWEEP:LFGF:MKRON | ○ |
| SWEEP:LFGF:START value | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| SWEEP:LFGF:STEP value | ✓ |
| SWEEP:LFGF:STOP value | ✓ |
| SWEEP:LFGF:TIME value | ✓ |
| SWEEP:LFGF:VALUE value | ○ |
| SWEEP:LFGL:MKRNUM value | ○ |
| SWEEP:LFGL:MKROFF | ○ |
| SWEEP:LFGL:MKRON | ○ |
| SWEEP:LFGL:STARTvalue | ○ |
| SWEEP:LFGL:STEP value | ○ |
| SWEEP:LFGL:STOP value | ○ |
| SWEEP:LFGL:TIME value | ○ |
| SWEEP:LFGL:VALUE value | ○ |
| SWEEP:MKROFF | ✓ |
| SWEEP:MKRON | ✓ |
| SWEEP:MODE value | ✓ |
| SWEEP:RESET | ✓ |
| SWEEP:RFLV:MKRNUM value | ○ |
| SWEEP:RFLV:MKROFF | ○ |
| SWEEP:RFLV:MKRON | ○ |
| SWEEP:RFLV:START value | ✓ |
| SWEEP:RFLV:STEP value | ✓ |
| SWEEP:RFLV:STOP value | ✓ |
| SWEEP:RFLV:TIME value | ✓ |
| SWEEP:RFLV:VALUE value | ○ |
| SWEEP:TYPE value | ✎ |
| Remark: CFRQ, RFLV, LFGF, INTF1, INTF2, INTF3, INTF4, INTF5, INTF6 are supported. | |
| SWEEP:UP | ✎ |
| SWEEP:XFER | ○ |
| SWEEP? | ✓ |
| SWEEP:CFRQ? | ✓ |
| SWEEP:INTF? | ✓ |
| SWEEP:LFGF? | ✓ |
| SWEEP:RFLV? | ✓ |
| SWEEP? | ✓ |
| TIME? | ✓ |

The following table shows the current implementation status of additional commands, if options SMBVB-K151, SMBVB-K152 and SMBVB-K153 are installed. Commands not shown in this table are not supported.

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| BEARFR[:VALUE] value | ✓ |
| BEARFR:DN | ✓ |
| BEARFR:INC value | ✓ |
| BEARFR:RETN | ✓ |
| BEARFR:UP | ✓ |
| BEARFR:XFER | ✓ |
| BEARTO[:VALUE] value | ✓ |
| BEARTO:DN | ✓ |
| BEARTO:INC value | ✓ |
| BEARTO:RETN | ✓ |
| BEARTO:UP | ✓ |
| BEARTO:XFER | ✓ |
| BEAR? | ✓ |
| DDM90 DDM150[:DEPTH] value | ✓ |
| DDM90 DDM150:DN | ✓ |
| DDM90 DDM150:INC value | ✓ |
| DDM90 DDM150:RETN | ✓ |
| DDM90 DDM150:UP | ✓ |
| DDM90 DDM150:XFER | ✓ |
| DDM90 DDM150? | ✓ |
| DME:FALL value | ✓ |
| DME:GAUSSIAN | ✓ |
| DME:PPS value | ✓ |
| DME:RATE value | ✓ |
| DME:RISE value | ✓ |
| DME:TRIGGER value | ✓ |
| DME:WIDTH value | ✓ |
| DME? | ✓ |
| ILSF[:VALUE] value | ✓ |
| ILSF:DN | ✓ |
| ILSF:INC value | ✓ |
| ILSF:RETN | ✓ |
| ILSF:UP | ✓ |
| ILSF:XFER | ✓ |
| ILSF? | ✓ |
| MODE value Remark: Only the following mode combinations are supported: ILS ILS,AM2 VOR VOR,AM2 | ✘ |
| MODE? | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| REF[:DEPTH] value | ✓ |
| REF:DN | ✓ |
| REF:INC value | ✓ |
| REF:RETN | ✓ |
| REF:UP | ✓ |
| REF:XFER | ✓ |
| REF? | ✓ |
| SEQT:DUR value | ✓ |
| SEQT:EDIT:LOAD value | ○ |
| SEQT:EDIT:SAVE value | ○ |
| SEQT:EDIT:TDUR value | ✓ |
| SEQT:EDIT:TFRQ value | ✓ |
| SEQT:EDIT:TGAP value | ✓ |
| SEQT:EDIT:TNUM value | ✎ |
| SEQT:MODE:MOD value | ✓ |
| SEQT:MODE:STD value | ○ |
| SEQT:PARAM:EXTD value | ✓ |
| SEQT:PARAM:RPTT value | ✓ |
| SEQT:PARAM:SDLY value | ✓ |
| SEQT:PARAM:SHFT value | ○ |
| SEQT:PARAM:TDUR value | ○ |
| SEQT:PARAM:TGAP value | ○ |
| SEQT:SEND value | ✓ |
| SEQT:SEQ value | ✓ |
| SEQT:STOP | ✓ |
| SEQT? | ✓ |
| SEQT:EDIT? | ✓ |
| SEQT:MODE? | ✓ |
| SEQT:PARAM? | ✓ |
| SDM[:DEPTH] value | ✓ |
| SDM:DN | ✓ |
| SDM:INC value | ✓ |
| SDM:PHASE value | ✓ |
| SDM:RETN | ✓ |
| SDM:UP | ✓ |
| SDM:XFER | ✓ |
| SDM? | ✓ |
| SDM:PHASE? | ✓ |
| SUB[:DEPTH] value | ✓ |
| SUB:DEVN | ✓ |
| SUB:DISABLE | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| SUB:DN | ✓ |
| SUB:ENABLE | ✓ |
| SUB:INC value | ✓ |
| SUB:RETN | ✓ |
| SUB:UP | ✓ |
| SUB:XFER | ✓ |
| SUB? | ✓ |
| SUB:DEVN? | ✓ |
| SUPPRESS:NONE | ✓ |
| SUPPRESS:TONE150 | ✓ |
| SUPPRESS:TONE90 | ✓ |
| SUPPRESS? | ✓ |
| VOR[:DEPTH] value | ✓ |
| VOR:DEVN | ✓ |
| VOR:DISABLE | ✓ |
| VOR:DN | ✓ |
| VOR:ENABLE | ✓ |
| VOR:INC value | ✓ |
| VOR:RETN | ✓ |
| VOR:UP | ✓ |
| VOR:XFER | ✓ |
| VOR? | ✓ |
| VOR:DEVN? | ✓ |
| VORF[:VALUE] value | ✓ |
| VORF:DN | ✓ |
| VORF:INC value | ✓ |
| VORF:RETN | ✓ |
| VORF:UP | ✓ |
| VORF:XFER | ✓ |
| VORF? | ✓ |

7 Emulating the Aeroflex IFR 3416









The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.










| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TST? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| DIAGnostic:INFormation:OTIME? | ✓ |
| DIAGnostic:INFormation:OPTions:SOURce? Remark: Return value is always 0,0,0,0,0. | ✎ |
| DIAGnostic:INFormation:OPTions:SYSTem? Remark: Return value is always 0,0,0,0,0. | ✎ |
| DISPlay:ANNotation[:ALL] value DISPlay:ANNotation[:ALL]? | ✓ |
| DISPlay:ANNotation:FREQUency value DISPlay:ANNotation:FREQUency? | ✓ |
| DISPlay:ANNotation:POWer value DISPlay:ANNotation:POWer? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| OUTPut:MODulation:AM[1]2[:STATe] value OUTPut:MODulation:AM[1]2[:STATe]? | ✓ |
| OUTPut:MODulation:FM[1]2[:STATe] value OUTPut:MODulation:FM[1]2[:STATe]? | ✓ |
| OUTPut:MODulation:IQ[:STATe] value OUTPut:MODulation:IQ[:STATe]? | ✓ |
| OUTPut:MODulation:PM[1]2[:STATe] value OUTPut:MODulation:PM[1]2[:STATe]? | ✓ |
| OUTPut:MODulation:PULM[:STATe] value OUTPut:MODulation:PULM[:STATe]? | ✓ |
| OUTPut:MODulation:RESet | ✓ |
| OUTPut:MODulation[:STATe] value OUTPut:MODulation[:STATe] | ✓ |
| OUTPut[:POWEr]:PROTEction:CLEar | ✓ |
| OUTPut[:POWEr]:PROTEction:TRIPped? | ✓ |
| OUTPut[:POWEr][:STATe] value OUTPut[:POWEr][:STATe]? | ✓ |
| ROSCillator:INTernal:ADJust[:VALue] value ROSCillator:INTernal:ADJust[:VALue]? | ✓ |
| ROSCillator:SOURce value ROSCillator:SOURce? Remark: INT, EXT10DIR are supported. | ✎ |
| [SOURce:]FREQuency[:CW]:FIXed value [SOURce:]FREQuency[:CW]:FIXed? | ✓ |
| [SOURce:]FREQuency[:CW]:FIXed:STEP[:INCRement] value [SOURce:]FREQuency[:CW]:FIXed:STEP[:INCRement]? | ✓ |
| [SOURce:]FREQuency:MODE value [SOURce:]FREQuency:MODE? | ✓ |
| [SOURce:]FREQuency:PHASe[:ADJust] value [SOURce:]FREQuency:PHASe[:ADJust]? | ✓ |
| [SOURce:]FREQuency:SWEep:DWELI value [SOURce:]FREQuency:SWEep:DWELI? | ✓ |
| [SOURce:]FREQuency:SWEep:MANual value [SOURce:]FREQuency:SWEep:MANual? | ✓ |
| [SOURce:]FREQuency:SWEep:SPACing value [SOURce:]FREQuency:SWEep:SPACing? | ✓ |
| [SOURce:]FREQuency:SWEep:STARt value [SOURce:]FREQuency:SWEep:STARt? | ✓ |
| [SOURce:]FREQuency:SWEep:STEP[:LINear] value [SOURce:]FREQuency:SWEep:STEP[:LINear]? | ✓ |
| [SOURce:]FREQuency:SWEep:STEP:LOGarithmic value [SOURce:]FREQuency:SWEep:STEP:LOGarithmic? | ✓ |
| [SOURce:]FREQuency:SWEep:STOP value [SOURce:]FREQuency:SWEep:STOP? | ✓ |
| [SOURce:]LIST:ABORt | ✓ |
| [SOURce:]LIST:CALCulate | ○ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]LIST:CLEAr value | ✓ |
| [SOURce:]LIST:CLEAr:ALL | ✓ |
| [SOURce:]LIST:CLEAr:TEND value | ✓ |
| [SOURce:]LIST:DELeTe value | ✓ |
| [SOURce:]LIST:DWELl value [SOURce:]LIST:DWELl? | ✓ |
| [SOURce:]LIST:FREQuency value, value [,value] [SOURce:]LIST:FREQuency? | ✓ |
| [SOURce:]LIST:INITiate | ✓ |
| [SOURce:]LIST:INSert value, value, value | ✓ |
| [SOURce:]LIST:OPERation value [SOURce:]LIST:OPERation? | ✓ |
| [SOURce:]LIST:POWEr value, value [,value] [SOURce:]LIST:POWEr? | ✓ |
| [SOURce:]LIST:RESet | ✓ |
| [SOURce:]LIST:STARt value [SOURce:]LIST:STARt? | ✓ |
| [SOURce:]LIST:STOP value [SOURce:]LIST:STOP? | ✓ |
| [SOURce:]LIST:TRIGger[:MODE] value [SOURce:]LIST:TRIGger[:MODE]? Remark: OFF, STARt, STEP are supported. | ✎ |
| [SOURce:]LIST:TRIGger:SLOPe value [SOURce:]LIST:TRIGger:SLOPe? | ✓ |
| [SOURce:]LIST:VALue value,value,value [SOURce:]LIST:VALue? | ✓ |
| [SOURce:][MODulation:]AM[1]2[:DEPth] value [SOURce:][MODulation:]AM[1]2[:DEPth]? | ✓ |
| [SOURce:][MODulation:]AM[1]2[:DEPth]:STEP[:INCRement] value [SOURce:][MODulation:]AM[1]2[:DEPth]:STEP[:INCRement]? | ✓ |
| [SOURce:][MODulation:]AM[1]2:EXTernal:COUPling value [SOURce:][MODulation:]AM[1]2:EXTernal:COUPling? | ✓ |
| [SOURce:][MODulation:]AM[1]2:EXTernal:IMPedance value [SOURce:][MODulation:]AM[1]2:EXTernal:IMPedance? | ✓ |
| [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency[:FIXed] value [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency[:FIXed]? | ✓ |
| [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency[:FIXed]:STEP[:INCRement] value [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency[:FIXed]:STEP[:INCRement]? | ✓ |
| [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency:MODE value [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency:MODE? Remark: AM[1] is supported. | ✎ |
| [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency:SWEep:DWELl value [SOURce:][MODulation:]AM[1]2:INTernal:FREQuency:SWEep:DWELl? Remark: AM[1] is supported. | ✎ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:MANual value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:MANual? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STARt value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STARt? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STEP[:LINear] value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STEP[:LINear]? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STEP:LOGarithmic value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STEP:LOGarithmic? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STOP value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:STOP? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing value [SOURCE:][MODulation:]AM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing? Remark: AM[1] is supported. |  |
| [SOURCE:][MODulation:]AM[1]2:INTERNAL:SHAPE value [SOURCE:][MODulation:]AM[1]2:INTERNAL:SHAPE? Remark: SINE, SQUARE, TRIangle are supported. |  |
| [SOURCE:][MODulation:]AM[1]2:SOURCE value [SOURCE:][MODulation:]AM[1]2:SOURCE? | ✓ |
| [SOURCE:][MODulation:]AM[1]2:STATE value [SOURCE:][MODulation:]AM[1]2:STATE? | ✓ |
| [SOURCE:][MODulation:]FM[1]2[:DEViation] value [SOURCE:][MODulation:]FM[1]2[:DEViation]? | ✓ |
| [SOURCE:][MODulation:]FM[1]2[:DEViation]:STEP[:INCRement] value [SOURCE:][MODulation:]FM[1]2[:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURCE:][MODulation:]FM[1]2:EXTERNAL:COUPLing value [SOURCE:][MODulation:]FM[1]2:EXTERNAL:COUPLing? | ✓ |
| [SOURCE:][MODulation:]FM[1]2:EXTERNAL:DNULI | ✓ |
| [SOURCE:][MODulation:]FM[1]2:EXTERNAL:IMPedance value [SOURCE:][MODulation:]FM[1]2:EXTERNAL:IMPedance? | ✓ |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY[:FIXed] value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY[:FIXed]? | ✓ |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY[:FIXed]:STEP[:INCRement] value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY[:FIXed]:STEP[:INCRement]? | ✓ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:MODE value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:MODE? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:DWELI value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:DWELI? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:MANual value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:MANual? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:SPACing? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STARt value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STARt? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STEP[:LINear] value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STEP[:LINear]? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STEP:LOGarithmic value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STEP:LOGarithmic? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STOP value [SOURCE:][MODulation:]FM[1]2:INTERNAL:FREQUENCY:SWEep:STOP? Remark: FM[1] is supported. |  |
| [SOURCE:][MODulation:]FM[1]2:INTERNAL:SHAPE value [SOURCE:][MODulation:]FM[1]2:INTERNAL:SHAPE? Remark: SINE, SQUARE, TRIangle are supported. |  |
| [SOURCE:][MODulation:]FM[1]2:SOURCE value [SOURCE:][MODulation:]FM[1]2:SOURCE? | ✓ |
| [SOURCE:][MODulation:]FM[1]2:STATE value [SOURCE:][MODulation:]FM[1]2:STATE? | ✓ |
| [SOURCE:][MODulation:]PM[1]2[:DEViation] value [SOURCE:][MODulation:]PM[1]2[:DEViation]? | ✓ |
| [SOURCE:][MODulation:]PM[1]2[:DEViation]:STEP[:INCRement] value [SOURCE:][MODulation:]PM[1]2[:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURCE:][MODulation:]PM[1]2:EXTERNAL:COUpling value [SOURCE:][MODulation:]PM[1]2:EXTERNAL:COUpling? | ✓ |
| [SOURCE:][MODulation:]PM[1]2:EXTERNAL:IMPedance value [SOURCE:][MODulation:]PM[1]2:EXTERNAL:IMPedance? | ✓ |
| [SOURCE:][MODulation:]PM[1]2:INTERNAL:FREQUENCY[:FIXed] value [SOURCE:][MODulation:]PM[1]2:INTERNAL:FREQUENCY[:FIXed]? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency[:FIXed]:STEP[:INCRement] value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency[:FIXed]:STEP[:INCRement]? | ✓ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:MODE value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:MODE? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:DWELI value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:DWELI? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:MANual value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:MANual? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:SPACing value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:SPACing? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STARt value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STARt? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STEP[:LINear] value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STEP[:LINear]? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STEP:LOGarithmic value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STEP:LOGarithmic? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STOP value [SOURce:][MODulation:]PM[1]2:INTernal:FREQuency:SWEep:STOP? Remark: PM[1] is supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:INTernal:SHAPE value [SOURce:][MODulation:]PM[1]2:INTernal:SHAPE? Remark: SINE, SQUARE, TRIangle are supported. | ✎ |
| [SOURce:][MODulation:]PM[1]2:SOURce value [SOURce:][MODulation:]PM[1]2:SOURce? | ✓ |
| [SOURce:][MODulation:]PM[1]2:STATe value [SOURce:][MODulation:]PM[1]2:STATe? | ✓ |
| [SOURce:][MODulation:]PULM:SOURce value [SOURce:][MODulation:]PULM:SOURce? | ✓ |
| [SOURce:][MODulation:]PULM:STATe value [SOURce:][MODulation:]PULM:STATe? | ✓ |
| [SOURce:]POWER:ALC:STATe value [SOURce:]POWER:ALC:STATe? | ✓ |
| [SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude] value [SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude]? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:STEP[:INCRement] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:STEP[:INCRement]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:ATTenuation value [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:ATTenuation? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:GAIN value [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:GAIN? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:LOSS value [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:LOSS? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:STATe value [SOURce:]POWer[:LEVel][:IMMediate][:AMPlitude]:OFFSet:STATe? | ✓ |
| [SOURce:]POWer:LIMit[:IMMediate][:AMPlitude] value [SOURce:]POWer:LIMit[:IMMediate][:AMPlitude]? | ✓ |
| [SOURce:]POWer:MODE value [SOURce:]POWer:MODE? | ✓ |
| [SOURce:]POWer:SWEep:DWELI value [SOURce:]POWer:SWEep:DWELI? | ✓ |
| [SOURce:]POWer:SWEep:MANual value [SOURce:]POWer:SWEep:MANual? | ✓ |
| [SOURce:]POWer:SWEep:STARt value [SOURce:]POWer:SWEep:STARt? | ✓ |
| [SOURce:]POWer:SWEep:STEP value [SOURce:]POWer:SWEep:STEP? | ✓ |
| [SOURce:]POWer:SWEep:STOP value [SOURce:]POWer:SWEep:STOP? | ✓ |
| [SOURce:]SWEep:ABORt | ✓ |
| [SOURce:]SWEep:INITiate | ✓ |
| [SOURce:]SWEep:OPERation value [SOURce:]SWEep:OPERation? | ✓ |
| [SOURce:]SWEep:RESet | ✓ |
| [SOURce:]SWEep:TRIGger[:MODE] value [SOURce:]SWEep:TRIGger[:MODE]? | ✎ |
| Remark: OFF, STARt, STEP are supported. | |
| [SOURce:]SWEep:TRIGger:SLOPe value [SOURce:]SWEep:TRIGger:SLOPe? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABLE value STATus:OPERation:ENABLE? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation:NTRansition? | ✓ |
| STATus:OPERation:PTRansition value STATus:OPERation:PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABLE value STATus:QUESTionable:ENABLE? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable:NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable:PTRansition? | ✓ |
| SYSTem:COMMunicate:ETHernet:ADDRess value, value SYSTem:COMMunicate:ETHernet:ADDRess? | ✓ |
| SYSTem:COMMunicate:ETHernet:AUTO value SYSTem:COMMunicate:ETHernet:AUTO? | ✓ |
| SYSTem:COMMunicate:ETHernet:HNAME value SYSTem:COMMunicate:ETHernet:HNAME? | ✓ |
| SYSTem:COMMunicate:ETHernet:MADDRESS value SYSTem:COMMunicate:ETHernet:MADDRESS? | ✓ |
| SYSTem:COMMunicate:GPIB[:SELF]:ADDRESS value SYSTem:COMMunicate:GPIB[:SELF]:ADDRESS? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? Remark: Returns the original error code of the Rohde & Schwarz signal generator. | ✎ |
| SYSTem:COMMunicate:SERial:CONTROL:HANDshake value SYSTem:COMMunicate:SERial:CONTROL:HANDshake? Remark: HW, SW are supported. | ✎ |
| SYSTem:COMMunicate:SERial:PARity value SYSTem:COMMunicate:SERial:PARity? | ✓ |
| SYSTem:COMMunicate:SERial:SBITS value SYSTem:COMMunicate:SERial:SBITS? | ✓ |
| SYSTem:ERRor:ALL? | ✓ |
| SYSTem:ERRor:CODE:ALL? | ✓ |
| SYSTem:ERRor:CODE[:NEXT]? | ✓ |
| SYSTem:ERRor:COUNT? | ✓ |
| SYSTem:ERRor[:NEXT]? | ✓ |
| SYSTem:KLOCK value SYSTem:KLOCK? | ✓ |
| SYSTem:LANGuage value SYSTem:LANGuage? Remark: "EXIT" returns to native SCPI mode. | ✎ |
| SYSTem:PRESet | ✓ |
| SYSTem:SETTings:FULL:RECall value | ✓ |
| SYSTem:SETTings:FULL:SAVE value | ✓ |
| UNIT:POWER value UNIT:POWER? | ✓ |
| UNIT:VOLTtype value UNIT:VOLTtype? | ✓ |

8 Emulating the Anritsu 68017, 68037

The remote emulations AN68017 and AN68037 are available when one of the following options is installed:

- SMBVB-B103 Frequency: 8 kHz to 3 GHz (mandatory)
- SMBVB-KB106 Frequency Extension to 6 GHz

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| ABORT | ✎ |
| CONTRol:BLANKing:POLarity | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| DIAGnostic:SNUM? | ✓ |
| DISPlay:WINDow:TEXT:STATe | ☞ |
| INITiate[:IMMediate] | ✗ |
| INITiate:CONTinuous value | ✗ |
| OUTPut[:STATe] value | ✓ |
| OUTPut:IMPedance? | ✓ |
| OUTPut:PROTection value | ✗ |
| OUTPut:PROTection:RETRace value | ✗ |
| [:SOURce:]CORRection[:STATe] value | ✗ |
| [:SOURce:]CORRection:CSET:SElect value | ✗ |
| [:SOURce:]FREQUency[:CW :FIXed] value | ✓ |
| [:SOURce:]FREQUency[:CW :FIXed]:STEP[:INCRement] value | ✓ |
| [:SOURce:]FREQUency:CENTer value | ✓ |
| [:SOURce:]FREQUency:MODE value Remark: ALSW, LIST<n> are not supported. SWCE is identical to CW and FIXed. SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | ☞ |
| [:SOURce:]FREQUency:MULTIplier value | ✓ |
| [:SOURce:]FREQUency:SPAN value | ✓ |
| [:SOURce:]FREQUency:SPAN:FULL | ✓ |
| [:SOURce:]FREQUency:SPAN2 value | ✗ |
| [:SOURce:]FREQUency:SPAN2:FULL | ✗ |
| [:SOURce:]FREQUency:STARt value | ✓ |
| [:SOURce:]FREQUency:STARt2 value | ✗ |
| [:SOURce:]FREQUency:STOP value | ✓ |
| [:SOURce:]FREQUency:STOP2 value | ✗ |
| [:SOURce:]LIST<n>:CALCulate | ✗ |
| [:SOURce:]LIST<n>:DWELl value | ✗ |
| [:SOURce:]LIST<n>:FREQUency value | ✗ |
| [:SOURce:]LIST<n>:FREQUency:POINts value | ✗ |
| [:SOURce:]LIST<n>:INDex value | ✗ |
| [:SOURce:]LIST<n>:POWer value | ✗ |
| [:SOURce:]LIST<n>:POWer:POINts value | ✗ |
| [:SOURce:]LIST<n>:STARt value | ✗ |
| [:SOURce:]LIST<n>:STOP value | ✗ |
| [:SOURce:]MARKer<n>:AOFF Remark: Not supported on SMBV100B. | ✓ |
| [:SOURce:]MARKer<n>:FREQUency value Remark: Not supported on SMBV100B. | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [:SOURce:]MARKer<n>:POLarity value Remark: Not supported on SMBV100B. | ✓ |
| [:SOURce:]MARKer<n>:STATe value Remark: Not supported on SMBV100B. | ✓ |
| [:SOURce:]MARKer<n>:VIDeo value | ✗ |
| [:SOURce:]POWer[:LEVel][:IMMEDIATE][:AMPLitude] value | ✓ |
| [:SOURce:]POWer[:LEVel][:IMMEDIATE][:AMPLitude]:STEP[:INCRement] value | ✓ |
| [:SOURce:]POWer[:LEVel]:ALTErnate value | ✗ |
| [:SOURce:]POWer:ALC:SOURce value | ✗ |
| [:SOURce:]POWer:ATTenuation value Remark: Not supported on SMBV100B. | ✗ |
| [:SOURce:]POWer:ATTenuation:AUTO value | ✓ |
| [:SOURce:]POWer:ATTenuation:STEP[:INCRement] value | ✗ |
| [:SOURce:]POWer:CENTEr value | ✓ |
| [:SOURce:]POWer:DISPlay:OFFSet value | ✓ |
| [:SOURce:]POWer:DISPlay:OFFSet:STATe value | ✗ |
| [:SOURce:]POWer:MODE value Remark: SWEep[1], ALSW, LIST<n> are not supported. SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | 👉 |
| [:SOURce:]POWer:SLOPe value | ✗ |
| [:SOURce:]POWer:SLOPe:PIVot value | ✗ |
| [:SOURce:]POWer:SLOPe:STATe value | ✗ |
| [:SOURce:]POWer:SLOPe:STEP[:INCRement] value | ✗ |
| [:SOURce:]POWer:SPAN value | ✓ |
| [:SOURce:]POWer:SPAN:FULL Set the power level span for the sweep mode SWEep2 to powermax – powermin. | ✓ |
| [:SOURce:]POWer:STARt value Set / Query the start power level for the sweep mode SWEep2. | ✓ |
| [:SOURce:]POWer:STOP value Set / Query the stop power level for the sweep mode SWEep2. | ✓ |
| SWEep<n>[:FREQuency]:STEP value Remark: SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | 👉 |
| [:SOURce:]SWEep<n>:DIRection value Remark: STARt and STOP are exchanged if necessary. SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | 👉 |
| [:SOURce:]SWEep<n>:DWELI value Set / Query step time for frequency / power level sweep. Remark: SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | 👉 |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [[:SOURce:]]SWEep<n>:DWELI:AUTO value | ✘ |
| [[:SOURce:]]SWEep<n>:GENeration value | ✘ |
| [[:SOURce:]]SWEep<n>:POINts value Remark: SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | ☞ |
| [[:SOURce:]]SWEep<n>:POWer:STEP value Remark: SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | ☞ |
| [[:SOURce:]]SWEep<n>:SPACing value Remark: SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | ☞ |
| [[:SOURce:]]SWEep<n>:TIME value Remark: <i>value</i> is splitted into DWELI and POINts, whereby DWELI is set to minimal possible value so that POINts does not exceed upper limit. SWEep[1] is used for frequency sweep, SWEep2 is used for power sweep. | ☞ |
| [[:SOURce:]]SWEep<n>:TIME:AUTO value | ✘ |
| [[:SOURce:]]SWEep<n>:TIME:LLIMit value | ✘ |

9 Emulating the Agilent E4428, E4438

The file system implemented in the E4428 / E4438 is not compatible with the file system implemented in the SMBV100B. The SMBV100B does not support RAM-based file storage; all file contents are stored persistently.

Furthermore, the E4428 / E4438 directory tree is not compatible with the SMBV100B directory tree. The following tables show the mapping of the E4428 / E4438 directory tree to the SMBV100B directory tree:

| Directory tree mapping | |
|------------------------|------------|
| E4428 / E4438 | SMBV100B |
| /user/list/ | /var/user/ |
| /user/userflat/ | /var/user/ |

When E4428 / E4438 remote application is applied, the corresponding SMBV100B directory tree is created automatically.

The file format of the E4428 / E4438 differs from the SMBV100B file format. Therefore,









- E4428 / E4438 formatted files must not be transferred via FTP or USB memory to the SMBV100B.
- E4428 / E4438 formatted files must be transferred via remote interface, since the remote emulation performs the required conversion to the SMBV100B file format.

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| ABORt | ✓ |
| CALibration:DCFM | ✓ |
| CALibration:IQ:FULL | ✓ |
| DISPlay:ANNotation:AMPLitude[:STATe] value DISPlay:ANNotation:AMPLitude[:STATe]? | ✓ |
| DISPlay:ANNotation:FREQuency[:STATe] value DISPlay:ANNotation:FREQuency[:STATe]? | ✓ |
| DISPlay:REMOte value DISPlay:REMOte? | ✓ |
| INITiate:CONTInuous[:ALL] value INITiate:CONTInuous[:ALL]? | ✘ |
| INITiate:IMMediate[:ALL] | ✘ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| MEMory:CATalog[:ALL]? | ✓ |
| MEMory:CATalog:LIST? | ✓ |
| MEMory:CATalog:UFLT? | ✓ |
| MEMory:COpy[:NAME] value, value | ✓ |
| MEMory:DATA value,value MEMory:DATA? value | ✓ |
| MEMory:DATA:BIT value,value,value MEMory:DATA:BIT? value | ✓ |
| MEMory:DATA:UNPRotected value, value MEMory:DATA:UNPRotected? Value Remark: Implementation identical to MEMory:DATA[?]. | ✘ |
| MEMory:DELeTe:ALL | ✓ |
| MEMory:DELeTe:LIST | ✓ |
| MEMory:DELeTe[:NAME] value | ✓ |
| MEMory:DELeTe:UFLT | ✓ |
| MEMory:FREE[:ALL] | ✓ |
| MEMory:LOAD:LIST value | ✓ |
| MEMory:MOVE | ✓ |
| MEMory:STORE:LIST value | ✓ |
| MMEMory:CATalog[:ALL]? value | ✓ |
| MMEMory:COpy value, value | ✓ |
| MMEMory:DATA value, value MMEMory:DATA? value | ✓ |
| MMEMory:DELeTe[:NAME] value | ✓ |
| MMEMory:LOAD:LIST value | ✓ |
| MMEMory:LOAD:MOVE value, value | ✓ |
| MMEMory:STORE:LIST value | ✓ |
| OUTPut:MODulation[:STATe] value OUTPut:MODulation[:STATe]? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| [SOURce:]AM[1] [:DEPth][:LINear] value [SOURce:]AM[1] [:DEPth][:LINear]? | ✓ |
| [SOURce:]AM[1] [:DEPth]:STEP[:INCRement] value [SOURce:]AM[1] [:DEPth]:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:EXTernal[1]:COUPling value [SOURce:]AM[1]:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FREQuency value [SOURce:]AM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FUNCTion:SHAPE value [SOURce:]AM[1]:INTernal[1]:FUNCTion:SHAPE? Remark: SINE is supported. | ✘ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| [SOURce:]AM[1]:INTernal[1]:SWEep:TIME value [SOURce:]AM[1]:INTernal[1]:SWEep:TIME? Remark: Dwell time is assumed. |  |
| [SOURce:]AM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]AM[1]:INTernal[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. |  |
| [SOURce:]AM[1]:SOURce value [SOURce:]AM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. |  |
| [SOURce:]AM[1]:STATe value [SOURce:]AM[1]:STATe? | ✓ |
| [SOURce:]CORRection:FLATness:LOAD value | ✓ |
| [SOURce:]CORRection:FLATness:PAIR value, value {value, value} [SOURce:]CORRection:FLATness:PAIR? | ✓ |
| [SOURce:]CORRection:FLATness:POINTs? | ✓ |
| [SOURce:]CORRection:FLATness:PRESet | ✓ |
| [SOURce:]CORRection:FLATness:STORE value | ✓ |
| [SOURce:]CORRection[:STATe] value [SOURce:]CORRection[:STATe]? | ✓ |
| [SOURce:]FM[1][:DEVIation] value [SOURce:]FM[1][:DEVIation]? Remark: DOWN, MINIMUM, Numeric, UP are supported. |  |
| [SOURce:]FM[1][:DEVIation]:STEP[:INCRement] value [SOURce:]FM[1][:DEVIation]:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]2:EXTernal[1]:COUPling value [SOURce:]FM[1]2:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FREQuency value [SOURce:]FM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FUNCTion:SHAPE value [SOURce:]FM[1]:INTernal[1]:FUNCTion:SHAPE? Remark: SINE is supported. |  |
| [SOURce:]FM[1]:INTernal[1]:SWEep:TIME value [SOURce:]FM[1]:INTernal[1]:SWEep:TIME? Remark: Dwell time is assumed. |  |
| [SOURce:]FM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]FM[1]:INTernal[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. |  |
| [SOURce:]FM[1]:SOURce value [SOURce:]FM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. |  |



| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [SOURce:]FREQUency[:CW] value [SOURce:]FREQUency[:CW]? | ✓ |
| [SOURce:]FREQUency[:CW]:STEP[:INCRement] value [SOURce:]FREQUency[:CW]:STEP[:INCRement]? | ✓ |
| [SOURce:]FREQUency:FIXed value [SOURce:]FREQUency:FIXed? | ✓ |
| [SOURce:]FREQUency:MODE [SOURce:]FREQUency:MODE? | ✓ |
| [SOURce:]FREQUency:OFFSet value [SOURce:]FREQUency:OFFSet? | ✓ |
| [SOURce:]FREQUency:OFFSet:STATe value [SOURce:]FREQUency:OFFSet:STATe? | ✓ |
| [SOURce:]FREQUency:REFerence value [SOURce:]FREQUency:REFerence? | ✓ |
| [SOURce:]FREQUency:REFerence:STATe value [SOURce:]FREQUency:REFerence:STATe? | ✓ |
| [SOURce:]FREQUency:STARt value [SOURce:]FREQUency:STARt? | ✓ |
| [SOURce:]FREQUency:STOP value [SOURce:]FREQUency:STOP? | ✓ |
| [SOURce:]LFOutput:AMPLitude value [SOURce:]LFOutput:AMPLitude? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:FREQUency value [SOURce:]LFOutput:FUNCTion[1]:FREQUency? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:FREQUency:STEP[:INCRement] value [SOURce:]LFOutput:FUNCTion[1]:FREQUency:STEP[:INCRement]? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:PERiod value [SOURce:]LFOutput:FUNCTion[1]:PERiod? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:PERiod:STEP[:INCRement] value [SOURce:]LFOutput:FUNCTion[1]:PERiod:STEP[:INCRement]? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:PWIDth value [SOURce:]LFOutput:FUNCTion[1]:PWIDth? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:PWIDth:STEP[:INCRement] value [SOURce:]LFOutput:FUNCTion[1]:PWIDth:STEP[:INCRement]? | ✓ |
| [SOURce:]LFOutput:FUNCTion[1]:SHAPE value [SOURce:]LFOutput:FUNCTion[1]:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]LFOutput:FUNCTion[1]:SWEep:TRIGger value [SOURce:]LFOutput:FUNCTion[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. | ✎ |
| [SOURce:]LIST:DIRection? | ✘ |
| [SOURce:]LIST:DWELI value {,value} [SOURce:]LIST:DWELI? Remark: First parameter value is evaluated, rest is ignored. | ✎ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]LIST:DWELI:POINts? | ✓ |
| [SOURce:]LIST:DWELI:TYPE value [SOURce:]LIST:DWELI:TYPE? | ✓ |
| [SOURce:]LIST:FREQuency value {,value} [SOURce:]LIST:FREQuency? | ✓ |
| [SOURce:]LIST:FREQuency:POINts? | ✓ |
| [SOURce:]LIST:MODE value [SOURce:]LIST:MODE? | ✓ |
| [SOURce:]LIST:POWEr value {,value} [SOURce:]LIST:POWEr? | ✓ |
| [SOURce:]LIST:POWEr:POINts? | ✓ |
| [SOURce:]LIST:TYPE value [SOURce:]LIST:TYPE? | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:FSTep | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:PREset | ✓ |
| [SOURce:]PHASe[:ADJust] value [SOURce:]PHASe[:ADJust]? | ✓ |
| [SOURce:]PHASe:REFerence | ✓ |
| [SOURce:]PM[1][:DEViation] value [SOURce:]PM[1][:DEViation]? | ✎ |
| Remark: DOWN, MINImum, Numeric, UP are supported. | |
| [SOURce:]PM[1][:DEViation]:STEP[:INCRement] value [SOURce:]PM[1][:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:EXTernal[1]:COUPling value [SOURce:]PM[1]:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency value [SOURce:]PM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FUNCTion:SHAPE value [SOURce:]PM[1]:INTernal[1]:FUNCTion:SHAPE? | ✎ |
| Remark: SINE is supported. | |
| [SOURce:]PM[1]:INTernal[1]:SWEep:TIME value [SOURce:]PM[1]:INTernal[1]:SWEep:TIME? | ✎ |
| Remark: Dwell time is assumed. | |
| [SOURce:]PM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]PM[1]:INTernal[1]:SWEep:TRIGger? | ✎ |
| Remark: BUS, EXTernal, IMMEDIATE are supported. | |
| [SOURce:]PM[1]:SOURce value [SOURce:]PM[1]:SOURce? | ✎ |
| Remark: EXTernal[1], INTernal[1] are supported. | |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]POWer:ALC[:STATe] value [SOURce:]POWer:ALC[:STATe]? | ✓ |
| [SOURce:]POWer:ATTenuation value [SOURce:]POWer:ATTenuation? | ✓ |
| [SOURce:]POWer:ATTenuation:AUTO value [SOURce:]POWer:ATTenuation:AUTO? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]:STEP[:INCRement] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]:STEP[:INCRement]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet value [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet? | ✓ |
| [SOURce:]POWer:MODE value [SOURce:]POWer:MODE? | ✓ |
| [SOURce:]POWer:REFerence value [SOURce:]POWer:REFerence? | ✓ |
| [SOURce:]POWer:REFerence:STATe value [SOURce:]POWer:REFerence:STATe? | ✓ |
| [SOURce:]POWer:STARt value [SOURce:]POWer:STARt? | ✓ |
| [SOURce:]POWer:STOP value [SOURce:]POWer:STOP? | ✓ |
| [SOURce:]PULM:EXTernal:POLarity value [SOURce:]PULM:EXTernal:POLarity? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency value [SOURce:]PULM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:FUNctIon:SHApe value [SOURce:]PULM:INTernal[1]:FUNctIon:SHApe? Remark: SQUare is supported. | ✎ |
| [SOURce:]PULM:INTernal[1]:PERiod value [SOURce:]PULM:INTernal[1]:PERiod? | ✓ |
| [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth value [SOURce:]PULM:INTernal[1]:PWIDth? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:SOURce value [SOURce:]PULM:SOURce? Remark: EXTernal[1], INTernal are supported. | ✎ |
| [SOURce:]RADio:ALL:OFF | ✓ |
| [SOURce:]RADio:CUSTom:ALPHa value [SOURce:]RADio:CUSTom:ALPHa? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce.]:RADio:CUSTom:BBT value [SOURce.]:RADio:CUSTom:BBT? | ✓ |
| [SOURce.]:RADio:CUSTom:DATA value [SOURce.]:RADio:CUSTom:DATA? Remark: PN9, PN11, PN15, PN20, PN23, FIX4, P4, P8, P16, P32, <filename> are supported. If <filename> is selected, corresponding data must be transferred via MEM:DATA:BIT. | ✎ |
| [SOURce.]:RADio:CUSTom:DATA:FIX4 value [SOURce.]:RADio:CUSTom:DATA:FIX4? | ✓ |
| [SOURce.]:RADio:CUSTom:DENCode value [SOURce.]:RADio:CUSTom:DENCode? | ✓ |
| [SOURce.]:RADio:CUSTom:EREFerence value [SOURce.]:RADio:CUSTom:EREFerence? | ✓ |
| [SOURce.]:RADio:CUSTom:FILTer value [SOURce.]:RADio:CUSTom:FILTer? Remark: RNYQuist, NYQuist, GAUSSian, RECTangle are supported. | ✎ |
| [SOURce.]:RADio:CUSTom:MODulation:ASK[:DEPTh] value [SOURce.]:RADio:CUSTom:MODulation:ASK[:DEPTh]? | ✓ |
| [SOURce.]:RADio:CUSTom:MODulation:FSK[:DEViation] value [SOURce.]:RADio:CUSTom:MODulation:FSK[:DEViation]? | ✓ |
| [SOURce.]:RADio:CUSTom:MODulation[:TYPE] value [SOURce.]:RADio:CUSTom:MODulation[:TYPE]? Remark: BPSK, QPSK, OQPSK, P4DQPSK, PSK8, MSK, FSK2, FSK4, QAM16, QAM32, QAM64, QAM128, QAM128 are supported. | ✎ |
| [SOURce.]:RADio:CUSTom:SRATe value [SOURce.]:RADio:CUSTom:SRATe? | ✓ |
| [SOURce.]:RADio:CUSTom[:STATe] value [SOURce.]:RADio:CUSTom[:STATe]? | ✓ |
| [SOURce.]:ROSCillator:SOURce value [SOURce.]:ROSCillator:SOURce? | ✓ |
| [SOURce.]:ROSCillator:SOURce value [SOURce.]:ROSCillator:SOURce? | ✓ |
| [SOURce.]:SWEep:DWELI value [SOURce.]:SWEep:DWELI? | ✓ |
| [SOURce.]:SWEep:POINts value [SOURce.]:SWEep:POINts? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation: NTRansition? | ✓ |
| STATus:OPERation:PTRansition value STATus:OPERation: PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| STATus:QUESTionable:ENABle value STATus:QUESTionable:ENABle? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable: NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable: PTRansition? | ✓ |
| SYSTem:CAPability? | ✗ |
| SYSTem:COMMunicate:GPIB:ADDRess value SYSTem:COMMunicate:GPIB:ADDRess? | ✓ |
| SYSTem:COMMunicate:GTLocal | ✓ |
| SYSTem:COMMunicate:LAN:CONFig value SYSTem:COMMunicate:LAN:CONFig? | ✓ |
| SYSTem:COMMunicate:LAN:GATeway value SYSTem:COMMunicate:LAN:GATeway? | ✓ |
| SYSTem:COMMunicate:LAN:HOSTname value SYSTem:COMMunicate:LAN:HOSTname? | ✓ |
| SYSTem:COMMunicate:LAN:IP value SYSTem:COMMunicate:LAN:IP? | ✓ |
| SYSTem:COMMunicate:LAN:SUBNet value SYSTem:COMMunicate:LAN:SUBNet? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? | ✓ |
| SYSTem:DATE value SYSTem:DATE? | ✓ |
| SYSTem:ERRor:CODE[:NEXT]? Remark: Returns the original error code of the Rohde & Schwarz signal generator. | ☞ |
| SYSTem:ERRor[:NEXT]? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | ☞ |
| SYSTem:IDN value SYSTem:IDN? | ✓ |
| SYSTem:OPT value SYSTem:OPT? | ✓ |
| SYSTem:PDOWn | ✓ |
| SYSTem:PRESet | ✓ |
| SYSTem:PRESet:ALL | ✓ |
| SYSTem:SECurity:DISPlay value SYSTem:SECurity:DISPlay? | ✓ |
| SYSTem:TIME value SYSTem:TIME? | ✓ |
| SYSTem:VERSion? | ✓ |
| TRIGger[:SEQuence][:IMMEDIATE] | ✓ |
| TRIGger[:SEQuence]:SLOPe value TRIGger[:SEQuence]:SLOPe? | ✓ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| TRIGger[:SEQuence]:SOURce value TRIGger[:SEQuence]:SOURce? Remark: BUS, EXTernal, IMMEDIATE are supported. |  |
| UNIT:POWer value UNIT:POWer? Remark: DB, DBM, DBV, DBMV, DBUV, V, MV, UV are supported. |  |

10 Emulating the Agilent N5181, N5182, N5172, N5173

The file system implemented in the N5181 / N5182 / N5172 / N5173 is not compatible with the file system implemented in the SMBV100B. The SMBV100B does not support RAM-based file storage; all file contents are stored persistently.

Furthermore, the N5181 / N5182 / N5172 directory tree is not compatible with the SMBV100B directory tree. The following tables show the mapping of the N5181 / N5182 / N5172 / N5173 directory tree to the SMBV100B directory tree:

| Directory tree mapping | |
|------------------------|------------|
| N5181 / N5182 | SMBV100B |
| /user/list/ | /var/user/ |
| /user/userflat/ | /var/user/ |




When N5181 / N5182 / N5172 / N5173 remote application is applied, the corresponding SMBV100B directory tree is created automatically.

The file format of the N5181 / N5182 / N5172 / N5173 differs from the SMBV100B file format. Therefore,

- N5181 / N5182 / N5172 / N5173 formatted files must not be transferred via FTP or USB memory to the SMBV100B.
- N5181 / N5182 / N5172 / N5173 formatted files must be transferred via remote interface, since the remote emulation performs the required conversion to the SMBV100B file format.

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |

| IEEE488.2 functions | |
|---|---|
| Command syntax | Status |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. |  |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |





| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| ABORt | ✓ |
| CALibration:DCFM | ✓ |
| CALibration:IQ:FULL | ✗ |
| DISPlay:ANNotation:AMPLitude[:STATe] value DISPlay:ANNotation:AMPLitude[:STATe]? | ✓ |
| DISPlay:ANNotation:FREQuency[:STATe] value DISPlay:ANNotation:FREQuency[:STATe]? | ✓ |
| DISPlay:REMOte value DISPlay:REMOte? | ✓ |
| INITiate:CONTInuous[:ALL] value INITiate:CONTInuous[:ALL]? | ✗ |
| INITiate:IMMediate[:ALL] | ✗ |
| MEMory:CATalog[:ALL]? | ✓ |
| MEMory:CATalog:LIST? | ✓ |
| MEMory:CATalog:UFLT? | ✓ |
| MEMory:COpy[:NAME] value, value | ✓ |
| MEMory:DELeTe:ALL | ✓ |
| MEMory:DELeTe:LIST | ✓ |
| MEMory:DELeTe[:NAME] value | ✓ |
| MEMory:DELeTe:UFLT | ✓ |
| MEMory:FREE[:ALL] | ✓ |
| MEMory:LOAD:LIST value | ✓ |
| MEMory:MOVE | ✓ |
| MEMory:STORE:LIST value | ✓ |
| MMEMory:CATalog[:ALL]? value | ✓ |
| MMEMory:COpy value, value | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| MMEemory:DATA value, value MMEemory:DATA? value | ✓ |
| MMEemory:DELeTe[NAME] value | ✓ |
| MMEemory:LOAD:LIST value | ✓ |
| MMEemory:LOAD:MOVE value, value | ✓ |
| MMEemory:STORe:LIST value | ✓ |
| OUTPut:MODulation[:STATe] value OUTPut:MODulation[:STATe]? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| [SOURce:]AM[1] [:DEPth][:LINear] value [SOURce:]AM[1] [:DEPth][:LINear]? | ✓ |
| [SOURce:]AM[1] [:DEPth]:STEP[:INCRement] value [SOURce:]AM[1] [:DEPth]:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:EXTernal[1]:COUPling value [SOURce:]AM[1]:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FREQuency value [SOURce:]AM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FUNCTion:SHAPE value [SOURce:]AM[1]:INTernal[1]:FUNCTion:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]AM[1]:SOURce value [SOURce:]AM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. | ✎ |
| [SOURce:]AM[1]:STATe value [SOURce:]AM[1]:STATe? | ✓ |
| [SOURce:]CORRection:FLATness:LOAD value | ✓ |
| [SOURce:]CORRection:FLATness:PAIR value, value {value, value} [SOURce:]CORRection:FLATness:PAIR? | ✓ |
| [SOURce:]CORRection:FLATness:POINts? | ✓ |
| [SOURce:]CORRection:FLATness:PRESet | ✓ |
| [SOURce:]CORRection:FLATness:STORe value | ✓ |
| [SOURce:]CORRection[:STATe] value [SOURce:]CORRection[:STATe]? | ✓ |
| [SOURce:]FM[1][:DEVIation] value [SOURce:]FM[1][:DEVIation]? Remark: DOWN, MINImum, Numeric, UP are supported. | ✎ |
| [SOURce:]FM[1][:DEVIation]:STEP[:INCRement] value [SOURce:]FM[1][:DEVIation]:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]2:EXTernal[1]:COUPling value [SOURce:]FM[1]2:EXTernal[1]:COUPling? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]FM[1]:INTernal[1]:FREQuency value [SOURce:]FM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FUNction:SHAPE value [SOURce:]FM[1]:INTernal[1]:FUNction:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]FM[1]:SOURce value [SOURce:]FM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. | ✎ |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [SOURce:]FREQuency[:CW] value [SOURce:]FREQuency[:CW]? | ✓ |
| [SOURce:]FREQuency[:CW]:STEP[:INCRement] value [SOURce:]FREQuency[:CW]:STEP[:INCRement]? | ✓ |
| [SOURce:]FREQuency:FIXed value [SOURce:]FREQuency:FIXed? | ✓ |
| [SOURce:]FREQuency:MODE [SOURce:]FREQuency:MODE? | ✓ |
| [SOURce:]FREQuency:OFFSet value [SOURce:]FREQuency:OFFSet? | ✓ |
| [SOURce:]FREQuency:OFFSet:STATe value [SOURce:]FREQuency:OFFSet:STATe? | ✓ |
| [SOURce:]FREQuency:REFerence value [SOURce:]FREQuency:REFerence? | ✓ |
| [SOURce:]FREQuency:REFerence:STATe value [SOURce:]FREQuency:REFerence:STATe? | ✓ |
| [SOURce:]FREQuency:STARt value [SOURce:]FREQuency:STARt? | ✓ |
| [SOURce:]FREQuency:STOP value [SOURce:]FREQuency:STOP? | ✓ |
| [SOURce:]LIST:DIRection? | ✘ |
| [SOURce:]LIST:DWELI value {,value} [SOURce:]LIST:DWELI? Remark: First parameter value is evaluated, rest is ignored. | ✎ |
| [SOURce:]LIST:DWELI:POINts? | ✓ |
| [SOURce:]LIST:DWELI:TYPE value [SOURce:]LIST:DWELI:TYPE? | ✓ |
| [SOURce:]LIST:FREQuency value {,value} [SOURce:]LIST:FREQuency? | ✓ |
| [SOURce:]LIST:FREQuency:POINts? | ✓ |
| [SOURce:]LIST:MODE value [SOURce:]LIST:MODE? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]LIST:POWer value {,value} [SOURce:]LIST:POWer? | ✓ |
| [SOURce:]LIST:POWer:POINts? | ✓ |
| [SOURce:]LIST:TYPE value [SOURce:]LIST:TYPE? | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:FSTep | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:PREset | ✓ |
| [SOURce:]PHASe[:ADJust] value [SOURce:]PHASe[:ADJust]? | ✓ |
| [SOURce:]PHASe:REFerence | ✓ |
| [SOURce:]PM[1][:DEViation] value [SOURce:]PM[1][:DEViation]? Remark: DOWN, MINImum, Numeric, UP are supported. | ✎ |
| [SOURce:]PM[1][:DEViation]:STEP[:INCRement] value [SOURce:]PM[1][:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:EXTernal[1]:COUPling value [SOURce:]PM[1]:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency value [SOURce:]PM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FUNctioN:SHAPE value [SOURce:]PM[1]:INTernal[1]:FUNctioN:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]PM[1]:SOURce value [SOURce:]PM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. | ✎ |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [SOURce:]POWer:ALC[:STATe] value [SOURce:]POWer:ALC[:STATe]? | ✓ |
| [SOURce:]POWer:ATTenuation value [SOURce:]POWer:ATTenuation? | ✓ |
| [SOURce:]POWer:ATTenuation:AUTO value [SOURce:]POWer:ATTenuation:AUTO? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]:STEP[:INCRement] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]:STEP[:INCRement]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet value [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet? | ✓ |
| [SOURce:]POWer:MODE value [SOURce:]POWer:MODE? | ✓ |
| [SOURce:]POWer:REFerence value [SOURce:]POWer:REFerence? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]POWer:REFerence:STATe value [SOURce:]POWer:REFerence:STATe? | ✓ |
| [SOURce:]POWer:START value [SOURce:]POWer:START? | ✓ |
| [SOURce:]POWer:STOP value [SOURce:]POWer:STOP? | ✓ |
| [SOURce:]PULM:EXTernal:POLarity value [SOURce:]PULM:EXTernal:POLarity? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency value [SOURce:]PULM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:PERiod value [SOURce:]PULM:INTernal[1]:PERiod? | ✓ |
| [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth value [SOURce:]PULM:INTernal[1]:PWIDth? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement]? | ✓ |
| [SOURce:]RADio:ALL:OFF | ✓ |
| [SOURce:]ROSCillator:SOURce value [SOURce:]ROSCillator:SOURce? | ✓ |
| [SOURce:]ROSCillator:SOURce value [SOURce:]ROSCillator:SOURce? | ✓ |
| [SOURce:]SWEep:DWELI value [SOURce:]SWEep:DWELI? | ✓ |
| [SOURce:]SWEep:POINts value [SOURce:]SWEep:POINts? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation: NTRansition? | ✓ |
| STATus:OPERation:PTRansition value STATus:OPERation: PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABle value STATus:QUESTionable:ENABle? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable: NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable: PTRansition? | ✓ |
| SYSTem:CAPability? | ✗ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| SYSTem:COMMunicate:GPIB:ADDRess value SYSTem:COMMunicate:GPIB:ADDRess? | ✓ |
| SYSTem:COMMunicate:GTLocal | ✓ |
| SYSTem:COMMunicate:LAN:CONFIg value SYSTem:COMMunicate:LAN:CONFIg? | ✓ |
| SYSTem:COMMunicate:LAN:GATeway value SYSTem:COMMunicate:LAN:GATeway? | ✓ |
| SYSTem:COMMunicate:LAN:HOSTname value SYSTem:COMMunicate:LAN:HOSTname? | ✓ |
| SYSTem:COMMunicate:LAN:IP value SYSTem:COMMunicate:LAN:IP? | ✓ |
| SYSTem:COMMunicate:LAN:SUBNet value SYSTem:COMMunicate:LAN:SUBNet? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? | ✓ |
| SYSTem:DATE value SYSTem:DATE? | ✓ |
| SYSTem:ERRor:CODE[:NEXT]? Remark: Returns the original error code of the Rohde & Schwarz signal generator. |  |
| SYSTem:ERRor[:NEXT]? Remark: Returns the original error message of the Rohde & Schwarz signal generator. |  |
| SYSTem:IDN value SYSTem:IDN? | ✓ |
| SYSTem:OPT value SYSTem:OPT? | ✓ |
| SYSTem:PDOWn | ✓ |
| SYSTem:PRESet | ✓ |
| SYSTem:PRESet:ALL | ✓ |
| SYSTem:SECurity:DISPlay value SYSTem:SECurity:DISPlay? | ✓ |
| SYSTem:TIME value SYSTem:TIME? | ✓ |
| SYSTem:VERSion? | ✓ |
| TRIGger[:SEQuence][:IMMediate] | ✓ |
| TRIGger[:SEQuence]:SLOPe value TRIGger[:SEQuence]:SLOPe? | ✓ |
| TRIGger[:SEQuence]:SOURce value TRIGger[:SEQuence]:SOURce? Remark: BUS, EXTErnal, IMMEDIATE are supported. |  |
| UNIT:POWer value UNIT:POWer? Remark: DB, DBM, DBV, DBMV, DBUV, V, MV, UV are supported. |  |

11 Emulating the Agilent E8257, E8663

The remote emulation E8257 / E8663 is available only if one of the following options is installed:

- SMBVB-B103 Frequency: 8 kHz to 3 GHz (mandatory)
- SMBVB-KB106 Frequency Extension to 6 GHz





The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RST | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. | ✎ |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| ABORt | ✓ |
| CALibration:DCFM | ✓ |
| CALibration:IQ:FULL | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| DISPlay:ANNotation:AMPLitude[:STATe] value DISPlay:ANNotation:AMPLitude[:STATe]? | ✓ |
| DISPlay:ANNotation:FREQUency[:STATe] value DISPlay:ANNotation:FREQUency[:STATe]? | ✓ |
| DISPlay:REMOte value DISPlay:REMOte? | ✓ |
| INITiate:CONTinuous[:ALL] value INITiate:CONTinuous[:ALL]? | ○ |
| INITiate:IMMediate[:ALL] | ○ |
| MEMory:CATalog[:ALL]? | ✓ |
| MEMory:CATalog:LIST? | ✓ |
| MEMory:CATalog:UFLT? | ✓ |
| MEMory:COpy[:NAME] value, value | ✓ |
| MEMory:DATA value,value MEMory:DATA? value | ✓ |
| MEMory:DATA:UNPRotected value, value MEMory:DATA:UNPRotected? Value Remark: Implementation identical to MEMory:DATA[?]. | ✎ |
| MEMory:DELeTe:ALL | ✓ |
| MEMory:DELeTe:LIST | ✓ |
| MEMory:DELeTe[:NAME] value | ✓ |
| MEMory:DELeTe:UFLT | ✓ |
| MEMory:FREE[:ALL] | ✓ |
| MEMory:LOAD:LIST value | ✓ |
| MEMory:MOVE | ✓ |
| MEMory:STORE:LIST value | ✓ |
| MMEMory:CATalog[:ALL]? value | ✓ |
| MMEMory:COpy value, value | ✓ |
| MMEMory:DATA value, value MMEMory:DATA? value | ✓ |
| MMEMory:DELeTe[:NAME] value | ✓ |
| MMEMory:LOAD:LIST value | ✓ |
| MMEMory:LOAD:MOVE value, value | ✓ |
| MMEMory:STORE:LIST value | ✓ |
| OUTPut:MODulation[:STATe] value OUTPut:MODulation[:STATe]? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| [SOURce:]AM[1] [:DEPth][:LINear] value [SOURce:]AM[1] [:DEPth][:LINear]? | ✓ |
| [SOURce:]AM[1] [:DEPth]:STEP[:INCRement] value [SOURce:]AM[1] [:DEPth]:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:EXTernal[1]:COUPLing value [SOURce:]AM[1]:EXTernal[1]:COUPLing? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]AM[1]:INTernal[1]:FREQuency value [SOURce:]AM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]AM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]AM[1]:INTernal[1]:FUNctIon:SHAPE value [SOURce:]AM[1]:INTernal[1]:FUNctIon:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]AM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]AM[1]:INTernal[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. | ✎ |
| [SOURce:]AM[1]:SOURce value [SOURce:]AM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. | ✎ |
| [SOURce:]AM[1]:STATe value [SOURce:]AM[1]:STATe? | ✓ |
| [SOURce:]CORRection:FLATness:LOAD value | ✓ |
| [SOURce:]CORRection:FLATness:PAIR value, value {value, value} [SOURce:]CORRection:FLATness:PAIR? | ✓ |
| [SOURce:]CORRection:FLATness:POINts? | ✓ |
| [SOURce:]CORRection:FLATness:PRESet | ✓ |
| [SOURce:]CORRection:FLATness:STORE value | ✓ |
| [SOURce:]CORRection[:STATe] value [SOURce:]CORRection[:STATe]? | ✓ |
| [SOURce:]FM[1][:DEViation] value [SOURce:]FM[1][:DEViation]? Remark: DOWN, MINimum, Numeric, UP are supported. | ✎ |
| [SOURce:]FM[1][:DEViation]:STEP[:INCRement] value [SOURce:]FM[1][:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]2:EXTernal[1]:COUPling value [SOURce:]FM[1]2:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FREQuency value [SOURce:]FM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]FM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]FM[1]:INTernal[1]:FUNctIon:SHAPE value [SOURce:]FM[1]:INTernal[1]:FUNctIon:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]FM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]FM[1]:INTernal[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. | ✎ |

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| [SOURce:]FM[1]:SOURce value [SOURce:]FM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. |  |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [SOURce:]FREQUency[:CW] value [SOURce:]FREQUency[:CW]? | ✓ |
| [SOURce:]FREQUency[:CW]:STEP[:INCRement] value [SOURce:]FREQUency[:CW]:STEP[:INCRement]? | ✓ |
| [SOURce:]FREQUency:FIXed value [SOURce:]FREQUency:FIXed? | ✓ |
| [SOURce:]FREQUency:MODE [SOURce:]FREQUency:MODE? | ✓ |
| [SOURce:]FREQUency:OFFSet value [SOURce:]FREQUency:OFFSet? | ✓ |
| [SOURce:]FREQUency:OFFSet:STATe value [SOURce:]FREQUency:OFFSet:STATe? | ✓ |
| [SOURce:]FREQUency:REFerence value [SOURce:]FREQUency:REFerence? | ✓ |
| [SOURce:]FREQUency:REFerence:STATe value [SOURce:]FREQUency:REFerence:STATe? | ✓ |
| [SOURce:]FREQUency:STARt value [SOURce:]FREQUency:STARt? | ✓ |
| [SOURce:]FREQUency:STOP value [SOURce:]FREQUency:STOP? | ✓ |
| [SOURce:]LFOUtput:AMPLitude value [SOURce:]LFOUtput:AMPLitude? | ✓ |
| [SOURce:]LFOUtput:FUNCTion[1]:FREQUency value [SOURce:]LFOUtput:FUNCTion[1]:FREQUency? | ✓ |
| [SOURce:]LFOUtput:FUNCTion[1]:FREQUency:STEP[:INCRement] value [SOURce:]LFOUtput:FUNCTion[1]:FREQUency:STEP[:INCRement]? | ✓ |
| [SOURce:]LFOUtput:FUNCTion[1]:SHAPE value [SOURce:]LFOUtput:FUNCTion[1]:SHAPE? Remark: SINE is supported. |  |
| [SOURce:]LFOUtput:FUNCTion[1]:SWEep:TRIGger value [SOURce:]LFOUtput:FUNCTion[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. |  |
| [SOURce:]LIST:DIRection? | ○ |
| [SOURce:]LIST:DWELI value {,value} [SOURce:]LIST:DWELI? Remark: First parameter value is evaluated, rest is ignored. |  |
| [SOURce:]LIST:DWELI:POINts? | ✓ |
| [SOURce:]LIST:DWELI:TYPE value [SOURce:]LIST:DWELI:TYPE? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]LIST:FREQuency value {,value} [SOURce:]LIST:FREQuency? | ✓ |
| [SOURce:]LIST:FREQuency:POINts? | ✓ |
| [SOURce:]LIST:MODE value [SOURce:]LIST:MODE? | ✓ |
| [SOURce:]LIST:POWEr value {,value} [SOURce:]LIST:POWEr? | ✓ |
| [SOURce:]LIST:POWEr:POINts? | ✓ |
| [SOURce:]LIST:TYPE value [SOURce:]LIST:TYPE? | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:FSTep | ✓ |
| [SOURce:]LIST:TYPE:LIST:INITialize:PREset | ✓ |
| [SOURce:]PHASe[:ADJust] value [SOURce:]PHASe[:ADJust]? | ✓ |
| [SOURce:]PHASe:REFerence | ✓ |
| [SOURce:]PM[1][:DEViation] value [SOURce:]PM[1][:DEViation]? Remark: DOWN, MINImum, Numeric, UP are supported. | ✎ |
| [SOURce:]PM[1][:DEViation]:STEP[:INCRement] value [SOURce:]PM[1][:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:EXTernal[1]:COUPling value [SOURce:]PM[1]:EXTernal[1]:COUPling? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency value [SOURce:]PM[1]:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PM[1]:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PM[1]:INTernal[1]:FUNCTion:SHAPE value [SOURce:]PM[1]:INTernal[1]:FUNCTion:SHAPE? Remark: SINE is supported. | ✎ |
| [SOURce:]PM[1]:INTernal[1]:SWEep:TRIGger value [SOURce:]PM[1]:INTernal[1]:SWEep:TRIGger? Remark: BUS, EXTernal, IMMEDIATE are supported. | ✎ |
| [SOURce:]PM[1]:SOURce value [SOURce:]PM[1]:SOURce? Remark: EXTernal[1], INTernal[1] are supported. | ✎ |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [SOURce:]POWEr:ALC[:STATe] value [SOURce:]POWEr:ALC[:STATe]? | ✓ |
| [SOURce:]POWEr:ATTenuation value [SOURce:]POWEr:ATTenuation? | ✓ |
| [SOURce:]POWEr:ATTenuation:AUTO value [SOURce:]POWEr:ATTenuation:AUTO? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude] value [SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate]:AMPLitude:STEP[:INCRement] value [SOURce:]POWer[:LEVel][:IMMediate]:AMPLitude:STEP[:INCRement]? | ✓ |
| [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet value [SOURce:]POWer[:LEVel][:IMMediate]:OFFSet? | ✓ |
| [SOURce:]POWer:MODE value [SOURce:]POWer:MODE? | ✓ |
| [SOURce:]POWer:REFerence value [SOURce:]POWer:REFerence? | ✓ |
| [SOURce:]POWer:REFerence:STATe value [SOURce:]POWer:REFerence:STATe? | ✓ |
| [SOURce:]POWer:STARt value [SOURce:]POWer:STARt? | ✓ |
| [SOURce:]POWer:STOP value [SOURce:]POWer:STOP? | ✓ |
| [SOURce:]PULM:EXTernal:POLarity value [SOURce:]PULM:EXTernal:POLarity? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency value [SOURce:]PULM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:FREQuency:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:PERiod value [SOURce:]PULM:INTernal[1]:PERiod? | ✓ |
| [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PERiod:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth value [SOURce:]PULM:INTernal[1]:PWIDth? | ✓ |
| [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement] value [SOURce:]PULM:INTernal[1]:PWIDth:STEP[:INCRement]? | ✓ |
| [SOURce:]PULM:STATe value [SOURce:]PULM:STATe? | ✓ |
| [SOURce:]PULM:SOURce value [SOURce:]PULM:SOURce? | ✎ |
| [SOURce:]ROSCillator:SOURce value [SOURce:]ROSCillator:SOURce? | ✓ |
| [SOURce:]SWEep:DWELI value [SOURce:]SWEep:DWELI? | ✓ |
| [SOURce:]SWEep:POINts value [SOURce:]SWEep:POINts? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation: NTRansition? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| STATus:OPERation:PTRansition value STATus:OPERation: PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABLE value STATus:QUESTionable:ENABLE? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable: NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable: PTRansition? | ✓ |
| SYSTem:CAPability? | ○ |
| SYSTem:COMMunicate:GPIB:ADDRess value SYSTem:COMMunicate:GPIB:ADDRess? | ✓ |
| SYSTem:COMMunicate:GTLocal | ✓ |
| SYSTem:COMMunicate:LAN:CONFig value SYSTem:COMMunicate:LAN:CONFig? | ✓ |
| SYSTem:COMMunicate:LAN:GATeway value SYSTem:COMMunicate:LAN:GATeway? | ✓ |
| SYSTem:COMMunicate:LAN:HOSTname value SYSTem:COMMunicate:LAN:HOSTname? | ✓ |
| SYSTem:COMMunicate:LAN:IP value SYSTem:COMMunicate:LAN:IP? | ✓ |
| SYSTem:COMMunicate:LAN:SUBNet value SYSTem:COMMunicate:LAN:SUBNet? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? | ✓ |
| SYSTem:DATE value SYSTem:DATE? | ✓ |
| SYSTem:ERRor:CODE[:NEXT]? | ✎ |
| Remark: Returns the original error code of the Rohde & Schwarz signal generator. | |
| SYSTem:ERRor[:NEXT]? | ✎ |
| Remark: Returns the original error message of the Rohde & Schwarz signal generator. | |
| SYSTem:IDN value SYSTem:IDN? | ✓ |
| SYSTem:OPT value SYSTem:OPT? | ✓ |
| SYSTem:PDOWn | ✓ |
| SYSTem:PRESet | ✓ |
| SYSTem:PRESet:ALL | ✓ |
| SYSTem:SECurity:DISPlay value SYSTem:SECurity:DISPlay? | ✓ |
| SYSTem:TIME value SYSTem:TIME? | ✓ |
| SYSTem:VERSion? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| TRIGger[:SEquence][:IMMediate] | ✓ |
| TRIGger[:SEquence]:SLOPe value TRIGger[:SEquence]:SLOPe? | ✓ |
| TRIGger[:SEquence]:SOURce value TRIGger[:SEquence]:SOURce? Remark: BUS, EXTernal, IMMEDIATE are supported. | ✎ |
| UNIT:POWer value UNIT:POWer? Remark: DB, DBM, DBV, DBMV, DBUV, V, MV, UV are supported. | ✎ |

12 Emulating the Hewlett-Packard 8340/8341

The remote emulations HP8340 and HP8341 are available only if one of the following options is installed:

- SMBVB-B103 Frequency: 8 kHz to 3 GHz (mandatory)
- SMBVB-KB106 Frequency Extension to 6 GHz

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| AM0 | ✓ |
| AM1 | ✓ |
| CF value | ✓ |
| CS | ✓ |
| CW value | ✓ |
| DF value | ✓ |
| DN | ✓ |
| DU0 | ○ |
| DU1 | ✓ |
| FA value | ✓ |
| FB value | ✓ |
| FM0 | ✓ |
| FM1 | ✓ |
| IF value | ✓ |
| IP | ✓ |
| KR | ✓ |
| OA | ✓ |
| OC | ✓ |
| OF | ✓ |
| OI | ✓ |
| OK | ✓ |
| OM | ✓ |
| OP | ✓ |
| OR | ✓ |
| OS | ✓ |
| PL value | ✓ |
| PM0 | ✓ |
| PM1 | ✓ |
| PS0 | ✓ |
| PS1 value | ✓ |
| RF0 | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| RF1 | ✓ |
| RS | ✓ |
| S1 | ✓ |
| S2 | ✓ |
| S3 value | ✓ |
| SF value | ✓ |
| SG | ✓ |
| SH | ✓ |
| SHCF value | ✓ |
| SHCW value | ✓ |
| SHFA value | ✓ |
| SHFB value | ✓ |
| SHPL value | ✓ |
| SHPM | ✓ |
| SHSL value | ✓ |
| SHST value | ✓ |
| SM value | ✓ |
| SN value | ✓ |
| SP value | ✓ |
| ST value | ○ |
| T1 | ✓ |
| T2 | ✓ |
| T3 | ✓ |
| TS | ✓ |
| UP | ✓ |







13 Emulating the Hewlett-Packard 83620, 83630, 83640, 83650



The remote emulations HP83620, HP83630, HP83640, HP83650 are available only if one of the following options is installed:

- SMBVB-B103 Frequency: 8 kHz to 3 GHz (mandatory)
- SMBVB-KB106 Frequency Extension to 6 GHz

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.





| IEEE488.2 functions | |
|---------------------|--------|
| Command syntax | Status |
| *CLS | ✓ |

| IEEE488.2 functions | |
|---|---|
| Command syntax | Status |
| *ESE value *ESE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *ESR? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. |  |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. |  |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *STB? Remark: Layout of ESE register corresponds to Rohde & Schwarz signal generator. |  |
| *TRG | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| ABORt | ✓ |
| AM[:DEPth] value AM[:DEPth]? | ✓ |
| AM:INTernal:FREQuency value AM:INTernal:FREQuency? | ✓ |
| AM:INTernal:FREQuency:STEP[:INCRement] value AM:INTernal:FREQuency:STEP[:INCRement]? | ✓ |
| AM:INTernal:FUNCTion value AM:INTernal:FUNCTion? Remark: RAMP is not supported. |  |
| AM:MODE value AM:MODE? Remark: DEEP is not supported. |  |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| AM:SOURce value AM:SOURce? | ✓ |
| AM:STATe value AM:STATe? | ✓ |
| AM:TYPE value AM:TYPE? Remark: EXPonential is not supported. | ✎ |
| DISPlay[:STATe] value DISPlay[:STATe]? | ✓ |
| FM:COUPling value FM:COUPling? | ✓ |
| FM[:DEViation] value FM[:DEViation]? | ✓ |
| FM:INTernal:FREQuency value FM:INTernal:FREQuency? | ✓ |
| FM:INTernal:FUNcTion value FM:INTernal:FUNcTion? Remark: RAMP is not supported. | ✎ |
| FM:SOURce value FM:SOURce? | ✓ |
| FM:STATe value FM:STATe? | ✓ |
| FREQuency:CENTer value FREQuency:CENTer? | ✓ |
| FREQuency[:CW] value FREQuency[:CW]? | ✓ |
| FREQuency[:CW]:AUTO value FREQuency[:CW]:AUTO? | ✓ |
| FREQuency:MANual value FREQuency:MANual? | ✓ |
| FREQuency:MODE value FREQuency:MODE? Remark: CW and SWEep are supported. | ✎ |
| FREQuency:MULTiplier value FREQuency:MULTiplier? | ✓ |
| FREQuency:OFFSet value FREQuency:OFFSet? | ✓ |
| FREQuency:SPAN value FREQuency:SPAN? | ✓ |
| FREQuency:STARt value FREQuency:STARt? | ✓ |
| FREQuency:STEP[:INCRement] value FREQuency:STEP[:INCRement]? | ✓ |
| FREQuency:STOP value FREQuency:STOP? | ✓ |





| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| INITiate:CONTInuous value INITiate:CONTInuous? | ✓ |
| INITiate[:IMMediate] | ✓ |
| MODulation:OUTPut:SOURce value MODulation:OUTPut:SOURce? | ✓ |
| MODulation:OUTPut:STATe value MODulation:OUTPut:STATe? | ✓ |
| MODulation:STATe value MODulation:STATe? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| POWER:CENTer value POWER:CENTer? | ✓ |
| POWER[:LEVel] value POWER[:LEVel]? | ✓ |
| POWER:MODE value POWER:MODE? Remark: CW and SWEep are supported. | ✘ |
| POWER:OFFSet value POWER:OFFSet? | ✓ |
| POWER:SPAN value POWER:SPAN? | ✓ |
| POWER:STARt value POWER:STARt? | ✓ |
| POWER:STEP[:INCRement] value POWER:STEP[:INCRement]? | ✓ |
| POWER:STOP value POWER:STOP? | ✓ |
| PULSe:FREQuency value PULSe:FREQuency? | ✓ |
| PULSe:PERiod value PULSe:PERiod? | ✓ |
| PULSe:WIDTh value PULSe:WIDTh? | ✓ |
| PULM:EXTernal:POLarity value PULM:EXTernal:POLarity? | ✓ |
| PULM:INTernal:FREQuency value PULM:INTernal:FREQuency? | ✓ |
| PULM:INTernal:PERiod value PULM:INTernal:PERiod? | ✓ |
| PULM:INTernal:TRIGger:SOURce value PULM:INTernal:TRIGger:SOURce? | ✓ |
| PULM:INTernal:WIDTh value PULM:INTernal:WIDTh? | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| PULM:SOURce value PULM:SOURce? Remark: SCALar is not supported. |  |
| PULM:STATe value PULM:STATe? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation:NTRansition? | ✓ |
| STATus:OPERation:PTRansition value STATus:OPERation:PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABle value STATus:QUESTionable:ENABle? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable:NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable:PTRansition? | ✓ |
| SWEep:DWELI value SWEep:DWELI? | ✓ |
| SWEep:DWELI:AUTO value SWEep:DWELI:AUTO? | ✓ |
| SWEep:GENeration value SWEep:GENeration? Remark: ANALog is not supported. |  |
| SWEep:MODE value SWEep:MODE? | ✓ |
| SWEep:POINts value SWEep:POINts? | ✓ |
| SWEep:TIME value SWEep:TIME? | ✓ |
| SWEep:TRIGger:SOURce value SWEep:TRIGger:SOURce? | ✓ |
| SYSTem:COMMunicate:GPIB:ADDRess value SYSTem:COMMunicate:GPIB:ADDRess? | ✓ |
| SYSTem:ERRor? Remark: Returns the original error code of the Rohde & Schwarz signal generator. |  |
| SYSTem:LANGuage value SYSTem:LANGuage? Remark: "SCPI" and "EXIT" are supported. |  |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| SYSTem:PRESet | ✓ |
| SYSTem:VERSion? | ✓ |
| TRIGger[:IMMediate] | ✓ |
| TRIGger:SOURce value TRIGger:SOURce? | ✓ |
| TRIGger[:IMMediate] | ✓ |
| TSWeep | ✓ |
| UNIT:POWer value UNIT:POWer? | ✓ |

14 Emulating the Hewlett-Packard 8642

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| AA value Remark: Units DB, DM, DU, MV, VL are supported. |  |
| AB value Remark: Units DB, DM, DU, MV, VL are supported. |  |
| AM value | ✓ |
| AP value Remark: Units DB, DM, DU, MV, VL are supported. |  |
| BA | ✓ |
| BD | ✓ |
| DN | ✓ |
| EMOF | ✓ |
| EMON | ✓ |
| FA value | ✓ |
| FB value | ✓ |
| FM value | ✓ |
| FR value | ✓ |
| IP | ✓ |
| IS value Remark: HZ, GZ, KZ, MZ, DB are supported. |  |
| MF value | ✓ |
| ML value | ✓ |
| NT | ✓ |
| OF | ✓ |
| ON | ✓ |
| PM value | ✓ |
| PL | ✓ |
| RA value | ✓ |
| RF value | ✓ |
| XA | ✓ |
| XD | ✓ |
| UP | ✓ |




15 Emulating the Hewlett-Packard 8643-8645, 8664/8665







The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CAL? | ✓ |
| *CLS | ✓ |
| *ESE value *ESE? | ✓ |
| *ESR? | ✓ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? | ✓ |
| *STB? | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]AM:COUPling value [SOURce:]AM:COUPling? Remark: AC, DC are supported. | ✎ |
| [SOURce:]AM[:DEPTh] value [SOURce:]AM[:DEPTh]? | ✓ |
| [SOURce:]AM[:DEPTh]:STEP[:INCRement] value [SOURce:]AM[:DEPTh]:STEP[:INCRement]? | ✓ |
| [SOURce:]AM:FREQuency value [SOURce:]AM:FREQuency? | ✓ |
| [SOURce:]AM:FREQuency:STEP[:INCRement] value [SOURce:]AM:FREQuency:STEP[:INCRement]? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]AM:SOURce value [SOURce:]AM:SOURce? | ✓ |
| [SOURce:]AM:STATe value [SOURce:]AM:STATe? | ✓ |
| AMPLitude POWer[:OUT]:ATTenuation value AMPLitude POWer[:OUT]:ATTenuation? | ✓ |
| AMPLitude POWer[:OUT]:ATTenuation:AUTO value AMPLitude POWer[:OUT]:ATTenuation:AUTO? | ✓ |
| AMPLitude POWer[:OUT]:GAIN value AMPLitude POWer[:OUT]:GAIN? | ✓ |
| AMPLitude POWer[:OUT][:LEVel] value AMPLitude POWer[:OUT][:LEVel]? | ✓ |
| AMPLitude POWer[:OUT][:LEVel]:STEP[:INCRement] value AMPLitude POWer[:OUT][:LEVel]:STEP[:INCRement]? | ✓ |
| AMPLitude POWer[:OUT][:LEVel]:STEP:UNIT value AMPLitude POWer[:OUT][:LEVel]:STEP:UNIT? | ✓ |
| AMPLitude POWer[:OUT]:STATe value AMPLitude POWer[:OUT]:STATe? | ✓ |
| AMPLitude POWer[:OUT]:ULIMit value AMPLitude POWer[:OUT]:ULIMit? | ✓ |
| AMPLitude POWer[:OUT]:UNIT value AMPLitude POWer[:OUT]:UNIT? | ✓ |
| AMPLitude POWer:SOURce:ATTenuation value AMPLitude POWer:SOURce:ATTenuation? | ✓ |
| AMPLitude POWer:SOURce:ATTenuation:AUTO value AMPLitude POWer:SOURce:ATTenuation:AUTO? | ✓ |
| AMPLitude POWer:SOURce:GAIN value AMPLitude POWer:SOURce:GAIN? | ✓ |
| AMPLitude POWer:SOURce[:LEVel] value AMPLitude POWer:SOURce[:LEVel]? | ✓ |
| AMPLitude POWer:SOURce[:LEVel]:STEP[:INCRement] value AMPLitude POWer:SOURce[:LEVel]:STEP[:INCRement]? | ✓ |
| AMPLitude POWer:SOURce[:LEVel]:STEP:UNIT value AMPLitude POWer:SOURce[:LEVel]:STEP:UNIT? | ✓ |
| AMPLitude POWer:SOURce:STATe value AMPLitude POWer:SOURce:STATe? | ✓ |
| AMPLitude POWer:SOURce:UNIT value AMPLitude POWer:SOURce:UNIT? | ✓ |
| CALibration:ALL? | ✓ |
| DISPlay:ANNotation[:ALL] value DISPlay:ANNotation[:ALL]? | ✓ |
| DISPlay:ANNotation:AMPLitude value DISPlay:ANNotation:AMPLitude? | ✓ |
| DISPlay:ANNotation:FREQUency value DISPlay:ANNotation:FREQUency? | ✓ |
| DISPlay:STATe value DISPlay:STATe? | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| [SOURce:]FM:COUPling value [SOURce:]FM:COUPling? Remark: AC, DC are supported. |  |
| [SOURce:]FM[:DEVIation] value [SOURce:]FM[:DEVIation]? Remark: Numeric, UP, DOWN, MINIMUM are supported. |  |
| [SOURce:]FM[:DEVIation]:STEP[:INCRement] value [SOURce:]FM[:DEVIation]:STEP[:INCRement]? | ✓ |
| [SOURce:]FM:FREQUency value [SOURce:]FM:FREQUency? | ✓ |
| [SOURce:]FM:FREQUency:STEP[:INCRement] value [SOURce:]FM:FREQUency:STEP[:INCRement]? | ✓ |
| [SOURce:]FM:SOURce value [SOURce:]FM:SOURce? | ✓ |
| [SOURce:]FM:STATe value [SOURce:]FM:STATe? | ✓ |
| [:SOURce:]FREQUency:CENTer value [:SOURce:]FREQUency:CENTer? | ✓ |
| [SOURce:]FREQUency:CENTer:STEP[:INCRement] value [SOURce:]FREQUency:CENTer:STEP[:INCRement]? | ✓ |
| [:SOURce:]FREQUency[:CW] value [:SOURce:]FREQUency[:CW]? | ✓ |
| [SOURce:]FREQUency[:CW]:STEP[:INCRement] value [SOURce:]FREQUency[:CW]:STEP[:INCRement]? | ✓ |
| [:SOURce:]FREQUency:INSTantaneous? | ✓ |
| [:SOURce:]FREQUency:MANual value [:SOURce:]FREQUency:MANual? | ✓ |
| [:SOURce:]FREQUency:MODE value [:SOURce:]FREQUency:MODE? Remark: Handling of INITialize and TRIGger is different. |  |
| [:SOURce:]FREQUency:OFFSet value [:SOURce:]FREQUency:OFFSet? | ✓ |
| [:SOURce:]FREQUency:SPAN value [:SOURce:]FREQUency:SPAN? | ✓ |
| [SOURce:]FREQUency:SPAN:STEP[:INCRement] value [SOURce:]FREQUency:SPAN:STEP[:INCRement]? | ✓ |
| [:SOURce:]FREQUency:STARt value [:SOURce:]FREQUency:STARt? | ✓ |
| [SOURce:]FREQUency:STARt:STEP[:INCRement] value [SOURce:]FREQUency:STARt:STEP[:INCRement]? | ✓ |
| [:SOURce:]FREQUency:STOP value [:SOURce:]FREQUency:STOP? | ✓ |
| [SOURce:]FREQUency:STOP:STEP[:INCRement] value [SOURce:]FREQUency:STOP:STEP[:INCRement]? | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| INITialize:ABORt Remark: Handling of INITialize and TRIGger is different. |  |
| INITialize[:IMMediate] Remark: Handling of INITialize and TRIGger is different. |  |
| INITialize:MODE value INITialize:MODE? Remark: Handling of INITialize and TRIGger is different. |  |
| INITialize:STATe value INITialize:STATe? Remark: Handling of INITialize and TRIGger is different. |  |
| LFSOURCE[:FREQUENCY] value LFSOURCE[:FREQUENCY]? | ✓ |
| LFSOURCE[:FREQUENCY]:STEP[:INCRement] value LFSOURCE[:FREQUENCY]:STEP[:INCRement]? | ✓ |
| LFSOURCE:LEVel value LFSOURCE:LEVel? | ✓ |
| LFSOURCE:LEVel:STEP[:INCRement] value LFSOURCE:LEVel:STEP[:INCRement]? | ✓ |
| LFSOURCE:STATe value LFSOURCE:STATe? | ✓ |
| LFSOURCE:WAVEform value LFSOURCE:WAVEform ? Remark: SINE is supported. |  |
| MODulation[:STATe] value MODulation[:STATe]? | ✓ |
| PHASe[:ADJust] value PHASe[:ADJust]? | ✓ |
| PHASe[:ADJust]:STEP[:INCRement] value PHASe[:ADJust]:STEP[:INCRement]? | ✓ |
| PHASe:REFerence | ✓ |
| [SOURce:]PM:COUPling value [SOURce:]PM:COUPling? Remark: AC, DC are supported. |  |
| [SOURce:]PM[:DEViation] value [SOURce:]PM[:DEViation]? | ✓ |
| [SOURce:]PM[:DEViation]:STEP[:INCRement] value [SOURce:]PM[:DEViation]:STEP[:INCRement]? | ✓ |
| [SOURce:]PM:FREQUENCY value [SOURce:]PM:FREQUENCY? | ✓ |
| [SOURce:]PM:FREQUENCY:STEP[:INCRement] value [SOURce:]PM:FREQUENCY:STEP[:INCRement]? | ✓ |
| [SOURce:]PM:SOURce value [SOURce:]PM:SOURce? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]PM:STATe value [SOURce:]PM:STATe? | ✓ |
| PULSe:DELAy value PULSe:DELAy? | ✓ |
| PULSe:DELAy:STEP[:INCRement] value PULSe:DELAy:STEP[:INCRement]? | ✓ |
| PULSe:FREQUency value PULSe:FREQUency? | ✓ |
| PULSe:FREQUency:STEP[:INCRement] value PULSe:FREQUency:STEP[:INCRement]? | ✓ |
| PULSe:SLOPe value PULSe:SLOPe ? Remark: POSitive, NEGative are supported. | ✎ |
| PULSe:SOURce value PULSe:SOURce? Remark: INTernal, EXTernal are supported. | ✎ |
| PULSe[:STATe] value PULSe[:STATe]? | ✓ |
| PULSe:WIDTh value PULSe:WIDTh? | ✓ |
| PULSe:WIDTh:STEP[:INCRement] value PULSe:WIDTh:STEP[:INCRement]? | ✓ |
| ROSCillator:CALibration value ROSCillator:CALibration? | ✓ |
| ROSCillator:CALibration:STEP[:INCRement] value ROSCillator:CALibration:STEP[:INCRement]? | ✓ |
| ROSCillator:SOURce value ROSCillator:SOURce? | ✓ |
| SWEep[:FREQUency]:MODE value SWEep[:FREQUency]:MODE? | ✓ |
| SWEep[:FREQUency]:SPACing value SWEep[:FREQUency]:SPACing? | ✓ |
| SWEep[:FREQUency]:TIME value SWEep[:FREQUency]:TIME? Remark: Numeric, MAXimum, MINimum are supported. Numeric items 1-2-5-10 are supported. Sweep time is divided into dwell time and count. | ✎ |
| SWEep[:FREQUency]:TIME:STEP[:INCRement]? | ✓ |
| SWEep[:FREQUency]:TIME:STEP:MODE? | ✓ |
| SYSTem:ERRor? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | ✎ |
| TSWeep | ✓ |

16 Emulating the Hewlett-Packard 8647/8648

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|----------------|
| Status | Command syntax |
| *CAL? | ✓ |
| *CLS | ✓ |
| *ESE value *ESE? | ✓ |
| *ESR? | ✓ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? Wait for/query completion of command. | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? | ✓ |
| *STB? | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]AM[:DEPT] value [SOURce:]AM[:DEPT]? | ✓ |
| [SOURce:]AM:EXTernal:COUPling value [SOURce:]AM:EXTernal:COUPling? | ✓ |
| [SOURce:]AM:INTernal[1]:FREQuency value [SOURce:]AM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]AM:INTernal[1]:FUNCTion:SHAPE value [SOURce:]AM:INTernal[1]:FUNCTion:SHAPE? Remark: SINe is supported. | ✎ |
| [SOURce:]AM:SOURce value [SOURce:]AM:SOURce? Remark: INTernal[1], EXTernal are supported. | ✎ |


| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]AM:STATe value [SOURce:]AM:STATe? | ✓ |
| [SOURce:]CAL:DCFM Remark: The elimination process takes about 10 s. | ✎ |
| [SOURce:]FM[:DEVIation] value [SOURce:]FM[:DEVIation]? | ✓ |
| [SOURce:]FM:EXTernal:COUPling value [SOURce:]FM:EXTernal:COUPling? | ✓ |
| [SOURce:]FM:INTernal[1]:FREQuency value [SOURce:]FM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]FM:INTernal[1]:FUNCTion:SHAPE value. [SOURce:]FM:INTernal[1]:FUNCTion:SHAPE? Remark: SINe is supported. | ✎ |
| [SOURce:]FM:SOURce value [SOURce:]FM:SOURce? Remark: INTernal[1], EXTernal are supported. | ✎ |
| [SOURce:]FM:STATe value [SOURce:]FM:STATe? | ✓ |
| [SOURce:]FREQuency[:CW :FIXed] value [SOURce:]FREQuency[:CW :FIXed]? | ✓ |
| [SOURce:]FREQuency:REFerence value [SOURce:]FREQuency:REFerence? | ✓ |
| [SOURce:]FREQuency:REFerence:STATe value [SOURce:]FREQuency:REFerence:STATe? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| [SOURce:]PM[:DEVIation] value [SOURce:]PM[:DEVIation]? | ✓ |
| [SOURce:]PM:EXTernal:COUPling value [SOURce:]PM:EXTernal:COUPling? | ✓ |
| [SOURce:]PM:INTernal[1]:FREQuency value [SOURce:]PM:INTernal[1]:FREQuency? | ✓ |
| [SOURce:]PM:INTernal[1]:FUNCTion:SHAPE value [SOURce:]PM:INTernal[1]:FUNCTion:SHAPE? Remark: SINe is supported. | ✎ |
| [SOURce:]PM:SOURce value [SOURce:]PM:SOURce? Remark: INTernal[1], EXTernal are supported. | ✎ |
| [SOURce:]PM:STATe value [SOURce:]PM:STATe? | ✓ |
| [SOURce:]POWER:ATTenuation:AUTO value [SOURce:]POWER:ATTenuation:AUTO? | ✓ |
| [SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude] value [SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude]? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]POWer:REFErence value [SOURce:]POWer:REFErence? | ✓ |
| [SOURce:]POWer:REFErence:STATe value [SOURce:]POWer:REFErence:STATe? | ✓ |
| [SOURce:]PULM:STATe value [SOURce:]PULM:STATe? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus: OPERation:CONDition? | ✓ |
| STATus: OPERation:ENABle value STATus: OPERation:ENABle? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus: QUESTionable:CONDition? | ✓ |
| STATus: QUESTionable:ENABle value STATus: QUESTionable:ENABle? | ✓ |
| SYSTem:ERRor? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | ✎ |
| SYSTem:LANGUage value SYSTem:LANGUage? Remark: On select, only "EXIT" is supported (to return to the instrument's native SCPI language). On query, always "SCPI" is returned. | ✎ |
| SYSTem:VERSion? | ✓ |

17 Emulating the Hewlett-Packard 8656/8657

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.









| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| AM value | ✓ |
| AO value | ✓ |
| AP value Remark: Units DM, DF, DBVL, DBMV, DBUV, DBEMVL, DBEMMV, DBEMUV, VL, MV, UV, EMVL, EMMV, EMUV are supported. | ✎ |
| DN | ✓ |
| FM value | ✓ |
| FR value | ✓ |
| IP | ✓ |
| IS numeric | ✓ |
| PD | ✓ |
| PI | ✓ |
| PF | ✓ |
| PM | ✓ |
| R0 | ✓ |
| R1 | ✓ |
| R2 | ✓ |
| R3 | ✓ |
| R5 | ✓ |
| RC value Remark: The contents of the registers 0 to 9 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. | ✎ |
| RL value Remark: The contents of the registers 0 to 9 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. | ✎ |
| RP | ✓ |
| S1 | ✓ |
| S2 | ✓ |
| S3 | ✓ |
| S4 | ✓ |
| S5 value | ✓ |
| UP | ✓ |
| SV value Remark: The contents of the registers 0 to 9 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. | ✎ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| ST value Remark: The contents of the registers 0 to 9 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. |  |

18 Emulating the Hewlett-Packard 8662-8663

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| A0 | ✓ |
| AO | ✓ |
| AP value | ✓ |
| AM value | ✓ |
| AS | ✗ |
| BL value | ✗ |
| BLAP value Remark: value = 00, 81, 85, 86 are supported | ✎ |
| BP | ✗ |
| CT value Remark: T1, T2 and T3 are not supported. | ✎ |
| DN | ✓ |
| F0 | ✓ |
| FA value Remark: Special functions 40 and 41 have no effect. | ✎ |
| FB value Remark: Special functions 40 and 41 have no effect. | ✎ |
| FM value | ✓ |
| FS value Remark: Special functions 40 and 41 have no effect. | ✎ |
| FO | ✓ |
| FR value | ✓ |
| IS value | ✓ |
| L1 | ✗ |
| L2 | ✗ |
| M0 | ✓ |
| M1 | ✓ |
| M2 | ✓ |
| M3 | ✓ |
| M4 | ✓ |
| MF value | ✓ |
| MO | ✓ |
| MS | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| N1 Remark: Special functions 40 and 41 have no effect. |  |
| N2 Remark: Special functions 40 and 41 have no effect. |  |
| N3 Remark: Special functions 40 and 41 have no effect. |  |
| N4 Remark: Special functions 40 and 41 have no effect. |  |
| N5 Remark: Special functions 40 and 41 have no effect. |  |
| PL | ✓ |
| PM value | ✓ |
| R1 | ✗ |
| R2 | ✗ |
| R3 | ✗ |
| R4 | ✗ |
| R5 | ✗ |
| RC value Remark: Storage is not persistent and will be lost when power down. |  |
| RD | ✗ |
| RM | ✗ |
| RU | ✗ |
| SQ | ✗ |
| SP value Remark: value = 00, 81, 85, 86 are supported |  |
| SS value ... value | ✗ |
| ST value Remark: Storage is not persistent and will be lost when power down. |  |
| T1 | ✗ |
| T2 | ✗ |
| T3 | ✗ |
| T4 | ✓ |
| T5 | ✓ |
| TR | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| UP | ✓ |
| W1 Remark: Special functions 40 and 41 have no effect. | ✋ |
| W2 Remark: Special functions 40 and 41 have no effect. | ✋ |
| W3 Remark: Special functions 40 and 41 have no effect. | ✋ |
| W4 Remark: Special functions 40 and 41 have no effect. | ✋ |
| X1 value | ✗ |
| X2 value | ✗ |
| X3 value | ✗ |
| X4 value | ✗ |
| X5 value | ✗ |
| X6 | ✗ |
| X7 | ✗ |
| Y0 Remark: Implementation identical to W1. | ✋ |
| Y1 Remark: Implementation identical to W3. | ✋ |
| Y2 Remark: Implementation identical to W3. | ✋ |
| Y3 | ✓ |
| @1 | ✗ |
| @2 | ✗ |
| @3 | ✗ |

19 Emulating the Hewlett-Packard 8673

The remote emulation HP8673 is available only if one of the following options is installed:

- SMBVB-B103 Frequency: 8 kHz to 3 GHz
- SMBVB-KB106 Frequency Extension to 6 GHz

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| AO | ✓ |
| A0 | ✓ |
| A1 | ✓ |
| A2 | ✓ |
| A3 | ✓ |
| AP value | ✓ |
| C1 | ✓ |
| CF value | ✓ |
| CS | ✓ |
| CW value | ✓ |
| DF value | ✓ |
| DN | ✓ |
| DW value | ✓ |
| DO | ✓ |
| D0 | ✓ |
| D1 | ✓ |
| D2 | ✓ |
| D3 | ✓ |
| D4 | ✓ |
| D5 | ✓ |
| D6 | ✓ |
| D7 | ✓ |
| FA value | ✓ |
| FB value | ✓ |
| FI value | ✓ |
| FN value | ✓ |
| FO value | ✓ |
| FR value | ✓ |
| FS value | ✓ |
| FT value | ✓ |
| F1 value | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| IF | ✓ |
| IP | ✓ |
| LE value | ✓ |
| L1c | ○ |
| L2 | ○ |
| MG | ✓ |
| MU value | ✓ |
| MY value | ✓ |
| OA | ✓ |
| OC | ✓ |
| OK | ✓ |
| OR | ✓ |
| OS | ✓ |
| PL value | ✓ |
| PO | ✓ |
| P0 | ✓ |
| P1 | ✓ |
| P2 | ✓ |
| P3 | ✓ |
| RA value | ✓ |
| RD | ✓ |
| RF0 | ✓ |
| RF1 | ✓ |
| RM value | ✓ |
| RS | ✓ |
| RU | ✓ |
| R0 | ✓ |
| R1 | ✓ |
| SE | ✓ |
| SF value | ✓ |
| SH | ✓ |
| SM | ✓ |
| TI | ✓ |
| TR | ✓ |
| UP | ✓ |
| WO | ✓ |
| W0 | ✓ |
| W1 | ✓ |
| W2 | ✓ |
| W3 | ✓ |
| W4 | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| W5 | ✓ |
| W6 | ✓ |
| @1 value | |

20 Emulating the Racal-Dana 3102, 9087

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| AD | ✓ |
| AM value | ✓ |
| AP value | ✓ |
| AR value | ✓ |
| AS value | ✓ |
| AU | ✓ |
| CE | ✓ |
| DG value | ✗ |
| FD | ✓ |
| FM value | ✓ |
| FQ value | ✓ |
| FR value | ✓ |
| FS value | ✓ |
| FU | ✓ |
| GS0 Remark: RF output is restored to the state before entering standby mode. | ☞ |
| GS1 Remark: Remark: Standby is simulated, RF output is turned off. | ☞ |
| HM value | ✓ |
| ID | ✓ |
| IN0 | ✗ |
| IN1 | ✗ |
| IN2 | ✗ |
| IN3 | ✗ |
| IN4 | ✗ |
| IN5 | ✓ |
| IP | ✓ |
| IS | ✓ |
| LM1 | ✗ |
| LM2 | ✗ |
| MA0 | ✓ |
| MA1 Remark: AM can be combined with FM and HM, but not with PM. | ☞ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| MA2 | ✓ |
| MA3 | ✓ |
| MA4 | ✓ |
| MA5 | ✓ |
| ME | ✓ |
| MF0 | ✓ |
| MF1 Remark: FM can be combined with AM and PM, but not with HM. | ✎ |
| MF2 | ✓ |
| MF3 | ✓ |
| MF4 | ✓ |
| MF5 | ✓ |
| MH0 | ✓ |
| MH1 Remark: HM can be combined with AM and PM, but not with FM. | ✎ |
| MH2 | ✓ |
| MH3 | ✓ |
| MH4 | ✓ |
| MH5 | ✓ |
| MI | ✓ |
| MP0 | ✓ |
| MP1 Remark: PM can be combined with FM and HM, but not with AM. | ✎ |
| MP2 | ✓ |
| MP3 | ✓ |
| MP4 | ✗ |
| MP5 | ✓ |
| MR value Remark: RC3102 allows up to 100 value specifications. Specified register locations are subsequently recalled. SM* allows exactly one register location, which is recalled immediately. | ✎ |
| MRME value Remark: Storage is not persistent and will be lost when power down. | ✎ |
| MS value Remark: Storage is not persistent and will be lost when power down. | ✎ |
| OP0 | ✓ |
| OP1 | ✓ |
| PM | ✓ |
| RM1 | ✗ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| RM2 | x |
| RS value | x |
| SF value | x |
| WY | x |
| @9 | x |
| @A | x |

21 Emulating the Panasonic 8303



The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| AFA value | ✓ |
| AFF value | ✓ |
| AM value | ✓ |
| AP value | ✓ |
| AS | ✗ |
| DM | ✗ |
| DR | ✗ |
| EA value | ✓ |
| EF value | ✓ |
| EM | ✗ |
| FM value | ✓ |
| FR value | ✓ |
| LE value | ✓ |
| MO | ✓ |
| MS | ✗ |
| NT value | ✓ |
| PL | ✗ |
| PR | ✗ |
| P1 | ✗ |
| P2 | ✗ |
| QG | ✓ |
| RC value Remark: The contents of the registers 0 to 99 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. | ☞ |
| TM | ✗ |
| TO value | ✓ |
| ST value Remark: The contents of the registers 0 to 99 are NOT persistent and are lost when power is switched off or when leaving the emulation mode. | ☞ |

22 Emulating the R&S®SMBV100A

The SMBV100B and SMBV100A SCPI command sets are largely compatible, even without activating the SMBV100A emulation mode. Differences are due to the SMBV100B multi-purpose USER1...User5 connectors and concern central instrument functions, not the digital standards. Some other special functions are not available anymore.

Here is a list of SMBV100A commands not supported or implemented differently in the SMBV100B.

| Device-specific functions | |
|--|---|
| Command syntax | Status |
| :BERT BLER:SEQuence value Remark: Use :BERT BLER:TRIGger:MODE | x |
| :BERT BLER:SETUp:CLOCK[:POLarity] value :BERT BLER:SETUp:DATA:CONNector value :SOURce:INPut:BERT:IMPedance value :SOURce:INPut:BERT:THReshold value Remark: See "Show SCPI Command" context menu under Global Connectors for replacements. | x |
| :SOURce:BB:GRAPhics:SMARt:STATe value :SOURce:BB:GRAPhics:STATe value Remark: Use [:SOURce]:BB:GRAPhics:ADD value | x |
| :OUTPut:BLANK:POLarity value | x |
| :SOURce:FM:EXTernal:DIGital:BFORmat value :SOURce:PM:EXTernal:DIGital:BFORmat value | x |
| :SOURce:PULM:OUTPut:SYNC[:STATe] value :SOURce:PULM:TRIGger:EXTernal:SLOPe value | x |
| :SOURce:BB:ARBitrary:CLOCK:SOURce value :SOURce:BB:DM:CLOCK:SOURce value :SOURce:BB:MCCW:CLOCK:SOURce value Remark: Only INTernal is supported |  |
| :SOURce:BB:ARBitrary:CLOCK:SYNCronization:EXECute :SOURce:BB:ARBitrary:CLOCK:SYNCronization:MODE value :SOURce:BB:MCCW:CLOCK:SYNCronization:EXECute :SOURce:BB:MCCW:CLOCK:SYNCronization:MODE value :SOURce:BB:DM:CLOCK:SYNCronization:EXECute :SOURce:BB:DM:CLOCK:SYNCronization:MODE value Remark: The mode values NONE MASTer SLAVe are stored internally. When mode is MASTer or SLAVe then the EXECute command activates the corresponding SMBV100B multi instrument state. The remotely configured Master-Slave mode/role will be shown by the related GUI dialog after the Master slave mode was activated. |  |
| :SOURce:BB:CONFIguration value :SOURce:BB:IQOutput:SOURce value :SOURce:BBIN:GIMBalance value :SOURce:BBIN:OFFSet:I value :SOURce:BBIN:OFFSet:Q value :SOURce:BBIN:SKew value | x |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| :SOURce:INPut:DELay:ADCState value :SOURce:INPut:DELay:CLENgtH value :SOURce:INPut:DELay:SPOSition value :SOURce:INPut:MODext:IMPedance value | x |
| :SOURce:IQ:OUTPut:ANALog:POWer:PEP:RESult? :SOURce:IQ:OUTPut:POWer:PEP:RESult? | x |
| :SOURce:SWEep:POWer:AMODE value | x |
| :SOURce:BB:ARBitrary:TRIGger:OUTPut:DELay:FIXed value :SOURce:BB:ARBitrary:TRIGger:OUTPut:DELay:MAXimum? :SOURce:BB:ARBitrary:TRIGger:OUTPut:DELay:MINimum? :SOURce:BB:DM:TRIGger:OUTPut:DELay:FIXed value :SOURce:BB:DM:TRIGger:OUTPut:DELay:MAXimum? :SOURce:BB:DM:TRIGger:OUTPut:DELay:MINimum? :SOURce:BB:MCCW:TRIGger:OUTPut:DELay:FIXed value :SOURce:BB:MCCW:TRIGger:OUTPut:DELay:MAXimum? :SOURce:BB:MCCW:TRIGger:OUTPut:DELay:MINimum? Remark: There are no min/max marker delay restrictions in the SMBV100B. | x |

23 Emulating the R&S®SML

The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CAL? | ✓ |
| *CLS | ✓ |
| *ESE value *ESE? | ✓ |
| *ESR? | ✓ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✋ |
| *OPC *OPC? Wait for/query completion of command. | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✋ |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? | ✓ |
| *STB? | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| ABORt[:SWEep] | ✓ |
| CALibration[:ALL]? | ✓ |
| CALibration:FMOFFset[:MEASure]? | ✓ |
| CALibration:ROSCillator[:DATA]? Value | ✓ |
| DIAGnostic:INFO:CCOunt:POWEr? | ✓ |
| DIAGnostic:INFO:OTIME? | ✓ |
| DIAGnostic:INFO:SDATe? | ✓ |
| DISPlay:ANNotation[:ALL] value DISPlay:ANNotation[:ALL]? | ✓ |
| DISPlay:ANNotation:AMPLitude value DISPlay:ANNotation:AMPLitude? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| DISPlay:ANNotation:FREQuency value DISPlay:ANNotation:FREQuency? | ✓ |
| OUTPut1:AMODe value OUTPut1:AMODe? | ✓ |
| OUTPut1[:STATe] value OUTPut1[:STATe]? | ✓ |
| OUTPut2[:STATe] value OUTPut2[:STATe]? | ✓ |
| OUTPut1[:STATe]:PON value OUTPut1[:STATe]:PON? | ✓ |
| OUTPut2:VOLTagE value OUTPut2:VOLTagE? | ✓ |
| [SOURce:]AM[:DEPTH] value [SOURce:]AM[:DEPTH]? | ✓ |
| [SOURce:]AM:EXTernal:COUPling value [SOURce:]AM:EXTernal:COUPling? | ✓ |
| [SOURce:]AM:INTernal:FREQuency value [SOURce:]AM:INTernal:FREQuency? value | ✓ |
| [SOURce:]AM:SOURce value [SOURce:]AM:SOURce? | ✓ |
| [SOURce:]AM:STATe value [SOURce:]AM:STATe? | ✓ |
| [SOURce:]CORRection[:STATe] value [SOURce:]CORRection[:STATe]? | ✓ |
| [SOURce:]CORRection:CSET:CATalog? | ✓ |
| [SOURce:]CORRection:CSET:FREE? | ✓ |
| [SOURce:]CORRection:CSET[:SElect] value [SOURce:]CORRection:CSET[:SElect]? | ✓ |
| [SOURce:]CORRection:CSET:DATA:FREQuency value [SOURce:]CORRection:CSET:DATA:FREQuency? | ✓ |
| [SOURce:]CORRection:CSET:DATA:FREQuency:POINts? | ✓ |
| [SOURce:]CORRection:CSET:DATA:POWer value [SOURce:]CORRection:CSET:DATA:POWer? | ✓ |
| [SOURce:]CORRection:CSET:DATA:POWer:POINts? | ✓ |
| [SOURce:]CORRection:CSET:DELeTe value [SOURce:]CORRection:CSET:DELeTe:ALL | ✓ |
| [SOURce:]FM[:DEVIation] value [SOURce:]FM[:DEVIation]? | ✘ |
| Remark: Numeric, MINimum are supported. | |
| [SOURce:]FM:EXTernal:COUPling value [SOURce:]FM:EXTernal:COUPling? | ✓ |
| [SOURce:]FM:INTernal:FREQuency value [SOURce:]FM:INTernal:FREQuency? | ✓ |
| [SOURce:]FM:SOURce value [SOURce:]FM:SOURce? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [SOURce:]FM:STATe value [SOURce:]FM:STATe? | ✓ |
| [:SOURce:]FREQuency:CENTer value [:SOURce:]FREQuency:CENTer? | ✓ |
| [:SOURce:]FREQuency[:CW :FIXed] value [:SOURce:]FREQuency[:CW :FIXed]? | ✓ |
| [:SOURce:]FREQuency:RCL value [:SOURce:]FREQuency:RCL? | ✓ |
| [:SOURce:]FREQuency:MANual value Sets RF frequency in sweep mode. Remark: Sets and limits actual RF frequency to sweep range. | ✎ |
| [:SOURce:]FREQuency:MODE value [:SOURce:]FREQuency:MODE? | ✓ |
| [:SOURce:]FREQuency:OFFSet value [:SOURce:]FREQuency:OFFSet? | ✓ |
| [:SOURce:]FREQuency:SPAN value [:SOURce:]FREQuency:SPAN? | ✓ |
| [:SOURce:]FREQuency:STARt value [:SOURce:]FREQuency:STARt? | ✓ |
| [:SOURce:]FREQuency:STOP value [:SOURce:]FREQuency:STOP? | ✓ |
| [:SOURce:]FREQuency:STEP[:INCRement] value [:SOURce:]FREQuency:STEP[:INCRement]? | ✓ |
| [:SOURce:]MODulation[:ALL]:STATe value [:SOURce:]MODulation[:ALL]:STATe? | ✓ |
| [:SOURce:]PHASe value [:SOURce:]PHASe? | ✓ |
| [:SOURce:]PHASe:REFerence | ✓ |
| [:SOURce:]PHASe:STEP value [:SOURce:]PHASe:STEP? | ✓ |
| [:SOURce:]PM[:DEViation] value [:SOURce:]PM[:DEViation]? Sets/queries the modulation deviation. Remark: Numeric, MINimum are supported. | ✎ |
| [:SOURce:]PM:EXTernal:COUPling value [:SOURce:]PM:EXTernal:COUPling? | ✓ |
| [:SOURce:]PM:INTernal:FREQuency value [:SOURce:]PM:INTernal:FREQuency? | ✓ |
| [:SOURce:]PM:SOURce value [:SOURce:]PM:SOURce? | ✓ |
| [:SOURce:]PM:STATe value [:SOURce:]PM:STATe? | ✓ |
| [:SOURce:]POWER:ALC:STATe value [:SOURce:]POWER:ALC:STATe? | ✓ |
| [:SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude] value [:SOURce:]POWER[:LEVel][:IMMediate][:AMPLitude]? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| [[:SOURce:]POWer[:LEVel][:IMMediate]:OFFSet value [:SOURce:]POWer[:LEVel][:IMMediate]:OFFSet? | ✓ |
| [[:SOURce:]POWer:LIMit[:AMPLitude] value [:SOURce:]POWer:LIMit[:AMPLitude]? | ✓ |
| [[:SOURce:]POWer:MANual value Sets the RF level in sweep mode. Remark: Sets and limits actual RF level to sweep range. | ✎ |
| [[:SOURce:]POWer:MODE value [:SOURce:]POWer:MODE? | ✓ |
| [[:SOURce:]POWer:RCL value [:SOURce:]POWer:RCL? | ✓ |
| [[:SOURce:]POWer:STARt value [:SOURce:]POWer:STARt? | ✓ |
| [[:SOURce:]POWer:STEP[:INCRement] value [:SOURce:]POWer:STEP[:INCRement]? | ✓ |
| [[:SOURce:]POWer:STOP value [:SOURce:]POWer:STOP? | ✓ |
| [[:SOURce:]PULM:POLarity? Remark: In external mode only. | ✎ |
| [[:SOURce:]PULM:SOURce value [:SOURce:]PULM:SOURce? | ✓ |
| [[:SOURce:]PULM:STATe value [:SOURce:]PULM:STATe? | ✓ |
| [[:SOURce:]PULSe:DELay value [:SOURce:]PULSe:DELay? | ✓ |
| [[:SOURce:]PULSe:DOUBle:DELay value [:SOURce:]PULSe:DOUBle:DELay? | ✓ |
| [[:SOURce:]PULSe:DOUBle:STATe value [:SOURce:]PULSe:DOUBle:STATe? | ✓ |
| [[:SOURce:]PULSe:PERiod value [:SOURce:]PULSe:PERiod? | ✓ |
| [[:SOURce:]PULSe:WIDTh value [:SOURce:]PULSe:WIDTh | ✓ |
| [[:SOURce:]ROSCillator[:INTernal]:ADJust[:STATe] value [:SOURce:]ROSCillator[:INTernal]:ADJust[:STATe]? | ✓ |
| [[:SOURce:]ROSCillator[:INTernal]:ADJust:VALue value [:SOURce:]ROSCillator[:INTernal]:ADJust:VALue? | ✓ |
| [[:SOURce:]ROSCillator:SOURce value [:SOURce:]ROSCillator:SOURce? | ✓ |
| [[:SOURce:]SWEep[:FREQuency]:DWELI value [:SOURce:]SWEep[:FREQuency]:DWELI? | ✓ |
| [[:SOURce:]SWEep[:FREQuency]:MODE value [:SOURce:]SWEep[:FREQuency]:MODE? Remark: AUTO, MAN are supported. | ✎ |
| [[:SOURce:]SWEep[:FREQuency]:RUNNING? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]SWEep[:FREQuency]:SPACing value [SOURce:]SWEep[:FREQuency]:SPACing? | ✓ |
| [SOURce:]SWEep[:FREQuency]:STEP[:LINEar] value [SOURce:]SWEep[:FREQuency]:STEP[:LINEar]? | ✓ |
| [SOURce:]SWEep[:FREQuency]:STEP:LOGarithmic value [SOURce:]SWEep[:FREQuency]:STEP:LOGarithmic? | ✓ |
| [SOURce:]SWEep:POWer:DWELI value [SOURce:]SWEep:POWer:DWELI? | ✓ |
| [SOURce:]SWEep:POWer:MODE value [SOURce:]SWEep:POWer:MODE? Remark: AUTO, MAN are supported. | ✎ |
| [SOURce:]SWEep:POWer:RUNNing? | ✓ |
| [SOURce:]SWEep:POWer:SPACing value [SOURce:]SWEep:POWer:SPACing? | ✓ |
| [SOURce:]SWEep:POWer:STEP[:LOGarithmic] value [SOURce:]SWEep:POWer:STEP[:LOGarithmic]? | ✓ |
| SOURce2:FREQuency[:CW :FIXed] value SOURce2:FREQuency[:CW :FIXed]? | ✓ |
| SOURce2:FREQuency:MANual value Sets LF frequency in sweep mode. Remark: Sets and limits actual LF frequency to sweep range. | ✎ |
| SOURce2:FREQuency:MODE value SOURce2:FREQuency:MODE? | ✓ |
| SOURce2:FREQuency:STARt value SOURce2:FREQuency:STARt? | ✓ |
| SOURce2:FREQuency:STOP value SOURce2:FREQuency:STOP? | ✓ |
| SOURce2:SWEep[:FREQuency]:DWELI value SOURce2:SWEep[:FREQuency]:DWELI? | ✓ |
| SOURce2:SWEep[:FREQuency]:MODE value SOURce2:SWEep[:FREQuency]:MODE? Remark: AUTO, MAN are supported. | ✎ |
| SOURce2:SWEep[:FREQuency]:RUNNing? | ✓ |
| SOURce2:SWEep[:FREQuency]:SPACing value SOURce2:SWEep[:FREQuency]:SPACing? | ✓ |
| SOURce2:SWEep[:FREQuency]:STEP[:LINear] value SOURce2:SWEep[:FREQuency]:STEP[:LINear]? | ✓ |
| SOURce2:SWEep[:FREQuency]:STEP:LOGarithmic value SOURce2:SWEep[:FREQuency]:STEP:LOGarithmic? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation: NTRansition? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| STATus:OPERation:PTRansition value STATus:OPERation: PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABLE value STATus:QUESTionable:ENABLE? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable: NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable: PTRansition? | ✓ |
| STATus:QUEue[:NEXT]? | ✓ |
| SYSTem:COMMunicate:GPIB[:SELF]:ADDRess value SYSTem:COMMunicate:GPIB[:SELF]:ADDRess? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? | ✓ |
| SYSTem:COMMunicate:SERial:SBITs value SYSTem:COMMunicate:SERial:SBITs? | ✓ |
| SYSTem:COMMunicate:SERial:PARity value SYSTem:COMMunicate:SERial:PARity? | ✓ |
| SYSTem:DISPlay:UPDate[:STATe] value SYSTem:DISPlay:UPDate[:STATe]? | ✓ |
| SYSTem:ERRor? Remark: Returns the original error message of the Rohde & Schwarz signal generator. | ✎ |
| SYSTem:PRESet Remark: Implementation is identical to common command *RST. | ✎ |
| SYSTem:SECurity[:STATe] value SYSTem:SECurity[:STATe]? | ✓ |
| SYSTem:SERRor? | ✓ |
| SYSTem:VERSion? | ✓ |
| TRIGger[1] [:SWEep][:IMMEDIATE] | ✓ |
| TRIGger2[:SWEep][:IMMEDIATE] | ✓ |
| TRIGger[1] [:SWEep]:SOURce value TRIGger[1][:SWEep]:SOURce? | ✓ |
| TRIGger2[:SWEep]:SOURce value TRIGger2[:SWEep]:SOURce? | ✓ |
| TRIGger:PULSe:EGATed:POLarity value TRIGger:PULSe:EGATed:POLarity? | ✓ |
| TRIGger:PULSe:SOURce value TRIGger:PULSe:SOURce? Remark: AUTO, EGATe, EXTeRnal are supported. | ✎ |
| TRIGger:PULSe:SLOPe value TRIGger:PULSe:SLOPe? | ✓ |

| Device-specific functions | |
|---------------------------------|--------|
| Command syntax | Status |
| UNIT:POWer value UNIT:POWer? | ✓ |

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The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CAL? | ✓ |
| *CLS | ✓ |
| *ESE value *ESE? | ✓ |
| *ESR? | ✓ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✘ |
| *OPC *OPC?. | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✘ |
| *RCL value | ✓ |
| *RST | ✓ |
| *SAV value | ✓ |
| *SRE value *SRE? | ✓ |
| *STB? | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |





| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| ABORt[:SWEep] | ✓ |
| CALibration:FM:Offset? | ✓ |
| CALibration:LEVel:STATe value CALibration:LEVel:STATe? | ✓ |
| CALibration:ROSCillator[:DATA] value CALibration:ROSCillator[:DATA]? | ✓ |
| DIAGnostic:INFO:CCOunt:POWer? | ✓ |
| DIAGnostic:INFO:OTIME? | ✓ |
| DIAGnostic:INFO:SDATe? | ✓ |
| DISPlay:ANNotation[:ALL] value DISPlay:ANNotation[:ALL]? | ✓ |
| DISPlay:ANNotation:AMPLitude value DISPlay:ANNotation:AMPLitude? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| DISPlay:ANNotation:FREQuency value DISPlay:ANNotation:FREQuency? | ✓ |
| FORMat[:DATA] value FORMat[:DATA]? | ✓ |
| MEMory:NSTates? | ✓ |
| OUTPut:AMODE value OUTPut:AMODE? | ✓ |
| OUTPut[:STATe] value OUTPut[:STATe]? | ✓ |
| OUTPut2[:STATe] value OUTPut2[:STATe]? | ✓ |
| OUTPut[:STATe]:PON value OUTPut[:STATe]:PON? | ✓ |
| OUTPut2:VOLTag value OUTPut2:VOLTag? | ✓ |
| [SOURce:]AM[:DEPTH] value [SOURce:]AM[:DEPTH]? | ✓ |
| [SOURce:]AM:EXTernal:COUPling value [SOURce:]AM:EXTernal:COUPling? | ✓ |
| [SOURce:]AM:INTernal:FREQuency value [SOURce:]AM:INTernal:FREQuency? value | ✓ |
| [SOURce:]AM:SOURce value [SOURce:]AM:SOURce? Remark: INTernal1, EXTernal1 are supported. | ✎ |
| [SOURce:]AM:STATe value [SOURce:]AM:STATe? | ✓ |
| [SOURce:]CORRection:CSET:CATalog? | ✓ |
| [SOURce:]CORRection:CSET:FREE? | ✓ |
| [SOURce:]CORRection:CSET[:SElect] value [SOURce:]CORRection:CSET[:SElect]? | ✓ |
| [SOURce:]CORRection:CSET:DATA:FREQuency value [SOURce:]CORRection:CSET:DATA:FREQuency? | ✓ |
| [SOURce:]CORRection:CSET:DATA:FREQuency:POINts? | ✓ |
| [SOURce:]CORRection:CSET:DATA:POWer value [SOURce:]CORRection:CSET:DATA:POWer? | ✓ |
| [SOURce:]CORRection:CSET:DATA:POWer:POINts? | ✓ |
| [SOURce:]CORRection:CSET:DELeTe value | ✓ |
| [SOURce:]CORRection:CSET:DELeTe:ALL | ✓ |
| [SOURce:]CORRection[:STATe] value [SOURce:]CORRection[:STATe]? | ✓ |
| [SOURce:]FM[1][:DEVIation] value [SOURce:]FM[1] [:DEVIation]? Remark: Numeric, MINimum are supported. | ✎ |
| [SOURce:]FM[1]:EXTernal:COUPling value [SOURce:]FM[1]:EXTernal:COUPling? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [SOURce:]FM[1]:INTernal:FREQuency value [SOURce:]FM[1]:INTernal:FREQuency? | ✓ |
| [SOURce:]FM[1]:SOURce value [SOURce:]FM[1]:SOURce? Remark: INTernal1, EXTernal1 are supported. | ✎ |
| [SOURce:]FM[1]:STATe value [SOURce:]FM[1]:STATe? | ✓ |
| [:SOURce:]FREQuency:CENTer value [:SOURce:]FREQuency:CENTer? | ✓ |
| [:SOURce:]FREQuency[:CW] value [:SOURce:]FREQuency[:CW]? | ✓ |
| [:SOURce:]FREQuency[:CW]:RCL value [:SOURce:]FREQuency[:CW]:RCL? | ✓ |
| [:SOURce:]FREQuency:FIXed value [:SOURce:]FREQuency:FIXed? | ✓ |
| [:SOURce:]FREQuency:FIXed:RCL value [:SOURce:]FREQuency:FIXed:RCL? | ✓ |
| [:SOURce:]FREQuency:MANual value Sets RF frequency in sweep mode. Remark: Sets and limits actual RF frequency to sweep range. | ✎ |
| [:SOURce:]FREQuency:MODE value [:SOURce:]FREQuency:MODE? | ✓ |
| [:SOURce:]FREQuency:OFFSet value [:SOURce:]FREQuency:OFFSet? | ✓ |
| [:SOURce:]FREQuency:SPAN value [:SOURce:]FREQuency:SPAN? | ✓ |
| [:SOURce:]FREQuency:STARt value [:SOURce:]FREQuency:STARt? | ✓ |
| [:SOURce:]FREQuency:STOP value [:SOURce:]FREQuency:STOP? | ✓ |
| [:SOURce:]FREQuency:STEP[:INCRement] value [:SOURce:]FREQuency:STEP[:INCRement]? | ✓ |
| [:SOURce:]PHASe[:ADJust] value [:SOURce:]PHASe[:ADJust]? | ✓ |
| [:SOURce:]PHASe:REFerence | ✓ |
| [:SOURce:]PM[1][:DEViation] value [:SOURce:]PM[1] [:DEViation]? Remark: Numeric, MINimum are supported. | ✎ |
| [:SOURce:]PM[1]:EXTernal:COUPling value [:SOURce:]PM[1]:EXTernal:COUPling? | ✓ |
| [:SOURce:]PM[1]:INTernal:FREQuency value [:SOURce:]PM[1]:INTernal:FREQuency? | ✓ |
| [:SOURce:]PM[1]:SOURce value [:SOURce:]PM[1]:SOURce? Remark: INTernal1, EXTernal1 are supported. | ✎ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [[:SOURce:]]PM[1]:STATe value [:SOURce:]PM[1]:STATe? | ✓ |
| [[:SOURce:]]POWer:ALC:STATe value [:SOURce:]POWer:ALC:STATe? | ✓ |
| [[:SOURce:]]POWer[:LEVel][:IMMediate][:AMPLitude] value [:SOURce:]POWer[:LEVel][:IMMediate][:AMPLitude]? | ✓ |
| [[:SOURce:]]POWer[:LEVel][:IMMediate]:OFFSet value [:SOURce:]POWer[:LEVel][:IMMediate]:OFFSet? | ✓ |
| [[:SOURce:]]POWer[:LEVel][:IMMediate]:RCL value [:SOURce:]POWer[:LEVel][:IMMediate]:RCL? | ✓ |
| [[:SOURce:]]POWer:LIMit[:AMPLitude] value [:SOURce:]POWer:LIMit[:AMPLitude]? | ✓ |
| [[:SOURce:]]POWer:MANual value Remark: Sets and limits actual RF level to sweep range. | ✎ |
| [[:SOURce:]]POWer:MODE value [:SOURce:]POWer:MODE? | ✓ |
| [[:SOURce:]]POWer:STARt value [:SOURce:]POWer:STARt? | ✓ |
| [[:SOURce:]]POWer:STEP[:INCRement] value [:SOURce:]POWer:STEP[:INCRement]? | ✓ |
| [[:SOURce:]]POWer:STOP value [:SOURce:]POWer:STOP? | ✓ |
| [[:SOURce:]]PULM:EXTernal: IMPedance value [:SOURce:]PULM:EXTernal:IMPedance? | ✓ |
| [[:SOURce:]]PULM:INTernal:FREQUency value [:SOURce:]PULM:INTernal:FREQUency? | ✓ |
| [[:SOURce:]]PULM:POLarity? Remark: In external mode only. | ✎ |
| [[:SOURce:]]PULM:SOURce value [:SOURce:]PULM:SOURce? | ✓ |
| [[:SOURce:]]PULM:STATe value [:SOURce:]PULM:STATe? | ✓ |
| [[:SOURce:]]PULSe:DELay value [:SOURce:]PULSe:DELay? | ✓ |
| [[:SOURce:]]PULSe:DOUBle:DELay value [:SOURce:]PULSe:DOUBle:DELay? | ✓ |
| [[:SOURce:]]PULSe:DOUBle:STATe value [:SOURce:]PULSe:DOUBle:STATe? | ✓ |
| [[:SOURce:]]PULSe:PERiod value [:SOURce:]PULSe:PERiod? | ✓ |
| [[:SOURce:]]PULSe:WIDTh value [:SOURce:]PULSe:WIDTh | ✓ |
| [[:SOURce:]]ROSCillator[:INTernal]:ADJust[:STATe] value [:SOURce:]ROSCillator[:INTernal]:ADJust[:STATe]? | ✓ |
| [[:SOURce:]]ROSCillator[:INTernal]:ADJust:VALue value [:SOURce:]ROSCillator[:INTernal]:ADJust:VALue? | ✓ |

| Device-specific functions | |
|---|--------|
| Command syntax | Status |
| [[:SOURce:]:ROSCillator:SOURce value [:SOURce:]:ROSCillator:SOURce? | ✓ |
| [SOURce:]:SWEep[:FREQuency]:DWELI value [SOURce:]:SWEep[:FREQuency]:DWELI? | ✓ |
| [SOURce:]:SWEep[:FREQuency]:MODE value [SOURce:]:SWEep[:FREQuency]:MODE? Remark: AUTO, MAN are supported. | ✎ |
| [SOURce:]:SWEep[:FREQuency]:POINts value [SOURce:]:SWEep[:FREQuency]: POINts? | ✓ |
| [SOURce:]:SWEep[:FREQuency]:SPACing value [SOURce:]:SWEep[:FREQuency]:SPACing? | ✓ |
| [SOURce:]:SWEep[:FREQuency]:STEP[:LINEar] value [SOURce:]:SWEep[:FREQuency]:STEP[:LINEar]? | ✓ |
| [SOURce:]:SWEep[:FREQuency]:STEP:LOGarithmic value [SOURce:]:SWEep[:FREQuency]:STEP:LOGarithmic? | ✓ |
| [SOURce:]:SWEep:POWer:DWELI value [SOURce:]:SWEep:POWer:DWELI? | ✓ |
| [SOURce:]:SWEep:POWer:MODE value [SOURce:]:SWEep:POWer:MODE? Remark: AUTO, MAN are supported. | ✎ |
| [SOURce:]:SWEep:POWer:POINts value [SOURce:]:SWEep:POWer:POINts? | ✓ |
| [SOURce:]:SWEep:POWer:SPACing value [SOURce:]:SWEep:POWer:SPACing? | ✓ |
| [SOURce:]:SWEep:POWer:STEP[:LOGarithmic] value [SOURce:]:SWEep:POWer:STEP[:LOGarithmic]? | ✓ |
| SOURce2:FREQuency[:CW] value SOURce2:FREQuency[:CW]? | ✓ |
| SOURce2:FREQuency:FIXed value SOURce2:FREQuency:FIXed? | ✓ |
| SOURce2:FREQuency:MANual value Remark: Sets and limits actual LF frequency to sweep range. | ✎ |
| SOURce2:FREQuency:MODE value SOURce2:FREQuency:MODE? | ✓ |
| SOURce2:FREQuency:STARt value SOURce2:FREQuency:STARt? | ✓ |
| SOURce2:FREQuency:STOP value SOURce2:FREQuency:STOP? | ✓ |
| SOURce2:FUNCTion value SOURce2: FUNCTion? Remark: SINusoid, SQUare are supported. | ✎ |
| SOURce2:SWEep[:FREQuency]:DWELI value SOURce2:SWEep[:FREQuency]:DWELI? | ✓ |

| Device-specific functions | |
|---|---|
| Command syntax | Status |
| SOURce2:SWEep[:FREQuency]:MODE value SOURce2:SWEep[:FREQuency]:MODE? Remark: AUTO, MAN are supported. |  |
| SOURce2:SWEep[:FREQuency]:POINts value SOURce2:SWEep[:FREQuency]: POINts? | ✓ |
| SOURce2:SWEep[:FREQuency]:SPACing value SOURce2:SWEep[:FREQuency]:SPACing? | ✓ |
| SOURce2:SWEep[:FREQuency]:STEP[:LINear] value SOURce2:SWEep[:FREQuency]:STEP[:LINear]? | ✓ |
| SOURce2:SWEep[:FREQuency]:STEP:LOGarithmic value SOURce2:SWEep[:FREQuency]:STEP:LOGarithmic? | ✓ |
| STATus:OPERation:CONDition? | ✓ |
| STATus:OPERation:ENABle value STATus:OPERation:ENABle? | ✓ |
| STATus:OPERation[:EVENT]? | ✓ |
| STATus:OPERation:NTRansition value STATus:OPERation: NTRansition? | ✓ |
| STATus:OPERation:PTRansition value STATus:OPERation: PTRansition? | ✓ |
| STATus:PRESet | ✓ |
| STATus:QUESTionable:CONDition? | ✓ |
| STATus:QUESTionable:ENABle value STATus:QUESTionable:ENABle? | ✓ |
| STATus:QUESTionable[:EVENT]? | ✓ |
| STATus:QUESTionable:NTRansition value STATus:QUESTionable: NTRansition? | ✓ |
| STATus:QUESTionable:PTRansition value STATus:QUESTionable: PTRansition? | ✓ |
| STATus:QUEue[:NEXT]? | ✓ |
| SYSTem:BEEPer:STATe value SYSTem:BEEPer:STATe? | ✓ |
| SYSTem:COMMunicate:GPIB[:SELF]:ADDRess value SYSTem:COMMunicate:GPIB[:SELF]:ADDRess? | ✓ |
| SYSTem:COMMunicate:SERial:BAUD value SYSTem:COMMunicate:SERial:BAUD? Remark: 2400, 4800, 9600, 19200, 38400, 57600, 115200 are supported. |  |
| SYSTem:ERRor? Remark: Returns the original error message of the Rohde & Schwarz signal generator. |  |
| SYSTem:KLOCK value SYSTem:KLOCK? | ✓ |
| SYSTem:PRESet Remark: Implementation is identical to common command *RST. |  |
| SYSTem:SECurity[:STATe] value SYSTem:SECurity[:STATe]? | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| SYSTem:SERRor? | ✓ |
| SYSTem:VERSion? | ✓ |
| TRIGger:PULSe:SOURce value TRIGger:PULSe:SOURce? | ✓ |
| TRIGger:PULSe:SLOPe value TRIGger:PULSe:SLOPe? | ✓ |
| TRIGger:SLOPe value TRIGger:SLOPe? Remark: NEGative, POSitive are supported. | ✎ |
| TRIGger[:SWEep][:IMMediate] | ✓ |
| TRIGger2[:SWEep][:IMMediate] | ✓ |
| TRIGger[:SWEep]:SOURce value TRIGger[:SWEep]:SOURce? | ✓ |
| TRIGger2[:SWEep]:SOURce value TRIGger2[:SWEep]:SOURce? | ✓ |
| UNIT:ANGLE value UNIT:ANGLE? | ✓ |
| UNIT:POWER value UNIT:POWER? | ✓ |

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The following tables show the current implementation status of each command. Commands not shown in these tables are not supported.

| IEEE488.2 functions | |
|---|--------|
| Command syntax | Status |
| *CLS | ✓ |
| *ESE value *ESE? | ✓ |
| *ESR? | ✓ |
| *IDN? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *OPC *OPC? | ✓ |
| *OPT? Remark: If the response does not match the requirements, a user-specific response to *IDN? and *OPT? can be applied on the instrument's front panel. | ✎ |
| *RCL value Remark: Only values in the range from 0 to 9 are supported. | ✎ |
| *RST | ✓ |
| *SAV value Remark: Only values in the range from 0 to 9 are supported. | ✎ |
| *SRE value *SRE? | ✓ |
| *STB? | ✓ |
| *TST? | ✓ |
| *WAI | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| AF value | ✓ |
| AF? | ✓ |
| AF:OFF | ✓ |
| AF:ON | ✓ |
| AF:Var_step value | ✓ |
| AF:Var_step? | ✓ |
| ALc? | ✓ |
| ALc:Auto | ✘ |
| ALc:Fixed | ✓ |
| ALc:NARrow | ✘ |
| ALc:Normal | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| ALc:WIDe | x |
| AM value | ✓ |
| AM? | ✓ |
| AM:Dual:Ac | ✓ |
| AM:Dual:Ac value | ✓ |
| AM:Dual:Dc | ✓ |
| AM:Dual:Dc value | ✓ |
| AM:External:Ac | ✓ |
| AM:External:Ac value | ✓ |
| AM:External:Dc | ✓ |
| AM:External:Dc value | ✓ |
| AM:Internal | ✓ |
| AM:Internal value | ✓ |
| AM:OFF | ✓ |
| AM:Var_step value | ✓ |
| AM:Var_step? | ✓ |
| Attenuator? | ✓ |
| ATtenuator:Fixed | ✓ |
| ATtenuator:Normal | ✓ |
| DECrement:AF | ✓ |
| DECrement:AM | ✓ |
| DECrement:FM | ✓ |
| DECrement:Level | ✓ |
| DECrement:PHM | ✓ |
| DECrement:RF | ✓ |
| FM value | ✓ |
| FM? | ✓ |
| FM:Dual:Ac | ✓ |
| FM:Dual:Ac value | ✓ |
| FM:Dual:Dc | ✓ |
| FM:Dual:Dc value | ✓ |
| FM:External:Ac | ✓ |
| FM:External:Ac value | ✓ |
| FM:External:Dc | ✓ |
| FM:External:Dc value | ✓ |
| FM:Internal | ✓ |
| FM:Internal value | ✓ |
| FM:OFF | ✓ |
| FM:Var_step value | ✓ |
| FM:Var_step? | ✓ |
| HEAder:OFF | ✓ |
| HEAder:ON | ✓ |

| Device-specific functions | |
|--|--------|
| Command syntax | Status |
| INCrement:AF | ✓ |
| INCrement:AM | ✓ |
| INCrement:FM | ✓ |
| INCrement:Level | ✓ |
| INCrement:PHM | ✓ |
| INCrement:RF | ✓ |
| Level value | ✓ |
| Level? | ✓ |
| Level:Emf value | ✓ |
| Level:Emf? | ✓ |
| Level:OFF | ✓ |
| Level:ON | ✓ |
| Level:Var_step value | ✓ |
| Level:Var_step? | ✓ |
| PHM value | ✓ |
| PHM? | ✓ |
| PHM:Dual | ✓ |
| PHM:Dual value | ✓ |
| PHM:External | ✓ |
| PHM:External value | ✓ |
| PHM:Internal | ✓ |
| PHM:Internal value | ✓ |
| PHM:OFF | ✓ |
| PHM:Var_step value | ✓ |
| PHM:Var_step? | ✓ |
| PReset | ✓ |
| REFerence_oscillator? Remark: Only the first 12 characters are valid. | ✎ |
| REFerence_oscillator:External Remark: Only the first 12 characters are valid. | ✎ |
| REFerence_oscillator:Internal Remark: Only the first 12 characters are valid. | ✎ |
| RF value | ✓ |
| RF? | ✓ |
| RF:STArt value | ✓ |
| RF:STArt? | ✓ |
| RF:STEp value | ✓ |
| RF:STEp? | ✓ |
| RF:STOp value | ✓ |
| RF:STOp? | ✓ |
| RF:Var_step value | ✓ |
| RF:Var_step? | ✓ |
| SWP? | ✓ |

| Device-specific functions | |
|---------------------------|--------|
| Command syntax | Status |
| SWP:Auto | ✓ |
| SWP:OFF | ✓ |
| SWP:ON | ✓ |
| SWP:Reset | ✓ |
| Time[:RF_swp] value | ✓ |
| Time[:RF_swp]? | ✓ |

26 References

- [1] Rohde & Schwarz, R&S®SMBV100B Vector Signal Generator Operating Manual

27 Additional Information

This application note is updated from time to time. Please visit the following website in order to download the latest version:

[Application Notes about the R&S®SMBV100B Vector Signal Generator](#)

28 Ordering Information

Please visit the following website for comprehensive ordering information for the SMBV100B:

[Ordering Information for the R&S®SMBV100B Vector Signal Generator](#)

| R&S®SMBV100B | Base unit | 1423.1003.02 |
|-----------------|--|--------------|
| R&S®SMBVB-B103 | Frequency options 8 kHz to 3 GHz (mandatory) | 1423.6270.02 |
| R&S®SMBVB-KB106 | Frequency Extension to 6 GHz | 1423.6370.02 |
| R&S®SMBVB-B1 | RF options OCXO Reference Oscillator | 1423.6470.02 |
| R&S®SMBVB-B1H | High Performance OCXO Reference Oscillator | 1423.6570.02 |
| R&S®SMBVB-B3 | 1 GHz Reference Input/Output | 1423.7260.02 |
| R&S®SMBVB-K704 | Flexible Reference Input from 1 MHz to 100 MHz | 1423.7618.02 |
| R&S®SMBVB-K31 | High Output Power | 1423.6670.02 |
| R&S®SMBVB-B32 | Ultra High Output Power | 1423.6711.02 |
| R&S®SMBVB-K90 | Phase Coherence | 1423.7076.02 |
| R&S®SMBVB-K22 | Pulse Modulator | 1423.7560.02 |
| R&S®SMBVB-K23 | Pulse Generator | 1423.7576.02 |
| R&S®SMBVB-K24 | Multifunction Generator | 1423.7582.02 |
| R&S®SMBVB-K720 | AM/FM/fM | 1423.7599.02 |
| R&S®SMBVB-K17 | Baseband Differential Analog I/Q Outputs | 1423.7624.02 |

| | | |
|----------------|--|--------------|
| R&S®SMBVB-K511 | ARB Memory Extension to 256 Msample | 1423.7653.02 |
| R&S®SMBVB-K512 | ARB Memory Extension to 1 Gsample | 1423.7660.02 |
| R&S®SMBVB-K513 | ARB Memory Extension to 2 Gsample | 1423.8589.02 |
| R&S®SMBVB-K520 | Baseband Realtime Extension | 1423.7676.02 |
| R&S®SMBVB-K523 | Baseband Extension to 240 MHz RF bandwidth | 1423.7682.02 |
| R&S®SMBVB-K524 | Baseband Extension to 500 MHz RF bandwidth | 1423.7699.02 |
| R&S®SMBVB-K62 | Baseband enhancements Additive White Gaussian Noise (AWGN) | 1423.7876.02 |
| R&S®SMBVB-K540 | Envelope Tracking | 1423.7701.02 |
| R&S®SMBVB-K541 | AM/AM, AM/fM Predistortion | 1423.7718.02 |
| R&S®SMBVB-K544 | User-Defined Frequency Response Correction | 1423.8150.02 |
| R&S®SMBVB-K40 | Digital standards GSM/EDGE | 1423.7724.02 |
| R&S®SMBVB-K41 | EDGE Evolution | 1423.7730.02 |
| R&S®SMBVB-K42 | 3GPP FDD | 1423.7747.02 |
| R&S®SMBVB-K46 | CDMA2000® | 1423.7760.02 |
| R&S®SMBVB-K47 | 1xEV-DO | 1423.7776.02 |
| R&S®SMBVB-K50 | TD-SCDMA | 1423.7782.02 |
| R&S®SMBVB-K51 | TD-SCDMA Enhanced BS/MS Tests | 1423.7799.02 |
| R&S®SMBVB-K54 | IEEE 802.11 (a/b/g/n/j/p) | 1423.7824.02 |
| R&S®SMBVB-K55 | EUTRA/LTE | 1423.7830.02 |
| R&S®SMBVB-K60 | Bluetooth® EDR | 1423.7853.02 |
| R&S®SMBVB-K61 | Multicarrier CW Signal Generation | 1423.7860.02 |
| R&S®SMBVB-K83 | 3GPP FDD HSPA/HSPA+, Enhanced BS/MS Tests | 1423.7899.02 |
| R&S®SMBVB-K84 | EUTRA/LTE Release 9 and Enhanced Features | 1423.7901.02 |
| R&S®SMBVB-K85 | EUTRA/LTE Release 10 (LTE-Advanced) | 1423.7918.02 |
| R&S®SMBVB-K86 | IEEE 802.11ac | 1423.7924.02 |
| R&S®SMBVB-K87 | 1xEV-DO Rev. B | 1423.7930.02 |
| R&S®SMBVB-K112 | LTE Release 11 and Enhanced Features | 1423.8037.02 |
| R&S®SMBVB-K113 | LTE Release 12 | 1423.8043.02 |
| R&S®SMBVB-K114 | OFDM Signal Generation | 1423.8050.02 |
| R&S®SMBVB-K115 | Cellular IoT | 1423.8066.02 |
| R&S®SMBVB-K117 | Bluetooth® 5.0 | 1423.8089.02 |
| R&S®SMBVB-K118 | Verizon 5GTF Signals | 1423.8095.02 |
| R&S®SMBVB-K119 | LTE Releases 13 and 14 | 1423.8108.02 |

| | | |
|----------------|--------------------------------------|--------------|
| R&S@SMBVB-K142 | IEEE 802.11ax | 1423.7901.02 |
| R&S@SMBVB-K144 | 5G NR | 1423.8608.02 |
| R&S@SMBVB-K151 | ILS | 1423.8120.02 |
| R&S@SMBVB-K152 | VOR | 1423.8137.02 |
| R&S@SMBVB-K153 | DME | 1423.8143.02 |
| R&S@SMBVB-K300 | Pulse Sequencing | 1423.8414.02 |
| R&S@SMBVB-K301 | Enhanced Pulse Sequencing | 1423.8420.02 |
| R&S@SMBVB-K350 | DFS Signal Generation | 1423.8443.02 |
| R&S@SMBVB-B80 | Other options Removable Mass Storage | 1423.7160.02 |
| R&S@SMBVB-B81 | Rear Panel Connector for RF Path | 1423.7360.02 |

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- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system



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