

# **SCPI Command Reference**

## **Agilent Technologies N5181A/82A/83A MXG Signal Generators**

This guide applies to the following signal generator models:

**N5181A MXG RF Analog Signal Generator**

**N5182A MXG RF Vector Signal Generator**

**N5183A MXG Microwave Analog Signal Generator**

Due to our continuing efforts to improve our products through firmware and hardware revisions, signal generator design and operation may vary from descriptions in this guide. We recommend that you use the latest revision of this guide to ensure you have up-to-date product information. Compare the print date of this guide (see bottom of page) with the latest revision, which can be downloaded from the following website:

*<http://www.agilent.com/find/mxg>*



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## Key Help<sup>a</sup>

- Key function description
- Related SCPI commands

a. Press the **Help** hardkey, and then the key for which you wish help.



---

# 1 SCPI Basics

This chapter describes how SCPI information is organized and presented in this guide. An overview of the SCPI language is also provided. This chapter contains the following major sections:

- “[Command Reference Information](#)” on page 2
- “[SCPI Basics](#)” on page 3

## Command Reference Information

### SCPI Command Listings

The Table of Contents lists the Standard Commands for Programmable Instruments (SCPI) without the parameters. The SCPI subsystem name will generally have the first part of the command in parenthesis that is repeated in all commands within the subsystem. The title(s) beneath the subsystem name is the remaining command syntax. The following example demonstrates this listing:

Communication Subsystem (:SYSTem:COMMunicate)

:LAN:IP  
:LAN:SUBNet

The following examples show the complete commands from the above Table of Contents listing:

:SYSTem:COMMunicate:LAN:IP  
:SYSTem:COMMunicate:LAN:SUBNet

### Key and Data Field Cross Reference

The index is set up so applicable key and data field names can be cross-referenced to the appropriate SCPI command. There are two headings in the index where the key and data field names can be found:

- individual softkey, hardkey, or data field name (i.e. To look up the communication subsystem topic on Default Gateway softkey refer to Default Gateway softkey.)
- subsystem name (i.e. To look for the Default Gateway softkey (in the Communication Subsystem), refer to the heading labeled: “communication subsystem keys”.)

### Supported Field

Within each command section, the “Supported” heading describes which signal generator configurations are supported by the SCPI command. When “All Models” is shown next to this heading, all signal generator configurations are supported by the SCPI command. When “All with Option xxx” is shown next to this heading, only the stated option(s) is supported.

---

**NOTE** The internal baseband generator speed upgrade Options 670, 671, and 672 are option upgrades that *require* Option 651 and 652 to have been loaded at the factory (refer to the *Data Sheet* for more information). Any references to 651, 652, or 654 are inclusive of 671, 672, and 674.

---

## SCPI Basics

This section describes the general use of the SCPI language for the Agilent MXG. It is not intended to teach you everything about the SCPI language; the SCPI Consortium or IEEE can provide that level of detailed information. For a list of the specific commands available for the signal generator, refer to the table of contents.

For additional information, refer to the following publications:

- IEEE Standard 488.1-2003, IEEE Standard For Higher Performance Protocol for the Standard Digital Interface for Programmable Instrumentation. New York, NY, 2003.
- IEEE Standard 488.2-1992, IEEE Standard Codes, Formats, Protocols and Command Commands for Use with ANSI/IEEE Standard 488.1-1987. New York, NY, 1998.

## Common Terms

The following terms are used throughout the remainder of this section:

Command	A command is an instruction in SCPI consisting of mnemonics (keywords), parameters (arguments), and punctuation. You combine commands to form messages that control instruments.
Controller	A controller is any device used to control the signal generator, for example a computer or another instrument.
Event Command	Some commands are events and cannot be queried. An event has no corresponding setting; it initiates an action at a particular time.
Program Message	A program message is a combination of one or more properly formatted commands. Program messages are sent by the controller to the signal generator.
Query	A query is a special type of command used to instruct the signal generator to make response data available to the controller. A query ends with a question mark. Generally you can query any command value that you set.
Response Message	A response message is a collection of data in specific SCPI formats sent from the signal generator to the controller. Response messages tell the controller about the internal state of the signal generator.

## Command Syntax

A typical command is made up of keywords prefixed with colons (:). The keywords are followed by parameters. The following is an example syntax statement:

```
[ :SOURce] :PULM:INTERNAL:FREQuency <frequency>|MAXimum|MINimum|UP|DOWN
```

In the example above, the :INTERNAL:FREQuency portion of the command immediately follows the :PULM portion with no separating space. The portion following the :INTERNAL, <frequency>|MAXimum|MINimum|UP|DOWN, are the parameters (argument for the command statement). There is a separating space (white space) between the command and its parameter.

Additional conventions in syntax statements are shown in [Table 1-1](#) and [Table 1-2](#).

**Table 1-1 Special Characters in Command Syntax**

Characters	Meaning	Example
	A vertical stroke between keywords or parameters indicates alterative choices. For parameters, the effect of the command varies depending on the choice.	[ :SOURce] :AM: MOD DEEP NORMAl DEEP or NORMAl are the choices.
[ ]	Square brackets indicate that the enclosed keywords or parameters are optional when composing the command. These implied keywords or parameters will be executed even if they are omitted.	[ :SOURce] :FREQuency [:CW] ?  SOURce and CW are optional items.
< >	Angle brackets around a word (or words) indicate they are not to be used literally in the command. They represent the needed item.	[ :SOURce] :FREQuency: START <value><unit>  In this command, the words <value> and <unit> should be replaced by the actual frequency and unit.  :FREQuency:STARt 2.5GHz
{ }	Braces indicate that parameters can optionally be used in the command once, several times, or not at all.	[ :SOURce] :LIST: POWer <value>{,<value>}  a single power listing: LIST:POWer 5 a series of power listings: LIST:POWer 5,10,15,20

**Table 1-2 Command Syntax**

Characters, Keywords, and Syntax	Example
Upper-case lettering indicates the minimum set of characters required to execute the command. But, each mode of the command must be in either short form or the complete long form (no in between). Example:  Correct:  :FREQ :FREQuency  Incorrect:  :FREQuenc	[ :SOURce] :FREQuency [:CW] ?, FREQ is the minimum requirement.

**Table 1-2 Command Syntax**

Characters, Keywords, and Syntax	Example
Lower-case lettering indicates the portion of the command that is optional; it can either be included with the upper-case portion of the command or omitted. This is the flexible format principle called forgiving listening. Refer to “ <a href="#">Command Parameters and Responses</a> ” on page 7 for more information.	:FREQuency  Either :FREQ, :FREQuency, or :FREQUENCY is correct.
When a colon is placed between two command mnemonics, it moves the current path down one level in the command tree. Refer to “ <a href="#">Command Tree</a> ” on page 6 more information on command paths.	:TRIGger:OUTPut:POLarity?  TRIGger is the root level keyword for this command.
If a command requires more than one parameter, you must separate adjacent parameters using a comma. Parameters are not part of the command path, so commas do not affect the path level.	[ :SOURce] :LIST: DWELL <value>{,<value>}
A semicolon separates two commands in the same program message without changing the current path.	:FREQ 2.5GHz; :POW 10dBm
White space characters, such as <tab> and <space>, are generally ignored as long as they do not occur within or between keywords.  However, you must use white space to separate the command from the parameter, but this does not affect the current path.	:FREQ uency or :POWer :LEVel are not allowed.  A <space> between :LEVel and 6.2 is mandatory.  :POWer:LEVel 6.2

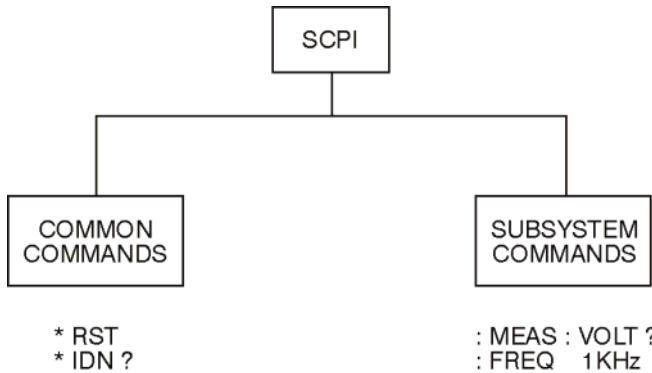
## Command Types

Commands can be separated into two groups: common commands and subsystem commands. [Figure 1-1](#), shows the separation of the two command groups.

Common commands are used to manage status registers, synchronization, and data storage and are defined by IEEE 488.2. They are easy to recognize because they all begin with an asterisk. For example \*IDN?, \*OPC, and \*RST are common commands. Common commands are not part of any subsystem and the signal generator interprets them in the same way, regardless of the current path setting.

Subsystem commands are distinguished by the colon (:). The colon is used at the beginning of a command statement and between keywords, as in :FREQuency[:CW?]. Each command subsystem is a set of commands that roughly correspond to a functional block inside the signal generator. For example, the power subsystem (:POWer) contains commands for power generation, while the status subsystem (:STATus) contains commands for controlling status registers.

Figure 1-1 Command Types

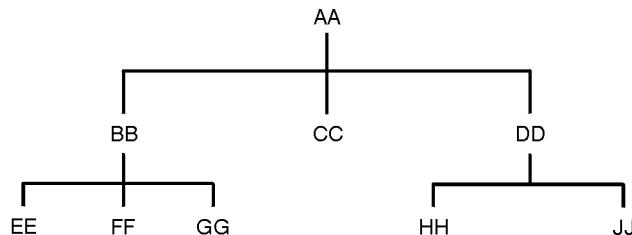


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## Command Tree

Most programming tasks involve subsystem commands. SCPI uses a structure for subsystem commands similar to the file systems on most computers. In SCPI, this command structure is called a command tree and is shown in [Figure 1-2](#).

Figure 1-2 Simplified Command Tree



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The command closest to the top is the root command, or simply “the root.” Notice that you must follow a particular path to reach lower level commands. In the following example, :POWER represents AA, :ALC represents BB, :SOURce represents GG. The complete command path is :POWER:ALC:SOURce? (:AA:BB:GG).

## Paths Through the Command Tree

To access commands from different paths in the command tree, you must understand how the signal generator interprets commands. The parser, a part of the signal generator firmware, decodes each message sent to the signal generator. The parser breaks up the message into component commands using a set of rules to determine the command tree path used. The parser keeps track of the current

path (the level in the command tree) and where it expects to find the next command statement. This is important because the same keyword may appear in different paths. The particular path is determined by the keyword(s) in the command statement.

A message terminator, such as a <new line> character, sets the current path to the root. Many programming languages have output statements that automatically send message terminators.

---

**NOTE** The current path is set to the root after the line-power is cycled or when \*RST is sent.

---

## Command Parameters and Responses

SCPI defines different data formats for use in program and response messages. It does this to accommodate the principle of forgiving listening and precise talking. For more information on program data types refer to IEEE 488.2.

Forgiving listening means the command and parameter formats are flexible.

For example, with the :FREQuency:REFerence:STATe ON|OFF|1|0 command, the signal generator accepts :FREQuency:REFerence:STATe ON, :FREQuency:REFerence:STATe 1, :FREQ:REF:STAT ON, :FREQ:REF:STAT 1 to turn on the frequency reference mode.

Each parameter type has one or more corresponding response data types. A setting that you program using a numeric parameter returns either real or integer response data when queried. Response data (data returned to the controller) is more concise and restricted, and is called precise talking.

Precise talking means that the response format for a particular query is always the same.

For example, if you query the power state (:POWer:ALC:STATE?) when it is on, the response is always 1, regardless of whether you previously sent :POWer:ALC:STATE 1 or :POWer:ALC:STATE ON. **Table 1-3** shows the response for a given parameter type.

**Table 1-3 Parameter and Response Types**

Parameter Types	Response Data Types
Numeric	Real, Integer
Extended Numeric	Real, Integer
Discrete	Discrete
Boolean	Numeric Boolean
String	String
Definite Block	Arbitrary byte data <sup>a</sup>

a.(i.e. text, binary, discrete, real, integer, etc.-).

## Numeric Parameters

Numeric parameters are used in both common and subsystem commands. They accept all commonly used decimal representations of numbers including optional signs, decimal points, and scientific notation.

If a signal generator setting is programmed with a numeric parameter which can only assume a finite value, it automatically rounds any entered parameter which is greater or less than the finite value. For example, if a signal generator has a programmable output impedance of 50 or 75 ohms, and you specified 76.1 for the output impedance, the value is rounded to 75. The following are examples of numeric parameters:

100	no decimal point required
100.	fractional digits optional
-1.23	leading signs allowed
4.56E<space>3	space allowed after the E in exponential
-7.89E-001	use either E or e in exponential
+256	leading + allowed
.5	digits left of decimal point optional

## Extended Numeric Parameters

Most subsystems use extended numeric parameters to specify physical quantities. Extended numeric parameters accept all numeric parameter values and other special values as well.

The following are examples of extended numeric parameters:

100	any simple numeric value
1.2GHz	GHz can be used for exponential (E009)
200MHz	MHz can be used for exponential (E006)
-100mV	negative 100 millivolts
10DEG	10 degrees

Extended numeric parameters also include the following special parameters:

DEFault	resets the parameter to its default value
UP	increments the parameter
DOWN	decrements the parameter
MINimum	sets the parameter to the smallest possible value
MAXimum	sets the parameter to the largest possible value

## Discrete Parameters

Discrete parameters use mnemonics to represent each valid setting. They have a long and a short form, just like command mnemonics. You can mix upper and lower case letters for discrete parameters.

The following examples of discrete parameters are used with the command :TRIGger [:SEQUence] :SOURce BUS | IMMEDIATE | EXTERNAL.

BUS	GPIB, LAN, or USB triggering
IMMEDIATE	immediate trigger (free run)
EXTERNAL	external triggering

Although discrete parameters look like command keywords, do not confuse the two. In particular, be sure to use colons and spaces properly. Use a colon to separate command mnemonics from each other and a space to separate parameters from command mnemonics.

The following are examples of discrete parameters in commands:

```
TRIGGER:SOURCE BUS
TRIGGER:SOURCE IMMEDIATE
TRIGGER:SOURCE EXTERNAL
```

## Boolean Parameters

Boolean parameters represent a single binary condition that is either true or false. The two-state boolean parameter has four arguments. The following list shows the arguments for the two-state boolean parameter:

ON	boolean true, upper/lower case allowed
OFF	boolean false, upper/lower case allowed
1	boolean true
0	boolean false

## String Parameters

String parameters allow ASCII strings to be sent as parameters. Single or double quotes are used as delimiters.

The following are examples of string parameters:

```
'This is valid'
"This is also valid"
'SO IS THIS'
```

## Real Response Data

Real response data represent decimal numbers in either fixed decimal or scientific notation. Most high-level programming languages that support signal generator input/output (I/O) handle either decimal or scientific notation transparently.

The following are examples of real response data:

```
+4.000000E+010, -9.990000E+002  
-9.990000E+002  
+4.0000000000000E+010  
+1  
0
```

## Integer Response Data

Integer response data are decimal representations of integer values including optional signs. Most status register related queries return integer response data.

The following are examples of integer response data:

0	symbols are optional
+100	leading + allowed
-100	leading - allowed
256	never any decimal point

## Discrete Response Data

Discrete response data are similar to discrete parameters. The main difference is that discrete response data only returns the short form of a particular mnemonic, in all upper case letters.

The following are examples of discrete response data:

```
IMM  
EXT  
INT  
NEG
```

## Numeric Boolean Response Data

Boolean response data returns a binary numeric value of one or zero.

## String Response Data

String response data are similar to string parameters. The main difference is that string response data returns double quotes, rather than single quotes. Embedded double quotes may be present in

string response data. Embedded quotes appear as two adjacent double quotes with no characters between them.

The following are examples of string response data:

```
"This is a string"  
"one double quote inside brackets: [""]"  
"Hello!"
```

## Program Messages

The following commands will be used to demonstrate the creation of program messages:

[ :SOURce] :FREQuency:STARt	[ :SOURce] :FREQuency:STOP
[ :SOURce] :FREQuency [:CW]	[ :SOURce] :POWeR [:LEVel] :OFFSet

### Example 1

```
:FREQuency:STARt 500MHz;STOP 1000MHz
```

This program message is correct and will not cause errors; STARt and STOP are at the same path level. It is equivalent to sending the following message:

```
FREQuency:STARt 500MHz;FREQuency:STOP 1000MHz
```

### Example 2

```
:POWeR 10DBM; :OFFSet 5DB
```

This program message will result in an error. The message makes use of the default POWeR[:LEVel] node (root command). When using a default node, there is no change to the current path position. Since there is no command OFFSet at the root level, an error results.

The following example shows the correct syntax for this program message:

```
:POWeR 10DBM; :POWeR:OFFSet 5DB
```

### Example 3

```
:POWeR:OFFSet 5DB;POWeR 10DBM
```

This program message results in a command error. The path is dropped one level at each colon. The first half of the message drops the command path to the lower level command OFFSet; POWeR does not exist at this level.

The POWeR 10DBM command is missing the leading colon and when sent, it causes confusion because the signal generator cannot find POWeR at the POWeR:OFFSet level. By adding the leading colon, the current path is reset to the root. The following shows the correct program message:

```
:POWeR:OFFSet 5DB;:POWeR 10DBM
```

### Example 4

```
FREQ 500MHz;POW 4DBM
```

In this example, the keyword short form is used. The program message is correct because it utilizes the default nodes of :FREQ[:CW] and :POW[:LEV1]. Since default nodes do not affect the current path, it is not necessary to use a leading colon before FREQ or POW.

## File Name Variables

File name variables designate a data file and file path. File name variables are used in the SCPI command syntax whenever files are accessed. The name of the file is always required, but the file path can sometimes be optional or be designated using different formats. The following table shows these different file path formats:

Format	File Name Variable	Example
Format 1	"<file name>"	"Test_Data"
Format 2	"<file name@msus>"	"Test_Data@SEQ" <sup>a</sup>
Format 3	"<msus:file name>"	"SEQ:Test_Data"
Format 4	"</user/directory/file name>"	"/USER/SEQ/Test_Data"

a.Included for backwards compatibility. Not a recommended syntax.

Formats 2–4 offer programming flexibility and are equivalent. Format 1 can only be used with SCPI commands that imply the path name as part of the command syntax. Typically, SCPI load commands that access user-data files do not need to have a file path designated.

See [Table 1-4 on page 14](#) for information on file types and directories.

---

**NOTE** The maximum length for a file name is 23 characters, excluding the file path.

---

### Example Using Format 1

```
:CORR:FLAT:LOAD "FLAT_DATA"
```

The preceding example loads user-flatness data from a file called FLAT\_DATA located in the USERFLAT directory. No file path is needed as the command syntax implies the directory where the file is located.

### Example Using Format 2

```
:MEM:COPY "IQ_DATA@SNVWFM", "Test_DATA@WFM1"
```

The preceding example copies a file named IQ\_DATA located in the WAVEFORM directory to a file named Test\_DATA in volatile waveform memory (BBG).

### Example Using Format 3

```
:MEM:COPY "SNVWFM:IQ_DATA", "WFM1:Test_DATA"
```

The preceding example copies a file named IQ\_DATA located in the WAVEFORM directory to a file named Test\_DATA in volatile waveform memory (BBG).

**Example Using Format 4**

```
:MEM:COPY "/USER/WAVEFORM/IQ_DATA", "/USER/BBG1/WAVEFORM/IQ_DATA"
```

The preceding example copies a file named IQ\_DATA located in the WAVEFORM directory to a file named IQ\_DATA in volatile waveform memory (BBG).

The following examples show commands, with different formats, that can be used to download a waveform file named Test\_Data into the signal generator's volatile waveform memory (BBG):

*Command Syntax Format 3*

```
:MEMORY:DATA "WFM1:Test_Data",#ABC
```

*Command Syntax Format 4*

```
:MEMORY:DATA "/USER/BBG1/WAVEFORM/Test_Data",#ABC
```

These commands are equivalent. The data block, #ABC, is described as follows:

- # This character indicates the beginning of the data block
- A Number of digits in the byte count B
- B Byte count in C
- C Waveform data

Refer to “[:DATA](#) on page 89” and the Programming Guide for more information on data blocks and downloading waveform data.

## File Types and Directory Structure

The signal generator uses a computer directory model structure for file storage. The top level directory is called the USER directory. All other directories are subdirectories located under the USER directory. Each subdirectory is dedicated to the type of data stored. For example, the BIN directory is used to store binary data whereas the MARKERS directory is used to store marker data.

**NOTE** When the USB media is used, the files on the USB media are stored in a single directory (i.e. USER/). Each file has an extension (i.e. .waveform, .list, .markers, .state, etc.). The SCPI commands use the paths shown in [Table 1-4 on page 14](#) and the associated examples. But when viewed, the USB media, will not display these directories. Instead the file extensions will be displayed. For more information on the USB media capability refer to the *Programming Guide* and to the *Users Guide*.

The instrument's directory /USER/NONVOLATILE contains either the internal storage and USB media non-volatile files stored with the filename extensions: .waveform, .list, .markers, .state, etc.. This directory is useful when ftp is used.

The following table lists signal generator the subdirectories and file paths where file types are stored.

**Table 1-4 File Types and Directory Structures**

File System	File Type	File Path	MSUS Path
BINARY <sup>a</sup>	BIN	/USER/BIN	BINARY:
HDR1 - volatile arbitrary waveform header file <sup>a</sup>	HDR1	/USER/BBG1/HEADER	HDR1:
LIST - sweep list file	LIST	/USER/LIST	LIST:
MKR1 - volatile arbitrary waveform marker file <sup>a</sup>	MKR1	/USER/BBG1/MARKERS	MKR1:
NVHDR - non-volatile arbitrary waveform header file <sup>a</sup>	NVHDR	/USER/HEADER	NVHDR:
NVMKR - non-volatile arbitrary waveform marker file <sup>a</sup>	NVMKR	/USER/MARKERS	NVMKR:
NWWFM - non-volatile arbitrary waveform file <sup>a</sup>	NWWFM	/USER/WAVEFORM	NWWFM:
SEQ - ARB sequence file <sup>a</sup>	SEQ	/USER/SEQ	SEQ:
STATE	STATE	/USER/STATE	STATE:
USERFLAT - user-flatness file	UFLT	/USER/USERFLAT	USERFLAT:
WFM1 - volatile waveform file <sup>a</sup>	WAVEFORM	/USER/BBG1/WAVEFORM	WFM1:

a. This feature does not apply to the N5181A/83A.

## MSUS (Mass Storage Unit Specifier) Variable

The variable "<msus>" enables a command to be file type specific when working with user files. Some commands use it as the only command parameter, while others can use it in conjunction with a file name when a command is not file type specific. When used with a file name, it is similar to Format 2 in the [File Name Variables](#) section on [page 12](#). The difference is the file type specifier (msus) occupies its own variable and is not part of the file name syntax.

The following examples illustrate the usage of the variable "<msus>" when it is the only command parameter:

### *Command Syntax with the msus variable*

```
:MMEMory:CATalog? "<msus>"
```

### *Command Syntax with the file system*

```
:MMEMory:CATalog? "LIST:"
```

The variable "<msus>" is replaced with "LIST:". When the command is executed, the output displays only the files from the List file system. The following examples illustrate the usage of the variable "<file name>" with the variable "<msus>":

### *Command Syntax with the file name and msus variables*

```
:MMEMory:DELETED[:NAME] "<file name>,[<msus>]"
```

### *Command Syntax with the file name and file system*

```
:MMEMory:DELETED:NAME "LIST_1","LIST:"
```

The command from the above example cannot discern which file system LIST\_1 belongs to without a file system specifier and will not work without it. When the command is properly executed, LIST\_1 is deleted from the List file system.

The following example shows the same command, but using Format 2 from the [File Name Variables](#) section on [page 12](#):

```
:MMEMory:DELETED:NAME "LIST_1@LIST"
```

When a file name is a parameter for a command that is not file system specific, either format ("<file name>","<msus>" or "<file name@msus>") will work.

Refer to [Table 1-4 on page 14](#) for a listing of the file systems and types.

## Quote Usage with SCPI Commands

As a general rule, programming languages require that SCPI commands be enclosed in double quotes as shown in the following example:

```
" :FM:EXTernal:IMPedance 600"
```

However when a string is the parameter for a SCPI command, additional quotes or other delimiters may be required to identify the string. Your programming language may use two sets of double

quotes, one set of single quotes, or back slashes with quotes to signify the string parameter. The following examples illustrate these different formats:

"MEMory:LOAD:LIST ""myfile"" used in BASIC programming languages

"MEMory:LOAD:LIST \"myfile\" used in C, C++, Java, and PERL

"MEMory:LOAD:LIST 'myfile'" accepted by most programming languages

Consult your programming language reference manual to determine the correct format.

## Binary, Decimal, Hexadecimal, and Octal Formats

Command values may be entered using a binary, decimal, hexadecimal, or octal format. When the binary, hexadecimal, or octal format is used, their values must be preceded with the proper identifier. The decimal format (default format) requires no identifier and the signal generator assumes this format when a numeric value is entered without one. The following list shows the identifiers for the formats that require them:

- #B identifies the number as a binary numeric value (base- 2).
- #H identifies the number as a hexadecimal alphanumeric value (base- 16).
- #Q identifies the number as a octal alphanumeric value (base- 8).

The following are examples of SCPI command values and identifiers for the decimal value 45:

#B101101        binary equivalent

#H2D            hexadecimal equivalent

#Q55            octal equivalent

The following example sets the RF output power to 10 dBm (or the equivalent value for the currently selected power unit, such as DBUV or DBUVEMF) using the hexadecimal value 000A:

:POW #H000A

A unit of measure, such as dBm or mV, will not work with the values when using a format other than decimal.

---

## 2 Basic Function Commands

This chapter provides SCPI descriptions for subsystems dedicated to signal generator operations common to most Agilent MXG Signal Generators.

---

**NOTE** The internal baseband generator speed upgrade Options 670, 671, and 672 are option upgrades that *require* Option 651 and 652 to have been loaded at the factory (refer to the *Data Sheet* for more information). Any references to 651, 652, or 654 are inclusive of 671, 672, and 674.

---

This chapter contains the following major sections:

- “[Correction Subsystem \(\[:SOURce\]:CORRection\)](#)” on page 18
- “[Digital Modulation Subsystem—N5182A \(\[:SOURce\]\)](#)” on page 21
- “[Frequency Subsystem \(\[:SOURce\]\)](#)” on page 29
- “[List/Sweep Subsystem \(\[:SOURce\]\)](#)” on page 39
- “[Marker Subsystem—\(N5183A Only\)\(\[:SOURce\]\)](#)” on page 48
- “[Power Subsystem \(\[:SOURee\]:POWer\)](#)” on page 52

## Correction Subsystem ([**:SOURce**]:CORRection)

### **:FLATness:FREQuency**

**Supported** All Models

[**:SOURce**] :CORRection:FLATness:FREQuency? <point>

This command returns the frequency value of the <point> queried.

You can load only one user flatness file at a time.

**Range** 2 to 1601

**Key Entry** # Points

### **:FLATness:INITialize:FSTep**

**Supported** All Models

---

**CAUTION** The current flatness data will be overwritten once this command is executed. If needed, save the current data. Refer to "[:FLATness:STORe](#)" on page 20 for storing user flatness files.

---

[**:SOURce**] :CORRection:FLATness:INITialize:FSTep

This command replaces the loaded user flatness data with the settings from the current step array data points.

You can load only one user flatness file at a time.

The maximum number of user flatness points is 1,601. When copying the step array settings over to a user flatness file, ensure that the number of points in the step array do not exceed the maximum user flatness points.

**Key Entry** Load Cal Array From Step Array

### **:FLATness:LOAD**

**Supported** All Models

[**:SOURce**] :CORRection:FLATness:LOAD "<file name>"

This command loads a user-flatness correction file. The "<file name>" variable is the name of the file located in the Catalog of USERFLAT Files. The directory path is implied in the command and need not be specified in the variable name. For more information on file name syntax, refer to "[File Name Variables](#)" on page 12.

**Key Entry** Load From Selected File

## **:FLATness:PAIR**

**Supported** All Models

```
[:SOURce] :CORRection:FLATness:PAIR <freq.> [<freq suffix>],  
<corr.> [<corr suffix>]
```

This command sets a frequency and amplitude correction pair.

The maximum number of points that can be entered is 1601.

**<corr.>** This variable is the power correction.

**Range** Frequency range varies and is model dependent. Please refer to the instrument's *Data Sheet*.

**Key Entry** **Configure Cal Array**

## **:FLATness:POINTs**

**Supported** All Models

```
[:SOURce] :CORRection:FLATness:POINTs?
```

This query returns the number of points in the user-flatness correction file.

## **:FLATness:PRESet**

**Supported** All Models

---

**CAUTION** The current correction data will be overwritten once this command is executed. Save the current data if needed. Refer to “[:FLATness:STORe](#)” on page 20 for storing user-flatness files.

---

```
[:SOURce] :CORRection:FLATness:PRESet
```

This command presets the user-flatness correction to a factory-defined setting that consists of one point.

**Key Entry** **Preset List**

## **:FLATness:STEP:POINTs**

**Supported** All Models

```
[:SOURce] :CORRection:FLATness:STEP:POINTs <points> |MAXimum|MINimum|DEFaUlt|  
[:SOURce] :CORRection:FLATness:STEP:POINTs? [MAXimum|MINimum]
```

This command is used to define the number of points in the user flatness calibration step array. See also, “[:FLATness:STEP:START](#)” on page 20 and “[:FLATness:STEP:STOP](#)” on page 20.

**Key Entry** **# Points 2**

## :FLATness:STEP:STARt

**Supported** All Models

```
[ :SOURce] :CORRection:FLATness:STEP:STARt <freq><unit> |MAXimum|MINimum|DEFault|
[ :SOURce] :CORRection:FLATness:STEP:STARt? [MAXimum|MINimum]
```

This command sets the start frequency for the user flatness calibration step array. See also, “:FLATness:STEP:POINTs” on page 19 and “:FLATness:STEP:STOP” on page 20.

**\*RST** The preset value is model option dependent. Please refer to the *Data Sheet*.

**Range** The range is model option dependent. Please refer to the *Data Sheet*.

**Key Entry** **Freq Start**

## :FLATness:STEP:STOP

**Supported** All Models

```
[ :SOURce] :CORRection:FLATness:STEP:STOP <freq><unit> |MAXimum|MINimum|DEFault|
[ :SOURce] :CORRection:FLATness:STEP:STOP? [MAXimum|MINimum]
```

This command sets the stop frequency for the user flatness calibration step array. See also, “:FLATness:STEP:POINTs” on page 19 and “:FLATness:STEP:STARt” on page 20.

**\*RST** The preset value is model option dependent. Please refer to the *Data Sheet*.

**Range** The range is model option dependent. Please refer to the *Data Sheet*.

**Key Entry** **Freq Stop**

## :FLATness:STORe

**Supported** All Models

```
[ :SOURce] :CORRection:FLATness:STORe "<file name>"
```

This command stores the current user-flatness correction data to a file named by the :CORRection:FLATness:STORe command. The directory path is implied in the command and need not be specified in the "<file name>" variable.

**Key Entry** **Store To File**

**Remarks** For information on file name syntax, refer to “File Name Variables” on page 12.

## [ :STATe]

**Supported** All Models

```
[ :SOURce] :CORRection[:STATe] ON|OFF|1|0
[ :SOURce] :CORRection[:STATe]?
```

This command enables or disables the user-flatness corrections.

**\*RST** 0

**Key Entry** **Flatness Off On**

## Digital Modulation Subsystem—N5182A ([**:SOURce**])

### **:BURSt:STATe**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :BURSt:STATE ON|OFF|1|0  
[:SOURce] :BURSt:STATE?

This command enables or disables the burst envelope function.

**\*RST** 0

**Key Entry** **Burst Envelope Off On**

### **:DM:CORRection:OPTimization**

**Supported** N5182A

[**:SOURce**] :DM:CORRection:OPTimization RFOut|EXTerinal  
[:SOURce] :DM:CORRection:OPTimization?

This command enables the internal optimized path to accommodate I/Q signals.

**EXT** This choice applies correction terms, to provide a calibrated signal at the IQ output. When the I/Q Output is selected, the RF signals at the RF Output are uncalibrated.

**RFO** This choice applies correction terms, to provide a calibrated signal at the RF output. When the RF Output is selected, the I/Q signals at the I/Q Output are uncalibrated.

**\*RST** RFO

**Key Entry** **I/Q Correction Optimized Path**

### **:EXTernal:POLarity**

**Supported** N5182A

[**:SOURce**] :DM:EXTernal:POLarity NORMAL|INVert|INVerted  
[:SOURce] :DM:EXTernal:POLarity?

This command, for backward compatibility with older ESG E44xxB models, selects normal or inverted I/Q signal routing. In inverted mode, the Q input is routed to the I modulator and the I input is routed to the Q modulator.

#### **Example**

:DM:EXT:POL INV

The preceding example inverts I and Q signal routing.

**\*RST** NORM

**Key Entry** **Int Phase Polarity Normal Invert**

## **:DM:IQADjustment:DELay**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:DELay <value><unit>  
[:SOURce] :DM:IQADjustment:DELay?

This command enables you to change the absolute phase of both I and Q with respect to triggers and markers. A positive value delays I and Q. This value affects both the external I/Q out signals and the baseband signal modulated on the RF output. This adjustment cannot be used with constant envelope modulation and does not affect external I/Q inputs.

The variable <value> is expressed in seconds.

**\*RST** +0.00000000E+000

**Range** -400 ns to 400 ns

**Key Entry** **I/Q Delay**

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

## **:DM:IQADjustment:EXTernal:CMRange**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:EXTernal:CMRange COARse|FINE  
[:SOURce] :DM:IQADjustment:EXTernal:CMRange?

This command sets the common mode offset range voltage (COARse or FINE) for both the in-phase (I) and quadrature-phase (Q) signals going out of the rear panel I and Q output connectors.

The common mode offset range is expressed in units of volts (mV–V). The COARse range corresponds to a pre-existing adjustment range of +2.5V. When the FINE range is enabled, the common mode offset is limited to +100 mV.

**\*RST** COAR

**Range** -2.5 to 2.5V (Coarse), -100 to 100 mV (Fine)

**Key Entry** **Common Mode I/Q Offset Range**

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

## **:DM:IQADjustment:EXTernal:COFFset**

**Supported** N5182A

[ :SOURce] :DM:IQADjustment:EXTernal:COFFset <value>  
[:SOURce] :DM:IQADjustment:EXTernal:COFFset?

This command sets the common mode offset voltage for both the in-phase (I) and quadrature-phase (Q) signals going to the rear panel I and Q output connectors.

The variable <value> is expressed in units of volts (mV–V).

**\*RST** +0.00000000E+000

**Range** –2.5 to 2.5V

**Key Entry** Common Mode I/Q Offset

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

## **:DM:IQADjustment:EXTernal:DIOFfset**

**Supported** N5182A

[ :SOURce] :DM:IQADjustment:EXTernal:DIOFfset <value>  
[:SOURce] :DM:IQADjustment:EXTernal:DIOFfset?

This command sets the differential offset voltage for an in-phase (I) signal routed to the I output connectors.

The variable <value> is expressed in units of volts (mV–V).

**\*RST** +0.00000000E+000

**Range** –25mV to 25mV

**Key Entry** Diff. Mode I Offset

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

## **:DM:IQADjustment:EXTernal:DQOFfset**

**Supported** N5182A

[ :SOURce] :DM:IQADjustment:EXTernal:DQOFfset <value>  
[:SOURce] :DM:IQADjustment:EXTernal:DQOFfset?

This command sets the differential offset voltage for a quadrature-phase (Q) signal routed to the Q output connectors.

**\*RST** +0.00000000E+000

**Range** –25mV to 25mV

**Key Entry** Diff. Mode Q Offset

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:EXTernal:IOFFset**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:EXTernal:IOFFset <value>  
[:SOURce] :DM:IQADjustment:EXTernal:IOFFset?

This command sets the offset voltage for a signal applied to the 600 ohm I input connector.

The variable <value> is expressed in units of volts (mV–V).

\***RST** +0.00000000E+000

**Key Entry** External Input I Offset

**Range** –100 mV to 100 mV

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:EXTernal:QOFFset**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:EXTernal:QOFFset <value>  
[:SOURce] :DM:IQADjustment:EXTernal:QOFFset?

This command sets the offset voltage for a signal applied to the 600 ohm Q input connector.

The variable <value> is expressed in units of volts (mV–V).

\***RST** +0.00000000E+000

**Range** –100 mV to 100 mV

**Key Entry** External Input Q Offset

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:EXTernal:QSKEw**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:EXTernal:QSKEw <value>  
[:SOURce] :DM:IQADjustment:EXTernal:QSKEw?

---

**CAUTION** This Q phase angle adjustment is uncalibrated.

---

This command adjusts the phase angle (quadrature skew) between the I and Q vectors by increasing or decreasing the Q phase angle. This command adjusts the signals externally input to the signal generator’s front panel Q input connector. For more information on this connector, refer to the User’s Guide.

The <value> variable is expressed in degrees with a minimum resolution of 0.1.

If the signal generator is operating at frequencies greater than 3.3 GHz, quadrature skew settings greater than  $\pm 5$  degrees will not be within specifications.

Positive skew increases the angle from 90 degrees while negative skew decreases the angle from 90 degrees. When the quadrature skew is zero, the phase angle between the I and Q vectors is 90 degrees.

This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### Example

**:DM:IQAD:EXT:QSK 4.5**

The preceding example increases the phase angle by 4.5 degrees.

**\*RST** +0.00000000E+000

**Range** -200 to +200

**Key Entry** **Quadrature Angle Adjustment**

### **:DM:IQADjustment:GAIN**

**Supported** N5182A

[**:SOURce**] **:DM:IQADjustment:GAIN <value><unit>**

[**:SOURce**] **:DM:IQADjustment:GAIN?**

This command adjusts the ratio of I to Q while preserving the composite, vector magnitude. Adding gain (+x dB) to the signal increases the I component and decreases the Q component proportionally. Reducing gain (-x dB) decreases the I component and increases the Q component proportionally.

The variable <value> is expressed in units of decibels (dB).

**\*RST** +0.00000000E+000

**Range** -1 to 1

**Key Entry** **I/Q Gain Balance**

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:IOFFset**

**Supported** N5182A

[**:SOURce**] **:DM:IQADjustment:IOFFset <value><unit>**

[**:SOURce**] **:DM:IQADjustment:IOFFset?**

This command adjusts the I channel offset value.

When using this command to minimize the LO feedthrough signal, optimum performance is achieved when the command is sent after all other I/Q path commands are executed, such as those that change the internal phase polarity or adjust the modulator attenuator. If other adjustments are made after minimizing is performed, the LO feedthrough signal may increase.

The variable <value> is expressed in units of percent with a minimum resolution of 0.025.

**\*RST** +0.00000000E+000

**Range** -20.000 to 20.000

**Key Entry** **I Offset**

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:QOFFset**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:QOFFset  
[:SOURce] :DM:IQADjustment:QOFFset?

This command adjusts the Q channel offset value.

When using this command to minimize the LO feedthrough signal, optimum performance is achieved when the command is sent after all other I/Q path commands are executed, such as those that change the internal phase polarity or adjust the modulator attenuator. If other adjustments are made after minimizing is performed, the LO feedthrough signal may increase.

The variable <value> is expressed in units of percent with a minimum resolution of 0.025.

**\*RST** +0.00000000E+000

**Range** -20.000 to 20.000

**Key Entry** **Q Offset**

**Remarks** This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

### **:DM:IQADjustment:QSKEw**

**Supported** N5182A

[**:SOURce**] :DM:IQADjustment:QSKEw <value>  
[:SOURce] :DM:IQADjustment:QSKEw?

This command adjusts the phase angle (quadrature skew) between the I and Q vectors by increasing or decreasing the Q phase angle.

The <value> variable is expressed in degrees with a minimum resolution of 0.1.

If the signal generator is operating at frequencies greater than 3.3 GHz, quadrature skew settings greater than  $\pm 5$  degrees will not be within specifications.

Positive skew increases the angle from 90 degrees while negative skew decreases the angle from 90 degrees. When the quadrature skew is zero, the phase angle between the I and Q vectors is 90 degrees.

This command is effective only if the state of the I/Q adjustment function is set to ON. Refer to “[:DM:IQADjustment\[:STATe\]](#)” on page 27.

#### **Example**

:DM:IQAD:QSKE 4.5

The preceding example increases the phase angle by 4.5 degrees.

\*RST +0.00000000E+000  
Range -1E1 to +1E1  
Key Entry Quadrature Angle Adjustment

### **:DM:IQADjustment:SKEW**

**Supported** N5182A

[ :SOURce] :DM:IQADjustment:SKEW <value>  
[:SOURce] :DM:IQADjustment:SKEW?

This command changes the I/Q skew which is a time delay difference between the I and Q signals. Equal and opposite skew is applied to both I and Q and affects the RF Output and I/Q output paths simultaneously. A positive value delays the I signal relative to the Q signal, and a negative value delays the Q signal relative to the I signal.

#### **Example**

:DM:IQAD:SKEW 5E-9

The preceding example sets the time delay difference between the I and Q signals to 5 nanoseconds.

\*RST +0.00000000E+000  
Range -800ns to +800ns  
Key Entry I/Q Skew

### **:DM:IQADjustment[:STATE]**

**Supported** N5182A

[ :SOURce] :DM:IQADjustment [:STATE] ON|OFF|1|0  
[:SOURce] :DM:IQADjustment [:STATE]?

This command enables or disables the I/Q adjustments.

#### **Example**

:DM:IQAD 1

The preceding example enables I/Q adjustments.

\*RST 0  
Key Entry I/Q Adjustments Off On

### **:DM:POLarity[:ALL]**

**Supported** N5182A

[ :SOURce] :DM:POLarity[:ALL] NORMal|INvert  
[:SOURce] :DM:POLarity?

This command sets the digital modulation phase polarity.

This softkey is found under the I/Q menu.

NORMal	This choice selects normal phase polarity for the I and Q signals.
INVert	This choice inverts the Q channel signal.
*RST	NORM
Key Entry	<b>Int Phase Polarity Normal Invert</b>

## **:DM:SOURce**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :DM:SOURce EXTERNAL | INTERNAL | SUM  
[:SOURce] :DM:SOURce?

This command selects the I/Q modulator source.

This softkey is found under the I/Q menu.

EXTERNAL This choice selects a 50 ohm impedance for the I and Q input connectors and routes the applied signals to the I/Q modulator.

INTERNAL This choice selects the internal baseband generator as the source for the I/Q modulator and requires Option 651, 652, or 654.

Sum This choice selects the internal baseband generator and combines that signal with an external source and routes the applied signals to the I/Q modulator and requires Option 651, 652, or 654.

\*RST INT

Key Entry **External      Internal      Sum**

## **:DM:STATE**

**Supported** N5182A

[**:SOURce**] :DM:STATE ON | OFF | 1 | 0  
[:SOURce] :DM:STATE?

This command enables or disables the I/Q modulator.

The I/Q modulator is enabled whenever a digital format is turned on.

The I/Q annunciator will be shown on the signal generator display whenever the I/Q modulator is on.

ON (1) This choice enables the internal I/Q modulator.

OFF (0) This choice disables the internal I/Q modulator. You can turn off the I/Q modulation with this choice even though a digital modulation format is enabled. With this configuration, the RF output signal will not be modulated, but the I/Q signals may be present at the rear panel I and Q outputs depending on the rear panel output selection.

\*RST 0

Key Entry **I/Q Off On**

## Frequency Subsystem ([**:SOURce**])

### **:FREQuency:CENTER**

**Supported** All Models

```
[ :SOURce] :FREQuency:CENTer <num> [<freq_suffix>] | UP | DOWN
[ :SOURce] :FREQuency:CENTer? [MAXimum|MINimum]
```

This command sets the center frequency for a step sweep. The center frequency symmetrically divides the selected frequency span and is coupled to the start and stop frequency settings. The frequency range and reset values are dependent on the signal generator model and option number.

The query returns the start and stop frequencies if the optional MAXimum or MINimum are used.

**\*RST** The preset value is model option dependent. Please refer to the *Data Sheet*.

**Range** The range is model option dependent. Please refer to the *Data Sheet*.

#### **Example**

```
:FREQ:CENT .5 GHz
```

The preceding example sets the center frequency for a sweep to .5 GHz.

**Key Entry** **Freq Center**

### **:FREQuency:CHANnels:BAND**

**Supported** All Models

```
[ :SOURce] :FREQuency:CHANnels:BAND NBASe|NMOBile|BPGSm|MPGSm|BEGSm|MEGSm|
BRGSm|MRGSm|BDCS|MDCS|BPCS|MPCS|B450|GM450|B480|B850BDCS|M480|B850|M850|B8|M8|B15|M15
|B390|B420|B460|B915|M380|M410|M450|M870|PHS|DECT
[ :SOURce] :FREQuency:CHANnels:BAND?
```

This command sets the frequency of the signal generator by specifying a frequency channel band. The frequency channel state must be enabled for this command to work. See

[“:FREQuency:CHANnels\[:STATe\]” on page 32](#).

**Table 2-1 Frequency Channel Bands**

SCPI Parameter	Frequency Channel Band Selected	Standard
NBASe	Standard Base	NADC
NMOBile	Standard Mobile	NADC
BPGSm	P-Gsm 900 Base	GSM
MPGSm	P-Gsm 900 Mobile	GSM
BEGSm	E-Gsm 900 Base	GSM
MEGSm	E-Gsm 900 Mobile	GSM
BRGSm	R-Gsm 900 Base	GSM
MRGSm	R-Gsm 900 Mobile	GSM
BDCS	DCS 1800 Base	GSM
MDCS	DCS 1800 Mobile	GSM

**Table 2-1 Frequency Channel Bands**

SCPI Parameter	Frequency Channel Band Selected	Standard
BPCS	PCS 1900 Base	GSM
MPCS	PCS 1900 Mobile	GSM
B450	Gsm 450 Base	GSM
GM450	Gsm 450 Mobile	GSM
B480	Gsm 480 Base	GSM
M480	Gsm 480 Mobile	GSM
B850	Gsm 850 Base	GSM
M850	Gsm 850 Mobile	GSM
B8	800MHz Base	PDC
M8	800MHz Mobile	PDC
B15	1500MHz Base	PDC
M15	1500MHz Mobile	PDC
B390	Base 390-400	TETRA
B420	Base 420-430	TETRA
B460	Base 460-470	TETRA
B915	Base 915-921	TETRA
M380	Mobile 380-390	TETRA
M410	Mobile 410-420	TETRA
M450	Mobile 450-460	TETRA
M870	Mobile 870-876	TETRA
PHS	Standard PHS	PHS
DECT	Standard DECT	DECT

### Example

```
:FREQ:CHAN:BAND DECT
```

The preceding example sets the frequency band to standard DECT.

*RST	BPGS			
Key Entry	<b>P-GSM Base</b> <b>PCS Base</b>	<b>E-GSM Base</b> <b>GSM 450 Base</b>	<b>R-GSM Base</b> <b>GSM 480 Base</b>	<b>DCS Base</b> <b>GSM 850 Base</b>
	<b>NADC Base</b>	<b>800MHz Base</b>	<b>1500MHz Base</b>	
	<b>Tetra Base 390/400</b>	<b>Tetra Base 420/430</b>	<b>Tetra Base 460/470</b>	
	<b>Tetra Base 915/921</b>	<b>PHS Standard</b>	<b>DECT Standard</b>	
	<b>P-GSM Mobile</b>	<b>E-GSM Mobile</b>	<b>R-GSM Mobile</b>	<b>DCS Mobile</b>
	<b>PCS Mobile</b>	<b>GSM 450 Mobile</b>	<b>GSM 480 Mobile</b>	<b>GSM 850 Mobile</b>
	<b>NADC Mobile</b>	<b>800MHz Mobile</b>	<b>1500MHz Mobile</b>	
	<b>Tetra Mobile 380/390</b>	<b>Tetra Mobile 410/420</b>	<b>Tetra Mobile 450/460</b>	
	<b>Tetra Mobile 870/876</b>			

**:FREQuency:CHANnels:NUMBER****Supported** All Models

```
[ :SOURce] :FREQuency:CHANnels:NUMBER <number>
[ :SOURce] :FREQuency:CHANnels:NUMBER?
```

This command sets the frequency of the signal generator by specifying a channel number of a given frequency band.

The channel band and channel state must be enabled for this command to work. Refer to “[:FREQuency:CHANnels\[:STATe\]](#)” on page 32.

**Example**

```
:FREQ:CHAN:NUMB 24
```

The preceding example sets the channel number to 24 for the current band.

*RST	+1
Range	P-GSM Base/Mobile: 1-24
	E-GSM and R-GSM Base/Mobile: 1-1023
	DCS Base/Mobile: 512-885
	PCS Base/Mobile: 512-900
	GSM- 450 Base/Mobile: 259-293
	GSM- 480 Base/Mobile: 306-340
	GSM- 850 Base/Mobile: 128-251
	NADC Base/Mobile: 1-1023
	800MHz Base/Mobile: 0-640
	1500MHz Base/Mobile: 0-960
	TETRA 380/390 Mobile: 3600-4000
	TETRA 390/4000 Base: 3600-4000
	TETRA 410/420 Mobile: 800-1200
	TETRA 420/430 Base: 800-1200
	TETRA 460/470: 2400 through 2800 2400-2800
	TETRA 870/876 Mobile: 600-640
	TETRA 915/921 Base: 600-940
	PHS Standard: 1-255
	DECT Standard: 0-9

**Key Entry**      **Channel Number**

## :FREQuency:CHANnels[:STATe]

**Supported** All Models

```
[ :SOURce] :FREQuency:CHANnels [:STATe] ON|OFF|1|0
[ :SOURce] :FREQuency:CHANnels [:STATe] ?
```

This command enables or disables the frequency channel and band selection. The signal generator frequency will be set to the channel frequency when the state is on. To set frequency channel bands refer to “[:FREQuency:CHANnels:BAND](#)” on page 29.

### Example

```
:FREQ:CHAN ON
```

The preceding example turns on the frequency channel.

**\*RST** 0

**Key Entry** Freq Channels Off On

## :FREQuency[:CW]

**Supported** All Models

```
[ :SOURce] :FREQuency [:CW] <value><unit>
[ :SOURce] :FREQuency [:CW] ?
```

This command sets the signal generator output frequency.

**\*RST** The preset value is model option dependent. Please refer to the *Data Sheet*.

**Range** The range is model option dependent. Please refer to the *Data Sheet*.

**Remarks** A frequency change may affect the current output power. Refer to “[\[:LEVel\]\[:IMMediate\]\[:AMPLitude\]](#)” on page 60 for the correct specified frequency and amplitude settings. To set the frequency mode refer to “[:FREQuency:MODE](#)” on page 33.

## **:FREQuency:MODE**

**Supported** All Models

[**:SOURce**] :FREQuency:MODE CW|FIXed|LIST  
[:SOURce] :FREQuency:MODE?

This command sets the frequency mode of the signal generator to CW or swept.

**CW and FIXed** These choices are synonymous with one another and stops a frequency sweep, allowing the Agilent MXG to operate at a set frequency. Refer to “[:FREQuency\[:CW\]](#) on page 36 for setting the frequency in the CW mode and to “[:FREQuency\[:CW\]](#) on page 32 for setting the frequency in the FIXed mode.

**LIST** This choice selects the swept frequency mode. If sweep triggering is set to immediate along with continuous sweep mode, executing the command starts the LIST or STEP frequency sweep.

---

**NOTE** To perform a frequency and amplitude sweep, you must also select LIST as the power mode. See “[:MODE](#) on page 58 for selecting the list mode for an amplitude sweep.

---

**\*RST** CW

**Key Entry** **Freq**      **Freq Off**

## **:FREQuency:MULTiplier**

**Supported** All Models

[**:SOURce**] :FREQuency:MULTiplier <value>  
[:SOURce] :FREQuency:MULTiplier?

This command sets the multiplier for the signal generator carrier frequency. This displayed frequency equals the actual frequency times the multiplier.

**\*RST** +1.00000000E+000

**Key Entry** **Freq Multiplier**

**Remarks** For any multiplier other than one, the MULT indicator is shown in the frequency area of the display.

## **:FREQuency:OFFSet**

**Supported** All Models

[**:SOURce**] :FREQuency:OFFSet <value><unit>  
[:SOURce] :FREQuency:OFFSet?

This command sets the frequency offset.

The query of this command returns a value equal to the original output frequency times the multiplier value, plus the frequency offset value. This displayed frequency equals the actual frequency times the multiplier.

When an offset has been entered, the OFFS indicator is turned on in the frequency area of the display.

The frequency offset state is turned on when any non-zero value is entered; entering zero will turn it off. Refer to [:FREQuency:OFFSet:STATE](#) for setting the offset state independent of entering offset values.

**\*RST** +0.00000000000000E+00

**Range** -200GHz to 200GHz

**Key Entry** **Freq Offset**

### **:FREQuency:OFFSet:STATE**

**Supported** All Models

[ :SOURce] :FREQuency:OFFSet:STATE ON|OFF|1|0

[ :SOURce] :FREQuency:OFFSet:STATE?

This command enables or disables the offset frequency.

**\*RST** 0

**Key Entry** **Freq Offset**

**Remarks** Entering OFF (0) will set the frequency offset to 0 Hz.

### **:FREQuency:REFerence**

**Supported** All Models

[ :SOURce] :FREQuency:REFerence <value><unit>

[ :SOURce] :FREQuency:REFerence?

This command sets the output reference frequency.

**\*RST** +0.00000000000000E+00

**Range** The range is model/option dependent. Please refer to the *Data Sheet*.

**Key Entry** **Freq Ref Set**

### **:FREQuency:REFerence:SET**

**Supported** All Models

[ :SOURce] :FREQuency:REFerence:Set

This command sets the current CW output frequency, along with any offset, as a 0 hertz reference value.

**\*RST** +0.00000000000000E+00

**Key Entry** **Freq Ref Set**

## :FREQuency:REFerence:STATE

**Supported** All Models

[ :SOURce] :FREQuency:REFerence:STATE ON|OFF|1|0  
[:SOURce] :FREQuency:REFerence:STATE?

This command enables or disables the frequency reference mode.

When the frequency reference mode is on, subsequent frequency parameters are set relative to the reference value.

**\*RST** 0

**Key Entry** Freq Ref Off On

## :FREQuency:SPAN

**Supported** All Models

[ :SOURce] :FREQuency:SPAN <num>[<freq\_suffix>] |UP|DOWN  
[:SOURce] :FREQuency:SPAN? [MAXimum|MINimum]

This command sets the length of the frequency range for a step sweep. Span setting is symmetrically divided by the selected center frequency and is coupled to the start and stop frequency settings. The span range is dependent on the signal generator model and option number.

### Example

:FREQ:SPAN 100MHz

The preceding example sets the frequency span to 100 megahertz.

**\*RST** +0.0000000000000E+00

**Key Entry** Freq Span

## :FREQuency:STARt

**Supported** All Models

[ :SOURce] :FREQuency:STARt <value><unit>  
[:SOURce] :FREQuency:STARt?

This command sets the first frequency point in a step sweep.

**\*RST** The preset value is model/options dependent. Please refer to the *Data Sheet*.

**Range** The range is model/options dependent. Please refer to the *Data Sheet*.

**Key Entry** Freq Start

## :FREQuency:STOP

**Supported** All Models

[ :SOURce] :FREQuency:STOP <value><unit>  
[ :SOURce] :FREQuency:STOP?

This command sets the last frequency point in a step sweep.

**\*RST** The preset value is model/option dependent. Please refer to the *Data Sheet*.

**Range** The range is model/option dependent. Please refer to the *Data Sheet*.

**Key Entry** **Freq Stop**

## :FREQuency[:CW]

**Supported** All Models

[ :SOURce] :FREQuency [:CW] <value><unit>  
[ :SOURce] :FREQuency [:CW] ?

This command sets the signal generator output frequency for the CW frequency mode.

**\*RST** The preset value is model/option dependent. Please refer to the *Data Sheet*.

**Range** The range is model/option dependent. Please refer to the *Data Sheet*.

**Key Entry** **Freq**

**Remarks** To set the frequency mode to CW, refer to “[:FREQuency:MODE](#)” on page 33.

## :PHASe:REFerence

**Supported** All Models

[ :SOURce] :PHASe:REFerence

This command sets the current output phase as a zero reference.

Subsequent phase adjustments are set relative to the new reference.

**Key Entry** **Phase Ref Set**

## :PHASe[:ADJust]

**Supported** All Models

[ :SOURce] :PHASe [:ADJust] <value><unit>  
[ :SOURce] :PHASe [:ADJust] ?

This command adjusts the phase of the modulating signal.

The query will only return values in radians.

**\*RST** +0.00000000E+000

**Range** Radians: -3.14 to 3.14RAD      Degrees: -180 to 179DEG

**Key Entry** **Adjust Phase**

## **:ROSCillator:BANDwidth:EXTernal**

**Supported** N5183A

```
[ :SOURce] :ROSCillator:BANDwidth:EXTernal  
<value> [<units>] |NARrow|WIDE|MINimum|MAXimum|DEFault  
[:SOURce] :ROSCillator:BANDwidth:EXTernal? |MINimum|MAXimum|
```

This command selects the external frequency bandwidth as the source for the measurement.

For values greater than 9.5 Hz, 73 Hz is used.

**\*RST** +9.50000000E+000

**Range** .5 or 73 Hz

**Key Entry** **Ref Oscillator Ext Bandwidth**

## **:ROSCillator:FREQuency:EXTernal**

**Supported** All Models

```
[ :SOURce] :ROSCillator:FREQuency:EXTernal <value>  
[:SOURce] :ROSCillator:FREQuency:EXTernal?
```

This command makes External Ref Frequency the active function. The value that you enter sets the frequency of the external reference oscillator.

**\*RST** +1.00000000000000E+07 Hz

**Range** +1.00000000000000E+06 to +5.00000000000000E+07 Hz

**Key Entry** **Ref Oscillator Ext Freq**

**Remarks** If the entered frequency does not match the frequency of the entered reference, an unlocked condition will occur and an error message will appear.

## **:ROSCillator:SOURce**

**Supported** All Models

```
[ :SOURce] :ROSCillator:SOURce?
```

This command queries the current reference oscillator source: INT (internal) or EXT (external).

## **:ROSCillator:SOURce:AUTO**

**Supported** All Models

[ :SOURce] :ROSCillator:SOURce:AUTO ON|OFF|1|0  
[:SOURce] :ROSCillator:SOURce:AUTO?

This command enables or disables the ability of the signal generator to automatically select between the internal and an external reference oscillator.

**ON (1)** This choice enables the signal generator to detect when a valid reference signal is present at the 10 MHz IN connector and automatically switches from internal to external frequency reference.

**OFF (0)** This choice selects the internal reference oscillator and disables the switching capability between the internal and an external frequency reference.

**\*RST** 1

**Key Entry** **Ref Oscillator Source Auto Off On**

## List/Sweep Subsystem ([**:SOURce**])

A complete sweep setup requires commands from other subsystems. [Table 2-2](#) shows the function and location of these other commands.

**Table 2-2 Location of Commands from the other Subsystems**

Sweep Type	Function	Command Location	Key Entry under Sweep/List key
List and Step	Start/stop frequency sweep	<a href="#">“:FREQuency:MODE” on page 33</a>	<b>Freq Off On</b>
	Start/stop amplitude sweep	<a href="#">“:MODE” on page 58</a>	<b>Amptd Off On</b>
	Start/stop frequency and amplitude sweep <sup>a</sup>	<a href="#">“:MODE” on page 58</a> <a href="#">“:FREQuency:MODE” on page 33</a>	<b>Freq &amp; Amptd Off On</b>
	Enables or Disables the waveform sweep	<a href="#">“[:STAtE]” on page 216</a>	<b>Waveform Off On</b>
	Set up and control sweep triggering <sup>b</sup>	<a href="#">“Trigger Subsystem” on page 133</a>	See the “Trigger Subsystem”
List	Load a list sweep file	<a href="#">“:LOAD:LIST” on page 97</a> and <a href="#">page 97</a>	<b>Load From Selected File</b>
	Store list sweep data to a file	<a href="#">“:STORe:LIST” on page 94</a> and <a href="#">page 94</a>	<b>Store To File</b>
	Selects the waveform for the current waveform sequence	<a href="#">“:LIST:WAveform” on page 45</a>	no softkey
Step	Start frequency sweep	<a href="#">“:FREQuency:STARt” on page 35</a>	<b>Freq Start</b>
	Store list sweep data to a file	<a href="#">“:STORe:LIST” on page 94</a> and <a href="#">page 94</a>	<b>Store To File</b>
	Start amplitude sweep	<a href="#">“:STARt” on page 59</a>	<b>Amptd Start</b>
	Stop amplitude sweep	<a href="#">“:STOP” on page 60</a>	<b>Amptd Stop</b>

a. Execute both commands to start or stop a frequency and amplitude sweep.

b. For point to point triggering, see [“:LIST:TRIGger:SOURce” on page 43](#).

## **:LIST:CPOINt?**

**Supported** All Models

**:LIST:CPOINt?**

This query returns the current sweep point.

## **:LIST:DIRection**

**Supported** All Models

[**:SOURce**] **:LIST:DIRection** UP | DOWN

[**:SOURce**] **:LIST:DIRection?**

This command sets the direction of a list or step sweep.

**UP** This choice enables a sweep in an ascending order:

- first to last point for a list sweep
- start to stop for a step sweep

**DOWN** This choice reverses the direction of the sweep.

**\*RST** UP

**Key Entry** **Sweep Direction Down Up**

## **:LIST:DWELl**

**Supported** All Models

[**:SOURce**] **:LIST:DWELL** <value>{,<value>}

[**:SOURce**] **:LIST:DWELL?**

This command sets the dwell time for the current list sweep points.

Dwell time is used when IMMEDIATE is the trigger source. Refer to “[:LIST:TRIGger:SOURce](#)” on page 43 for the trigger setting.

The dwell time is the amount of time the sweep is guaranteed to pause after setting the frequency and/or power for the current point.

The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

The variable <value> is expressed in units of seconds with a 0.000001 ( $\mu$ s).

---

**NOTE** The dwell time (<value>) does not begin until the signal generator has settled for the current frequency and/or amplitude change.

---

**Range** 100E-6

## **:LIST:DWEll:POINTs**

**Supported** All Models

[**:SOURce**] :LIST:DWEll:POINTs?

This command queries the signal generator for the number of dwell points in the current list sweep file.

## **:LIST:DWEll:TYPE**

**Supported** All Models

[**:SOURce**] :LIST:DWEll:TYPE LIST|STEP

[**:SOURce**] :LIST:DWEll:TYPE?

This command toggles the dwell time for the list sweep points between the values defined in the list sweep and the value for the step sweep.

**LIST** This choice selects the dwell times from the list sweep. Refer to “[:LIST:DWEll](#)” on page 40 for setting the list dwell points.

**STEP** This choice selects the dwell time from the step sweep. Refer to “[:SWEep:DWEll](#)” on page 45 for setting the step dwell.

**\*RST** LIST

**Key Entry** Dwell Type List Step

## **:LIST:FREQuency**

**Supported** All Models

[**:SOURce**] :LIST:FREQuency <value>{,<value>}

[**:SOURce**] :LIST:FREQuency?

This command sets the frequency values for the current list sweep points.

The maximum number of list sweep points is 1,601.

The variable <value> is expressed in units of Hertz.

The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

**Range** The range is model/option dependent. Please refer to the *Data Sheet*.

## **:LIST:FREQuency:POINTs**

**Supported** All Models

[**:SOURce**] :LIST:FREQuency:POINTs?

This command queries the current list sweep file for the number of frequency points.

## :LIST:MANual

**Supported** All Models

[ :SOURce] :LIST:MANual <value>|UP|DOWN  
[ :SOURce] :LIST:MANual?

This command sets a list or step sweep point as the current sweep point controlling the frequency and power output.

If list or step mode is controlling frequency or power, or both, then the indexed point in the respective list(s) will be used.

Entering a value with this command will have no effect, unless MANual is the selected mode. Refer to “[:LIST:MODE](#)” on page 42 for setting the proper mode.

If the point selected is beyond the length of the longest enabled list, then the point will be set to the maximum possible point, and an error will be generated.

**Range** List Sweep: 1-1601 Step Sweep: 2-65535

**Key Entry** **Manual Point**

## :LIST:MODE

**Supported** All Models

[ :SOURce] :LIST:MODE AUTO|MANual  
[ :SOURce] :LIST:MODE?

This command sets the operating mode for the current list or step sweep.

**AUTO** This choice enables the selected sweep type to perform a sweep of all points.

**MANual** This choice enables you to select a single sweep point. The selected point controls the frequency and/or amplitude according to the sweep type. Refer to “[:LIST:MANual](#)” on page 42 for selecting a sweep point.

**\*RST** AUTO

**Key Entry** **Manual Mode Off On**

## :LIST:POWeR

**Supported** All Models

[ :SOURce] :LIST:POWeR <value>{,<value>}  
[ :SOURce] :LIST:POWeR?

This command sets the amplitude for the current list sweep points.

The maximum number of list sweep points is 1,601.

**Range** Refer to “[[:LEVel](#)][[:IMMediate](#)][[:AMPLitude](#)]” on page 60 for output power ranges.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## **:LIST:POWer:POINTs**

**Supported** All Models

[**:SOURce**] :LIST:POWer:POINTs?

This command queries the number of power points in the current list sweep file.

## **:LIST:RETRace**

**Supported** All Models

[**:SOURce**] :LIST:RETRace ON|OFF|1|0

[**:SOURce**] :LIST:RETRace?

This command configures the sweep to retrace to the first sweep point, or stop at the last sweep point upon completion of each sweep.

On (1) The sweep retraces to the first sweep point.

Off (0) The sweep stays at the last sweep point of the completed sweep and stays there until sweep is initiated and triggered again. When sweep is initiated and triggered again the sweep point moves to the first point of the sweep.

**\*RST** 1

**Key Entry** **Sweep Retrace Off On**

## **:LIST:TRIGger:SOURce**

**Supported** All Models

[**:SOURce**] :LIST:TRIGger:SOURce BUS|IMMEDIATE|EXTernal|KEY|TImer|MANual

[**:SOURce**] :LIST:TRIGger:SOURce?

This command sets the point trigger source for a list or step sweep event.

To set the sweep trigger, see “[:TRIGger\[:SEQUence\]:SOURce](#)” on page 134.

BUS This choice enables GPIB triggering using the \*TRG or GET command, or LAN and USB triggering using the \*TRG command.

IMMEDIATE This choice enables immediate triggering of the sweep event.

EXTernal This choice enables the triggering of a sweep event by an externally applied signal at the TRIGGER IN connector.

Trigger KEY This choice enables triggering by pressing the front-panel **Trigger** hardkey.

TImer This choice enables the trigger timer.

### **Example**

:LIST:TRIG:SOUR BUS

The preceding example sets the trigger source to the instrument BUS.

**\*RST**

IMM

**Key Entry**

Bus

Free Run

Ext

Trigger Key

Timer Trigger

## :LIST:TYPE

**Supported** All Models

[ :SOURce] :LIST:TYPE LIST|STEP

[ :SOURce] :LIST:TYPE?

This command toggles between the two types of sweep.

**LIST** This type of sweep has arbitrary frequencies and amplitudes.

**STEP** This type of sweep has equally spaced frequencies and amplitudes.

**\*RST** STEP

**Key Entry** Sweep Type List Step

## :LIST:TYPE:LIST:INITialize:FSTep

**Supported** All Models

**CAUTION** The current list sweep data will be overwritten once this command is executed. If needed, save the current data. Refer to “[:STORE:LIST](#) on page 94” for storing list sweep files.

[ :SOURce] :LIST:TYPE:LIST:INITialize:FSTep

This command replaces the loaded list sweep data with the settings from the current step sweep data points.

You can load only one sweep list at a time.

The maximum number of list sweep points is 1,601. When copying the step sweep settings over to a list sweep, ensure that the number of points in the step sweep do not exceed the maximum list sweep points.

**Key Entry** Load List From Step Sweep

## :LIST:TYPE:LIST:INITialize:PRESet

**Supported** All Models

**CAUTION** The current list sweep data will be overwritten once this command is executed. If needed, save the current data. Refer to “[:STORE:LIST](#) on page 94” for storing list sweep files.

[ :SOURce] :LIST:TYPE:LIST:INITialize:PRESet

This command replaces the current list sweep data with a factory-defined file consisting of one point at a frequency, amplitude, and dwell time.

**Key Entry** Preset List

## :LIST:WAVeform

**Supported** N5182A

**CAUTION** The current list sweep data will be overwritten once this command is executed. If needed, save the current data. Refer to “[:STORe:LIST](#) on page 94” for storing list sweep files.

[ :SOURce] :LIST:WAVeform <name>{ , <name>}

[ :SOURce] :LIST:WAVeform?

This command sets the waveform values for the current list waveform sequence.

**NOTE** Except for the sample clock rate, unspecified fields in the header result in the *default* settings of the dual arb's settings being used (i.e. *not the current arb's settings*). The sample clock rate must be specified for the file header of the waveform file being played. If the sample clock rate is unspecified in the file header, the instrument generates a header error.

### Example

:LIST:WAV "WFM1:RAMP\_TEST\_WFM", "WFM1:SINE\_TEST\_WFM"

The preceding example loads the waveforms RAMP\_TEST\_WFM and SINE\_TEST\_WFM into the waveform section of the List Table.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :LIST:WAVeform:POInTs

**Supported** N5182A

[ :SOURce] :LIST:WAVeform:POInTs?

This query returns the number of waveform points in the current list sweep file.

## :SWEep:CPOInT?

**Supported** All Models

[ :SOURce] :SWEep:CPOInT?

This query returns the current sweep point in any mode.

## :SWEep:DWELl

**Supported** All Models

[ :SOURce] :SWEep:DWELl <value>

[ :SOURce] :SWEep:DWELl?

This command enables you to set the dwell time for a step sweep.

The variable <value> is expressed in units of seconds with a 0.001 resolution.

The dwell time is the amount of time the sweep is guaranteed to pause after setting the frequency and/or power for the current point.

---

**NOTE** The dwell time (<value>) does not begin until the signal generator has settled for the current frequency and/or amplitude change.

---

**\*RST** +2.00000000E–003

**Range** 0.0001–100

**Key Entry** **Step Dwell**

**Remarks** Dwell time is used when the trigger source is set to IMMEDIATE. Refer to “[:LIST:TRIGGER:SOURce](#)” on page 43 for the trigger setting.

## :SWEep:GENeration

**Supported** N5183A

[ :SOURce] :SWEep:GENeration STEPped

[ :SOURce] :SWEep:GENeration?

This command sets the sweep type to stepped.

**STEPped** This choice selects a step sweep.

### Example

:SWE:GEN STEP

The preceding example selects a step sweep.

**\*RST** STEP

**Key Entry** **Sweep Type**

## :SWEep:POINTs

**Supported** All Models

[ :SOURce] :SWEep:POINTs <value>

[ :SOURce] :SWEep:POINTs?

This command defines the number of step sweep points.

**\*RST** 101

**Range** 2–65535

**Key Entry** **# Points**

## **:SWEEp:SPACing**

**Supported** All Models

[**:SOURce**] :SWEEp:SPACing LINear|LOGarithmic  
[:SOURce] :SWEEp:SPACing?

This command enables the signal generator linear or logarithmic sweep modes. These commands require the signal generator to be in step mode.

The instrument uses the specified start frequency, stop frequency, and number of points for both linear and log sweeps.

\*RST LIN

**Key Entry** Step Spacing LIN LOG

## Basic Function Commands

Marker Subsystem—(N5183A Only)([:SOURce])

## Marker Subsystem—(N5183A Only)([:SOURce])

### :MARKer:AMPLitude[:STATe]

**Supported** N5183A

```
[ :SOURce] :MARKer:AMPLitude [:STATe] ON|OFF|1|0  
[ :SOURce] :MARKer:AMPLitude [:STATe]?
```

This command sets the amplitude marker state for the currently activated markers. When the state is switched on, the RF output signal exhibits a spike with a magnitude relative to the power level at each marker's set frequency. (To set the magnitude of the spike, refer to “[:MARKer:AMPLitude:VALue](#)” on page 48.)

#### Example

```
:MARK:AMPL ON
```

The preceding example enables amplitude markers.

**\*RST** 0

**Key Entry** Amplitude Markers Off On

### :MARKer:AMPLitude:VALue

**Supported** N5183A

```
[ :SOURce] :MARKer:AMPLitude:VALue <num> [DB]  
[ :SOURce] :MARKer:AMPLitude:VALue?
```

This command sets the relative power for the amplitude spikes at each marker's set frequency when the amplitude marker mode is activated. (To activate the amplitude markers, refer to “[:MARKer:AMPLitude\[:STATe\]](#)” on page 48.)

#### Example

```
:MARK:AMPL:VAL 4DB
```

The preceding example sets the relative marker power to 4 dB for all markers.

**\*RST** 2DB

**Range** -10DB to +10DB

**Key Entry** Marker Value

### :MARKer:AOff

**Supported** N5183A

```
[ :SOURce] :MARKer:AOff
```

This command turns off all active markers.

**Key Entry** Turn Off Markers

## :MARKer:DELTa

**Supported** N5183A

[ :SOURce] :MARKer:DELTa? <num>, <num>

This query returns the frequency difference between two amplitude markers. The variables <num> are used to designate the marker numbers.

:MARK:DELT? 1,2

The preceding example returns the frequency difference between amplitude markers 1 and 2.

**Range** 0–19

## :MARKer[0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19]:FREQuency

**Supported** N5183A

[ :SOURce] :MARKer [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19] :FREQuency  
<val><unit>

[ :SOURce] :MARKer [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19] :FREQuency?  
MAXimum|MINimum

This command sets the frequency for a specific marker. If the marker designator [n] is not specified, marker 0 is the default. The frequency value must be within the current start and stop frequency sweep range. Using the MAXimum or MINimum parameters in the query will return the frequency boundary values for the markers.

If the marker frequency mode is set to delta when the query is sent, the returned value is not absolute, but is relative to the reference marker. (See “[:MARKer:MODE](#)” on page 50 for more information.)

### Example

:MARK2:FREQ 10GHZ

The preceding example places marker 2 at 10 GHz.

\*RST +5.25000000E+008

**Range** Equivalent to current sweep range

**Key Entry** Marker Freq

## :MARKer:MODE

**Supported** N5183A

[ :SOURce] :MARKer:MODE FREQuency | DELTa  
[ :SOURce] :MARKer:MODE?

This command sets the frequency mode for all markers.

**FREQuency** The frequency values for the markers are absolute.

**DELTa** The frequency values for the markers are relative to the designated reference marker. The reference marker must be designated before this mode is selected. (See :MARKer:REFerence to select a reference marker.)

### Example

:MARK:MODE DELT

The preceding example sets the marker mode to delta.

**\*RST** FREQuency  
**Key Entry** Marker Delta Off On

## :MARKer:REFerence

**Supported** N5183A

[ :SOURce] :MARKer:REFerence <marker>  
[ :SOURce] :MARKer:REFerence?

This command designates the reference marker when using markers in delta mode. The variable <marker> designates the marker number.

### Example

:MARK:REF 6

The preceding example sets marker 6 as the reference marker.

**\*RST** 0  
**Range** 0–19  
**Key Entry** Delta Ref Set

**:MARKer[0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19]:STATe]**

**Supported** N5183A

[ :SOURce] :MARKer [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19] [:STATe]

ON|OFF|1|0

[ :SOURce] :MARKer [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19] [:STATe] ?

This command turns a marker on or off. Marker 0 is the default if the marker designator [n] is not specified.

**Example**

:MARK6 ON

The preceding example turns marker 6 on.

<b>*RST</b>	0
<b>Key Entry</b>	<b>Marker On Off</b>

## Power Subsystem ([**:SOURce**]:POWER)

### **:ALC:BANDwidth | BWIDth:AUTO**

**Supported** All

[**:SOURce**] :POWER:ALC:BANDwidth|BWIDth:AUTO ON|OFF|1|0  
[:SOURce] :POWER:ALC:BANDwidth|BWIDth:AUTO?

This command turns the bandwidth (BW) auto state on or off.

The bandwidth auto function allows the signal generator to automatically select a bandwidth for the automatic leveling control (ALC) circuit.

ON (1)	This choice allows the signal generator to automatically select an ALC BW. The selection of the ALC BW depends on the signal generator modulation type as shown in the following table.
OFF (0)	This choice disables automatic selection of the ALC BW.
*RST	1
<b>Key Entry</b>	<b>Auto</b>
<b>Remarks</b>	For more information on ALC bandwidth, refer to the User's Guide.

### **:ALC:LEVel**

**Supported** All Models

[**:SOURce**] :POWER:ALC:LEVel <value><unit>  
[:SOURce] :POWER:ALC:LEVel?

This command sets the automatic leveling control (ALC) level. Use this command after setting the attenuation auto mode to On. Refer to “[:ATTenuation:AUTO](#)” on page 57 for setting the attenuation auto mode.

The ALC is used to maintain the signal generator’s output power level by compensating for power fluctuations due to drift, band changes, or load variations. After you set the ALC level, the signal generator’s output power is monitored and corrected so that the power level setting is maintained.

#### **Example**

**:POW:ALC:LEV 10DB**

The preceding example sets the ALC to 10 dB.

**\*RST** +1.00000000E+000

**Range** -20 to 20

**Key Entry** Set ALC Level

## **:ALC:SEARch**

**Supported** All Models

[**:SOURce**] :POWer:ALC:SEARch AUTO|SPAN|ON|1|ONCE  
[:SOURce] :POWer:ALC:SEARch?

This command sets the internal power search mode. A power search is recommended for pulse-modulated signals with pulse widths less than one microsecond.

AUTO, ON (1) This choice executes the power search automatically with each change in RF frequency or power.

SPAN This mode pre-computes power search settings for a span of user-defined start/stop frequencies. In this mode, the instrument's default automatic (AUTO) power search is disabled. The power search is not repeated until manually or remotely directed to do so.

This power search is *not* valid for a change in power level. If the power level is changed, the power search needs to be repeated. For best results, the power search needs to be repeated at periodic intervals. Refer to the *Data Sheet* and the *User's Guide*.

ONCE This choice executes a single power search of the current RF output signal and the current mode is returned (i.e. 1 = AUTO and 0 = NON-AUTO). This action requires the RF output to be on ([\["\[:STATe\]" on page 100\]](#)).

**\*RST** 1

Key Entry **Do Power Search**

**Remarks** Use this command when the ALC state is set to OFF (0). Refer to ["\*\*:ALC\[:STATE\]\*\*" on page 56](#) for setting the ALC state.

## **:ALC:SEARch:REFerence**

**Supported** N5181A/82A

[**:SOURce**] :POWer:ALC:SEARch:REFerence RMS|FIXed|MANual|MODulated  
[:SOURce] :POWer:ALC:SEARch:REFerence?

This command sets either fixed or modulated modes of power search.

RMS This choice uses a DC bias equivalent to the value derived from the file header or the calculated value from the current I/Q data.

FIXed This choice uses a 0.5 volt reference.

MANual This choice enables the user to specify the DC bias voltage (0-1V).

MODulated This choice uses the RMS value of the current I/Q modulation.

**\*RST** FIX

Key Entry **Power Search Reference Fixed Mode**

## :ALC:SEARch:REFerence:LEVel

**Supported** N5181A/82A

[ :SOURce] :POWer:ALC:SEARch:REFerence:LEVel <value>  
[:SOURce] :POWer:ALC:SEARch:REFerence:LEVel?

This command sets the DC bias voltage value for a manual power search.

**\*RST** +1.00000000+000

**Range** 0 to 1.414V

**Key Entry** Power Search Manual Level

## :ALC:SEARch:SPAN:START

**Supported** All Models

[ :SOURce] :POWer:ALC:SEARch:SPAN:START <value><units>  
[:SOURce] :POWer:ALC:SEARch:SPAN:START?

This command sets the start frequency for a span power search over a user specified range.

The start frequency has no default value. The start frequency value will be the last value set before powering off the instrument.

**Key Entry** Start Frequency

## :ALC:SEARch:SPAN:STOP

**Supported** All Models

[ :SOURce] :POWer:ALC:SEARch:SPAN:STOP <value><units>  
[:SOURce] :POWer:ALC:SEARch:SPAN:STOP?

This command sets the stop frequency for a span power search over a user specified range.

The stop frequency has no default value. The stop frequency value will be the last value set before powering off the instrument.

**Key Entry** Stop Frequency

## :ALC:SEARch:SPAN:TYPE

**Supported** All Models

[ :SOURce] :POWer:ALC:SEARch:SPAN:TYPE FULL|USER  
[:SOURce] :POWer:ALC:SEARch:SPAN:TYPE?

This command enables you to select the frequency range for a span power search. You can specify the range (USER) or you can select the full range (FULL) of the signal generator.

**Key Entry** Span Type User Full

## **:ALC:SEARch:SPAN[:STATe]**

**Supported** All Models

[**:SOURce**] :POWer:ALC:SEARch:SPAN [:STATe] ON|OFF|1|0  
[:SOURce] :POWer:ALC:SEARch:SPAN [:STATe] ?

This command enables (1) or disables (0) the span mode, allowing you to perform power searches over a selected range of frequencies. The power search corrections are then stored and used whenever the signal generator is tuned within the selected range.

## **:ALC:SOURce**

**Supported** N5183A

[**:SOURce**] :POWer:ALC:SOURce INTernal|DIODE  
[:SOURce] :POWer:ALC:SOURce?

This command enables you to select an automatic level control (ALC) source. You can select the internal ALC source, an external detector source, or a millimeter-wave source module. Refer to the *User's Guide* for more information on ALC leveling, bandwidth, and the power search function.

### **Example**

:POW:ALC:SOUR DIOD

The preceding example selects an external detector as the source (the unit must be connected to the signal generator).

\*RST INT

**Key Entry** Leveling Mode

## **:ALC:SOURce:EXTernal:COUpling**

**Supported** N5183A

[**:SOURce**] :POWer:ALC:SOURce:EXTernal:COUpling <value>DB  
[:SOURce] :POWer:ALC:SOURce:EXTernal:COUpling?

This command sets the external detector coupling factor. Use this command when DIODE is the selected ALC source (["\*\*:ALC:SOURce\*\*" on page 55](#)). (0 to 32 coupling value).

### **Example**

:POW:ALC:SOUR:EXT:COUP 20DB

The preceding example sets the external coupling factor to 20 dB.

\*RST +1.6000000E+001

**Range** -200DB to 200DB.

**Key Entry** Ext Detector Coupling Factor

## :ALC[:STATe]

**Supported** All Models

[ :SOURce] :POWer:ALC[:STATe] ON|OFF|1|0  
[ :SOURce] :POWer:ALC[:STATe] ?

This command enables or disables the automatic leveling control (ALC) circuit.

**\*RST** 1

**Key Entry** ALC Off On

**Remarks** The purpose of the ALC circuit is to hold output power at a desired level by adjusting the signal generator's power circuits to compensate for power drift. Power drift occurs over time and changes in temperature. Refer to the *User's Guide* for more information on the ALC.

## :ATTenuation

**Supported** N5181A/82A (All), and N5183A (with Option 1E1)

[ :SOURce] :POWer:ATTenuation <value><unit>  
[ :SOURce] :POWer:ATTenuation?

This command sets the signal generator's attenuator level. Before setting the attenuator level, set the “[:ATTenuation:AUTO](#)” function to Off which will disable ALC control.

In normal operation the attenuator level is selected by the signal generator's automatic loop control (ALC) which maintains the output power by adjusting internal circuits to compensate for any power fluctuations due to drift, band changes, or load variations. In some applications, such as fast pulse modulation, the ALC may not respond quickly enough to compensate for the pulse rise times. In this case you can set the attenuator and override any ALC adjustments.

The output power is the ALC level minus the attenuator setting. The attenuator is set in increments of 5 dB.

### Example

:POW:ATT 10DB

The preceding example sets the attenuator to 10 dB.

**\*RST** +115

**Range** 0 to 115 dB

**Key Entry** Set Atten

## **:ATTenuation:AUTO**

**Supported** N5181A/82A (All), and N5183A (with Option 1E1)

[**:SOURce**]:POWER:ATTenuation:AUTO ON|OFF|1|0

[**:SOURce**]:POWER:ATTenuation:AUTO?

This command sets the state of the attenuator auto mode function.

**ON** (1) This selection allows the signal generator's automatic level control (ALC) to adjust the attenuator so that a specified RF power level, at the Agilent MXG's RF output connector, is maintained.

**OFF** (0) This choice allows for a user-selected attenuator setting that is not affected by the signal generator's ALC circuitry.

The OFF (0) selection can be used to eliminate power discontinuity normally associated with attenuator switching during power adjustments.

**\*RST** 1

**Key Entry** Atten Hold Off On

**Remarks** Refer to the "[:ALC:LEVel](#)" on page 52.

## **:ATTenuation:BYPass**

**Supported** N5181A/82A

[**:SOURce**]:POWER:ATTenuation:BYPass ON|OFF|1|0

[**:SOURce**]:POWER:ATTenuation:BYPass?

This command enables or disables the attenuator bypass setting. The attenuator hold mode must be enabled to use this command.

**ON** (1) This selection allows the signal generator's automatic level control (ALC) to adjust the attenuator hold mode. Output power is controlled solely by the ALC setting.

**OFF** (0) This choice allows for a user-selected attenuator setting combined with the ALC setting.

**\*RST** 0

**Key Entry** Atten Bypass Off On

## :MODE

**Supported** All Models

[**:SOURce**] :POWer:MODE FIXed|LIST  
[:SOURce] :POWer:MODE?

This command sets the signal generator power mode to fixed or swept.

**FIXed** This choice stops a power sweep, allowing the signal generator to operate at a fixed power level. Refer to “[:LEVel][:IMMEDIATE][:AMPLitude]” on page 60 for setting the output power level.

**LIST** This choice selects the swept power mode. If sweep triggering is set to immediate along with continuous sweep mode, executing the command starts the LIST or STEP power sweep.

---

**NOTE** To perform a frequency and amplitude sweep, you must also select LIST as the frequency mode. See “:FREQuency:MODE” on page 33 for selecting the list mode for a frequency sweep.

---

**\*RST** FIX

**Key Entry** SWEEP Amptd Off On

## :PROTection[:STATe]

**Supported** All models

[**:SOURce**] :POWer:PROTection[:STATe] ON|OFF|1|0  
[:SOURce] :POWer:PROTection[:STATe]?

This command enables or disables the power search protection function. The power search protection function sets the attenuator to its maximum level whenever a power search is initiated. This can be used to protect devices that are sensitive to high average power or high power changes. The trade off on using the power protection function is decreased attenuator life, as the attenuator will switch to its maximum setting during a power search.

---

**NOTE** Continual or excessive use of the power search protection function can decrease attenuator life.

---

**ON** (1) Causes the attenuator to switch to and hold its maximum level setting during a power search.

**OFF** (0) Sets the attenuator normal mode. The attenuator is not used during power search.

### Example

:POW:PROT ON

The preceding example enables the power inhibit function.

**\*RST** 0

**Key Entry** RF During Power Search Normal Minimum

## **:REFerence**

**Supported** All Models

[**:SOURce**]:POW**e**r:REFerence <value><unit>  
[:SOURce]:POW**e**r:REFerence?

This command sets the power level for the signal generator RF output reference.

The RF output power is referenced to the value entered in this command.

**\*RST** +0.00000000E+000

**Range** -400 to 300dBm

**Key Entry** Amptd Ref Set

## **:REFerence:STATe**

**Supported** All Models

[**:SOURce**]:POW**e**r:REFerence:STATe ON|OFF|1|0  
[:SOURce]:POW**e**r:REFerence:STATe?

This command enables or disables the RF output reference.

Once the reference state is ON, all subsequent output power settings are set relative to the reference value.

**ON(1)** This choice will set the power reference state to ON. The unit displayed for commands, “[:ANNotation:AMPLitude:UNIT](#)” on page 76 and “[:POWer](#)” on page 136 will be expressed in dB.

**OFF(0)** This choice will set the power reference state to OFF.

**\*RST** 0

**Key Entry** Amptd Ref Off On

**Remarks** Amplitude offsets can be used with the amplitude reference mode.

## **:STARt**

**Supported** All Models

[**:SOURce**]:POW**e**r:STARt <value><unit>  
[:SOURce]:POW**e**r:STARt?

This command sets the first amplitude point in a step sweep.

**\*RST** N5181A/82A -1.1000000E+002 (Standard) and -1.4400000E+002 (Option 1EQ)

N5183A -2.0000000E+001 (Standard) and -1.3000000E+002 (Option 1E1)

**Range** Refer to “[[:LEVel](#)][[:IMMediate](#)][[:AMPLitude](#)]” on page 60 for the output power ranges.

**Key Entry** Amptd Start

## **:STOP**

**Supported** All Models

[ :SOURce] :POWer:STOP <value><unit>  
[:SOURce] :POWer:STOP?

This command sets the last amplitude point in a step sweep.

**\*RST** N5181A/82A -1.10000000E+002 (Standard) and -1.44000000E+002 (Option 1EQ)  
N5183A -2.00000000E+001 (Standard) and -1.30000000E+002 (Option 1E1)

**Range** Refer to "[\[:LEVel\]\[:IMMediate\]\[:AMPLitude\]](#)" on page 60 for the output power ranges.

**Key Entry** **Amptd Stop**

## **[:LEVel][:IMMediate]:OFFSet**

**Supported** All Models

[ :SOURce] :POWer [:LEVel] [:IMMediate] :OFFSet <value><unit>  
[:SOURce] :POWer [:LEVel] [:IMMediate] :OFFSet?

This command sets the power offset value.

**\*RST** +0.00000000E+000

**Range** -200 dB to 200 dB

**Key Entry** **Amptd Offset**

**Remarks** This simulates a power level at a test point beyond the RF OUTPUT connector without changing the actual RF output power. The offset value only affects the displayed amplitude setting.

You can enter an amplitude offset any time in either normal operation or amplitude reference mode.

## **[:LEVel][:IMMediate][:AMPLitude]**

**Supported** All Models

[ :SOURce] :POWer [:LEVel] [:IMMediate] [:AMPLitude] <value><unit>  
[:SOURce] :POWer [:LEVel] [:IMMediate] [:AMPLitude]?

This command sets the RF output power.

**\*RST** N5181A/82A -1.10000000E+002 (Standard) or -1.44000000E+002 (Option 1EQ)

N5183A -2.00000000E+001 (Standard) or -1.30000000E+002 (Option 1E1)

**Key Entry** **Amplitude**

**Remarks** For information on the ranges for this command and the specified values, refer to the instrument's *Data Sheet*.

---

## 3 System Commands

This chapter provides SCPI descriptions for subsystems dedicated to peripheral signal generator operations common to all Agilent MXG models.

---

**NOTE** The internal baseband generator speed upgrade Options 670, 671, and 672 are option upgrades that *require* Option 651 and 652 to have been loaded at the factory (refer to the *Data Sheet* for more information). Any references to 651, 652, or 654 are inclusive of 671, 672, and 674.

---

This chapter contains the following major sections:

- “[Calibration Subsystem \(:CALibration\)](#)” on page 62
- “[Communication Subsystem \(:SYSTem:COMMUnicate\)](#)” on page 65
- “[Diagnostic Subsystem \(:DIAGnostic\[:CPU\]:INFOrmation\)](#)” on page 73
- “[Display Subsystem \(:DISPlay\)](#)” on page 76
- “[IEEE 488.2 Common Commands](#)” on page 80
- “[Memory Subsystem \(:MEMory\)](#)” on page 85
- “[Output Subsystem \(:OUTPut\)](#)” on page 99
- “[Route Subsystem \(:ROUTE\)](#)” on page 101
- “[Status Subsystem \(:STATus\)](#)” on page 103
- “[System Subsystem \(:SYSTem\)](#)” on page 114
- “[Trigger Subsystem](#)” on page 133
- “[Unit Subsystem \(:UNIT\)](#)” on page 136

## Calibration Subsystem (:CALibration)

### :DCFM

**Supported** All Models

:CALibration:DCFM

This command initiates a DCFM or DCFM calibration depending on the currently active modulation. This calibration eliminates any dc or modulation offset of the carrier signal.

**NOTE** If the calibration is performed with a dc signal applied, any deviation provided by the dc signal will be removed and the new zero reference point will be at the applied dc level. The calibration will have to be performed again when the dc signal is disconnected to reset the carrier signal to the correct zero reference. *Only internal DC offsets are removed*, any User's external signals containing DC offsets are ignored.

**Key Entry** **DCFM/DCFM Cal**

**Remarks** Use this calibration for externally applied signals. While the calibration can also be performed for internally generated signals, dc offset is not a normal characteristic for them.

### :IQ:DC

**Supported** N5182A with Option 651, 652, or 654

:CALibration:IQ:DC

This command performs a one to two second adjustment that is not traceable to a standard. However, it will minimize errors associated with IQ gain, quadrature, and offset voltages. This adjustment minimizes errors for the current signal generator setting and at a single frequency. The DC adjustment is volatile and must be repeated with each signal generator setting change. This command can be sent while the RF On/Off is set to Off and the adjustment will still be valid when the RF is enabled. IQ must be on to perform this adjustment.

The I/Q DC adjustment is dependent upon a number of instrument settings. If any of the instrument settings change, the adjustment will become invalid. The dependent instrument settings are:

- RF frequency
- I/Q attenuation level
- Baseband generator settings
- I/Q polarity settings
- Baseband filter settings
- I/Q calibration (the I/Q DC calibration will be invalidated if any other I/Q calibration is executed or if the **Revert to Factory Default** key is pressed)
- Temperature ( $\pm 5$  degrees)
- **I/Q Off On** set to On

- **I/Q Correction Optimized Path** (must be set to **RF Output**). Refer to “[:DM:CORRection:OPTimization](#)” on [page 21](#).
- **I/Q Source** (must be set to **Internal**). Refer to “[:DM:SOURce](#)” on [page 28](#).

The following instrument states will not invalidate the I/Q DC calibration:

- Power level changes
- I/Q Impairments

**Key Entry**      **Execute Cal** (with **Calibration Type User Full** set to DC)

### **:IQ:DEFault**

**Supported**      N5182A

`:CALibration:IQ:DEFault`

This command will restore the original factory calibration data for the internal I/Q modulator.

**Key Entry**      **Revert to Default Cal Settings**

### **:IQ:FULL**

**Supported**      N5182A with Option 651, 652, or 654

`:CALibration:IQ:FULL`

This command performs an adjustment to the I/Q offset, gain and quadrature for the full-frequency range (regardless of the start and stop frequency settings) and stores the results in the signal generator’s firmware.

**Key Entry**      **Execute Cal** (with **Calibration Type User Full** set to Full)

**Remarks**      Start and stop frequencies will default to the full frequency range of the signal generator.

### **:IQ:STARt**

**Supported**      N5182A with Option 651, 652, or 654

`:CALibration:IQ:START <value><unit>`

`:CALibration:IQ:START?`

This command sets the start frequency and automatically sets the calibration type to User for an I/Q calibration.

The start frequency must be less than the current value of the stop frequency.

**Range**      Option 503: 100kHz–3GHz

                  Option 506: 100kHz–6GHz

**Key Entry**      **Start Frequency**

**Remarks**      The setting enabled by this command is not affected by signal generator power-on, preset, or `*RST`.

## :IQ:STOP

**Supported** N5182A with Option 651, 652, or 654

:CALibration:IQ:STOP <value><unit>

:CALibration:IQ:STOP?

This command sets the stop frequency and automatically sets the calibration type to User for an I/Q calibration.

The stop frequency must be greater than the current value of the start frequency.

**Range** Option 503: 100kHz–3GHz

Option 506: 100kHz–6GHz

**Key Entry** **Stop Frequency**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :IQ:TYPE

**Supported** N5182A with Option 651, 652, or 654

:CALibration:IQ:TYPE DC|USER|FULL

:CALibration:IQ:TYPE?

This command sets the IQ calibration type.

**Key Entry** **Calibration Type DC User Full**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :IQ[:USER]

**Supported** N5182A with Option 651, 652, or 654

:CALibration:IQ[:USER]

This command performs a IQ calibration according to the IQ calibration type. For information on selecting the type of IQ calibration, refer to “[:IQ:TYPE](#)” on page 64.

**Key Entry** **Execute Cal**

## Communication Subsystem (:SYSTem:COMMUnicatE)

**NOTE** The settings enabled by the LAN commands are not affected by signal generator power-on, preset, or \*RST.

### :CAPability?

**Supported** All Models

`:SYSTem:CAPability?`

This command returns a option-dependent list of the signal generator's system capabilities.

### :ERRor:CODE[:NEXT]?

**Supported** All Models

`:SYSTem:ERRor:CODE [:NEXT] ?`

This command returns the signal generator's error code numeric value (without the error string).

**Key Entry** **Error**

**Remarks** To return the signal generator's error code numeric value with the error string, refer to "[:ERRor\[:NEXT\]?](#)" on page 65.

### :ERRor[:NEXT]?

**Supported** All Models

`:SYSTem:ERRor [:NEXT] ?`

This command returns the signal generator's error code numeric value and error string.

**Key Entry** **Error**

**Remarks** To return the signal generator's error code numeric value without the error string, refer to "[:ERRor:CODE\[:NEXT\]?](#)" on page 65.

### :GPIB:ADDress

**Supported** All Models

`:SYSTem:COMMUnicatE:GPIB:ADDRESS <number>`

`:SYSTem:COMMUnicatE:GPIB:ADDRESS?`

This command sets the signal generator's GPIB address.

**Range** 0–30

**Key Entry** **GPIB Address**

## :GTLLocal

**Supported** All Models

**:SYSTem:COMMUnicatE:GTLocal**

This command sets the signal generator to local mode which enables front panel operation.

**Key Entry** **Local**

## :LAN:CONFig

**Supported** All Models

**:SYSTem:COMMUnicatE:LAN:CONFig** DHCP | MANual | AUTO | AIP

**:SYSTem:COMMUnicatE:LAN:CONFig?**

---

**NOTE** The SCPI query for the LAN setup returns the last power on state setting, which may or may not be the currently displayed setting.

---

This command sets the signal generator's internet protocol (IP) address.

**MANual** The user assigns an IP address to the signal generator.

**DHCP** The network assigns an IP address to the signal generator. If DHCP fails, manual configuration will be used.

**AUTO** The network assigns an IP address to the signal generator with a fallback to Auto-IP if DHCP fails. If both DHCP and Auto-IP fail, manual configuration will be used.

**AIP** The network assigns an IP address to the signal generator. If Auto-IP fails, the manual configuration will be used.

### Example

**:SYST:COMM:LAN:CONF DHCP**

The preceding example sets up the signal generator LAN configuration to use a DHCP IP address.

**Key Entry** **LAN Config**

**Remarks** The SCPI query returns the current setting, not the saved setting.

## :LAN:DEFaults

**Supported** All Models

**:SYSTem:COMMUnicatE:LAN:DEFaults**

This command restores the instrument's LAN settings to their factory default values.

Key path is: **I/O Config > Lan Setup > Advanced Settings > Restore LAN Settings to Default Values**

**Key Entry** **Restore LAN Settings to Default Values**

## **:LAN:DESCription**

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:DESCription <string>  
:SYSTem:COMMUnicatE:LAN:DESCription?

This command defines the instrument's web description.

**Remarks** The SCPI query returns the current saved setting.

If queried and if there is no current LAN description the default web description value is returned.

LAN description is displayed on the homepage for the Agilent MXG.

## **:LAN:DOMain**

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:DOMain <string>  
:SYSTem:COMMUnicatE:LAN:DOMain?

This command defines the domain name of the signal generator's DNS server.

This entry defines the DNS server for the signal generator LAN connection.

**Key Entry** **Domain Name**

**Remarks** The SCPI query returns the current setting, not the saved setting.

## **:LAN:DNS:DYNAMIC**

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:DNS:DYNAMIC ON|OFF|1|0  
:SYSTem:COMMUnicatE:LAN:DNS:DYNAMIC?

This command turns dynamic Domain Name System (DNS) on/off.

**Key Entry** **Dynamic DNS Naming Off On**

**Remarks** The SCPI query returns the current setting, not the saved setting.

## **:LAN:DNS:OVERride**

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:DNS:OVERride ON|OFF|1|0  
:SYSTem:COMMUnicatE:LAN:DNS:OVERride?

This command enables you to override the DNS server that is returned by the DHCP server. The LAN configuration type must be set to Auto or DHCP to use this feature.

**Key Entry** **DNS Server Override Off On**

**Remarks** The SCPI query returns the current setting, not the saved setting.

If DNS Service Override is set to On, the DNS server setting defined with the DNS Server softkey is used.

If DNS Service Override is set to Off, the setting returned by the DHCP Server is used.

### **:LAN:DNS[:SERVer]**

**Supported** All Models

```
:SYSTem:COMMUnicatE:LAN:DNS [:SERVer] <ipstring>
:SYSTem:COMMUnicatE:LAN:DNS [:SERVer]?
```

This command defines the IP address of the signal generator DNS server.

This entry defines the DNS server for the signal generator LAN connection.

**Key Entry** **DNS Server**

**Remarks** The SCPI query returns the current setting, not the saved setting.

### **:LAN:GATEway**

**Supported** All Models

```
:SYSTem:COMMUnicatE:LAN:GATEway "<ipstring>"
:SYSTem:COMMUnicatE:LAN:GATEway?
```

This command sets the gateway for local area network (LAN) access to the signal generator from outside the current sub-network.

**Key Entry** **Default Gateway**

**Remarks** Using an empty string restricts access to the signal generator to local hosts on the LAN.

The SCPI query returns the current setting, not the saved setting.

### **:LAN:HOSTname**

**Supported** All Models

```
:SYSTem:COMMUnicatE:LAN:HOSTname "<string>"
:SYSTem:COMMUnicatE:LAN:HOSTname?
```

This command sets the signal generator's local area network (LAN) connection hostname.

**Key Entry** **Hostname**

**Remarks** The SCPI query returns the current setting, not the saved setting.

## :LAN:IDENtify

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:IDENtify ON|OFF|1|0

This command controls the LAN identify feature.

**ON (1)** The command enables device identification by displaying the full-screen message "Identify: <IP Address>" on the signal generator's front panel; the LAN Status indicator will also show "IDENTIFY". For more information, refer to the Programming Guide.

**OFF (0)** This command disables device identification by clearing the message on the signal generator's front panel and returning the LAN Status indicator to display the current network state. For more information, refer to the Programming Guide.

## :LAN:IP

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:IP "<ipstring>"

:SYSTem:COMMUnicatE:LAN:IP?

This command sets the signal generator's local area network (LAN) internet protocol (IP) address for your IP network connection.

**Key Entry** **IP Address**

## :LAN:KEEP:TIMEout

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:KEEP:TIMEout <value>

:SYSTem:COMMUnicatE:LAN:KEEP:TIMEout?

This command sets the length of time for the TCP Keep Alive setting.

**Range** 0 sec to 3600 sec

**Key Entry** **TCP Keep Alive Timeout**

## :LAN:KEEP[:STATe]

**Supported** All Models

:SYSTem:COMMUnicatE:LAN:KEEP [:STATe] ON|OFF|1|0

:SYSTem:COMMUnicatE:LAN:KEEP [:STATe]?

This command enables or disables the TCP Keep Alive feature.

**Key Entry** **TCP Keep Alive Off On**

## **:LAN:MONitor**

**Supported** All Models

:SYSTem:COMMunicate:LAN:MONitor ON|OFF|1|0

:SYSTem:COMMunicate:LAN:MONitor?

This command enables or disables the LAN connection monitoring.

**Key Entry** **Connection Monitoring Off On**

## **:LAN:NBIos**

**Supported** All Models

:SYSTem:COMMunicate:LAN:NBIos ON|OFF|1|0

:SYSTem:COMMunicate:LAN:NBIos?

This command enables or disables the RFC NETBIOS naming feature.

**Key Entry** **RFC NETBIOS Naming Off On**

## **:LAN:REStart**

**Supported** All Models

:SYSTem:COMMunicate:LAN:REStart

This command restarts the network to enable changes that have been made to the LAN setup.

Key path is: **I/O Config > Lan Setup > Proceed With Reconfiguration**

**Key Entry** **Proceed With Reconfiguration**

## **:LAN:SUBNet**

**Supported** All Models

:SYSTem:COMMunicate:LAN:SUBNet "<ipstring>"

:SYSTem:COMMunicate:LAN:SUBNet?

This command sets the signal generator's local area network (LAN) subnet mask address for your internet protocol (IP) network connection.

---

**NOTE** An error will occur if the IP address, Gateway, and subnet mask have conflicting settings.

---

**Key Entry** **Subnet Mask**

**Remarks** The SCPI query returns the current setting, not the saved setting.

## **:PMETer:DEVice**

**Supported** All Models

```
:SYSTem:COMMUnicatE:PMETer:DEvice <deviceName>
:SYSTem:COMMUnicatE:PMETer:DEvice?
```

This command enters a VXI-11 name for a power meter that is being controlled by the signal generator. If connecting directly to the power meter enter the name as specified on your power meter documentation. If connecting via a LAN-GPIB gateway, enter the SICL address of the power meter.

**Key Entry** **PM VXI-11 Device Name**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

The power meter is controlled only through a LAN cable.

## **:PMETer:IP**

**Supported** All Models

```
:SYSTem:COMMUnicatE:PMETer:IP <ipaddr>
:SYSTem:COMMUnicatE:PMETer:IP?
```

This command sets the internet protocol (IP) address for a power meter that is controlled by the signal generator. It connecting to a GPIB power meter via a LAN-GPIB gateway, this command sets the IP address of the gateway.

**Key Entry** **Meter IP Address**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

The power meter is controlled only through a LAN cable.

Ensure that the power meter IP address is different from the signal generator address.

## **:PMETer:PORT**

**Supported** All Models

```
:SYSTem:COMMUnicatE:PMETer:PORT <portNum>
:SYSTem:COMMUnicatE:PMETer:PORT?
```

This command sets the IP port on the power meter that is controlled by the signal generator.

**Key Entry** **Power Meter IP Port**

5025 Standard mode. The command enables standard mode for simple programming.  
5023 Telnet mode. The command enables the telnet SCPI service for programming.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

The power meter is controlled only through a LAN cable.

## System Commands

### Communication Subsystem (:SYSTem:COMMUnicatE)

For more information on standard mode and telnet SCPI mode, refer to the *Programming Guide*.

#### :PMETer:TYPE

**Supported** All Models

```
:SYSTem:COMMUnicatE:PMETer:TYPE SOCKETS|VXI11|USB  
:SYSTem:COMMUnicatE:PMETer:TYPE?
```

This command sets the type of control connection on the power meter for communication with the signal generator.

<b>Key Entry</b>	<b>Connection Type</b>
SOCKETS	The command enables the power meter for sockets LAN control via the signal generator.
VXI11	The command enables the power meter for VXI-11 control via the signal generator. A power meter with GPIB can be controlled via VXI-11 using a LAN-GPIB gateway.
USB	The command enables the power meter for USB control via the signal generator.
<b>Remarks</b>	A single-channel power meter uses channel A and selecting channel B will have no effect.  The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

## Diagnostic Subsystem (:DIAGnostic[:CPU]:INFormation)

### :CCOunt:ATTenuator

**Supported** All Models

:DIAGnostic[:CPU] :INFormation:CCOunt:ATTenuator?

This query returns the cumulative number of times that the attenuator has been switched.

**Key Entry** Diagnostic Info

### :CCOunt:PON

**Supported** All Models

:DIAGnostic[:CPU] :INFormation:CCOunt:PON?

This query returns the cumulative number of times the signal generator has been powered-on.

**Key Entry** Diagnostic Info

### :CCOunt:PROTection

**Supported** All Models

:DIAGnostic[:CPU] :INFormation:CCOunt:PROTection?

This query returns the cumulative number of times the reverse power protection has been cycled.

**Key Entry** Diagnostic Info

### :DISPlay:OTIMe

**Supported** All Models

:DIAGnostic[:CPU] :INFormation:DISPlay:OTIMe?

This query returns the cumulative number of hours the display has been on.

**Key Entry** Diagnostic Info

## :LICense:AUXiliary

**Supported** All Models

**:DIAGnostic[:CPU]:INFormation:LICense:AUXiliary?**

This query returns a list of licenses for software applications associated with the signal generator that have the software license file installed on the PC, as opposed to a license key installed on the signal generator. This query includes calibration software licenses but does not return demo licenses for Arb-based applications.

**Key Entry** **Auxiliary Software Options**

**Remarks** If you use the signal generator with a PC that has a copy of a software application for which a license shows with this query, the software automatically accesses and installs the license on the PC.

To access Arb-based demo software licenses, see [:LICense:WAVeform](#). To view option numbers for software applications that use license keys, see “[:OPTions](#)” on page 74.

## :LICense:WAVeform

**Supported** N5182A with Option 651, 652, or 654

**:DIAGnostic[:CPU]:INFormation:LICense:WAVeform?**

This query returns a list of Arb-based licenses (including demo) for software applications associated with the signal generator that have the software license file installed on the PC, as opposed to a license key installed on the signal generator. These waveform licenses are created by the software application in a license file on the PC. Refer to “[:WLICence\[:VALue\]](#)” on page 75 for more information.

The response format is a series of comma-separated entries enclosed in quotation marks. The first field is the waveform type number and the second is a text description of the license.

**Key Entry** **Waveform Licenses**

**Remarks** If a license appears in this list, this means that you can transfer waveform files, created with the associated Arb-based software application to another signal generator if the other signal generator has the same license.

For a list of option numbers for software applications that use license keys, see “[:OPTions](#)”.

## :OPTions

**Supported** All Models

**:DIAGnostic[:CPU]:INFormation:OPTions?**

This query returns a comma-separated list of internally installed signal generator options.

**Key Entry** **Instrument Options**

## **:OPTions:DETail**

**Supported** All Models

**:DIAGnostic[:CPU] :INFormation:OPTions:DETail?**

This query returns the options that are installed along with the option revision and DSP version if applicable.

**Key Entry** **Options Info**

## **:OTIMe**

**Supported** All Models

**:DIAGnostic[:CPU] :INFormation:OTIMe?**

This query returns the cumulative number of hours that the signal generator has been on.

**Key Entry** **Diagnostic Info**

## **:REVision**

**Supported** All Models

**:DIAGnostic[:CPU] :INFormation:REVision?**

This query returns the CPU bootstrap read only memory (boot ROM) revision date. In addition, the query returns the revision, creation date, and creation time of the main firmware.

**Key Entry** **Diagnostic Info**

## **:SDATe**

**Supported** All Models

**:DIAGnostic[:CPU] :INFormation:SDATe?**

This query returns the date and time of the firmware revision.

**Key Entry** **Diagnostic Info**

## **:WLICence[:VALue]**

**Supported** N5182A with Option 651, 652, or 654

**:DIAGnostic[:CPU] :INFormation:WLICense[:VALue] ? <type\_num>**

This query returns the number of seconds remaining on the waveform license for the type of waveform designated by the <type\_num> variable number. The type variable number is obtained using the [:LICense:WAveform](#) command shown on [page 74](#). Zero is returned for non-existent and expired licenses. The value  $2^{32} - 1$  (4,294,967,295) is returned for licenses that do not expire.

## Display Subsystem (:DISPLAY)

### :ANNotation:AMPLitude[:STATe]

**Supported** All Models

```
:DISPLAY:ANNotation:AMPLitude[:STATe] ON|OFF|1|0  
:DISPLAY:ANNotation:AMPLitude[:STATe]?
```

This command enables or disables the amplitude annotation secure display mode. See also, “[:ANNotation:FREQuency\[:STATe\]](#)” on page 76 and “[:SECurity:DISPLAY:RESTRicted](#)” on page 128.

- |        |                                                                                                                                                                                                                                  |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On(1)  | This selection turns off the displayed amplitude security, and the amplitude annotation is visible.                                                                                                                              |
| OFF(0) | This selection turns on the displayed amplitude security and the amplitude annotation is blanked on the signal generator’s display. Also, the keys that access the amplitude, sweep, and user flatness information are disabled. |

For more information about security functions, refer to the *User’s Guide*.

### :ANNotation:AMPLitude:UNIT

**Supported** All Models

```
:DISPLAY:ANNotation:AMPLitude:UNIT DBM|DBUV|DBUVEMF|V|VEMF|DB  
:DISPLAY:ANNotation:AMPLitude:UNIT?
```

This command sets the displayed front panel amplitude units.

If the amplitude reference state is set to on, the query returns units expressed in dB. Setting any other unit will cause a setting conflict error stating that the amplitude reference state must be set to off. Refer to, “[:REFerence:STATe](#)” on page 59 for more information.

\*RST DBM

### :ANNotation:FREQuency[:STATe]

**Supported** All Models

```
:DISPLAY:ANNotation:FREQuency[:STATe] ON|OFF|1|0  
:DISPLAY:ANNotation:FREQuency[:STATe]?
```

This command enables or disables the frequency annotation secure display mode. See also, “[:ANNotation:AMPLitude\[:STATe\]](#)” on page 76 and “[:SECurity:DISPLAY:RESTRicted](#)” on page 128.

- |        |                                                                                                                                                                                                                                  |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On(1)  | This selection turns off the displayed frequency security, and the frequency annotation is visible.                                                                                                                              |
| OFF(0) | This selection turns on the displayed frequency security and the frequency annotation is blanked on the signal generator’s display. Also, the keys that access the frequency, sweep, and user flatness information are disabled. |

For more information about security functions, refer to the *User’s Guide*.

\*RST **Activate Restricted Display**

## :ANNotation:CLOCK:DATE:FORMAT

**Supported** All Models

:DISPLAY:ANNotation:CLOCK:DATE:FORMAT MDY|DMY  
:DISPLAY:ANNotation:CLOCK:DATE:FORMAT?

This command enables the selection of the date format. The choices are month-day-year (MDY) or day-month-year (DMY) format.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :ANNotation:CLOCK[:STATe]

**Supported** All Models

:DISPLAY:ANNotation:CLOCK[:STATe] ON|OFF|1|0  
:DISPLAY:ANNotation:CLOCK[:STATe]?

This command enables or disables the digital clock view in the lower right side of the front panel display.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :BRIGHTness

**Supported** All Models

:DISPLAY:BRIGHTness <value>  
:DISPLAY:BRIGHTness?

This command sets the display brightness (intensity). The brightness can be set to the minimum level (0.02), maximum level (1), or in between by using fractional numeric values (0.03–0.99).

**Range** 0.02–1

**Key Entry** Brightness

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :CAPture

**Supported** All Models

:DISPLAY:CAPTURE

This event command enables the user to capture the current display and store it in the signal generator's memory.

**Remarks** The display capture is stored as DISPLAY.BMP in the Binary file system. This file is overwritten with each subsequent display capture. The file can be down-loaded in the following manner:

1. Log on to the signal generator using ftp.

2. Change (cd) to the BIN directory.
3. Retrieve the file by using the get command or by using the :MEM:DATA query on [page 89](#).

## :CMAP:DEFaults

**Supported** All Models

:DISPLAY:CMAP:DEFault [<palette:{BRIGHT}|DARK|MONOchrome>]

This command selects the color palette for the instrument display.

**Key Entry** Bright Color    Dark Color    Monochrome

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :CONTrast

**Supported** All Models

:DISPLAY:CONTrast <value>

:DISPLAY:CONTrast?

This command sets the contrast of the LCD display. The contrast can be set to the maximum level (1), minimum level (0), or in between by using fractional numeric values (0.001–0.999).

**Range** 0–1

**Key Entry** Display contrast hardkeys are located below the display.

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :REMRote

**Supported** All Models

:DISPLAY:REMRote ON|OFF|1|0

:DISPLAY:REMRote?

This command enables or disables the display updating when the signal generator is remotely controlled.

**ON (1)** This choice updates the signal generator display (Text Area) so you can see the settings as the commands are executed, however, this will degrade the signal generator speed. Frequency Area, Amplitude Area, and status LEDs continue to update. For more information on the front panel display description, refer to the *User's Guide*.

**OFF (0)** This choice turns off the display (Text Area) updating while further optimizing the signal generator for speed. No Text Area updates occur but the Frequency Area, Amplitude Area, and status LEDs continue to update. For more information on the front panel display description, refer to the *User's Guide*.

**Key Entry** Update in Remote Off On

**Remarks** The setting enabled by this command is not affected by signal generator preset or \*RST. However, cycling the signal generator power will reset it to zero.

### [**:WINDoW**][**:STATe**]

**Supported** All Models

```
:DISPlay[:WINDOW] [:STATe] ON|OFF|1|0  
:DISPlay[:WINDOW] [:STATe] ?
```

This command is used to either blank out (OFF or 0) the display screen or turn it on (ON or 1).

**Remarks** \*RST and presetting the signal generator or cycling the power will turn the display on.

## IEEE 488.2 Common Commands

### \*CLS

**Supported** All Models

\*CLS

The Clear Status (CLS) command clears the status byte by emptying the error queue and clearing all the event registers including the Data Questionable Event Register, the Standard Event Status Register, the Standard Operation Status Register and any other registers that are summarized in the status byte.

### \*ESE

**Supported** All Models

\*ESE <data>

The Standard Event Status Enable (ESE) command sets the Standard Event Status Enable Register. The variable <data> represents the sum of the bits that will be enabled.

**Range** 0–255

**Remarks** The setting enabled by this command is not affected by signal generator preset or \*RST. However, cycling the signal generator power will reset this register to zero. Refer to the *Programming Guide* for more information.

### \*ESE?

**Supported** All Models

\*ESE?

The Standard Event Status Enable (ESE) query returns the value of the Standard Event Status Enable Register.

**Remarks** Refer to the *Programming Guide* for more information.

### \*ESR?

**Supported** All Models

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

\*ESR?

The Standard Event Status Register (ESR) query returns the value of the Standard Event Status Register.

**Remarks** Refer to the *Programming Guide* for more information.

## \*IDN?

**Supported** All Models

\*IDN?

The Identification (IDN) query outputs an identifying string. The response will show the following information:

<company name>, <model number>, <serial number>, <firmware revision>

**Key Entry** **Diagnostic Info**

**Remarks** The identification information can be modified. Refer to :SYST:IDN on [page 117](#) for more information.

## \*OPC

**Supported** All Models

\*OPC

The Operation Complete (OPC) command sets bit 0 in the Standard Event Status Register when all pending operations have finished.

## \*OPC?

**Supported** All Models

\*OPC?

The Operation Complete (OPC) query returns the ASCII character 1 in the Standard Event Status Register when all pending operations have finished.

This query stops any new commands from being processed until the current processing is complete. This command blocks the controller until *all* operations are complete (i.e. the timeout setting should be longer than the longest sweep).

## \*OPT?

**Supported** All Models

\*OPT?

The options (OPT) query returns a comma-separated list of all of the instrument options currently installed on the signal generator.

**Key Entry** **Instrument Options**

## \*PSC

### Supported

\*PSC ON|OFF|1|0

The Power-On Status Clear (PSC) command controls the automatic power-on clearing of the Service Request Enable Register, the Standard Event Status Enable Register, and device-specific event enable registers.

ON (1)	This choice enables the power-on clearing of the listed registers.
OFF (0)	This choice disables the clearing of the listed registers and they retain their status when a power-on condition occurs.
Remarks	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

## \*PSC?

**Supported** All Models

\*PSC?

The Power-On Status Clear (PSC) query returns the flag setting as enabled by the \*PSC command.

## \*RCL

**Supported** All Models

\*RCL <reg>,<seq>

The Recall (RCL) command recalls the state from the specified memory register <reg> of the specified sequence <seq>.

**Range** Registers: 0-99      Sequences: 0-9

**Key Entry** RECALL Reg      Select Seq:

## \*RST

**Supported** All Models

\*RST

The Reset (RST) command resets most signal generator functions to factory-defined conditions.

**Remarks** Each command shows the \*RST value if the setting is affected.

The settings enabled by this command is not affected by a signal generator power-on, preset, or \*RST.

\*RST uses the factory preset state which is better for automated testing, for example sweep mode is set to single.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

**\*SAV****Supported** All Models**\*SAV <reg>,<seq>**

The Save (SAV) command saves signal generator settings to the specified memory register <reg> of the specified sequence <seq>.

**Range** Registers: 0–99      Sequences: 0–9**Key Entry** Save Reg      Save Seq[n] Reg[nn]**Remarks** The save function does not save all signal generator settings. Refer to the *User's Guide* for more information on the save function. Refer to ["\\*RCL" on page 82](#) for information on recalling saved signal generator settings.**\*SRE****Supported** All Models**\*SRE <data>**

The Service Request Enable (SRE) command sets the value of the Service Request Enable Register.

The variable <data> is the decimal sum of the bits that will be enabled. Bit 6 (value 64) is ignored and cannot be set by this command.

**Range** 0–255**Remarks** Refer to the *Programming Guide* for more information.

Entering values from 64 to 127 is equivalent to entering values from 0 to 63.

The setting enabled by this command is not affected by signal generator preset or \*RST. However, cycling the signal generator power will reset it to zero.

**\*SRE?****Supported** All Models**\*SRE?**

The Service Request Enable (SRE) query returns the value of the Service Request Enable Register.

**Range** 0–63 or 128–191**Remarks** Refer to the *Programming Guide* for more information.**\*STB?****Supported** All Models**\*STB?**

The Read Status Byte (STB) query returns the value of the status byte including the master summary status (MSS) bit.

**Range** 0–255**Remarks** Refer to the *Programming Guide* for more information.

## \*TRG

**Supported** All Models

\*TRG

The Trigger (TRG) command triggers the device if BUS is the selected trigger source, otherwise, \*TRG is ignored.

## \*TST?

**Supported** All Models

\*TST?

The Self-Test (TST) query initiates the internal self-test and returns one of the following results:

0 This shows that all tests passed.

1 This shows that one or more tests failed.

**Key Entry** Run Complete Self Test

## \*WAI

**Supported** All Models

\*WAI

The Wait-to-Continue (WAI) command causes the signal generator to wait until all pending commands are completed, before executing any other commands.

## Memory Subsystem (:MEMORY)

### :CATalog:BINary?

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:CATalog:BINary?

This query outputs a list of the binary files. The return data will be in the following form:

<mem used>, <mem free>{,<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name>,<file type>,<file size>"

### Example Output

1818624,519962624,"GEN\_FILE11,BIN,5"

**Key Entry** **Binary**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

### :CATalog:DMOD?

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:CATalog:DMOD?

This command outputs a list of the arbitrary waveform digital modulation files. The return data will be in the following form:

<mem used>, <mem free>{,<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name>,<file type>,<file size>"

**Key Entry** **DMOD**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

### :CATalog:FIR?

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:CATalog:FIR?

This command outputs a list of the finite impulse response filter files. The return data will be in the following form:

<mem used>, <mem free>{,<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name>,<file type>,<file size>"

**Key Entry** **FIR**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

### **:CATalog:LIST?**

**Supported** All Models

**:MEMORY:CATalog:LIST?**

This query outputs a list of the list sweep files. The return data will be in the following form:

`<mem used>,<mem free>{,<file listing>}`

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

`"<file name>,<file type>,<file size>"`

### **Example Output**

`1818624,519962624,"LAST,LIST,122","LIST10,LIST,69"`

**Key Entry** **List**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

### **:CATalog:MDMod**

**Supported** N5182A with Option 651, 652, or 654

**:MEMORY:CATalog:MDMod?**

This command outputs a list of the arbitrary waveform multi carrier digital modulation files. The return data will be in the following form:

`<mem used>,<mem free>{,<file listing>}`

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

`"<file name>,<file type>,<file size>"`

**Key Entry** **MDMOD**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

### **:CATalog:MTOne**

**Supported** N5182A with Option 651, 652, or 654

**:MEMORY:CATalog:MTOne?**

This command outputs a list of the arbitrary waveform multitone files. The return data will be in the following form:

`<mem used>,<mem free>{,<file listing>}`

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name,file type,file size>"

**Key Entry** **MTONE**

**Remarks** Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

### **:CATalog:SEQ?**

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:CATalog:SEQ?

This query outputs a list of the arbitrary waveform sequence files. The return data will be in the following form:

<mem used>, <mem free>{, "<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name>,<file type>,<file size>"

### **Example Output**

1818624,519962624,"SEQ1\_TEST,SEQ,206","SEQ\_TEST,SEQ,169"

**Key Entry** **SEQ**

**Remarks** Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

### **:CATalog:STATE?**

**Supported** All Models

:MEMORY:CATalog:STATE?

This query outputs a list of the state files. The return data will be in the following form:

<mem used>, <mem free>{, "<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name,file type,file size>"

### **Example Output**

1818624,519962624,"0\_00,STAT,641"

**Key Entry** **State**

**Remarks** Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

The :MEM:CAT:STAT command requires the use of registry number and sequence number variables. The ranges are 0-99 for <reg\_num> and 0-9 for <seq\_num>.

## :CATalog:UFLT?

**Supported** All Models

:MEMORY:CATalog:UFLT?

This query outputs a list of the user-flatness correction files. The return data will be in the following form:

<mem used>, <mem free>{, "<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the directory list. Each file listing parameter will be in the following form:

"<file name, file type, file size>"

### Example Output

1818624, 519962624, "FLAT\_1, UFLT, 16", "LAST, UFLT, 16"

**Key Entry** User Flatness

**Remarks** Refer to "[File Name Variables](#)" on page 12 for information on the file name syntax.

## :CATalog[:ALL]?

**Supported** All Models

:MEMORY:CATalog[:ALL] ?

This query outputs a list of all the files in the memory subsystem. However it does not include files stored on the Option 651, 652, or 654 baseband generator. The return data will be in the following form:

<mem used>, <mem free>{, "<file listing>"}

The signal generator will return the two memory usage parameters and as many file listings as there are files in the memory subsystem. Each file listing parameter will be in the following form:

"<file name, file type, file size>"

### Example Output

1818624, 519962624, 0\_00@STATE, STAT, 641", "0\_01@STATE, STAT, 669", "A@NVHDR, NVHDR, 132", "A@NVMKR, NVMKR, 0", "A@NVWFM, NVWFM, 9", "COPY12@STATE, STAT, 669", "FLAT\_1@USERFLAT, UFLT, 16", "GEN\_FILE11@BINARY, BIN, 5", "LAST@LIST, LIST, 122", "LAST@USERFLAT, UFLT, 16", "PERSISTENT@STATE, STAT, 1056", SEQ1\_TEST@SEQ, SEQ, 206

**Key Entry** All

**Remarks** Refer to the [Table 1-4 on page 14](#) for a listing of the file types and the table on [page 15](#) for information on the "<file name>" syntax.

**:COPY[:NAME]****Supported** All Models`:MEMORY:COPY[:NAME] "<file name>","<file name>"`

This command makes a duplicate of the requested file.

**Key Entry** **Copy File****Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

When copying a waveform file from volatile to non-volatile memory, the marker file and file header, associated with the waveform file, will automatically be copied at the same time.

**:DATA****Supported** All Models`:MEMORY:DATA "<file_name>",<data_block>  
:MEMORY:DATA? "<file_name>"`

This command loads data into signal generator memory using the &lt;data\_block&gt; parameter and saves the data to a file designated by the "&lt;file\_name&gt;" variable. The query returns the file contents of the file as a datablock.

A waveform file must be located in volatile waveform memory (WFM1) before it can be played by the signal generator's dual ARB player.

For downloads directly into volatile waveform memory (WFM1) use the path "WFM1:&lt;file\_name&gt;". For downloads to non-volatile waveform memory, use the path "NVWFM:&lt;file\_name&gt;".

"**<file\_name>**" This variable names the destination file, including the directory path.<**data\_block**> This parameter represents the data and file length parameters. The data in the file is represented by the <data\_block> variable.Refer to the *Programming Guide* for more information on programming the status registers.**Example**`:MEM:DATA "NVWFM:IQ_Data",#210Qaz37pY9oL`

The preceding example downloads 10 bytes of data to a file, IQ\_Data, in the signal generator's non-volatile memory. The table shown below describes the command parameters.

- |                   |                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------|
| • "NVWFM:IQ_Data" | <b>IQ_Data</b> is the file name. The directory path is not needed. The path "/USER/WAVEFORM/" is implied. |
| • #210Qaz37pY9oL  | Data block                                                                                                |
| #                 | This character indicates the beginning of the data block                                                  |
| 2                 | Number of digits in the byte count                                                                        |
| 10                | Byte count                                                                                                |
| Qaz37pY9oL        | 10 bytes of data                                                                                          |

---

**NOTE** The data, Qaz37pY9oL, in the above command are not valid and are shown for example purposes only. Typically, ascii characters representing data are unprintable.

---

**Remarks** See “[File Name Variables](#)” on page 12 for information on the file name syntax.

## :DATA:APPend

**Supported** All Models

:APPend "<file\_name>",<data\_block>

This commands appends data to an existing file stored in signal generator memory.

- "<file\_name>" This variable names the destination file and directory path.  
<data\_block> This parameter represents the data and file length parameters. The data in the file is represented by the <data\_block> variable. The file length parameters are used by the signal generator for allocating memory.

Refer to the *Programming Guide* for more information on downloading and using files.

### Example

```
:MEM:DATA:APPend "NVWFM:IQ_Data",#14Y9oL
```

The preceding example downloads and appends the data, Y9oL, to an existing file named IQ\_Data stored in the signal generator's non-volatile memory (NVWFM).

- "NVWFM:IQ\_Data" IQ\_Data the file name. The directory path is not needed. The path "/USER/WAVEFORM/" is implied.
- #14Y9oL Data block
  - # This character indicates the beginning of the data block
  - 1 Number of digits in the byte count
  - 4 Byte count
  - Y9oL 4 bytes of data

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

## :DATA:FIR

**Supported** N5182A with Option 651, 652, or 654

```
:MEMORY:DATA:FIR "<file_name>",osr,coefficient{,coefficient}  
:MEMORY:DATA:FIR? "<file_name>"
```

This command loads oversample ratio (OSR) and user-defined finite impulse response (FIR) coefficient data into a file in the signal generator's non-volatile memory (NVWFM). The query returns the oversample ratio and coefficient data.

- "<file\_name>" This variable is the file name of the destination file. The directory path, /USER/FIR is not required as it is implied by the command.

osr	The OSR is the number of filter taps per symbol.
coefficient	This variable is the FIR coefficient. The maximum number of coefficients is 1024.
{,coefficient}	This optional variable is used when you enter additional coefficients.
Refer to the <i>Programming Guide</i> for more information on downloading and using files.	

**Example**

```
:MEM:DATA:FIR "FIR_1",4,0,0,0,0,0,0.000001,0.000012,0.000132,  
0.001101,0.006743,0.030588,0.103676,0.265790,0.523849,0.809508,1,1,  
0.809508,0.523849,0.265790,0.103676,0.030588,0.006743,0.001101,0.000132,0.000012,0.00  
0001,0,0,0,0,0
```

The preceding example downloads FIR coefficient and oversampling ratio data to the signal generator's non-volatile memory in a file named FIR\_1. Notice that the signal generator directory path, /USER/FIR, is not needed as it is implied by the command. Refer to “[File Name Variables](#)” on [page 12](#) for information on the file name syntax.

**Range**            *osr*: 1–32  
                    *coefficient*: -1000 to 1000

**Key Entry**        Oversample Ratio

**:DELetE:ALL**

**Supported**        All Models

---

**CAUTION**     Using this command deletes all non-volatile user files including binary, list, state, and flatness correction files, and any saved setups which use the front panel table editor. However, this does not include files stored on the Option 651, 652, or 654 ARB generator. You cannot recover the files after executing this command.

---

```
:MEMORY:DELetE:ALL
```

This command clears the file system of all non-volatile user files.

**Key Entry**        **Delete All Files**

**:DELetE:BINary**

**Supported**        N5182A with Option 651, 652, or 654

```
:MEMORY:DELetE:BINary
```

This command deletes all binary files.

**Key Entry**        **Delete All Binary Files**

## **:DELetE:DMOD**

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:DELetE:DMOD

This command deletes all arbitrary waveform digital modulation files.

**Key Entry** **Delete All ARB DMOD Files**

## **:DELetE:FIR**

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:DELetE:FIR

This command deletes all finite impulse response filter files.

**Key Entry** **Delete All FIR Files**

## **:DELetE:LIST**

**Supported** All Models

:MEMORY:DELetE:LIST

This command deletes all List files.

**Key Entry** **Delete All List Files**

## **:DELetE:MDMod**

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:DELetE:MDMod

This command deletes all arbitrary waveform multicarrier digital modulation files.

**Key Entry** **Delete All ARB MDMOD Files**

## **:DELetE:MTONE**

**Supported** N5182A with Option 651, 652, or 654

:MEMORY:DELetE:MTONE

This command deletes all arbitrary waveform multitone files.

**Key Entry** **Delete All ARB MTONE Files**

## **:DELETED:SEQ**

**Supported** N5182A with Option 651, 652, or 654

**:MEMORY:DELETED:SEQ**

This command deletes all sequence files.

**Key Entry** **Delete All Sequence Files**

## **:DELETED:STATE**

**Supported** All Models

**:MEMORY:DELETED:STATE**

This command deletes all state files.

**Key Entry** **Delete All State Files**

## **:DELETED:UFLT**

**Supported** All Models

**:MEMORY:DELETED:UFLT**

This command deletes all user-flatness correction files.

**Key Entry** **Delete All UFLT Files**

## **:DELETED[:NAME]**

**Supported** All Models

**:MEMORY:DELETED[:NAME] "<file name>"**

This command clears the user file system of "<file name>".

**Key Entry** **Delete File**

**Remarks** Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

When deleting a waveform (WFM1) file from memory, the marker file and file header, associated with the waveform file, will also be deleted.

## **:FREE[:ALL]**

**Supported** All Models

**:MEMORY:FREE [:ALL] ?**

This command returns the number of bytes left in the non-volatile user file system.

**Key Entry** **All**

## :LOAD:LIST

**Supported** All Models

:MEMORY:LOAD:LIST "<file name>"

This command loads a list sweep file.

**Key Entry** **Load From Selected File**

## :MOVE

**Supported** All Models

:MEMORY:MOVE "<src\_file>","<dest\_file>"

This command renames the requested file in the memory catalog.

**Key Entry** **Rename File**

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

## :SIZE

**Supported** All Models

:MEMORY:SIZE? "<filename>"

This command returns the size of the file named <"filename"> in bytes or a -1, if the file does not exist. If the MSUS or directory is invalid, an “ERROR: -257, File name error” will be reported.

## :STATe:COMMENT

**Supported** All Models

:MEMORY:STATE:COMMENT <reg\_num>,<seq\_num>,"<comment>"

:MEMORY:STATE:COMComment? <reg\_num>,<seq\_num>

This command lets you to add a descriptive comment to the saved state <reg\_num>,<seq\_num>. Comments can be up to 55 characters long.

**Key Entry** **Add Comment To Seq[n] Reg[nn]**

## :STORe:LIST

**Supported** All Models

:MEMORY:STORE:LIST "<file name>"

This command stores the current list sweep data to a file.

**Key Entry** **Store To File**

## :CATalog

**Supported** All Models

`:MEMORY:CATalog? "<msus>"`

This command outputs a list of the files from the specified file system.

The variable "<msus>" (mass storage unit specifier) represents "<file system>". The file systems and types are shown in [Table 1-4 on page 14](#).

The return data will be in the following form:

`<mem used>, <mem free>{, "<file listing>"}`

The signal generator will return the two memory usage parameters and as many file listings as there are files in the specified file system. Each file listing will be in the following format:

`"<file name>, <file type>, <file size>"`

<b>Key Entry</b>	<b>Binary</b>	<b>List</b>	<b>State</b>	<b>User Flatness</b>
	<b>Seq</b>	<b>BBG Segments</b>	<b>NVMKR</b>	<b>NVWFM</b>

**Remarks** Refer to [“MSUS \(Mass Storage Unit Specifier\) Variable” on page 15](#) for information on the use of the "<msus>" variable.

## :COPY

**Supported** All Models

`:MEMORY:COPY "<file name>", "<file name>"`

This command makes a duplicate of the requested file.

**Key Entry** **Copy File**

**Remarks** Refer to [“File Name Variables” on page 12](#) for information on the file name syntax.

When copying a waveform file from volatile to non-volatile memory, the marker file and file header, associated with the waveform file, will automatically be copied at the same time.

## :DATA

**Supported** All Models

`:MEMORY:DATA "<file name>", <datablock>`

`:MEMORY:DATA? "<file name>"`

This command loads <datablock> into the memory location "<file name>".

The query returns the <datablock> associated with the "<file name>".

**Remarks** Refer to [“File Name Variables” on page 12](#) for information on the file name syntax.

## :DELetE:NVWFm

**Supported** N5182A with Option 651, 652, or 654

:MMEMory:DELetE:NVWFm

This command clears the user file system of all non-volatile arbitrary waveform files.

**Key Entry** **Delete All NVWFM Files**

## :DELetE:WFM

**Supported** N5182A with Option 651, 652, or 654

:MMEMory:DELetE:WFM

This command clears the user file system of all volatile arbitrary waveform files stored on the WFM1.

**Key Entry** **Delete All BBG Segments**

## :DELetE[:NAME]

**Supported** All

On the

:MMEMory:DELetE[:NAME] "<file name>", [<msus>]

This command clears the user file system of "<file name>" with the option of specifying the file system separately. For a list of file systems refer to [Table 1-4 on page 14](#).

The variable "<msus>" (mass storage unit specifier) represents the file system.

**Key Entry** **Delete File**

**Remarks** If the optional variable "<msus>" is omitted, the file name needs to include the file system extension. Refer to [“File Name Variables” on page 12](#) and [“MSUS \(Mass Storage Unit Specifier\) Variable” on page 15](#) for information on the use of the file variables.

When deleting a waveform file from memory, the marker file and file header, associated with the waveform file, will also be deleted.

## :HEADer:CLEar

**Supported** N5182A with Option 651, 652, or 654

`:MMEMORY:HEADer:CLEar "<file name>"`

This command sets the file header field settings to unspecified for the "<file name>" variable.

**Key Entry** **Clear Header**

**Remarks** In addition to waveforms currently running in the signal generator, it is possible to change or delete file header information on files that are not currently running but are stored in either the internal storage or USB media non-volatile memory (Example: `:MMEMORY:HEADer:CLEar "NVWFM:file_name"`).

Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

## :HEADer:DESCription

**Supported** N5182A with Option 651, 652, or 654

`:MMEMORY:HEADer:DESCription "<file name> , <description>"`

`:MMEMORY:HEADer:DESCription? "<file name>"`

This command inserts a description for the file header.

**Key Entry** **Edit Description**

**Remarks** In addition to waveforms currently running in the signal generator, it is possible to change or delete file header information on files that are not currently running but are stored in either the internal storage or USB media non-volatile memory (Example: `:MMEMORY:HEADer:DESCription "NVWFM:file_name" , "example_file_name"`).

The header description is limited to 32 characters. Refer to ["File Name Variables" on page 12](#) for information on the file name syntax.

## :LOAD:LIST

**Supported** All

`:MMEMORY:LOAD:LIST "<file name>"`

This command loads a List sweep file.

**Key Entry** **Load From Selected File**

## :MOVE

**Supported** All

:MMEMory:MOVE "<src\_file>","<dest\_file>"

This command renames the requested file in the memory catalog.

**Key Entry** Rename File

**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

## :STORe:LIST

**Supported** All

:MMEMory:STORe:LIST "<file name>"

This command stores the current list sweep data to a file.

**Key Entry** Store To File

## Output Subsystem (:OUTPut)

### :BLANKing:AUTO

**Supported** All

```
:OUTPut:BLANKing:AUTO ON|OFF|1|0  
:OUTPut:BLANKing:AUTO?
```

This command turns the RF output on or off during frequency band changes. Frequency band changes can cause the signal generator's RF output to fluctuate. The output blanking function, when active, turns off the RF output until the frequency and power settles.

ON(1) The RF output turns off when crossing a frequency band.

OFF(0) The RF output stays on, *if possible*, when crossing a frequency band. Refer to the *Data sheet*.

\*RST 1

**Key Entry** **Output Blanking Off On Auto**

**Remarks** Refer to the signal generator's data sheet for information on frequency switching speeds, settling times, and frequency band information.

### :BLANKing:STATE

**Supported** All

```
:OUTPut:BLANKing:STATE ON|OFF|1|0  
:OUTPut:BLANKing:STATE?
```

This command enables or disables the RF output blanking state.

ON(1) The RF output turns off during frequency changes.

OFF(0) The RF output stays on, *if possible*, during frequency changes. Refer to the *Data sheet*.

\*RST 0

**Remarks** Refer to the signal generator's data sheet for information on frequency switching speeds, settling times, and frequency band information.

## :MODulation[:STATe]

**Supported** All

:OUTPut :MODulation [:STATe] ON|OFF|1|0

:OUTPut :MODulation [:STATe] ?

This command enables or disables the modulation of the RF output with the currently active modulation type(s).

**\*RST** 1

**Key Entry** Mod On/Off

**Remarks** Some modulation types can be simultaneously enabled such as pulse and AM.

An annunciator on the signal generator is always displayed to indicate whether modulation is switched on or off.

## :PROtection[:STATe]

**Supported** All

:OUTPut :PROtection [:STATe] ON|OFF|1|0

:OUTPut :PROtection [:STATe] ?

This command enables or disables the reverse power protection (RPP) circuit on the RF output.

---

**CAUTION** The RPP is used to protect the output amplifiers in the source by tripping a relay whenever an external high level RF signal is detected on the RF output. When the relay is tripped the output signal of the source is disabled and a warning message is displayed.

---

**\*RST** 1

**Key Entry** Output Off On Auto

## [:STATe]

**Supported** All

:OUTPut [:STATe] ON|OFF|1|0

:OUTPut [:STATe] ?

This command enables or disables the RF output.

**\*RST** 0

**Key Entry** RF On/Off

**Remarks** Although you can configure and engage various modulations, no signal is available at the RF OUTPUT connector until this command is executed.

An annunciator is always displayed on the signal generator to indicate whether the RF output is switched on or off.

## Route Subsystem (:ROUTE)

### [:CONNector]:EVENT1

**Supported** N5182A

:ROUTE [ :CONNECTors] :EVENT1 M1|M2|M3|M4

:ROUTE [ :CONNECTors] :EVENT1?

This command selects a marker (M1-M4) signal to be routed to the rear panel Event 1 connector.

**\*RST** M1

**Key Entry** **Route to Event 1 BNC**

### [:CONNector]:SOUT

**Supported** *As indicated*

:ROUTE [ :CONNECTors] :SOUT SWEep|SETTled|PVIDeo|SW8757

:ROUTE:CONNECTors:SOUT?

This command selects a signal to be routed to the rear panel Sweep Out connector.

The SWEep|SETTled|PVIDeo parameters are available on all models. The SW8757 is available *only* on the N5183A.

SWEep This choice routes the sweep out signal to the Sweep Out connector.

SETTled This choice routes the source settled signal to the Sweep Out connector.

PVIDeo This choice routes the pulse video signal to the Sweep Out connector.

SW8757 This choice routes the sweep out signal to the Sweep Out connector for compatibility with the 8757D (*only* available on the N5183A).

**\*RST** SWE

**Key Entry** **Route Sweep Out**

### [:CONNector]:TOUT

**Supported** *As indicated*

:ROUTE [ :CONNECTors] :TOUT SWEep|SETTled|PVIDeo|PSYNC|M1|M2|M3|M4

:ROUTE [ :CONNECTors] :TOUT?

This command selects a signal to be routed to the rear panel Trig Out connector.

The SWEep|SETTled|PVIDeo|PSYNC parameters are available on all models. The M1|M2|M3|M4 are available *only* on the N5182A.

SWEep This choice routes the sweep trigger out signal to the Trig Out connector.

SETTled This choice routes the source settled signal to the Trig Out connector.

PVIDeo This choice routes the pulse video signal to the Trig Out connector.

## System Commands

### Route Subsystem (:ROUTe)

PSYNC	This choice routes the pulse sync signal to the Trig Out connector.
M1   M2   M3   M4	This choice routes the selected BBG marker (M1, M2, M3, or M4) signal to the Trig Out connector ( <i>only</i> available on the N5182A with Option 651, 652, or 654).
*RST	SWE
<b>Key Entry</b>	<b>Route Trig Out</b>

## Status Subsystem (:STATus)

### :OPERation:CONDition

**Supported** All

:STATus:OPERation:CONDition?

This query returns the decimal sum of the bits for the registers that are set to one and are part of the Standard Operation Status Group. For example, if a sweep is in progress (bit 3), the value 8 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects current conditions.

Refer to the *Programming Guide* for more information.

### :OPERation:ENABLE

**Supported** All

:STATus:OPERation:ENABLE <value>

:STATus:OPERation:ENABLE?

This command determines which bits in the Standard Operation Event Register will set the Standard Operation Status Summary bit (bit 7) in the Status Byte Register.

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

### :OPERation:NTRansition

**Supported** All

:STATus:OPERation:NTRansition <value>

:STATus:OPERation:NTRansition?

This command determines which bits in the Standard Operation Condition Register will set the corresponding bit in the Standard Operation Event Register when that bit has a negative transition (1 to 0).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :OPERation:PTRansition

**Supported** All

```
:STATus:OPERation:PTRansition <value>
:STATus:OPERation:PTRansition?
```

This command determines which bits in the Standard Operation Condition Register will set the corresponding bit in the Standard Operation Event Register when that bit has a positive transition (0 to 1).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :OPERation:SUPPress

**Supported** All

```
:STATus:OPERation:SUPPress 0|1|ON|OFF
:STATus:OPERation:SUPPress?
```

This command disables the instrument's management of the Standard Operation Condition Register and saves 50 us of switching time.

**\*RST** OFF

**Remarks** Refer to the *Programming Guide* for more information.

## :OPERation[:EVENT]

**Supported** All

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

```
:STATus:OPERATION[:EVENT]?
```

This query returns the decimal sum of the bits in the Standard Operation Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## :PRESet

**Supported** All

```
:STATus:PRESet
```

This command presets all transition filters, enable registers, and error/event queue enable registers.

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEStionable:CALibration:CONDition**

**Supported** All

`:STATus:QUEStionable:CALibration:CONDition?`

This query returns the decimal sum of the bits in the Data Questionable Calibration Condition Register. For example, if the DCFM or DCFM zero calibration fails (bit 0), a value of 1 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects the current conditions.

Refer to the *Programming Guide* for more information.

## **:QUEStionable:CALibration:ENABLE**

**Supported** All

`:STATus:QUEStionable:CALibration:ENABLE <value>`

`:STATus:QUEStionable:CALibration:ENABLE?`

This command determines which bits in the Data Questionable Calibration Event Register will set the calibration summary bit (bit 8) in the Data Questionable Condition Register.

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEStionable:CALibration:NTRansition**

**Supported** All

`:STATus:QUEStionable:CALibration:NTRansition <value>`

`:STATus:QUEStionable:CALibration:NTRansition?`

This command determines which bits in the Data Questionable Calibration Condition Register will set the corresponding bit in the Data Questionable Calibration Event Register when that bit has a negative transition (1 to 0).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEStionable:CALibration:PTRansition**

**Supported** All

`:STATus:QUEStionable:CALibration:PTRansition <value>`  
`:STATus:QUEStionable:CALibration:PTRansition?`

This command determines which bits in the Data Questionable Calibration Condition Register will set the corresponding bit in the Data Questionable Calibration Event Register when that bit has a positive transition (0 to 1).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEStionable:CALibration[:EVENT]**

**Supported** All

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

`:STATus:QUEStionable:CALibration[:EVENT] ?`

This command returns the decimal sum of the bits in the Data Questionable Calibration Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## **:QUEStionable:CONDition**

**Supported** All

`:STATus:QUEStionable:CONDition?`

This query returns the decimal sum of the bits in the Data Questionable Condition Register. For example, if the ALC Heater Detector is cold (bit 4), a value of 16 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects current conditions.

Refer to the *Programming Guide* for more information.

## :QUESTIONable:ENABLE

**Supported** All

:STATus:QUESTIONable:ENABLE <value>  
:STATus:QUESTIONable:ENABLE?

This command determines which bits in the Data Questionable Event Register will set the Data Questionable Status Group Summary bit (bit 3) in the Status Byte Register.

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUESTIONable:FREQuency:CONDition

**Supported** All

:STATus:QUESTIONable:FREQuency:CONDition?

This query returns the decimal sum of the bits in the Data Questionable Frequency Condition Register. For example, if the 1 GHz internal reference clock is unlocked (bit 2), a value of 4 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects current conditions.  
Refer to the *Programming Guide* for more information.

## :QUESTIONable:FREQuency:ENABLE

**Supported** All

:STATus:QUESTIONable:FREQuency:ENABLE <value>  
:STATus:QUESTIONable:FREQuency:ENABLE?

This command determines which bits in the Data Questionable Frequency Event Register will set the frequency summary bit (bit 5) in the Data Questionable Condition Register.

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEstionable:FREQuency:NTRansition**

**Supported** All

`:STATus:QUEstionable:FREQuency:NTRansition <value>`  
`:STATus:QUEstionable:FREQuency:NTRansition?`

This command determines which bits in the Data Questionable Frequency Condition Register will set the corresponding bit in the Data Questionable Frequency Event Register when that bit has a negative transition (1 to 0).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEstionable:FREQuency:PTRansition**

**Supported** All

`:STATus:QUEstionable:FREQuency:PTRansition <value>`  
`:STATus:QUEstionable:FREQuency:PTRansition?`

This command determines which bits in the Data Questionable Frequency Condition Register will set the corresponding bit in the Data Questionable Frequency Event Register when that bit has a positive transition (0 to 1).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## **:QUEstionable:FREQuency[:EVENT]**

**Supported** All

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

`:STATus:QUEstionable:FREQuency [:EVENT] ?`

This query returns the decimal sum of the bits in the Data Questionable Frequency Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## :QUESTIONable:MODulation:CONDition

**Supported** All

**:STATus**:QUESTIONable:MODulation:CONDition?

This command returns the decimal sum of the bits in the Data Questionable Modulation Condition Register. For example, if the modulation is uncalibrated (bit 4), a value of 16 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects current conditions.

Refer to the *Programming Guide* for more information.

## :QUESTIONable:MODulation:ENABLE

**Supported** All

**:STATus**:QUESTIONable:MODulation:ENABLE <val>

**:STATus**:QUESTIONable:MODulation:ENABLE?

This command determines which bits in the Data Questionable Modulation Event Register will set the modulation summary bit (bit 7) in the Data Questionable Condition Register.

The variable <val> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUESTIONable:MODulation:NTRansition

**Supported** All

**:STATus**:QUESTIONable:MODulation:NTRansition <val>

**:STATus**:QUESTIONable:MODulation:NTRansition?

This command determines which bits in the Data Questionable Modulation Condition Register will set the corresponding bit in the Data Questionable Modulation Event Register when that bit has a negative transition (1 to 0).

The variable <val> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUEStionable:MODulation:PTRansition

**Supported** All

```
:STATus:QUEStionable:MODulation:PTRansition <val>
:STATus:QUEStionable:MODulation:PTRansition?
```

This command determines which bits in the Data Questionable Modulation Condition Register will set the corresponding bit in the Data Questionable Modulation Event Register when that bit has a positive transition (0 to 1).

The variable <val> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUEStionable:MODulation[:EVENT]

**Supported** All

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

```
:STATus:QUEStionable:MODulation[:EVENT]?
```

This query returns the decimal sum of the bits in the Data Questionable Modulation Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## :QUEStionable:NTRansition

**Supported** All

```
:STATus:QUEStionable:NTRansition <value>
:STATus:QUEStionable:NTRansition?
```

This command determines which bits in the Data Questionable Condition Register will set the corresponding bit in the Data Questionable Event Register when that bit has a negative transition (1 to 0).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUESTIONable:POWer:CONDition

**Supported** All

:STATus:QUESTIONable:POWer:CONDition?

This query returns the decimal sum of the bits in the Data Questionable Power Condition Register. For example, if the RF output signal is unleveled (bit 1), a value of 2 is returned.

**Range** 0–32767

**Remarks** The data in this register is continuously updated and reflects current conditions.

Refer to the *Programming Guide* for more information.

## :QUESTIONable:POWer:ENABLE

**Supported** All

:STATus:QUESTIONable:POWer:ENABLE <value>

:STATus:QUESTIONable:POWer:ENABLE?

This command determines which bits in the Data Questionable Power Event Register will set the power summary bit (bit 3) in the Data Questionable Condition Register.

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUESTIONable:POWer:NTRansition

**Supported** All

:STATus:QUESTIONable:POWer:NTRansition <value>

:STATus:QUESTIONable:POWer:NTRansition?

This command determines which bits in the Data Questionable Power Condition Register will set the corresponding bit in the Data Questionable Power Event Register when that bit has a negative transition (1 to 0).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUEStionable:POWer:PTRansition

**Supported** All

```
:STATus:QUEStionable:POWer:PTRansition <value>
:STATus:QUEStionable:POWer:PTRansition?
```

This command determines which bits in the Data Questionable Power Condition Register will set the corresponding bit in the Data Questionable Power Event Register when that bit has a positive transition (0 to 1).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUEStionable:POWer[:EVENT]

**Supported** All

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

```
:STATus:QUEStionable:POWer[:EVENT]?
```

This query returns the decimal sum of the bits in the Data Questionable Power Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## :QUEStionable:PTRansition

**Supported** All

```
:STATus:QUEStionable:PTRansition <value>
:STATus:QUEStionable:PTRansition?
```

This command determines which bits in the Data Questionable Condition Register will set the corresponding bit in the Data Questionable Event Register when that bit has a positive transition (0 to 1).

The variable <value> is the sum of the decimal values of the bits that you want to enable.

**Range** 0–32767

**Remarks** Refer to the *Programming Guide* for more information.

## :QUEStionable[:EVENT]

**Supported** All

---

**CAUTION** This is a destructive read. The data in the register is latched until it is queried. Once queried, the data is cleared.

---

:STATus:QUEStionable [:EVENT] ?

This query returns the decimal sum of the bits in the Data Questionable Event Register.

**Range** 0–32767

**Remarks** The equivalent PTR or NTR filters must be set before the condition register can set the corresponding bit in the event register.

Refer to the *Programming Guide* for more information.

## System Subsystem (:SYSTem)

### :CAPability

**Supported** All

**:SYSTem:CAPability?**

This query returns the signal generator's capabilities and outputs the appropriate specifiers:

(RFSOURCE WITH( (AM|FM|PULM|PM) & (FSSWEEP|FLIST) & (PSSWEEP|PLIST) &TRIGGER&REFERENCE )

This is a list of the SCPI-defined basic functionality of the signal generator and the additional capabilities it has in parallel (a&b) and singularly (a|b).

### :DATE

**Supported** All

**:SYSTem:DATE <year>,<month>,<day>**

**:SYSTem:DATE?**

This command sets the date as shown in the lower right area of the signal generator display.

**<year>** This variable requires a four digit integer.

The query returns the date in the following format:

**<+year>,<+month>,<+day>**

**Range** <month>: 1-12      <day>: 1-31

**Key Entry** **Time/Date**

### :ERRor:CODE[:NEXT]

**Supported** All

**:SYSTem:ERRor:CODE [:NEXT] ?**

This query returns the next error message number from the signal generator SCPI error queue. If there are no error messages, the query returns the following output:

+0

When there is more than one error message, the query will need to be sent for each message.

The Agilent MXG deletes the error messages from the front panel error queue after viewing the last message.

**Key Entry** **Error Info** **View Next Error Message**

## :ERRor[:NEXt]

**Supported** All

:SYSTem:ERRor [:NEXt] ?

This query returns the next error message from the signal generator SCPI error queue. If there are no error messages, the query returns the following output:

```
+0,"No error"
```

When there is more than one error message, the query will need to be sent for each message.

The Agilent MXG deletes the error messages from the front panel error queue after viewing the last message.

**Key Entry**      **Error Info**      [View Next Error Message](#)

## :ERRor:SCPI[:SYNTax]

**Supported** All

:SYSTem:ERRor:SCPI [:SYNTax] ON|OFF|1|0  
:SYSTem:ERRor:SCPI [:SYNTax] ?

This command enables or disables the reporting of SCPI syntax errors to the error queue.

\*RST      0

## :FILEsystem:STORage:EXTernal

**Supported** All

:SYSTem:FILEsystem:STORage:EXTernal ?

This query checks to see if the external USB port is actively being used for data storage and retrieval on the signal generator. A returned value of 1 means the external USB media is being used for data storage and retrieval. For more information on non-volatile storage media settings, refer to “[:FILEsystem:STORage:EXTernal:PATH](#)” on page 115, “[:FILEsystem:STORage:TYPE](#)” on page 116 and “[:FILEsystem:STORage:TYPE:AUTO](#)” on page 117

## :FILEsystem:STORage:EXTernal:PATH

**Supported** All

:SYSTem:FILEsystem:STORage:EXTernal:PATH <"USB media root path">  
:SYSTem:FILEsystem:STORage:EXTernal:PATH?

This command selects the directory storage path on the USB media. For more information, refer to the signal generator’s softkey Help. For more information on non-volatile storage media settings, refer to “[:FILEsystem:STORage:EXTernal](#)” on page 115, “[:FILEsystem:STORage:TYPE](#)” on page 116 and “[:FILEsystem:STORage:TYPE:AUTO](#)” on page 117.

**Remarks** When reading and writing files from or to the USB media, different memory subsystem file types are marked by having a particular extender on the filename. Refer to “[USB Media Path Options](#)” table on page 116.

## System Commands

### System Subsystem (:SYSTem)

Files with unrecognized extenders are treated as binary (.bin) files.

<b>USB Media Path Options</b>	<b>Extender</b>	<b>File Type</b>	<b>Memory Subsystem</b>
	.waveform	waveform	NVWFM
	.markers	waveform marker	NVMKR
	.header	waveform header	NVHDR
	.state	instrument state	STATE
	.list	list sweep	LIST
	.userflat	user flatness	USERFLAT
	.seq	waveform sequence	SEQ
	<i>All others</i>	<i>All others</i>	BIN

## :FILEsystem:STORage:TYPE

**Supported** All

:SYSTem:FILEsystem:STORage:TYPE INTERNAL|EXTernal  
:SYSTem:FILEsystem:STORage:TYPE?

This command selects the non-volatile storage location on the signal generator. For more information on non-volatile storage media settings, refer to “[:FILEsystem:STORage:EXTernal](#)” on page 115, “[:FILEsystem:STORage:PATH](#)” on page 115 and “[:FILEsystem:STORage:TYPE:AUTO](#)” on page 117.

**Key Entry** **Storage Type Int Ext Auto**

**Example**

:SYST:FIL:STOR:TYPE EXT

The preceding example selects the external USB port as the location for non-volatile file storage on the signal generator.

## **:FILEsystem:STORage:TYPE:AUTO**

**Supported** All

:SYSTem:FILEsystem:STORage:TYPE:AUTO ON|OFF|1|0  
:SYSTem:FILEsystem:STORage:TYPE:AUTO?

This command enables the signal generator to auto-detect when the USB media is connected. When AUTO (ON|1) is selected, the file system uses the USB media, if available. When the USB media is removed, the file system uses the internal media. For more information, refer to the signal generator's softkey Help. For more information on non-volatile storage media settings, refer to "[:FILEsystem:STORage:EXTerinal](#)" on page 115, "[:FILEsystem:STORage:EXTerinal:PATH](#)" on page 115 and "[:FILEsystem:STORage:TYPE](#)" on page 116.

**\*RST** 1

**Key Entry** Storage Type Int Ext Auto

### **Example**

:SYST:FIL:STOR:TYPE:AUTO ON

The preceding example selects AUTOMATIC as the non-volatile storage setting and the signal generator will detect if the external USB port has a memory storage device connected.

**Remarks** When the USB media is removed, the USB non-volatile user file system effectively does not exist.

## **:IDN**

**Supported** All

:SYSTem:IDN "string"

This command modifies the identification string that the \*IDN? query returns. Sending an empty string sets the query output of \*IDN? to its factory shipped setting. The maximum string length is 72 characters.

**Remarks** Modification of the \*IDN? query output enables the signal generator to identify itself as another signal generator when used as a replacement.

The display diagnostic information, shown by pressing the **Diagnostic Info** softkey, is not affected by this command.

## :LANGuage (N5181A/82A)

**Supported** N5181A/82A

:SYSTem:LANGuage  
"SCPI" | "COMP" | "8648" | "E4428C" | "E4438C" | "E8257D" | "E8267D" | "E8663B" | "E8247C" |  
"E8257C" | "E8267C" | "E8241A" | "E8244A" | "E8251A" | "E8254A" | "E8247C" | "E8257C" | "E8267C" | "SMU  
200A" | "SMATE200A" | "SMJ100A" | "SMIQ" | "SML" | "SMV" | "3410"  
:SYSTem:LANGuage?

This command sets the remote language for the signal generator. For the N5183A, refer to [":LANGuage \(N5183A\)" on page 119](#).

SCPI	This choice provides compatibility for SCPI commands.
COMP	This choice provides compatibility for the 8656B, 8657A/B signal generator which is supported only through the GPIB interface.
8648	This choice provides compatibility for the 8648A/B/C/D signal generator which is supported only through a GPIB interface.
E4428C or E4438C	This choice provides compatibility for the E4428C or E4438C signal generators which are supported through a GPIB, LAN, or USB interface.
E8257D, or E8267D, or E8663B	This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators which are supported through a GPIB, LAN, or USB interface.
E8247C, or E8257C, or E8267C	This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators which are supported through a GPIB, LAN, or USB interface.
E442XB or E443XB	This choice provides compatibility for the E442XB or E443XB signal generators which are supported through a GPIB, LAN, or USB interface.
E8241A or E8244A	This choice provides compatibility for the 8648A/B/C/D signal generator which is supported through a GPIB, LAN, or USB interface.
E8251A or E8254A	This choice provides compatibility for the E8251A or E8254A signal generators which are supported through a GPIB, LAN or USB interface.
SMU200A, or SMATE200A, or SMJ100A, or SMIQ, or SML, or SMV	This choice provides compatibility for the Rohde and Schwarz SMU200A, SMATE200A, SMJ100A, SMIQ, SML, or SMV signal generators which are supported through a GPIB, LAN or USB interface.

3410	This choice provides compatibility for the Aeroflex 3410 signal generator which are supported through a GPIB, LAN or USB interface.			
<b>Key Entry</b>	<b>SCPI</b>	<b>COMP</b>	<b>E4428C, E4438C</b>	<b>E8257D, 8656B, 8657A/B</b>
			<b>E8247C, E8257C, E442XB, E443XB</b>	<b>E8267D (GPIB only)</b>
			<b>E8267C</b>	<b>E8241A, E8244A, 8648A/B/C/DE8663B</b>
	<b>SMU200A</b>	<b>SMJ100A</b>	<b>SMIQ</b>	<b>E8251A, E8254A (GPIB only)</b>
	<b>SMATE200A</b>		<b>SML</b>	
	<b>3410 Series</b>			<b>SMV</b>
<b>Remarks</b>	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST. For more information on supported SCPI commands and programming codes, refer to the <i>Programming Compatibility Guide</i> .			

### **:LANGuage (N5183A)**

**Supported** N5183A

"SCPI"|"8360"|"83712"|"83732"|"83752"|"8340"|"8662"|"8663"|"E4428C"|"E4438C"|"E8257D"|"E8267D"|"E8663B"|"E8247C"|"E8257C"|"E8267C"|"E8241A"|"E8244A"|"E8251A"|"E8254A"  
:SYSTem:LANGuage?

This command sets the remote language for the signal generator. For the N5181A/82A, refer to [":LANGuage \(N5181A/82A\)" on page 118](#).

**SCPI** This choice provides compatibility for SCPI commands.

**8360** This choice provides compatibility for the 8360 signal generator, which is supported through a GPIB, LAN, or USB interface.

**83712** This choice provides compatibility for the 83711B or 83712B signal generators, which are supported through a GPIB, LAN, or USB interface.

**83732** This choice provides compatibility for the 83731B or 83732B signal generators, which are supported through a GPIB, LAN, or USB interface.

**83752** This choice provides compatibility for the 83751B or 83752B signal generators, which are supported through a GPIB, LAN, or USB interface.

**8340** This choice provides compatibility for the 8340B or 8341B signal generators, which are supported only through a GPIB interface.

**8662A or 8663A** This choice provides compatibility for the 8662A or 8663A signal generators, which are supported only through a GPIB interface.

**E4428C or E4438C** This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.

**E8241A or E8244A or E8251A or E8254A** This choice provides compatibility for the E8241A, E8244A, E8251A, or E8254A signal generators, which are supported through a GPIB, LAN, or USB interface.

E8247C, or  
E8257C, or  
E8267C

This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.

E8257D or  
E8267D or  
E8663B

This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators, which are supported through a GPIB, LAN, or USB interface.

Key Entry	SCPI	E4428C, E4438C	E8257D, E8267D, E8663B	E8247C, E8257C, E8267C	8360 Series	8663A
	83711B, 83712B	83731B, 83732B	83751B, 83752B	8340B, 8341B	8662A	

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

For more information on supported SCPI commands and programming codes, refer to the *Programming Compatibility Guide*.

## :LICense:INSTall

**Supported** All

:SYSTem:LICense:INSTall <license\_line>|<block\_of\_license\_lines>

This command installs the licenses into the signal generator.

<license\_line> This choice installs a license line.

<block\_of\_license\_lines> This choice installs a block of license lines.

### Example

```
:SYST:LIC:INST "FEATURE 403 aspk 0 permanent 0 389D66FB107E9B02
```

```
HOSTID=N5182A,US00000068"
```

The preceding example installs license "FEATURE 403 aspk 0 permanent 0 389D66FB107E9B02 HOSTID=N5182A,US00000068", into the signal generator.

or to install a block of license files:

```
:SYST:LIC:INST #210Qaz37pY9oL
```

The preceding SCPI command shows an example of the syntax for installing a block of licenses into the signal generator. For more on handling block data, refer to the *Programming Guide*.

---

**NOTE** The data, Qaz37pY9oL, in the above command are not valid and are shown for example purposes only. Typically, ascii characters representing data are unprintable.

For additional information on downloading and installing licenses for applications, refer to the Agilent License Manager at <http://www.agilent.com/find/LicenseManager>.

---

## :LICense:EXTernal:LIST

**Supported** All

:SYSTem:LICense:EXTernal:LIST?

This query provides a listing of the current licenses for external software installed on the signal generator.

## :LICense:LIST

**Supported** All

:SYSTem:LICense:LIST?

This query provides a listing of the current licenses installed on the signal generator.

## :LICense:REMove

**Supported** All

:SYSTem:LICense:REMove <license\_line>

This command removes a single license line.

### Example

To remove a license line:

```
:SYST:LIC:REM "FEATURE 403 aspk 0 permanent 0 389D66FB107E9B02  
HOSTID=N5182A,US00000068"
```

The preceding example removes a license "FEATURE 403 aspk 0 permanent 0 389D66FB107E9B02 HOSTID=N5182A,US00000068", from the signal generator.

**Remarks** To remove multiple license lines: Repeat the process for removing a single license for each license line to be removed.

## :OPT

**Supported** All

:SYSTem:OPT "string"

This command modifies the option string that the \*OPT? query returns. Sending an empty string sets the query output of \*OPT? to its factory shipped setting. The maximum string length is 72 characters.

**Remarks** Modification of the \*OPT? query output enables the signal generator, with a set of options, to *identify* itself as another signal generator when used as a replacement

The display diagnostic information, shown by pressing the **Diagnostic Info** softkey, is not affected by this command.

## **:PDOWn**

**Supported** All

**:SYSTem:PDOWn**

This command turns off the instrument.

## **:PON:TYPE**

**Supported** All

**:SYSTem:PON:TYPE PRESet | LAST | USER**

**:SYSTem:PON:TYPE?**

This command sets the defined conditions for the signal generator at power on.

**PRESet** This choice sets the conditions to factory- or user-defined as determined by the choice for the preset type.

**LAST** This choice retains the settings at the time the signal generator was last powered down.

**USER** This choice sets the power on state to be the user preset value.

### **Key Entry**

**Power On Last Preset**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

**:PRESet**

**NOTE** If this SCPI command is not responding as expected, use the E4428C/38C compatibility command: :SYST:PRESet:TYPE:NORMal to return the front panel **Preset** key to its factory default functionality.

**Supported** All

SYSTem:PRESet

This command returns the signal generator to a set of defined conditions. It is equivalent to pressing the front panel **Preset** hardkey.

**Key Entry** Preset

**Remarks** The defined conditions are either factory- or user-defined.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

**Table 3-1 Preset SCPI Commands Overview**

Command	Description	Remarks
*RST	This IEEE 488.2 Common Command uses the factory preset settings for the instrument preset.	Optimized for automated testing
:SYSTem:PRESet:PERsistent	Only the instrument's persistent parameters are returned to factory default value.	
:SYSTem:PON:TYPE PRESet LAST USER :SYSTem:PON:TYPE?	Sets the power on state (PON) to be the same as the front panel green Preset hardkey, or the last state, or to the user state.	
:SYSTem:PRESet	Performs the same preset as currently set for the front panel green Preset hardkey.	
:SYSTem:PRESet[:USER]:SAVE	Saves the current instrument state as the user preset state.	
:SYSTem:PRESet:ALL	Sets the instrument to the same default conditions performed by sequentially inputting: SYSTem:PRESet + :SYSTem:PERsistent:PRESet	
:SYSTem:PRESet:USER	Executes a user preset.	

## :PRESet:ALL

**Supported** All

:SYSTem:PRESet:ALL

This command sets all states of the signal generator back to their factory default settings, including states that are not normally affected by signal generator power-on, preset, or \*RST.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

## :PRESet:LANGuage (N5181A/82A)

**Supported** N5181A/82A

:SYSTem:PRESet:LANGuage  
"SCPI" | "COMP" | "8648" | "E4428C" | "E4438C" | "E8257D" | "E8267D" | "E8663B" | "E8247C" | "E8257C" | "E8267C" | "E442XB" | "E443XB" | "E8241A" | "E8244A" | "E8251A" | "E8254A" | "E8247C" | "E8257C" | "E8267C" | "SMU200A" | "SMATE200A" | "SMJ100A" | "SMIQ" | "SML" | "SMV" | "3410"  
:SYSTem:PRESet:LANGuage?

This command sets the remote language that is available when the signal generator is preset.

SCPI This choice provides compatibility for SCPI commands.

COMP This choice provides compatibility for the 8656B, 8657A/B signal generator which is supported only through the GPIB interface.

8648 This choice provides compatibility for the 8648A/B/C/D signal generator which is supported only through a GPIB interface.

E4428C or E4438C This choice provides compatibility for the E4428C or E4438C signal generators which are supported through a GPIB, LAN, or USB interface.

E8257D, or E8267D, or E88663B This choice provides compatibility for the E8257D, or E8267D or E8663B signal generators which are supported through a GPIB, LAN, or USB interface.

E8247C, or E8257C, or E8267C This choice provides compatibility for the E8247C, E257C, or E8267C signal generators which are supported through a GPIB, LAN, or USB interface.

E442XB or E443XB This choice provides compatibility for the E442XB or E443XB signal generators which are supported through a GPIB, LAN, or USB interface.

E8241A or E8244A This choice provides compatibility for the 8648A/B/C/D signal generator which is supported through a GPIB, LAN, or USB interface.

E8251A or E8254A This choice provides compatibility for the E8251A or E8254A signal generators which are supported through a GPIB, LAN, or USB interface.

SMU200A, or SMATE200A, or SMJ100A, or SMIQ, or SML, or SMV	This choice provides compatibility for the Rohde and Schwarz SMU200A, SMATE200A, SMJ100A, SMIQ, SML, or SMV signal generators which are supported through a GPIB, LAN, or USB interface.				
3410	This choice provides compatibility for the Aeroflex 3410 signal generator which are supported through a GPIB, LAN, or USB interface.				
*RST	"SCPI"				
Key Entry	SCPI	COMP	E4428C, E4438C	E8257D, E8267D E8247C, E8257C, E442XB, E443XB E8241A, E8244A, 8648A/B/C/DE8663B E8267C SMU200A SMATE200A 3410 Series	8656B, 8657A/B (GPIB only) E8251A, E8254A (GPIB only) SML SMV

### :PRESet:LANGuage (N5183A)

**Supported** N5183A

```
:SYSTem:PRESet:LANGuage
"SCPI" | "8360" | "83712" | "83732" | "83752" | "8340" | "8662" | "8663" | "E4428C" | "E4438C" |
| "E8257D" | "E8267D" | "E8663B" | "E8247C" | "E8257C" | "E8267C" | "E8241A" | "E8244A" | "E8251A" |
"E8254A"
:SYSTem:PRESet:LANGuage?
```

This command sets the remote language that is available when the signal generator is preset.

SCPI	This choice provides compatibility for SCPI commands.
8360	This choice provides compatibility for the 8360 signal generator, which is supported through a GPIB, LAN, or USB interface.
83712	This choice provides compatibility for the 83711B or 83712B signal generators, which are supported through a GPIB, LAN, or USB interface.
83732	This choice provides compatibility for the 83731B or 83732B signal generators, which are supported through a GPIB, LAN, or USB interface.
83752	This choice provides compatibility for the 83751B or 83752B signal generators, which are supported through a GPIB, LAN, or USB interface.
8340	This choice provides compatibility for the 8340B or 8341B signal generators, which are supported only through a GPIB interface.
8662 or 8663	This choice provides compatibility for the 8662A or 8663A signal generators, which are supported only through a GPIB interface.
E4428C or E4438C	This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.

**System Commands**  
**System Subsystem (:SYSTem)**

E8257D or E8267D or E8663B	This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators, which are supported through a GPIB, LAN, or USB interface.				
E8247C, or E8257C, or E8267C	This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.				
E8241A or E8244A or E8251A or E8254A	This choice provides compatibility for the E8241A, E8244A, E8251A or E8254A signal generators, which are supported through a GPIB, LAN, or USB interface.				
<b>*RST</b>	<b>"SCPI"</b>				
<b>Key Entry</b>	<b>SCPI</b>	<b>E4428C, E4438C</b>	<b>E8257D, E8267D, E8663B</b>	<b>E8247C, E8257C, E8267C</b>	<b>8360 Series</b>
			<b>83751B, 83752B</b>	<b>8340B, 8341B</b>	<b>8663A</b>
					<b>8662A</b>

## **:PRESet:PERSistent**

**Supported** All

:SYSTem:PRESet:PERsistent

This command sets the states that are not affected by signal generator power-on, preset, or \*RST to their factory default settings.

**Key Entry** **Restore System Settings to Default Values**

**Remarks** For a list of the persistent instrument factory default values refer to the *Programming Guide*.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

## **:PRESet:PN9**

**Supported** N5182A

:SYSTem:PRESet:PN9 NORMal|QUICk

:SYSTem:PRESet:PN9?

This command sets the preset length of the PN9 sequence for personalities that require software PRBS generation.

NORMal This choice provides a maximal length PN9 sequence.

QUICk This choice provides a truncated (216 bits) PN9 sequence.

## **:PRESet:TYPE**

**Supported** All

:SYSTem:PRESet:TYPE NORMAL|USER

This command defines the Preset hardkey as either factory preset or as the user preset saved in memory.

**NORMAL** This choice uses the factory-defined defaults when **Preset** is pressed.

**COMP** This choice uses the user-defined preset saved in the instrument when **Preset** is pressed. Refer to “[:PRESet:USER](#)” on page 127 and “[:PRESet\[:USER\]:SAVE](#)” on page 127.

**Key Entry** **Preset**

**Remarks** This command will return an error, if the USER parameter is sent without a user preset saved in the instrument.

## **:PRESet:USER**

**Supported** All

:SYSTem:PRESet:USER

This command presets the signal generator to the user's saved state.

**Key Entry** **Execute User Preset**

**Remarks** This command presets the signal generator to the saved user-defined state.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

## **:PRESet[:USER]:SAVE**

**Supported** All

:SYSTem:PRESet[:USER]:SAVE

This command saves your user-defined preset conditions to a state file.

**Key Entry** **Save User Preset**

**Remarks** Only one user-defined preset file can be saved. Subsequent saved user-defined preset files will overwrite the previously saved file.

For a comparison of the SCPI preset commands, refer to [Table 3-1, “Preset SCPI Commands Overview,” on page 123](#).

## :SECurity:DISPlay

**Supported** All Models

:SYSTem:SECurity:DISPlay ON|OFF|1|0  
:SYSTem:SECurity:DISPlay?

This command enables or disables the secure display mode.

- On(1) This selection turns the signal generator display back on, showing the current settings. Cycling the signal generator power also restores the display, however the current settings may change depending on the power-on configuration choice. See “[:PON:TYPE](#)” on page 122 for information on the power-on choices available.
- OFF(0) This selection blanks the signal generator’s display, hiding the settings and disabling the front panel keys. While in this mode, the display shows \*\*\* SECURE DISPLAY ACTIVATED \*\*\*.

For more information about security functions, refer to the *User’s Guide*.

### Example

:SYST:SEC:DISP OFF

The preceding example enables the secure display mode.

\*RST 1

Range N/A

Key Entry **Activate Security Display**

## :SECurity:DISPlay:RESTricted

**Supported** All Models

:SYSTem:SECurity:DISPlay:RESTricted ON|OFF|1|0  
:SYSTem:SECurity:DISPlay:RESTricted?

This command enables or disables the secure restricted display mode. See also, “[:ANNotation:AMPLitude\[:STATE\]](#)” on page 76 and “[:ANNotation:FREQuency\[:STATE\]](#)” on page 76.

- On(1) This selection turns on the secure restricted display, blanking the frequency. Also, the keys that access the frequency, sweep, and user flatness information are disabled.
- OFF(0) This selection turns off the secure restricted display mode signal generator’s display.

For more information about security functions, refer to the *User’s Guide*.

### Example

:SYST:SEC:DISP:REST ON

The preceding example enables the security restricted display mode.

\*RST 0

Key Entry **Activate Restricted Display**

## :SECurity:ERASeall

**Supported** All Models

:SYSTem:SECurity:ERASeall

This command removes all user files, flatness correction files, and baseband generator files. In addition, all table editor files are returned to their original factory values.

This command differs from the :DELETED:ALL command, which does not reset table editors to factory values. For more information about security functions, refer to the *User's Guide*.

**Key Entry** **Erase All**

## :SECurity:LEVel

**Supported** All Models

:SYSTem:SECurity:LEVel NONE|ERASE|OVERwrite|SANitize  
:SYSTem:SECurity:LEVel?

This command selects the security level operation for the signal generator.

NONE This selection causes the signal generator to reset to factory default settings.

ERASE This selection removes all user files, table editor files, flatness correction files, and baseband generator files.

OVERwrite This selection removes all user files, table editor files, flatness correction files, and baseband generator files. The memory is then overwritten with random data.

SRAM All addressable locations will be overwritten with random characters.

Hard Disk All addressable locations will be overwritten with random characters.

Flash Memory The flash blocks will be erased.

SANitize This selection removes all user files, table editor files, flatness correction files, and baseband generator files using the same techniques as the OVERwrite selection for SRAM and flash memory. For the hard disk, the signal generator overwrites all addressable locations with a single character, its complement, and then with a random character.

Once you select the security level, you must execute the command from :SECURITY:LEVel:STATe to arm the security level. The selected level of security operation will be executed after reboot.

---

**NOTE** Once you select a security level and arm it, you cannot change the level.

For other cleaning and security operation descriptions, see “:SECURITY:ERASeall” on page 129, “:SECURITY:OVERwrite” on page 130, and “:SECURITY:SANitize” on page 131. For more information about security functions, refer to the *User's Guide*.

### Example

:SYST:SEC:LEV ERASE

The preceding example sets the secure mode so it resets the signal generator to factory settings after completing the security operation.

**Key Entry**      **None** **Erase** **Overwrite** **Sanitize**

### **:SECurity:LEVel:STATE**

**Supported**      All Models

**CAUTION**      Ensure that you select the security level prior to executing this command with the ON (1) selection. Once you enable the state, you cannot reduce the security level.

```
:SYSTem:SECurity:LEVel:STATe ON|OFF|1|0  
:SYSTem:SECurity:LEVel:STATe?
```

This command arms and executes the current security level parameter.

- |         |                                                                                                                                                                      |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| On (1)  | This selection arms and prevents any changes to the current security level. Refer to " <a href="#">:SECURITY:LEVel</a> " on page 129 for setting the security level. |
| OFF (0) | This selection performs the actions required for the current security level setting. Cycling the signal generator power also performs the same function.             |

For more information about security functions, refer to the *User's Guide*.

#### **Example**

```
:SYST:SEC:LEV:STAT ON
```

The preceding example arms the secure mode selected with the SYSTem:SECurity:LEVel command.

**Key Entry**      **Enter Secure Mode**

### **:SECurity:OVERwrite**

**Supported**      All Models

```
:SYSTem:SECurity:OVERwrite
```

This command removes all user files, table editor files values, flatness correction files, and baseband generator files. The memory is then overwritten with random data as described below. For more information about security functions, refer to the *User's Guide*.

- |              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| SRAM         | All addressable locations will be overwritten with random characters. |
| HARD DISK    | All addressable locations will be overwritten with random characters. |
| FLASH MEMORY | The flash blocks will be erased.                                      |

**Key Entry**      **Erase and Overwrite All**

## :SECurity:SANitize

**Supported** All Models

:SYSTem:SECurity:SANitize

This command removes all user files, table editor files values, flatness correction files, and baseband generator files. The memory is then overwritten with a sequence of data as described below. For more information about security functions, refer to the *User's Guide*.

**SRAM** All addressable locations will be overwritten with random characters.

**HARD DISK** All addressable locations will be overwritten with a single character and then a random character.

**FLASH MEMORY** The flash blocks will be erased.

**Key Entry** **Erase and Sanitize All**

## :SSAVer:DELay

**Supported** All

:SYSTem:SSAVer:DELay <value>

:SYSTem:SSAVer:DELay?

This command sets the amount of time before the display light or display light and text is switched off. This will occur if there is no input via the front panel during the delay period.

The variable <value> is a whole number measured in hours.

**Range** 1–12

**Key Entry** **Screen Saver Delay:**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

Refer to “[:SSAVer:MODE](#)” on page 131 for selecting the screen saver mode.

## :SSAVer:MODE

**Supported** All

:SYSTem:SSAVer:MODE LIGHT | TEXT

:SYSTem:SSAVer:MODE?

This command toggles the screen saver mode between light only or light and text.

**LIGHT** This choice enables only the light to turn off during the screen saver operation while leaving the text visible on the darkened screen.

**TEXT** This choice enables both the display light and text to turn off during the screen saver operation.

**Key Entry** **Screen Saver Mode**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## **:SSAVer:STATE**

**Supported** All

:SYSTem:SSAVer:STATE ON|OFF|1|0

:SYSTem:SSAVer:STATE?

This command enables or disables the display screen saver.

**Key Entry** **Screen Saver Off On**

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## **:TIME**

**Supported** All

:SYSTem:TIME <hour>,<minute>,<second>

:SYSTem:TIME?

This command sets the time displayed in the lower right area of the signal generator's display.

**Range** <hour>: 0–23      <minute>: 0–59      <second>: 0–59

**Key Entry** **Time/Date**

## **:VER\$ion**

**Supported** All

:SYSTem:VER\$ion?

This command returns the SCPI version number with which the signal generator complies.

## Trigger Subsystem

### :ABORt

**Supported** All

:ABORT

This command causes the List or Step sweep in progress to abort. If INIT:CONT[:ALL] is set to ON, the sweep will immediately re-initiate. The pending operation flag affecting \*OPC, \*OPC?, and \*WAI will undergo a transition once the sweep has been reset.

### :INITiate:CONTinuous[:ALL]

**Supported** All

:INITiate:CONTinuous[:ALL] ON|OFF|1|0

:INITiate:CONTinuous[:ALL] ?

This command selects either a continuous or single list or step sweep. Execution of this command does not affect a sweep in progress.

- |         |                                                                                                                                                                                                |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON (1)  | This choice selects continuous sweep where, after the completion of the previous sweep, the current sweep will restart automatically or wait until the appropriate trigger source is received. |
| OFF (0) | This choice selects a single sweep. Refer to “ <a href="#">:INITiate[:IMMEDIATE][:ALL]</a> ” on page 133 for single sweep triggering information.                                              |

\*RST 0

**Key Entry** Sweep Repeat Single Cont

**Remarks** Execution of this command will not affect a sweep in progress.

### :INITiate[:IMMEDIATE][:ALL]

**Supported** All

:INITiate[:IMMEDIATE] [:ALL]

This command either sets or starts a single List or Step sweep, depending on the trigger type. The command performs the following:

- arms a single sweep when BUS, EXTERNAL, or KEY is the trigger source selection
- arms and starts a single sweep when IMMEDIATE is the trigger source selection

This command is ignored if a sweep is in progress. See “[:INITiate:CONTinuous\[:ALL\]](#)” on page 133 for setting continuous or single sweep. See “[:TRIGger\[:SEQUence\]:SOURce](#)” on page 134 to select the trigger source.

**Key Entry** Single Sweep

## :TRIGger:OUTPut:POLarity

**Supported** All

```
:TRIGger:OUTPut:POLarity POSitive|NEGative  
:TRIGger:OUTPut:POLarity?
```

Sets the TTL signal level present at the TRIGGER OUT connector to either high (5 vdc) or low (0 vdc). The trigger out is asserted after the frequency and/or power is set while the sweep is waiting for its step trigger.

### Example

```
:TRIG:OUTP:POL NEG
```

The preceding example sets the trigger out polarity to be low when the trigger is preset.

\*RST POS

**Key Entry** Trigger Out Polarity Neg Pos

## :TRIGger[:SEQUence]:SLOPe

**Supported** All

```
:TRIGger [:SEQUence]:SLOPe POSitive|NEGative  
:TRIGger [:SEQUence]:SLOPe?
```

This command sets the polarity of an external signal at the TRIG IN connector that will trigger a list or step sweep.

\*RST POS

**Key Entry** Trigger In Polarity Neg Pos

## :TRIGger[:SEQUence]:SOURce

**Supported** All

```
:TRIGger [:SEQUence]:SOURce BUS|IMMEDIATE|EXTernal|KEY|TImer  
:TRIGger [:SEQUence]:SOURce?
```

This command sets the sweep trigger source for a list or step sweep.

**BUS** This choice enables GPIB triggering using the \*TRG or GET command. The \*TRG SCPI command can be used with any combination of GPIB, LAN, or USB. The GET command requires USB, GPIB, or LAN-VXI-11.

**IMMEDIATE** This choice enables immediate triggering of the sweep event.

**EXTernal** This choice enables the triggering of a sweep event by an externally applied signal at the TRIG IN connector.

**Trigger KEY** This choice enables triggering through front panel interaction by pressing the **Trigger** hardkey.

**TIMER Trigger** This choice enables the sweep trigger timer.

**\*RST** IMM**Remarks** The wait for the BUS, EXTernal, or KEY trigger can be bypassed by sending the :TRIGger[:SEQUence] [:IMMEDIATE] command.**Example**`:TRIG:SOUR BUS`

The preceding example sets the sweep trigger source to BUS.

<b>*RST</b>	IMM
<b>Key Entry</b>	Bus      Free Run      Ext      Trigger Key      Timer Trigger

**:TRIGger[:SEQUence]:TImer****Supported** All Models`:TRIGger[:SEQUence]:TImer <period>`  
`:TRIGger[:SEQUence]:TImer?`

This command sets the period of the timer trigger.

**\*RST** 1 ms**Range** .5ms–1000s**Key Entry** Trig Timer Period**:TRIGger[:SEQUence][[:IMMEDIATE]]****Supported** All Models`:TRIGger[:SEQUence][[:IMMEDIATE]]`

This event command causes an armed List or Step sweep to immediately start without the selected trigger occurring.

**:TSweep****Supported** All Models`[ :SOURce] :TSweep`

This command aborts the current sweep, then either arms or arms and starts a single list, depending on the trigger type.

The command performs the following:

- arms a single sweep when BUS, EXTERNAL, or Trigger KEY is the trigger source selection
- arms and starts a single sweep when IMMEDIATE is the trigger source selection

**Key Entry** Single Sweep

## Unit Subsystem (:UNIT)

### :POWer

**Supported** All

:UNIT:POWer DBM|DBUV|DBUVEMF|V|VEMF|DB

:UNIT:POWer?

This command terminates an amplitude value in the selected unit of measure.

If the amplitude reference state is set to on, the query returns units expressed in dB and the dB choice will be displayed. Setting any other unit will cause a setting conflict error stating that the amplitude reference state must be set to off. Refer to, “[:REFERENCE:STATE](#)” on page 59 for more information.

**\*RST** DBM

**Key Entry** dBm dBuV dBuVemf V mVemf dB

**Remarks** All power values in this chapter are shown with dBm as the unit of measure. If a different unit of measure is selected, replace dBm with the newly selected unit whenever it is indicated for the value.

### :VOLT:TYPE

**Supported** All

:UNIT:VOLT:TYPE PD|EMF

:UNIT:VOLT:TYPE?

This command scales the voltage values to display potential differences or electromagnetic force.

**Potential Difference** This choice sets the instrument to PD mode where the output voltage assumes that a 50 ohm load is connected. PD is the default mode of the instrument.

**Electro-motive Force** This choice sets the instrument to EMF mode where the output voltage assumes no load is connected. the EMF value is twice the PD value.

**\*RST** PD

---

## 4 Analog Modulation Commands

This chapter provides SCPI descriptions for subsystems dedicated to analog commands common to all Agilent MXG signal generator models. This chapter contains the following major sections:

- [“Amplitude Modulation Subsystem–Option UNT \(\[:SOURce\]\)” on page 138](#)
- [“Frequency Modulation Subsystem–Option UNT \(\[:SOURce\]\)” on page 142](#)
- [“Phase Modulation Subsystem–Option UNT \(\[:SOURce\]\)” on page 145](#)
- [“Pulse Modulation Subsystem–Option UNU and UNW\(\[:SOURce\]\)” on page 149](#)

## Amplitude Modulation Subsystem—Option UNT ([**:SOURce**])

### **:AM:EXTernal:COUPling**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:EXTernal:COUPling AC|DC

[**:SOURce**] :AM:EXTernal:COUPling?

This command sets the coupling for the amplitude modulation source through the selected external input connector.

**AC** This choice will only pass ac signal components.

**DC** This choice will pass both ac and dc signal components.

**\*RST** DC

**Key Entry** Ext Coupling DC AC

**Remarks** The command does not change the currently active source or switch the current modulation on or off. The modulating signal may be the sum of several signals, either internal or external sources.

### **:AM:INTernal:FREQuency**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:INTernal:FREQuency <value><unit>|UP|DOWN

[**:SOURce**] :AM:INTernal:FREQuency?

This command sets the internal amplitude modulation rate for the following applications:

- the start frequency for a swept-sine waveform
- the frequency rate for all other waveforms

**\*RST** +4.00000000E+002

**Range** Swept-Sine & Sine: 0.1 Hz–20 MHz

**Key Entry** AM Rate

### **:AM:INTernal:FREQuency:STEP[:INCRement]**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:INTernal:FREQuency:STEP [:INCREMENT] <num>

[**:SOURce**] :AM:INTernal:FREQuency:STEP [:INCREMENT] ?

This command sets the step increment for the amplitude modulation internal frequency.

The variable <num> is expressed in units of Hertz.

**Range** 0.5–1E6

**Key Entry** Incr Set

<b>Remarks</b>	The value set by this command is used with the UP and DOWN choices for the AM frequency setting. Refer to “ <a href="#">:AM:INTernal:FREQuency</a> ” on page 138 for more information.
	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

### **:AM:INTernal:FUNCTION:SHAPe**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:INTernal:FUNCTION:SHAPe SINE

[**:SOURce**] :AM:INTernal:FUNCTION:SHAPe?

This command sets the AM waveform type.

**\*RST** SINE

### **:AM:SOURce**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:SOURce INT|EXT

[**:SOURce**] :AM:SOURce?

This command sets the source to generate the amplitude modulation.

**INT** This choice selects the internal source to provide an ac-coupled signal.

**EXT** This choice selects the AM rear panel connector to provide an externally applied signal that can be ac- or dc-coupled.

**\*RST** INT

**Key Entry** Internal Ext

**Remarks** A 1.0 V<sub>p</sub> input is required for calibrated AM depth settings.

The externally applied, ac-coupled input signal is tested for a voltage level and a display annunciator will report a high or low condition if that voltage is > ±3% of 1 V<sub>p</sub>.

### **:AM:STATe**

**Supported** All Models with Option UNT

[**:SOURce**] :AM:STATE ON|OFF|1|0

[**:SOURce**] :AM:STATE?

This command enables or disables the amplitude modulation for the selected path.

**\*RST** 0

**Key Entry** AM Off On

<b>Remarks</b>	The RF carrier is modulated when you have set the signal generator's modulation state to ON, see " <a href="#">:MODulation[:STATe]</a> " on page 100 for more information.
	Whenever amplitude modulation is enabled, the AM annunciator is turned on in the display.

## **:AM:TYPE**

<b>Supported</b>	All Models with Option UNT
------------------	----------------------------

[**:SOURce**] :AM:TYPE LINear|EXPonential

[**:SOURce**] :AM:TYPE?

This command enables LINear or EXPonential amplitude modulation.

The units effected are the AM Depth settings.

**LIN** This choice selects linear (percent/volt) AM.

**EXP** This choice selects exponential (db/volt).

**\*RST** LIN

**Key Entry** **AM Type LIN EXP**

## **:AM[:DEPTh]:EXPonential**

<b>Supported</b>	All Models with Option UNT
------------------	----------------------------

[**:SOURce**] :AM[:DEPTh]:EXPonential <value>

[**:SOURce**] :AM[:DEPTh]:EXPonential?

This commands sets the amplitude modulation depth in dB.

**\*RST** +4.0000000E+001

**Range** 0–40 dB

**Key Entry** **AM Depth**

**Remarks** Refer to "[:AM\[:DEPTH\]:STEP\[:INCRelement\]](#)" on page 140 for setting the value associated with UP and DOWN choices.

## **:AM[:DEPTh]:STEP[:INCRelement]**

<b>Supported</b>	All Models with Option UNT
------------------	----------------------------

[**:SOURce**] :AM[:DEPTh]:STEP[:INCRelement] <value><unit>

[**:SOURce**] :AM[:DEPTh]:STEP[:INCRelement]?

This command sets the AM depth step increment.

**Range** 0.1–100%

**Key Entry** **Incr Set**

<b>Remarks</b>	The value set by this command is used with the UP and DOWN choices for the AM depth setting. Refer to “ <a href="#">:AM[:DEPTh][:LINEar]</a> ” on page 141 for more information.
	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

### **:AM[:DEPTh][:LINEar]**

**Supported** All Models with Option UNT

[**:SOURce**] :AM[:DEPTh] [:LINEar] <value><unit>|UP|DOWN  
[**:SOURce**] :AM[:DEPTh] [:LINEar]?

This commands sets the amplitude modulation depth in percent.

**\*RST** +1.00000000E-001

**Range** 0.00–90%

**Key Entry** **AM Depth**

**Remarks** Refer to “[:AM\[:DEPTh\]:STEP\[:INCRement\]](#)” on page 140 for setting the value associated with UP and DOWN choices.

## Frequency Modulation Subsystem—Option UNT ([**:SOURce**])

### **:FM:EXTernal:COUPling**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:EXTernal:COUPling AC|DC

[**:SOURce**] :FM:EXTernal:COUPling?

This command sets the coupling for the frequency modulation source through the selected external input connector.

Use this command with the “[:DCFM](#)” on page 62 to remove the effects of DC and optimize the DCFM calibration.

**AC** This choice only passes ac signal components.

**DC** This choice passes both ac and dc signal components.

**\*RST** DC

**Key Entry** **Ext Coupling DC AC**

**Remarks** The command does not change the currently active source or switch the current modulation on or off. The modulating signal may be the sum of several signals, either internal or external sources.

### **:FM:INTernal:FREQuency**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:INTernal:FREQuency <value><unit>|UP|DOWN

[**:SOURce**] :FM:INTernal:FREQuency?

This command sets the internal frequency modulation rate for the following applications:

- the start frequency for a swept-sine waveform
- the frequency rate for all other waveforms

**\*RST** +4.00000000E+002

**Range** All Waveforms: 0.1 Hz–2 MHz

**Key Entry** **FM Rate**

### **:FM:INTernal:FREQuency:STEP[:INCREMENT]**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:INTernal:FREQuency:STEP [:INCREMENT] <num>

[**:SOURce**] :FM:INTernal:FREQuency:STEP [:INCREMENT] ?

This command sets the step increment for the internal frequency modulation.

The variable <num> sets the entered value in units of Hertz.

**\*RST** +5.00000000E+002

<b>Range</b>	0.5–1E6
<b>Key Entry</b>	<b>Incr Set</b>
<b>Remarks</b>	The value set by this command is used with the UP and DOWN choices for the FM frequency setting. Refer to “ <a href="#">:FM:INTernal:FREQuency</a> ” on page 142 for more information.
	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.

### **:FM:INTernal:FUNCTION:SHAPe**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:INTernal:FUNCTION:SHAPe SINE

[**:SOURce**] :FM:INTernal:FUNCTION:SHAPe?

This command sets the FM waveform type.

**\*RST** SINE

**Remarks** The waveform selection is only valid when INT is the source selection. Refer to “[:FM:SOURce](#)” on page 143 for type source selection.

### **:FM:SOURce**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:SOURce INT|EXT

[**:SOURce**] :FM:SOURce?

This command sets the source to generate the frequency modulation.

INT This choice selects the internal source to provide an ac-coupled signal.

EXT This choice selects the FM rear panel connector to provide an externally applied signal that can be ac- or dc-coupled.

**\*RST** INT

**Key Entry** Internal Ext

**Remarks** The externally applied, ac-coupled input signal is tested for a voltage level and a display annunciator will report a high or low condition if that voltage is > ±3% of 1 V<sub>p</sub>.

### **:FM:STATE**

**Supported** All Models with Option UNT

[**:SOURce**] :FM:STATE ON|OFF|1|0

[**:SOURce**] :FM:STATE?

This command enables or disables the frequency modulation for the selected path.

**\*RST** 0

**Key Entry**      **FM Off On**

**Remarks**      The RF carrier is modulated when you set the signal generator's modulation state to ON, see “[:MODulation\[:STATE\]](#)” on page 100 for more information.

Whenever frequency modulation is enabled, the FM annunciator is turned on in the display.

### **:FM[:DEViation]**

**Supported**      All Models with Option UNT

[ :SOURce] :FM[:DEViation] <value><unit>

[ :SOURce] :FM[:DEViation] ?

This command sets the frequency modulation deviation. Please refer to *Data Sheet* for more information on FM deviation specifications.

**\*RST**                +1.00000000E+003

**Key Entry**      **FM DEV**

### **:FM[:DEViation]:STEP[:INCRement]**

**Supported**      All Models with Option UNT

[ :SOURce] :FM[:DEViation]:STEP[:INCRement] <value><unit>|GHz|MHz|kHz|Hz

[ :SOURce] :FM[:DEViation]:STEP[:INCRement] ?

This command sets the step increment for the FM deviation of the signal generator.

**\*RST**                +5.00000000E+003

**Key Entry**      **Incr Set**

**Remarks**      The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## Phase Modulation Subsystem—Option UNT ([**:SOURce**])

### **:PM:BANDwidth | BWIDth**

**Supported** All Models with Option UNT

[**:SOURce**] :PM:BANDwidth|BWIDth NORMAL|HIGH  
[:SOURce] :PM:BANDwidth|BWIDth?

This command toggles between normal phase modulation and high bandwidth phase modulation mode.

**\*RST** NORM

**Key Entry** FM **ΦM Normal High BW**

### **:PM:EXTernal:COUpling**

**Supported** All Models with Option UNT

[**:SOURce**] :PM:EXTernal:COUpling AC|DC  
[:SOURce] :PM:EXTernal:COUpling?

This command sets the coupling for the phase modulation source through the selected external input connector.

Use this command with the “[:DCFM](#)” on page 62 to remove the effects of DC and optimize the DCFM calibration.

**AC** This choice will only pass ac signal components.

**DC** This choice will pass both ac and dc signal components.

**\*RST** DC

**Key Entry** Ext Coupling DC AC

**Remarks** This command does not change the currently active source or switch the current modulation on or off. The modulating signal may be the sum of several signals, either internal or external sources.

## :PM:INTernal:FREQuency

**Supported** All Models with Option UNT

[ :SOURce] :PM:INTernal:FREQuency <value><unit>|UP|DOWN

[ :SOURce] :PM:INTernal:FREQuency?

This command sets the internal modulation frequency rate for the following applications:

- the start frequency for a swept-sine waveform
- the frequency rate for all other waveforms

**\*RST** +4.00000000E+002

**Range** All Waveforms: 0.1 Hz–2 MHz (Wideband)All Waveforms: 0.1 Hz–1 MHz (narrowband)

**Key Entry** FM Rate

## :PM:INTernal:FREQuency:STEP[:INCRement]

**Supported** All Models with Option UNT

[ :SOURce] :PM:INTernal:FREQuency:STEP [:INCRement] <num>

[ :SOURce] :PM:INTernal:FREQuency:STEP [:INCRement] ?

This command sets the step increment of the phase modulation internal frequency.

The variable <num> sets the entered value in units of Hertz.

**Range** 0.5–1E6

**Key Entry** Incr Set

**Remarks** The value set by this command is used with the UP and DOWN choices for the FM frequency command. Refer to “[:PM:INTernal:FREQuency](#)” on page 146 for more information.

The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## :PM:INTernal:FUNCTION:SHAPe

**Supported** All Models with Option UNT

[ :SOURce] :PM:INTernal:FUNCTION:SHAPe SINE

[ :SOURce] :PM:INTernal:FUNCTION:SHAPe?

This command sets the phase modulation waveform type.

**\*RST** SINE

## **:PM:SOURce**

**Supported** All Models with Option UNT

[**:SOURce**] :PM:SOURce INT|EXT  
[:SOURce] :PM:SOURce?

This command sets the source to generate the phase modulation.

**INT** This choice selects internal source 1 to provide an ac-coupled signal.

**EXT** This choice selects the FM rear panel connector to provide an externally applied signal that can be ac- or dc-coupled.

**\*RST** INT

**Key Entry** Internal Ext

**Remarks** The externally applied, ac-coupled input signal is tested for a voltage level and a display annunciator will report a high or low condition if that voltage is > ±3% of 1 V<sub>p</sub>.

## **:PM:STATE**

**Supported** All Models with Option UNT

[**:SOURce**] :PM:STATE ON|OFF|1|0  
[:SOURce] :PM:STATE?

This command enables or disables the phase modulation for the selected path.

**\*RST** 0

**Key Entry** **ΦM Off On**

**Remarks** The RF carrier is modulated when you set the signal generator's modulation state to ON, see “[:MODulation\[STATE\]](#)” on page 100 for more information.

Whenever phase modulation is enabled, the ΦM annunciator is turned on in the display

## **:PM[:DEViation]**

**Supported** All Models with Option UNT

[**:SOURce**] :PM[:DEViation] <value><unit>|UP|DOWN  
[:SOURce] :PM[:DEViation]?

This command sets the deviation of the phase modulation.

The variable <unit> will accept RAD (radians), PIRAD (pi-radians), and DEG (degrees); however, the query will only return values in radians.

**\*RST** +0.00000000E+000

<b>Range</b>	<i>Frequency</i>	<i>Normal Bandwidth</i>	<i>High Bandwidth</i>
	<250 MHz <sup>a</sup>	0–5 RAD	0–0.500 RAD

250 MHz – <375 MHz	0–1.25 RAD	0–0.125 RAD
375 MHz – <750 MHz	0–2.5 RAD	0–0.2500 RAD
750 MHz – <1.5 GHz	0–5 RAD	0–0.500 RAD
1.5 GHz – <3.000001 GHz	0–10 RAD	0–1 RAD
> 3 GHz – 6 GHz	0–20 RAD	0–2 RAD

a. Settable, but not specified to 100 kHz. For more information on specifications, refer to the *Data Sheet*.

**Key Entry**      **ΦM Dev**

**Remarks**      Refer to “[:PM\[:DEViation\]:STEP\[:INCRement\]](#)” on page 148 for setting the value associated with the UP and DOWN choices.

### **:PM[:DEViation]:STEP[:INCRement]**

**Supported**      All Models with Option UNT

[ :SOURce] :PM[:DEViation] :STEP[:INCRement] <value><unit>  
[ :SOURce] :PM[:DEViation] :STEP[:INCRement] ?

This command sets the phase modulation deviation step increment.

**Range**      0.001–1E3RAD

**Key Entry**      **Incr Set**

**Remarks**      The value set by this command is used with the UP and DOWN choices for the FM deviation command. Refer to “[:PM\[:DEViation\]](#)” on page 147 for more information.

The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

## Pulse Modulation Subsystem—Option UNU and UNW([:SOURce])

### :PULM:EXTernal:POLarity

**Supported** All with Option UNU and UNW

```
[ :SOURce] :PULM:EXTernal:POLarity NORMAL|INVerted
[ :SOURce] :PULM:EXTernal:POLarity?
```

This command selects the polarity of the TTL input signal at the TRIG IN rear panel connector. The signal generator can respond to either a normal (a TTL high) or an inverted (TTL low) signal.

#### Example

```
:PULM:EXT:POL NORM
```

The preceding example selects normal (TTL high) polarity.

**\*RST** Normal

**Key Entry** Ext Polarity Normal Inverted

### :PULM:INTERNAL:DELay:STEP

**Supported** All with Option UNU and UNW

```
[ :SOURce] :PULM:INTERNAL:DELay:STEP <num><time_suffix>
[ :SOURce] :PULM:INTERNAL:DELay:STEP?
```

This command sets the step increment for the pulse delay.

The step value, set by this command, is used with the UP and DOWN choices in the “[:PULM:INTERNAL:DELay\[1\]|2](#)” on page 150 command.

The step value set with this command is not affected by a signal generator power-on, preset, or \*RST command.

#### Example

```
:PULM:INT:DEL:STEP 10NS
```

The preceding example sets the pulse delay step value to 10 nanoseconds.

**Range** 10nS to (pulse period – 20 nS)

**Key Entry** Incr Set

## **:PULM:INTernal:DELay[1]|2**

**Supported** All with Option UNU and UNW

[ :SOURce] :PULM:INTernal:DELay[1] | [2] <num><time\_suffix>|UP|DOWN  
[:SOURce] :PULM:INTernal:DELay[1] | [2]

This command sets the pulse delay for the internally-generated pulse modulation using the variable <num>[<time\_suffix>]. The command, used with the UP|DOWN parameters, will change the delay by a user-defined step value. Refer to the [:PULM:INTernal:DELay:STEP](#) command on page 149 for setting the value associated with the UP and DOWN choices.

The optional variable <time\_suffix> accepts nS (nanoseconds) to S (seconds).

The range value is dependent on the pulse period. Refer to [“:PULM:INTernal:PERiod” on page 152](#) for pulse period settings.

Use Delay1 with the DOUBlet parameter and Delay1 and Delay2 with the ADoublet parameter (refer to [“:PULM:Source:INTernal” on page 154](#)).

### **Example**

:PULM:INT:DEL 200E-9

The preceding example sets the internal pulse delay to 200 nanoseconds.

**\*RST** +0.00000000E+000

**Range** *Internal Free Run:* depends on pulse period and pulse width settings

*Internal Triggered, Adjustable Doublet, & Triggered Doublet:* 70nS to (42 S - 10 nS - pulse width)

**Key Entry** **Pulse Delay**

## **:PULM:INTernal:FREQuency**

**Supported** All with Option UNU and UNW

```
[ :SOURce] :PULM:INTernal:FREQuency <frequency>|MAXimum|MINimum|UP|DOWN  
[:SOURce] :PULM:INTernal:FREQuency?
```

This command sets the pulse rate for the internally-generated square wave using the variable <frequency>. The command, used with the UP|DOWN parameters, will change the frequency by a user-defined step value. Refer to the [:PULM:INTernal:FREQuency:STEP](#) command for setting the value associated with the UP and DOWN choices.

This command is used when SQUare is the pulse modulation type. Refer to [“:PULM:SOURce” on page 154](#) for the pulse modulation type selection.

### **Example**

```
:PULM:INT:FREQ 1MHz
```

The preceding example sets the square wave pulse rate to 1 megahertz.

**\*RST** +4.00000000E+002

**Range** 0.1Hz–10MHz

**Key Entry** Pulse Rate

## **:PULM:INTernal:FREQuency:STEP**

**Supported** All with Option UNU and UNW

```
[ :SOURce] :PULM:INTernal:FREQuency:STEP [:INCRement] <freq>|MAXimum|MINimum|DEFault  
[:SOURce] :PULM:INTernal:FREQuency:STEP [:INCRement]?
```

This command sets the step value for the internally-generated square wave pulse rate.

This command is used when SQUare is the pulse modulation type. Refer to [“:PULM:SOURce” on page 154](#) for the pulse modulation type selection. Refer to [“:PULM:SOURce” on page 154](#) for the pulse modulation type selection. The step value, set with this command, is used with the UP and DOWN choices in the [:PULM:INTernal:FREQuency](#) command.

The step value set with this command is not affected by a power-on, preset, or \*RST command.

### **Example**

```
:PULM:INT:FREQ:STEP MIN
```

The preceding example sets the step value for the square wave pulse rate to 0.1 Hz, the minimum rate.

**Range** 0.1Hz–10MHz

## Analog Modulation Commands

Pulse Modulation Subsystem—Option UNU and UNW([:SOURce])

### **:PULM:INTernal:PERiod**

**Supported** All with Option UNU and UNW

[ :SOURce] :PULM:INTernal:PERiod <period>|MAXimum|MINimum|UP|DOWN

[ :SOURce] :PULM:INTernal:PERiod?

This command sets the pulse period for the internally-generated pulse modulation using the variables <value><units>. The command, used with the UP|DOWN parameters, will change the pulse period by a user-defined step value. Refer to the [:PULM:INTERNAL:PERIOD:STEP\[:INCREMENT\]](#) command for setting the value associated with the UP and DOWN choices.

If the entered value for the pulse period is equal to or less than the value for the pulse width, the pulse width changes to a value that is less than the pulse period. Refer to [“:PULM:INTERNAL:PWIDth\[1\]|2” on page 153](#) for setting the pulse width.

#### **Example**

:PULM:INT:PER .5S

The preceding example sets the period of the internally-generated pulse to 500 milliseconds.

**\*RST** +4.00000000E-006

**Range** 30nS–42S

**Key Entry** Pulse Period

### **:PULM:INTernal:PERiod:STEP[:INCREMENT]**

**Supported** All with Option UNU or UNW

[ :SOURce] :PULM:INTernal:PERiod:STEP [:INCREMENT] <step>|UP|DOWN

[ :SOURce] :PULM:INTernal:PERiod:STEP [:INCREMENT]?

This command sets the step value for the internal pulse period using the variable <value><units>.

The step value, set with this command, is used with the UP and DOWN choices available in the [:PULM:INTERNAL:PERIOD](#) command.

The step value set with this command is not affected by a power-on, preset, or \*RST command.

#### **Example**

:PULM:INT:PER:STEP .1S

The preceding example sets the square wave pulse rate to 100 milliseconds.

**Range** 30nS–42S

## :PULM:INTernal:PWIDth:STEP

**Supported** All with Option UNU or UNW

```
[ :SOURce] :PULM:INTernal:PWIDth:STEP <num><time_suffix>|MAXimum|MINimum|DEFault  
[:SOURce] :PULM:INTernal:PWIDth:STEP?
```

This command sets the step increment for the pulse width using the variable <num><time\_suffix>.

The step value, set by this command, is used with the UP and DOWN choices available in the :PULM:INTernal:PWIDth[1]|2 command.

The step value, set with this command, is not affected by a power-on, preset, or \*RST command.

### Example

```
:PULM:INT:PWID:STEP 100NS
```

The preceding example sets the pulse width step to 100 nanoseconds.

**Range** 20nS to (pulse period - 10 nS)

## :PULM:INTernal:PWIDth[1]|2

**Supported** All with Option UNU and UNW

```
[ :SOURce] :PULM:INTernal:PWIDth[1]|2 <num><time_suffix>|UP|DOWN  
[:SOURce] :PULM:INTernal:PWIDth[1]|2?
```

This command sets the pulse width for the internally generated pulse signal.

This command sets the pulse width for the internally-generated pulse modulation using the variables <num><time\_suffix>. The command, used with the UP|DOWN parameters, will change the pulse width by a user-defined step value. Refer to the :PULM:INTernal:PWIDth:STEP command for setting the value associated with the UP and DOWN choices.

If the entered value for the pulse width is equal to or greater than the value for the pulse period, the pulse width changes to a value that is less than the pulse period. For more information, refer to the command “:PULM:INTernal:PERiod” on page 152.

Use PWIDTH1 with the DOUBlet parameter and PWIDTH1 and PWIDTH2 with the ADOublet parameter (refer to “:PULM:Source:INTernal” on page 154).

---

**NOTE** A power search is recommended for signals with pulse widths less than one microsecond. Refer to “:ALC:SEARch” on page 53.

---

### Example

```
:PULM:INT:PWIDth 100MS
```

The preceding example sets the pulse width to 100 milliseconds.

**\*RST** +2.00000000E-006

**Range** 20nS to (pulse period - 10 nS)

**Key Entry** **Pulse Width**

## **:PULM:INTernal[1]:VIDe:POLarity**

**Supported** All with Option UNU and UNW

[**:SOURce**] :PULM:INTernal [1] :VIDeo:POLarity NORMAL|INVerted

[**:SOURce**] :PULM:INTernal [1] :VIDeo:POLarity?

This command inverts the polarity on the internally generated pulse video signal.

If the entered value for Trig Out BNC Video Polarity is set to Invert, the pulse video signal at the Trig Out BNC is inverted.

### **Example**

:PULM:INT:VID INV

The preceding example inverts the video signal polarity at the Trig Out BNC.

**\*RST** Normal

**Key Entry** **Trig Out BNC Video Polarity**

## **:PULM:SOURce**

**Supported** All with Option UNU or UNW

[**:SOURce**] :PULM:SOURce INTERNAL|EXTERNAL

[**:SOURce**] :PULM:SOURce?

This command sets the source of the pulse modulation.

The INTERNAL selection accesses one of the six internally generated modulation inputs while EXTERNAL selects an external pulse (rear panel connector) input. To select an internally generated modulation input, refer to “[:PULM:Source:INTERNAL](#)” on page 154.

**Key Entry** **Pulse Source**

## **:PULM:Source:INTernal**

**Supported** All with Option UNU and UNW

[**:SOURce**] :PULM:SOURce:INTERNAL SQuare|FRUN|TRIGgered|ADoublet|DOUBle|GATED

[**:SOURce**] :PULM:SOURce:INTERNAL?

This command selects one of the six internally generated modulation inputs. There is one external source: Ext Pulse selected by “[:PULM:SOURce](#)” on page 154.

### **Example**

:PULM:SOUR:INT SQU

The preceding example selects the internally-generated square wave pulse modulation format.

**\*RST** FRUN (Int Free-Run)

**Key Entry** **Square Trigger Doublet**      **Free-Run Gated**      **Triggered**      **Adjustable Doublet**

## **:PULM:STATE**

**Supported** All with Option UNU or UNW

[ :SOURce] :PULM:STATE ON|OFF|1|0

[ :SOURce] :PULM:STATE?

This command enables or disables pulse modulation for the selected path.

When pulse modulation is enabled, the PULSE annunciator appears on the signal generator's front-panel display.

### **Example**

:PULM:STAT ON

The preceding example enables the pulse modulation.

\*RST 0

**Key Entry** **Pulse Off On**

## Analog Modulation Commands

Pulse Modulation Subsystem—Option UNU and UNW([**:SOURce**])

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## 5 Arb Commands

This chapter provides arb signal generation SCPI command descriptions for use in either component or receiver test using the N5182A Agilent MXG Vector Signal Generator.

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**NOTE** The internal baseband generator speed upgrade Options 670, 671, and 672 are option upgrades that *require* Option 651 and 652 to have been loaded at the factory (refer to the *Data Sheet* for more information). Any references to 651, 652, or 654 are inclusive of 671, 672, and 674.

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This chapter contains the following major sections:

- “[All Subsystem–Option 651/652/654 \(\[:SOURce\]\)](#)” on page 158
- “[Dmodulation Subsystem–Option 651/652/654 \(\[:SOURce\]:RADio:DMODulation:ARB\)](#)” on page 159
- “[Dual ARB Subsystem–Option 651/652/654 \(\[:SOURce\]:RADio:ARB\)](#)” on page 180
- “[LARB Subsystem–Option 651/652/654 \(\[:SOURce\]:RADio:LARB\)](#)” on page 212
- “[Multitone Subsystem–Option 651/652/654 \(\[:SOURce\]:RADio:MTONe:ARB\)](#)” on page 213
- “[Two Tone Subsystem–Option 651/652 /654 \(\[:SOURce\]:RADio:TTONe:ARB\)](#)” on page 229

## Arb Commands

All Subsystem—Option 651/652/654 ([:SOURce])

### All Subsystem—Option 651/652/654 ([:SOURce])

#### :RADio:ALL:OFF

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ALL:OFF

This command turns off all digital modulation formats.

**Remarks** This command does not affect analog modulation.

## Dmodulation Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:DModulation:ARB)

### **:BASeband:FREQuency:OFFSet**

**Supported** N5182A

[**:SOURce**]:RADio:DModulation:ARB:BASeband:FREQuency:OFFSet <value><unit>  
[:SOURce]:RADio:DModulation:ARB:BASeband:FREQuency:OFFSet?

This command offsets the baseband frequency relative to the carrier. The feature is useful for moving the signal such that the carrier feed-through is not in the center.

The Agilent MXG provides automatic DAC over-range protection when the offset value is something other than 0 Hz. It scales down the I/Q data by *1/square root of 2*.

\*RST +0.0000000E+000

**Range** +5.0E7 – 5.0E7 Hz

**Key Entry** Baseband Frequency Offset

**Key Path** Mode > Custom > ARB Setup > More > Baseband Frequency Offset

### **:FILTer**

**Supported** N5182A

[**:SOURce**]:RADio:DModulation:ARB:FILTter RNYQuist|NYQuist|GAUSSian|  
RECTangle|IS95|IS95\_EQ|IS95\_MOD|IS95\_MOD\_EQ|WCDMA|AC4Fm|IS2000SR3DS|  
UGGaussian|"<user FIR>"  
[:SOURce]:RADio:DModulation:ARB:FILTter?

This command specifies the pre-modulation filter type.

RNYQuist This choice selects a Root Nyquist (root raised cosine) filter. This filter is adjusted using Alpha.

NYQuist This choice selects a Nyquist (raised cosine) filter. This filter is adjusted using Alpha.

GAUSSian This choice selects a Gaussian Filter which is adjusted using Bbt values.

RECTangle This choice selects a one symbol wide rectangular filter.

IS95 This choice selects a filter that meets the criteria of the IS-95 standard.

IS95\_EQ This choice selects a filter which is a combination of the IS-95 filter (above) and the equalizer filter described in the IS-95 standard. This filter is only used for IS-95 baseband filtering.

IS95\_MOD This choice selects a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance) with lower passband rejection than the filter specified in the IS-95 standard.

**Arb Commands**Dmodulation Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:DMDULATION:ARB)

IS95_MOD_EQ	This choice selects a filter which is a combination of the equalizer filter described in the IS-95 standard and a filter that meets the criteria of the IS-95 error function (for improved adjacent channel performance), with lower passband rejection.
WCDMa	This choice selects a 0.22 Nyquist filter optimized for ACP.
AC4Fm	This choice selects a predefined Association of Public Safety Communications Officials (APCO) specified compatible 4-level frequency modulation (C4FM) filter.
IS2000SR3DS	This choice selects an IS-2000 standard, spread rate 3 direct spread filter.
UGGaussian	This choice selects a backwards compatible GSM Gaussian filter (Gaussian filter with a fixed BbT value of 0.300) for the ESG E44xxB Option UN3 or UN4.
"<user FIR>"	This variable is any FIR filter file that you have stored in memory. The variable needs no directory path indicating the location of the file, such as FIR: or /USER/FIR. The command assumes the FIR directory. Refer to “ <a href="#">File Name Variables</a> ” on page 12 for more information on file names.
<b>*RST</b>	GAUS
<b>Key Entry</b>	<b>Root Nyquist</b> <b>Nyquist</b> <b>Gaussian</b> <b>Rectangle</b> <b>IS-95</b> <b>IS-95 w/EQ</b> <b>IS-95 Mod</b> <b>IS-95 Mod w/EQ</b> <b>WCDMA</b> <b>IS-2000 SR3 DS</b> <b>APCO 25 C4FM</b> <b>UN3/4 GSM Gaussian</b> <b>User FIR</b>
<b>Key Path</b>	<b>Mode &gt; Custom &gt; Digital Mod Setup &gt; Filter &gt; filter type</b>

**:FILTter:ALPHa****Supported** N5182A

[**:SOURce**]:RADio:DMDULATION:ARB:FILTter:ALPHa <val>  
 [**:SOURce**]:RADio:DMDULATION:ARB:FILTter:ALPHa?

This command changes the Nyquist or root Nyquist filter alpha value.

The filter alpha value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

**\*RST** +3.50000000E-001**Range** 0.000–1.000**Key Entry** **Filter Alpha****Key Path** **Mode > Custom > Digital Mod Setup > Filter > Filter Alpha****Remarks** To change the current filter type, refer to “[:FILTter](#)” on page 159.

## **:FILT:BBT**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:FILT:BBT <val>  
[ :SOURce] :RADio:DModulation:ARB:FILT:BBT?

This command changes the bandwidth-multiplied-by-bit-time (BbT) filter parameter.

The filter BbT value can be set to the minimum level (0), the maximum level (1), or in between by using fractional numeric values (0.001–0.999).

**\*RST** +5.00000000E–001

**Range** 0.000–1.000

**Key Entry** Filter BbT

**Key Path** Mode > Custom > Digital Mod Setup > Filter > Filter BbT

**Remarks** This command is effective only after choosing a Gaussian filter. It does not have an effect on other types of filters.

To change the current filter type, refer to “[:FILT](#)” on page 159.

## **:FILT:CHANnel**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:FILT:CHANnel EVM|ACP  
[ :SOURce] :RADio:DModulation:ARB:FILT:CHANnel?

This command optimizes the Nyquist and root Nyquist filters to minimize error vector magnitude (EVM) or to minimize adjacent channel power (ACP).

EVM This choice provides the most ideal passband.

ACP This choice improves stopband rejection.

**\*RST** EVM

**Key Entry** Optimize FIR For EVM ACP

**Key Path** Mode > Custom > Digital Mod Setup > Filter > Filter BbT

**Remarks** To change the current filter type, refer to “[:FILT](#)” on page 159.

## **:HEAD:CLEar**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:HEAD:CLEar

This command clears the header information from the file header used by this modulation format.

**Key Entry** Clear Header

**Remarks** The **Digital Modulation Off On** softkey must be set to On for this command to function.

## **:HEADer:SAVE**

**Supported** N5182A

[**:SOURce**]:RADio:DMDUlation:ARB:HEADer:SAVE

This command saves the header information to the file header used by this modulation format.

**Key Entry** **Save Setup To Header**

**Remarks** The **Digital Modulation Off On** softkey must be set to On for this command to function.

## **:IQ:MODulation:ATTen**

**Supported** N5182A

[**:SOURce**]:RADio:DMDUlation:ARB:IQ:MODulation:ATTen <val>  
[:SOURce]:RADio:DMDUlation:ARB:IQ:MODulation:ATTen?

This command sets the attenuation level of the I/Q signals being modulated through the signal generator RF path.

The variable <val> is expressed in units of decibels (dB).

**\*RST** +6.00000000E+000

**Range** 0–40

**Key Entry** **Modulator Atten Manual Auto**

## **:IQ:MODulation:ATTen:AUTO**

**Supported** N5182A

[**:SOURce**]:RADio:DMDUlation:ARB:IQ:MODulation:ATTen:AUTO ON|OFF|1|0  
[:SOURce]:RADio:DMDUlation:ARB:IQ:MODulation:ATTen:AUTO?

This command enables or disables the I/Q attenuation auto mode.

**ON** (1) This choice enables the attenuation auto mode which optimizes the modulator attenuation for the current conditions.

**OFF** (0) This choice holds the attenuator at its current setting or at a selected value. Refer to “[:IQ:MODulation:ATTen](#)” on page 162 for setting the attenuation value.

**\*RST** 1

**Key Entry** **Modulator Atten Manual Auto**

## **:DMODulation:ASK[:DEPTh]**

**Supported** N5182A

[ :SOURce] :RADio:DMODulation:ARB:MODulation:ASK[:DEPTh] <0% - {100%}>  
[:SOURce] :RADio:DMODulation:ARB:MODulation:ASK[:DEPTh] ?

This command changes the depth for the amplitude shift keying (ASK) modulation. Depth is set as a percentage of the full power on level.

**\*RST** +1.00000000E+002

**Range** 0–100

**Key Entry** ASK

**Remarks** The modulation is applied to the I signal, the Q value is always kept at zero.

## **:MODulation:FSK[:DEViation]**

**Supported** N5182A

[ :SOURce] :RADio:DMODulation:ARB:MODulation:FSK[:DEViation] <val>  
[:SOURce] :RADio:DMODulation:ARB:MODulation:FSK[:DEViation] ?

This command sets the symmetric FSK frequency deviation value.

The variable <val> is expressed in units of Hertz and the maximum range value equals the current symbol rate value multiplied by ten, limited to 20 MHz.

**\*RST** +4.00000000E+002

**Range** 0–2E7

**Key Entry** Freq Dev

**Remarks** To change the modulation type, refer to “[:MODulation\[:TYPE\]](#)” on page 164.

Refer to “[:SRATE](#)” on page 173 for a list of the minimum and maximum symbol rate values.

To set an asymmetric FSK deviation value, refer to the *User’s Guide* for more information.

## **:MODulation[:TYPE]**

**Supported** N5182A

[**:SOURce**] :RADio:DMDUlation:ARB:MODulation[:TYPE] BPSK|QPSK|IS95QPSK|GRAYQPSK|OQPSK|IS95OQPSK|P4DQPSK|PSK8|PSK16|D8PSK|EDGE|MSK|FSK2|FSK4|FSK8|FSK16|C4FM|QAM4|QAM16|QAM32|QAM64|QAM128|QAM256  
[:SOURce] :RADio:DMDUlation:ARB:MODulation[:TYPE]?

This command sets the modulation type for the digital modulation personality.

*RST	P4DQPSK							
Key Entry	BPSK	QPSK	IS-95 QPSK	Gray Coded QPSK		OQPSK		
	IS-95 OQPSK		$\pi/4$ DQPSK	8PSK	16PSK	D8PSK	EDGE	MSK
	2-Lvl FSK	4-Lvl FSK	8-Lvl FSK	16-Lvl FSK	C4FM	4QAM	16QAM	
	32QAM	64QAM	128QAM	256QAM				

## **:MPOLarity:MARKer1|2|3|4**

**Supported** N5182A

[**:SOURce**] :RADio:DMDUlation:ARB:MPOLarity:MARKer1|2|3|4 NEGative|POSitive  
[:SOURce] :RADio:DMDUlation:ARB:MPOLarity:MARKer1|2|3|4?

This command sets the polarity for the selected marker. For a positive marker polarity, the marker signal is high during the marker points. For a negative marker polarity, the marker signal is high during the period of no marker points.

*RST	POS		
Key Entry	Marker 1 Polarity Neg Pos	Marker 2 Polarity Neg Pos	Marker 3 Polarity Neg Pos
	Marker 4 Polarity Neg Pos		

## **:NOISE:BANDwidth**

**Supported** N5182A with Option 432

[**:SOURce**] :RADio:DMDUlation:ARB:NOISE:BANDwidth <value><unit>  
[:SOURce] :RADio:DMDUlation:ARB:NOISE:BANDwidth?

This command selects the flat noise bandwidth value of the real-time noise for an ARB waveform.

Typically, this value is set slightly wider than the signal bandwidth.

\*RST +1.0000000E+000

Range	OSR Option 651: 1E0 – 24E6
	OSR Option 652: 1E0 – 48E6
	OSR Option 654: 1E0 – 100E6

**Key Entry**      **Noise Bandwidth**

## **:NOISe:CBWidth**

**Supported** N5182A with Option 432

[ :SOURce] :RADio:DMODulation:ARB:NOISe:CBWidth <1Hz-125MHz>  
[:SOURce] :RADio:DMODulation:ARB:NOISe:CBWidth?

This command selects the carrier bandwidth over which the AWGN (additive white gaussian noise) is applied. The noise power will be integrated over the selected bandwidth for the purposes of calculating C/N (carrier to noise ratio). The carrier bandwidth is limited to the ARB sample rate but cannot exceed 80 MHz. For more information refer to “[:NOISe\[:STATe\]](#)” on page 165.

**\*RST** +1.00000000E+000

1.0 Hz

**Range** 1Hz – 125 MHz

**Key Entry** Carrier Bandwidth

## **:NOISe:CN**

**Supported** N5182A with Option 432

[ :SOURce] :RADio:DMODulation:ARB:NOISe:CN <-100dB - 100dB>  
[:SOURce] :RADio:DMODulation:ARB:NOISe:CN?

This command sets the carrier to noise ratio in dB. The carrier power is defined as the total modulated signal power without noise power added. The noise power is applied over the specified bandwidth of the carrier signal. For more information, refer to “[:NOISe:CBWidth](#)”.

### **Example**

:RAD:ARB:NOIS:CN 50DB

The preceding example sets the carrier to noise ratio to 50 dB.

**\*RST** +0.00000000E+000

**Key Entry** **Carrier to Noise Ratio**

## **:NOISe[:STATe]**

**Supported** N5182A with Option 403

[ :SOURce] :RADio:DMODulation:ARB:NOISe[:STATe] ON|OFF|1|0  
[:SOURce] :RADio:DMODulation:ARB:NOISe[:STATe]?

This command enables or disables adding real-time, non-repeating additive white gaussian noise (AWGN) to the carrier modulated by the waveform being played by the Dual ARB waveform player. The noise bandwidth will be at least 0.8 times the sample rate, or 1.6 times the sample rate depending on the bandwidth factor.

When the bandwidth factor is 2, and the sample rate is greater than 50 Msamples/sec, noise cannot be enabled. Maximum bandwidth cannot exceed 80 MHz. Any oversampling in the waveform increases the noise bandwidth by a factor equal to the oversampling.

### **Example**

:RAD:ARB:NOIS ON

The preceding example applies real-time AWGN to the carrier.

**\*RST** 0  
**Key Entry** **Real-time Noise Off On**

### **:PHASe:NOISe:F1**

**Supported** N5182A with Option 432

[**:SOURce**]:RADio:DMDUlation:ARB:PHASe:NOISe:F1 <value><unit>  
[:SOURce]:RADio:DMDUlation:ARB:PHASe:NOISe:F1?

This command sets the start frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F2](#)). If the value is set greater than the stop frequency value, the signal generator resets the stop value to equal the start value.

The actual value may vary logarithmically depending on the value of the stop frequency. This behavior is more noticeable at higher frequency values. For more information, see the *User's Guide*.

**\*RST** +1.00000000E+003  
**Range** 0Hz–48.43782781MHz  
**Key Entry** **Desired Start Freq (f1)**

### **:PHASe:NOISe:F2**

**Supported** N5182A with Option 432

[**:SOURce**]:RADio:DMDUlation:ARB:PHASe:NOISe:F2 <value><unit>  
[:SOURce]:RADio:DMDUlation:ARB:PHASe:NOISe:F2?

This command sets the stop frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F1](#)). If the value is set less than the start frequency value, the signal generator resets the start value to equal the stop value.

The actual value may vary logarithmically, which is more noticeable at higher frequency offset values. For more information, see the *User's Guide*.

If a DAC over-range error occurs while setting this value, see [:PHASe:NOISe:LMID](#) for information.

**\*RST** +3.00000000E+004  
**Range** 1Hz–48.43782781MHz  
**Key Entry** **Desired Stop Freq (f2)**

## **:PHASe:NOISe:LMID**

**Supported** N5182A with Option 432

[**:SOURce**] :RADio:DMODulation:ARB:PHASe:NOISe:LMID <value>  
[**:SOURce**] :RADio:DMODulation:ARB:PHASe:NOISe:LMID?

This command sets the level amplitude of the flat area for the phase noise impairment. This phase noise is added to the base phase noise of the signal generator.

The signal generator has an automatic DAC over-range protection feature that is on by default. Using this feature may cause excessive scaling, which reduces dynamic range. This feature can be turned off (see “[:DOProtection](#)” on page 181). When the automatic protection is off, manual adjustments are required to correct a DAC over-range condition, of which there are three options:

- reduce the Lmid value
- reduce the waveform runtime scaling, see “[:RSCaling](#)” on page 200
- decrease the stop frequency value

For more information on the phase noise impairment option, see the *User’s Guide*.

---

**NOTE** The amplitude range varies depending on the f2 value (“[:PHASe:NOISe:F2](#)” on page 166). As f2 increases in value, the range for Lmid decreases. If the current Lmid setting is too high for the new f2 value, the signal generator changes the Lmid value and generates an error.

---

The range values are expressed in units of dBc/Hz.

**\*RST** -7.0000000E+001

**Range** -300 to 100

**Key Entry** Desired Flat Amplitude (Lmid)

## **:PHASe:NOISe[:STATe]**

**Supported** N5182A with Option 432

[**:SOURce**] :RADio:DMODulation:ARB:PHASe:NOISe[:STATe] ON|OFF|1|0  
[**:SOURce**] :RADio:DMODulation:ARB:PHASe:NOISe[:STATe]?

This command turns the phase noise impairment on or off. For more information on the phase noise impairment option, see the *User’s Guide*.

**\*RST** 0

**Key Entry** Phase Noise Off On

## **:REFerence:EXTernal:FREQuency**

**Supported** N5182A

[**:SOURce**]:RADio:DMDULATION:ARB:REFerence:EXTernal:FREQuency <val>  
[:SOURce]:RADio:DMDULATION:ARB:REFerence:EXTernal:FREQuency?

This command conveys the expected reference frequency value of an externally applied reference to the signal generator.

The variable <val> is expressed in units of Hertz (Hz–MHz).

**\*RST** +1.00000000E+007

**Range** 2.5E5–1E8

**Key Entry** Reference Freq

**Remarks** The value specified by this command is effective only when you are using an external ARB reference applied to the BASEBAND GEN REF IN rear panel connector.

To specify external as the ARB reference source type, refer to “[:REFerence\[:SOURce\]](#)” on page 168.

## **:REFerence[:SOURce]**

**Supported** N5182A

[**:SOURce**]:RADio:DMDULATION:ARB:REFerence[:SOURce] INTernal|EXTernal  
[:SOURce]:RADio:DMDULATION:ARB:REFerence[:SOURce]?

This command selects either an internal or external reference for the waveform clock.

**\*RST** INT

**Key Entry** ARB Reference Ext Int

**Remarks** If the EXTernal choice is selected, the external frequency value *must* be entered and the signal must be applied to the BASEBAND GEN REF IN rear panel connector.

Refer to “[:REFerence:EXTernal:FREQuency](#)” on page 168 to enter the external reference frequency.

## **:RETRigger**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:RETRigger ON|OFF|IMMEDIATE  
[:SOURce] :RADio:DModulation:ARB:RETRigger?

This command enables or disables the ARB retrigerring mode; the retrigger mode controls how the retrigerring function performs while a waveform is playing.

- ON (1) This choice specifies that if a trigger occurs while a waveform is playing, the waveform will retrigger at the end of the current waveform sequence and play once more.
- OFF (0) This choice specifies that if a trigger occurs while a waveform is playing, the trigger will be ignored.

IMMEDIATE This choice specifies that if a trigger occurs while a waveform is playing, the waveform will reset and replay from the start immediately upon receiving a trigger.

**\*RST** ON

**Key Entry** On Off Immediate

## **:SCLock:RATE**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:SCLock:RATE <val>  
[:SOURce] :RADio:DModulation:ARB:SCLock:RATE?

This command sets the sample clock rate.

The variable <val> is expressed in units of Hertz (kHz – MHz)

**\*RST** +1.25000000E+008

**Range** 1E3–1E8

**Key Entry** ARB Sample Clock

**Remarks** The modulation format should be active before executing this command. If this command is executed before the modulation format is active, the entered value will be overridden by a calculated factory default value. Refer to “[STATe]” on page 179 to activate the modulation format.

## :SETup

**Supported** N5182A

[**:SOURce**] :RADio:DMDULATION:ARB:SETup GSM|NADC|PDC|PHS|DECT|AC4Fm|ACQPsK|CDPD|PWT|EDGE|TETRA|BLUetooth|DEFault|MCArrier|"<file name>"  
[:SOURce] :RADio:DMDULATION:ARB:SETup?

This command selects the digital modulation format type or multicarrier, and turns multicarrier off or on (see the MCArrier choice description).

The *MCArrier* choice selects multicarrier and turns it on. Selecting any other setup such as GSM or CDPD turns multicarrier off. To select the multicarrier setup, see [:SETup:MCArrier](#).

*RST	NADC					
Key Entry	GSM NADC PDC PHS DECT APCO 25 w/C4FM APCO w/CQPSK					
	CDPD	PWT	EDGE	TETRA	BLUetooth	DEFault
	Multicarrier Off On Select File					
Remarks	Refer to <a href="#">"File Name Variables"</a> on page 12 for information on the file name syntax.					

## :SETup:MCArrier

**Supported** N5182A

[**:SOURce**] :RADio:DMDULATION:ARB:SETup:MCARRIER GSM|NADC|PDC|PHS|DECT|AC4Fm|ACQPsK|CDPD|PWT|EDGE|TETRA,<num carriers>,<freq spacing>|"<file name>"  
[:SOURce] :RADio:DMDULATION:ARB:SETup:MCARRIER?

This command builds a table with the specified number of carriers and frequency spacing or retrieves the setup stored in the specified user file.

The carrier type, number of carriers, and frequency spacing value are returned when a query is initiated. The output format is as follows:

<carrier type>,<num carriers>,<freq spacing>

If a specific file is loaded and then queried, only the file name is returned.

The variable <freq spacing> is expressed in units of Hertz (kHz–MHz).

*RST	Carrier: NADC	<num carriers>: 2	<freq spacing>: +1.000000000000E+06
Range	<num carriers>: 2–100		
	<freq spacing>: $2 \div (\text{num carriers} - 1) \times 80$ MHz		
Key Entry	GSM NADC PDC PHS DECT APCO 25 w/C4FM APCO w/CQPSK	CDPD PWT EDGE TETRA # of Carriers Freq Spacing	Custom Digital Mod State
Remarks	Refer to <a href="#">"File Name Variables"</a> on page 12 for information on the file name syntax.		

To store a multicarrier setup refer to [":SETup:MCArrier:STORe"](#) on page 171.

## **:SETup:MCARrier:PHASE**

**Supported** N5182A

[**:SOURce**] :RADio:DModulation:ARB:SETup:MCARrier:PHASE Fixed | RANDOM  
[:SOURce] :RADio:DModulation:ARB:SETup:MCARrier:PHASE?

This command toggles the phase settings for multicarrier digital modulation.

FIXed This choice sets the phase of all carriers to 0.

RANDOM This choice sets random phase values for all of the carriers.

**\*RST** FIX

**Key Entry** Carrier Phases Fixed Random

## **:SETup:MCARrier:STORE**

**Supported** N5182A

[**:SOURce**] :RADio:DModulation:ARB:SETup:MCARrier:STORE "<file name>"

This command stores the current multicarrier setup information.

The stored file contains information that includes the digital modulation format, number of carriers, frequency spacing, and power settings for the multicarrier setup.

**Key Entry** Load/Store

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

Refer to “File Name Variables” on page 12 for information on the file name syntax.

## **:SETup:MCARrier:TABLE**

**Supported** N5182A

[**:SOURce**] :RADio:DModulation:ARB:SETup:MCARrier:TABLE INIT | APPend |  
<carrier\_num>,GSM|NADC|PDC|PHS|DECT|AC4Fm|ACQPsK|CDPD|PWT|EDGE|TETRa|  
"<file name>",<freq\_offset>,<power>  
[:SOURce] :RADio:DModulation:ARB:SETup:MCARrier:TABLE? <carrier\_num>

This command modifies the parameters of one of the available multicarrier digital modulation formats.

The variable <freq\_offset> is expressed in units of Hertz (kHz–MHz).

The variable <power> is expressed in units of decibels (dB).

INIT This choice clears the current information and creates a new one-row table, allowing for further definition using additional parameters.

APPend This choice adds rows to an existing table.

<carrier\_num> This variable specifies the number of the carriers in the multicarrier table that will be modified.

## Arb Commands

Dmodulation Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:DMDUlation:ARB)

The value of the variable <carrier\_num> must be specified prior to selecting the digital modulation format.

Carrier type, frequency offset, and power level are returned when a query is initiated. The output format is as follows:

<carrier type>, <freq_offset>, <power>	
*RST	carrier type: NADC      <freq_offset>: -5.00000000E+004 <power>: +0.00000000E+000
Range	<freq_offset>: -1E5 to 1E6      <power>: -40 to 0
Key Entry	Initialize Table      Insert Row      GSM      NADC      PDC      PHS      DECT APCO 25 w/C4FM      APCO w/CQPSK      CDPD      PWT      EDGE      TETRA <b>Custom Digital Mod State</b>
Remarks	Refer to “ <a href="#">File Name Variables</a> ” on page 12 for information on the file name syntax. To store a multicarrier setup refer to “ <a href="#">:SETup:MCARrier:STORE</a> ” on page 171.

## :SETup:MCARrier:TABLE:NCArriers

**Supported**      N5182A

[**:SOURce**] :RADio:DMDUlation:ARB :SETup:MCARrier:TABLE:NCArriers?

This query returns the number of carriers in the current multicarrier setup.

\*RST      +2

Range      1–100

Key Entry      **# of Carriers**

## :SETup:STORE

**Supported**      N5182A

[**:SOURce**] :RADio:DMDUlation:ARB :SETup:STORE "<file name>"

This command stores the current custom digital modulation state.

The saved file contains information that includes the modulation type, filter and symbol rate for the custom modulation setup.

Key Entry      **Store Custom Dig Mod State**

Remarks      Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

## **:SRATE**

**Supported** N5182A

[**:SOURce**] :RADio:DModulation:ARB:SRATE <val>  
[**:SOURce**] :RADio:DModulation:ARB:SRATE?

This command sets the transmission symbol rate.

The variable <val> is expressed in units of symbols per second (sps—Msps) and the maximum range value is dependent upon the modulation type, and filter.

**\*RST** +2.43000000E+004

Range	<i>Modulation Type</i>	<i>Bits per Symbol</i>	<i>Internal Data</i>
BPSK		1	1sps–50 Msps
	FSK2		
	MSK		
C4FM	C4FM	2	1sps–50 Msps
	FSK4		
	OQPSK		
	OQPSK195		
	P4QPPSK		
	QAM4		
	QPSK		
	QPSKIS95		
	QPSKISAT		
	D8PSK		
EDGE	EDGE	3	1sps–33.33 Msps
	FSK8		
	PSK8		
	FSK16	4	1sps–25 Msps
	PSK16		
QAM16	QAM16		
	QAM32	5	1sps–20 Msps
	QAM64		
	QAM256	8	1sps–12.50 Msps

### **Key Entry**

### **Symbol Rate**

### **Remarks**

When user-defined filters are selected using the command in section “[:FILTER](#)” on page 159, the upper bit rate will be restricted in line with the following symbol rate restriction:

- FIR filter length > 32 symbols: upper limit is 12.5 Msps
- FIR filter length > 16 symbols: upper limit is 25 Msps

When internal FIR filters are used, the limits of the above table always apply. For higher symbol rates, the FIR filter length will be truncated as follows:

- Above 12.5 Msps, the FIR length will be truncated to 32 symbols
- Above 25 Msps, the FIR length will be truncated to 16 symbols

This will impact the relative timing of the modulated data, as well as the actual filter response.

To change the modulation type, refer to “[:MODulation\[:TYPE\]](#)” on page 164.

## **:TRIGger:TYPE**

**Supported** N5182A

[**:SOURce**]:RADio:DMDULATION:ARB:TRIGger:TYPE CONTinuous|SINGle|GATE  
[:SOURce]:RADio:DMDULATION:ARB:TRIGger:TYPE?

This command sets the trigger mode (type) that controls the waveform’s playback.

Triggers control the playback by telling the Agilent MXG when to play the modulating signal (waveform). Depending on the trigger settings for the Agilent MXG, the waveform playback can occur once, continuously, or the Agilent MXG may start and stop playing the waveform repeatedly (GATE mode).

A trigger signal comprises both positive and negative signal transitions (states), which are also called high and low periods. You can configure the Agilent MXG to trigger on either state of the trigger signal. It is common to have multiple triggers, also referred to as trigger occurrences or events, occur when the signal generator requires only a single trigger. In this situation, the Agilent MXG recognizes the first trigger and ignores the rest.

When you select a trigger mode, you may lose the signal (carrier plus modulating) from the RF output until you trigger the waveform. This is because the Agilent MXG sets the I and Q signals to zero volts prior to the first trigger event, which suppresses the carrier. After the first trigger event, the waveform’s final I and Q levels determine whether you will see the carrier signal or not (zero = no carrier, other values = carrier visible). At the end of most files, the final I and Q points are set to a value other than zero.

There are four parts to configuring the trigger:

- Choosing the trigger type, which controls the waveform’s transmission.
- Setting the waveform’s response to triggers:
  - CONTinuous, see “[:TRIGger:TYPE:CONTinuous\[:TYPE\]](#)” on page 175
  - SINGle, see “[:RETRigger](#)” on page 169
  - GATE, selecting the mode also sets the response
- Selecting the trigger source (see “[:TRIGger\[:SOURce\]](#)” on page 176), which determines how the Agilent MXG receives its trigger signal, internally or externally. The GATE choice requires an external trigger.
- Setting the trigger polarity when using an external source:
  - CONTinuous and SINGle see “[:TRIGger\[:SOURce\]:EXTernal:SLOPe](#)” on page 178
  - GATE, see “[:TRIGger:TYPE:GATE](#)” on page 175

For more information on triggering, see the *User’s Guide*.

The following list describes the trigger type command choices:

CONTinuous Upon triggering, the waveform repeats continuously.

SINGle Upon triggering, the waveform segment or sequence plays once.

GATE An external trigger signal repeatedly starts and stops the waveform’s playback (transmission). The time duration for playback depends on the duty period of the trigger signal and the gate polarity selection (see “[:TRIGger:TYPE:GATE](#)” on

[page 175](#)). The waveform plays during the inactive state and stops during the active polarity selection state. The active state can be set high or low. The gate mode works only with an external trigger source.

---

**NOTE** The ARB gating behavior described above is opposite to the gating behavior for real-time custom mode.

---

<b>*RST</b>	CONT		
<b>Key Entry</b>	<b>Continuous</b>	<b>Single</b>	<b>Gated</b>

### **:TRIGger:TYPE:CONTinuous[:TYPE]**

**Supported** N5182A

```
[ :SOURce] :RADio:DModulation:ARB:TRIGger:TYPE:CONTinuous [:TYPE] FREE |
TRIGger|RESet
[:SOURce] :RADio:DModulation:ARB:TRIGger:TYPE:CONTinuous [:TYPE] ?
```

This commands selects the waveform's response to a trigger signal while using the continuous trigger mode.

For more information on triggering and to select the continuous trigger mode, see "[:TRIGger:TYPE](#)" on [page 174](#).

The following list describes the waveform's response to each of the command choices:

<b>FREE</b>	Turning the ARB format on immediately triggers the waveform. The waveform repeats until you turn the format off, select another trigger, or choose another waveform file.
<b>TRIGger</b>	The waveform waits for a trigger before play begins. When the waveform receives the trigger, it plays continuously until you turn the format off, select another trigger, or choose another waveform file.
<b>RESet</b>	The waveform waits for a trigger before play begins. When the waveform receives the trigger, it plays continuously. Subsequent triggers reset the waveform to the beginning. For a waveform sequence, this means to the beginning of the first segment in the sequence.

<b>*RST</b>	FREE		
<b>Key Entry</b>	<b>Free Run</b>	<b>Trigger &amp; Run</b>	<b>Reset &amp; Run</b>

### **:TRIGger:TYPE:GATE**

**Supported** N5182A

```
[ :SOURce] :RADio:DModulation:ARB:TRIGger:TYPE:GATE LOW|HIGH
[:SOURce] :RADio:DModulation:ARB:TRIGger:TYPE:GATE?
```

This command selects the active state (gate polarity) of the gate while using the gating trigger mode.

The LOW and HIGH selections correspond to the low and high states of an external trigger signal. For example, when you select HIGH, the active state occurs during the high of the trigger signal. When the active state occurs, the Agilent MXG starts the waveform playback at the last played sample point, then stops the playback at the next sample point when the inactive state occurs. For

## Arb Commands

Dmodulation Subsystem—Option 651/652/654 (:SOURce):RADio:DModulation:ARB)

more information on triggering and to select gating as the trigger mode, see “[:TRIGger:TYPE](#)” on page 174.

The following list describes the Agilent MXG’s gating behavior for the polarity selections:

LOW	The waveform playback starts when the trigger signal goes low (active state) and stops when the trigger signal goes high (inactive state).
HIGH	The waveform playback starts when the trigger signal goes high (active state) and stops when the trigger signal goes low (inactive state).
*RST	HIGH
Key Entry	<b>Gate Active Low High</b>

## **:TRIGger[:SOURce]**

**Supported** N5182A

[ :SOURce ] :RADio:DModulation:ARB:TRIGger [:SOURce] KEY|EXT|BUS  
[ :SOURce ] :RADio:DModulation:ARB:TRIGger [:SOURce] ?

This command sets the trigger source.

For more information on triggering, see “[:TRIGger:TYPE](#)” on page 174. The following list describes the command choices:

KEY	This choice enables manual triggering by pressing the front-panel <b>Trigger</b> hardkey.
EXT	An externally applied signal triggers the waveform. This is the only choice that works with gating. The following conditions affect an external trigger: <ul style="list-style-type: none"><li>The input connector selected for the trigger signal. You have a choice between the rear-panel PATTERN TRIG IN connector or the PATT TRIG IN 2 pin on the rear-panel AUXILIARY I/O connector. To make the connector selection, see “<a href="#">:TRIGger[:SOURce]:EXTernal[:SOURce]</a>” on page 178.</li></ul> For more information on the connectors and on connecting the cables, see the <i>User’s Guide</i> .
	<ul style="list-style-type: none"><li>The trigger signal polarity:<ul style="list-style-type: none"><li>gating mode, see “<a href="#">:TRIGger:TYPE:GATE</a>” on page 175</li><li>continuous and single modes, see “<a href="#">:TRIGger[:SOURce]:EXTernal:SLOPe</a>” on page 178</li></ul></li><li>The time delay between when the Agilent MXG receives a trigger and when the waveform responds to the trigger. There are two parts to setting the delay:<ul style="list-style-type: none"><li>setting the amount of delay, see “<a href="#">:TRIGger[:SOURce]:EXTernal:DElay</a>” on page 177</li><li>turning the delay on, see “<a href="#">:TRIGger[:SOURce]:EXTernal:DElay:STATE</a>” on page 177</li></ul></li></ul>
BUS	This choice enables triggering over the GPIB or LAN using the *TRG or GET commands or the AUXILIARY INTERFACE (RS-232) using the *TRG command.

**\*RST** EXT

**Key Entry** Trigger Key Ext Bus

## **:TRIGger[:SOURce]:EXTernal:DElay**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:TRIGger [:SOURce] :EXTernal:DElay <val>  
[ :SOURce] :RADio:DModulation:ARB:TRIGger [:SOURce] :EXTernal:DElay?

This command sets the amount of time to delay the Agilent MXG's response to an external trigger.

The delay is a path (time) delay between when the Agilent MXG receives the trigger and when it responds to the trigger. For example, configuring a trigger delay of two seconds, causes the Agilent MXG to wait two seconds after receipt of the trigger before the Agilent MXG plays the waveform.

The delay does not occur until you turn it on (see “[:TRIGger\[:SOURce\]:EXTernal:DElay:STATe](#)” on page 177). You can set the delay value either before or after turning it on.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on page 176.

The unit of measurement for the variable <val> is in seconds (nsec–sec).

**\*RST** +1.00000000E-003

**Range** 1E-8 to 4E1

**Key Entry** Ext Delay Time

## **:TRIGger[:SOURce]:EXTernal:DElay:STATe**

**Supported** N5182A

[ :SOURce] :RADio:DModulation:ARB:TRIGger [:SOURce] :EXTernal:DElay:  
STATe ON|OFF|1|0  
[ :SOURce] :RADio:DModulation:ARB:TRIGger [:SOURce] :EXTernal:DElay:STATe?

This command enables or disables the external trigger delay function.

For setting the delay time, see “[:TRIGger\[:SOURce\]:EXTernal:DElay](#)” on page 177, and for more information on configuring an external source, see“[:TRIGger\[:SOURce\]](#)” on page 176.

**\*RST** 0

**Key Entry** Ext Delay Off On

## :TRIGger[:SOURce]:EXTernal:SLOPe

**Supported** N5182A

[ :SOURce] :RADio:DMDULATION:ARB:TRIGger [:SOURce] :EXTernal:  
SLOPe POSitive|NEGative  
[:SOURce] :RADio:DMDULATION:ARB:TRIGger [:SOURce] :EXTernal:SLOPe?

This command sets the polarity for an external trigger signal while using the continuous, single triggering mode. To set the polarity for gating, see “[:TRIGger:TYPE:GATE](#)” on page 175.

The POSitive and NEGative selections correspond to the high (positive) and low (negative) states of the external trigger signal. For example, when you select POSitive, the waveform responds (plays) during the high state of the trigger signal. When the Agilent MXG receives multiple trigger occurrences when only one is required, the signal generator uses the first trigger and ignores the rest.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on page 176.

**\*RST** NEG

**Key Entry** Ext Polarity Neg Pos

## :TRIGger[:SOURce]:EXTernal[:SOURce]

**Supported** N5182A

[ :SOURce] :RADio:DMDULATION:ARB:TRIGger [:SOURce] :  
EXTernal [:SOURce] EPT1|EPT2|EPTRIGGER1|EPTRIGGER2  
[:SOURce] :RADio:DMDULATION:ARB:TRIGger [:SOURce] :EXTernal [:SOURce] ?

This command selects which PATTERN TRIG IN connection the Agilent MXG uses to accept an externally applied trigger signal when external is the trigger source selection.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on page 176. For more information on the rear-panel connectors, see the *User’s Guide*.

The following list describes the command choices:

**EPT1** This choice is synonymous with EPTRIGGER1 and selects the PATTERN TRIG IN rear-panel connector.

**EPT2** This choice is synonymous with EPTRIGGER2 and selects the PATT TRIG IN 2 pin on the rear-panel AUXILIARY I/O connector.

**EPTRIGGER1** This choice is synonymous with EPT1 and selects the PATTERN TRIG IN rear-panel connector.

**EPTRIGGER2** This choice is synonymous with EPT2 and selects the PATT TRIG IN 2 pin on the rear-panel AUXILIARY I/O connector.

**\*RST** EPT1

**Key Entry** Patt Trig In 1      Patt Trig In 2

## [**:STATe**]

**Supported** N5182A

[**:SOURce**] :RADio:DMODulation:ARB [**:STATe**] ON|OFF|1|0  
[**:SOURce**] :RADio:DMODulation:ARB [**:STATe**] ?

This command enables or disables the digital modulation capability.

ON (1) This choice sets up the internal hardware to generate the currently selected digital modulation format signal selection.

OFF (0) This choice disables the digital modulation capability.

**\*RST** 0

**Key Entry** **Digital Modulation Off On**

**Remarks** When ON is selected, the I/Q state is activated and the I/Q source is set to internal.

## Dual ARB Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:ARB)

### **:BASeband:FREQuency:OFFSet**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**]:RADio:ARB:BASeband:FREQuency:OFFSet <value><unit>  
[:SOURce]:RADio:ARB:BASeband:FREQuency:OFFSet?

This command offsets the baseband frequency relative to the carrier. The feature is useful for moving the signal such that the carrier feed-through is not in the center.

The Agilent MXG provides an automatic DAC over-range protection feature, which can be turned off (factory default has it set to on). When turned on, the protection is active when the offset value is something other than 0 Hz. When active, it scales down the I/Q data by  $1/\sqrt{2}$ . To turn the protection off, see “[:DOPProtection](#)” on page 181.

\***RST** <value>: 0 Hz

**Range** +5.0E7 – 5.0E7 Hz

**Key Entry** Baseband Frequency Offset

### **:CLIPping**

**Supported** N5182A with Option 651, 652, or 654

---

**NOTE** Clipping cannot be undone (i.e. restoring clipping value to 100% will have no effect on a previously clipped waveform.)

---

[**:SOURce**]:RADio:ARB:CLIPping "<file name>", IJQ|IORQ,<value>[,<value>]

This command sets the clipping level of the selected waveform segment to a percentage of its highest peak.

The variable <value> is expressed in units of percent.

**IJQ** This choice clips the composite I/Q waveform.

**IORQ** This choice clips I and Q separately. When this choice is enabled, percentage values for both I and Q must be specified.

\***RST** IJQ <value>: +100

**Range** <value>: 10–100 (0.1% resolution)

**Key Entry** Clipping Type |I+jQ| |I|,|Q|

**Remarks** A value of 100 percent equates to no clipping.

Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.

**:DOPRotection****Supported** N5182A with Option 651, 652, or 654

[:SOURce]:RADio:ARB:DOPRotection ON|OFF|1|0

[:SOURce]:RADio:ARB:DOPRotection?

This command turns the DAC over-range protection feature off or on.

The over-range protection feature works only with the Baseband Frequency Offset feature and the Option 432 Phase Noise Impairment.

**On** Minimizes the occurrence of a DAC over-range condition. In doing so, it can also decrease the dynamic range of the waveform by scaling the data more than what is actually needed. For the Baseband Frequency Offset feature, this protection is active only when the offset parameter is a value other than 0 Hz.

**Off** The automatic protection feature is not enabled. To correct a DAC over-range condition, reduce the waveform runtime scaling value (see “[:RSCaling](#)” on page 200).

For Option 432 Phase Noise Impairment, there are two additional methods to correct a DAC over-range condition. Refer to the phase noise commands in the desired SCPI Command Subsystem for more information.

**\*RST** ON**Key Entry** **DAC Over-range Protection Off On****:GENerate:SINE****Supported** N5182A with Option 651, 652, or 654[:SOURce]:RADio:ARB:GENerate:SINE ["<file\_name>"] [,<osr>], [<scale>], [**I|Q|IQ**] [<phasedeg>]

This command creates a sine wave waveform file and saves it in the signal generator’s volatile waveform memory (WFM1).

**<file\_name>** This variable names the file used to save the generated sine wave data.

**<osr>** This variable sets the oversample ratio, which must be an even number and  $\geq 4$ . The **<osr>** variable is expressed in samples. If the oversample ratio is  $< 60$  (the minimum number of samples or I/Q points required for a waveform), multiple waveform periods are generated to create a waveform file with  $\geq 60$  samples. The number of periods created is  $60 \div <\text{osr}>$  (quotient will round up to an integer value). A waveform with an oversample ratio  $\geq 60$  has one period.

**<scale>** This variable sets the scale factor for the waveform. The scale factor is a real number from zero to one.

**I|Q|IQ** Selects I, Q, or I and Q paths for the waveform data. Sinewave data is generated and applied to the I path if the I path is selected; Q data are set to zeros. Sine data is generated and applied to the Q path if the Q path is selected; I data are set to zeros. If the I and Q paths are selected, sinewave data are applied to the I and Q paths.

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 ([:SOURce]:RADio:ARB)

<phasedeg> Selects the phase angle of the waveform data. Sinewave data is generated and the phase angle in degrees is applied to the sine wave.

### Example

```
:RAD:ARB:GEN:SINE "Sine_Wave",60,.5,IQ
```

The preceding example generates an I/Q sine wave and saves the data to a file named Sine\_Wave. The oversampling ratio is 60, the scaling is set for 50%, and the data is applied to both the I and Q paths.

The signal generator's baseband option and available baseband memory determine the maximum number of samples for the waveform.

**Range** OSR Option 651, 652, or 654: 4E0 – 8E6

OSR Option 019: 4E0 – 64E6

Scale: 0–1

## :GENerate:TEST:WAveforms

**Supported** N5182A with Option 651, 652 or 654

```
[ :SOURce] :RADio:ARB:GENerate:TEST:WAveforms
```

This command recreates the arb waveform test files into BBG (waveform) memory (WFM1). When this command is sent to the instrument, the SINE\_TEST\_WFM and RAMP\_TEST\_WFM files are regenerated.

### Example

```
:RAD:ARB:GEN:TEST:WAV
```

## :HEADer:CLEar

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:HEADer:CLEar
```

This command clears the header information from the file header used by this modulation format (i.e. all file header fields are set to unspecified).

**Key Entry** **Clear Header**

**Remarks** A waveform must be selected for this command to function.

**:HEADER:NOISE:RMS[:OVERride]****Supported** N5182A with Option 651, 652, or 654**[**:SOURce**]:RADio:ARB:HEADER:NOISE:RMS:OVERride "<file\_name>",<value>|UNSpecified  
[**:SOURce**]:RADio:ARB:HEADER:NOISE:RMS:OVERride? "<file\_name>"**

This command sets the value of the waveform's I and Q RMS (root mean square) for noise.

The RMS is used strictly for calculating the relative power of the noise in the specified header. The RMS is specified in normalized linear units with  $|+1|$  or  $| -1 |$  as full scale on I or Q, therefore the largest RMS that can be specified is the square root of 2 (1.414213562). If the value is unspecified, then the waveform file header's RMS is used.

This value is useful if you wish to have the noise be relative to only a portion of the waveform, such as a pilot channel, or be relative to only a single carrier that is mixed with other carriers.

For setting the header's RMS value, see "[:HEADER:RMS](#)" on page 184.

**"<file\_name>"** This variable names the waveform file to which the RMS value will be applied. The file name variable can designate a file in the WFM1, NVWFM, or SEQ directories. For information on the file name syntax, refer to "[File Name Variables](#)" on page 12.

**<value>** This variable is the user-measured RMS noise value for the specified carrier.

**UNSpecified** Sets RMS as unspecified, which causes the general RMS value to be used for calculating the relative noise power.

**Example****:RAD:ARB:HEADER:NOISE:RMS:OVER "WFM1:Sine\_Wave", .835**

The preceding example sets the file header RMS noise override value for a file type WFM1, named Sine\_Wave, to .835.

**:RAD:ARB:HEADER:NOISE:RMS:OVER "WFM1:Sine\_Wave", UNSP**

In the second example, the signal generator calculates the RMS, using the waveform file header's RMS value. For setting the header's RMS value, see "[:HEADER:RMS](#)" on page 184.

The RMS value is expressed in volts.

**Key Entry** **Edit Noise RMS Overide** **Unspecified** **Enter**

## :HEADER:RMS

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:HEADER:RMS "<file\_name>", <value> | UNSpecified  
[ :SOURce] :RADio:ARB:HEADER:RMS? " <file\_name>"

This command sets the file header RMS value for the selected waveform file. The Agilent MXG uses the RMS value with the dual ARB's real-time noise function and to optimize the modulator drive level.

The signal generator reads the RMS value from the file header when a waveform is selected to play. If the value is unspecified, then it is calculated and stored in the header automatically.

When the waveform file is saved from volatile waveform memory (WFM1) to non-volatile waveform memory (NVWFM), the RMS value, auto-calculated or user-defined, is also saved.

For setting the header noise carrier RMS override value, see “[:HEADER:NOISe:RMS\[:OVERride\]](#)” on [page 183](#).

“<file\_name>” This variable names the waveform file to which the RMS value will be applied. The file name variable can designate a file in the WFM1, NVWFM, or SEQ directories. For information on the file name syntax, refer to “[File Name Variables](#)” on [page 12](#).

<value> This variable is the user-measured RMS value for the specified waveform. The following figure shows the RMS calculation.

$$\sqrt{\sum_{n=1}^N \left( \frac{i_n^2}{N} + \frac{q_n^2}{N} \right) \times \frac{1}{N}}$$

N = # of Samples

UNSpecified Using this variable in the command clears the RMS value and sets it to unspecified. An unspecified RMS value causes the signal generator to calculate the value when the ARB personality is turned on. The RMS calculation includes rise/fall times and does not include consecutive zero level samples. DC offsets and noise are also included in the RMS measurement. But, the Marker values are *not* included in these calculations. Because the signal generator calculation uses so many factors, you may achieve better results calculating your own RMS value.

## Examples

[ :SOURce] :RADio:ARB:HEADER:RMS "WFM1:Sine\_Wave", .835

The first example shows a user-measured RMS value for the Sine\_Wave waveform file in the waveform's file header.

:RAD:ARB:HEADER:RMS "WFM1:Sine\_Wave", UNSP

In the second example, the signal generator calculates the RMS value when the ARB is turned on with this file selected or a sequence which contains the file selected.

The RMS value is expressed in volts.

<b>Range</b>	0–1.414213562373095		
<b>Key Entry</b>	<b>Edit RMS</b>	<b>Enter</b>	<b>Unspecified</b>

**Calculate****:HEADER:SAVE****Supported** N5182A with Option 651, 652, or 654

[:SOURce] :RADio:ARB:HEADER:SAVE

This command saves the Dual ARB state information to the header of the currently selected waveform.

**Key Entry** **Save Setup To Header****Remarks** A waveform must be selected for this command to function.**:IQ:MODulation:ATTen****Supported** N5182A with Option 651, 652, or 654

[:SOURce] :RADio:ARB:IQ:MODulation:ATTen &lt;value&gt;

[:SOURce] :RADio:ARB:IQ:MODulation:ATTen?

This command sets the attenuation level of the I/Q signals being modulated through the signal generator RF path.

The variable <value> is expressed in units of decibels (dB).

**\*RST** Varies (box dependent)**Range** 0–40**Key Entry** **Modulator Atten Manual Auto****:IQ:MODulation:ATTen:AUTO****Supported** N5182A with Option 651, 652, or 654

[:SOURce] :RADio:ARB:IQ:MODulation:ATTen:AUTO ON|OFF|1|0

[:SOURce] :RADio:ARB:IQ:MODulation:ATTen:AUTO?

This command enables or disables the I/Q attenuation auto mode.

**ON** (1) This choice enables the attenuation auto mode which optimizes the modulator attenuation for the current conditions.

**OFF** (0) This choice holds the attenuator at its current setting or at a selected value. Refer to “[:IQ:MODulation:ATTen](#)” on page 185 for setting the attenuation value.

**\*RST** 1**Key Entry** **Modulator Atten Manual Auto**

## **:MARKer:CLEar**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:MARKer:CLEar "<file\_name>", <marker>, <first\_point>, <last\_point>

This command clears a single marker point or a range of marker points on a waveform segment for the selected marker (1–4). The dual ARB player and all of the ARB modulation formats use this command.

"<file_name>"	This variable specifies the name of the waveform file in volatile waveform memory (WFM1). For information on the file name syntax, see “ <a href="#">File Name Variables</a> ” on <a href="#">page 12</a> .
<marker>	This variable selects the marker number; an integer value from one to four.
<first_point>	This variable defines the first point in a range of points. The number must be greater than or equal to one, and less than or equal to the total number of waveform points.  If you enter a value for either the first marker point or the last marker point that would make the first marker point occur after the last, the last marker point automatically adjusts to match the first marker point.
<last_point>	This variable defines the last point in a range of points. The number must be greater than or equal to the first point, and less than or equal to the total number of waveform points.

To clear a single marker point, use the same marker point for the first and last point variables. For more information on markers and ARB files, refer to the *User’s Guide*.

### **Example**

:RAD:ARB:MARK:CLE "Test\_Data", 1, 1, 300

The preceding example clears marker 1 from the first point through the 300th point in the Test\_Data file.

<b>Range</b>	<marker>: 1–4
	<first_Point>: 1-number of waveform points
	<last_point>: <first_Point>-number of waveform points

**Key Entry** Set Marker Off Range Of Points      **Marker 1 2 3 4**      **First Mkr Point**      **Last Mkr Point**

## **:MARKer:CLEar:ALL**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:MARKer:CLEar:ALL "<file\_name>", <marker>

This command clears all marker points on a waveform segment for the selected marker (1–4). The dual ARB player and all of the ARB formats use this command. With all marker points cleared, the event output signal level is set low.

"<file_name>"	This variable specifies the name of the waveform file in volatile waveform memory (WFM1). For information on the file name syntax, see “ <a href="#">File Name Variables</a> ” on <a href="#">page 12</a> .
<marker>	This variable selects the marker number; an integer value from one to four.

**Example**

```
:RAD:ARB:MARK:CLE:ALL "Test_Data",1
```

The preceding example clears marker 1 from the all waveform points in the Test\_Data file.

<b>Range</b>	1–4
<b>Key Entry</b>	<b>Marker 1 2 3 4      Set Marker Off All Points</b>

**:MARKer:ROTAte**

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:MARKer:ROTAte "<file_name>",<rotate_count>"
```

This command shifts the marker points for all markers in a waveform segment earlier or later by the value of the <rotate\_count> variable. The dual ARB player and all of the ARB formats use this command.

You can use a positive or negative value. When a marker point is close to the end of the waveform and the <rotate\_count> value is greater than the number of remaining marker points, but less than the total number of marker points, the marker points that would move beyond the end of the waveform wrap to the beginning of the waveform. For example, if a marker point resides at sample point 195 out of 200, and the <rotate\_count> value is twenty-five, the marker point wraps to the beginning of the waveform and continues out to the twentieth waveform point.

To set the marker points in a waveform, refer to “[:MARKer\[:SET\]](#)” on page 187.

“<file\_name>” This variable specifies the name of the waveform file in volatile waveform memory (WFM1). For information on the file name syntax, see “[File Name Variables](#)” on page 12.

**Example**

```
:RAD:ARB:MARK:ROT "Test_Data",100
```

The preceding example shifts all markers set in the Test\_Data file 100 points later. If the first set point in the file is at 50, then after sending this command, the first set point will be 150 (assuming the Test\_Data file has at least 150 points and no later set points wrapped around to the beginning of the file).

<b>Range</b>	- (n - 1) to (n - 1)
	n = number of points in the waveform

**:MARKer[:SET]**

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:MARKer[:SET] "<file_name>",<marker>,<first_point>,<last_point>,<skip_count>"
```

This command sets a single marker point or a range of marker points on a waveform segment for the selected marker (1–4). The dual ARB player and all of the ARB formats use this command.

The Agilent MXG provides four independent markers. Two of the markers route output signals to rear-panel event connectors, Marker-1 to Event1 BNC and Marker-2 to Aux I/O. A marker consists of marker points placed at defined sample points in a waveform segment. This means that a marker

point cannot be less than one or greater than the last sample point in the waveform. Marker points are cumulative, so multiple command executions with different range values, without first clearing the existing points, places additional marker points on the waveform. Because of this cumulative behavior, it is a good practice to clear existing marker points prior to setting new points. This will eliminate unexpected marker pulses. Refer to “[:MARKer:CLEar](#)” on page 186 and “[:MARKer:CLEar:ALL](#)” on page 186 for information on clearing marker points.

For waveforms generated on the signal generator (baseband generator), the Agilent MXG automatically places a marker point at the first waveform sample for markers one and two.

---

**NOTE** You can set markers for either positive or negative polarity. The following discussions for this command assume positive marker polarity. When using negative marker polarity, the marker pulses occur during the periods of no marker points.

---

There are three ways to place marker points using this command:

- consecutive marker points over a range that collectively create a single marker pulse that spans the range
- equally spaced marker points over a range, so that a marker pulse occurs at each sample point that coincides with a marker point (Using this method, you can configure a clock signal by setting the <skip\_count> variable to one.)
- a single marker point placed at a specific sample point in the waveform, which outputs a single pulse relative to the marker point location (To configure a single marker point, set the first and last points to the same number.)

For more information on markers, refer to the *User's Guide*.

The following list describes the command variables:

<file_name>	This variable specifies the name of the waveform file in volatile waveform memory (WFM1). For information on the file name syntax, see “ <a href="#">File Name Variables</a> ” on page 12.
<marker>	This variable selects the marker number; an integer value from one to four.
<first_point>	This variable defines the first point in the range over which the marker is placed. This number must be greater than or equal to one, and less than or equal to the total number of waveform points.  If you enter a value for either the first marker point or the last marker point that would make the first marker point occur after the last, the last marker point is automatically adjusted to match the first marker point.
<last_point>	This variable defines the last point in the range over which the marker will be placed. This value must be greater than or equal to the first point, and less than or equal to the total number of waveform points.
<skip_count>	This variable defines the marker point pattern across the range. A zero value means the marker points occur consecutively across the range. A value greater than zero creates a repeating marker point pattern across the range, where the gap between the marker points is equal to the <skip_count> value. The gaps begin after the first marker point. Each marker point in the pattern, which is only one point wide, produces a marker pulse.

**Example**

```
:RAD:ARB:MARK "Test_Data",1,40,100,2
```

The preceding example sets marker 1 on the first point, 40, the last point, 100, and every third point (skip 2) between 40 and 100 (assuming the Test\_Data file has at least 100 points).

<b>Range</b>	<marker>: 1-4 <first_Point>: 1-number of waveform points <last_point>: <first_Point>-number of waveform points <skip_count>: 0-number of points in the range
<b>Key Entry</b>	<b>Set Marker on Range Of Points</b> <b>Marker 1 2 3 4</b> <b>First Mkr Point</b> <b>Last Mkr Point</b> <b># Skipped Points</b> <b>Apply to Waveform</b>

**:MBSync**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:MBSync OFF|MMASTER|SLAVe  
[:SOURce] :RADio:ARB:MBSync?

This command disables or enables the multiple BBG synchronization setup for the current signal generator. Ensure that the Dual ARB play is off prior to executing this command.

<b>OFF</b>	Turns off multiple baseband synchronization for the signal generator.
<b>MMASTER</b>	Sets the signal generator as the master for the setup. When selected, the following trigger features are unavailable:

**Trigger Type**

- Free Run, see [page 205](#)
- Gated, see [page 204](#)

Prior to selecting MMASTER, ensure that the trigger type is something other than shown above. If not, the Agilent MXG generates a settings conflict error and changes the trigger type to TRIGger (continuous play once triggered).

<b>SLAVe</b>	Sets the signal generator as a slave in the setup. When selected, the following trigger features are unavailable:				
	<table border="1"> <tr> <td><b>Trigger Type</b></td> <td><b>Trigger Source</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>• Free Run, see <a href="#">page 205</a></li> <li>• Gated, see <a href="#">page 204</a></li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• All selections, see <a href="#">page 207</a></li> </ul> </td> </tr> </table>	<b>Trigger Type</b>	<b>Trigger Source</b>	<ul style="list-style-type: none"> <li>• Free Run, see <a href="#">page 205</a></li> <li>• Gated, see <a href="#">page 204</a></li> </ul>	<ul style="list-style-type: none"> <li>• All selections, see <a href="#">page 207</a></li> </ul>
<b>Trigger Type</b>	<b>Trigger Source</b>				
<ul style="list-style-type: none"> <li>• Free Run, see <a href="#">page 205</a></li> <li>• Gated, see <a href="#">page 204</a></li> </ul>	<ul style="list-style-type: none"> <li>• All selections, see <a href="#">page 207</a></li> </ul>				

- |                                                                                                                                           |                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Trigger Type</b>                                                                                                                       | <b>Trigger Source</b>                                                                            |
| <ul style="list-style-type: none"> <li>• Free Run, see <a href="#">page 205</a></li> <li>• Gated, see <a href="#">page 204</a></li> </ul> | <ul style="list-style-type: none"> <li>• All selections, see <a href="#">page 207</a></li> </ul> |

Prior to selecting SLAVe, ensure that the trigger type is something other than shown above and that the trigger source is set according to the following list:

- EXT (external trigger signal—see [page 207](#)) • SLOPe POSitive (see [page 209](#))
- EPT1 (PAT TRIG connector— see [page 209](#))• EXT DELay to OFF (see [page 208](#))

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 ([:SOURce]:RADio:ARB)

If not, the Agilent MXG generates a settings conflict error and changes the trigger type to TRIGger (continuous play once triggered) and the trigger source to the above listed selections.

To set the slave position, see “[:MBSync:SREference](#)” on page 191.

For more information on the multiple BBG synchronization feature, see the *User’s Guide*.

### Example

:RAD:ARB:MBS MAST

The preceding example sets the signal generator as the master in the master/slave setup.

<b>*RST</b>	OFF
<b>Key Entry</b>	Off      Master      Slave

## :MBSync:NSLaves

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:MBSync:NSLaves <value>  
[ :SOURce] :RADio:ARB:MBSync:NSLaves?

This command enters the number of signal generators designated as slaves in a multiple BBG synchronization setup. This value is required for both the master and slave signal generators.

This command does *not* designate which slave position a signal generator occupies. To set the slave position, see “[:MBSync:SREference](#)” on page 191.

The NSLaves value is a persistent settings that survives both preset and power cycling.

### Example

:RAD:ARB:MBS:NSL 7

The preceding example enters seven as the number of slaves the current signal generator master/slave setup.

**Range** 1–15

**Key Entry** **Number of Slaves**

## **:MBSync:SLISten**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**]:RADio:ARB:MBSync:SLISten

For signal generators designated as slaves in the multiple BBG synchronization setup, this command enables them to receive a one-time baseband synchronization event trigger initiated by the master. The signal generator receives the trigger signal through the **PAT TRIG** connector.

Prior to executing this command, ensure that the Dual ARB player and the trigger source for the master is off.

Since this command is for a one-time event, you must send this command each time there is a need to synchronize the master/slave setup and prior to initiating the synchronization trigger from the master signal generator. After executing this command, each signal generator should show a status register weighting of 256 (waiting for sync). To check the status, see “[:REGister\[:STATus\]](#)” on page 199. To initiate the synchronization signal, see “[:MBSync:SSLaves](#)” on page 192.

### **Example**

:RAD:ARB:MBS:SLIS

The preceding example enables a slave signal generator to receive the synchronization trigger.

**Key Entry** **Listen for Sync**

## **:MBSync:SREFerence**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**]:RADio:ARB:MBSync:SREFerence <value>  
[**:SOURce**]:RADio:ARB:MBSync:SREFerence?

For signal generators designated as slaves in the multiple BBG synchronization setup, this command sets the slave position of the signal generator.

The SREFerence value is a persistent settings that survives both preset and power cycling.

### **Example**

:RAD:ARB:MBS:SREF 13

The preceding example sets the signal generator to slave number 13.

**Range** 1–15

**Key Entry** **Slave Position**

## :MBSync:SSLaves

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:MBSync:SSLaves

For the signal generator designated as the master in the multiple BBG synchronization setup, this command initiates the trigger to synchronize the baseband generators. The trigger signal is output through the **EVENT 1** connector.

As each slave receives the synchronization signal, it automatically sends a synchronization signal to the next slave in the chain. Prior to executing this command, all of the slaves must be set to listen for the trigger. See “[:MBSync:SLISten](#)” on page 191 for more information. After executing this command, each signal generator should show a status register weighting of 512 (in sync). To check the status, see “[:REGister\[:STATus\]](#)” on page 199.

---

**NOTE** If any changes are made to the synchronization parameters after executing this command, the master/slave system must be resynchronized. See the *User’s Guide* for more information and the process for resynchronizing a system.

---

### Example

:RAD:ARB:MBS:SSL

The preceding example initiates the synchronization trigger signal.

**Key Entry** **Sync Slaves**

## :MDESTination:ALCHold

**Supported** N5182A with Option 651, 652, or 654

---

**CAUTION** Incorrect automatic level control (ALC) sampling can create a sudden unleveled condition that may create a spike in the RF output potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

---

[ :SOURce] :RADio:ARB:MDESTination:ALCHold NONE|M1|M2|M3|M4

[ :SOURce] :RADio:ARB:MDESTination:ALCHold?

This command enables or disables the marker ALC hold function for the selected marker. For setting markers, see “[:MARKer\[:SET\]](#)” on page 187.

Use the ALC hold function when you have a waveform signal that incorporates idle periods, or when the increased dynamic range encountered with RF blanking is not desired. The ALC leveling circuitry responds to the marker signal during the marker pulse (marker signal high), averaging the modulated signal level during this period.

The ALC hold function operates during the low periods of the marker signal. The marker polarity determines when the marker signal is high. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. For setting a marker’s polarity, see “[:MPOLarity:MARKer1|2|3|4](#)” on page 195.

---

**NOTE** Do not use the ALC hold for more than 100 ms, because it can affect the waveform's output amplitude.

---

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform sample point at which you want the ALC sampling to begin.

The ALC hold setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

---

**NOTE** A waveform file that has unspecified settings in the file header uses the previous waveform's routing settings.

---

For more information on the marker ALC hold function, see the *User's Guide*. For setting the marker points, see "[:MARKer\[:SET\]](#)" on page 187.

**NONE** This terminates the marker ALC hold function.

**M1–M4** These are the marker choices. The ALC hold feature uses only one marker at a time.

### Example

```
:RAD:ARB:MDES:ALCH M1
```

The preceding example routes marker 1 to the ALC Hold function.

<b>*RST</b>	NONE
-------------	------

<b>Key Entry</b>	<b>None</b>	<b>Marker 1</b>	<b>Marker 2</b>	<b>Marker 3</b>	<b>Marker 4</b>
------------------	-------------	-----------------	-----------------	-----------------	-----------------

### **:MDESTination:PULSe**

**Supported** N5182A with Option 651, 652, or 654

---

**CAUTION** The pulse function incorporates ALC hold. Incorrect automatic level control (ALC) sampling can create a sudden unleveled condition that may create a spike in the RF output potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

---

```
[:SOURce]:RADio:ARB:MDESTination:PULSe NONE|M1|M2|M3|M4
[:SOURce]:RADio:ARB:MDESTination:PULSe?
```

This command enables or disables the marker pulse/RF blanking function for the selected marker.

This function automatically uses the ALC hold function, so there is no need to select both the ALC hold and pulse/RF blanking functions for the same marker.

---

**NOTE** Do not use ALC hold for more than 100 ms, because it can affect the waveform's output amplitude.

---

The signal generator blanks the RF output when the marker signal goes low. The marker polarity

determines when the marker signal is low. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. For setting a marker's polarity, see “[:MPOLarity:MARKer1|2|3|4](#)” on page 195.

---

**NOTE** Set marker points prior to using this function. Enabling this function without setting marker points may create a continuous low or high marker signal, depending on the marker polarity. This causes either no RF output or a continuous RF output. See “[:MARKer\[:SET\]](#)” on page 187 for setting the marker points.

---

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform sample point at which you want the RF blanking to begin. The RF blanking setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

---

**NOTE** A waveform that has unspecified settings in the file header uses the previous waveform's routing settings. This could create the situation where there is no RF output signal, because the previous waveform used RF blanking.

---

For more information on the marker RF blanking function, see the *User's Guide*.

NONE                   This terminates the marker RF blanking/pulse function.

M1–M4               These are the marker choices. The RF blanking/pulse feature uses only one marker at a time.

### Example

:RAD:ARB:MDES:PULS M2

The preceding example routes marker 2 to Pulse/RF Blanking.

*RST	NONE
Key Entry	None   Marker 1   Marker 2   Marker 3   Marker 4

**:MPOLarity:MARKer1|2|3|4****Supported** N5182A with Option 651, 652, or 654[:SOURce]:RADio:ARB:MPOLarity:MARKer1|2|3|4 NEGative|POSitive  
[:SOURce]:RADio:ARB:MPOLarity:MARKer1|2|3|4?

This command sets the polarity for the selected marker. For a positive marker polarity, the marker signal is high during the marker points. For a negative marker polarity, the marker signal is high during the period of no marker points.

**Example**

:RAD:ARB:MPOL:MARK3 NEG

The preceding example sets the polarity for marker 3 to negative.

*RST	POS		
Key Entry	Marker 1 Polarity Neg Pos	Marker 2 Polarity Neg Pos	Marker 3 Polarity Neg Pos
	Marker 4 Polarity Neg Pos		

**:NOISe:BANDwidth****Supported** N5182A with Option 403[:SOURce]:RADio:ARB:NOISe:BANDwidth <value><unit>  
[:SOURce]:RADio:ARB:NOISe:BANDwidth?

This command selects the flat noise bandwidth value of the real-time noise for an ARB waveform.

Typically, this value is set slightly wider than the signal bandwidth.

\*RST +1.00000000E+000

Range	OSR Option 651: 1E0 – 24E6
	OSR Option 652: 1E0 – 48E6
	OSR Option 654: 1E0 – 100E6

Key Entry	Noise Bandwidth
-----------	-----------------

## **:NOISe:CBWidth**

**Supported** N5182A with Option 403

[**:SOURce**]:RADio:ARB:NOISe:CBWidth <value><unit>  
[:SOURce]:RADio:ARB:NOISe:CBWidth?

This command selects the carrier bandwidth over which the additive white gaussian noise (AWGN) is applied. The carrier RMS power and the noise power will be integrated over the selected carrier-bandwidth for the purposes of calculating carrier to noise ratio (C/N). For more information, refer to “[:NOISe\[:STATE\]](#)” and “[:NOISe:BANDwidth](#)”.

**\*RST** +1.00000000E+000

**Range** 1Hz–125 MHz

**Key Entry** **Carrier Bandwidth**

## **:NOISe:CN**

**Supported** N5182A with Option 403

[**:SOURce**]:RADio:ARB:NOISe:CN <value><unit>  
[:SOURce]:RADio:ARB:NOISe:CN?

This command sets the carrier to noise ratio (C/N) in dB. The carrier power is defined as the total modulated signal power without noise power added. The noise power is applied over the specified bandwidth of the carrier signal. For more information, refer to “[:NOISe:CBWidth](#)” on page 196.

### **Example**

:RAD:ARB:NOIS:CN 50DB

The preceding example sets the carrier to noise ratio to 50 dB.

**\*RST** +0.00000000E+000

**Range** -100 to 100 dB

**Key Entry** **Carrier to Noise Ratio**

## **:NOISe[:STATe]**

**Supported** N5182A with Option 403

[**:SOURce**]:RADio:ARB:NOISe[:STATe] ON|OFF|1|0  
[:SOURce]:RADio:ARB:NOISe[:STATe]?

This command enables or disables adding real-time additive white gaussian noise (AWGN) to the carrier modulated by the waveform being played by the dual ARB waveform player.

### **Example**

:RAD:ARB:NOIS ON

The preceding example applies real-time AWGN to the carrier.

**\*RST** 0

**Key Entry** **Real-time Noise Off On**

**:PHASe:NOISe:F1****Supported** N5182A with Option 432[:SOURce]:RADio:ARB:PHASe:NOISe:F1 <value><unit>  
[:SOURce]:RADio:ARB:PHASe:NOISe:F1?

This command sets the start frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see :PHASe:NOISe:F2). If the value is set greater than the stop frequency value, the signal generator resets the stop value to equal the start value.

The actual value may vary logarithmically depending on the value of the stop frequency. This behavior is more noticeable at higher frequency values. For more information, see the *User's Guide*.

**\*RST** +1.00000000E+003**Range** 0Hz–48.43782781MHz**Key Entry** Desired Start Freq (f1)**:PHASe:NOISe:F2****Supported** N5182A with Option 432[:SOURce]:RADio:ARB:PHASe:NOISe:F2 <value><unit>  
[:SOURce]:RADio:ARB:PHASe:NOISe:F2?

This command sets the stop frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see :PHASe:NOISe:F1). If the value is set less than the start frequency value, the signal generator resets the start value to equal the stop value.

The actual value may vary logarithmically, which is more noticeable at higher frequency offset values. For more information, see the *User's Guide*.

If a DAC over-range error occurs while setting this value, see :PHASe:NOISe:LMID for information.

**\*RST** +3.00000000E+004**Range** 1Hz–48.43782781MHz**Key Entry** Desired Stop Freq (f2)

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 (:SOURce):RADio:ARB)

### :PHASe:NOISe:LMID

**Supported** N5182A with Option 432

[ :SOURce] :RADio:ARB:PHASe:NOISe:LMID <value>

[ :SOURce] :RADio:ARB:PHASe:NOISe:LMID?

This command sets the level amplitude of the flat area for the phase noise impairment. This phase noise is added to the base phase noise of the signal generator.

The signal generator has an automatic DAC over-range protection feature that is on by default. Using this feature may cause excessive scaling, which reduces dynamic range. This feature can be turned off (see “[:DOProtection](#)” on page 181). When the automatic protection is off, manual adjustments are required to correct a DAC over-range condition, of which there are three options:

- reduce the Lmid value
- reduce the waveform runtime scaling, see “[:RSCaling](#)” on page 200
- decrease the stop frequency value

For more information on the phase noise impairment option, see the *User’s Guide*.

---

**NOTE** The amplitude range varies depending on the f2 value (“[:PHASe:NOISe:F2](#)” on page 197). As f2 increases in value, the range for Lmid decreases. If the current Lmid setting is too high for the new f2 value, the signal generator changes the Lmid value and generates an error.

---

The range values are expressed in units of dBc/Hz.

**\*RST** -7.00000000E+001

**Range** -300 to 100

**Key Entry** Desired Flat Amplitude (Lmid)

### :PHASe:NOISe[:STATe]

**Supported** N5182A with Option 432

[ :SOURce] :RADio:ARB:PHASe:NOISe[:STATe] ON|OFF|1|0

[ :SOURce] :RADio:ARB:PHASe:NOISe[:STATe]?

This command turns the phase noise impairment on or off. For more information on the phase noise impairment option, see the *User’s Guide*.

**\*RST** 0

**Key Entry** Phase Noise Off On

## **:REGister[:STATus]**

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:REGister[:STATus]?

This query returns a weighted decimal value to indicate the status of the following Dual ARB settings:

- Dual ARB state (ARB)
- Triggering modes (ARM and Run)
- Multiple BBG synchronization (MBS1 and MBS2)

Weighting	0	0	0	0	0	512	256	0	0	0	0	0	4	2	1
Bit Position	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Status Item	—	—	—	—	—	MBS2	MBS1	—	—	—	—	—	Run	ARM	ARB

When the bit position is set high, the weighted position value equals  $2^n$  where n = bit position. When the bit position is set low, the weighting equals zero. The sum of the weighted values indicates the status of all monitored items.

**Table 5-1 Low and High Bit Position Description**

ARB	
0	Dual ARB is off
1	Dual ARB is on
ARM <sup>a</sup>	
0	Trigger is not armed
1	Trigger is armed and the Dual ARB is waiting for a trigger to start the play-back of the waveform
RUN <sup>b</sup>	
0	The Dual ARB waveform is not playing
1	The Dual ARB waveform is playing
MBS1	
0	Multiple BBG synchronization is <i>not</i> waiting for a sync signal from the master
1	Multiple BBG synchronization is waiting for a sync signal from the master
MBS2	
0	Multiple BBG synchronization is out of sync
1	Multiple BBG synchronization is in sync

a. The ARM bit remains 0 for the following trigger type selections:

- FREE (Free Run) see [page 205](#)
- RESet (Reset and Run) see [page 205](#)
- IMMEDIATE (Restart on Trigger) see [page 200](#)
- GATE see [page 204](#)

b. For GATE triggering, the bit remains high for both states of the trigger signal.

**\*RST** 0

### :RETRigger

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:RETRigger ON|OFF|1|0 |IMMediate  
[ :SOURce] :RADio:ARB:RETRigger?

This command enables or disables the ARB retrigerring mode; the retrigger mode controls how the retrigerring function performs while a waveform is playing.

- |           |                                                                                                                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON (1)    | This choice (Buffered Trigger) specifies that if a trigger occurs while a waveform is playing, the waveform will retrigger at the end of the current waveform sequence and play once more. |
| OFF (0)   | This choice (No Retrigger) specifies that if a trigger occurs while a waveform is playing, the trigger will be ignored.                                                                    |
| IMMediate | This choice (Restart on Trigger) specifies that if a trigger occurs while a waveform is playing, the waveform will reset and replay from the start immediately upon receiving a trigger.   |

**\*RST** ON

**Key Entry** No Retrigger Buffered Trigger Restart on Trigger

**Remarks** This command applies to the single trigger type only.

### :RSCaling

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:RSCaling <value>  
[ :SOURce] :RADio:ARB:RSCaling?

This command adjusts the scaling value in percent that is applied to a waveform while it is playing. The variable <value> is expressed as a percentage. Runtime scaling does not alter the waveform data file. This feature is used to avoid DAC overflow. The scaling is compensated for at the modulator (i.e. when the modulator is the optimized path). For more information about runtime scaling, refer to the *User's Guide*.

#### Example

:RAD:ARB:RSC 50

The preceding example applies a 50% scaling factor to the selected waveform.

**\*RST** +7.00000000E+001

**Range** 1–100

**Key Entry** Waveform Runtime Scaling

**Remarks** Runtime scaling does not alter the waveform data file.

**:SCALing****Supported** N5182A with Option 651, 652, or 654

[:SOURce] :RADio:ARB:SCALing "&lt;file\_name&gt;", &lt;value&gt;

This command scales the designated "<file\_name>" waveform file while it is being played by the dual ARB player. The variable <value> is expressed as a percentage, 1–100%. The peak value of the waveform is disconnected and the whole waveform is scaled such that the peak value is at the specified percentage of full scale. For information on file name syntax, see “[File Name Variables](#)” on page 12.

Unlike runtime scaling (:RSCaling), Scaling (:SCALing) has a permanent effect on the waveform data. Scaling up, after scaling down, typically results in a slightly different waveform from the original, as some data is lost in the scale-down process. For more information about waveform file scaling, refer to the *User’s Guide*.

**Example**

```
:RAD:ARB:SCAL "Test_Data", 50
```

The preceding example applies a 50% scaling factor to the Test\_Data waveform file.

**Range** 1–100**Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.**Key Entry** **Scaling**      **Scale Waveform Data****Remarks** Refer to “[File Name Variables](#)” on page 12 for information on the file name syntax.**:SClock:RATE****Supported** N5182A with Option 651, 652, or 654

[:SOURce] :RADio:ARB:SClock:RATE &lt;value&gt;

[:SOURce] :RADio:ARB:SClock:RATE?

This command sets the sample clock rate for the dual ARB format.

The variable <value> is expressed in units of hertz.

**\*RST** +125.000000E+006 (with Option 654), +60.000000E+006 (with Option 652), and +30.000000E+006 (with Option 651)

**Range** 1–1.25E8**Range** OSR Option 651: 1 kHz – 30 MHz

OSR Option 652: 1 kHz – 60 MHz

OSR Option 654: 1 kHz – 125 MHz

**Key Entry** **ARB Sample Clock**

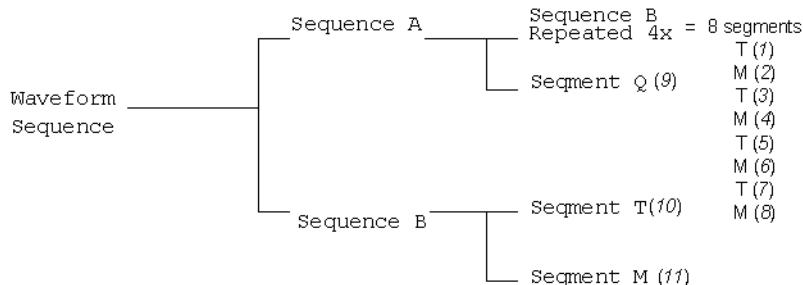
## :SEQuence[:MWAVeform]

**Supported** All with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:SEQuence [:MWAVeform] <filename>, <waveform1>, <reps>, NONE | M1 | M2 |  
M3 | M4 | M1M2 | M1M3 | M1M4 | M2M3 | M2M4 | M3M4 | M1M2M3 | M1M2M4 | M1M3M4 | M2M3M4 | M1M2M3M4 |  
ALL, { , <waveform2>, <reps>, NONE | M1 | M2 | M3 | M4 | M1M2 | M1M3 | M1M4 | M2M3 | M2M4 | M3M4 | M1M2M3 |  
M1M2M4 | M1M3M4 | M2M3M4 | M1M2M3M4 | ALL, }  
[ :SOURce] :RADio:ARB:SEQuence [:MWAVeform] ? <filename>
```

This command creates a waveform sequence. A waveform sequence is made up of segments and other sequences. Any number of segments, up to a segment count limit of 1024, can be used to create a sequence. The count limit is determined by the number of segments in the waveform sequence. Repeated segments are included in the count limit.

For example, using the figure below, suppose a waveform is created using two sequences: Sequence\_A and Sequence\_B. Sequence\_A consists of Sequence\_B and Segment\_Q with Sequence\_B repeated four times. The total segment count for this waveform sequence would be eleven.



The query returns the contents and segment settings of the waveform sequence file

The segments and sequences play in the same order as placed into the waveform sequence by the command. Once you create the file, you cannot edit the segment settings or add further waveform segments unless you use the signal generator's front panel. Using the same waveform sequence name overwrites the existing file with that name. To use a segment's marker settings, you must enable the segment's markers within the segment or within the waveform sequence. A sequence is stored in the catalog of SEQ files USER/SEQ or SEQ: directory.

When you create a waveform sequence, the Agilent MXG also creates a file header for the sequence. This file header takes priority over segment or nested sequence file headers. Refer to the *User's Guide* for more information on file headers. To save the file header, see “[:HEADER:SAVE](#)” on [page 185](#).

**<file\_name>** This variable names the waveform *sequence* file. For information on the file name syntax, see “[File Name Variables](#)” on [page 12](#).

**"<waveform1>"** This variable specifies the name of an existing waveform *segment* or sequence file. A waveform segment or the waveform segments in a specified sequence must

reside in volatile memory, WFM1, before it can be played by the dual ARB player. For information on the file name syntax, see “[File Name Variables](#)” on page 12, and for more information on waveform segments, see the *User’s Guide*.

"<waveform2>"	This variable specifies the name of a second existing waveform <i>segment or sequence</i> file. The same conditions required for waveform1 apply for this segment or sequence. Additional segments and other sequences can be inserted into the file.
<reps>	This variable sets the number of times a segment or sequence plays (repeats) before the next segment or sequence plays.
NONE	This choice disables all four markers for the waveform. Disabling markers means that the waveform sequence ignores the segment’s or sequence’s marker settings.
M1, M2, M3, M4	These choices, either individually or a combination of them, enable the markers for the waveform segment or sequence. Markers not specified are ignored for that segment or sequence.
ALL	This choice enables all four markers in the waveform segment or sequence.

### Example

```
:RAD:ARB:SEQ "SEQ:Test_Data", "WFM1:ramp_test_wfm", 25, M1M4,  
"WFM1:sine_test_wfm", 100, ALL
```

---

**NOTE** A carriage return or line feed is never included in a SCPI command. The example above contains a carriage return so that the text will fit on the page.

---

The preceding example creates a waveform sequence file named Test\_Data. This file consists of the factory-supplied waveform segments, ramp\_test\_wfm and sine\_test\_wfm. The waveform is stored in the signal generator’s SEQ: directory.

- The first segment, ramp\_test\_wfm, has 25 repetitions with markers 1 and 4 enabled.
- The second segment, sine\_test\_wfm, has 100 repetitions with all four markers enabled.

<b>Range</b>	<reps>: 1–65535			
<b>Key Entry</b>	<b>Build New Waveform Sequence</b>	<b>Name and Store</b>	<b>Insert Waveform</b>	
	<b>Edit Repetitions</b>	<b>Toggle Marker 1</b>	<b>Toggle Marker 2</b>	<b>Toggle Marker 3</b>
	<b>Toggle Marker 4</b>			
<b>Remarks</b>	These softkeys are located under the ARB menu.			

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 ([:SOURce]:RADio:ARB)

### :TRIGger:TYPE

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:TRIGger:TYPE CONTinuous|SINGle|GATE|SADVance

[**:SOURce**] :RADio:ARB:TRIGger:TYPE?

This command sets the trigger mode (type) that controls the waveform's playback.

Triggers control the playback by telling the Agilent MXG when to play the modulating signal (waveform). Depending on the trigger settings for the Agilent MXG, the waveform playback can occur once, continuously, or the Agilent MXG may start and stop playing the waveform repeatedly (GATE mode).

A trigger signal comprises both positive and negative signal transitions (states), which are also called high and low periods. You can configure the Agilent MXG to trigger on either state of the trigger signal. It is common to have multiple triggers, also referred to as trigger occurrences or events, occur when the signal generator requires only a single trigger. In this situation, the Agilent MXG recognizes the first trigger and ignores the rest.

When you select a trigger mode, you may lose the signal (carrier plus modulating) from the RF output until you trigger the waveform. This is because the Agilent MXG sets the I and Q signals to zero volts prior to the first trigger event, which suppresses the carrier. After the first trigger event, the waveform's final I and Q levels determine whether you will see the carrier signal or not (zero = no carrier, other values = carrier visible). At the end of most files, the final I and Q points are set to a value other than zero.

There are four parts to configuring the trigger:

- Choosing the trigger type, which controls the waveform's transmission.
- Setting the waveform's response to triggers:
  - CONTinuous, see “[:TRIGger:TYPE:CONTinuous\[:TYPE\]](#)” on page 205
  - SINGle, see “[:RETRigger](#)” on page 200
  - SADVance, see “[:TRIGger:TYPE:SADVance\[:TYPE\]](#)” on page 206
  - GATE, selecting the mode also sets the response
- Selecting the trigger source (see “[:TRIGger\[:SOURce\]](#)” on page 207), which determines how the Agilent MXG receives its trigger signal, internally or externally. The GATE choice requires an external trigger.
- Setting the trigger polarity when using an external source:
  - CONTinuous, SINGle, and SADVance see “[:TRIGger\[:SOURce\]:EXTernal:SLOPe](#)” on page 209
  - GATE, see “[:TRIGger:TYPE:GATE](#)” on page 206

To check the trigger status, see “[:REGister\[:STATus\]](#)” on page 199. For more information on triggering, see the *User's Guide*.

The following list describes the trigger type command choices:

CONTinuous Upon triggering, the waveform repeats continuously.

SINGle Upon triggering, the waveform segment or sequence plays once.

SADVance The trigger controls the segment advance within a waveform sequence. To use this choice, a waveform sequence must be the active waveform. Ensure that all segments in the sequence reside in volatile memory.

GATE	An external trigger signal repeatedly starts and stops the waveform's playback (transmission). The time duration for playback depends on the duty period of the trigger signal and the gate polarity selection (see “ <a href="#">:TRIGger:TYPE:GATE</a> ” on <a href="#">page 206</a> ). The waveform plays during the inactive state and stops during the active polarity selection state. The active state can be set high or low. The gate mode works only with an external trigger source.
	With the multiple baseband generator synchronization feature active, GATE is unavailable (see <a href="#">page 189</a> for more information).
*RST	CONT
Key Entry	Continuous      Single      Gate      Segment Advance

**:TRIGger:TYPE:CONTinuous[:TYPE]****Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:TRIGger:TYPE:CONTinuous [:TYPE] FREE|TRIGger|RESet  
 [:SOURce] :RADio:ARB:TRIGger:TYPE:CONTinuous [:TYPE] ?

This command selects the waveform's response to a trigger signal while using the continuous trigger mode.

For more information on triggering and to select the continuous trigger mode, see “[:TRIGger:TYPE](#)” on [page 204](#).

The following list describes the waveform's response to each of the command choices:

FREE	Turning the ARB format on immediately triggers the waveform. The waveform repeats until you turn the format off, select another trigger, or choose another waveform file.
	With the multiple baseband generator synchronization feature active, this selection is unavailable (see <a href="#">page 189</a> for more information).
TRIGger	The waveform waits for a trigger before play begins. When the waveform receives the trigger, it plays continuously until you turn the format off, select another trigger, or choose another waveform file.
RESet	The waveform waits for a trigger before play begins. When the waveform receives the trigger, it plays continuously. Subsequent triggers reset the waveform to the beginning. For a waveform sequence, this means to the beginning of the first segment in the sequence.
*RST	FREE
Key Entry	Free Run      Trigger & Run      Reset & Run

## :TRIGger:TYPE:GATE

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:TRIGger:TYPE:GATE LOW|HIGH  
[ :SOURce] :RADio:ARB:TRIGger:TYPE:GATE?

This command selects the active state (gate polarity) of the gate while using the gating trigger mode. The LOW and HIGH selections correspond to the low and high states of an external trigger signal. For example, when you select HIGH, the active state occurs during the high of the trigger signal. When the inactive state occurs, the Agilent MXG stops the waveform playback at the last played sample point, then restarts the playback at the next sample point when the active state occurs. For more information on triggering and to select gating as the trigger mode, see “[:TRIGger:TYPE](#)” on page 204.

The following list describes the Agilent MXG’s gating behavior for the polarity selections:

LOW	The waveform playback stops when the trigger signal goes high and restarts when the trigger signal goes low.
HIGH	The waveform playback stops when the trigger signal goes low and restarts when the trigger signal goes high.
*RST	HIGH
Key Entry	Active Low      Active High

## :TRIGger:TYPE:SADVance[:TYPE]

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:TRIGger:TYPE:SADVance [:TYPE] SINGLE|CONTinuous  
[ :SOURce] :RADio:ARB:TRIGger:TYPE:SADVance [:TYPE] ?

This commands selects the waveform’s response to a trigger signal while using the segment advance (SADVance) trigger mode.

When the Agilent MXG receives multiple trigger occurrences when only one is required, the signal generator uses the first trigger and ignores the rest. For more information on triggering and to select segment advance as the trigger mode, see “[:TRIGger:TYPE](#)” on page 204.

The following list describes the waveform’s response to each of the command choices:

SINGle	Each segment in the sequence requires a trigger to play, and a segment plays only once, ignoring a segment’s repetition value (see “ <a href="#">:SEQquence[:MWAVeform]</a> ” on page 202 for repetition information). The following list describes a sequence’s playback behavior with this choice: <ul style="list-style-type: none"><li>After receiving the first trigger, the first segment plays to completion.</li><li>When the waveform receives a trigger after a segment completes, the sequence advances to the next segment and plays that segment to completion.</li><li>When the waveform receives a trigger during play, the current segment plays to completion. Then the sequence advances to the next segment, and it plays to completion.</li></ul>
--------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- When the waveform receives a trigger either during or after the last segment in a sequence plays, the sequence resets and the first segment plays to completion.
- CONTinuous**
- Each segment in the sequence requires a trigger to play. After receiving a trigger, a segment plays continuously until the waveform receives another trigger. The following list describes a sequence's playback behavior with this choice:
- After receiving the first trigger, the first segment plays continuously.
  - A trigger during the current segment play causes the segment to play to the end of the segment file, then the sequence advances to the next segment, which plays continuously.
  - When last segment in the sequence receives a trigger, the sequence resets and the first segment plays continuously.

**Example**

```
:RAD:ARB:TRIG:TYPE:SADV CONT
```

The preceding example selects the continuous segment advance mode.

<b>*RST</b>	CONT	
<b>Key Entry</b>	<b>Single</b>	<b>Continuous</b>

**:TRIGger[:SOURce]**

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADIO:ARB:TRIGger [:SOURce] KEY|EXT|BUS
[:SOURce] :RADIO:ARB:TRIGger [:SOURce] ?
```

This command sets the trigger source. With the multi-baseband generator synchronization slave selection, this command is unavailable (see [page 189](#) for more information).

For more information on triggering, see “[:TRIGger:TYPE](#)” on page 204. The following list describes the command choices:

- |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>KEY</b> | This choice enables manual triggering by pressing the front-panel <b>Trigger</b> hardkey.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>EXT</b> | An externally applied signal triggers the waveform. This is the only choice that works with gating. The following conditions affect an external trigger: <ul style="list-style-type: none"> <li>The input connector selected for the trigger signal. You have a choice between the rear-panel PATTERN TRIG IN connector or the PATT TRIG IN 2 pin on the rear-panel AUXILIARY I/O connector. To make the connector selection, see “<a href="#">:TRIGger[:SOURce]:EXTernal[:SOURce]</a>” on page 209.</li> </ul> For more information on the connectors and on connecting the cables, see the <i>User’s Guide</i> . <ul style="list-style-type: none"> <li>The trigger signal polarity:           <ul style="list-style-type: none"> <li>gating mode, see “<a href="#">:TRIGger:TYPE:GATE</a>” on page 206</li> <li>continuous and single modes, see “<a href="#">:TRIGger[:SOURce]:EXTernal:SLOPe</a>” on page 209</li> </ul> </li> </ul> |

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 ([:SOURce]:RADio:ARB)

- The time delay between when the Agilent MXG receives a trigger and when the waveform responds to the trigger. There are two parts to setting the delay:
  - setting the amount of delay, see “[:TRIGger\[:SOURce\]:EXTernal:DELay](#)” on [page 208](#)
  - turning the delay on, see “[:TRIGger\[:SOURce\]:EXTernal:DELay:STATE](#)” on [page 208](#)

**BUS** This choice enables triggering over the GPIB or LAN using the \*TRG or GET commands or the AUXILIARY INTERFACE (USB) using the \*TRG command.

**\*RST** EXT

**Key Entry** Trigger Key Ext Bus

### **:TRIGger[:SOURce]:EXTernal:DELay**

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:DELay <value>
[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:DELay?
```

This command sets the amount of time to delay the Agilent MXG’s response to an external trigger.

The delay is a path (time) delay between when the Agilent MXG receives the trigger and when it responds to the trigger. For example, configuring a trigger delay of two seconds, causes the Agilent MXG to wait two seconds after receipt of the trigger before the Agilent MXG plays the waveform.

The delay does not occur until you turn it on (see “[:TRIGger\[:SOURce\]:EXTernal:DELay:STATE](#)” on [page 208](#)). You can set the delay value either before or after turning it on.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on [page 207](#).

The unit of measurement for the variable <value> is in seconds (nsec–sec).

**\*RST** +1.0000000E-003

**Range** 1E-8 to 3E1

**Key Entry** Ext Delay Time

### **:TRIGger[:SOURce]:EXTernal:DELay:STATE**

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:DELay:STATE ON|OFF|1|0
[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:DELay:STATE?
```

This command enables or disables the operating state of the external trigger delay function.

For setting the delay time, see “[:TRIGger\[:SOURce\]:EXTernal:DELay](#)” on [page 208](#), and for more information on configuring an external source, see “[:TRIGger\[:SOURce\]](#)” on [page 207](#).

**\*RST** 0

**Key Entry** Ext Delay Off On

## **:TRIGger[:SOURce]:EXTernal:SLOPe**

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:SLOPe POSitive|NEGative  
[:SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal:SLOPe?

This command sets the polarity for an external trigger signal while using the continuous, single triggering mode. To set the polarity for gating, see “[:TRIGger:TYPE:GATE](#)” on page 206.

The POSitive and NEGative selections correspond to the high (positive) and low (negative) states of the external trigger signal. For example, when you select POSitive, the waveform responds (plays) during the high state of the trigger signal. When the Agilent MXG receives multiple trigger occurrences when only one is required, the signal generator uses the first trigger and ignores the rest.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on page 207.

**\*RST** NEG

**Key Entry** Ext Polarity Neg Pos

## **:TRIGger[:SOURce]:EXTernal[:SOURce]**

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal [:SOURce] EPT1|EPT2 |  
EPTRIGGER1|EPTRIGGER2  
[:SOURce] :RADio:ARB:TRIGger [:SOURce] :EXTernal [:SOURce] ?

This command selects which PATTERN TRIG IN connection the Agilent MXG uses to accept an externally applied trigger signal when external is the trigger source selection.

For more information on configuring an external trigger source and to select external as the trigger source, see “[:TRIGger\[:SOURce\]](#)” on page 207. For more information on the rear-panel connectors, see the *User’s Guide*.

The following list describes the command choices:

EPT1 This choice is synonymous with EPTRIGGER1 and selects the PAT TRIG rear-panel connector.

EPT2 This choice is synonymous with EPTRIGGER2 and selects the PATT TRIG IN 2 pin on the rear-panel AUX I/O connector.

EPTRIGGER1 This choice is synonymous with EPT1 and selects the PAT TRIG rear-panel connector.

EPTRIGGER2 This choice is synonymous with EPT2 and selects the PATT TRIG IN 2 pin on the rear-panel AUXILIARY I/O connector.

**\*RST** EPT1

**Key Entry** Patt Trig In 1      Patt Trig In 2

## Arb Commands

Dual ARB Subsystem—Option 651/652/654 ([:SOURce]:RADio:ARB)

### :WAVeform

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:WAVEform "WFM1:file\_name" | "SEQ:file\_name"  
[**:SOURce**] :RADio:ARB:WAVEform?

This command selects a waveform file or sequence, for the dual ARB player to play. The file must be present in volatile memory, WFM1, or in the SEQ directory. If a file is in non-volatile memory (NVWFM), use the command “[:COPY\[:NAME\]](#)” on page 89 to copy the file to WFM1. Any specified values in the header are applied to the ABR upon selection. Unspecified fields in the header cause no change in the ARB state.

“WFM1:file\_name” This variable names a waveform file residing in volatile memory (WFM1:). For information on the file name syntax, see “[File Name Variables](#)” on page 12.

“SEQ:file\_name” This variable names a sequence file residing in the catalog of sequence files. For more information on the file name syntax, see “[File Name Variables](#)” on page 12.

#### Example

:RAD:ARB:WAV "WFM1:Test\_Data"

The preceding example selects the file Test\_Data from the list of files in volatile waveform memory, WFM1, and applies its file header settings.

**Key Entry**      **Select Waveform**

### :WAVeform:NHEAders

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:ARB:WAVEform:NHEaders "WFM1:file\_name" | "SEQ:filename"  
[**:SOURce**] :RADio:ARB:WAVEform:NHEaders?

This command, for the dual ARB mode, allows for a fast selection of a segment or sequence waveform file. No header information or settings are applied to the segment or sequence waveform file when this command is used. This will improve the access or loading speed of the waveform file. The file must be in volatile waveform memory (WFM1), or in the SEQ directory. If a file is in non-volatile waveform memory (NVWFM), use the command “[:COPY\[:NAME\]](#)” on page 89 to copy files to WFM1.

“WFM1:file\_name” This variable names a waveform file residing in volatile memory:WFM1. For information on the file name syntax, see “[File Name Variables](#)” on page 12.

“SEQ:filename” This variable names a sequence file residing in the catalog of sequence files. For more information on the file name syntax, see “[File Name Variables](#)” on page 12.

#### Example

:RAD:ARB:WAV:NHE "Test\_Data"

The preceding example selects the file Test\_Data, without applying header settings.

## [**:STATe**]

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**]:RADio:ARB[:STATe] ON|OFF|1|0  
[:SOURce]:RADio:ARB[:STATe]?

This command enables or disables the arbitrary waveform generator function.

The Dual ARB Player provides a status register to show the status of the following items:

- Dual ARB state (off or on)
- Trigger arming
- Waveform play-back
- Multiple BBG synchronization

To use the register, see “**:REGister[:STATus]**” on page 199.

**\*RST** 0

**Key Entry** **ARB Off On**

## LARB Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:LARB)

### [**:STATe**]

**Supported** N5182A with Option 651, 652, or 654

```
[:SOURce] :RADio:LARB [:STATe] ON|OFF|1|0  
[:SOURce] :RADio:LARB [:STATe] ?
```

This command enables or disables the waveform sweep function, when the signal generator is in list sweep mode.

---

**NOTE** Except for the sample clock rate, unspecified fields in the header result in the *default* settings of the dual arb's settings being used (i.e. *not the current arb's settings*). The sample clock rate must be specified for the file header of the waveform file being played. If the sample clock rate is unspecified in the file header, the instrument generates a header error.

**\*RST** 0

**Key Entry** **Waveform Off On**

**Remarks** The **Sweep Type** softkey must be set to **List** for this command to function.

## Multitone Subsystem—Option 651/652/654 ([**:SOURce**]:RADio:MTOnE:ARB)

### Creating a Multitone Waveform

Use the following steps to create a multitone waveform:

1. Initialize the phase for the multitone waveform. Refer to “:[:SETup:TABLE:PHASe:INITialize](#)” on [page 226](#).
2. Assign the frequency spacing between the tones. Refer to “:[:SETup:TABLE:FSPacing](#)” on [page 225](#).
3. Define the number of tones within the waveform. Refer to “:[:SETup:TABLE:NTONes](#)” on [page 225](#).
4. Modify the power level, phase, and state of any individual tones. Refer to “:[:SETup:TABLE:ROW](#)” on [page 227](#).

### **:ALIGnment**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:ALIGnment LEFT|CENTer|RIGHT  
[:SOURce] :RADio:MTOnE:ARB:ALIGnment?

This command will align the multitones either left, center or right of the carrier frequency.

#### Example

:RAD:TTON:ARB:ALIG CENT

The preceding example aligns each of the multitones equidistant from the carrier frequency.

**Key Entry** Alignment Left Cent Right

**Key Path** Mode > Multitone > Intialize Table > Alignment Left Cent Right

### **:BASEband:FREQuency:OFFSet**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:BASEband:FREQuency:OFFSet <val><unit>  
[:SOURce] :RADio:MTOnE:ARB:BASEband:FREQuency:OFFSet?

This command offsets the baseband frequency relative to the carrier. The feature is useful for moving the signal such that the carrier feed-through is not in the center.

The Agilent MXG provides automatic DAC over-range protection when the offset value is something other than 0 Hz. It scales down the I/Q data by *1/square root of 2*.

**\*RST** 0.000

**Range** +5.0E7 – 5.0E7 Hz

**Key Entry** Baseband Frequency Offset

**Key Path** Mode > Multitone > More > ARB Setup > More > Baseband Frequency Offset

## :HEADer:CLEar

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:HEADer:CLEar

This command clears the header information from the file header used by this modulation format.

**Key Entry** **Clear Header**

**Key Path** **Mode > Multitone > More > Header Utilities > Clear Header**

**Remarks** The **Multitone Off On** softkey must be set to On for this command to function.

## :HEADer:SAVE

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:HEADer:SAVE

This command saves the header information to the file header used by this modulation format.

**Key Entry** **Save Setup To Header**

**Key Path** **Mode > Multitone > More > Header Utilities > Save Setup To Header**

**Remarks** The **Multitone Off On** softkey must be set to On for this command to function.

## :IQ:MODulation:ATTen

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:IQ:MODulation:ATTen <val>

[ :SOURce] :RADio:MTONe:ARB:IQ:MODulation:ATTen?

This command attenuates the I/Q signals being modulated through the signal generator RF path.

The variable <val> is expressed in units of decibels (dB).

**\*RST** +2.00000000E+000

**Range** 0–40

**Key Entry** **Modulator Atten Manual Auto**

**Key Path** **Mode > Multitone > More > ARB Setup > Modulator Atten Manual Auto**

## **:IQ:MODulation:ATTen:AUTO**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**]:RADio:MTOnE:ARB:IQ:MODulation:ATTen:AUTO ON|OFF|1|0  
[:SOURce]:RADio:MTOnE:ARB:IQ:MODulation:ATTen:AUTO?

This command enables or disables the I/Q attenuation auto mode.

ON (1)	This choice enables the attenuation auto mode which optimizes the modulator attenuation for the current conditions.
OFF (0)	This choice holds the attenuator at its current setting or at a selected value. Refer to " <a href="#">:IQ:MODulation:ATTen</a> " on page 214 for setting the attenuation value.
*RST	1
<b>Key Entry</b>	<b>Modulator Atten Manual Auto</b>
<b>Key Path</b>	<b>Mode &gt; Multitone &gt; More &gt; ARB Setup &gt; Modulator Atten Manual Auto</b>

## **:MDESTination:ALCHold**

**Supported** N5182A with Option 651, 652, or 654

---

**CAUTION** Incorrect automatic level control (ALC) sampling can create a sudden unleveled condition that may create a spike in the RF output potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

---

[**:SOURce**]:RADio:MTOnE:ARB:MDESTination:ALCHold NONE|M1|M2|M3|M4  
[:SOURce]:RADio:MTOnE:ARB:MDESTination:ALCHold?

This command enables or disables the marker ALC hold function for the selected marker. For setting markers, see "[:MARKer\[:SET\]](#)" on page 187.

Use the ALC hold function when you have a waveform signal that incorporates idle periods, or when the increased dynamic range encountered with RF blanking is not desired. The ALC leveling circuitry responds to the marker signal during the marker pulse (marker signal high), averaging the modulated signal level during this period.

The ALC hold function operates during the low periods of the marker signal. The marker polarity determines when the marker signal is high. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. For setting a marker's polarity, see "[:MPOLarity:MARKer1|2|3|4](#)" on page 217.

---

**NOTE** Do not use the ALC hold for more than 100 ms, because it can affect the waveform's output amplitude.

---

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform sample point at which you want the ALC sampling to begin.

The ALC hold setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

---

**NOTE** A waveform file that has unspecified settings in the file header uses the previous waveform's routing settings.

---

For more information on the marker ALC hold function, see the *User's Guide*. For setting the marker points, see "[:MARKer\[:SET\]](#)" on page 187.

**NONE** This terminates the marker ALC hold function.

**M1–M4** These are the marker choices. The ALC hold feature uses only one marker at a time.

**\*RST** **NONE**

**Example**

`:RAD:AWGB:ARB:MDES:ALCH M1`

The preceding example routes marker 1 to the ALC Hold function.

**Key Entry** **None** **Marker 1** **Marker 2** **Marker 3** **Marker 4**

**Key Path** **Mode > Multitone > More > Marker Utilities > Marker Routing > ALC Hold > <Marker 1, ... or Marker 4>**

**Remarks** N/A

**:MDESTination:PULSe**

**Supported** N5182A with Option 651, 652, or 654

---

**CAUTION** The pulse function incorporates ALC hold. Incorrect automatic level control (ALC) sampling can create a sudden unleveled condition that may create a spike in the RF output potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

---

`[ :SOURce] :RADio:MTONe:ARB:MDESTination:PULSe NONE|M1|M2|M3|M4`  
`[ :SOURce] :RADio:MTONe:ARB:MDESTination:PULSe?`

This command enables or disables the marker pulse/RF blanking function for the selected marker.

This function automatically incorporates the ALC hold function, so there is no need to select both the ALC hold and pulse/RF blanking functions for the same marker.

---

**NOTE** Do not use ALC hold for more than 100 ms, because it can affect the waveform's output amplitude.

---

The signal generator blanks the RF output when the marker signal goes low. The marker polarity determines when the marker signal is low. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. For setting a marker's polarity, see "[:MPOLarity:MARKer1|2|3|4](#)" on page 217.

- 
- NOTE** Set marker points prior to using this function. Enabling this function without setting marker points may create a continuous low or high marker signal, depending on the marker polarity. This causes either no RF output or a continuous RF output. See “[:MARKer\[:SET\]](#)” on [page 187](#) for setting the marker points.
- 

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform sample point at which you want the RF blanking to begin. The RF blanking setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

- 
- NOTE** A waveform file that has unspecified settings in the file header uses the previous waveform’s routing settings. This could create the situation where there is no RF output signal, because the previous waveform used RF blanking.
- 

For more information on the marker RF blanking function, see the *User’s Guide*.

NONE	This terminates the marker RF blanking/pulse function.
M1–M4	These are the marker choices. The RF blanking/pulse feature uses only one marker at a time.

### Example

`:RAD:ARB:MDES:PULS M2`

The preceding example routes marker 2 to Pulse/RF Blanking.

*RST	NONE
Key Entry	None      Marker 1      Marker 2      Marker 3      Marker 4
Key Path	Mode > Multitone > More > Marker Utilities > Marker Routing > Pulse/RF Blank > <Marker 1, ... or Marker 4>

### **:MPOLarity:MARKer1|2|3|4**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:MPOLarity:MARKer1|2|3|4 NEGative|Positive  
[:SOURce] :RADio:MTOnE:ARB:MPOLarity:MARKer1|2|3|4?

This command sets the polarity for the selected marker. For a positive marker polarity, the marker signal is high during the marker points. For a negative marker polarity, the marker signal is high during the period of no marker points.

*RST	POS
Key Entry	Marker 1 Polarity Neg Pos      Marker 2 Polarity Neg Pos      Marker 3 Polarity Neg Pos Marker 4 Polarity Neg Pos
Key Path	Mode > Multitone > More > Marker Utilities > Marker Polarity > Pulse/RF Blank > <Marker 1 Polarity Neg Pos, ... or Marker 4 Polarity Neg Pos>

## Arb Commands

Multitone Subsystem—Option 651/652/654 ([:SOURce]:RADio:MTONe:ARB)

### :NOISe:BANDwidth

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:NOISe:BANDwidth <val><unit>

[ :SOURce] :RADio:MTONe:ARB:NOISe:BANDwidth?

This command sets the noise bandwidth for the two-tone waveform.

To configure the AWGN, refer to the following sections located in the multitone subsystem:

- To set the bandwidth over which the noise power is integrated for calculating the carrier to noise ratio, refer to “[:NOISe:CBWidth](#)” on page 218.
- To set the carrier to noise ratio as the active function, refer to “[:NOISe:CN](#)” on page 219.
- To enable the AWGN, refer to “[:NOISe\[:STATe\]](#)” on page 219.

**Range** Option 651 1 Hz to 24 MHz  
Option 652 1 Hz to 48 MHz  
Option 654 1 Hz to 100 MHz

**\*RST** +0.00000000E+000

**Key Entry** Noise Bandwidth

**Key Path** Mode > Multitone > More > ARB Setup > Real-Time AWGN Setup > Noise Bandwidth

### :NOISe:CBWidth

**Supported** N5182A with Option 403

[ :SOURce] :RADio:MTONe:ARB:NOISe:CBWidth <1Hz-80MHz>

[ :SOURce] :RADio:MTONe:ARB:NOISe:CBWidth?

This command selects the carrier bandwidth over which the AWGN (additive white gaussian noise) is applied. The noise power will be integrated over the selected bandwidth for the purposes of calculating C/N (carrier to noise ratio). The carrier bandwidth is limited to the ARB sample rate but cannot exceed 125 MHz. For more information refer to “[:NOISe\[:STATe\]](#)”.

**\*RST** +1.00000000E+000

1.0 Hz

**Range** 1Hz – 125 MHz (Minimum increment is .001 Hz)

**Key Entry** Carrier Bandwidth

**Key Path** Mode > Multitone > More > ARB Setup > Real-Time AWGN Setup > Carrier Bandwidth

**:NOISe:CN****Supported** N5182A with Option 403[:SOURce]:RADio:MTOnE:ARB:NOISe:CN <-100dB - 100dB>  
[:SOURce]:RADio:MTOnE:ARB:NOISe:CN?

This command sets the carrier to noise ratio in dB. The carrier power is defined as the total modulated signal power without noise power added. The noise power is applied over the specified bandwidth of the carrier signal. For more information, refer to “[:NOISe:CBWidth](#)” on page 218.

**Example**

:RAD:ARB:NOIS:CN 50DB

The preceding example sets the carrier to noise ratio to 50 dB.

**\*RST** +0.00000000E+000**Key Entry** **Carrier to Noise Ratio****Key Path** **Mode > Multitone > More > ARB Setup > Real-Time AWGN Setup > Carrier to Noise Ratio****:NOIS[:STATe]****Supported** N5182A with Option 651, 652, or 654

[:SOURce]:RADio:MTOnE:ARB:NOIS[:STATe] ON|OFF|1|0

[:SOURce]:RADio:MTOnE:ARB:NOIS[:STATe]?

This command enables the Two-Tone modulation mode.

To configure the AWGN, refer to the following sections located in the multitone subsystem:

- To set the AWGN noise bandwidth, refer to “[:NOISe:BANDwidth](#)” on page 218.
- To set the bandwidth over which the noise power is integrated for calculating the carrier to noise ratio, refer to “[:NOISe:CBWidth](#)” on page 218.
- To set the carrier to noise ratio as the active function, refer to “[:NOISe:CN](#)” on page 219.

**\*RST** Off**Key Entry** **Real-Time AWGN****Key Path** **Mode > Multitone > More > ARB Setup > Real-Time AWGN Setup > Real-Time AWGN****:PHASe:NOISe:F1****Supported** N5182A with Option 432[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe:F1 <value><unit>  
[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe:F1?

This command sets the start frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F2](#)). If the value is set greater than the stop frequency value, the signal generator resets the stop value to equal the start value.

The actual value may vary logarithmically depending on the value of the stop frequency. This behavior is more noticeable at higher frequency values. For more information, see the *User's Guide*.

<b>*RST</b>	+1.00000000E+003
<b>Range</b>	0Hz–48.43782781MHz
<b>Key Entry</b>	<b>Desired Start Freq (f1)</b>
<b>Key Path</b>	<b>Mode &gt; Multitone &gt; More &gt; ARB Setup &gt; Real-Time Phase Noise Setup &gt; Desired Start Freq (f1)</b>

### :PHASe:NOISe:F2

**Supported** N5182A with Option 432

[ :SOURce] :RADio:MTOne:ARB:PHASe:NOISe:F2 <value><unit>  
[:SOURce] :RADio:MTOne:ARB:PHASe:NOISe:F2?

This command sets the stop frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F1](#)). If the value is set less than the start frequency value, the signal generator resets the start value to equal the stop value.

The actual value may vary logarithmically, which is more noticeable at higher frequency offset values. For more information, see the *User's Guide*.

If a DAC over-range error occurs while setting this value, see [“:PHASe:NOISe:LMID” on page 221](#) for information.

<b>*RST</b>	+3.00000000E+004
<b>Range</b>	1Hz–48.43782781MHz
<b>Key Entry</b>	<b>Desired Stop Freq (f2)</b>
<b>Key Path</b>	<b>Mode &gt; Multitone &gt; More &gt; ARB Setup &gt; Real-Time Phase Noise Setup &gt; Desired Start Freq (f2)</b>

**:PHASe:NOISe:LMID****Supported** N5182A with Option 432[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe:LMID <value>  
[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe:LMID?

This command sets the level amplitude of the flat area for the phase noise impairment. This phase noise is added to the base phase noise of the signal generator.

The signal generator has an automatic DAC over-range protection feature that is on by default. Using this feature may cause excessive scaling, which reduces dynamic range. This feature can be turned off (see “[:DOProtection](#)” on page 181). When the automatic protection is off, manual adjustments are required to correct a DAC over-range condition, of which there are three options:

- reduce the Lmid value
- reduce the waveform runtime scaling, see “[:RSCaling](#)” on page 200
- decrease the stop frequency value

For more information on the phase noise impairment option, see the *User’s Guide*.

---

**NOTE** The amplitude range varies depending on the f2 value (“[:PHASe:NOISe:F2](#)” on page 220). As f2 increases in value, the range for Lmid decreases. If the current Lmid setting is too high for the new f2 value, the signal generator changes the Lmid value and generates an error.

---

The range values are expressed in units of dBc/Hz.

**\*RST** -7.00000000E+001**Range** -300 to 100**Key Entry** Desired Flat Amplitude (Lmid)**Key Path** Mode > Multitone > More > ARB Setup > Real-Time Phase Noise Setup > Desired Flat Amplitude (Lmid)**:PHASe:NOISe[:STATe]****Supported** N5182A with Option 432[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe[:STATe] ON|OFF|1|0  
[:SOURce]:RADio:MTOnE:ARB:PHASe:NOISe[:STATe]?

This command turns the phase noise impairment on or off. For more information on the phase noise impairment option, see the *User’s Guide*.

**\*RST** 0**Key Entry** Phase Noise Off On**Key Path** Mode > Multitone > More > ARB Setup > Real-Time Phase Noise Setup > Phase Noise Off On

## :REFerence:EXTernal:FREQuency

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:REFerence:EXTernal:FREQuency <val>  
[ :SOURce] :RADio:MTONe:ARB:REFerence:EXTernal:FREQuency?

This command allows you to enter the frequency of the applied external reference.

The variable <val> is expressed in units of Hertz (Hz–MHz).

**\*RST** +1.00000000E+007

**Range** 2.5E5–1E8

**Key Entry** Reference Freq

**Remarks** The value specified by this command is effective only when you are using an external ARB reference applied to the BASEBAND GEN REF IN rear panel connector.

To specify external as the ARB reference source type, refer to “[:REFerence\[:SOURce\]](#)” on page 222.

## :REFerence[:SOURce]

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTONe:ARB:REFerence [:SOURce] INTernal|EXTernal  
[ :SOURce] :RADio:MTONe:ARB:REFerence [:SOURce] ?

This command selects either an internal or external reference for the waveform clock.

**\*RST** INT

**Key Entry** ARB Reference Ext Int

**Remarks** If the EXTernal choice is selected, the external frequency *value must* be entered and the signal must be applied to the BASEBAND GEN REF IN rear panel connector.

Refer to “[:REFerence:EXTernal:FREQuency](#)” on page 222 to enter the external reference frequency.

## **:SCLock:RATE**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:SCLock:RATE <val>

[**:SOURce**] :RADio:MTOnE:ARB:SCLock:RATE?

This command sets the sample clock rate for the multitone modulation format.

The variable <val> is expressed in units of hertz.

**\*RST** +1.25000000E+008

**Range** 1E3–1.25E8

**Key Entry** ARB Sample Clock

**Key Path** Mode > Multitone > More > ARB Setup > ARB Sample Clock

**Remarks** The modulation format should be active before executing this command. If this command is executed before the modulation format is active, the entered value will be overridden by a calculated factory default value. Refer to “[**:STATe**” on page 228 to activate the modulation format.

## **:SETup**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:SETup "<file name>"

[**:SOURce**] :RADio:MTOnE:ARB:SETup?

This command retrieves a multitone waveform file.

**Key Entry** Load From Selected File

**Key Path** Mode > Multitone > Load/Store > Load From Selected File

**Remarks** The name of a multitone waveform file is stored in the signal generator file system of MTONE files. This information is held in memory until you send the command that turns the waveform on.

Refer to “File Name Variables” on page 12 for information on the file name syntax.

## **:SETup:STORe**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:SETup:STORe "<file name>"

This command stores the current multitone waveform setup in the signal generator file system of MTONE files.

**Key Entry** Store To File

**Key Path** Mode > Multitone > Load/Store > Store To File

## :SETup:TABLE

**Supported** N5182A with Option 651, 652, or 654

```
[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE <freq_spacing>,
<num_tones>, {<phase>, <state>}
[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE?
```

This command creates and configures a multitone waveform.

The frequency offset, power, phase, and state value are returned when a query is initiated. The output format is as follows:

```
<frequency_offset>, <power>, <phase>, <state>
```

The variable <freq\_spacing> is expressed in units of Hertz (Hz–MHz).

The variable <power> is expressed in units of decibels (dB).

*RST	Tone	<frequency offset>	<power>	<phase>	<state>
	Tone 1	-35000	+0.00000000E+000	+0	+1
	Tone 2	-25000	+0.00000000E+000	+0	+1
	Tone 3	-15000	+0.00000000E+000	+0	+1
	Tone 4	-5000	+0.00000000E+000	+0	+1
	Tone 5	+5000	+0.00000000E+000	+0	+1
	Tone 6	+15000	+0.00000000E+000	+0	+1
	Tone 7	+25000	+0.00000000E+000	+0	+1
	Tone 8	+35000	+0.00000000E+000	+0	+1

**Range** <freq\_spacing> (2 tones): 1E1–1E8      <num\_tones>: 2–64

<freq\_spacing> (>2 tones): 1E1 to (100 MHz ÷ (num\_tones – 1))

<phase>: 0–359

**Key Entry** Freq Spacing      Number Of Tones      Toggle State

**Key Path** Mode > Multitone > Initialize Table > <Number of Tones or Freq Spacing>

---

**NOTE** The **Toggle State** softkey has a different softkey path but the same SCPI command when initializing the Multitone table (For the softkey path, refer to “:SETup:TABLE:ROW” on page 227).

---

**Remarks** To set the frequency spacing, refer to “:SETup:TABLE:FSPacing” on page 225.

## **:SETup:TABLE:FSPacing**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:SETup:TABLE:FSPacing <freq\_spacing>  
[:SOURce] :RADio:MTOnE:ARB:SETup:TABLE:FSPacing?

This command sets the frequency spacing between the tones.

The variable <freq\_spacing> is expressed in units of Hertz (Hz–MHz).

\***RST** +1.00000000E+004

**Range** <freq\_spacing> (2 tones): 1E1–1E8

<freq\_spacing> (>2 tones): 1E1 to (100 MHz ÷ (num\_tones – 1))

**Key Entry** **Freq Spacing**

**Key Path** **Mode > Multitone > Initialize Table > Freq Spacing**

**Remarks** To set frequency spacing and additional parameters required to create or configure a multitone waveform, refer to “[:SETup:TABLE](#)” on page 224.

This command is the second step in creating a multitone waveform. Refer to “[Creating a Multitone Waveform](#)” on page 213 for all four steps.

## **:SETup:TABLE:NTONes**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB:SETup:TABLE:NTONes <num\_tones>  
[:SOURce] :RADio:MTOnE:ARB:SETup:TABLE:NTONes?

This command defines the number of tones in the multitone waveform.

\***RST** +8

**Range** 2–64

**Key Entry** **Number Of Tones**

**Key Path** **Mode > Multitone > Initialize Table > Number Of Tones**

**Remarks** To specify the number of tones and additional parameters required to create or configure a multitone waveform, refer to “[:SETup:TABLE](#)” on page 224.

This command is the third step in creating a multitone waveform. Refer to “[Creating a Multitone Waveform](#)” on page 213 for all four steps.

## :SETup:TABLE:PHASE:INITialize

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize FIXed|RANDOM  
[:SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize?

This command initializes the phase in the multitone waveform table.

**FIXed** This choice sets the phase of all tones to the fixed value of 0 degrees.

**RANDOM** This choice sets the phase of all tones to random values based on the setting on the random seed generator.

**\*RST** FIX

**Key Entry** Initialize Phase Fixed Random

**Key Path** Mode > Multitone > Initialize Table > Initialize Phase Fixed Random

**Remarks** To change the random number generator seed value, refer to “[:SETup:TABLE:PHASE:INITialize:SEED](#)” on page 226.

This command is the first step in creating a multitone waveform. Refer to “[Creating a Multitone Waveform](#)” on page 213 for all four steps.

## :SETup:TABLE:PHASE:INITialize:SEED

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize:SEED FIXed|RANDOM  
[:SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize:SEED?

This command initializes the random number generator seed that is used to generate the random phase values for the multitone waveform.

**FIXed** This choice sets the random number generator seed to a fixed value.

**RANDOM** This choice sets the random number generator seed to a random value. This changes the phase value after each initialization of the phase.

**\*RST** FIX

**Key Entry** Random Seed Fixed Random

**Key Path** Mode > Multitone > Initialize Table > More > Random Seed Fixed Random

**:SETup:TABLE:ROW****Supported** N5182A with Option 651, 652, or 654

```
[:SOURce] :RADio:MTOnE:ARB:SETup:TABLE:ROW <row_number>,<power>,
<phase>,<state>
[:SOURce] :RADio:MTOnE:ARB:SETup:TABLE:ROW? <row_number>
```

This command modifies the indicated tone (row) of the multitone waveform.

**<row\_number>** The number of rows for this variable is determined by the :SETup:TABLE command.

**<power>** The power level of the tone defined in the row number. Power levels for all tones must not exceed the power level of the signal generator. The power variable is expressed in decibels (dB)

**<phase>** The phase of the tone relative to the carrier. The phase variable is expressed in degrees.

**<state>** The state of the tone in this row can be enabled or disabled.

Frequency offset, power, phase, and state value are returned when a query is initiated. The output format is as follows:

```
<frequency_offset>,<power>,<phase>,<state>
```

Refer to “[:SETup:TABLE](#)” on page 224 for information on how to change the number of rows. This command is the final step in creating a multitone waveform. Refer to “[Creating a Multitone Waveform](#)” on page 213 for all four steps.

**Example**

```
:RAD:MTON:ARB:SET:TABL:ROW 2,-10,40,0
```

The preceding example modifies row number two in the currently selected multitone table. The power is set to -10 dB, the phase is set to 40 degrees, and the state is off.

<b>*RST</b>	<i>frequency offset</i> : -3.50000000E+004	<i>power</i> : +0.00000000E+000
	<i>phase</i> : +0.00000000E+000	<i>state</i> : 1

<b>Range</b>	<i>frequency offset</i> : -4E7 to 4E7	<i>power</i> : -80 to 0	<i>phase</i> : 0-359
	<i>state</i> : 1		

<b>Key Entry</b>	<b>Goto Row</b>	<b>Edit Item</b>	<b>Toggle State</b>
------------------	-----------------	------------------	---------------------

<b>Key Path</b>	<b>Mode &gt; Multitone &gt; Edit Table &gt; &lt;Goto Row, Edit Item, or Toggle State&gt;</b>
-----------------	----------------------------------------------------------------------------------------------

## Arb Commands

Multitone Subsystem—Option 651/652/654 (:SOURce):RADio:MTOnE:ARB)

### [**:STATe**]

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:MTOnE:ARB [**:STATe**] ON|OFF|1|0  
[:SOURce] :RADio:MTOnE:ARB [**:STATe**] ?

This command enables or disables the multitone waveform generator function.

**\*RST** 0

**Key Entry** Multitone Off On

**Key Path** Mode > Multitone

**Two Tone Subsystem—Option 651/652 /654 ([**:SOURce**]:RADio:TTONe:ARB)****:ALIGnment****Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTONe:ARB:ALIGnment LEFT|CENTer|RIGHT  
 [**:SOURce**] :RADio:TTONe:ARB:ALIGnment?

This command will align the two tones either left, center or right of the carrier frequency.

**Example**

:RAD:TTON:ARB:ALIG CENT

The preceding example aligns each of the two tones equidistant from the carrier frequency.

**Key Entry** **Alignment Left Cent Right****Key Path** **Mode > Two Tone > Alignment Left Cent Right****:APPly****Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTONe:ARB:APPLy

This command will cause the two-tone waveform to be regenerated using the current settings.

This command has no effect unless the two-tone waveform generator is enabled and a change has been made to the frequency spacing setting.

**Key Entry** **Apply Settings****:BASEband:FREQuency:OFFSet****Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTONe:ARB:BASEband:FREQuency:OFFSet <val><unit>  
 [**:SOURce**] :RADio:TTONe:ARB:BASEband:FREQuency:OFFSet?

This command offsets the baseband frequency relative to the carrier. The feature is useful for moving the signal such that the carrier feed-through is not in the center.

The Agilent MXG provides automatic DAC over-range protection when the offset value is something other than 0 Hz. It scales down the I/Q data by *1/square root of 2*.

**\*RST** 0.000**Range** +5.0E7 – 5.0E7 MHz**Key Entry** **Baseband Frequency Offset****Key Path** **Mode > Two Tone > ARB Setup > More > Baseband Frequency Offset**

## :FSPacing

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:TTOne:ARB:FSPacing <freq\_spacing>  
[:SOURce] :RADio:TTOne:ARB:FSPacing?

This command sets the frequency spacing between the tones.

The variable <freq\_spacing> is expressed in hertz (Hz–MHz).

### Example

:RAD:TTON:ARB:FSP 10MHZ

The preceding example sets a 10 megahertz frequency spacing for the two tones.

\*RST +1.0000000E+004

Range 1E1–1E8

Key Entry Freq Separation

Key Path Mode > Two Tone > Freq Separation

## :HEADer:CLEar

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:TTOne:ARB:HEADer:CLEar

This command clears the header information from the header file used for the two-tone waveform format. Header information consists of signal generator settings and marker routings associated with the waveform file. Refer to the *User's Guide* for information on file headers.

For this command to function, two tone must be on. To turn two tone on, see “[**:STATE**]” on [page 240](#).

\*RST N/A

Key Entry Clear Header

Key Path Mode > Two Tone > More > Header Utilities > Clear Header

## :HEADer:SAVE

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:TTOne:ARB:HEADer:SAVE

This command saves the header information to the header file used for the two-tone waveform format. Header information consists of signal generator settings and marker routings associated with the waveform file. Refer to the *User's Guide* for information on header files.

For this command to function, two tone must be on. To turn two tone on, see “[**:STATE**]” on [page 240](#).

\*RST N/A

Key Entry Save Setup To Header

Key Path Mode > Two Tone > More > Header Utilities > Save Setup To Header

## **:IQ:MODulation:ATTen**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTONe:ARB:IQ:MODulation:ATTen <val><unit>  
[:SOURce] :RADio:TTONe:ARB:IQ:MODulation:ATTen?

This command sets the attenuation level of the I/Q signals being modulated through the signal generator RF path. The variable <val> is expressed in decibels (dB).

### **Example**

:RAD:TTON:ARB:IQ:MOD:ATT 20

The preceding example sets the modulator attenuator to 20 dB.

**\*RST** +2.00000000E+000

**Range** 0–40 dB

**Key Entry** **Modulator Atten Manual Auto**

**Key Path** **Mode > Two Tone > ARB Setup > Modulator Atten Manual Auto**

## **:IQ:MODulation:ATTen:AUTO**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTONe:ARB:IQ:MODulation:ATTen:AUTO ON|OFF|1|0  
[:SOURce] :RADio:TTONe:ARB:IQ:MODulation:ATTen:AUTO?

This command enables or disables the modulator attenuator auto mode. The auto mode will be switched to manual if the signal generator receives an AUTO OFF or AUTO ON command.

**ON (1)** This choice enables the attenuation auto mode which allows the signal generator to select the attenuation level that optimizes performance based on the current conditions.

**OFF (0)** This choice holds the attenuator at its current setting or at a selected value. Refer to “[:IQ:MODulation:ATTen](#)” on page 214 for setting the attenuation value.

### **Example**

:RAD:TTON:ARB:IQ:MOD:ATT:AUTO ON

The preceding example enables the attenuator automatic mode.

**\*RST** 1

**Key Entry** **Modulator Atten Manual Auto**

**Key Path** **Mode > Two Tone > ARB Setup > Modulator Atten Manual Auto**

**:MDEStination:ALCHold**

**Supported** N5182A with Option 651, 652, or 654

**CAUTION** Incorrect ALC sampling can create a sudden unleveled condition that may create a spike in the RF output potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

[**:SOURce**] :RADio:TTOne:ARB:MDEStination:ALCHold NONE|M1|M2|M3|M4  
[:SOURce] :RADio:TTOne:ARB:MDEStination:ALCHold?

This command disables the marker ALC hold function, or it enables the marker hold function for the selected marker.

Use the ALC hold function when you have a waveform signal that incorporates idle periods, or when the increased dynamic range encountered with RF blanking is not desired. The ALC circuitry responds to the marker signal during the marker pulse (marker signal high), averaging the modulated signal level during this period.

The ALC hold function operates during the low periods of the marker signal. The marker polarity determines when the marker signal is high. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. To set a marker's polarity, see “[:MPOLarity:MARKer1|2|3|4](#)” on page 234. For more information on markers, see “[:MARKer\[:SET\]](#)” on page 187.

**NOTE** Do not use the ALC hold for more than 100 ms, because it can affect the waveform’s output amplitude.

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform sample point at which you want the ALC sampling to begin.

The ALC hold setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

**NOTE** A waveform file that has unspecified settings in the file header uses the previous waveform’s routing settings.

For more information on the marker ALC hold function, see the *User’s Guide*. To configure marker points, refer to the following sections located in the Dual ARB subsystem:

- For clearing a single marker point or a range of marker points, see “[:MARKer:CLEar](#)” on page 186.
- For clearing all marker points, see “[:MARKer:CLEar:ALL](#)” on page 186.
- For shifting marker points, see “[:MARKer:ROTate](#)” on page 187.
- For setting marker points, see “[:MARKer\[:SET\]](#)” on page 187.

**NONE** This terminates the marker ALC hold function.

**M1–M4** These are the marker choices. The ALC hold feature uses only one marker at a time.

**Example**

**:RAD:TTON:ARB:MDES:ALCH M2**

The preceding example routes marker two to the ALC hold function.

---

<b>*RST</b>	NONE			
<b>Key Entry</b>	None    Marker 1    Marker 2    Marker 3    Marker 4			
<b>Key Path</b>	<b>Mode &gt; Two Tone &gt; More &gt; Marker Utilities &gt; Marker Routing &gt; ALC Hold &gt; &lt;Marker 1, ... or Marker 4&gt;</b>			
<b>Remarks</b>	N/A			

---

### **:MDEStination:PULSe**

**Supported** N5182A with Option 651, 652, or 654

---

**CAUTION** The pulse function incorporates ALC hold. Incorrect ALC sampling can create a sudden unleveled condition that may create a spike in the RF output, potentially damaging a DUT or connected instrument. Ensure that you set markers to let the ALC sample over an amplitude that accounts for the high power levels within the signal.

---

**[**:SOURce**]:RADIO:TTONe:ARB:MDESTination:PULSe** NONE|M1|M2|M3|M4  
**[**:SOURce**]:RADIO:TTONe:ARB:MDESTination:PULSe?**

This command disables the marker RF blanking/pulse function, or it enables the marker RF blanking/pulse function for the selected marker.

This function automatically incorporates the ALC hold function, so there is no need to select both functions for the same marker.

---

**NOTE** Do not use ALC hold for more than 100 ms, because it can affect the waveform's output amplitude.

---

The signal generator blanks the RF output when the marker signal goes low. The marker polarity determines when the marker signal is low. For a positive polarity, this is during the marker points. For a negative polarity, this is when there are no marker points. To set a marker's polarity, see “[:MPOLarity:MARKer1|2|3|4](#)” on page 234. For more information on markers, see “[:MARKer\[:SET\]](#)” on page 187.

---

**NOTE** Set marker points prior to using this function. Enabling this function without setting marker points may create a continuous low or high marker signal, depending on the marker polarity. This creates the condition where there is either no RF output or a continuous RF output.

---

To configure marker points, refer to the following sections located in the Dual ARB subsystem:

- For clearing a single marker point or a range of marker points, see “[:MARKer:CLEar](#)” on page 186.
- For clearing all marker points, see “[:MARKer:CLEar:ALL](#)” on page 186.
- For shifting marker points, see “[:MARKer:ROTate](#)” on page 187.
- For setting marker points, see “[:MARKer\[:SET\]](#)” on page 187.

The marker signal has a minimum of a two-sample delay in its response relative to the waveform signal response. To compensate for the marker signal delay, offset marker points from the waveform

## Arb Commands

Two Tone Subsystem—Option 651/652 /654 ([**:SOURce**]:RADio:TTOne:ARB)

sample point at which you want the RF blanking to begin.

The RF blanking setting is part of the file header information, so saving the setting to the file header saves the current marker routing for the waveform file.

**NOTE** A waveform file that has unspecified settings in the file header uses the previous waveform's routing settings. This could create the situation where there is no RF output signal, because the previous waveform used RF blanking

For more information on the marker RF blanking function, see the *User's Guide*.

**NONE** This terminates the marker RF blanking/pulse function.

**M1–M4** These are the marker choices. The RF blanking/pulse feature uses only one marker at a time.

### Example

**:RAD:TTON:ARB:MDES:ALCH M3**

The preceding example routes marker three to the Pulse/RF Blanking function.

<b>*RST</b>	NONE			
<b>Key Entry</b>	<b>None</b>	<b>Marker 1</b>	<b>Marker 2</b>	<b>Marker 3</b>
<b>Key Path</b>	<b>Mode &gt; Two Tone &gt; More &gt; Marker Utilities &gt; Marker Routing &gt; Pulse/RF Blank &gt; &lt;Marker 1, ... or Marker 4&gt;</b>			

### **:MPOLarity:MARKer1|2|3|4**

**Supported** N5182A with Option 651, 652, or 654

**[**:SOURce**]:RADIO:TTOne:ARB:MPOLarity:MARKer1|2|3|4 NEGative|POSitive**  
**[**:SOURce**]:RADIO:TTOne:ARB:MPOLarity:MARKer1|2|3|4?**

This command sets the polarity for the selected marker.

For a positive marker polarity, the marker signal is high during the marker points. For a negative marker polarity, the marker signal is high during the period of no marker points. To configure marker points, refer to the following sections located in the Dual ARB subsystem:

- For clearing a single marker point or a range of marker points, see “[:MARKer:CLEar](#)” on page 186.
- For clearing all marker points, see “[:MARKer:CLEar:ALL](#)” on page 186.
- For shifting marker points, see “[:MARKer:ROtate](#)” on page 187.
- For information on markers and setting marker points, see “[:MARKer\[:SET\]](#)” on page 187.

### Example

**:RAD:TTON:ARB:MPOL:MARK1 POS**

The preceding example sets the polarity for marker one to positive.

<b>*RST</b>	POS		
<b>Key Entry</b>	<b>Marker 1 Polarity Neg Pos</b>	<b>Marker 2 Polarity Neg Pos</b>	<b>Marker 3 Polarity Neg Pos</b>
	<b>Marker 4 Polarity Neg Pos</b>		

**Key Path**      **Mode > Tow Tone > More > Marker Utilities > Marker Polarity > Pulse/RF Blank > <Marker 1 Polarity Neg Pos, ... or Marker 4 Polarity Neg Pos>**

### **:NOISe:BANDwidth**

**Supported**      N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOnE:ARB:NOISe:BANDwidth <val><unit>

[**:SOURce**] :RADio:TTOnE:ARB:NOISe:BANDwidth?

This command sets the noise bandwidth for the two-tone waveform.

To configure the AWGN, refer to the following sections located in the Two Tone subsystem:

- To set the bandwidth over which the noise power is integrated for calculating the carrier to noise ratio, refer to “[:NOISe:CBWidth](#)” on page 235.
- To set the carrier to noise ratio as the active function, refer to “[:NOISe:CN](#)” on page 236.
- To enable the AWGN, refer to “[:NOISe\[:STATe\]](#)” on page 236.

**Range**      Option 651    1 Hz to 24 MHz  
                  Option 652    1 Hz to 48 MHz  
                  Option 654    1 Hz to 100 MHz

**\*RST**      +0.00000000E+000

**Key Entry**      **Noise Bandwidth**

**Key Path**      **Mode > Two Tone > More > ARB Setup > Real-Time AWGN Setup > Noise Bandwidth**

### **:NOISe:CBWidth**

**Supported**      N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOnE:ARB:NOISe:CBWidth <val><unit>

[**:SOURce**] :RADio:TTOnE:ARB:NOISe:CBWidth?

This command selects the carrier bandwidth over which the AWGN (additive white gaussian noise) is applied. The noise power will be integrated over the selected bandwidth for the purposes of calculating C/N (carrier to noise ratio). The carrier bandwidth is limited to the ARB sample rate but cannot exceed 125 MHz. For more information refer to “[:NOISe\[:STATe\]](#)” on page 236.

To configure the AWGN, refer to the following sections located in the Two Tone subsystem:

- To set the AWGN noise bandwidth, refer to “[:NOISe:BANDwidth](#)” on page 235.
- To set the carrier to noise ratio as the active function, refer to “[:NOISe:CN](#)” on page 236.
- To enable the AWGN, refer to “[:NOISe\[:STATe\]](#)” on page 236.

**Range**      1 Hz to 125 MHz(Minimum increment is .001 Hz)

**\*RST**      +1.00000000E+000

**Key Entry**      **Carrier Bandwidth**

## Arb Commands

Two Tone Subsystem—Option 651/652 /654 ([**:SOURce**]:RADio:TTOne:ARB)

### **:NOISe:CN**

Supported N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOne:ARB:NOISe:CN <val><unit>

[**:SOURce**] :RADio:TTOne:ARB:NOISe:CN?

This command makes Carrier to Noise Ratio the active function. The value you enter sets noise power as a ratio of carrier power to noise power (C/N). Carrier power equals the total modulated signal power before noise is added. When you add noise, the power output from the signal generator does not change; it is the sum of carrier power and the added noise power. You can apply noise in real time while the waveform is playing.

To configure the AWGN, refer to the following sections located in the Two Tone subsystem:

- To set the AWGN noise bandwidth, refer to “[:NOISe:BANDwidth](#) on page 235.
- To set the bandwidth over which the noise power is integrated for calculating the carrier to noise ratio, refer to“[:NOISe:CBWidth](#) on page 235.
- To enable the AWGN, refer to “[:NOISe\[:STATe\]](#)” on page 236.

**\*RST** +0.00000000E+000

**Key Entry** **Carrier to Noise Ratio**

### **:NOISe[:STATe]**

Supported N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOne:ARB:NOISe[:STATe] ON|OFF|1|0

[**:SOURce**] :RADio:TTOne:ARB:NOISe[:STATe]?

This command enables the Two-Tone modulation mode.

To configure the AWGN, refer to the following sections located in the Two Tone subsystem:

- To set the AWGN noise bandwidth, refer to “[:NOISe:BANDwidth](#) on page 235.
- To set the bandwidth over which the noise power is integrated for calculating the carrier to noise ratio, refer to“[:NOISe:CBWidth](#) on page 235.
- To set the carrier to noise ratio as the active function, refer to “[:NOISe:CN](#)” on page 236.

**\*RST** Off

**Key Entry** **Real-Time AWGN**

**:PHASe:NOISe:F1**

**Supported** N5182A with Option 651, 652, or 654, and 432

[**:SOURce**] :RADio:TTONe:ARB:PHASe:NOISe:F1 <value><unit>

[**:SOURce**] :RADio:TTONe:ARB:PHASe:NOISe:F1?

This command sets the start frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F2](#)). If the value is set greater than the stop frequency value, the signal generator resets the stop value to equal the start value.

The actual value may vary logarithmically depending on the value of the stop frequency. This behavior is more noticeable at higher frequency values. For more information, see the *User's Guide*.

**\*RST** +1.00000000E+003

**Range** 0Hz–48.43782781MHz

**Key Entry** Desired Start Freq (f1)

**:PHASe:NOISe:F2**

**Supported** N5182A with Option 651, 652, or 654, and 432

[**:SOURce**] :RADio:TTONe:ARB:PHASe:NOISe:F2 <value><unit>

[**:SOURce**] :RADio:TTONe:ARB:PHASe:NOISe:F2?

This command sets the stop frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see [:PHASe:NOISe:F1](#)). If the value is set less than the start frequency value, the signal generator resets the start value to equal the stop value.

The actual value may vary logarithmically, which is more noticeable at higher frequency offset values. For more information, see the *User's Guide*.

If a DAC over-range error occurs while setting this value, see “[:PHASe:NOISe:LMID](#)” on page 238 for information.

**\*RST** +3.00000000E+004

**Range** 1Hz–48.43782781MHz

**Key Entry** Desired Stop Freq (f2)

## Arb Commands

Two Tone Subsystem—Option 651/652 /654 [:SOURce]:RADio:TTOne:ARB)

### :PHASe:NOISe:LMid

**Supported** N5182A with Option 651, 652, or 654, and 432

[ :SOURce] :RADio:TTOne:ARB:PHASe:NOISe:LMid <value>

[ :SOURce] :RADio:TTOne:ARB:PHASe:NOISe:LMid?

This command sets the level amplitude of the flat area for the phase noise impairment. This phase noise is added to the base phase noise of the signal generator.

The signal generator has an automatic DAC over-range protection feature that is on by default. Using this feature may cause excessive scaling, which reduces dynamic range. This feature can be turned off (see “[:DOPProtection](#)” on page 181). When the automatic protection is off, manual adjustments are required to correct a DAC over-range condition, of which there are three options:

- reduce the Lmid value
- reduce the waveform runtime scaling, see “[:RSCaling](#)” on page 200
- decrease the stop frequency value

For more information on the phase noise impairment option, see the *User’s Guide*.

---

**NOTE** The amplitude range varies depending on the f2 value (“[:PHASe:NOISe:F2](#)” on page 237). As f2 increases in value, the range for Lmid decreases. If the current Lmid setting is too high for the new f2 value, the signal generator changes the Lmid value and generates an error.

---

The range values are expressed in units of dBc/Hz.

**\*RST** -7.00000000E+001

**Range** -300 to 100

**Key Entry** Desired Flat Amplitude (Lmid)

### :PHASe:NOISe[:STATe]

**Supported** N5182A with Option 651, 652, or 654, and 432

[ :SOURce] :RADio:TTOne:ARB:PHASe:NOISe[:STATe] ON|OFF|1|0

[ :SOURce] :RADio:TTOne:ARB:PHASe:NOISe[:STATe] ?

This command turns the phase noise impairment on or off. For more information on the phase noise impairment option, see the *User’s Guide*.

**\*RST** 0

**Key Entry** Phase Noise Off On

## **:REFerence:EXTernal:FREQuency**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOnE:ARB:REFerence:EXTernal:FREQuency <val>  
[**:SOURce**] :RADio:TTOnE:ARB:REFerence:EXTernal:FREQuency?

This command allows you to enter the frequency of the external reference.

The variable <val> is expressed in hertz (Hz–MHz).

The value specified by this command is effective only when you are using an external ARB reference applied to the BASEBAND GEN REF IN rear-panel connector.

### **Example**

:RAD:TTON:ARB:REF:EXT:FREQ 1MHZ

The preceding example sets the external reference to 1 megahertz.

\***RST** +1.00000000E+007

**Range** 2.5E5–1E8

**Key Entry** **Reference Freq**

## **:REFerence[:SOURce]**

**Supported** N5182A with Option 651, 652, or 654

[**:SOURce**] :RADio:TTOnE:ARB:REFerence[:SOURce] INTernal|EXTernal  
[**:SOURce**] :RADio:TTOnE:ARB:REFerence[:SOURce]?

This command selects either an internal or external reference for the waveform clock. If EXTernal is selected, the external frequency *value must* be entered and the clock signal must be applied to the BASEBAND GEN REF IN rear-panel connector. See “[:REFerence:EXTernal:FREQuency](#)” on page 222 to enter the external reference frequency.

### **Example**

:RAD:TTON:ARB:REF EXT

The preceding example sets an external reference as the waveform clock.

\***RST** INT

**Key Entry** **ARB Reference Ext Int**

## Arb Commands

Two Tone Subsystem—Option 651/652 /654 ([**:SOURce**]:RADio:TTOne:ARB)

### **:SCLock:RATE**

**Supported** N5182A with Option 651, 652, or 654

```
[:SOURce]:RADio:TTOne:ARB:SCLock:RATE <sample_clock_rate>  
[:SOURce]:RADio:TTOne:ARB:SCLock:RATE?
```

This command sets the ARB sample clock rate.

The two tone generator should be on before executing this command. If this command is executed before the two tone generator is active, the entered value will be overridden by a calculated factory default value.

#### **Example**

```
:RAD:TTON:ARB:SCL:RATE 1MHZ
```

The preceding example sets the ARB sample clock to 1 MHz.

**\*RST** +1.00000000E+008

**Range** 1–1E8

**Key Entry** **ARB Sample Clock**

### **[**:STATE**]**

**Supported** N5182A with Option 651, 652, or 654

```
[:SOURce]:RADio:TTOne:ARB[:STATe] ON|OFF|1|0  
[:SOURce]:RADio:TTOne:ARB[:STATe]?
```

This command enables or disables the on/off operational state of the two-tone waveform generator function.

#### **Example**

```
:RAD:TTON:ARB ON
```

The preceding example turns on the two-tone generator.

**\*RST** 0

**Key Entry** **Two Tone Off On**

---

## 6 Real-Time Commands

This chapter provides real-time signal generation SCPI command descriptions for use in either component or receiver test using the N5182A Agilent MXG Vector Signal Generator.

---

**NOTE** The internal baseband generator speed upgrade Options 670, 671, and 672 are option upgrades that *require* Option 651 and 652 to have been loaded at the factory (refer to the *Data Sheet* for more information). Any references to 651, 652, or 654 are inclusive of 671, 672, and 674.

---

This chapter contains the following major sections:

- “[All Subsystem–Option 651/652/654 \(\[:SOURce\]\)](#)” on page 242
- “[AWGN Real-Time Subsystem–Option 403 \(\[:SOURce\]:RADio:AWGN:RT\)](#)” on page 243
- “[Phase Noise Subsystem–Option 432 \(\[SOURce:RADio:PHASe:NOISe\]\)](#)” on page 244

## All Subsystem—Option 651/652/654 ([:SOURce])

### :RADio:ALL:OFF

**Supported** N5182A with Option 651, 652, or 654

[ :SOURce] :RADio:ALL:OFF

This command turns off all digital modulation formats.

**Remarks** This command does not affect analog modulation.

## AWGN Real-Time Subsystem—Option 403 ([**:SOURce**]:RADio:AWGN:RT)

### **:BWIDth**

**Supported** N5182A with 651, 652, or 654, and 403

[**:SOURce**]:RADio:AWGN:RT:BWIDth <value>  
[:SOURce]:RADio:AWGN:RT:BWIDth?

This command adjusts the flat bandwidth of the real-time AWGN waveform.

The variable <value> is expressed in units of Hertz (Hz–MHz).

\***RST** +1.0000000E+006

**Range** 1–1.0E8

**Key Entry** **Bandwidth**

### **:IQ:MODulation:ATTen**

**Supported** N5182A with Option 651, 652, or 654, and 403

[**:SOURce**]:RADio:AWGN:RT:IQ:MODulation:ATTen <value>  
[:SOURce]:RADio:AWGN:RT:IQ:MODulation:ATTen?

This command attenuates the I/Q signals being modulated through the signal generator's RF path.

The variable <value> is expressed in units of decibels (dB).

\***RST** Varies (box dependent)

**Range** 0–40

**Key Entry** **Modulator Atten Manual Auto**

### **:IQ:MODulation:ATTen:AUTO**

**Supported** N5182A with Option 651, 652, or 654, and 403

[**:SOURce**]:RADio:AWGN:RT:IQ:MODulation:ATTen:AUTO ON|OFF|1|0  
[:SOURce]:RADio:AWGN:RT:IQ:MODulation:ATTen:AUTO?

This command enables or disables the I/Q attenuation auto mode.

ON (1) This choice enables the attenuation auto mode which optimizes the modulator attenuation for the current conditions.

OFF (0) This choice holds the attenuator at its current setting or at a selected value. Refer to “[:IQ:MODulation:ATTen](#)” on page 243 for setting the attenuation value.

\***RST** 1

**Key Entry** **Modulator Atten Manual Auto**

**[**:STATe**]**

**Supported** N5182A with Option 651, 652, or 654, and 403

[**:SOURce**] :RADio:AWGN:RT [**:STATe**] ON|OFF|1|0  
[:SOURce] :RADio:AWGN:RT [**:STATe**] ?

This command enables or disables the operating state of real-time AWGN.

**\*RST** 0

**Key Entry** **Real-time AWGN Off On**

**Phase Noise Subsystem—Option 432 ([SOURce:RADio:PHASe:NOISe])****:F1**

**Supported** N5182A with Option 651, 652, or 654, and 432

[**:SOURce**] :RADio:PHASe:NOISe:F1 <value><unit>  
[:SOURce] :RADio:PHASe:NOISe:F1?

This command sets the start frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see :F2). If the value is set greater than the stop frequency value, the signal generator resets the stop value to equal the start value.

The actual value may vary logarithmically depending on the value of the stop frequency. This behavior is more noticeable at higher frequency values. For more information, see the *User's Guide*.

**\*RST** +1.00000000E+003

**Range** 0Hz–48.3782781MHz

**Key Entry** **Desired Start Freq (f1)**

**:F2**

**Supported** N5182A with Option 651, 652, or 654, and 432

[**:SOURce**] :RADio:PHASe:NOISe:F2 <value><unit>  
[:SOURce] :RADio:PHASe:NOISe:F2?

This command sets the stop frequency value of the flat area for the phase noise impairment.

Ensure that this value is less than or equal to the stop frequency value (see :F1). If the value is set less than the start frequency value, the signal generator resets the start value to equal the stop value.

The actual value may vary logarithmically, which is more noticeable at higher frequency offset values. For more information, see the *User's Guide*.

If a DAC over-range error occurs while setting this value, see :LMID for information.

**\*RST** +3.00000000E+004

**Range** 1Hz–48.3782781MHz

**Key Entry** **Desired Stop Freq (f2)**

## :LMID

**Supported** N5182A with Option 651, 652, or 654, and 432

[ :SOURce] :RADio:PHASe:NOISe:LMID <value>  
[ :SOURce] :RADio:PHASe:NOISe:LMID?

This command sets the level amplitude of the flat area for the phase noise impairment. This phase noise is added to the base phase noise of the signal generator.

The signal generator has an automatic DAC over-range protection feature that is on by default. Using this feature may cause excessive scaling, which reduces dynamic range. This feature can be turned off (see “[:DOPProtection](#)” on page 181). When the automatic protection is off, manual adjustments are required to correct a DAC over-range condition, of which there are three options:

- reduce the Lmid value
- reduce the waveform runtime scaling, see “[:RSCaling](#)” on page 200
- decrease the stop frequency value

For more information on the phase noise impairment option, see the *User’s Guide*.

---

**NOTE** The amplitude range varies depending on the f2 value (“[:F2](#)” on page 244). As f2 increases in value, the range for Lmid decreases. If the current Lmid setting is too high for the new f2 value, the signal generator changes the Lmid value and generates an error.

---

The range values are expressed in units of dBc/Hz.

**\*RST** -7.0000000E+001

**Range** -300 to 100

**Key Entry** Desired Flat Amplitude (Lmid)

## [ :STATE]

**Supported** N5182A with Option 651, 652, or 654, and 432

[ :SOURce] :RADio:PHASe:NOISe[:STATE] ON|OFF|1|0  
[ :SOURce] :RADio:PHASe:NOISe[:STATE] ?

This command turns the phase noise impairment on or off. For more information on the phase noise impairment option, see the *User’s Guide*.

**\*RST** 0

**Key Entry** Phase Noise Off On

**Real-Time Commands**

Phase Noise Subsystem—Option 432 ([:SOURce:RADio:PHASe:NOISe])

---

## 7 N5181A/82A SCPI Compatibility

This chapter provides a comprehensive listing of SCPI commands and programming codes for signal generator models that are supported by the N5181A/82A.

- “Overview” on page 248
- “Changing the Signal Generator Identification String” on page 249
- “Changing the Signal Generator Option String” on page 249
- “Functional N5181A/82A SCPI Commands While in a Compatible Language Mode” on page 250
- “E44xxB Compatible Commands” on page 253
- “E4428C/38C Compatible Commands” on page 271
- “E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Compatible Commands” on page 318
- “8648A/B/C/D Compatible Commands” on page 364
- “8656B, 8657A/B/D/J Programming Codes” on page 374
- “Aeroflex IFR3410 Compatible Commands” on page 381
- “Rohde & Schwarz SMATE/SMIQ/SML/SMU Compatible Commands” on page 386

## Overview

This Chapter contains the following major sections:

The following list shows the supported models along with the language type for each one:

N5181A/82A	SCPI commands
E44xxB	SCPI commands
E4428C/38C	SCPI commands
E8257D/67D/E8663B	SCPI commands
E8247C/57C/67C	SCPI commands
E8241A/44A/51A/54A	SCPI commands
8648A/B/C/D	SCPI commands
8656B, 8657A/B	programming codes
8657D	programming codes

These commands and programming codes are separated into compatible and non-compatible sections. In many instances, the non-compatible section has the least number of commands/codes, thus providing a more time-efficient way of determining whether or not a command/code is supported by the N5181A/82A.

In some cases, SCPI commands are only partially supported. This usually occurs due to a variance in parameters between the N5181A/82A and other signal generator models. When this condition occurs, the SCPI command will appear in both the compatible and non-compatible sections showing the exact SCPI command syntax that is supported and unsupported.

In addition to providing the compatible command/code listing, this chapter also provides you with N5181A/82A SCPI commands that lets you change the signal generator identification output (see “[:SYSTem:IDN](#)” on page 249), select a compatible programming language (see “[:SYSTem:LANGuage \(N5181A/82A\)](#)” on page 251), and query the signal generator for errors (see “[:SYSTem:ERRor\[:NEXT\]](#)” on page 252).

## Changing the Signal Generator Identification String

### :SYSTem:IDN

**Supported** All Models

:SYSTem:IDN "<string>"

This Agilent MXG signal generator command modifies the identification string that the \*IDN? query returns. Sending an empty string returns the \*IDN? query output to its factory shipped setting. The maximum string length is 72 characters.

Modification of the \*IDN? query output enables the Agilent MXG signal generator to identify itself as another signal generator when it is used as a backward compatible replacement. This modification of the identification string does not affect the display diagnostic information, which is shown by pressing the **Diagnostic Info** softkey.

## Changing the Signal Generator Option String

### :SYSTem:OPT

**Supported** All Models

:SYSTem:OPT "<string>"

This Agilent MXG signal generator command modifies the option string that the \*OPT? query returns. Sending an empty string returns the \*OPT? query output to its factory shipped setting. The maximum string length is 72 characters.

Modification of the \*OPT? query output enables the Agilent MXG signal generator with options, to identify itself as another signal generator when it is used as a backward compatible replacement. This modification of the option string does not affect the display diagnostic information, which is shown by pressing the **Diagnostic Info** softkey.

## Functional N5181A/82A SCPI Commands While in a Compatible Language Mode

The commands in this section are used for configuring the signal generator compatible programming language and for isolating problems.

### :PRESet:LANGuage (N5181A/82A)

**Supported** All Models

```
:SYSTem:PRESet:LANGuage  
"SCPI" | "COMP" | "8648" | "E4428C" | "E4438C" | "E8257D" | "E8267D" | "E8663B" | "E8247C" | "E8257C" |  
"E8267C" | "E8241A" | "E8244A" | "E8251A" | "E8254A" | "8657D" | "8667D" | "SMU200A" |  
"SMATE200A" | "SMJ100A" | "SMIQ" | "SML" | "SMV" | "3410"  
:SYSTem:PRESet:LANGuage?
```

This command sets the remote language that is available when the signal generator is preset.

SCPI	This choice provides compatibility for SCPI commands, using GPIB, LAN, or USB.
COMP	This choice provides compatibility for the 8656B, 8657A/B signal generator, which is supported only through a GPIB interface.
8648	This choice provides compatibility for the 8648A/B/C/D signal generator, which is supported only through a GPIB interface.
E4428C or E4438C	This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.
E8257D or E8267D or E8663B	This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators, which are supported through a GPIB, LAN, or USB interface.
E8247C, or E8257C, or E8267C	This choice provides compatibility for the E8247C, E8257C or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.
E442XB or E443XB	This choice provides compatibility for the E442XB or E443XB signal generators, which are supported through a GPIB, LAN, or USB interface.
E8241A or E8244A or E8251A or E8254A	This choice provides compatibility for the E8241A, E8244A, E8251A, or E8254A signal generators, which are supported through a GPIB, LAN, or USB interface.
8657D	This choice provides compatibility for the 8657D signal generator, which is supported only through a GPIB interface.

SMU200A, or SMATE200A, or SMJ100A, or SMIQ, or SML, or SMV	This choice provides compatibility for the Rohde and Schwarz SMU200A, SMATE200A, SMJ100A, SMIQ, SML, or SMV signal generators, which are supported through a GPIB, LAN, or USB interface.																																											
3410	This choice provides compatibility for the Aeroflex 3410 signal generator, which is supported through a GPIB, LAN, or USB interface.																																											
<b>*RST</b>	<b>"SCPI"</b>																																											
<b>Key Entry</b>	<table border="0"> <tr> <td><b>SCPI</b></td><td><b>8656B,8657A/B</b></td><td><b>8648A/B/C/D</b></td><td><b>E4428C</b></td><td><b>E4438C</b></td><td><b>E8257D</b></td><td><b>E8267D</b></td><td><b>E8663B</b></td><td></td></tr> <tr> <td><b>E8247C</b></td><td><b>E8257C</b></td><td><b>E8267C</b></td><td><b>E442XB</b></td><td><b>E443XB</b></td><td><b>E8241A</b></td><td><b>E8244A</b></td><td><b>E8251A</b></td><td></td></tr> <tr> <td><b>E8254A</b></td><td><b>8657D</b></td><td><b>E8247C</b></td><td><b>E8257C</b></td><td><b>E8267C</b></td><td><b>SMU200A</b></td><td><b>SMATE200A</b></td><td><b>SMJ100A</b></td><td></td></tr> <tr> <td><b>SMIQ</b></td><td><b>SML</b></td><td><b>SMV</b></td><td><b>3410</b></td><td><b>COMP</b></td><td></td><td></td><td></td><td></td></tr> </table>								<b>SCPI</b>	<b>8656B,8657A/B</b>	<b>8648A/B/C/D</b>	<b>E4428C</b>	<b>E4438C</b>	<b>E8257D</b>	<b>E8267D</b>	<b>E8663B</b>		<b>E8247C</b>	<b>E8257C</b>	<b>E8267C</b>	<b>E442XB</b>	<b>E443XB</b>	<b>E8241A</b>	<b>E8244A</b>	<b>E8251A</b>		<b>E8254A</b>	<b>8657D</b>	<b>E8247C</b>	<b>E8257C</b>	<b>E8267C</b>	<b>SMU200A</b>	<b>SMATE200A</b>	<b>SMJ100A</b>		<b>SMIQ</b>	<b>SML</b>	<b>SMV</b>	<b>3410</b>	<b>COMP</b>				
<b>SCPI</b>	<b>8656B,8657A/B</b>	<b>8648A/B/C/D</b>	<b>E4428C</b>	<b>E4438C</b>	<b>E8257D</b>	<b>E8267D</b>	<b>E8663B</b>																																					
<b>E8247C</b>	<b>E8257C</b>	<b>E8267C</b>	<b>E442XB</b>	<b>E443XB</b>	<b>E8241A</b>	<b>E8244A</b>	<b>E8251A</b>																																					
<b>E8254A</b>	<b>8657D</b>	<b>E8247C</b>	<b>E8257C</b>	<b>E8267C</b>	<b>SMU200A</b>	<b>SMATE200A</b>	<b>SMJ100A</b>																																					
<b>SMIQ</b>	<b>SML</b>	<b>SMV</b>	<b>3410</b>	<b>COMP</b>																																								

## **:SYSTem:LANGuage (N5181A/82A)**

**Supported** All Models

**:SYSTem:LANGuage**  
 "SCPI" | "COMP" | "8648" | "E4428C" | "E4438C" | "E8257D" | "E8267D" | "E8663B" | "E8247C" |  
 "E8257C" | "E8267C" | "E442XB" | "E443XB" | "E8241A" | "E8244A" | "E8251A" | "E8254A" | "8657D" |  
 "SMU200A" | "SMATE200A" | "SMJ100A" | "SMIQ" | "SML" | "SMV" | "3410"  
**:SYSTem:LANGuage?**

This command sets the remote language for the signal generator.

<b>SCPI</b>	This choice provides compatibility for SCPI commands.
<b>COMP</b>	This choice provides compatibility for the 8656B, 8657A/B signal generator which is supported only through the GPIB interface.
<b>8648</b>	This choice provides compatibility for the 8648A/B/C/D signal generator which is supported only through a GPIB interface.
<b>E4428C or E4438C</b>	This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.
<b>E8257D or E8267D or E8663B</b>	This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators which are supported through a GPIB, LAN, or USB interface.
<b>E8247C, or E8257C, or E8267C</b>	This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.
<b>E442XB or E443XB</b>	This choice provides compatibility for the E442XB or E443XB signal generators, which are supported through a GPIB, LAN, or USB interface.
<b>E8241A or</b>	

E8244A or E8251A or E8254A	This choice provides compatibility for the E8241A, E8244A, E8251A, or E8254A signal generator, which is supported through a GPIB, LAN, or USB interface.
8657D	This choice provides compatibility for the 8657D signal generator which is supported only through a GPIB interface.
SMU200A, or SMATE200A, or SMJ100A, or SMIQ, or SML, or SMV	This choice provides compatibility for the Rohde and Schwarz SMU200A, SMATE200A, SMJ100A, SMIQ, SML, or SMV signal generators, which are supported through a GPIB, LAN, or USB interface.
3410	This choice provides compatibility for the Aeroflex 3410 signal generator, which is supported through a GPIB, LAN, or USB interface.
<b>Key Entry</b>	<b>SCPI      8656B,8657A/B    8648A/B/C/D    E4428C    E4438C    E8257D    E8267D    E8663B</b> <b>E8247C    E8257C            E8267C            E442XB    E443XB    E8241A    E8244A    E8251A</b> <b>E8254A    8657D            E8247C            E8257C    E8267C    SMU200A    SMATE200A    SMJ100A</b> <b>SMIQ      SML                SMV                3410            COMP</b>
<b>Remarks</b>	The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.  For more information on supported SCPI commands and programming codes, refer to the <i>Programming Compatibility Guide</i> .

### **:SYSTem:ERRor[:NEXT]**

**Supported**      All Models

**:SYSTem:ERRor [:NEXT] ?**

This query returns the most recent error message from the signal generator error queue. If there are no error messages, the query returns the following output:

+0, "No error"

When there is more than one error message, the query will need to be sent for each message. Each error message is erased after being queried.

**Key Entry**      View Next Error Message

## E44xxB Compatible Commands

**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

$\checkmark$ = Supported by Agilent MXG $-$ = Not supported by Agilent MXG	E44xxB	Remarks
<i>IEEE Common Commands</i>		
*CLS	$\checkmark$	
*ESE <data> *ESE?	$\checkmark$	
*ESR?	$\checkmark$	
*IDN?	$\checkmark$	
*OPC *OPC?	$\checkmark$	
*RCL <reg_num>	$\checkmark$	
*RST	$\checkmark$	
*SAV <reg_num>	$\checkmark$	
*SRE <data> *SRE?	$\checkmark$	
*STB?	$\checkmark$	
*TRG	$\checkmark$	
*TST?	$\checkmark$	
*WAI	$\checkmark$	
<i>Calibration Subsystem</i>		
:CALibration:DCFM	$\checkmark$	
:CALibration:IQ	$\checkmark$	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:CALibration:IQ:DEFault	✓	
:CALibration:IQ:FULL	✓	
:CALibration:IQ:START <value> :CALibration:IQ:START?	✓	
:CALibration:IQ:STOP <value> :CALibration:IQ:STOP?	✓	
<i>Communication Subsystem</i>		
:SYSTem:COMMUnicatE:GPIB:ADDReSS <number> :SYSTem:COMMUnicatE:GPIB:ADDReSS?	✓	
:SYSTem:COMMUnicatE:SERial:BAUD <number> :SYSTem:COMMUnicatE:SERial:BAUD?	-	
:SYSTem:COMMUnicatE:SERial:CONTrol:RTS ON OFF IBFull RFR :SYSTem:COMMUnicatE:SERial:CONTrol:RTS?	-	
:SYSTem:COMMUnicatE:SERial:ECHO ON OFF :SYSTem:COMMUnicatE:SERial:ECHO?	-	
:SYSTem:COMMUnicatE:SERial:RESet	-	
:SYSTem:COMMUnicatE:SERial:TOUT <value> :SYSTem:COMMUnicatE:SERial:TOUT?	-	
:SYSTem:COMMUnicatE:SERial:CONTrol:RTS ON OFF IBFull RFR :SYSTem:COMMUnicatE:SERial:CONTrol:RTS?	-	
<i>Diagnostic Subsystem</i>		
:DIAGnostic[:CPU]:INFormatiOn:BOARDs?	-	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:ATTenuato r?	✓	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:PON?	✓	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:PROTectio n?	✓	
:DIAGnostic[:CPU]:INFormatiOn:DISPlay:OTIMe?	✓	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:DIAGnostic[:CPU] :INFormation:LIDN?	✓	
:DIAGnostic[:CPU] :INFormation:OPTions?	✓	
:DIAGnostic[:CPU] :INFormation:OPTIONS:DETial?	✓	
:DIAGnostic[:CPU] :INFormation:OTIMe?	✓	
:DIAGnostic[:CPU] :INFormation:SDATe?	✓	
<i>Display Subsystem</i>		
:DISPlay:BRIGHTness <value> :DISPlay:BRIGHTness?	✓	
:DISPlay:CONTrast <value> :DISPlay:CONTrast?	✓	
:DISPlay:INVerse ON OFF 1 0	✓	Supported but the following query is not supported: :DISPlay:INVerse?
:DISPlay:REMote ON OFF 1 0 :DISPlay:REMote?	✓	
<i>Memory Subsystem</i>		
:MEMORY:CATAlog:BINary?	✓	
:MEMORY:CATAlog:BIT?	-	
:MEMORY:CATAlog:CDMa?	-	
:MEMORY:CATAlog:DMOD?	✓	
:MEMORY:CATAlog:DWCDma?	-	
:MEMORY:CATAlog:FCDMa?	-	
:MEMORY:CATAlog:FIR?	✓	
:MEMORY:CATAlog:FSK?	✓	
:MEMORY:CATAlog:FWCDma?	-	
:MEMORY:CATAlog:IQ?	-	
:MEMORY:CATAlog:LIST?	✓	
:MEMORY:CATAlog:MCDMa?	-	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:MEMORY:CATALOG:MDMOD?	-	
:MEMORY:CATALOG:MDWCDMA?	-	
:MEMORY:CATALOG:MFCDMA?	-	
:MEMORY:CATALOG:MFWCDMA?	-	
:MEMORY:CATALOG:MTONE?	✓	
:MEMORY:CATALOG:RCDMA?	-	
:MEMORY:CATALOG:RWCDMA?	-	
:MEMORY:CATALOG:SEQ?	✓	
:MEMORY:CATALOG:SHAPE?	-	
:MEMORY:CATALOG:STATE?	✓	
:MEMORY:CATALOG:UWCDMA?	-	
:MEMORY:CATALOG:WCDMA?	-	
:MEMORY:CATALOG[:ALL]?	✓	
:MEMORY:COPY[:NAME] "<file name>","<file name>"	✓	
:MEMORY:DATA "<file name>,<datablock>"	✓	
:MEMORY:DATA? "<file name>"	✓	
:MEMORY:DATA:BIT "<file name>,<bit_count>,<datablock>"	-	
:DATA:BIT? "<file name>"	-	
:MEMORY:DATA:FIR "<file name>,osr,coefficient{,coefficient}	-	
:MEMORY:DATA:FIR? "<file name>"	-	
:MEMORY:DATA:FSK "<file name>,<num_states>,<f0>,<f1>,...<f(n)>[,<diff_state>,<num_diff_states>,<diff0>,<diff1>,...<diff(n)>]	-	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG – = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:MEMORY:DATA:FSK? "<file name>"	–	
:MEMORY:DATA:IQ "<file name>,<offsetQ>,<num_states>,<i0>,<q0>,<i1>,<q1>,...<i(n)>,<q(n)>[,<diff_state>,<num_diff_states>,<diff0>,<diff1>,...<diff(n)>]	–	
:MEMORY:DATA:IQ? "<file name>"	–	
:MEMORY:DATA:PRAM?	–	
:MEMORY:DATA:PRAM:BLOCK <datablock>	–	
:MEMORY:DATA:PRAM:LIST <uint8>{,<uint8>,<...>}	–	
:MEMORY:DATA:SHAPE "<file name>,<num_rise_points>,<rp0>,<rp1>,...<rp(n)>,<num_fall_points>,<fp0>,<fp1>,...<fp(n)>"	–	
:MEMORY:DATA:SHAPE? "<file name>"	–	
:MEMORY:DElete:ALL	✓	
:MEMORY:DElete:BINary	✓	
:MEMORY:DElete:BIT	–	
:MEMORY:DElete:CDMa	–	
:MEMORY:DElete:DMOD	–	
:MEMORY:DElete:DWCdma	–	
:MEMORY:DElete:FCDma	–	
:MEMORY:DElete:FIR	–	
:MEMORY:DElete:FSK	–	
:MEMORY:DElete:FWCDma	–	
:MEMORY:DElete:IQ	–	
:MEMORY:DElete:LIST	–	
:MEMORY:DElete:MCDma	–	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:MEMORY:DElete:MDMod	✓	
:MEMORY:DElete:MDWCdma	-	
:MEMORY:DElete:MFCdma	-	
:MEMORY:DElete:MFWCdma	-	
:MEMORY:DElete:MTONe	-	
:MEMORY:DElete:RCDMa	-	
:MEMORY:DElete:RWCDma	-	
:MEMORY:DElete:SEQ	✓	
:MEMORY:DElete:SHAPE	-	
:MEMORY:DElete:STATE	✓	
:MEMORY:DElete:UWCDma	-	
:MEMORY:DElete:WCDMa	-	
:MEMORY:DElete[:NAME] "<file name>"	✓	
:MEMORY:FREE [:ALL] ?	✓	
:MEMORY:LOAD:LIST "<file name>"	✓	
:MEMORY:MOVE <src_file>,<dest_file>	✓	
:MEMORY:STATE:COMMent <reg_num>,<seq_num>,"<comment>"	✓	
:MEMORY:STATE:COMMent? <reg_num>,<seq_num>	✓	
:MMEMORY:CATalog? "<msus>"	✓	
:MMEMORY:COPY "<file name>","<file name>"	✓	
:MMEMORY:DATA "<file name>",<datablock>"	✓	
:MMEMORY:DATA? "<file name>"	✓	
:MMEMORY:DELETE[:NAME] "<file name>,[<msus>]"	✓	
:MMEMORY:LOAD:ARB:ALL	✓	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:MMEMory:LOAD:LIST "<file name>"	✓	
:MMEMory:MOVE <src_file>,<dest_file>	✓	
:MMEMory:STORe:ARB:ALL	✓	
:MMEMory:STORe:LIST "<file name>"	✓	
:MEMORY:STORE:LIST "<file name>"	✓	
<i>Output Subsystem</i>		
:OUTPut:BLANKing:AUTO ON OFF 1 0	✓	
:OUTPut:BLANKing:AUTO?		
:OUTPut:BLANKing[:STATE] ON OFF 1 0	✓	
:OUTPut:BLANKing[:STATE]?		
:OUTPut:MODulation[:STATE] ON OFF 1 0	✓	
:OUTPut:MODulation[:STATE]?		
:OUTPut:PROTection:CLEar	✓	
:OUTPut:PROTection:MODE "NORMAL" "8648"	-	
:OUTPut:PROTection:MODE?		
:OUTPut:PROTection[:STATE] ON OFF 1 0	✓	
:OUTPut:PROTection[:STATE]?		
:OUTPut:PROTection:TRIPPed?	✓	
:OUTPut:SETTled:POLarity NORMAL INVerted	-	
:OUTPut:SETTled:POLarity?		
:OUTPut:SETTled:RFOFF NORMAL INVerted	-	
:OUTPut:SETTled:RFOFF?		
:OUTPut:SETTled[:STATE]?	-	
:OUTPut[:STATE] ON OFF 1 0	✓	
:OUTPut[:STATE]?		
<i>Route Subsystem</i>		

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:ROUTe:HARDware:DGENerator:...	-	<i>This subsystem is not supported.</i>
<b>Status Subsystem</b>		
:STATus:OPERation:CONDITION?	✓	
:STATus:OPERation:ENABLE <value> :STATus:OPERation:ENABLE?	✓	
:STATus:OPERation:NTRansition <value> :STATus:OPERation:NTRansition?	✓	
:STATus:OPERation:PTRansition <value> :STATus:OPERation:PTRansition?	✓	
:STATus:OPERation[:EVENT]?	✓	
:STATus:PRESet	✓	
:STATus:QUESTIONable:BERT:CONDITION?	-	
:STATus:QUESTIONable:BERT:ENABLE <value> :STATus:QUESTIONable:BERT:ENABLE?	-	
:STATus:QUESTIONable:BERT:NTRansition <value> :STATus:QUESTIONable:BERT:NTRansition?	-	
:STATus:QUESTIONable:BERT:PTRansition <value> :STATus:QUESTIONable:BERT:PTRansition?	-	
:STATus:QUESTIONable:BERT[:EVENT]?	-	
:STATus:QUESTIONable:CALibration:CONDITION?	✓	
:STATus:QUESTIONable:CALibration:ENABLE <value> :STATus:QUESTIONable:CALibration:ENABLE?	✓	
:STATus:QUESTIONable:CALibration:NTRansition <value> :STATus:QUESTIONable:CALibration:NTRansition?	✓	
:STATus:QUESTIONable:CALibration:PTRansition <value> :STATus:QUESTIONable:CALibration:PTRansition?	✓	
:STATus:QUESTIONable:CALibration[:EVENT]?	✓	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>E44xxB</b>	<b>Remarks</b>
✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	
:STATus:QUESTIONable:CONDITION?	✓
:STATus:QUESTIONable:ENABLE <value> :STATus:QUESTIONable:ENABLE?	✓
:STATus:QUESTIONable:FREQuency:CONDITION?	✓
:STATus:QUESTIONable:FREQuency:ENABLE <value> :STATus:QUESTIONable:FREQuency:ENABLE?	✓
:STATus:QUESTIONable:FREQuency:NTRansition <value> :STATus:QUESTIONable:FREQuency:NTRansition?	✓
:STATus:QUESTIONable:FREQuency:PTRansition <value> :STATus:QUESTIONable:FREQuency:PTRansition?	✓
:STATus:QUESTIONable:FREQuency[:EVENT] ?	✓
:STATus:QUESTIONable:MODulation:CONDITION?	-
:STATus:QUESTIONable:MODulation:ENABLE <value> :STATus:QUESTIONable:MODulation:ENABLE?	-
:STATus:QUESTIONable:MODulation:NTRansition <value> :STATus:QUESTIONable:MODulation:NTRansition?	-
:STATus:QUESTIONable:MODulation:PTRansition <value> :STATus:QUESTIONable:MODulation:PTRansition?	-
:STATus:QUESTIONable:MODulation[:EVENT] ?	-
:STATus:QUESTIONable:NTRansition <value> :STATus:QUESTIONable:NTRansition?	✓
:STATus:QUESTIONable:POWER:CONDITION?	✓
:STATus:QUESTIONable:POWER:ENABLE <value> :STATus:QUESTIONable:POWER:ENABLE?	✓
:STATus:QUESTIONable:POWER:NTRansition <value> :STATus:QUESTIONable:POWER:NTRansition?	✓

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>E44xxB</b>	<b>Remarks</b>
✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	
:STATus:QUESTIONable:POWer:PTRansition <value> :STATus:QUESTIONable:POWer:PTRansition?	✓
:STATus:QUESTIONable:POWer[:EVENT] ?	✓
:STATus:QUESTIONable:PTRansition <value> :STATus:QUESTIONable:PTRansition?	✓
:STATus:QUESTIONable[:EVENT] ?	✓
<i>System Subsystem</i>	
:SYSTem:CAPability?	✓
:SYSTem:ERRor [:NEXT] ?	✓
:SYSTem:HELP:MODE SINGLE	✓ <i>Supported but the following parameter is not supported:</i> CONTinuous <i>Supported but the following query is not supported:</i> :SYSTem:HELP:MODE?
:SYSTem:LANGuage "SCPI" "COMP" "8648" :SYSTem:LANGuage?	✓ <i>Supported but the following parameters are not supported:</i> "NADC" "PDC" "PHS"
:SYSTem:PON:TYPE PRESet LAST :SYSTem:PON:TYPE?	✓
:SYSTem:PRESet	✓
:SYSTem:PRESet:ALL	✓
:SYSTem:PRESet:LANGuage "SCPI" "COMP" "8648" :SYSTem:PRESet:LANGuage?	✓ <i>Supported but the following parameters are not supported:</i> "NADC" "PDC" "PHS"
:SYSTem:PRESet:PERSISTent	✓
:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?	✓
:SYSTem:PRESet:PN9 NORMAL QUICK :SYSTem:PRESet:PN9?	✓
:SYSTem:PRESet[:USER]:SAVE	✓
:SYSTem:SSAVER:DELay <value> :SYSTem:SSAVER:DELay?	✓

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
:SYSTem:SSAVER:MODE LIGHT TEXT :SYSTem:SSAVER:MODE?	✓	
:SYSTem:SSAVER:STATE ON OFF :SYSTem:SSAVER:STATE?	✓	
:SYSTem:VERSION?	✓	
<i>Trigger Subsystem</i>		
:ABORT	✓	
:INITiate:CONTinuous[:ALL] ON OFF 1 0 :INITiate:CONTinuous[:ALL]?	✓	
:INITiate[:IMMediate] [:ALL]	✓	
:TRIGger:OUTPut:POLarity POSitive NEGative :TRIGger:OUTPut:POLarity?	✓	
:TRIGger[:SEQUence]:SLOPe POSitive NEGative :TRIGger[:SEQUence]:SLOPe?	✓	
:TRIGger[:SEQUence]:SOURce BUS IMMediate EXTernal KEY :TRIGger[:SEQUence]:SOURce?	✓	
:TRIGger[:SEQUence][:IMMediate]	✓	
[:SOURce]:TSWeep	✓	
<i>Unit Subsystem</i>		
:UNIT:POWer DBM DBUV DBUVEMF V VEMF :UNIT:POWer?	✓	
<i>Amplitude Modulation Subsystem</i>		
[:SOURce]:AM:WIDeband:STATE ON OFF 1 0 [:SOURce]:AM:WIDeband:STATE?	-	
[:SOURce]:AM[1] 2:EXTernal[1] 2:COUpling AC DC [:SOURce]:AM[1] 2:EXTernal[1] 2:COUpling?	✓	
[:SOURce]:AM[1] 2:INTernal[1]:FREQuency <value><unit> [:SOURce]:AM[1] 2:INTernal[1]:FREQuency?	✓	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :AM[1]   2:INTernal[1] :FREQuency:ALTernate <value><unit> [:SOURce] :AM[1]   2:INTernal[1] :FREQuency:ALTernate?	-	
[ <b>:SOURce</b> ] :AM[1]   2:INTernal[1] :FREQuency:ALTernate:AMPLitude: PERCent <value><unit> [:SOURce] :AM[1]   2:INTernal[1] :FREQuency:ALTernate:AMPLitude:PERCent?	-	
[ <b>:SOURce</b> ] :AM[1]   2:INTernal[1] :FUNCTION:SHAPe <enum> [:SOURce] :AM[1]   2:INTernal[1] :FUNCTION:SHAPe?	✓	
[ <b>:SOURce</b> ] :AM[1]   2:INTernal[1] :SWEep:TIME <value><unit> [:SOURce] :AM[1]   2:INTernal[1] :SWEep:TIME?	✓	
[ <b>:SOURce</b> ] :AM[1]   2:INTernal[1] :SWEep:TRIGger <enum> [:SOURce] :AM[1]   2:INTernal[1] :SWEep:TRIGger?	✓	
[ <b>:SOURce</b> ] :AM[1]   2:SOURce INT[1]   EXT1 EXT2 [:SOURce] :AM[1]   2:SOURce?	✓	
[ <b>:SOURce</b> ] :AM[1]   2:STATE ON OFF 1 0 [:SOURce] :AM[1]   2:STATE?	✓	
[ <b>:SOURce</b> ] :AM[1]   2[:DEPTH] <value><unit> [:SOURce] :AM[1]   2[:DEPTH] ?	✓	
[ <b>:SOURce</b> ] :AM[1]   2[:DEPTH] [:LINEar] :TRACK ON OFF 1 0 [:SOURce] :AM[1]   2[:DEPTH] :TRACK?	✓	
<i>AWGN ARB Subsystem</i>		
[ <b>:SOURce</b> ] :RADIO:AWGN:ARB...	-	<i>This subsystem is not supported.</i>
<i>Bluetooth Subsystem</i>		
[ <b>:SOURce</b> ] :RADIO:BLUEtooth:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Calculate Subsystem</i>		
:CALCulate:BERT:...	-	<i>This subsystem is not supported.</i>

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
<b>CDMA ARB Subsystem</b>		
[ :SOURce] :RADio:CDMA:ARB:....	-	<i>This subsystem is not supported.</i>
<b>CDMA2000 ARB Subsystem</b>		
[ :SOURce] :RADio:CDMA2000:ARB:....	-	<i>This subsystem is not supported.</i>
<b>CDMA2000 BBG Subsystem</b>		
[ :SOURce] :RADio:CDMA2000[:BBG]:....	-	<i>This subsystem is not supported.</i>
<b>Custom Subsystem</b>		
[ :SOURce] :RADio:CUSTOm:....	-	<i>This subsystem is not supported.</i>
<b>Data Subsystem</b>		
:DATA:....	-	<i>This subsystem is not supported.</i>
<b>Digital Modulation Subsystem</b>		
[ :SOURce] :BURSt:SOURce INTernal[1]	✓	<i>Supported but the following parameter is not supported: EXternal[1]</i> <i>Supported but the following query is not supported:</i> [:SOURce]:BURSt:SOURce?
[ :SOURce] :DM:BBFilter <value> THrough [:SOURce] :DM:BBFilter?	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :DM:EXTernal:POLarity NORMAL INverted [:SOURce] :DM:EXTernal:POLarity?	✓	
[ :SOURce] :BURSt:STATE ON OFF 1 0 [:SOURce] :BURSt:STATE?	✓	
[ :SOURce] :DM:EXTernal:ALC:BANDwidth BWIDth NORMAL NARRow [:SOURce] :DM:EXTernal:ALC:BANDwidth BWIDth?	✓	
[ :SOURce] :DM:EXTernal:HICRest [:STATE] ON OFF 1 0	✓	<i>Supported but the following query is not supported:</i> [:SOURce] :DM:EXTernal:HICRest [:STATE] ?

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ :SOURce] :DM:IQADjustment:Gain <value><unit> [ :SOURce] :DM:IQADjustment:Gain?	✓	
[ :SOURce] :DM:IQADjustment:IOFFset <value><unit> [ :SOURce] :DM:IQADjustment:IOFFset?	✓	
[ :SOURce] :DM:IQADjustment:QOFFset <value><unit> [ :SOURce] :DM:IQADjustment:QOFFset?	✓	
[ :SOURce] :DM:IQADjustment:QSKEw <value><unit> [ :SOURce] :DM:IQADjustment:QSKEw?	✓	
[ :SOURce] :DM:IQADjustment[:STATe] ON OFF 1 0 [ :SOURce] :DM:IQADjustment[:STATe]?	✓	
[ :SOURce] :DM:SOURce EXTERNAL INTERNAL[1] [ :SOURce] :DM:SOURce?	✓	
[ :SOURce] :DM:STATE ON OFF 1 0 [ :SOURce] :DM:STATE?	✓	
<i>Dmodulation Subsystem</i>		
[ :SOURce] :RADIO:DMODulation:...	-	<i>This subsystem is not supported.</i>
<i>Dect Subsystem</i>		
[ :SOURce] :RADIO:DECT:ALPHA...	-	<i>This subsystem is not supported.</i>
<i>Dual ARB Subsystem</i>		
[ :SOURce] :RADIO:ARB:CLIPping "<file name>", IJQ IORQ,<10-100%>	✓	
[ :SOURce] :RADIO:ARB:CLOCK:REFERENCE:EXTernal 1:FREQuency <value> [ :SOURce] :RADIO:ARB:CLOCK:REFERENCE:EXTernal 1:FREQuency?	-	
[ :SOURce] :RADIO:ARB:CLOCK:REFERENCE[:SOURce] INTERNAL EXTERNAL [ :SOURce] :RADIO:ARB:CLOCK:REFERENCE[:SOURce]?	-	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ :SOURce] :RADio:ARB:CLOCK:SRATE <value> [:SOURce] :RADio:ARB:CLOCK:SRATE?	✓	
[ :SOURce] :RADio:ARB:MARKer:CLEar "<file name>",<mkr(1 2)>,<first_point>,<last_point>	✓	
[ :SOURce] :RADio:ARB:MARKer:CLEar:ALL "<file name>",<mkr(1 2)>	✓	
[ :SOURce] :RADio:ARB:MARKer:POLarity NEGATIVE POSitive [:SOURce] :RADio:ARB:MARKer:POLarity?	✓	
[ :SOURce] :RADio:ARB:MARKer:RFBLank ON OFF 1 0 [:SOURce] :RADio:ARB:MARKer:RFBLank?	✓	
[ :SOURce] :RADio:ARB:MARKer[:SET] "<file name>",<mkr(1 2)>,<first_Point>,<last_point>,<skip_count>	✓	
[ :SOURce] :RADio:ARB:RETRigger 1 0	✓	This command is not recommended; the following command is the preferred syntax for the ESG E44xxB.
[ :SOURce] :RADio:ARB:RETRigger ON OFF [:SOURce] :RADio:ARB:RETRigger?	✓	This query for the Agilent MXG Vector Signal Generator (N5182A) only returns the string ON or OFF. This is different from the ESG E44xxB query which returns a 1 or 0.
[ :SOURce] :RADio:ARB:RFILter <value> THRough	✓	<i>Command accepted without error but does nothing.</i>  <i>The query form of the command is not compatible.</i>
[ :SOURce] :RADio:ARB:RFILter?	-	
[ :SOURce] :RADio:ARB:SCALing "<file name>",<1%-100%>	✓	
[ :SOURce] :RADio:ARB:SEQuence "<file name>","<waveform>",<reps>,<mkr1(1 0)>,<mkr2(1 0)>{,<waveform>,<rep>,<mkr1(1 0)>,<mkr2(1 0)>} [:SOURce] :RADio:ARB:SEQuence? "<file name>"	✓	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>E44xxB</b>	<b>Remarks</b>
✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	
[ :SOURce] :RADio:ARB:TRIGger:TYPE CONTinuous SINGle GATE SADVANCE [ :SOURce] .RADio:ARB:TRIGger:TYPE?	✓
[ :SOURce] :RADio:ARB:TRIGger:TYPE:GATE:ACTive LOW HIGH [ :SOURce] :RADio:ARB:TRIGger:TYPE:GATE:ACTive?	✓
[ :SOURce] :RADio:ARB:TRIGger[:SOURce] KEY EXT BUS [ :SOURce] :RADio:ARB:TRIGger[:SOURce] ?	✓
[ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: DELy <value> [ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: DELy?	✓
[ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: DELy:STATe ON OFF 1 0 [ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: DELy:STATe?	✓
[ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: SLOPe POSitive NEGative [ :SOURce] :RADio:ARB:TRIGger[:SOURce] :EXTernal: SLOPe?	✓
[ :SOURce] :RADio:ARB:WAVeform "<file name>" [ :SOURce] :RADio:ARB:WAVeform?	✓
[ :SOURce] :RADio:ARB[:STATe] ON OFF 1 0 [ :SOURce] :RADio:ARB[:STATe] ?	✓
<i>Edge Subsystem</i>	
[ :SOURce] :RADio:EDGE:...	- <i>This subsystem is not supported.</i>
<i>GSM Subsystem</i>	
[ :SOURce] :RADio:GSM:...	- <i>This subsystem is not supported.</i>
<i>Input Subsystem</i>	
:INPut:BERT[:BASEband]:...	- <i>This subsystem is not supported.</i>
<i>Measure Subsystem</i>	

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>E44xxB</b>	<b>Remarks</b>
✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	
:MEASure...	- <i>This subsystem is not supported.</i>
<i>Multi-Tone Subsystem</i>	
[ :SOURce] :RADIO:MTONE:ARB:SETup "<file name>" [:SOURce] :RADIO:MTONE:ARB:SETup?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:STORE "<file name>"	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE <freq_spacing>,<num_tones>{,<phase>, <state>} [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE:FSPacing <freq_spacing> [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE:FSPacing ?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE:NTONEs <num_tones> [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE:NTONEs?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE:PHASE:IN ITialize FIXed RANDom [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE:PHASE:IN ITialize?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE:PHASE:IN ITialize:SEED FIXed RANDom [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE:PHASE:IN ITialize:SEED?	✓
[ :SOURce] :RADIO:MTONE:ARB:SETup:TABLE:ROW <row_number>,<power>,<phase>, <state> [:SOURce] :RADIO:MTONE:ARB:SETup:TABLE:ROW? <row_number>	✓
[ :SOURce] :RADIO:MTONE:ARB [:STATE] ON OFF 1 0 [:SOURce] :RADIO:MTONE:ARB [:STATE]?	✓
<i>NADC Subsystem</i>	
[ :SOURce] :RADIO:NADC:...	- <i>This subsystem is not supported.</i>

**Table 7-1 E44xxB Program Codes and Equivalent SCPI Sequences**

<b>E44xxB</b>	<b>Remarks</b>
✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	
<i>PDC Subsystem</i>	
[ :SOURce] :RADIO:PDC:...	- <i>This subsystem is not supported.</i>
<i>PHS Subsystem</i>	
[ :SOURce] :RADIO:PHS:...	- <i>This subsystem is not supported.</i>
<i>Sense Subsystem</i>	
:SENSe:BERT:...	- <i>This subsystem is not supported.</i>
<i>Tetra Subsystem</i>	
[ :SOURce] :RADIO:TETRA:...	- <i>This subsystem is not supported.</i>
<i>Wideband CDMA ARB Subsystem</i>	
[ :SOURce] :RADIO:WCDMA:TGPP:ARB:...	- <i>This subsystem is not supported.</i>
<i>Wideband CDMA BBG Subsystem</i>	
[ :SOURce] :RADIO:WCDMa:TGPP[:BBG]:...	- <i>This subsystem is not supported.</i>

## E4428C/38C Compatible Commands

**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	N/A	Remarks
<b>System Function Commands</b>		
<i>IEEE Common Commands</i>		
*CLS	✓	
*ESE <data> *ESE?	✓	
*ESR?	✓	
*IDN?	✓	
*OPC *OPC?	✓	
*RCL <reg_num>	✓	
*RST	✓	
*SAV <reg_num>	✓	
*SRE <data> *SRE?	✓	
*STB?	✓	
*TRG	✓	
*TST?	✓	
*WAI	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	N51xxA	Remarks
<i>Calibration Subsystem</i>		
:CALibration:DCFM	✓	
:CALibration:IQ	✓	
:CALibration:IQ:DC	✓	
:CALibration:IQ:DEFault	✓	
:CALibration:IQ:FULL	✓	
:CALibration:IQ:START <value><units>	✓	
:CALibration:IQ:START?	✓	
:CALibration:IQ:STOP <value><units>	✓	
:CALibration:IQ:STOP?	✓	
:CALibration:WBIQ	-	
:CALibration:WBIQ:DC	-	
:CALibration:WBIQ:DEFault	-	
:CALibration:WBIQ:FULL	-	
:CALibration:WBIQ:START <value><units>	-	
:CALibration:WBIQ:START?	-	
:CALibration:WBIQ:STOP <value><units>	-	
:CALibration:WBIQ:STOP?	-	
<i>Communication Subsystem</i>		
:SYSTem:COMMUnicate:GPIB:ADDRess <number>	✓	
:SYSTem:COMMUnicate:GPIB:ADDRess?	✓	
:SYSTem:COMMUnicate:GTLocal	✓	
:SYSTem:COMMUnicate:LAN:CONFig DHCP MANual	✓	
:SYSTem:COMMUnicate:LAN:CONFig?	✓	
:SYSTem:COMMUnicate:LAN:GATEway <ipstring>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXA</b>	<b>Remarks</b>
:SYSTem:COMMunicate:LAN:GATEway?	✓	
:SYSTem:COMMunicate:LAN:HOSTname <string>	✓	
:SYSTem:COMMunicate:LAN:HOSTname?	✓	
:SYSTem:COMMunicate:LAN:IP <ipstring>	✓	
:SYSTem:COMMunicate:LAN:IP?	✓	
:SYSTem:COMMunicate:LAN:SUBNet <ipstring>	✓	
:SYSTem:COMMunicate:LAN:SUBNet?	✓	
:SYSTem:COMMunicate:PMETer:ADDRESS <value>	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:ADDRESS?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:CHANnel A B	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:CHANnel?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:IDN E4418B E4419B E4416A E4417A	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:IDN?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:TIMEout <num>[<time suffix>]	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:PMETer:TIMEout?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMunicate:SERial:BAUD <number>	-	
:SYSTem:COMMunicate:SERial:BAUD?	-	
:SYSTem:COMMunicate:SERial:ECHO ON OFF	-	
:SYSTem:COMMunicate:SERial:ECHO?	-	
:SYSTem:COMMunicate:SERial:RESet	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
:SYSTem:COMMunicate:SERial:TOUT <value>	-	
:SYSTem:COMMunicate:SERial:TOUT?	-	
<i>Diagnostic Subsystem</i>		
:DIAGnostic[:CPU]:INFormation:BOARDs?	-	
:DIAGnostic[:CPU]:INFormation:CCOut:ATTenuator?	✓	
:DIAGnostic[:CPU]:INFormation:CCOut:PON?	✓	
:DIAGnostic[:CPU]:INFormation:CCOut:PROTectio n?	✓	
:DIAGnostic[:CPU]:INFormation:DISPLAY:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormation:LICense:AUXiliar y?	✓	
:DIAGnostic[:CPU]:INFormation:LICense:WAVEform ?	✓	
:DIAGnostic[:CPU]:INFormation:OPTions?	✓	
:DIAGnostic[:CPU]:INFormation:OPTIONS:DETail?	✓	
:DIAGnostic[:CPU]:INFormation:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormation:REVision?	✓	
:DIAGnostic[:CPU]:INFormation:SDATE?	✓	
:DIAGnostic[:CPU]:INFormation:WLICense[:VAL ue]? <waveformType>	✓	
<i>Memory Subsystem</i>		
:MEMory:CATAlog:BINary?	✓	
:MEMory:CATAlog:BIT?	-	
:MEMory:CATAlog:CDMa?	-	
:MEMory:CATAlog:DMOD?	✓	
:MEMory:CATAlog:DWCdma?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG – = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MEMORY:CATALOG:FCDMA?	–	
:MEMORY:CATALOG:FSK?	–	
:MEMORY:CATALOG:IQ?	–	
:MEMORY:CATALOG:LIST?	–	
:MEMORY:CATALOG:MCDMA?	–	
:MEMORY:CATALOG:MDMOD?	✓	
:MEMORY:CATALOG:MDWCDMA?	–	
:MEMORY:CATALOG:MFCDMA?	–	
:MEMORY:CATALOG:MTONE?	✓	
:MEMORY:CATALOG:FIR?	✓	
:MEMORY:CATALOG:RCDMA?	–	
:MEMORY:CATALOG:SEQ?	✓	
:MEMORY:CATALOG:SHAPE?	–	
:MEMORY:CATALOG:STATE?	✓	
:MEMORY:CATALOG:UFLT?	✓	
:MEMORY:CATALOG:UPC?	–	
:MEMORY:CATALOG:UWCDMA?	–	
:MEMORY:CATALOG[:ALL]?	✓	
:MEMORY:COPY[:NAME] <"filename">,<"filename">	✓	
:MEMORY:DATA <"filename">,<.datablock>	✓	
:MEMORY:DATA? <"filename">	✓	
:MEMORY:DATA:APPEND <"filename">,<.datablock>	✓	
:MEMORY:DATA:BIT <"filename">,<bit_count>,< datablock>	–	
:MEMORY:DATA:BIT? <"filename">		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
:MEMORY:DATA:FIR <"filename">,osr,coefficient{,coefficient} :MEMORY:DATA:FIR? <"filename">	✓	
:MEMORY:DATA:FSK <"filename">,num_states,f0,f0,...[,diff_state, num_diff_states,diff0,diff1,...] :MEMORY:DATA:FSK? <"filename">	✓	
:MEMORY:DATA:PRAM[1]   2   3   4:FILE:BLOCK <"filename">,<datablock>	-	
:MEMORY:DATA:PRAM[1]   2   3   4:FILE:LIST <"filename">,<uint8>[,<uint8>,<...>]	-	
:MEMORY:DATA:IQ <"filename">,offsetQ,num_states,i0,q0,i1,q1,.. .[,diff_state,num_diff_states,diff0,diff1,...]	-	
:MEMORY:DATA:IQ? <"filename">	-	
:MEMORY:DATA:SHAPe <"filename">,num_rise_points,RP0,RP1,...num_fa ll_points,FP0,FP1,... :MEMORY:DATA:SHAPe? <"filename">	-	
:MEMORY:DATA:UNPProtected <"filename">,<datablock>	✓	
:MEMORY:DElete:ALL	✓	
:MEMORY:DElete:BINary	✓	
:MEMORY:DElete:BIT	-	
:MEMORY:DElete:CDMa	-	
:MEMORY:DElete:DMOD	✓	
:MEMORY:DElete:DWCdma	-	
:MEMORY:DElete:FCDMA	-	
:MEMORY:DElete:FIR	✓	
:MEMORY:DElete:FSK	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG – = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MEMORY:DElete:IQ	–	
:MEMORY:DElete:LIST	–	
:MEMORY:DElete:MCDMa	–	
:MEMORY:DElete:MDMod	✓	
:MEMORY:DElete:MDWCdma	–	
:MEMORY:DElete:MFCdma	–	
:MEMORY:DElete:MTOne	✓	
:MEMORY:DElete:RCDMa	–	
:MEMORY:DElete:SEQ	✓	
:MEMORY:DElete:SHApe	–	
:MEMORY:DElete:STATE	–	
:MEMORY:DElete:UFLT	✓	
:MEMORY:DElete:UPC	–	
:MEMORY:DElete:UWCDma	–	
:MEMORY:DElete[:NAME] <"filename">	✓	
:MEMORY:FREE[:ALL] ?	✓	
:MEMORY:LOAD:LIST <"filename">	✓	
:MEMORY:MOVE <src_file>,<dest_file>	✓	
:MEMORY:STATE:COMMent <reg_num>,<seq_num>,<"comment">	✓	
:MEMORY:STATE:COMMent? <reg_num>,<seq_num>	✓	
:MEMORY:STORe:LIST <"filename">	✓	
:MMEMory:CATalog? <"msus">	✓	
:MMEMory:COPY <"filename">,<"filename">	✓	
:MMEMory:DATA <"filename">,<datablock>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MMEMory:DATA? <"filename">	✓	
:MMEMory:DELetE:NWFM	✓	
:MMEMory:DELetE:WFM	✓	
:MMEMory:DELetE:WFM1	✓	
:MMEMory:DELetE[:NAME] <"filename">, [<"msus">]	✓	
:MMEMory:HEADER:CLEar <filename>	✓	
:MMEMory:HEADER:DESCription <"filename">, <"description">	✓	
:MMEMory:HEADER:DESCription? <"filename">	✓	
:MMEMory:LOAD:LIST <"filename">	✓	
:MMEMory:MOVE <src_file>,<dest_file>	✓	
:MMEMory:STORe:LIST <"filename">	✓	
<b>Output Subsystem</b>		
:OUTPut:BLANking:AUTO ON OFF 1 0	✓	
:OUTPut:BLANking:AUTO?		
:OUTPut:BLANking[:STATE] ON OFF 1 0	✓	
:OUTPut:BLANking[:STATE]?		
:OUTPut:MODulation[:STATE] ON OFF 1 0	✓	
:OUTPut:MODulation[:STATE]?		
:OUTPut:PROTection[:STATE] ON OFF 1 0	✓	
:OUTPut:PROTection[:STATE]?		
:OUTPut:SETTled:POLarity NORMal INVerted	-	
:OUTPut:SETTled:POLarity?		
:OUTPut:SETTled:RFOFF NORMal INVerted	-	
:OUTPut:SETTled:RFOFF?		
:OUTPut:SETTled[:STATE]?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
:OUTPut [:STATe] ON OFF 1 0 :OUTPut [:STATe] ?	✓	
<i>Route Subsystem</i>		
:ROUTE:HARDware:DGENerator:...	-	<i>This subsystem is not supported.</i>
<i>Status Subsystem</i>		
:STATus:OPERation:BASeband:CONDITION?	✓	
:STATus:OPERation:BASeband:ENABLE <value> :STATus:OPERation:BASeband:ENABLE?	✓	
:STATus:OPERation:BASeband:NTRansition <value> :STATus:OPERation:BASeband:NTRansition?	✓	
:STATus:OPERation:BASeband:PTRansition <value> :STATus:OPERation:BASeband:PTRansition?	✓	
:STATus:OPERation:BASeband[:EVENT] ?	✓	
:STATus:OPERation:CONDition?	✓	
:STATus:OPERation:ENABLE <value> :STATus:OPERation:ENABLE?	✓	
:STATus:OPERation:NTRansition <value> :STATus:OPERation:NTRansition?	✓	
:STATus:OPERation:PTRansition <value> :STATus:OPERation:PTRansition?	✓	
:STATus:OPERation[:EVENT] ?	✓	
:STATus:PRESet:STATus:QUESTIONable:CALibration :ENABLE <value> :STATus:QUESTIONable:CALibration:ENABLE?	✓	
:STATus:QUESTIONable:BERT:CONDITION? :STATus:QUESTIONable:BERT:ENABLE <value> :STATus:QUESTIONable:BERT:ENABLE?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	N51xxA	<b>Remarks</b>
:STATus:QUESTIONable:BERT:NTRansition <value>	-	
:STATus:QUESTIONable:BERT:NTRansition?	-	
:STATus:QUESTIONable:BERT:PTRansition <value>	-	
:STATus:QUESTIONable:BERT:PTRansition?	-	
:STATus:QUESTIONable:BERT[:EVENT]?	-	
:STATus:QUESTIONable:CALibration:CONDition?	-	
:STATus:QUESTIONable:CALibration:NTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:NTRansition?	✓	
:STATus:QUESTIONable:CALibration:PTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:PTRansition?	✓	
:STATus:QUESTIONable:CALibration[:EVENT]?	✓	
:STATus:QUESTIONable:CONDition?	✓	
:STATus:QUESTIONable:ENABLE <value>	✓	
:STATus:QUESTIONable:ENABLE?	✓	
:STATus:QUESTIONable:FREQuency:CONDition?	✓	
:STATus:QUESTIONable:FREQuency:ENABLE <value>	✓	
:STATus:QUESTIONable:FREQuency:ENABLE?	✓	
:STATus:QUESTIONable:FREQuency:NTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:NTRansition?	✓	
:STATus:QUESTIONable:FREQuency:PTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:PTRansition?	✓	
:STATus:QUESTIONable:FREQuency[:EVENT]?	✓	
:STATus:QUESTIONable:MODulation:CONDition?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
:STATus:QUESTIONable:MODulation:ENABLE <value> :STATus:QUESTIONable:MODulation:ENABLE?	-	
:STATus:QUESTIONable:MODulation:NTRansition <value> :STATus:QUESTIONable:MODulation:NTRansition?	-	
:STATus:QUESTIONable:MODulation:PTRansition <value> :STATus:QUESTIONable:MODulation:PTRansition?	-	
:STATus:QUESTIONable:MODulation[:EVENT] ?	-	
:STATus:QUESTIONable:NTRansition <value> :STATus:QUESTIONable:NTRansition?	✓	
:STATus:QUESTIONable:POWER:CONDITION?	✓	
:STATus:QUESTIONable:POWER:ENABLE <value> :STATus:QUESTIONable:POWER:ENABLE?	✓	
:STATus:QUESTIONable:POWER:NTRansition <value> :STATus:QUESTIONable:POWER:NTRansition?	✓	
:STATus:QUESTIONable:POWER:PTRansition <value> :STATus:QUESTIONable:POWER:PTRansition?	✓	
:STATus:QUESTIONable:POWER[:EVENT] ?	✓	
:STATus:QUESTIONable:PTRansition <value> :STATus:QUESTIONable:PTRansition?	✓	
:STATus:QUESTIONable[:EVENT] ?	✓	
<i>System Subsystem</i>		
:SYSTem:CAPability?	✓	
:SYSTem:DATE <year>,<month>,<day> :SYSTem:DATE?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:SYSTem:ERRor:SCPI [:SYNTAX] ON OFF 1 0 :SYSTem:ERRor:SCPI [:SYNTAX]?	✓	
:SYSTem:ERRor[:NEXT]?	✓	
:SYSTem:FILEsystem:SAFEmode ON OFF 1 0 :SYSTem:FILEsystem:SAFEmode	-	
:SYSTem:HELP:MODE SINGLE	✓	<i>Supported but the following parameter is not supported:</i> CONTinuous <i>Supported but the following query is not supported:</i> :SYSTem:HELP:MODE?
:SYSTem:IDN "string"	✓	
:SYSTem:LANGuage "SCPI" "COMP" "8648" :SYSTem:LANGuage?	✓	<i>Supported but the following parameters are not supported:</i> "8340" "8360" "83712" "83732" "83752" "8757" "8662" "8663" "NADC" "PDC" "PHS"
:SYSTem:PON:TYPE PRESet LAST :SYSTem:PON:TYPE?	✓	
:SYSTem:PRESet	✓	<i>Always performs the same action as the Preset hardkey.</i> <i>For related Preset hardkey information, refer to “:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?” on page 283</i>
:SYSTem:PRESet:ALL	✓	
:SYSTem:PRESet:LANGuage "SCPI" "COMP" "8648" :SYSTem:PRESet:LANGuage?	✓	<i>Supported but the following parameters are not supported:</i> "8340" "8360" "83712" "83732" "83752" "8757" "8662" "8663" "NADC" "PDC" "PHS"
:SYSTem:PRESet:PERSISTent	✓	
:SYSTem:PRESet:PN9 NORMAL QUICK :SYSTem:PRESet:PN9?	-	

Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences

✓ = Supported by Agilent MXG – = Not supported by Agilent MXG	✗	Remarks
:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?	✓	<p><i>This command toggles the <b>Preset</b> hardkey state between factory- and user-defined conditions.</i></p> <p><i>The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.</i></p> <hr/> <p><b>NOTE</b> If the <b>Preset</b> hardkey is not responding correctly, using the SCPI command: :SYSTem:PRESet:TYPE NORMAL will return the Preset hardkey to its default factory behavior.</p>
:SYSTem:PRESet[:USER]:SAVE	✓	
:SYSTem:SECurity:DISPlay ON OFF {1} 0 :SYSTem:SECurity:DISPlay?	✓	
:SYSTem:SECurity:ERASeall	✓	
:SYSTem:SECurity:LEVel {NONE} ERASE OVERwrite SANitize :SYSTem:SECurity:LEVel?	✓	
:SYSTem:SECurity:LEVel:STATE ON OFF 1 0 :SYSTem:SECurity:LEVel:STATE?	✓	
:SYSTem:SECurity:OVERwrite	✓	
:SYSTem:SECurity:SANitize	✓	
:SYSTem:SSAVer:DELay <value> :SYSTem:SSAVer:DELay?	✓	
:SYSTem:SSAVer:MODE LIGHT TEXT :SYSTem:SSAVer:MODE?	✓	
:SYSTem:SSAVer:STATE ON OFF :SYSTem:SSAVer:STATE?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:SYSTem:TIME <hour>,<minute>,<second>	✓	
:SYSTem:TIME?		
:SYSTem:VERSION?	✓	
<i>Trigger Subsystem</i>		
:ABORT	✓	
:INITiate:CONTinuous[:ALL] ON OFF 1 0	✓	
:INITiate:CONTinuous[:ALL]?		
:INITiate[:IMMediate] [:ALL]	✓	
:TRIGger:OUTPut:POLarity POSitive NEGative	✓	
:TRIGger:OUTPut:POLarity?		
:TRIGger[:SEQUence]:SLOPe POSitive NEGative	✓	
:TRIGger[:SEQUence]:SLOPe?		
:TRIGger[:SEQUence]:SOURce BUS IMMediate EXTernal KEY	✓	
:TRIGger[:SEQUence]:SOURce?		
:TRIGger[:SEQUence]:IMMediate	✓	
<i>Unit Subsystem</i>		
:UNIT:POWer DBM DBUV DBUVEMF V VEMF DB	✓	
:UNIT:POWer?		
<i>Amplitude Modulation Subsystem</i>		
[:SOURce]:AM:INTernal:FREQuency:STEP[:INCRement] <num>	✓	
[:SOURce]:AM:INTernal:FREQuency:STEP[:INCRement]?		
[:SOURce]:AM:MODE DEEP	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce]:AM:MODE NORMAL	✓	
[:SOURce]:AM:MODE?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ :SOURce] :AM:WIDeband:STATE OFF   0 [ :SOURce] :AM:WIDeband:STATE?	✓	
[ :SOURce] :AM[1]   2:EXTernal [1]   2:COUpling AC DC [ :SOURce] :AM[1]   2:EXTernal [1]   2:COUpling?	✓	
[ :SOURce] :AM[1]   2:EXTernal [1]   2:IMPedance <50 600> [ :SOURce] :AM[1]   2:EXTernal [1]   2:IMPedance?	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :AM[1]   2:INTERNAL [1] :FREQuency:ALTernate <value><unit> [ :SOURce] :AM[1]   2:INTERNAL [1] :FREQuency:ALTernate?	-	
[ :SOURce] :AM[1]   2:INTERNAL [1] :FREQuency:ALTernate:AMPLitude:PERCent <value><unit> [ :SOURce] :AM[1]   2:INTERNAL [1] :FREQuency:ALTernate:AMPLitude:PERCent?	-	
[ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:SHAPE SINE [ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:SHAPE ?	✓	<i>Supported but the following parameters are not supported:</i> "TRIangle"   "SQUare"   "RAMP"   "NOISe"   "DUALsine"   "SWEPtsine"
[ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:NOISe GAUSSian UNIForm [ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:NOISe ?	-	
[ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:RAMP POSITIVE NEGATIVE [ :SOURce] :AM[1]   2:INTERNAL [1]   2:FUNCTION:RAMP?	-	
[ :SOURce] :AM[1]   2:INTERNAL [1] :SWEep:RATE <value><unit> [ :SOURce] :AM[1]   2:INTERNAL [1] :SWEep:RATE?	-	
[ :SOURce] :AM[1]   2:INTERNAL [1] :SWEep:TIME <value><unit> [ :SOURce] :AM[1]   2:INTERNAL [1] :SWEep:TIME?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :AM[1]   2 :INTernal[1] :SWEep:TRIGger IMMediate   KEY   EXTERNAL   BUS	-	
[ <b>:SOURce</b> ] :AM[1]   2 :INTernal[1] :SWEep:TRIGger?		
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] :EXPonential <value>	-	
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] :EXPonential?		
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] [:LINEar] :TRACK ON   OFF   1   0	-	
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] [:LINEar] :TRACK?		
[ <b>:SOURce</b> ] :AM[1]   2 :INTernal[1]   2 :FREQuency <value><unit>   UP   DOWN	✓	
[ <b>:SOURce</b> ] :AM[1]   2 :INTernal[1]   2 :FREQuency?		
[ <b>:SOURce</b> ] :AM[1]   2 :POLarity NORMAL   INverted	✓	
[ <b>:SOURce</b> ] :AM[1]   2 :POLarity?		
[ <b>:SOURce</b> ] :AM[1]   2 :SOURce INT[1]   INT2   EXT[1]   EXT2	✓	<i>The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
[ <b>:SOURce</b> ] :AM[1]   2 :STATE ON   OFF   1   0	✓	
[ <b>:SOURce</b> ] :AM[1]   2 :STATE?		
[ <b>:SOURce</b> ] :AM:WIDeband:SENSitivity <value>	-	
[ <b>:SOURce</b> ] :AM:WIDeband:SENSitivity?		
[ <b>:SOURce</b> ] :AM:WIDeband:STATE ON   1	-	
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] [:LINEar] <value><unit>   UP   DOWN	✓	
[ <b>:SOURce</b> ] :AM[1]   2 [:DEPTH] [:LINEar]?		
[ <b>:SOURce</b> ] :AM[:DEPTH] :STEP [:INCREMENT] <value><unit>	✓	
[ <b>:SOURce</b> ] :AM[:DEPTH] :STEP [:INCREMENT]?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
<i>Frequency Subsystem</i>		
[ :SOURce] :FREQuency:CENTER <num> [<freq suffix>]  MAXimum MINimum UP DOWN [ :SOURce] :FREQuency:CENTER? [MAXimum MINimum]	✓	
[ :SOURce] :FREQuency:CHANnels:BAND NBASe NMOBile BPGSm MPGSm BEGSm MEGSm BRGSm MRGSm GM450 M480 M850 B450 B480 B850BDCS MDCS BPCS MPCS B8 M8 B15 M15 B390 B420 B460 B915 M380 M410 M450 M870 PHS DECT [ :SOURce] :FREQuency:CHANnels:BAND?	✓	
[ :SOURce] :FREQuency:CHANnels:NUMBER <number> [ :SOURce] :FREQuency:CHANnels:NUMBER?	✓	
[ :SOURce] :FREQuency:CHANnels[:STATe] ON OFF 1 0 [ :SOURce] :FREQuency:CHANnels[:STATe]?	✓	
[ :SOURce] :FREQuency:FIXed <value><unit>  UP DOWN [ :SOURce] :FREQuency:FIXed?	✓	
[ :SOURce] :FREQuency:MANual <value><unit> [ :SOURce] :FREQuency:MANual?	-	
[ :SOURce] :FREQuency:MODE FIXed CW SWEep LIST [ :SOURce] :FREQuency:MODE?	✓	
[ :SOURce] :FREQuency:MULTiplier <value> [ :SOURce] :FREQuency:MULTiplier?	✓	
[ :SOURce] :FREQuency:OFFSet <value><unit> [ :SOURce] :FREQuency:OFFSet?	✓	
[ :SOURce] :FREQuency:OFFSet:STATe ON OFF [ :SOURce] :FREQuency:OFFSet:STATe?	✓	
[ :SOURce] :FREQuency:REFerence <value><unit> [ :SOURce] :FREQuency:REFerence?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	N5181A	Remarks
[ :SOURce] :FREQuency:REFerence:SET	✓	
[ :SOURce] :FREQuency:REFerence:STATE ON OFF 1 0	✓	
[ :SOURce] :FREQuency:REFerence:STATE?	✓	
[ :SOURce] :FREQuency:SPAN <num> [<freq suffix>]  MAXimum MINimum UP DOWN	✓	
[ :SOURce] :FREQuency:SPAN? [MAXimum MINimum]	✓	
[ :SOURce] :FREQuency:STARt <value><unit>	✓	
[ :SOURce] :FREQuency:STARt?	✓	
[ :SOURce] :FREQuency:STOP <value><unit>	✓	
[ :SOURce] :FREQuency:STOP?	✓	
[ :SOURce] :FREQuency:SYNTesis <value>	-	
[ :SOURce] :FREQuency:SYNTesis?	-	
[ :SOURce] :FREQuency[:CW] <value><unit>  UP DOWN	✓	
[ :SOURce] :FREQuency[:CW]?	✓	
[ :SOURce] :FREQuency[:CW]:STEP[:INCRement] <value><unit>	✓	
[ :SOURce] :FREQuency[:CW]:STEP[:INCRement]?	✓	
[ :SOURce] :FREQuency[:FIXed]:STEP[:INCRement] <value><unit>	✓	
[ :SOURce] :FREQuency[:FIXed]:STEP[:INCRement]?	✓	
[ :SOURce] :PHASe:REFerence	✓	
[ :SOURce] :PHASe[:ADJust] <value><unit>	✓	
[ :SOURce] :PHASe[:ADJust]?	✓	
[ :SOURce] :ROSCillator:BANDwidth:DEFaults	-	
[ :SOURce] :ROSCillator:BANDwidth:EXTernal <value>	✓	
[ :SOURce] :ROSCillator:BANDwidth:EXTernal?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VxxA</b>	<b>Remarks</b>
[ :SOURce] :ROSCillator:BANDwidth:INTERNAL <value>	-	
[ :SOURce] :ROSCillator:BANDwidth:INTERNAL?		
[ :SOURce] :ROSCillator:SOURce?	✓	
[ :SOURce] :ROSCillator:SOURce:AUTO ON OFF 1 0	✓	
[ :SOURce] :ROSCillator:SOURce:AUTO?		
<i>Frequency Modulation Subsystem</i>		
[ :SOURce] :FM[1]   2:EXTernal[1]   2:COUpling AC DC	✓	
[ :SOURce] :FM[1]   2:EXTernal[1]   2:COUpling?		
[ :SOURce] :FM[1]   2:EXTernal[1]   2:IMPedance <50 600>	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :FM[1]   2:EXTernal[1]   2:IMPedance?		
[ :SOURce] :FM:INTERNAL:FREQuency:STEP [:INCRement] <num>	✓	
[ :SOURce] :FM:INTERNAL:FREQuency:STEP [:INCRement]?		
[ :SOURce] :FM[1]   2:INTERNAL[1] :FUNCTION:SHAPE SINE	✓	<i>Supported but the following parameters are not supported: TRIangle SQUare RAMP NOISE DUALsine SWEPtsine</i>
[ :SOURce] :FM[1]   2:INTERNAL[1] :FUNCTION:SHAPE?		
[ :SOURce] :FM[1]   2:INTERNAL[1]   2:FREQuency <value><unit>	✓	
[ :SOURce] :FM[1]   2:INTERNAL[1]   2:FREQuency?		
[ :SOURce] :FM[1]   2:INTERNAL[1] :FREQuency:ALTernate <value><unit>	-	
[ :SOURce] :FM[1]   2:INTERNAL[1] :FREQuency:ALTernate?		
[ :SOURce] :FM[1]   2:INTERNAL[1] :FREQuency:ALTernate:AMPLitude:PERCent <value><unit>	-	
[ :SOURce] :FM[1]   2:INTERNAL[1] :FREQuency:ALTernate:AMPLitude:PERCent?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1]   2:FUNCTION:NOISE GAUSSian UNIFORM	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1]   2:FUNCTION:NOISE?	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1]   2:FUNCTION:RAMP POSitive NEGative	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1]   2:FUNCTION:RAMP?	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:RATE <value><unit>	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:RATE?	-	
[ <b>:SOURce</b> ] :FM[1]   2:SOURce INT[1] INT2 EXT[1] EXT2	✓	The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.
[ <b>:SOURce</b> ] :FM[1]   2:SOURce?		
[ <b>:SOURce</b> ] :FM[1]   2[:DEViation] <value><unit>	✓	
[ <b>:SOURce</b> ] :FM[1]   2[:DEViation]?	✓	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:TIME <value><unit>	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:TIME?	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:TRIGger IMMEDIATE KEY EXTERNAL BUS	-	
[ <b>:SOURce</b> ] :FM[1]   2:INTernal[1] :SWEep:TRIGger?	-	
[ <b>:SOURce</b> ] :FM[1]   2[:DEViation]:TRACK ON OFF 1 0	-	
[ <b>:SOURce</b> ] :FM[1]   2[:DEViation]:TRACK?	-	
<i>List/Sweep Subsystem</i>		
[ <b>:SOURce</b> ] :LIST:DIRECTION UP DOWN	✓	
[ <b>:SOURce</b> ] :LIST:DIRECTION?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ :SOURce] :LIST:DWELL <value>{,<value>}	✓	
[ :SOURce] :LIST:DWELL?	✓	
[ :SOURce] :LIST:DWELL:POINTs?	✓	
[ :SOURce] :LIST:DWELL:TYPE LIST STEP	✓	
[ :SOURce] :LIST:DWELL:TYPE?		
[ :SOURce] :LIST:FREQuency <value>{,<value>}	✓	
[ :SOURce] :LIST:FREQuency?		
[ :SOURce] :LIST:FREQuency:POINTs?	✓	
[ :SOURce] :LIST:MANual <value> UP DOWN	✓	
[ :SOURce] :LIST:MANual?		
[ :SOURce] :LIST:MODE AUTO MANual	✓	
[ :SOURce] :LIST:MODE?		
[ :SOURce] :LIST:POWer <value>{,<value>}	✓	
[ :SOURce] :LIST:POWer?		
[ :SOURce] :LIST:POWer:POINTs?	✓	
[ :SOURce] :LIST:RETRace ON OFF 0 1	✓	
[ :SOURce] :LIST:RETRace?		
[ :SOURce] :LIST:TRIGger:SOURce BUS IMMEDIATE EXTernal KEY	✓	
[ :SOURce] :LIST:TRIGger:SOURce?		
[ :SOURce] :LIST:TYPE LIST STEP	✓	
[ :SOURce] :LIST:TYPE?		
[ :SOURce] :LIST:TYPE:LIST:INITialize:FSTep	✓	
[ :SOURce] :LIST:TYPE:LIST:INITialize:PRESet	✓	
[ :SOURce] :SWEep:CONTrol:STATE ON OFF 1 0	-	
[ :SOURce] :SWEep:CONTrol:STATE?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
[ :SOURce] :SWEep:CONTrol:TYPE MASTer SLAVe	-	
[ :SOURce] :SWEep:CONTrol:TYPE?		
[ :SOURce] :SWEep:DWELL <value>	✓	
[ :SOURce] :SWEep:DWELL?		
[ :SOURce] :SWEep:GENeration ANALog STEPped	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :SWEep:GENeration?		
[ :SOURce] :SWEep:MODE AUTO MAnUAL	✓	
[ :SOURce] :SWEep:MODE?		
[ :SOURce] :SWEep:POINTs <value>	✓	
[ :SOURce] :SWEep:POINTs?		
[ :SOURce] :SWEep:TIME 10mS - 99S	✓	
[ :SOURce] :SWEep:TIME?		
[ :SOURce] :SWEep:TIME:AUTO ON OFF 0 1	✓	
[ :SOURce] :SWEep:TIME:AUTO?		
<i>Low Frequency Output Subsystem</i>		
[ :SOURce] :LFOoutput:...	-	<i>This subsystem is not supported.</i>
<i>Phase Modulation Subsystem</i>		
[ :SOURce] :PM[1] 2:INTERNAL[1]:FREQuency:ALTerate <value><unit>	-	
[ :SOURce] :PM[1] 2:INTERNAL[1]:FREQuency:ALTerate?		
[ :SOURce] :PM[1] 2:INTERNAL[1]:FREQuency:ALTerate:AMPLitude:PERCent <value><unit>	-	
[ :SOURce] :PM[1] 2:INTERNAL[1]:FREQuency:ALTerate:AMPLitude:PERCent?		
[ :SOURce] :PM:INTERNAL:FREQuency:STEP [:INCRement]	✓	
[ :SOURce] :PM:INTERNAL:FREQuency:STEP [:INCRement]?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>▀</b>	<b>Remarks</b>
[ :SOURce] :PM[1]   2:BANDwidth BWIDth NORMAL HIGH [ :SOURce] :PM[1]   2:BANDwidth BWIDth?	✓	
[ :SOURce] :PM[1]   2:EXTernal [1] :COUpling AC DC [ :SOURce] :PM[1]   2:EXTernal [1] :COUpling?	✓	
[ :SOURce] :PM[1]   2:EXTernal [1]   2:IMPedance <50 600> [ :SOURce] :PM[1]   2:EXTernal [1]   2:IMPedance?	✓	
[ :SOURce] :PM[1]   2:INTERNAL [1]   2:FREQuency <value><unit> [ :SOURce] :PM[1]   2:INTERNAL [1]   2:FREQuency?	✓	
[ :SOURce] :PM[1]   2:INTERNAL [1]   2:FUNCTION:NOISE GAUSSian UNIFORM [ :SOURce] :PM[1]   2:INTERNAL [1]   2:FUNCTION:NOISE ?	-	
[ :SOURce] :PM[1]   2:INTERNAL [1]   2:FUNCTION:RAMP POSITIVE NEGATIVE [ :SOURce] :PM[1]   2:INTERNAL [1]   2:FUNCTION:RAMP?	-	
[ :SOURce] :PM[1]   2:INTERNAL [1] :FUNCTION:SHAPE SINE [ :SOURce] :PM[1]   2:INTERNAL [1] :FUNCTION:SHAPE?	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUARE RAMP NOISE DUALSine  SWEPtsine
[ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:RATE <value><unit> [ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:RATE?	-	
[ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:TIME <value><unit> [ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:TIME?	-	
[ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:TRIGGER IMMEDIATE KEY EXTernal BUS [ :SOURce] :PM[1]   2:INTERNAL [1] :SWEep:TRIGger?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :PM[1]   2[:DEViation] :TRACK ON OFF 1 0 [ <b>:SOURce</b> ] :PM[1]   2[:DEViation] :TRACK?	-	
[ <b>:SOURce</b> ] :PM[1]   2:SOURce INT[1]   INT2   EXT[1]   EXT2 [ <b>:SOURce</b> ] :PM[1]   2:SOURce?	✓	<i>The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
[ <b>:SOURce</b> ] :PM[1]   2:STATE ON OFF 1 0 [ <b>:SOURce</b> ] :PM[1]   2:STATE?	✓	
[ <b>:SOURce</b> ] :PM[1]   2[:DEViation] <value><unit> [ <b>:SOURce</b> ] :PM[1]   2[:DEViation]?	✓	
[ <b>:SOURce</b> ] :PM[:DEViation] :STEP[:INCRement] <value><unit> [ <b>:SOURce</b> ] :PM[:DEViation] :STEP[:INCRement]?	✓	
<b>Power Subsystem</b>		
[ <b>:SOURce</b> ] :POWeR:ALC:BANDwidth BWIDth <num>[freq suffix] [ <b>:SOURce</b> ] :POWeR:ALC:BANDwidth BWIDth?	-	
[ <b>:SOURce</b> ] :POWeR:ALC:BANDwidth BWIDth:AUTO ON OFF 1 0 [ <b>:SOURce</b> ] :POWeR:ALC:BANDwidth BWIDth:AUTO?	✓	<i>Command accepted without error but does nothing.</i>
[ <b>:SOURce</b> ] :POWeR:ALC:LEVel <value>dB [ <b>:SOURce</b> ] :POWeR:ALC:LEVel?	✓	
[ <b>:SOURce</b> ] :POWeR:ALC:SEARch ON OFF 1 0 ONCE [ <b>:SOURce</b> ] :POWeR:ALC:SEARch?	✓	
[ <b>:SOURce</b> ] :POWeR:ALC:SEARch:REFerence FIXed MODulated [ <b>:SOURce</b> ] :POWeR:ALC:SEARch:REFerence?	✓	
[ <b>:SOURce</b> ] :POWeR:ALC:SEARch:SPAN:POINTS <value> [ <b>:SOURce</b> ] :POWeR:ALC:SEARch:SPAN:POINTS?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ :SOURce] :POWer:ALC:SEARch:SPAN:START <value><units> [ :SOURce] :POWer:ALC:SEARch:SPAN:START?	✓	
[ :SOURce] :POWer:ALC:SEARch:SPAN:STOP <value><units> [ :SOURce] :POWer:ALC:SEARch:SPAN:STOP?	✓	
[ :SOURce] :POWer:ALC:SEARch:SPAN:TYPE FULL USER [ :SOURce] :POWer:ALC:SEARch:SPAN:TYPE?	✓	
[ :SOURce] :POWer:ALC:SEARch:SPAN[:STATE] ON OFF 1 0 [ :SOURce] :POWer:ALC:SEARch:SPAN[:STATE]?	✓	
[ :SOURce] :POWer:ALC:SOURce INTERNAL DIODe MMHead [ :SOURce] :POWer:ALC:SOURce?	✓	<i>Supported on the N5183A only. But the following parameter is not supported: MMHead.</i>
[ :SOURce] :POWer:ALC:SOURce:EXTernal:COUpling (0dB-32dB) [ :SOURce] :POWer:ALC:SOURce:EXTernal:COUpling?	-	
[ :SOURce] :POWer:ALC[:STATE] ON OFF 1 0 [ :SOURce] :POWer:ALC[:STATE]?	✓	
[ :SOURce] :POWer:ALTernate:AMPLitude <value>dB [ :SOURce] :POWer:ALTernate:AMPLitude?	-	
[ :SOURce] :POWer:ALTernate:MANual MAIN DELTa [ :SOURce] :POWer:ALTernate:MANual?	-	
[ :SOURce] :POWer:ALTernate:STATE ON OFF 1 0 [ :SOURce] :POWer:ALTernate:STATE?	-	
[ :SOURce] :POWer:ALTernate:TRIGger[:SOURce] INTERNAL EXTERNAL MANual [ :SOURce] :POWer:ALTernate:TRIGger[:SOURce]?	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	N5181A	Remarks
[:SOURce] :POWeR:ATTenuation <value><unit>	✓	
[:SOURce] :POWeR:ATTenuation?	✓	
[:SOURce] :POWeR:ATTenuation:AUTO ON OFF 1 0	✓	
[:SOURce] :POWeR:ATTenuation:AUTO?	✓	
[:SOURce] :POWeR:MODE FIXed LIST SWEep	✓	
[:SOURce] :POWeR:MODE?	✓	
[:SOURce] :POWeR:PROTection[:STATe] ON OFF 1 0	✓	
[:SOURce] :POWeR:PROTection[:STATe]?	✓	
[:SOURce] :POWeR:REFerence <value><unit>	✓	
[:SOURce] :POWeR:REFerence?	✓	
[:SOURce] :POWeR:REFerence:STATe ON OFF 1 0	✓	
[:SOURce] :POWeR:REFerence:STATe?	✓	
[:SOURce] :POWeR:START <value><unit>	✓	
[:SOURce] :POWeR:START?	✓	
[:SOURce] :POWeR:STOP <value><unit>	✓	
[:SOURce] :POWeR:STOP?	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] :OFFSet <value><unit>	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] :OFFSet?	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude] <value><unit>  UP DOWN	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude]?	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude] :STEP [:INCREMENT] <value>	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude] :STEP [:INCREMENT]?	✓	
<i>Pulse Modulation Subsystem</i>		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ :SOURce] :PULM:EXTernal:POLarity NORMAL   INVerted [ :SOURce] :PULM:EXTernal:POLarity?	✓	
[ :SOURce] :PULM:INTERNAL[1]:DELay <delay> UP DOWN [ :SOURce] :PULM:INTERNAL[1]:DELay? [UP DOWN]	✓	
[ :SOURce] :PULM:INTERNAL[1]:DELay:STEP <step> [ :SOURce] :PULM:INTERNAL[1]:DELay:STEP?	✓	
[ :SOURce] :PULM:INTERNAL[1]:FREQuency <frequency> MAXimum MINimum UP DOWN [ :SOURce] :PULM:INTERNAL[1]:FREQuency?	✓	
[ :SOURce] :PULM:INTERNAL[1]:FREQuency:STEP [:INC Rement] <freq> MAXimum MINimum DEFault [ :SOURce] :PULM:INTERNAL[1]:FREQuency:STEP [:INC Rement]? [MIN MAX DEF]	✓	
[ :SOURce] :PULM:INTERNAL[1]:FUNCTION:SHAPe SQUARE PULSE [ :SOURce] :PULM:INTERNAL[1]:FUNCTION:SHAPe?	✓	
[ :SOURce] :PULM:INTERNAL[1]:PERiod <period> MAXimum MINimum UP DOWN [ :SOURce] :PULM:INTERNAL[1]:PERiod?	✓	
[ :SOURce] :PULM:INTERNAL[1]:PERiod:STEP [:INCRem ent] <step> UP DOWN [ :SOURce] :PULM:INTERNAL[1]:PERiod:STEP [:INCRem ent]?	✓	
[ :SOURce] :PULM:INTERNAL[1]:PWIDth <width> [ :SOURce] :PULM:INTERNAL[1]:PWIDth?	✓	
[ :SOURce] :PULM:INTERNAL[1]:PWIDth:STEP <step> DEFault MAXimum MINimum [ :SOURce] :PULM:INTERNAL[1]:PWIDth:STEP?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ :SOURce] :PULM:SOURce INT EXT[1] EXT2 [:SOURce] :PULM:SOURce?	✓	<i>Supported but the following parameters are not supported:  SCALar </i> <i>Also, the Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
[ :SOURce] :PULM:SOURce:INTERNAL SQuare FRUN TRIGgered DOUBlet GATED [:SOURce] :PULM:SOURce:INTERNAL?	✓	
[ :SOURce] :PULM:STATe ON OFF 1 0 [:SOURce] :PULM:STATe?	✓	
<b>Digital Function Commands</b>		
<i>All Modulation Subsystem</i>		
[ :SOURce] :RADIo[1]:ALL:OFF	✓	
<i>AWGN ARB Subsystem</i>		
[ :SOURce] :RADIo[1]:AWGN...	-	<i>This subsystem is not supported.</i>
<i>AWGN Real Time Subsystem</i>		
[ :SOURce] :RADIo:AWGN:RT:BWIDth <val> [:SOURce] :RADIo:AWGN:RT:BWIDth?	✓	
[ :SOURce] :RADIo:AWGN:RT[:STATe] ON OFF 1 0 [:SOURce] :RADIo:AWGN:RT[:STATe]?	✓	
<i>Bluetooth Subsystem</i>		
[ :SOURce] :RADIo[1]:BLUETOOTH:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Calculate Subsystem</i>		
:CALCulate:BERT:BTS:LOOPback:...	-	<i>This subsystem is not supported.</i>
<i>CDMA ARB Subsystem</i>		
[ :SOURce] :RADIo[1]:CDMA:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Custom Subsystem</i>		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
<code>[ :SOURce] :RADio[1] :CUSTom:...</code>	-	<i>This subsystem is not supported.</i>
<b>Data Subsystem</b>		
<code>:DATA:BERT:...</code>	-	<i>This subsystem is not supported.</i>
<b>DECT Subsystem</b>		
<code>[ :SOURce] :RADio[1] :DECT:...</code>	-	<i>This subsystem is not supported.</i>
<b>Dmodulation Subsystem</b>		
<code>[ :SOURce] :RADio:DMODulation:ARB:FILTer RNYQuist NYQuist GAUSSian RECTangle IS95 IS 95_EQ IS95_MOD IS95_EQ WCDMA AC4Fm IS20 00SR3DS UGaussian "user FIR" [ :SOURce] :RADio:DMODulation:ARB:FILTer?</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:FILTer:ALPHa &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:FILTer:ALPHa?</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:FILTer:BBT &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:FILTer:BBT?</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:FILTer:CHANnel EVM ACP [ :SOURce] :RADio:DMODulation:ARB:FILTer:CHANnel ?</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:HEADER:CLEar</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:HEADER:SAVE</code>	✓	
<code>[ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FI LTer 40e6 THrough [ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FI LTer?</code>	✓	<i>Command accepted without error but does nothing. Queries return a fixed valid answer.</i>
<code>[ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FI LTer:AUTO ON OFF 1 0 [ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FI LTer:AUTO?</code>	✓	<i>Command accepted without error but does nothing. Queries return a fixed valid answer.</i>

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation: ATTen &lt;val&gt;&lt;unit&gt; [:SOURce] :RADio:DMODulation:ARB:IQ:MODulation: ATTen?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation: ATTen:AUTO ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB:IQ:MODulation: ATTen:AUTO?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer 2.1e6 40e6 THrough [:SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer?</pre>	✓	<i>Command accepted without error but does nothing.</i> <i>Queries return a fixed valid answer.</i>
<pre>[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer:AUTO ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer:AUTO?</pre>	✓	<i>Command accepted without error but does nothing.</i> <i>Queries return a fixed valid answer.</i>
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:A AMplitude {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:A AMplitude?</pre>	-	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:A LCHold {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:A LCHold?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:P ULSe {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:P ULSe?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MODulation:ASK [:DEPTH] &lt;0% - {100%}&gt; [:SOURce] :RADio:DMODulation:ARB:MODulation:ASK [:DEPTH] ?</pre>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	▼	Remarks
<code>[::SOURce] :RADio:DMODulation:ARB:MODulation:FSK</code> <code>[::DEViation] &lt;val&gt;&lt;unit&gt;</code> <code>[::SOURce] :RADio:DMODulation:ARB:MODulation:FSK</code> <code>[::DEViation]?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:MODulation[:TYPE]</code> ASK BPSK QPSK IS95QPSK GRAYQPSK OQPSK IS95QPSK P4DQPSK PSK8 PSK16 D8PSK EDGE MSK FSK2 FSK4 FSK8 FSK16 C4FM QAM4 QAM16 QAM32 QAM64 QAM128 QAM256 <code>[::SOURce] :RADio:DMODulation:ARB:MODulation[:TYPE]?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:MPOLarity:MARKer1 2 3 4 NEGative {POSitive}</code> <code>[::SOURce] :RADio:DMODulation:ARB:MPOLarity:MARKer1 2 3 4?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:REference:EXTernal:FREQuency &lt;value&gt;</code> <code>[::SOURce] :RADio:DMODulation:ARB:REference:EXTernal:FREQuency?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:REference[:SOURce] INTernal EXTernal</code> <code>[::SOURce] :RADio:DMODulation:ARB:REference[:SOURce]?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:RETrigger ON OFF IMMediate</code> <code>[::SOURce] :RADio:DMODulation:ARB:RETrigger?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:SClock:RATE &lt;1Hz - 1.0e8 kHz {1.0e8 kHz}&gt;</code> <code>[::SOURce] :RADio:DMODulation:ARB:SClock:RATE?</code>	✓	
<code>[::SOURce] :RADio:DMODulation:ARB:SETup GSM NADC PDC PHS DECT AC4Fm ACQPsk CDPD PWT EDGE TETRA MCArrier "file name"</code> <code>[::SOURce] :RADio:DMODulation:ARB:SETup?</code>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier (GSM NADC PDC PHS DECT AC4Fm ACQPsK CDPD PWT EDGE TETRA,&lt;num carriers&gt;,&lt;freq spacing&gt;)   "file name" [ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier ?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :PHASE {FIXed} RANDOM [ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :PHASE?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :STORE "file name"</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE INIT APPend &lt;carrier_num&gt;,GSM NADC PDC PHS DEC T AC4Fm ACQPsK CDPD PWT EDGE TETRA "file name",&lt;freq_offset&gt;,&lt;power&gt; [ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE? &lt;carrier_num&gt;</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE:NCARriers?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:STORE "file name" [ :SOURce] :RADio:DMODulation:ARB:SRATE &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:SRATE?</pre>	-	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE :CONTinuous[:TYPE] FREE TRIGger RESET [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE :CONTinuous[:TYPE]?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE CONTinuous SINGLE GATE [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE:G ATE LOW HIGH [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE:G ATE?</pre>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB:TRIGger[:SOURce] KEY BUS EXT [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce]?	✓	
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay <value> [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay?	✓	
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE?	✓	
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:SLOPe POSitive NEGative [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:SLOPe?	✓	
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal[:SOURce] EPT1 EPT2 EPTRIGGER1 EPTRIGGER2 [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal[:SOURce]?	✓	
[ <b>:SOURce</b> ] :RADio:DMODulation:ARB[:STATE] ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB[:STATE]?	✓	
<i>Digital Subsystem</i>		
:DIGItal...	-	<i>This subsystem is not supported.</i>
<i>Digital Modulation Subsystem</i>		
[ <b>:SOURce</b> ] :BURSt:SOURce INTERNAL[1]	✓	<i>Supported but the following parameter is not supported: EXTERNAL[1]</i> <i>Supported but the following query is not supported:</i> [:SOURce]:BURSt:SOURce?
[ <b>:SOURce</b> ] :BURSt:STATE ON OFF 1 0 [:SOURce] :BURSt:STATE?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ :SOURce] :BURSt:TYPE:EXT LOG LIN	-	
[ :SOURce] :BURSt:TYPE:EXT?	-	
[ :SOURce] :BURSt:TYPE:INT LOG LIN	-	
[ :SOURce] :BURSt:TYPE:INT?	-	
[ :SOURce] :BURSt:TYPE[:ALL] LOG LIN	-	
[ :SOURce] :DM:EXTernal:FILT <sub>er</sub> 40e6 THrough	✓	<i>Commands are accepted without error by the signal generator, but no action occurs. But the following query is not supported:</i> [ :SOURce] :DM:EXTernal:FILT <sub>er</sub> ? If the query is used, , the following error is generated: -113, Undefined header
[ :SOURce] :DM:EXTernal:FILT <sub>er</sub> :AUTO ON OFF 1 0	✓	Supported but the following query is not supported: [ :SOURce] :DM:EXTernal:FILT <sub>er</sub> :AUTO? If the query is used, , the following error is generated: -113, Undefined header
[ :SOURce] :DM:EXTernal:HCRest [:STATE] ON OFF 1 0	✓	
[ :SOURce] :DM:EXTernal:HCRest [:STATE]?		
[ :SOURce] :DM:EXTernal:POLarity NORMal INVert INVerted	✓	
[ :SOURce] :DM:EXTernal:POLarity?		
[ :SOURce] :DM:EXTernal:SOURce EXTernal INTernal BBG1 OFF SUM	✓	<i>Supported but the following parameters are not supported:</i>  BBG2 BBG3 BBG4 EXT600
[ :SOURce] :DM:EXTernal:SOURce?		
[ :SOURce] :DM:IQADjustment:BBG[1]  2:DELay <value><unit>	✓	
[ :SOURce] :DM:IQADjustment:BBG[1]  2:DELay?		
[ :SOURce] :DM:IQADjustment:BBG[1]  2:DELay:EVENT s ON OFF 1 0	✓	
[ :SOURce] :DM:IQADjustment:BBG[1]  2:DELay:EVENT s?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW:PATH {RF}   BB [ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW:PATH?	✓	
[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW[:DElay] ] <value><unit> [ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW[:DElay] ] ?	✓	
[ :SOURce] :DM:IQADjustment:EXTernal:COFFset <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:COFFset?	✓	
[ :SOURce] :DM:IQADjustment:EXTernal:DIOFFset <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:DIOFFset?	✓	
[ :SOURce] :DM:IQADjustment:EXTernal:DQOFFset <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:DQOFFset?	✓	
[ :SOURce] :DM:IQADjustment:EXTernal:IOFFset <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:IOFFset?	✓	
[ :SOURce] :DM:IQADjustment:EXTernal:IQATTen <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:IQATTen?	-	
[ :SOURce] :DM:IQADjustment:EXTernal:QOFFset <value><unit> [ :SOURce] :DM:IQADjustment:EXTernal:QOFFset?	✓	
[ :SOURce] :DM:IQADjustment:GAIN? [ :SOURce] :DM:IQADjustment:GAIN[1 2] <value><unit>	✓	
[ :SOURce] :DM:IQADjustment:IOFFset <value><unit> [ :SOURce] :DM:IQADjustment:IOFFset?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce] :DM:IQADjustment:QOFFset <value><unit>	✓	
[:SOURce] :DM:IQADjustment:QOFFset?	✓	
[:SOURce] :DM:IQADjustment:QSKEw <value><unit>	✓	
[:SOURce] :DM:IQADjustment:QSKEw?	✓	
[:SOURce] :DM:IQADjustment [:STATe] ON OFF 1 0	✓	
[:SOURce] :DM:IQADjustment [:STATe] ?	✓	
[:SOURce] :DM:MODulation:ATTen <value><unit>	✓	
[:SOURce] :DM:MODulation:ATTen?	✓	
[:SOURce] :DM:MODulation:ATTen:AUTO ON OFF 1 0	✓	
[:SOURce] :DM:MODulation:ATTen:AUTO?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal DEFault MANual MEASure	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel <value> <volt_units>	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel:MEAsurement	✓	
[:SOURce] :DM:MODulation:ATTen:OPTimize:BANDwidth <value> <bw_rate_units>	✓	
[:SOURce] :DM:MODulation:ATTen:OPTimize:BANDwidth?	✓	
[:SOURce] :DM:MODulation:FILTer THrough	✓	<i>Supported but the following query generates an error: -113, Undefined header: [:SOURce] :DM:MODulation:FILTer?</i>

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[ :SOURce] :DM:MODulation:FILTer:AUTO ON OFF 1 0 2.1e6 40e6	✓	<i>Commands are accepted by the signal generator, but no action is taken. The following query is not supported:</i> [:SOURce] :DM:MODulation:FILTer:AUTO? <i>(If the query is used, an error -113, Undefined header will be displayed on the signal generator.)</i>
[ :SOURce] :DM:POLarity[:ALL] NORMAL INVert INverted [:SOURce] :DM:POLarity?	✓	
[ :SOURce] :DM:SKEW:PATH RF BB [:SOURce] :DM:SKEW:PATH?	-	
[ :SOURce] :DM:SKEW[:STATE] ON OFF 1 0  [:SOURce] :DM:SKEW[:STATE] ?	✓	
[ :SOURce] :DM:SOURce[1] 2 EXTernal INTERNAL BBG1 OFF [:SOURce] :DM:SOURce?	✓	<i>Supported but the following parameters are not supported:</i>  BBG2 BBG3 BBG4 EXT600
[ :SOURce] :DM:SRATio <value><unit> [:SOURce] :DM:SRATio?	✓	
[ :SOURce] :DM:STATE ON OFF 1 0 [:SOURce] :DM:STATE?	✓	
<b>Display Subsystem</b>		
:DISPlay:ANNotation:AMPLitude:UNIT DBM DBUV DBUVEMF V VEMF DB	✓	
:DISPlay:ANNotation:AMPLitude:UNIT?		
:DISPlay:ANNotation:CLOCK:DATE:FORMAT MDY DMY :DISPlay:ANNotation:CLOCK:DATE:FORMAT?	✓	
:DISPlay:ANNotation:CLOCK[:STATE] ON OFF 1 0 :DISPlay:ANNotation:CLOCK[:STATE] ?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:DISPlay:BRIGHTness <value> :DISPlay:BRIGHTness?	✓	
:DISPlay:CAPTURE	✓	
:DISPlay:CONTRast <value> :DISPlay:CONTRast?	✓	
:DISPlay:INVERSE ON OFF 1 0	✓	Supported but the following query is not supported: :DISPlay:INVERSE?
:DISPlay:REMote ON OFF 1 0 :DISPlay:REMote?	✓	
:DISPlay[:WINDOW] [:STATE] ON OFF 1 0 :DISPlay[:WINDOW] [:STATE]?	✓	
<i>Dual ARB Subsystem</i>		
[ :SOURCE] :RADIO2:ARB:VCO:INTERNAL:SOURCE:BBG1 ON OFF 1 0	-	
[ :SOURCE] :RADIO2:ARB:VCO:INTERNAL:SOURCE:BBG1?		
[ :SOURCE] :RADIO:ARB:BASEband:FREQuency:OFFSet <value> [:SOURCE] :RADIO:ARB:BASEband:FREQuency:OFFSet?	✓	
[ :SOURCE] :RADIO[1]:ARB:CLIPPING "filename", IJQ IORQ,<10-100%>[,<10-100%>]	✓	
[ :SOURCE] :RADIO[1]:ARB:DACS:ALIGN	✓	
[ :SOURCE] :RADIO[1]:ARB:GENERATE:SINE ["filename"], [<osr>], [<scale>], [I Q {IQ}]	✓	
[ :SOURCE] :RADIO[1]:ARB:HEADER:CLEar	✓	
[ :SOURCE] :RADIO[1]:ARB:HEADER:RMS <"filename">, <rms:0 - 1.414213562373095> UNSPecified [:SOURCE] :RADIO[1]:ARB:HEADER:RMS? <"filename">	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	N5181A	Remarks
[ :SOURce] :RADio[1] :ARB:HEADer:SAVE	✓	
[ :SOURce] :RADio[1] :ARB:HCRest [:STATe] ON OFF 1 0	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :RADio[1] :ARB:HCRest [:STATe]?		
[ :SOURce] :RADio[1] :ARB:IQ:EXTernal:FILTer 40e6 THRough	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce]:RADio[1]:ARB:IQ:EXTernal:FILTer?
[ :SOURce] :RADio[1] :ARB:IQ:EXTernal:FILTer:AUTO ON OFF 1 0	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce]:RADio[1]:ARB:IQ:EXTernal:FILTer:AUTO?
[ :SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen <value><unit>	✓	
[ :SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen?		
[ :SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen:AUT O ON OFF 1 0	✓	
[ :SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen:AUT O?		
[ :SOURce] :RADio[1] :ARB:IQ:MODulation:FILTter 2.1e6 40e6 THRough	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce]:RADio[1]:ARB:IQ:MODulation:FILTter?

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce]:RADio[1]:ARB:IQ:MODulation:FILTer:AU TO ON OFF 1 0	✓	<p><i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i></p> <p>[:SOURce]:RADio[1]:ARB:IQ:MODulation:FILTer:AUTO?</p>
[:SOURce]:RADio[1]:ARB:MARKer:CLEar "filename",<mkr(1 2 3 4)>,<first_Point>,<last_point>	✓	
[:SOURce]:RADio[1]:ARB:MARKer:CLEar:ALL "filename",<mkr(1 2 3 4)>	✓	
[:SOURce]:RADio[1]:ARB:MARKer:ROTate "filename",<rotate_count>	✓	
[:SOURce]:RADio[1]:ARB:MARKer:[SET] "filename",<mkr(1 2 3 4)>,<first_Point>,<last_point>,<skip_count>	✓	
[:SOURce]:RADio[1]:ARB:MDEStination:AAMplitude {NONE} M1 M2 M3 M4	-	
[:SOURce]:RADio[1]:ARB:MDEStination:AAMplitude ?		
[:SOURce]:RADio[1]:ARB:MDEStination:ALCHold {NONE} M1 M2 M3 M4	✓	
[:SOURce]:RADio[1]:ARB:MDEStination:ALCHold?		
[:SOURce]:RADio[1]:ARB:MDEStination:PULSe {NONE} M1 M2 M3 M4	✓	
[:SOURce]:RADio[1]:ARB:MDEStination:PULSe?		
[:SOURce]:RADio[1]:ARB:MPOLarity:MARKer1 NEGative {Positive}	✓	
[:SOURce]:RADio[1]:ARB:MPOLarity:MARKer1?		
[:SOURce]:RADio[1]:ARB:MPOLarity:MARKer2 NEGative {Positive}	✓	
[:SOURce]:RADio[1]:ARB:MPOLarity:MARKer2?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer3 NEGative {POSitive} [:SOURce] :RADio[1] :ARB:MPOLarity:MARKer3?	✓	
[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer4 NEGative {POSitive} [:SOURce] :RADio[1] :ARB:MPOLarity:MARKer4?	✓	
[ :SOURce] :RADio[1] :ARB:NOISE:BFACTOR <1 - 2 {1}> [:SOURce] :RADio[1] :ARB:NOISE:BFACTOR?	✓	
[ :SOURce] :RADio[1] :ARB:NOISE:CBWidth <1Hz-80Mhz {1Hz}> [:SOURce] :RADio[1] :ARB:NOISE:CBWidth?	✓	
[ :SOURce] :RADio[1] :ARB:NOISE:CN <-100dB - 100dB {0dB}> [:SOURce] :RADio[1] :ARB:NOISE:CN?	✓	
[ :SOURce] :RADio[1] :ARB:NOISE[:STATE] ON {OFF} 1 0 [:SOURce] :RADio[1] :ARB:NOISE[:STATE]?	✓	
[ :SOURce] :RADio[1] :ARB:REFERENCE:EXTernal:FREQuency <value> [:SOURce] :RADio[1] :ARB:REFERENCE:EXTernal:FREQuency?	-	
[ :SOURce] :RADio[1] :ARB:REFERENCE[:SOURce] INTernal EXTernal [:SOURce] :RADio[1] :ARB:REFERENCE[:SOURce]?	✓	
[ :SOURce] :RADio[1] :ARB:RETRigger ON OFF IMMEDIATE [:SOURce] :RADio[1] :ARB:RETRigger?	✓	
[ :SOURce] :RADio[1] :ARB:RSCALing <1%-100%> [:SOURce] :RADio[1] :ARB:RSCALing?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ :SOURce] :RADio[1] :ARB:SCALing "filename",<1%-100%>	✓	
[ :SOURce] :RADio[1] :ARB:SClock:RATE <1Hz - 100MHz {100MHz}>	✓	<i>Agilent MXG range is 1 kHz - 125 MHz with a default of 125 MHz.</i>
[ :SOURce] :RADio[1] :ARB:SClock:RATE?		
[ :SOURce] :RADio[1] :ARB:SEQuence [ :MWAVeform] <filename>,<waveform>,<reps>,NONE M1 M2 M3 M4  M1M2 M1M3 M1M4 M2M3 M2M4 M3M4 M1M2M3 M1M2M4 M1 M3M4 M2M3M4 M1M2M3M4 ALL,{,<waveform>,<reps>,N ONE M1 M2 M3 M4 M1M2 M1M3 M1M4 M2M3 M2M4 M3M4  M1M2M3 M1M2M4 M1M3M4 M2M3M4 M1M2M3M4 ALL,}	✓	
[ :SOURce] :RADio[1] :ARB:SEQuence [ :MWAVeform]? <filename>		
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE CONTinuous SINGle GATE SADVance	✓	
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE?		
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:CONTinuous [:TYPE] FREE TRIGger RESet	✓	
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:CONTinuous [:TYPE]?		
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:GATE LOW HIGH	✓	
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:GATE?		
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:SADVance:S ORDer LINear DYNamic	-	
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:SADVance:S ORDer?		
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:SADVance:T HOFF ON OFF 1 0	-	
[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE:SADVance:T HOFF?		

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VxxVA</b>	<b>Remarks</b>
<code>[ :SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance [ :TYPE] SINGLE CONTinuous</code> <code>[ :SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance [ :TYPE] ?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce]</code> KEY BUS EXT <code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] ?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:DELay &lt;value&gt;</code> <code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:DELay?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE ON OFF 1 0</code> <code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:SLOPe POSITIVE NEGative</code> <code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal:DELay:SLOPe?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal[:SOURce] EPT1 EPT2 EPTRIGGER1 EPTRIGGER2</code> <code>[ :SOURce] :RADio[1] :ARB:TRIGger[:SOURce] :EXTernal[:SOURce] ?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:VCO:CLOCK:RATE?</code>	-	
<code>[ :SOURce] :RADio[1] :ARB:VCO:CLOCK[:SOURce]</code> INTERNAL EXTERNAL <code>[ :SOURce] :RADio[1] :ARB:VCO:CLOCK[:SOURce] ?</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:WAveform</code> "WFM1:filename"   "SEQ:filename" <code>[ :SOURce] :RADio[1] :ARB:WAveform?</code>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<code>[ :SOURce] :RADio[1] :ARB:WAVeform:NHEaders "WFM1:filename"   "SEQ:filename"</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB:WAVeform:NHEaders?</code>	-	
<code>[ :SOURce] :RADio[1] :ARB [:STATE] ON OFF 1 0</code>	✓	
<code>[ :SOURce] :RADio[1] :ARB [:STATE] ?</code>	-	
<i>Edge Subsystem</i>		
<code>[ :SOURce] :RADio[1] :EDGE:...</code>	-	<i>This subsystem is not supported.</i>
<i>GSM Subsystem</i>		
<code>[ :SOURce] :RADio[1] :GSM:...</code>	-	<i>This subsystem is not supported.</i>
<i>Input Subsystem</i>		
<code>:INPut :BERT[:BASeband] :...</code>	-	<i>This subsystem is not supported.</i>
<i>Measure Subsystem</i>		
<code>:MEASure: [SCALar] :BERT:BTS:LOOPback:EDGE:MCS5 [ :SENSitivity] ?</code>	-	<i>This subsystem is not supported.</i>
<i>Multi-Tone Subsystem</i>		
<code>[ :SOURce] :RADio:MTOne:ARB:HEADER:CLEar</code>	✓	
<code>[ :SOURce] :RADio:MTOne:ARB:HEADER:SAVE</code>	✓	
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer 40e6 THrough</code>	✓	<i>Command accepted without error but does nothing.</i>
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer?</code>	-	
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer:A UTO ON OFF 1 0</code>	-	
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer:A UTO? </code>	-	
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:MODulation:ATTen &lt;val&gt;&lt;unit&gt;</code>	✓	
<code>[ :SOURce] :RADio:MTOne:ARB:IQ:MODulation:ATTen?</code>	-	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	N5181A	Remarks
:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:ATTen:AUTO ON OFF 1 0 [:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:ATTen:AUTO?	✓	
:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:FILTer 2.1e6 40e6 THrough [:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:FILTer ?	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:FILTer :AUTO ON OFF 1 0 [:SOURce] :RADIO:MTONe:ARB:IQ:MODulation:FILTer :AUTO?	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :RADIO:MTONe:ARB:MDEStination:AAMPplitude {NONE} M1 M2 M3 M4 [:SOURce] :RADIO:MTONe:ARB:MDEStination:AAMPplitude?	-	
[:SOURce] :RADIO:MTONe:ARB:MDEStination:ALCHold {NONE} M1 M2 M3 M4 [:SOURce] :RADIO:MTONe:ARB:MDEStination:ALCHold ?	✓	
[:SOURce] :RADIO:MTONe:ARB:MDEStination:PULSe {NONE} M1 M2 M3 M4 [:SOURce] :RADIO:MTONe:ARB:MDEStination:PULSe?	✓	
[:SOURce] :RADIO:MTONe:ARB:MPOLarity:MARKer1 2 3 4 NEGative {POSitive} [:SOURce] :RADIO:MTONe:ARB:MPOLarity:MARKer1 2 3 4?	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:MTONe:ARB:REFerence:EXTernal:FREQuency &lt;value&gt; [ :SOURce] :RADio:MTONe:ARB:REFerence:EXTernal:FREQuency?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:REFerence [:SOURce] INTERNAL EXTernal [:SOURce] :RADio:MTONe:ARB:REFerence [:SOURce] ?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SClock:RATE &lt;1Hz - 100MHz {100MHz}&gt; [:SOURce] :RADio:MTONe:ARB:SClock:RATE?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup &lt;filename&gt; [:SOURce] :RADio:MTONe:ARB:SETup?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:STORE "file name" [:SOURce] :RADio:MTONe:ARB:SETup:TABLE &lt;freq_spacing&gt;,&lt;num_tones&gt;{,&lt;phase&gt;,&lt;state&gt;} [:SOURce] :RADio:MTONe:ARB:SETup:TABLE?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:FSPacing &lt;freq_spacing&gt; [:SOURce] :RADio:MTONe:ARB:SETup:TABLE:FSPacing ?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:NTONes &lt;num_tones&gt; [:SOURce] :RADio:MTONe:ARB:SETup:TABLE:NTONes?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:PHASE:INITialize FIXed RANDOM [:SOURce] :RADio:MTONe:ARB:SETup:TABLE:PHASE:INITialize?</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:PHASE:INITialize:SEED FIXed RANDOM [:SOURce] :RADio:MTONe:ARB:SETup:TABLE:PHASE:INITialize:SEED?</pre>	✓	

**Table 7-2 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N</b>	<b>Remarks</b>
<code>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:ROW &lt;row_number&gt;,&lt;power&gt;,&lt;phase&gt;,&lt;state&gt;</code> <code>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:ROW? &lt;row_number&gt;</code>	✓	
<code>[ :SOURce] :RADio:MTONe:ARB [:STATE]</code> ON OFF 1 0 <code>[ :SOURce] :RADio:MTONe:ARB [:STATE] ?</code>	✓	
<b>NADC Subsystem</b>		
<code>[ :SOURce] :RADio[1] [:NADC] :...</code>	-	<i>This subsystem is not supported.</i>
<b>PDC Subsystem</b>		
<code>[ :SOURce] :RADio[1] :PDC:...</code>	-	<i>This subsystem is not supported.</i>
<b>PHS Subsystem</b>		
<code>[ :SOURce] :RADio[1] :PHS:...</code>	-	<i>This subsystem is not supported.</i>
<b>Sense Subsystem</b>		
<code>:SENSe:BERT:...</code>	-	<i>This subsystem is not supported.</i>
<b>Tetra Subsystem</b>		
<code>[ :SOURce] :RADio[1] :TETRa:...</code>	-	<i>This subsystem is not supported.</i>
<b>Wideband CDMA ARB Subsystem</b>		
<code>[ :SOURce] :RADio[1] :WCDMa:TGPP:ARB:...</code>	-	<i>This subsystem is not supported.</i>

## E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Compatible Commands

**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

Some subsystems may *only* be supported by the *Agilent N5182A Vector Signal Generator*. These subsystem exceptions are indicated in the subsystem headings.

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	N51xxA	Remarks
System Function Commands		
IEEE Common Commands		
*CLS	✓	
*ESE <data> *ESE?	✓	
*ESR?	✓	
*IDN?	✓	
*OPC *OPC?	✓	
*RCL <reg_num>	✓	
*RST	✓	
*SAV <reg_num>	✓	
*SRE <data> *SRE?	✓	
*STB?	✓	
*TRG	✓	
*TST?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
*WAI	<b>✓</b>	
<b>Calibration Subsystem</b>		
:CALibration:DCFM	<b>✓</b>	
:CALibration:IQ	-	
:CALibration:IQ:DC	-	
:CALibration:IQ:DEFault	-	
:CALibration:IQ:FULL	-	
:CALibration:IQ:STARt <value><units>	-	
:CALibration:IQ:STARt?	-	
:CALibration:IQ:STOP <value><units>	-	
:CALibration:IQ:STOP?	-	
:CALibration:WBIQ	-	
:CALibration:WBIQ:DC	-	
:CALibration:WBIQ:DEFault	-	
:CALibration:WBIQ:FULL	-	
:CALibration:WBIQ:STARt <value><units>	-	
:CALibration:WBIQ:STARt?	-	
:CALibration:WBIQ:STOP <value><units>	-	
:CALibration:WBIQ:STOP?	-	
<b>Communication Subsystem</b>		
:SYSTem:COMMunicate:GPIB:ADDResS <number>	<b>✓</b>	
:SYSTem:COMMunicate:GPIB:ADDResS?	<b>✓</b>	
:SYSTem:COMMunicate:GTLocal	<b>✓</b>	
:SYSTem:COMMunicate:LAN:CONFIG DHCP MANual	<b>✓</b>	
:SYSTem:COMMunicate:LAN:CONFIG?	<b>✓</b>	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:SYSTem:COMMUnicatE:LAN:GATEway <ipstring>	✓	
:SYSTem:COMMUnicatE:LAN:GATEway?	✓	
:SYSTem:COMMUnicatE:LAN:HOSTname <string>	✓	
:SYSTem:COMMUnicatE:LAN:HOSTname?	✓	
:SYSTem:COMMUnicatE:LAN:IP <ipstring>	✓	
:SYSTem:COMMUnicatE:LAN:IP?	✓	
:SYSTem:COMMUnicatE:LAN:SUBNet <ipstring>	✓	
:SYSTem:COMMUnicatE:LAN:SUBNet?	✓	
:SYSTem:COMMUnicatE:PMETer:ADDResS <value>	✓	
:SYSTem:COMMUnicatE:PMETer:ADDResS?	✓	
:SYSTem:COMMUnicatE:PMETer:CHANnel A B	✓	
:SYSTem:COMMUnicatE:PMETer:CHANnel?	✓	
:SYSTem:COMMUnicatE:PMETer:IDN E4418B E4419B E4416A E4417A	✓	
:SYSTem:COMMUnicatE:PMETer:IDN?	✓	
:SYSTem:COMMUnicatE:PMETer:TIMEout <num>[<time suffix>]	✓	
:SYSTem:COMMUnicatE:PMETer:TIMEout?	✓	
:SYSTem:COMMUnicatE:SERial:BAUD <number>	-	
:SYSTem:COMMUnicatE:SERial:BAUD?	-	
:SYSTem:COMMUnicatE:SERial:ECHO ON OFF	-	
:SYSTem:COMMUnicatE:SERial:ECHO?	-	
:SYSTem:COMMUnicatE:SERial:RESet	-	
:SYSTem:COMMUnicatE:SERial:TOUT <value>	-	
:SYSTem:COMMUnicatE:SERial:TOUT?	-	
<i>Diagnostic Subsystem</i>		

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:DIAGnostic[:CPU] :INFormation:BOArds?	-	
:DIAGnostic[:CPU] :INFormation:CCount:ATTenuato r?	✓	
:DIAGnostic[:CPU] :INFormation:CCount:PON?	✓	
:DIAGnostic[:CPU] :INFormation:DISPlay:OTIMe?	✓	
:DIAGnostic[:CPU] :INFormation:LICense:AUXiliar y?	✓	
:DIAGnostic[:CPU] :INFormation:LICense:WAVeform ?	✓	
:DIAGnostic[:CPU] :INFormation:OPTions?	✓	
:DIAGnostic[:CPU] :INFormation:OPTions:DETail?	✓	
:DIAGnostic[:CPU] :INFormation:OTIMe?	✓	
:DIAGnostic[:CPU] :INFormation:REVision?	✓	
:DIAGnostic[:CPU] :INFormation:SDATe?	✓	
:DIAGnostic[:CPU] :INFormation:WLICense[:VAL ue]? <waveformType>	✓	
<b><i>Memory Subsystem</i></b>		
:MEMory:CATAlog:BINary?	✓	
:MEMory:CATAlog:BIT?	-	
:MEMory:CATAlog:CDMa?	-	
:MEMory:CATAlog:DMOD?	-	
:MEMory:CATAlog:DWCMDma?	-	
:MEMory:CATAlog:FCDMa?	-	
:MEMory:CATAlog:FIR?	-	
:MEMory:CATAlog:FSK?	-	
:MEMory:CATAlog:IQ?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MEMORY:CATALOG:LIST?	-	
:MEMORY:CATALOG:MCDMA?	-	
:MEMORY:CATALOG:MDMOD?	-	
:MEMORY:CATALOG:MDWCdma?	-	
:MEMORY:CATALOG:MFCdma?	-	
:MEMORY:CATALOG:MTONE?	-	
:MEMORY:CATALOG:FIR?	-	
:MEMORY:CATALOG:RCDMA?	-	
:MEMORY:CATALOG:SEQ?	-	
:MEMORY:CATALOG:SHAPE?	-	
:MEMORY:CATALOG:STATE?	✓	
:MEMORY:CATALOG:UFLT?	✓	
:MEMORY:CATALOG:UPC?	-	
:MEMORY:CATALOG:UWCDMA?	-	
:MEMORY:CATALOG[:ALL]?	✓	
:MEMORY:COPY[:NAME]<"filename">,<"filename">	✓	
:MEMORY:DATA<"filename">,<datablock>	✓	
:MEMORY:DATA?<"filename">	✓	
:MEMORY:DATA:APPEND<"filename">,<datablock>	✓	
:MEMORY:DATA:BIT<"filename">,<bit_count>,<datablock>	-	
:MEMORY:DATA:BIT?<"filename">	-	
:MEMORY:DATA:FIR<"filename">,<osr>,<coefficient{,coefficient}>	-	
:MEMORY:DATA:FIR?<"filename">	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MEMORY:DATA:FSK <"filename">,num_states,f0,f0,...[,diff_state, num_diff_states,diff0,diff1,...]  :MEMORY:DATA:FSK? <"filename">	-	
:MEMORY:DATA:PRAM[1]   2 3 4:FILE:BLOCK <"filename">,<datablock>	-	
:MEMORY:DATA:PRAM[1]   2 3 4:FILE:LIST <"filename">,<uint8>[,<uint8>,<...>]	-	
:MEMORY:DATA:IQ <"filename">,offsetQ,num_states,i0,q0,i1,q1,... [,diff_state,num_diff_states,diff0,diff1,...]	-	
:MEMORY:DATA:IQ? <"filename">	-	
:MEMORY:DATA:SHAPE <"filename">,num_rise_points,RP0,RP1,...num_fa ll_points,FP0,FP1,...  :MEMORY:DATA:SHAPE? <"filename">	-	
:MEMORY:DATA:UNPROTECTED <"filename">,<datablock>	-	
:MEMORY:DELETED:ALL	✓	
:MEMORY:DELETED:BINARY	✓	
:MEMORY:DELETED:BIT	-	
:MEMORY:DELETED:CDMA	-	
:MEMORY:DELETED:DMOD	-	
:MEMORY:DELETED:DWCDMA	-	
:MEMORY:DELETED:FCDMA	-	
:MEMORY:DELETED:FIR	-	
:MEMORY:DELETED:FSK	-	
:MEMORY:DELETED:IQ	-	
:MEMORY:DELETED:LIST	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:MEMORY:DELETED:MCDMA	-	
:MEMORY:DELETED:MDMOD	-	
:MEMORY:DELETED:MDWCDMA	-	
:MEMORY:DELETED:MFCDMA	-	
:MEMORY:DELETED:MTONE	-	
:MEMORY:DELETED:RCDMA	-	
:MEMORY:DELETED:SEQ	-	
:MEMORY:DELETED:SHAPE	-	
:MEMORY:DELETED:STATE	✓	
:MEMORY:DELETED:UFLT	✓	
:MEMORY:DELETED:UPC	-	
:MEMORY:DELETED:UWCDMA	-	
:MEMORY:DELETED[:NAME] <"filename">	✓	
:MEMORY:FREE[:ALL]?	✓	
:MEMORY:LOAD:LIST <"filename">	✓	
:MEMORY:MOVE <src_file>, <dest_file>	✓	
:MEMORY:SIZE? <"filename">	✓	
:MEMORY:STATE:COMMENT <reg_num>, <seq_num>, <"comment">	✓	
:MEMORY:STATE:COMMENT? <reg_num>, <seq_num>	✓	
:MEMORY:STORE:LIST <"filename">	✓	
:MMEMORY:CATALOG? <"msus">	✓	
:MMEMORY:COPY <"filename">, <"filename">	✓	
:MMEMORY:DATA <"filename">, <datablock>	✓	
:MMEMORY:DATA? <"filename">	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
:MMEMory:DELeTe:NVWFm	✓	
:MMEMory:DELeTe:WFM	-	
:MMEMory:DELeTe:WFM1	-	
:MMEMory:DELeTe[:NAME] <"filename">, [<"msus">]	✓	
:MMEMory:HEADer:CLEar <filename>	✓	
:MMEMory:HEADer:DESCription <"filename">, <"description">	✓	
:MMEMory:HEADer:DESCription? <"filename">	✓	
:MMEMory:LOAD:LIST <"filename">	✓	
:MMEMory:MOVE <src_file>,<dest_file>	✓	
:MMEMory:STORe:LIST <"filename">	✓	
<i>Output Subsystem</i>		
:OUTPut:BLANKing:AUTO ON OFF 1 0	✓	
:OUTPut:BLANKing:AUTO?	-	
:OUTPut:BLANKing[:STATe] ON OFF 1 0	✓	
:OUTPut:BLANKing[:STATe]?	-	
:OUTPut:MODulation[:STATe] ON OFF 1 0	✓	
:OUTPut:MODulation[:STATe]?	-	
:OUTPut:SETTled:POLarity NORMAL INVerted	-	
:OUTPut:SETTled:POLarity?	-	
:OUTPut:SETTled:RFOFF NORMAL INVerted	-	
:OUTPut:SETTled:RFOFF?	-	
:OUTPut:SETTled[:STATe]?	-	
:OUTPut[:STATe] ON OFF 1 0	✓	
:OUTPut[:STATe]?	-	
<i>Route Subsystem</i>		

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
:ROUTe:HARDware:DGENerator:...	-	<i>This subsystem is not supported.</i>
<b>Status Subsystem</b>		
:STATus:OPERation:BASEband:CONDITION?	✓	
:STATus:OPERation:BASEband:ENABLE <value>	✓	
:STATus:OPERation:BASEband:ENABLE?		
:STATus:OPERation:BASEband:NTRansition <value>	✓	
:STATus:OPERation:BASEband:NTRansition?		
:STATus:OPERation:BASEband:PTRansition <value>	✓	
:STATus:OPERation:BASEband:PTRansition?		
:STATus:OPERation:BASEband[:EVENT] ?	✓	
:STATus:OPERation:CONDITION?	✓	
:STATus:OPERation:ENABLE <value>	✓	
:STATus:OPERation:ENABLE?		
:STATus:OPERation:NTRansition <value>	✓	
:STATus:OPERation:NTRansition?		
:STATus:OPERation:PTRansition <value>	✓	
:STATus:OPERation:PTRansition?		
:STATus:OPERation[:EVENT] ?	✓	
:STATus:PRESet	✓	
:STATus:QUESTIONable:CALibration:CONDITION?	-	
:STATus:QUESTIONable:CALibration:ENABLE <value>	✓	
:STATus:QUESTIONable:CALibration:ENABLE?		
:STATus:QUESTIONable:CALibration:NTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:NTRansition?		

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:STATus:QUESTIONable:CALibration:PTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:PTRansition?	✓	
:STATus:QUESTIONable:CALibration[:EVENT]?	✓	
:STATus:QUESTIONable:CONDITION?	-	
:STATus:QUESTIONable:ENABLE <value>	✓	
:STATus:QUESTIONable:ENABLE?	-	
:STATus:QUESTIONable:FREQuency:CONDITION?	✓	
:STATus:QUESTIONable:FREQuency:ENABLE <value>	✓	
:STATus:QUESTIONable:FREQuency:ENABLE?	-	
:STATus:QUESTIONable:FREQuency:NTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:NTRansition?	-	
:STATus:QUESTIONable:FREQuency:PTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:PTRansition?	-	
:STATus:QUESTIONable:FREQuency[:EVENT]?	✓	
:STATus:QUESTIONable:MODulation:CONDITION?	-	
:STATus:QUESTIONable:MODulation:ENABLE <value>	-	
:STATus:QUESTIONable:MODulation:ENABLE?	-	
:STATus:QUESTIONable:MODulation:NTRansition <value>	-	
:STATus:QUESTIONable:MODulation:NTRansition?	-	
:STATus:QUESTIONable:MODulation:PTRansition <value>	-	
:STATus:QUESTIONable:MODulation:PTRansition?	-	
:STATus:QUESTIONable:MODulation[:EVENT]?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:STATus:QUESTIONable:NTRansition <value>	✓	
:STATus:QUESTIONable:NTRansition?	✓	
:STATus:QUESTIONable:POWer:CONDITION?	✓	
:STATus:QUESTIONable:POWer:ENABLE <value>	✓	
:STATus:QUESTIONable:POWer:ENABLE?	✓	
:STATus:QUESTIONable:POWer:NTRansition <value>	✓	
:STATus:QUESTIONable:POWer:NTRansition?	✓	
:STATus:QUESTIONable:POWer:PTRansition <value>	✓	
:STATus:QUESTIONable:POWer:PTRansition?	✓	
:STATus:QUESTIONable:POWer[:EVENT]?	✓	
:STATus:QUESTIONable:PTRansition <value>	✓	
:STATus:QUESTIONable:PTRansition?	✓	
:STATus:QUESTIONable[:EVENT]?	✓	
<b>System Subsystem</b>		
:SYSTem:ALTerNate <reg num>	✓	
:SYSTem:ALTerNate? [MAXimum MINimum]	✓	
:SYSTem:ALTerNate:STATE ON OFF 1 0	✓	
:SYSTem:ALTerNate:STATE?	✓	
:SYSTem:CAPaBility?	✓	
:SYSTem:DATE <year>,<month>,<day>	✓	
:SYSTem:DATE?	✓	
:SYSTem:ERRor:SCPI [:SYNTAX] ON OFF 1 0	✓	
:SYSTem:ERRor:SCPI [:SYNTAX]?	✓	
:SYSTem:ERRor[:NEXT]?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:SYSTem:FILEsystem:SAFEmode ON OFF 1 0 :SYSTem:FILEsystem:SAFEmode	-	
:SYSTem:HELP:MODE SINGLE	✓	<i>Supported but the following parameter is not supported:</i> CONTinuous <i>Supported but the following query is not supported:</i> :SYSTem:HELP:MODE?
:SYSTem:IDN "string"	✓	
:SYSTem:LANGuage "SCPI"   "COMP"   "8648"   "8662"   "8663" :SYSTem:LANGuage?	✓	<i>Supported but the following parameters are not supported:</i> "8340"   "8360"   "83712"   "83732"   "83752"   " 8757"   "GT9000S"   "GT900"
:SYSTem:OEMHead:FREQuency:BAND WR15 WR12 WR10 WR8 WR6 WR5 WR3 :SYSTem:OEMHead:FREQuency:BAND?	-	
:SYSTem:OEMHead:FREQuency:MULTIplier <val> :SYSTem:OEMHead:FREQuency:MULTIplier?	-	
:SYSTem:OEMHead:FREQuency:STARt <val> :SYSTem:OEMHead:FREQuency:STARt?	-	
:SYSTem:OEMHead:FREQuency:STOP <val> :SYSTem:OEMHead:FREQuency:STOP?	-	
:SYSTem:OEMHead:SElect ON OFF NONE REAR FRONT :SYSTem:OEMHead:SElect?	-	
:SYSTem:OPT "string"	✓	
:SYSTem:PON:TYPE PRESet LAST :SYSTem:PON:TYPE?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:SYSTem:PRESet	✓	<i>Always performs the same action as the Preset hardkey.</i> <i>For related Preset hardkey information, refer to “:SYSTem:PRESet:TYPE NORMAl USER :SYSTem:PRESet:TYPE?” on page 283</i>
:SYSTem:PRESet:ALL	✓	
:SYSTem:PRESet:LANGUage "SCPI"   "COMP"   "8662"   "8663" :SYSTem:PRESet:LANGUage?	✓	<i>Supported but the following parameters are not supported:</i> <i>"8340"   "8360"   "83712"   "83732"   "83752"   "8757"   "GT9000S"   "GT900"</i>
:SYSTem:PRESet:PERSISTent	✓	
:SYSTem:PRESet:PN9 NORMAl QUICK :SYSTem:PRESet:PN9?	-	
:SYSTem:PRESet:TYPE NORMAl USER :SYSTem:PRESet:TYPE?	✓	<i>This command toggles the Preset hardkey state between factory- and user-defined conditions.</i> <i>The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.</i> <p><b>NOTE</b> If the Preset hardkey is not responding correctly, using the SCPI command: :SYSTem:PRESet:TYPE NORMAl will return the Preset hardkey to its default factory behavior.</p>
:SYSTem:PRESet[:USER]:SAVE	✓	
:SYSTem:SECURITY:DISPLAY ON OFF {1} 0 :SYSTem:SECURITY:DISPLAY?	✓	
:SYSTem:SECURITY:DISPLAY:RESTRICTed ON OFF {1} 0 :SYSTem:SECURITY:DISPLAY:RESTRICTed?	✓	
:SYSTem:SECURITY:ERASEall	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
:SYSTem:SECurity:LEVel {NONE} ERASe OVERwrite SANitize :SYSTem:SECurity:LEVel?	✓	
:SYSTem:SECurity:LEVel:STATe ON OFF 1 0 :SYSTem:SECurity:LEVel:STATe?	✓	
:SYSTem:SECurity:OVERwrite	✓	
:SYSTem:SECurity:SANitize	✓	
:SYSTem:SSAVer:DELay <value> :SYSTem:SSAVer:DELay?	✓	
:SYSTem:SSAVer:MODE LIGHT TEXT :SYSTem:SSAVer:MODE?	✓	
:SYSTem:SSAVer:STATe ON OFF :SYSTem:SSAVer:STATe?	✓	
:SYSTem:TIME <hour>,<minute>,<second> :SYSTem:TIME?	✓	
:SYSTem:VERSION?	✓	
<i>Trigger Subsystem</i>		
:ABOrt	✓	
:INITiate:CONTinuous[:ALL] ON OFF 1 0 :INITiate:CONTinuous[:ALL]?	✓	
:INITiate[:IMMEDIATE] [:ALL]	✓	
:TRIGger:OUTPut:POLarity POSitive NEGative :TRIGger:OUTPut:POLarity?	✓	
:TRIGger[:SEQUence]:SLOPe POSitive NEGative :TRIGger[:SEQUence]:SLOPe?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
:TRIGger[:SEQUence] :SOURce BUS   IMMEDIATE   EXTERNAL   KEY	✓	
:TRIGger[:SEQUence] :SOURce?	✓	
:TRIGger[:SEQUence] [:IMMEDIATE]	✓	
[:SOURce] :TSSweep	✓	
<i>Unit Subsystem</i>		
:UNIT:POWER DBM DBUV DBUVEMF V VEMF DB	✓	
:UNIT:POWER?	✓	
<i>Amplitude Modulation Subsystem</i>		
[:SOURce] :AM:INTERNAL:FREQuency:STEP [:INCRement] <num>	✓	
[:SOURce] :AM:INTERNAL:FREQuency:STEP [:INCRement]?	✓	
[:SOURce] :AM:MODE DEEP	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :AM:MODE NORMAL	✓	
[:SOURce] :AM:MODE?	✓	
[:SOURce] :AM:WIDEBAND:STATE ON OFF 1 0	-	
[:SOURce] :AM:WIDEBAND:STATE?	-	
[:SOURce] :AM[1]   2:EXTERNAL[1]   2:COUPLING AC DC	✓	
[:SOURce] :AM[1]   2:EXTERNAL[1]   2:COUPLING?	✓	
[:SOURce] :AM[1]   2:EXTERNAL[1]   2:IMPEDANCE <50 600>	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :AM[1]   2:EXTERNAL[1]   2:IMPEDANCE?	✓	
[:SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALternate <value><unit>	-	
[:SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALternate?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]:FREQuency:ALTernate:AMPLitude:PERCent &lt;value&gt;&lt;unit&gt; [ :SOURce] :AM[1]   2:INTERNAL[1]:FREQuency:ALTernate:AMPLitude:PERCent?</pre>	-	
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE SINE [ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE?</pre>	✓	<i>Supported but the following parameters are not supported:</i> "TRIangle"   "SQUare"   "RAMP"   "NOISe"   "DUALsine"   "SWEPtsine"
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:NOISe GAUSSian UNIFORM [ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:NOISe?</pre>	-	
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP POSITIVE NEGATIVE [ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP?</pre>	-	
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]:SWEep:RATE &lt;value&gt;&lt;unit&gt; [ :SOURce] :AM[1]   2:INTERNAL[1]:SWEep:RATE?</pre>	-	
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]:SWEep:TRIGger IMMEDIATE KEY EXTERNAL BUS [ :SOURce] :AM[1]   2:INTERNAL[1]:SWEep:TRIGger?</pre>	-	
<pre>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FREQuency &lt;value&gt;&lt;unit&gt; UP DOWN [ :SOURce] :AM[1]   2:INTERNAL[1]   2:FREQuency?</pre>	✓	
<pre>[ :SOURce] :AM[1]   2:POLarity NORMAL INVERTed [ :SOURce] :AM[1]   2:POLarity?</pre>	✓	
<pre>[ :SOURce] :AM[1]   2:SOURce INT[1] INT2 EXT[1] EXT2 [ :SOURce] :AM[1]   2:SOURce?</pre>	✓	<i>The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
<pre>[ :SOURce] :AM[1]   2:STATE ON OFF 1 0 [ :SOURce] :AM[1]   2:STATE?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce] :AM[1]   2:TYPE LINear EXPonential [:SOURce] :AM[1]   2:TYPE?	✓	
[:SOURce] :AM:WIDeband:SENSitivity <value> [:SOURce] :AM:WIDeband:SENSitivity?	-	
[:SOURce] :AM[1]   2[:DEPTH] :EXPonential <val> [:SOURce] :AM[1]   2[:DEPTH] :EXPonential?	-	
[:SOURce] :AM[1]   2[:DEPTH] [:LINear] <value><unit> UP DOWN [:SOURce] :AM[1]   2[:DEPTH] [:LINear]?	✓	
[:SOURce] :AM[1]   2[:DEPTH] [:LINear] :TRACK ON OFF 1 0 [:SOURce] :AM[1]   2[:DEPTH] [:LINear] :TRACK?	-	
[:SOURce] :AM[:DEPTH] :STEP [:INCRement] <value><unit> [:SOURce] :AM[:DEPTH] :STEP [:INCRement]?	✓	
<b>Frequency Subsystem</b>		
[:SOURce] :FREQuency:CENTER <num> [<freq suffix>]  MAXimum MINimum UP DOWN [:SOURce] :FREQuency:CENTER? [MAXimum MINimum]	✓	
[:SOURce] :FREQuency:CHANnels:BAND NBASe NMOBile BPGSm MPGSm BEGSm MEGSm BRGSm MRGSm M450 M480 M850 B450 B480 B850BDCS MDCS BPCS MPCS B8 M8 B15 M15 B390 B420 B460 B915 M380 M410 M450 M870 PHS DECT [:SOURce] :FREQuency:CHANnels:BAND?	-	
[:SOURce] :FREQuency:CHANnels:NUMBER <number> [:SOURce] :FREQuency:CHANnels:NUMBER?	-	
[:SOURce] :FREQuency:CHANnels[:STATE] ON OFF 1 0 [:SOURce] :FREQuency:CHANnels[:STATE]?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>XXXA</b>	<b>Remarks</b>
[:SOURce] :FREQuency:FIXed <value><unit>   UP   DOWN [:SOURce] :FREQuency:FIXed?	✓	
[:SOURce] :FREQuency:MANual <value><unit> [:SOURce] :FREQuency:MANual?	-	
[:SOURce] :FREQuency:MODE FIXed CW SWEep LIST [:SOURce] :FREQuency:MODE?	✓	
[:SOURce] :FREQuency:MULTiplier <value> [:SOURce] :FREQuency:MULTiplier?	✓	
[:SOURce] :FREQuency:OFFSet <value><unit> [:SOURce] :FREQuency:OFFSet?	✓	
[:SOURce] :FREQuency:OFFSet:STATE ON OFF [:SOURce] :FREQuency:OFFSet:STATE?	✓	
[:SOURce] :FREQuency:REFerence <value><unit> [:SOURce] :FREQuency:REFerence?	✓	
[:SOURce] :FREQuency:REFerence:SET	✓	
[:SOURce] :FREQuency:REFerence:STATe ON OFF 1 0 [:SOURce] :FREQuency:REFerence:STATe?	✓	
[:SOURce] :FREQuency:SPAN <num>[<freq suffix>]  MAXimum MINimum UP DOWN [:SOURce] :FREQuency:SPAN? [MAXimum MINimum]	✓	
[:SOURce] :FREQuency:STARt <value><unit> [:SOURce] :FREQuency:STARt?	✓	
[:SOURce] :FREQuency:STOP <value><unit> [:SOURce] :FREQuency:STOP?	✓	
[:SOURce] :FREQuency[:CW] <value><unit>   UP   DOWN [:SOURce] :FREQuency[:CW]?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :FREQuency [:CW] :STEP [:INCRement] <value><unit>  [ <b>:SOURce</b> ] :FREQuency [:CW] :STEP [:INCRement] ?	✓	
[ <b>:SOURce</b> ] :FREQuency [:FIXed] :STEP [:INCRement] <value><unit>  [ <b>:SOURce</b> ] :FREQuency [:FIXed] :STEP [:INCRement] ?	✓	
[ <b>:SOURce</b> ] :PHASE:REFerence	✓	
[ <b>:SOURce</b> ] :PHASE[:ADJust] <value><unit>  [ <b>:SOURce</b> ] :PHASE[:ADJust] ?	✓	
[ <b>:SOURce</b> ] :ROSCillator:BANDwidth:DEFaults	-	
[ <b>:SOURce</b> ] :ROSCillator:BANDwidth:EXTernal <value>  [ <b>:SOURce</b> ] :ROSCillator:BANDwidth:EXTernal ?	✓	
[ <b>:SOURce</b> ] :ROSCillator:BANDwidth:INTernal <value>  [ <b>:SOURce</b> ] :ROSCillator:BANDwidth:INTernal ?	-	
[ <b>:SOURce</b> ] :ROSCillator:SOURce?	✓	
[ <b>:SOURce</b> ] :ROSCillator:SOURce:AUTO ON OFF 1 0  [ <b>:SOURce</b> ] :ROSCillator:SOURce:AUTO?	✓	
<b>Frequency Modulation Subsystem</b>		
[ <b>:SOURce</b> ] :FM[1]   2:EXTernal [1]   2:COUpling AC DC  [ <b>:SOURce</b> ] :FM[1]   2:EXTernal [1]   2:COUpling?	✓	
[ <b>:SOURce</b> ] :FM[1]   2:EXTernal [1]   2:IMPedance <50 600>  [ <b>:SOURce</b> ] :FM[1]   2:EXTernal [1]   2:IMPedance?	✓	<i>Command accepted without error but does nothing.</i>
[ <b>:SOURce</b> ] :FM:INTERNAL:FREQuency:STEP [:INCRement] <num>  [ <b>:SOURce</b> ] :FM:INTERNAL:FREQuency:STEP [:INCRement] ?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXIA</b>	<b>Remarks</b>
[:SOURce] :FM[1]   2:INTERNAL[1]:FUNCTION:SHAPE SINE [:SOURce] :FM[1]   2:INTERNAL[1]:FUNCTION:SHAPE?	✓	<i>Supported but the following parameters are not supported: TRIangle SQuare RAMP NOISe DUALsine SWEPtSine</i>
[:SOURce] :FM[1]   2:INTERNAL[1]   2:FREQuency <value><unit> [:SOURce] :FM[1]   2:INTERNAL[1]   2:FREQuency?	✓	
[:SOURce] :FM[1]   2:INTERNAL[1]:FREQuency:ALTernate <value><unit> [:SOURce] :FM[1]   2:INTERNAL[1]:FREQuency:ALTernate?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]:FREQuency:ALTernate:AMPLitude:PERCent <value><unit> [:SOURce] :FM[1]   2:INTERNAL[1]:FREQuency:ALTernate:AMPLitude:PERCent?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]   2:FUNCTION:NOISe GAUSSian UNIFORM [:SOURce] :FM[1]   2:INTERNAL[1]   2:FUNCTION:NOISe?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP POSITIVE NEGATIVE [:SOURce] :FM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:RATE <value><unit> [:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:RATE?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:TRIGGER IMMEDIATE KEY EXTernal BUS [:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:TRIGGER?	-	
[:SOURce] :FM[1]   2:SOURce INT[1] INT2 EXT[1] EXT2 [:SOURce] :FM[1]   2:SOURce?	✓	<i>The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
[:SOURce] :FM[1]   2:STATE ON OFF 1 0 [:SOURce] :FM[1]   2:STATE?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce] :FM[1]   2[:DEViation] <value><unit>	✓	
[:SOURce] :FM[1]   2[:DEViation]?	-	
[:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:TRIGger IMMEDIATE KEY EXTernal BUS	-	
[:SOURce] :FM[1]   2:INTERNAL[1]:SWEep:TRIGger?	-	
[:SOURce] :FM[1]   2[:DEViation]:TRACK ON OFF 1 0	-	
[:SOURce] :FM[1]   2[:DEViation]:TRACK?	-	
<i>List/Sweep Subsystem</i>		
[:SOURce] :LIST:CPOint?	✓	
[:SOURce] :LIST:DIRECTION UP DOWN	✓	
[:SOURce] :LIST:DIRECTION?	-	
[:SOURce] :LIST:DWELL <value>{,<value>}	✓	
[:SOURce] :LIST:DWELL?	-	
[:SOURce] :LIST:DWELL:POINTs?	✓	
[:SOURce] :LIST:DWELL:TYPE LIST STEP	✓	
[:SOURce] :LIST:DWELL:TYPE?	-	
[:SOURce] :LIST:FREQuency <value>{,<value>}	✓	
[:SOURce] :LIST:FREQuency?	-	
[:SOURce] :LIST:FREQuency:POINTs?	✓	
[:SOURce] :LIST:MANual <value> UP DOWN	✓	
[:SOURce] :LIST:MANual?	-	
[:SOURce] :LIST:MODE AUTO MANual	✓	
[:SOURce] :LIST:MODE?	-	
[:SOURce] :LIST:POWER <value>{,<value>}	✓	
[:SOURce] :LIST:POWER?	-	
[:SOURce] :LIST:POWER:POINTs?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<code>[ :SOURce] :LIST:RETRace ON OFF 0 1</code> <code>[ :SOURce] :LIST:RETRace?</code>	✓	
<code>[ :SOURce] :LIST:TRIGger:SOURce</code> <code>BUS IMMEDIATE EXTernal KEY</code> <code>[ :SOURce] :LIST:TRIGger:SOURCE?</code>	✓	
<code>[ :SOURce] :LIST:TYPE LIST STEP</code> <code>[ :SOURce] :LIST:TYPE?</code>	✓	
<code>[ :SOURce] :LIST:TYPE:LIST:INITialize:FSTep</code>	✓	
<code>[ :SOURce] :LIST:TYPE:LIST:INITialize:PRESet</code>	✓	
<code>[ :SOURce] :SWEep:CONTrol:STATE ON OFF 1 0</code> <code>[ :SOURce] :SWEep:CONTrol:STATE?</code>	-	
<code>[ :SOURce] :SWEep:CONTrol:TYPE MASTer SLAVe</code> <code>[ :SOURce] :SWEep:CONTrol:TYPE?</code>	-	
<code>[ :SOURce] :SWEep:CPOint?</code>	✓	
<code>[ :SOURce] :SWEep:DWELL &lt;value&gt;</code> <code>[ :SOURce] :SWEep:DWELL?</code>	✓	
<code>[ :SOURce] :SWEep:GENERation ANALog STEPped</code> <code>[ :SOURce] :SWEep:GENERation?</code>	✓	<i>Command accepted without error but does nothing.</i>
<code>[ :SOURce] :SWEep:MODE AUTO MANual</code> <code>[ :SOURce] :SWEep:MODE?</code>	✓	
<code>[ :SOURce] :SWEep:POINTs &lt;value&gt;</code> <code>[ :SOURce] :SWEep:POINTs?</code>	✓	
<code>[ :SOURce] :SWEep:SPACing LINear LOGarithmic</code> <code>[ :SOURce] :SWEep:SPACing?</code>	✓	
<code>[ :SOURce] :SWEep:TIME 10ms - 99s</code> <code>[ :SOURce] :SWEep:TIME?</code>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce] :SWEep:TIME:AUTO ON OFF 0 1	✓	
[:SOURce] :SWEep:TIME:AUTO?	-	
[:SOURce] :SWEep:TIME:COMP:AUTO ON OFF 0 1	-	
[:SOURce] :SWEep:TIME:COMP:AUTO?	-	
<i>Phase Modulation Subsystem</i>		
[:SOURce] :PM[1]   2:INTernal[1] :FREQuency:ALTer-nate <value><unit>	-	
[:SOURce] :PM[1]   2:INTernal[1] :FREQuency:ALTer-nate?	-	
[:SOURce] :PM[1]   2:INTernal[1] :FREQuency:ALTer-nate:AMPLitude:PERCent <value><unit>	-	
[:SOURce] :PM[1]   2:INTernal[1] :FREQuency:ALTer-nate:AMPLitude:PERCent?	-	
[:SOURce] :PM:INTernal:FREQuency:STEP [:INCRement]	✓	
[:SOURce] :PM:INTernal:FREQuency:STEP [:INCRement]?	-	
[:SOURce] :PM[1]   2:BANDwidth BWIDth NORMAL HIGH	✓	
[:SOURce] :PM[1]   2:BANDwidth BWIDth?	-	
[:SOURce] :PM[1]   2:EXTernal[1] :COUpling AC DC	✓	
[:SOURce] :PM[1]   2:EXTernal[1] :COUpling?	-	
[:SOURce] :PM[1]   2:EXTernal[1]   2:IMPedance <50 600>	✓	
[:SOURce] :PM[1]   2:EXTernal[1]   2:IMPedance?	-	
[:SOURce] :PM[1]   2:INTernal[1]   2:FREQuency <value><unit>	✓	
[:SOURce] :PM[1]   2:INTernal[1]   2:FREQuency?	-	
[:SOURce] :PM[1]   2:INTernal[1]   2:FUNCTION:NOISE GAUSSian UNIFORM	-	
[:SOURce] :PM[1]   2:INTernal[1]   2:FUNCTION:NOISE?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>Agilent</b> <b>MXG</b>	<b>Remarks</b>
<code>[ :SOURce] :PM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP POSitive NEGative</code>  <code>[ :SOURce] :PM[1]   2:INTERNAL[1]   2:FUNCTION:RAMP?</code>	-	
<code>[ :SOURce] :PM[1]   2:INTERNAL[1] :FUNCTION:SHAPe SINE</code>  <code>[ :SOURce] :PM[1]   2:INTERNAL[1] :FUNCTION:SHAPe?</code>	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUARE RAMP NOISE DUALsine  SWEPtsine
<code>[ :SOURce] :PM[1]   2:INTERNAL[1] :SWEep:RATE &lt;value&gt;&lt;unit&gt;</code>  <code>[ :SOURce] :PM[1]   2:INTERNAL[1] :SWEep:RATE?</code>	-	
<code>[ :SOURce] :PM[1]   2:INTERNAL[1] :SWEep:TRIGGER IMMEDIATE KEY EXTERNAL BUS</code>  <code>[ :SOURce] :PM[1]   2:INTERNAL[1] :SWEep:TRIGGER?</code>	-	
<code>[ :SOURce] :PM[1]   2:SOURce INT[1]   INT2   EXT[1]   EXT2</code>  <code>[ :SOURce] :PM[1]   2:SOURce?</code>	✓	<i>The Agilent MXG accepts the EXT2 parameter but only has a single external output and selects EXT on the signal generator if EXT2 is used.</i>
<code>[ :SOURce] :PM[1]   2:STATE ON OFF 1 0</code>  <code>[ :SOURce] :PM[1]   2:STATE?</code>	✓	
<code>[ :SOURce] :PM[1]   2[:DEVIation] &lt;value&gt;&lt;unit&gt;</code>  <code>[ :SOURce] :PM[1]   2[:DEVIation]?</code>	✓	
<code>[ :SOURce] :PM[1]   2[:DEVIation] :TRACK ON OFF 1 0</code>  <code>[ :SOURce] :PM[1]   2[:DEVIation] :TRACK?</code>	-	
<code>[ :SOURce] :PM[:DEVIation] :STEP[:INCREMENT] &lt;value&gt;&lt;unit&gt;</code>  <code>[ :SOURce] :PM[:DEVIation] :STEP[:INCREMENT]?</code>	✓	
<b>Power Subsystem</b>		
<code>[ :SOURce] :POWER:ALC:BANDwidth BWIDth &lt;num&gt;[freq suffix]</code>  <code>[ :SOURce] :POWER:ALC:BANDwidth BWIDth?</code>	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N51xxA</b>	<b>Remarks</b>
[:SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO ON OFF 1 0	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO?	-	
[:SOURce] :POWeR:ALC:LEVel <value>dB	✓	
[:SOURce] :POWeR:ALC:LEVel?	-	
[:SOURce] :POWeR:ALC:SEARch ON OFF 1 0 ONCE	-	
[:SOURce] :POWeR:ALC:SEARch?	-	
[:SOURce] :POWeR:ALC:SEARch:REFerence FIXed MODulated MANual MODulated	✓	<i>Supported on the N5182A only.</i>
[:SOURce] :POWeR:ALC:SEARch:REFerence?	-	
[:SOURce] :POWeR:ALC:SEARch:REFerence:LEVel <value>	✓	<i>Supported on the N5182A Only.</i>
[:SOURce] :POWeR:ALC:SEARch:REFerence:LEVel?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN:POINTS <value>	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:POINTS?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN:START <value><units>	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:START?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN:STOP <value><units>	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:STOP?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN:TYPE FULL USER	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:TYPE?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN[:STATe] ON OFF 1 0	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN[:STATe]?	-	
[:SOURce] :POWeR:ALC:SOURce INTERNAL DIODE	✓	<i>Supported on the N5183A only. But the following parameter is not supported: MMHead.</i>
[:SOURce] :POWeR:ALC:SOURce?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :POWer:ALC:SOURce:EXTernal:COUpling (0dB-32dB)</pre>	-	
<pre>[ :SOURce] :POWer:ALC:SOURce:EXTernal:COUpling?</pre>	✓	
<pre>[ :SOURce] :POWer:ALC[:STATE] ON OFF 1 0</pre>	✓	
<pre>[ :SOURce] :POWer:ALC[:STATE]?</pre>	✓	
<pre>[ :SOURce] :POWer:ATTenuation &lt;value&gt;&lt;unit&gt;</pre>	✓	
<pre>[ :SOURce] :POWer:ATTenuation?</pre>	✓	
<pre>[ :SOURce] :POWer:ATTenuation:AUTO ON OFF 1 0</pre>	✓	
<pre>[ :SOURce] :POWer:ATTenuation:AUTO?</pre>	✓	
<pre>[ :SOURce] :POWer:MODE FIXed LIST SWEep</pre>	✓	
<pre>[ :SOURce] :POWer:MODE?</pre>	✓	
<pre>[ :SOURce] :POWer:PROTection[:STATE] ON OFF 1 0</pre>	✓	
<pre>[ :SOURce] :POWer:PROTection[:STATE]?</pre>	✓	
<pre>[ :SOURce] :POWer:REFerence &lt;value&gt;&lt;unit&gt;</pre>	✓	
<pre>[ :SOURce] :POWer:REFerence?</pre>	✓	
<pre>[ :SOURce] :POWer:REFerence:STATE ON OFF 1 0</pre>	✓	
<pre>[ :SOURce] :POWer:REFerence:STATE?</pre>	✓	
<pre>[ :SOURce] :POWer:START &lt;value&gt;&lt;unit&gt;</pre>	✓	
<pre>[ :SOURce] :POWer:STARt?</pre>	✓	
<pre>[ :SOURce] :POWer:STOP &lt;value&gt;&lt;unit&gt;</pre>	✓	
<pre>[ :SOURce] :POWer:STOP?</pre>	✓	
<pre>[ :SOURce] :POWer[:LEVel] [:IMMediate] :OFFSet &lt;value&gt;&lt;unit&gt;</pre>	✓	
<pre>[ :SOURce] :POWer[:LEVel] [:IMMediate] :OFFSet?</pre>	✓	
<pre>[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude] ] &lt;value&gt;&lt;unit&gt;  UP DOWN</pre>	✓	
<pre>[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude ]?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude] [:STEP[:INCrement] &lt;value&gt; [ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude] [:STEP[:INCrement]?]</pre>	✓	
<i>Pulse Modulation Subsystem</i>		
<pre>[ :SOURce] :PULM:EXTerнал:POLarity NORMAl INVerted [ :SOURce] :PULM:EXTerнал:POLarity?</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:DELay &lt;delay&gt; UP DOWN [ :SOURce] :PULM:INTernal[1]:DELay? [UP DOWN]</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:DELay:STEP &lt;step&gt; [ :SOURce] :PULM:INTernal[1]:DELay:STEP?</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:FREQuency &lt;frequency&gt; MAXimum MINimum UP DOWN [ :SOURce] :PULM:INTernal[1]:FREQuency?</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:FREQuency:STEP[:INC Rement] &lt;freq&gt; MAXimum MINimum DEFault [ :SOURce] :PULM:INTernal[1]:FREQuency:STEP[:INC Rement]? [MIN MAX DEF]</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:PERiod &lt;period&gt; MAXimum MINimum UP DOWN [ :SOURce] :PULM:INTernal[1]:PERiod?</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:PERiod:STEP[:INCREm ent] &lt;step&gt; UP DOWN [ :SOURce] :PULM:INTernal[1]:PERiod:STEP[:INCREm ent]?</pre>	✓	
<pre>[ :SOURce] :PULM:INTernal[1]:PWIDth &lt;width&gt; [ :SOURce] :PULM:INTernal[1]:PWIDth?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[ :SOURce] :PULM:INTernal[1]:PWIDTh:STEP <step> DEFault MAXimum MINimum [ :SOURce] :PULM:INTernal[1]:PWIDTh:STEP?	✓	
[ :SOURce] :PULM:SOURce INT EXT [ :SOURce] :PULM:SOURce?	✓	<i>Supported but the following parameters are not supported: SCALar</i>
[ :SOURce] :PULM:SOURce:INTERNAL SQUARE FRUN TRIGGERed DOUBLEt GATED [ :SOURce] :PULM:SOURce:INTERNAL?	✓	
[ :SOURce] :PULM:STATE ON OFF 1 0 [ :SOURce] :PULM:STATE?	✓	
<b>Digital Function Commands</b>		
<b>All Subsystem</b>		
[ :SOURce] :RADIO[1]:ALL:OFF	✓	
<b>AWGN ARB Subsystem</b>		
[ :SOURce] :RADIO[1]:AWGN...	-	<i>This subsystem is not supported.</i>
<b>AWGN Real Time Subsystem (This subsystem is supported on the N5182A only.)</b>		
[ :SOURce] :RADIO:AWGN:RT:BWIDTh <val> [ :SOURce] :RADIO:AWGN:RT:BWIDTh?	✓	
[ :SOURce] :RADIO:AWGN:RT[:STATE] ON OFF 1 0 [ :SOURce] :RADIO:AWGN:RT[:STATE]?	✓	
<b>Custom Subsystem</b>		
[ :SOURce] :RADIO[1]:CUSTOm:...	-	<i>This subsystem is not supported.</i>
<b>Dmodulation Subsystem (This subsystem supported on the N5182A only.)</b>		
[ :SOURce] :RADIO:DModulation:ARB:FILTter RNYQuist NYQuist GAUSSian RECTangle IS95 IS 95_EQ IS95_MOD IS95_MOD_EQ WCDMA AC4Fm IS20 00SR3DS UGaussian "user FIR" [ :SOURce] :RADIO:DModulation:ARB:FILTter?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	N5182A	Remarks
[ :SOURce] :RADio:DMODulation:ARB:FILTer:ALPHA <value> [ :SOURce] :RADio:DMODulation:ARB:FILTer:ALPHA?	✓	
[ :SOURce] :RADio:DMODulation:ARB:FILTer:BBT <value> [ :SOURce] :RADio:DMODulation:ARB:FILTer:BBT?	✓	
[ :SOURce] :RADio:DMODulation:ARB:FILTer:CHANnel EVM ACP [ :SOURce] :RADio:DMODulation:ARB:FILTer:CHANnel ?	✓	
[ :SOURce] :RADio:DMODulation:ARB:HEADer:CLEAR	✓	
[ :SOURce] :RADio:DMODulation:ARB:HEADer:SAVE	✓	
[ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FILETER 40e6 THrough [ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FILETER?	✓	<i>Command accepted on the N5182A without error but does nothing.</i>
[ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FILETER:AUTO ON OFF 1 0 [ :SOURce] :RADio:DMODulation:ARB:IQ:EXTernal:FILETER:AUTO?	✓	
[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:ATTen <val><unit> [ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:ATTen?	✓	
[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:ATTen:AUTO ON OFF 1 0 [ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:ATTen:AUTO?	✓	
[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:FILTer 2.1e6 40e6 THrough [ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation:FILTer?	✓	<i>Command accepted on the N5182A without error but does nothing.</i>

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer:AUTO ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB:IQ:MODulation: FILTer:AUTO?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:A AMplitude {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:A AMplitude?</pre>	-	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:A LCHold {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:A LCHold?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MDEStination:P ULSe {NONE} M1 M2 M3 M4 [:SOURce] :RADio:DMODulation:ARB:MDEStination:P ULSe?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MODulation:ASK [:DEPTH] &lt;0% - {100%}&gt; [:SOURce] :RADio:DMODulation:ARB:MODulation:ASK [:DEPTH] ?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MODulation:FSK [:DEVIation] &lt;val&gt;&lt;unit&gt; [:SOURce] :RADio:DMODulation:ARB:MODulation:FSK [:DEVIation] ?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MODulation[:TY PE] ASK BPSK QPSK IS95QPSK GRAYQPSK OQPSK IS95QPS K P4DQPSK PSK8 PSK16 D8PSK EDGE MSK FSK2 FSK4  FSK8 FSK16 C4FM QAM4 QAM16 QAM32 QAM64 QAM128  QAM256 [:SOURce] :RADio:DMODulation:ARB:MODulation[:TY PE] ?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:MPOLarity:MARK er1 2 3 4 NEGative {POSitive} [:SOURce] :RADio:DMODulation:ARB:MPOLarity:MARK er1 2 3 4?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:DMODulation:ARB:REFerence:EXTernal:FREQuency &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:REFerence:EXTernal:FREQuency?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:REFerence[:SOURce] INTernal EXTernal [ :SOURce] :RADio:DMODulation:ARB:REFerence[:SOURce]?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:RETRigger ON OFF IMMEDIATE [ :SOURce] :RADio:DMODulation:ARB:RETRigger?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SClock:RATE &lt;1Hz - 1.0e8 kHz {1.0e8 kHz}&gt; [ :SOURce] :RADio:DMODulation:ARB:SClock:RATE?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup GSM NADC PDC PHS DECT AC4Fm ACQPsK CDPD PWT EDGE TETRA MCArrier "file name" [ :SOURce] :RADio:DMODulation:ARB:SETup?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCArrier (GSM NADC PDC PHS DECT AC4Fm ACQPsK CDPD PWT EDGE TETRA,&lt;num carriers&gt;,&lt;freq spacing&gt;)   "file name" [ :SOURce] :RADio:DMODulation:ARB:SETup:MCArrier?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCArrier :PHASE {FIXed} RANDOM [ :SOURce] :RADio:DMODulation:ARB:SETup:MCArrier :PHASE?</pre>	✓	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCArrier :STORE "file name"</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE INIT APPend &lt;carrier_num&gt;,GSM NADC PDC PHS DEC T AC4Fm ACQPsK CDPD PWT EDGE TETRa "file name",&lt;freq_offset&gt;,&lt;power&gt; [ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE? &lt;carrier_num&gt;</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:MCARrier :TABLE:NCARriers?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SETup:STORe "file name"</pre>	<b>-</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:SRATE &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:SRATE?</pre>	<b>-</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE :CONTinuous[:TYPE] FREE TRIGger RESet [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE :CONTinuous[:TYPE]?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE CONTinuous SINGLE GATE [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE:G ATE LOW HIGH [ :SOURce] :RADio:DMODulation:ARB:TRIGger:TYPE:G ATE?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURc e] KEY BUS EXT [ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURc e]?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURc e]:EXTernal:DELay &lt;value&gt; [ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURc e]:EXTernal:DELay?</pre>	<b>✓</b>	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG - = Not supported by Agilent MXG</b>	<b>N5182A</b>	<b>Remarks</b>
[ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:DELay:STATE?	✓	
[ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:SLOPe POSitive NEGative [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal:SLOPe?	✓	
[ :SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal[:SOURce] EPT1 EPT2 EPTRIGGER1 EPTRIGGER2 [:SOURce] :RADio:DMODulation:ARB:TRIGger[:SOURce] :EXTernal[:SOURce] ?	✓	
[ :SOURce] :RADio:DMODulation:ARB[:STATE] ON OFF 1 0 [:SOURce] :RADio:DMODulation:ARB[:STATE] ?	✓	
<b>Digital Subsystem</b>		
:DIGItal...	-	<i>This subsystem is not supported.</i>
<b>Digital Modulation Subsystem (This subsystem supported on the N5182A only.)</b>		
[ :SOURce] :DM:EXTernal:FILTer 40e6 THRough	✓	<i>Commands are accepted without error by the signal generator, but no action occurs. But the following query is not supported:</i> [:SOURce] :DM:EXTernal:FILTer?
[ :SOURce] :DM:EXTernal:FILTer:AUTO ON OFF 1 0	✓	Supported but the following query is not supported: [:SOURce] :DM:EXTernal:FILTer:AUTO?
[ :SOURce] :DM:EXTernal:POLarity NORMAL INVert INVerted [:SOURce] :DM:EXTernal:POLarity?	✓	
[ :SOURce] :DM:EXTernal:SOURce EXTernal INTERNAL BBG1 OFF SUM [:SOURce] :DM:EXTernal:SOURce?	✓	<i>Supported but the following parameters are not supported:</i>  BBG2 BBG3 BBG4 EXT600

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:DELay &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:DELay?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:DELay:EVENT s ON OFF 1 0</pre> <pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:DELay:EVENT s?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW:PATH {RF} BB</pre> <pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW:PATH?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW[:DELay] ] &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:BBG[1]   2:SKEW[:DELay ]?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:COFFset &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:COFFset?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:DIOFFset &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:DIOFFset?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:DQOFFset &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:DQOFFset?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:IOFFset &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:IOFFset?</pre>	<b>✓</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:IQATTen &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:IQATTen?</pre>	<b>-</b>	
<pre>[ :SOURce] :DM:IQADjustment:EXTernal:QOFFset &lt;value&gt;&lt;unit&gt;</pre> <pre>[ :SOURce] :DM:IQADjustment:EXTernal:QOFFset?</pre>	<b>✓</b>	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	N5181A	Remarks
[:SOURce] :DM:IQADjustment:GAIN? [:SOURce] :DM:IQADjustment:GAIN[1 2]<value><unit>	✓	
[:SOURce] :DM:IQADjustment:IOFFset<value><unit> [:SOURce] :DM:IQADjustment:IOFFset?	✓	
[:SOURce] :DM:IQADjustment:QOFFset<value><unit> [:SOURce] :DM:IQADjustment:QOFFset?	✓	
[:SOURce] :DM:IQADjustment:QSKEw <value><unit> [:SOURce] :DM:IQADjustment:QSKEw?	✓	
[:SOURce] :DM:IQADjustment[:STATe] ON OFF 1 0 [:SOURce] :DM:IQADjustment[:STATe]?	✓	
[:SOURce] :DM:MODulation:ATTen <value><unit> [:SOURce] :DM:MODulation:ATTen?	✓	
[:SOURce] :DM:MODulation:ATTen:AUTO ON OFF 1 0 [:SOURce] :DM:MODulation:ATTen:AUTO?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal DEFault MANual MEASure [:SOURce] :DM:MODulation:ATTen:EXTernal?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel<value> <volt_units> [:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel?	✓	
[:SOURce] :DM:MODulation:ATTen:EXTernal:LEVel:MEAsurement	✓	
[:SOURce] :DM:MODulation:ATTen:OPTimize:BANDwidth <value> <bw_rate_units> [:SOURce] :DM:MODulation:ATTen:OPTimize:BANDwidth?	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>VXXI</b>	<b>Remarks</b>
[:SOURce] :DM:MODulation:FILTer THrough	✓	<i>Supported but the following query generates an error: -113, Undefined header: [:SOURce] :DM:MODulation:FILTer?</i>
[:SOURce] :DM:MODulation:FILTer:AUTO ON OFF 1 0 2.1e6 40e6  [:SOURce] :DM:MODulation:FILTer:AUTO?	✓	<i>Commands are accepted by the signal generator, but no action is taken. (An error -113, Undefined header will be displayed on the signal generator.)</i>
[:SOURce] :DM:POLarity[:ALL] NORMal INVert INVerted [:SOURce] :DM:POLarity?	✓	
[:SOURce] :DM:SKEW:PATH RF BB [:SOURce] :DM:SKEW:PATH?	-	
[:SOURce] :DM:SKEW[:STATe] ON OFF 1 0  [:SOURce] :DM:SKEW[:STATe]?	✓	
[:SOURce] :DM:SOURce[1] 2 EXTernal INTernal BBG1 OFF [:SOURce] :DM:SOURce?	✓	<i>Supported but the following parameters are not supported:  BBG2 BBG3 BBG4 EXT600 </i>
[:SOURce] :DM:SRATio <value><unit> [:SOURce] :DM:SRATio?	✓	
[:SOURce] :DM:STATe ON OFF 1 0 [:SOURce] :DM:STATe?	✓	
[:SOURce] :WDM:IQADjustment:IOFFset <val><unit> [:SOURce] :WDM:IQADjustment:IOFFset?	-	
[:SOURce] :WDM:IQADjustment:QOFFset <val><unit> [:SOURce] :WDM:IQADjustment:QOFFset?	-	
[:SOURce] :WDM:IQADjustment:QSKEw <val><unit> [:SOURce] :WDM:IQADjustment:QSKEw?	-	
[:SOURce] :WDM:IQADjustment[:STATe] ON OFF 1 0 [:SOURce] :WDM:IQADjustment[:STATe]?	-	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent MXG - = Not supported by Agilent MXG	N5182A	Remarks
[ :SOURce] :WDM:STATE ON OFF 1 0 [:SOURce] :WDM:STATE?	-	
<i>Display Subsystem</i>		
:DISPlay:ANNotation:AMPLitude:UNIT DBM DBUV DBUVEMF V VEMF DB :DISPlay:ANNotation:AMPLitude:UNIT?	✓	
:DISPlay:ANNotation:CLOCK:DATE:FORMAT MDY DMY :DISPlay:ANNotation:CLOCK:DATE:FORMAT?	✓	
:DISPlay:ANNotation:CLOCK [:STATe] ON OFF 1 0 :DISPlay:ANNotation:CLOCk [:STATe]?	✓	
:DISPlay:BRIGHTness <value> :DISPlay:BRIGHTness?	✓	
:DISPlay:CAPTure	✓	
:DISPlay:CONTrast <value> :DISPlay:CONTrast?	✓	
:DISPlay:INVerse ON OFF 1 0	✓	<i>Supported but the following query is not supported: :DISPlay:INVerse?</i>
:DISPlay:REMote ON OFF 1 0 :DISPlay:REMote?	✓	
:DISPlay:MENU [:NAME] AM FMPM SWEep UTILITY PULSe LFOut FREQuency AM PLitude SAVE RECall IQ MUX MODE MODOsetup BERT  BGSM BEDGe	-	
:DISPlay[:WINDOW] [:STATe] ON OFF 1 0 :DISPlay[:WINDOW] [:STATe]?	✓	
<i>Dual ARB Subsystem (This subsystem supported on the N5182A only.)</i>		

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>▼</b> <b>XXXA</b>	<b>Remarks</b>
[:SOURce] :RADio2:ARB:VCO:INTernal:SOURce:BBG1 ON OFF 1 0	-	
[:SOURce] :RADio2:ARB:VCO:INTernal:SOURce:BBG1?	✓	
[:SOURce] :RADio:ARB:BASEband:FREQuency:OFFSet <value>	✓	
[:SOURce] :RADio:ARB:BASEband:FREQuency:OFFSet?	✓	
[:SOURce] :RADio[1]:ARB:CLIPping "filename", I Q IORQ,<10-100%>[,<10-100%>]	✓	
[:SOURce] :RADio[1]:ARB:DACS:ALIGN	✓	
[:SOURce] :RADio[1]:ARB:GENerate:SINE ["filename"], [<osr>], [<scale>], [I Q {IQ}]	✓	
[:SOURce] :RADio[1]:ARB:HEADer:CLEar	✓	
[:SOURce] :RADio:ARB:HEADer:NOISe:RMS:OVERride <"filename">, <rms:0 - 1.414213562373095> UNSpecified	-	
[:SOURce] :RADio:ARB:HEADer:NOISe:RMS:OVERride? <"filename">	✓	
[:SOURce] :RADio[1]:ARB:HEADer:RMS <"filename">, <rms:0 - 1.414213562373095> UNSpecified	✓	
[:SOURce] :RADio[1]:ARB:HEADer:RMS? <"filename">	✓	
[:SOURce] :RADio[1]:ARB:HEADer:SAVE	✓	
[:SOURce] :RADio[1]:ARB:IQ:EXTernal:FILTER 40e6 THrough	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce]:RADio[1]:ARB:IQ:EXTernal:FILTER?

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
[:SOURce] :RADio[1] :ARB:IQ:EXTernal:FILTer:AUTO ON OFF 1 0	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce] :RADio[1] :ARB:IQ:EXTernal:FILTer:AUTO?
[:SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen <value><unit> [:SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen?	✓	
[:SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen:AUTO ON OFF 1 0 [:SOURce] :RADio[1] :ARB:IQ:MODulation:ATTen:AUTO?	✓	
[:SOURce] :RADio[1] :ARB:IQ:MODulation:FILTter 2.1e6 40e6 THrough	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce] :RADio[1] :ARB:IQ:MODulation:FILTter?
[:SOURce] :RADio[1] :ARB:IQ:MODulation:FILTter:AUTO ON OFF 1 0	✓	<i>Commands are accepted by the signal generator, but no action is taken. But the following query is not supported and generates an ERROR: -113, Undefined header:</i> [:SOURce] :RADio[1] :ARB:IQ:MODulation:FILTter:AUTO?
[:SOURce] :RADio[1] :ARB:MARKer:CLEar "filename",<mkr(1 2 3 4)>,<first_Point>,<last_point>	✓	
[:SOURce] :RADio[1] :ARB:MARKer:CLEar:ALL "filename",<mkr(1 2 3 4)>	✓	
[:SOURce] :RADio[1] :ARB:MARKer:ROTate "filename",<rotate_count>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N/A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio[1] :ARB:MARKer: [SET] "filename",&lt;mkr(1 2 3 4)&gt;,&lt;first_Point&gt;,&lt;last_ point&gt;,&lt;skip_count&gt;</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MDEStination:ALCHold {NONE}  M1 M2 M3 M4</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MDEStination:ALCHold?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MDEStination:PULSe {NONE}  M1 M2 M3 M4</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MDEStination:PULSe?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer1 NEGative {POSitive}</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer1?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer2 NEGative {POSitive}</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer2?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer3 NEGative {POSitive}</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer3?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer4 NEGative {POSitive}</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:MPOLarity:MARKer4?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:BFACTOR &lt;1 - 2 {1}&gt;</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:BFACTOR?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:CBWidth &lt;1Hz-80Mhz {1Hz}&gt;</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:CBWidth?</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:CN &lt;-100dB - 100dB {0dB}&gt;</pre>	<b>✓</b>	
<pre>[ :SOURce] :RADio[1] :ARB:NOISE:CN?</pre>	<b>✓</b>	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio[1] :ARB:NOISE [:STATe] ON {OFF} 1 0 [:SOURce] :RADio[1] :ARB:NOISE [:STATe] ?</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:REference:EXTernal:FREQ uency &lt;value&gt; [:SOURce] :RADio[1] :ARB:REference:EXTernal:FREQ uency?</pre>	-	
<pre>[ :SOURce] :RADio[1] :ARB:REference[:SOURce] INTERNAL EXTernal [:SOURce] :RADio[1] :ARB:REference[:SOURce] ?</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:RETrigger ON OFF IMMEDIATE [:SOURce] :RADio[1] :ARB:RETrigger?</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:RSCaling &lt;1%-100%&gt; [:SOURce] :RADio[1] :ARB:RSCaling?</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:SCALing "filename", &lt;1%-100%&gt;</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:SClock:RATE &lt;1Hz - 100MHz {100MHz}&gt; [:SOURce] :RADio[1] :ARB:SClock:RATE?</pre>	✓	<i>Agilent MXG range is 1 kHz - 125 MHz with a default of 125 MHz.</i>
<pre>[ :SOURce] :RADio[1] :ARB:SEQuence [:MWAVEform] &lt;filename&gt;, &lt;waveform&gt;, &lt;reps&gt;, NONE M1 M2 M3 M4  M1M2 M1M3 M1M4 M2M3 M2M4 M3M4 M1M2M3 M1M2M4 M1 M3M4 M2M3M4 M1M2M3M4 ALL, {, &lt;waveform&gt;, &lt;reps&gt;, N ONE M1 M2 M3 M4 M1M2 M1M3 M1M4 M2M3 M2M4 M3M4  M1M2M3 M1M2M4 M1M3M4 M2M3M4 M1M2M3M4 ALL, }</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:SEQuence [:MWAVEform] ? &lt;filename&gt;</pre>	✓	
<pre>[ :SOURce] :RADio[1] :ARB:TRIGGER:TYPE CONTinuous SINGLE GATE SADVance [:SOURce] :RADio[1] :ARB:TRIGGER:TYPE?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:CONTinuous [:TYPE] FREE TRIGger RESet</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:CONTinuous [:TYPE]?</pre>	<b>✓</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:GATE LOW HIGH</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:GATE?</pre>	<b>✓</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance:S ORDER LINear DYNamic</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance:S ORDER? </pre>	<b>-</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance:T HOFF ON OFF 1 0</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance:T HOFF? </pre>	<b>-</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance[:TYPE] SINGLE CONTinuous</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger:TYPE:SADVance[:TYPE]?</pre>	<b>✓</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger[:SOURce] KEY BUS EXT</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger[:SOURce]?</pre>	<b>✓</b>	
<pre>[::SOURce] :RADio:ARB:TRIGger[:SOURce]:EXTernal: DElay:SAMPles &lt;value&gt;</pre> <pre>[::SOURce] :RADio:ARB:TRIGger[:SOURce]:EXTernal: DElay:SAMPles?</pre>	<b>-</b>	
<pre>[::SOURce] :RADio[1] :ARB:TRIGger[:SOURce]:EXTern al:DELay:STATe ON OFF 1 0</pre> <pre>[::SOURce] :RADio[1] :ARB:TRIGger[:SOURce]:EXTern al:DELay:STATe?</pre>	<b>✓</b>	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5182A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:ARB:TRIGger[:SOURce]:EXTernal:      DELay[:TIME] &lt;value&gt;  [ :SOURce] :RADio:ARB:TRIGger[:SOURce]:EXTernal:      DELay[:TIME] ?</pre>	-	
<pre>[ :SOURce] :RADio[1]:ARB:TRIGger[:SOURce]:EXTern  al:SLOPe POSitive NEGative  [ :SOURce] :RADio[1]:ARB:TRIGger[:SOURce]:EXTern  al:SLOPe?</pre>	✓	
<pre>[ :SOURce] :RADio[1]:ARB:TRIGger[:SOURce]:EXTern  al[:SOURce] EPT1 EPT2 EPTRIGGER1 EPTRIGGER2  [ :SOURce] :RADio[1]:ARB:TRIGger[:SOURce]:EXTern  al[:SOURce] ?</pre>	✓	
<pre>[ :SOURce] :RADio[1]:ARB:VCO:CLOCK:RATE?</pre>	-	
<pre>[ :SOURce] :RADio[1]:ARB:VCO:CLOCK[:SOURce]  INTERNAL EXTernal  [ :SOURce] :RADio[1]:ARB:VCO:CLOCK[:SOURce] ?</pre>	✓	
<pre>[ :SOURce] :RADio[1]:ARB:WAVeform  "WFM1:filename" "SEQ:filename"  [ :SOURce] :RADio[1]:ARB:WAVeform?</pre>	-	
<pre>[ :SOURce] :RADio[1]:ARB:WAVeform:NHEaders  "WFM1:filename" "SEQ:filename"  [ :SOURce] :RADio[1]:ARB:WAVeform:NHEaders?</pre>	✓	
<pre>[ :SOURce] :RADio[1]:ARB[:STATE] ON OFF 1 0  [ :SOURce] :RADio[1]:ARB[:STATE] ?</pre>	✓	
<i>Multi-Tone Subsystem (This subsystem supported on the N5182A only.)</i>		
<pre>[ :SOURce] :RADio:MTOne:ARB:HEADER:CLEar</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:HEADER:SAVE</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer  40e6 THrough  [ :SOURce] :RADio:MTOne:ARB:IQ:EXTernal:FILTer?</pre>	✓	<i>Command accepted without error but does nothing.</i>

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADIO:MTONE:ARB:IQ:EXTernal:FILTer:AUTO ON OFF 1 0 [:SOURce] :RADIO:MTONE:ARB:IQ:EXTernal:FILTer:AUTO?</pre>	-	
<pre>[ :SOURce] :RADIO:MTONE:ARB:IQ:MODulation:ATTen &lt;val&gt;&lt;unit&gt; [:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:ATTen?</pre>	✓	
<pre>:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:ATTen:AUTO ON OFF 1 0 [:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:ATTen:AUTO?</pre>	✓	
<pre>:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:FILT2.1e6 40e6 THrough [:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:FILT?</pre>	✓	<i>Command accepted without error but does nothing.</i>
<pre>[ :SOURce] :RADIO:MTONE:ARB:IQ:MODulation:FILT:AUTO ON OFF 1 0 [:SOURce] :RADIO:MTONE:ARB:IQ:MODulation:FILT:AUTO?</pre>	✓	<i>Command accepted without error but does nothing.</i>
<pre>[ :SOURce] :RADIO:MTONE:ARB:MDESTination:ALCHold {NONE}  M1 M2 M3 M4 [:SOURce] :RADIO:MTONE:ARB:MDESTination:ALCHold?</pre>	✓	
<pre>[ :SOURce] :RADIO:MTONE:ARB:MDESTination:PULSe {NONE}  M1 M2 M3 M4 [:SOURce] :RADIO:MTONE:ARB:MDESTination:PULSe?</pre>	✓	
<pre>[ :SOURce] :RADIO:MTONE:ARB:MPOLarity:MARKer1 2 3 4 NEGative {POSitive} [:SOURce] :RADIO:MTONE:ARB:MPOLarity:MARKer1 2 3 4?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>N5181A</b>	<b>Remarks</b>
<pre>[ :SOURce] :RADio:MTOne:ARB:REFerence:EXTernal:FREQuency &lt;value&gt; [ :SOURce] :RADio:MTOne:ARB:REFerence:EXTernal:FREQuency?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:REFerence[:SOURce] INTERNAL EXTernal [ :SOURce] :RADio:MTOne:ARB:REFerence[:SOURce]?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SClock:RATE &lt;1Hz - 100MHz {100MHz}&gt; [ :SOURce] :RADio:MTOne:ARB:SClock:RATE?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup &lt;filename&gt; [ :SOURce] :RADio:MTOne:ARB:SETup?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup:STORE "file name" [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE &lt;freq_spacing&gt;,&lt;num_tones&gt;{,&lt;phase&gt;,&lt;state&gt;} [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:FSPacing &lt;freq_spacing&gt; [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:FSPacing?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:NTONes &lt;num_tones&gt; [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:NTONes?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize FIXed RANDOM [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize?</pre>	✓	
<pre>[ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize:SEED FIXed RANDOM [ :SOURce] :RADio:MTOne:ARB:SETup:TABLE:PHASE:INITialize:SEED?</pre>	✓	

**Table 7-3 E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	VXXI	Remarks
<pre>[ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:ROW &lt;row_number&gt;,&lt;power&gt;,&lt;phase&gt;,&lt;state&gt; [ :SOURce] :RADio:MTONe:ARB:SETup:TABLE:ROW? &lt;row_number&gt;</pre>	✓	
<pre>[ :SOURce] :RADio:MTONe:ARB [:STATE] ON OFF 1 0 [:SOURce] :RADio:MTONe:ARB [:STATE] ?</pre>	✓	

## 8648A/B/C/D Compatible Commands

### Selecting the Programming Language

**NOTE** Compatibility is provided for GPIB only; USB and LAN are *not* supported.

The Agilent MXG has only one AM path, one internal source, and one dedicated external source for AM. AM2 path commands will result in the following error: “ERROR: -113, Undefined Header”.

INT2 and EXT2 source selections are accepted by the signal generator, but are equivalent to selecting INT[1] and EXT[1], respectively.

When using the programming codes in this section, you must set the remote programming language to the correct language format.

- On the front-panel, press the following keys:

**Utility > I/O Config > GPIB Setup > Remote Language > 8648A/B/C/D**

or

- Execute the SCPI command :SYSTem:LANGuage (N5181A/82A) found on [page 251](#).

To keep the remote language choice so that it does not reset with either preset, instrument power cycle, or \*RST, perform the following.

- On the front-panel, press the following keys:

**Utility > Power On/Preset > Preset Language > 8648A/B/C/D**

or

- Execute the SCPI command :PRESet:LANGuage (N5181A/82A) found on [page 250](#).

To set the \*IDN? response to match the remote language setting, use the command :SYSTem:IDN located in “[Changing the Signal Generator Identification String](#)” on [page 249](#).

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

3 = Supported by Agilent MXG - = Not supported by Agilent MXG	E44xxB	Remarks
System Function Commands		
IEEE Common Commands		
*CLS?	✓	
*ESE <dec. num. data> *ESE?	✓	
*IDN?	✓	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
*OPC *OPC?	✓	
*RCL <reg_num>[,<seq_num>]	✓	
*RST?	✓	
*SAV <reg_num>[,<seq_num>]	✓	
*SRE <dec. num. data> *SRE?	✓	
*STB?	✓	
*TST?	✓	
*WAI?	✓	
<i>Status Subsystem</i>		
[ :SOURce] :STATUs:QUESTIONable:PAGing:CONDITION?	-	
[ :SOURce] :STATUs:QUESTIONable:PAGing:ENABLE<NR1> [:SOURce] :STATUs:QUESTIONable:PAGing:ENABLE?	-	
[ :SOURce] :STATUs:QUESTIONable:PAGing:EVENT?	-	
[ :SOURce] :STATUs:QUESTIONable:POWer:CONDITION?	✓	
[ :SOURce] :STATUs:QUESTIONable:POWer:ENABLE<NR1> [:SOURce] :STATUs:QUESTIONable:POWer:ENABLE?	✓	
[ :SOURce] :STATUs:QUESTIONable:POWer:EVENT?	✓	
[ :SOURce] :STATUs:QUESTIONable:MODulation:CONDition?	-	
[ :SOURce] :STATUs:QUESTIONable:MODulation:ENABL e<NR1> [:SOURce] :STATUs:QUESTIONable:MODulation:ENABL e?	-	
[ :SOURce] :STATUs:QUESTIONable:MODulation:EVENT?	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44XXB</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :STATus:QUESTIONable:CALibration:FEXTension[:EVENT]?	✓	
[ <b>:SOURce</b> ] :STATus:QUESTIONable:CALibration:FEXTension:CONDITION?	✓	
[ <b>:SOURce</b> ] :STATus:QUESTIONable:CALibration:ENABLE <NR1> [ <b>:SOURce</b> ] :STATus:QUESTIONable:CALibration:ENABLE?	✓	
<b>System Subsystem</b>		
[ <b>:SOURce</b> ] :SYSTem:LANGuage "COMP"   "SCPI" [ <b>:SOURce</b> ] :SYSTem:LANGuage?	✓	
[ <b>:SOURce</b> ] :SYSTem:ERRor?	✓	
[ <b>:SOURce</b> ] :SYSTem:VERSion?	✓	
<b>Analog Function Commands</b>		
<b>Amplitude Subsystem</b>		
[ <b>:SOURce</b> ] :OUTPut:STATE ON OFF [ <b>:SOURce</b> ] :OUTPut:STATE?	✓	
[ <b>:SOURce</b> ] :POWer:AMPLitude <value><units> [ <b>:SOURce</b> ] :POWer:AMPLitude?	✓	
[ <b>:SOURce</b> ] :POWer:ATTenuation:AUTO ON OFF [ <b>:SOURce</b> ] :POWer:ATTenuation:AUTO?	✓	
[ <b>:SOURce</b> ] :POWer:REference <value><units> [ <b>:SOURce</b> ] :POWer:REference?	✓	
[ <b>:SOURce</b> ] :POWer:REference:STATE ON OFF [ <b>:SOURce</b> ] :POWer:REference:STATE?	✓	
<b>Frequency Subsystem</b>		
[ <b>:SOURce</b> ] :FREQuency:CW <value><units> [ <b>:SOURce</b> ] :FREQuency:CW?	✓	
[ <b>:SOURce</b> ] :FREQuency:REference <value><units> [ <b>:SOURce</b> ] :FREQuency:REference?	✓	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	E44xxB	Remarks
[ :SOURce] :FREQuency:REFerence:STATe ON OFF [:SOURce] :FREQuency:REFerence:STATe?	✓	
<b>Amplitude Modulation Subsystem</b>		
[ :SOURce] :AM:DEPTh <value>PCT [:SOURce] :AM:DEPTh?	✓	
[ :SOURce] :AM:INTERNAL2:FREQuency <value><units> [:SOURce] :AM:INTERNAL2:FREQuency?	-	
[ :SOURce] :AM:INTERNAL2:FUNCTION:SHAPe SINE TRIangle SQUare SAW [:SOURce] :AM:INTERNAL2:FUNCTION:SHAPe?	-	
[ :SOURce] :AM:STATe ON OFF [:SOURce] :AM:STATe?	✓	
[ :SOURce] :AM:SOURce INTERNAL[1]	✓	<i>Supported but the following parameters are not supported: INTERNAL2</i>
[ :SOURce] :AM:SOURce INTERNAL EXTernal [:SOURce] :AM:SOURce?	✓	
[ :SOURce] :AM:INTERNAL:FREQuency 1kHz [:SOURce] :AM:INTERNAL:FREQuency 400Hz [:SOURce] :AM:INTERNAL:FREQuency?	✓	
[ :SOURce] :AM:EXTernal:COUPLing AC DC [:SOURce] :AM:EXTernal:COUPLing?	✓	
<b>Frequency Modulation Subsystem</b>		
[ :SOURce] :CALibration:DCFm	✓	
[ :SOURce] :FM:DEViation <value>kHz [:SOURce] :FM:DEViation?	✓	
[ :SOURce] :FM:STATe ON OFF [:SOURce] :FM:STATe?	✓	
[ :SOURce] :FM:SOURce INTERNAL[1]	✓	Supported but the following parameters are not supported:  2

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ :SOURce] :FM:SOURce INTernal EXTernal [ :SOURce] :FM:SOURce?	✓	
[ :SOURce] :FM:INTernal:FREQuency 1kHz [ :SOURce] :FM:INTernal:FREQuency 400Hz [ :SOURce] :FM:INTernal:FREQuency?	✓	
[ :SOURce] :FM:INTernal2:FREQuency <value><units> [ :SOURce] :FM:INTernal2:FREQuency?	-	
[ :SOURce] :FM:INTernal2:FUNCTION:SHAPe SINE [ :SOURce] :FM:INTernal2:FUNCTION:SHAPe?	-	
[ :SOURce] :FM:EXTernal:COUpling AC DC [ :SOURce] :FM:EXTernal:COUpling?	✓	
[ :SOURce] :FM:INTernal2:FUNCTION:SHAPe TRIangle SQUare SAW [ :SOURce] :FM:INTernal2:FUNCTION:SHAPe?	-	
<b>Phase Modulation Subsystem</b>		
[ :SOURce] :PM:DEViation <value>RAD [ :SOURce] :PM:DEViation?	✓	
[ :SOURce] :PM:STATe ON OFF [ :SOURce] :PM:STATe?	✓	
[ :SOURce] :PM:SOURce INTernal [1]	✓	Supported but the following parameters are not supported:  2
[ :SOURce] :PM:SOURce INTernal EXTernal	✓	
[ :SOURce] :PM:SOURce?	✓	
[ :SOURce] :PM:INTernal:FREQuency 1kHz [ :SOURce] :PM:INTernal:FREQuency 400Hz [ :SOURce] :PM:INTernal:FREQuency?	✓	
[ :SOURce] :PM:INTernal2:FREQuency <value><units> [ :SOURce] :PM:INTernal2:FREQuency?	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[:SOURce] :PM:INTERNAL2:FUNCTION:SHAPE SINe TRIangle SQuare SAW [:SOURce] :PM:INTERNAL2:FUNCTION:SHAPE?	-	
[:SOURce] :PM:EXTERNAL:COUPLING AC DC [:SOURce] :PM:EXTERNAL:COUPLING?	✓	
<b>Pulse Modulation Subsystem</b>		
[:SOURce] :PULM:STATE ON OFF [:SOURce] :PULM:STATE?	✓	
[:SOURce] :INITiate:IMMediate	✓	Supported but without the [:SOURce] command. Including :SOUR will generate an "Error -113: Undefined header" on the Agilent MXG.
[:SOURce] :ABORT	✓	Supported but without the [:SOURce] command. Including :SOUR will generate an "Error -113: Undefined header" on the Agilent MXG.
[:SOURce] :TRIGGER:COUNT <value> [:SOURce] :TRIGGER:COUNT?	-	
[:SOURce]:DM:FORMAT FSK2 FSK4 [:SOURce] :DM:FORMAT?	-	
[:SOURce] :DM:STATE ON OFF [:SOURce] :DM:STATE?	-	
[:SOURce] :DM:DEVIATION <value> [:SOURce] :DM:DEVIATION?	-	
[:SOURce] :DM:POLARITY NORMAL INVERT [:SOURce] :DM:POLARITY?	-	
[:SOURce] :DM:FILTER:STATE ON OFF [:SOURce] :DM:FILTER:STATE?	-	
[:SOURce] :PAGING:SElect POCS FLEX FTD RESY PN15 [:SOURce] :PAGING:SElect?	-	
[:SOURce] :PAGING:{POCS FLEX FTD PN15}:RATE <value> [:SOURce] :PAGING:{POCS FLEX FTD PN15}:RATE?	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:SElect &lt;value&gt;</code> <code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:SElect?</code>	-	
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:DEFIne "string"</code> <code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:DEFIne?</code>	-	
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:LENGTh &lt;value&gt;</code> <code>[::SOURce]:PAGing:{POCS FLEX FTD}:MESSAge:LENGTh?</code>	-	
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:ARBitrary:DEFIne &lt;value&gt;, ...&lt;val(n)&gt;</code>	-	
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:ARBitrary:STARt &lt;value&gt;</code> <code>[::SOURce]:PAGing:{POCS FLEX FTD}:ARBitrary:STARt?</code>	-	
<code>[::SOURce]:PAGing:{POCS FLEX FTD}:ARBitrary:STOP &lt;value&gt;</code> <code>[::SOURce]:PAGing:{POCS FLEX FTD}:ARBitrary:STOP?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:TYPE TONE NUMERIC ALPHANUMERIC BINARY</code> <code>[::SOURce]:PAGing:{FLEX FTD}:TYPE?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:VECTOR STANDARD SPECIAL NUMBERed</code> <code>[::SOURce]:PAGing:{FLEX FTD}:VECTOR?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:NUMBERed &lt;value&gt;</code> <code>[::SOURce]:PAGing:{FLEX FTD}:NUMBERed?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:CYCLE &lt;value&gt;</code> <code>[::SOURce]:PAGing:{FLEX FTD}:CYCLE?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:FRAME &lt;value&gt;</code> <code>[::SOURce]:PAGing:{FLEX FTD}:FRAME?</code>	-	
<code>[::SOURce]:PAGing:{FLEX FTD}:CCOUNT?</code>	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ :SOURce] :PAGing:{FLEX FTD} :FCount?	-	
[ :SOURce] :PAGing:{FLEX FTD} :PHASe A B C D [ :SOURce] :PAGing:{FLEX FTD} :PHASe?	-	
[ :SOURce] :PAGing:{FLEX FTD} :COLLapse <value> [ :SOURce] :PAGing:{FLEX FTD} :COLLapse?	-	
[ :SOURce] :PAGing:{FLEX FTD} :CODE <value> [ :SOURce] :PAGing:{FLEX FTD} :CODE?	-	
[ :SOURce] :PAGing:{FLEX FTD} :ATYPe SHORT LONG [ :SOURce] :PAGing:{FLEX FTD} :ATYPe?	-	
[ :SOURce] :PAGing:{FLEX FTD} :ADDRess{1 2} <value> [ :SOURce] :PAGing:{FLEX FTD} :ADDRess{1 2}?	-	
[ :SOURce] :PAGing:{FLEX FTD} :ISTop:STATE ON OFF [ :SOURce] :PAGing:{FLEX FTD} :ISTop:STATE?	-	
[ :SOURce] :PAGing:{FLEX FTD} :HEADER:STATE ON OFF [ :SOURce] :PAGing:{FLEX FTD} :HEADER:STATE?	-	
[ :SOURce] :PAGing:{FLEX FTD} :TERMinator:STATE ON OFF [ :SOURce] :PAGing:{FLEX FTD} :TERMinator:STATE?	-	
[ :SOURce] :PAGing:{FLEX FTD} :VECTOR STANDARD SPECial NUMbered [ :SOURce] :PAGing:{FLEX FTD} :VECTOR?	-	
[ :SOURce] :PAGing:{FLEX FTD} :HBINary BIT1 BIT7 BIT8 BIT14 BIT16 [ :SOURce] :PAGing:{FLEX FTD} :HBINary?	-	
[ :SOURce] :PAGing:{FLEX FTD} :DCAL:STATE ON OFF [ :SOURce] :PAGing:{FLEX FTD} :DCAL:STATE?	-	
[ :SOURce] :PAGing:{FLEX FTD} :DCAL:ADDress{1 2} <value> [ :SOURce] :PAGing:{FLEX FTD} :DCAL:ADDress{1 2}?	-	
[ :SOURce] :PAGing:{FLEX FTD} :ROAMing:SElect NONE SSID NID [ :SOURce] :PAGing:{FLEX FTD} :ROAMing:SElect?	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:LID <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:LID?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:CZONE <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:CZONE?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:CCODE <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:CCODE?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:TMF <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:TMF?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:FOFF <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:SSID:FOFF?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:ADDRes s <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:ADDRes s?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:AREA <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:AREA?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:MULTip ller <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:MULTip ller?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:TMF <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:TMF?	-	
[ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:FOFF <value> [ <b>:SOURce</b> ] :PAGing:{FLEX FTD}:ROAMing:NID:FOFF?	-	
[ <b>:SOURce</b> ] :PAGing:FTD:REference <value> [ <b>:SOURce</b> ] :PAGing:FTD:REference?	-	

**Table 7-4 8648A/B/C/D Program Codes and Equivalent SCPI Sequences**

<b>3 = Supported by Agilent MXG</b> <b>-- = Not supported by Agilent MXG</b>	<b>E44xxB</b>	<b>Remarks</b>
[ :SOURce] :PAGing:FTD:RCO?	-	
[ :SOURce] :PAGing:POCS:TYPE TONE NUMeric ALPHanumeric ALPH7 ALPH8 [:SOURce] :PAGing:POCS:TYPE?	-	
[ :SOURce]:PAGing:POCS:CODE <value> [:SOURce] :PAGing:POCS:CODE?	-	
[ :SOURce] :PAGing:POCS:FUNCTION 0 1 2 3 [:SOURce] :PAGing:POCS:FUNCTION?	-	

## 8656B, 8657A/B/D/J Programming Codes

### Programming Codes

**NOTE** Compatibility is provided for GPIB only; USB and LAN are *not* supported.

When using the programming codes in this section, you must set the remote programming language to the correct language format.

- On the front-panel, press the following keys:

**Utility > I/O Config > GPIB Setup > Remote Language > 8656B, 8657A/B**

or

- Execute the SCPI command :SYSTem:LANGuage (N5181A/82A) found on [page 251](#).

To keep the remote language choice so that it does not reset with either preset, instrument power cycle, or \*RST, perform the following.

- On the front-panel, press the following keys:

**Utility > Power On/Preset > Preset Language > 8656B, 8657A/B**

or

- Execute the SCPI command :PRESet:LANGuage (N5181A/82A) found on [page 250](#).

To set the \*IDN? response to match the remote language setting, use the command :SYSTem:IDN located in “[Changing the Signal Generator Identification String](#)” on [page 249](#).

**Compatible Codes**

<b>8656B, 8657A/B/D/J Codes<sup>a</sup></b>	<b>Description</b>	<b>Equivalent SCPI Command Syntax</b>
AM	Amplitude Modulation	<code>[:SOURce] :AM[1] [:DEPTH] [:LINear]</code> <code>&lt;value&gt;&lt;unit&gt; UP DOWN</code>  For additional commands, refer to, “ <a href="#">S1, S2, or S3 used with AM</a> ” on page 378
AO	Amplitude Offset	<code>[:SOURce] :POWer[:LEVel] [:IMMEDIATE] :</code> <code>OFFSet &lt;value&gt;&lt;unit&gt;</code>
AP	Amplitude (carrier)	<code>[:SOURce] :POWer[:LEVel] [:IMMEDIATE]</code> <code>[:AMPLitude] &lt;value&gt;&lt;unit&gt;</code>
DB	Unit used with the power command	DB
DF	Unit used with the power command	DB
DM	Unit used with the power command	DBM
DN	Step Down	No equivalent SCPI command
EM	Unit used with the power command	EMF
FM	Frequency Modulation	<code>[:SOURce] :FM[1] [:DEViation] &lt;value&gt;&lt;unit&gt;</code>  For additional commands, refer to, “ <a href="#">S1, S2, or S3 used with FM</a> ” on page 379.
FR	Frequency (carrier)	<code>[:SOURce] :FREQuency[:CW] &lt;value&gt;&lt;unit&gt;</code>
GT	Flexible Sequence	No equivalent SCPI command
Hz	Unit used with the frequency command	Hz
IS <sup>b</sup>	Increment Set	No equivalent SCPI command
KZ	Unit used with the frequency command	kHz
MV	Unit used with the power command	mV

8656B, 8657A/B/D/J Codes <sup>a</sup>	Description	Equivalent SCPI Command Syntax
MZ	Unit used with the frequency command	MHz
P0 <sup>c</sup>	Digital Modulation Off	<i>The Agilent MXG does not support this feature.</i>
P4 <sup>c</sup>	Digital Modulation On	<i>The Agilent MXG does not support this feature.</i>
PC <sup>d</sup>	Unit used with the modulation command	PCT
PD	Phase Decrement	[ :SOURce] :PHASE[ :ADJust] <value><RAD>
PF	Pulse Modulation (Fast Mode)	Refer to, “ <a href="#">PF (Pulse Modulation-Fast Mode) or PM (Pulse Modulation)</a> ” on page 378.
PI	Phase Increment	[ :SOURce] :PHASE[ :ADJust] <value><RAD>
PM	Pulse Modulation	[ :SOURce] :PULM:SOURce EXT2 [ :SOURce] :PULM:STATE ON
QS	Reverse Sequence	*RCL <reg>
RC	Recall (0–9)	*RCL <reg>
RL	Recall (0–99)	*RCL <reg>
RP <sup>e</sup>	Reverse Power Protection Reset	No equivalent SCPI command
R2	RF Off	OUTPut[ :STATe] OFF
R3	RF On	OUTPut[ :STATe] ON
R5	RF Dead (Full Attenuator)	OUTPut[ :STATe] OFF
SQ	Sequence	*RCL <reg>
ST	Save (0–9)	*SAV <reg>
SV	Save (0–99)	*RCL <reg>
S1	External Modulation Source	Refer to, “ <a href="#">S1, S2, or S3 used with AM</a> ” on page 378 or “ <a href="#">S1, S2, or S3 used with FM</a> ” on page 379.
S2	Internal 400 Hz Modulation Source	Refer to, “ <a href="#">S1, S2, or S3 used with AM</a> ” on page 378 or “ <a href="#">S1, S2, or S3 used with FM</a> ” on page 379.
S3	Internal 1 kHz Modulation Source	Refer to, “ <a href="#">S1, S2, or S3 used with AM</a> ” on page 378 or “ <a href="#">S1, S2, or S3 used with FM</a> ” on page 379.

<b>8656B, 8657A/B/D/J Codes<sup>a</sup></b>	<b>Description</b>	<b>Equivalent SCPI Command Syntax</b>
S4	Modulation Source Off	Refer to, “S4 (Modulation Source Off)” on page 380.
S5	DC FM	Refer to, “S5 (DC FM)” on page 380.
UP	Step Up	No equivalent SCPI command
UV	Unit used with the power command	UV
VL	Unit used with the power command	V
0-9	Numerals 0–9	0–9
-	Minus Sign	-
.	Decimal Point	.
% <sup>d</sup>	Unit used with the modulation command	PCT

- a. Program codes are either upper or lower case.
- b. Increment Set is implemented for frequency (FR) and amplitude (AP) only.
- c. This code is used with the NADC, PDC, and PHS digital modulation.
- d. Either PC or % can be used.
- e. The source of reverse power must be removed.

#### Non-Compatible Codes

<b>8656B, 8657A/B/D/J Codes</b>	<b>Description</b>
HI	HI ALC
LO	LO ALC
R0	Standby
R1	On

#### Command Mapping

When using the 8656B, 8657A/B/D/J-compatible programming codes, the N5181A/82A internally maps these codes to an equivalent SCPI response. In addition, the modulation source selections for the 8656B, 8657A/B/D/J differ from those available in the N5181A/82A and therefore, are mapped to a

valid selection. (Refer to [Table 7-5](#).)

**Table 7-5**

Modulation Sources	
8656B, 8657A/B/D/J	Agilent MXG Signal Generators
AM, Internal	AM1, Internal 1
AM, External	AM1, External 1
FM, Internal	FM1, Internal 1
FM, External	FM1, External 1
AM, Internal and External	AM1, Internal 1, External 1
FM, Internal and External	FM1, Internal 1, External 1

---

**NOTE** The 8656, 8657A/B/D/J signal generators allow multiple modulations to use the same input; the N5181A/82A does not. If you configure multiple modulations on the same input, the N5181A/82A automatically disables the modulations.

---

The mapping between the 8656B, 8657A/B/D/J-compatible programming codes and the SCPI commands changes depending on the programming codes being executed. Refer to the following sections for explanations of the codes that are affected.

#### **PF (Pulse Modulation-Fast Mode) or PM (Pulse Modulation)**

The N5181A/82A supports only one input selection for pulse which is EXTernal 1 (PULSE connector). This is a DC-coupled input. Internal pulse modulation, therefore, is not supported in the 8656B, 8657A/B/D/J-compatible language modes. The PF or PM code is mapped to the following SCPI commands:

- [:SOURce] :PULM:SOURce EXTernal1
- [:SOURce] :PULM:STATe ON

#### **S1, S2, or S3 used with AM**

When the AM code is executed, the following occurs:

- AM becomes the active function.

---

**NOTE** The N5182A has only one AM channel: [1]. If AM2 is used in a SCPI command, it will be ignored and AM1 will be selected.

---

If AM is on, or there is no active modulation, a sequence of SCPI commands are implemented when an AM code is executed with a modulation source code. [Table 7-6](#) shows the sequence of SCPI commands that are implemented.

**Table 7-6**

	<b>AM On</b>	<b>No Active Modulation</b>
S1	[ <b>:SOURce</b> ] :AM[1] :EXTernal[1] : COUpling AC [:SOURce] :AM[1] :SOURce EXTERNAL1	[ <b>:SOURce</b> ] :AM[1] :EXTernal[1] : COUpling AC [:SOURce] :AM[1] :SOURce EXTERNAL1 [:SOURce] :AM[1] :STATe ON
S2	[ <b>:SOURce</b> ] :AM[1] :SOURce INT[1] [:SOURce] :AM[1] :INTERNAL[1] : FREQuency 400 Hz	[ <b>:SOURce</b> ] :AM[1] :SOURce INT[1] [:SOURce] :AM[1] :INTERNAL[1] : FREQuency 400 Hz [:SOURce] :AM[1] :STATe ON
S3	[ <b>:SOURce</b> ] :AM[1] :SOURce INT[1] [:SOURce] :AM[1] :INTERNAL[1] : FREQuency 1 kHz	[ <b>:SOURce</b> ] :AM[1] :SOURce INT[1] [:SOURce] :AM[1] :INTERNAL[1] : FREQuency 1 kHz [:SOURce] :AM[1] :STATe ON

- If FM or pulse modulation is on, the signal generator attempts to set up AM with the same settings and turns off the other modulation.

### S1, S2, or S3 used with FM

When the FM code is executed, the following occurs:

- FM becomes the active function.

If FM is on, or there is no active modulation, a sequence of SCPI commands are implemented when an FM code is executed with a modulation source code. **Table 7-7** shows the sequence of SCPI commands that are implemented.

**Table 7-7**

	<b>FM On</b>	<b>No Active Modulation</b>
S1	[ <b>:SOURce</b> ] :FM[1] :EXTernal[1] : COUpling AC [:SOURce] :FM[1] :SOURce EXTERNAL1	[ <b>:SOURce</b> ] :FM[1] :EXTernal[1] : COUpling AC [:SOURce] :FM[1] :SOURce EXTERNAL1 [:SOURce] :FM[1] :STATe ON
S2	[ <b>:SOURce</b> ] :FM[1] :SOURce INT[1] [:SOURce] :FM[1] :INTERNAL[1] : FREQuency 400 Hz	[ <b>:SOURce</b> ] :FM[1] :SOURce INT[1] [:SOURce] :FM[1] :INTERNAL[1] : FREQuency 400 Hz [:SOURce] :FM[1] :STATe ON
S3	[ <b>:SOURce</b> ] :FM[1] :SOURce INT[1] [:SOURce] :FM[1] :INTERNAL[1] : FREQuency 1 kHz	[ <b>:SOURce</b> ] :FM[1] :SOURce INT[1] [:SOURce] :FM[1] :INTERNAL[1] : FREQuency 1 kHz [:SOURce] :FM[1] :STATe ON

- If AM or pulse modulation is on, the signal generator attempts to set up FM with the same settings and turns off the other modulation.

#### S4 (Modulation Source Off)

- If PM is the current active function, pulse modulation is disabled by mapping to the following command:

```
[ :SOURce] :PULM:STATE OFF
```

- If the last code executed is S2 or S3, internal modulation is turned off for the AM and FM:

```
[ :SOURce] :AM[1]:STATE OFF
```

```
[ :SOURce] :FM[1]:STATE OFF
```

- If the last code executed is S1, external modulation is turned off for the AM and FM:

```
[ :SOURce] :AM[1]:STATE OFF
```

```
[ :SOURce] :FM[1]:STATE OFF
```

- If the current active function is AM or FM, the appropriate modulation is turned off:

```
[ :SOURce] :AM[1]:STATE OFF
```

```
[ :SOURce] :FM[1]:STATE OFF
```

- If S4 is executed with S1, S2, or S3, it will turn off the current modulation.

#### S5 (DC FM)

- FM becomes the active function.
- In addition, the following commands are mapped:

```
[ :SOURce] :FM[1]:SOURce EXTERNAL1
```

```
[ :SOURce] :PULM:STATE OFF
```

```
[ :SOURce] :AM[1]:STATE OFF
```

```
[ :SOURce] :FM[1]:EXTERNAL[1]:COUPLING DC
```

```
[ :SOURce] :FM[1]:STATE ON
```

## Aeroflex IFR3410 Compatible Commands

### MXG and R&S Signal Generator Compatibility

The Aeroflex IFR3410 has dual RF outputs.

- 
- NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".
- The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].
- The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].
-

**Table 7-8 MXG to IFR3410 SCPI Command Comparison**

IFR3410 Command	N5181A	N5182A	REMARKS
:CALibration:IQUSer:ADJust	✓	✓	
:CALibration:IQUSer:MODE SPOT SPAN :CALibration:IQUSer:MODE?	✓	✓	<i>Supported but the frequency unit suffix is not supported.</i>
:CALibration:IQUSer:SPAN SPAN20 SPAN40 SPAN80 SPAN120 :CALibration:IQUSer:SPAN?	✓	✓	
:OUTPut [:POWer] [:STATE] OFF ON 0 1 :OUTPut [:POWer] [:STATE]?	✓	✓	
[ :SOURce] :FREQuency[:CW]:FIXed] <NRf>(Hz)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameters are not supported:</i> RETurn   REFERENCE
[ :SOURce] :FREQuency[:CW]:FIXed] :STEP[:INCREMENT] <NRf>(Hz)   MAXimum   MINimum	✓	✓	
[ :SOURce] [:MODulation]:AM[1] [:DEPTh] <NRf>(PCT)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameters are not supported:</i> RETurn   REFERENCE
[ :SOURce] [:MODulation]:AM[1]:EXTernal:COUpling AC   DC	✓	✓	
[ :SOURce] [:MODulation]:AM[1]:INTERNAL:FREQuency[:FIXed] <NRf>(Hz)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameters are not supported:</i> RETurn   REFERENCE
[ :SOURce] [:MODulation]:AM[1]:INTERNAL:SHAPe SINE	✓	✓	<i>Supported but the following parameters are not supported:</i> SQUARE   TRIangle   RAMP
[ :SOURce] [:MODulation]:AM[1]:SOURce INTERNAL   EXTernal	✓	✓	
[ :SOURce] [:MODulation]:AM[1]:STATe OFF ON 0 1	✓	✓	
[ :SOURce] [:MODulation]:FM[1] [:DEViation] <value>(Hz)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameter is not supported:</i> RETurn   REFERENCE
[ :SOURce] [:MODulation]:FM[1]:EXTernal:COUpling AC   DC	✓	✓	
[ :SOURce] [:MODulation]:FM[1]:INTERNAL:FREQuency[:FIXed] <value>(Hz)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameter is not supported:</i> RETurn   REFERENCE

**Table 7-8 MXG to IFR3410 SCPI Command Comparison**

IFR3410 Command	N5181A	N5182A	REMARKS
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :FM[1] :INTERNAL :SHAPe SINE	✓	✓	<i>Supported but the following parameters are not supported:</i> SQuare   TRIangle   RAMP
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :FM[1] :SOURCE INTERNAL   EXTERNAL	✓	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :FM[1] :STATE OFF   ON   0   1	✓	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:ABORT	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:INITiate	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB [:MEMORY] :FORMat <wide_sectors> [:SOURce] [ <b>:MODulation</b> ] :IQ:ARB [:MEMORY] :FORMat?	-	✓	<i>Command accepted without error but does nothing.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:MODE SINGLE CONTinuous [:SOURce] [ <b>:MODulation</b> ] :IQ:ARB:MODE?	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:RMSoffset <rms_offset> [:SOURce] [ <b>:MODulation</b> ] :IQ:ARB:RMSoffset?	-	✓	<i>Command accepted without error but does nothing.</i> <i>Query always returns a 0.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:TOFFset <sample_rate_offset_in_parts_per_million> [:SOURce] [ <b>:MODulation</b> ] :IQ:ARB:TOFFset?	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:TRIGger IMMEDIATE START [:SOURce] [ <b>:MODulation</b> ] :IQ:ARB:TRIGger?	-	✓	<i>Supported but the following parameter is not supported: SSTOP</i> <i>Supported but the polarity is only positive.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:BURSt:PRESet	-	-	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:CATalog?	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:CHECKsum? <"filename.aiq">	-	✓	<i>Command accepted without error but does nothing.</i> <i>Query always returns a 1.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:DATA <"filename.aiq">,#blockdata	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:DELETED:ALL	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:DELETED[:FILE] <"filename.aiq">	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVEform:DLOAD <"filename.aiq">,#blockdata	-	✓	

**Table 7-8 MXG to IFR3410 SCPI Command Comparison**

IFR3410 Command	N5181A	N5182A	REMARKS
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:FORMAT <wide_sectors> -- ignored	-	✓	<i>Command accepted without error but does nothing.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:FORMAT?			
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:HEADER?	-	-	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:SELECT <"filename.aiq"> [ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:SELECT?	-	✓	<i>Supported but the path is not returned, only the basename.</i>
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:ARB:WAVeform:SUMMARY? <"filename.aiq">	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:DIFFerential:ICHannel:OFFSe t <value>	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:DIFFerential:QCHannel:OFFSe t <value>	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:STATE OFF ON 0 1 [ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:STATE?	-	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:SOURce ARB EANalog [ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :IQ:SOURce?	-	✓	<i>Supported but the following parameters are not supported:</i> DIFFerential DM EDIGital
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PM[1] [ <b>:DEViation</b> ] <value>(rad)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameters are not supported:</i> RETurn   REFERENCE
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PM[1]:INTERNAL:FREQuency[:FIXed] <NRF>(Hz)   MAXimum   MINimum   UP   DOWN	✓	✓	<i>Supported but the following parameters are not supported:</i> RETurn   REFERENCE
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PM[1]:INTERNAL:SHAPe SINE	✓	✓	<i>Supported but the following parameters are not supported:</i> SQUARE   TRIangle   RAMP
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PM[1]:SOURce INTERNAL   EXTERNAL	✓	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PM[1]:STATE OFF   ON   0   1	✓	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PULM:STATE OFF   ON   0   1	✓	✓	
[ <b>:SOURce</b> ] [ <b>:MODulation</b> ] :PULM:SOURce EXTERNAL	✓	✓	<i>Supported but the following parameters are not supported:</i> INTERNAL
[ <b>:SOURce</b> ] :POWer:ALC:BW AUTO Moderate NARRow BROad [ <b>:SOURce</b> ] :POWer:ALC:BW?	✓	✓	<i>Command accepted without error but does nothing.</i>

**Table 7-8 MXG to IFR3410 SCPI Command Comparison**

IFR3410 Command	N5181A	N5182A	REMARKS
[ :SOURCE] :POWER:ALC[ :STATE]   AUTO   NORMal   AM   FROZen   SCALED	✓	✓	<i>Supported but if queried, the Agilent MXG only returns a 1 or a 0.</i>
[ :SOURCE] :POWER[:LEVEL] [:IMMediate] [:AMPLitude]<numeric_value>	✓	✓	
:SYSTem:COMMunicate:GPIB[:SELF] :ADDReSS <number>	✓	✓	
:SYSTem:ERRor:ALL?	✓	✓	<i>Supported but the error codes will be Agilent MXG specific (i.e. Aeroflex error codes do not apply).</i>
:SYSTem:ERRor:CODE:ALL?	✓	✓	<i>Supported but the error codes will be Agilent MXG specific (i.e. Aeroflex error codes do not apply).</i>
:SYSTem:ERRor:CODE[:NEXT] ?	✓	✓	<i>Supported but the error codes will be Agilent MXG specific (i.e. Aeroflex error codes do not apply).</i>
:SYSTem:ERRor[:NEXT] ?	✓	✓	<i>Supported but the error codes will be Agilent MXG specific (i.e. Aeroflex error codes do not apply).</i>
:SYSTem:PRESet	✓	✓	
:SYSTem:SETTings:FULL:SAVE <0...99>	✓	✓	
:SYSTem:SETTings:FULL:RECall <0...99>	✓	✓	
:UNIT:VoltTYPe PD EMF :UNIT:VoltTYPe?	✓	✓	

## Rohde & Schwarz SMATE/SMIQ/SML/SMU Compatible Commands

### MXG and R&S Signal Generator Compatibility

The R&S SMIQ, SMATE, SMU, and SMU200A have dual RF outputs.

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**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

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**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison**

R&S Commands	N5181A	N5182A	Remarks
:ABOrT	✓	✓	
:ABOrT:LIST	-	✓	
:ABOrT:MSERence	-	-	
:ABOrT[:SWEep]	✓	✓	
:ARB:ASET:BERT:TYPE ON OFF	-	-	
:ARB:ASET:DM:IQFilter ON OFF	-	-	
:ARB:ASET:DM:IQSswap ON OFF	-	-	
:ARB:ASET:STATE ON OFF	-	-	
:ARB:ASET:TRIGger:MODE ON OFF	-	-	
:ARB:CLOCK	-	✓	
:ARB:CLOCK:DELay	-	-	
:ARB:CLOCK:SOURce INTernal EXTernal	-	-	
:ARB:IQ:LEVel	-	-	
:ARB:IQ:LEVel:MODE MANuell AUTO	-	-	
:ARB:IQ:SKEW	-	-	
:ARB:SEQUence AUTO RETrigger AAUTO ARETrigger	-	✓	
:ARB:STATE ON OFF	-	✓	
:ARB:TRIGger:DELay	-	-	
:ARB:TRIGger[:EXTernal<1> <2>]:DELay	-	✓	
:ARB:TRIGger:INHibit:POLarity POSitive NEGative	-	-	
:ARB:TRIGger:OUTPut[1] 2:DELay	-	-	
:ARB:TRIGger:OUTPut[1] 2:MODE:CATalog?	-	-	
:ARB:TRIGger:OUTPut[1] 2:MODE USER `mode_string`	-	-	
:ARB:TRIGger:OUTPut[1] 2:OFFTime	-	-	
:ARB:TRIGger:OUTPut[1] 2:ONTime	-	-	
:ARB:TRIGger:OUTPut[1] 2:POLarity POSitive NEGative	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:ARB:TRIGger:SOURce INTERNAL EXTERNAL	-	✓	
:ARB:WAVeform:CATalog?	-	✓	
:ARB:WAVeform:CATalog:LENGTH?	-	-	
:ARB:WAVeform:DATA 'name',<binary block data>	-	✓	
:ARB:WAVeform:DELETED '<name>'	-	✓	
:ARB:WAVeform:FREE?	-	-	
:ARB:WAVeform:POINTS?	-	-	
:ARB:WAVeform:SElect '<name>'?	-	✓	
:ARB:WAVeform:TAG? '<tagname>'	-	-	
:BERT...	-	-	<i>This subsystem is not supported.</i>
:BLER...	-	-	<i>This subsystem is not supported.</i>
:CALibration[:ALL]?	✓	✓	
:CALibration:ALL[:MEASure]?	✓	✓	
:CALibration[1]:FMOffset[:MEASure]?	✓	✓	<i>Returns a 0 value when calibration is completed.</i>
:CALibration[1]:FREQuency[:MEASure]?	✓	✓	<i>Command is accepted, returns a 0, but no other action is taken in the Agilent MXG.</i>
:CALibration:FSIM[:MEASure]?	-	-	
:CALibration[1] 2:IQModulator:FULL?	✓	✓	
:CALibration:LATTenuation[:MEASure]?	-	-	
:CALibration:LEVel:DATA?	-	-	
:CALibration:LEVel:STATE ON OFF	-	-	
:CALibration:LEVel:STATE	-	-	
:CALibration:LFGenerator[:MEASure]?	✓	✓	<i>Command is accepted but no action is taken in the Agilent MXG.</i>
:CALibration:LFGenLevel[:MEASure]?	✓	✓	
:CALibration[1]:LFOoutput[:MEASure]?	✓	✓	<i>Command is accepted, returns a 0, but no other action is taken in the Agilent MXG.</i>

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:CALibration:LPReset[:MEASure]?	-	-	
:CALibration:LPReset:DATA?	-	-	
:CALibration:MAINloop[:MEASure]?	✓	✓	
:CALibration:NDSim[:MEASure]?	-	-	
:CALibration:ROSCillator[:DATA]	-	-	
:CALibration:VMODulation[:MEASure]?	✓	✓	
:CALibration:VSUMmation[:MEASure]?	-	-	
:CALibration:VSUMmation:DAC?	-	-	
:CALibration:VSUMmation:KOS?	-	-	
:CALibration:VSUMmation:OFFS?	-	-	
:DIAGnostic[:MEASure]:POINT?	-	-	
:DIAGnostic:CLIST:CHECksum:CALculate	-	-	
:DIAGnostic:CLIST:CHECksum:DATA?	-	-	
:DIAGnostic:CNMeasure:MODE CN CARRier NOISE	-	-	
:DIAGnostic:DList:CHECksum:CALculate	-	-	
:DIAGnostic:DList:CHECksum:DATA?	-	-	
:DIAGnostic:INFO:CCount:ATTenuator1 2 3 4?	-	-	<i>Supported but the numeric suffixes, 1/2/3/4 and 1/2/3/4/5/6, are ignored.</i>
:DIAGnostic:INFO:CCount:ATTenuator1 2 3 4 5 6?	✓	✓	<i>Regardless of the numeric suffix used, the command always returns the total attenuator count.</i>
:DIAGnostic:INFO:CCount:POWer?	-	-	
:DIAGnostic:INFO:MODules?	-	-	
:DIAGnostic:INFO:OTIMe?	✓	✓	
:DIAGnostic:INFO:POCounter?	✓	✓	
:DIAGnostic:INFO:SDATe?	-	-	
:DISPlay:ANNotation[:ALL] ON OFF	-	-	
:DISPlay:ANNotation:AMPLitude ON OFF	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:DISPlay:ANNotation:FREQuency ON OFF	-	-	
:FORMat [:DATA] ASCii PACKed	-	-	
:FORMat:BORDer NORMAL SWAPPed	-	-	
:MEMory:NSTates?	-	-	
:OUTPut [:STATE] ON OFF	-	-	
:OUTPut2 [:STATE] ON OFF	-	-	
:OUTPut1 3 [:STATE] ON OFF	-	-	<i>Output 1—Blank output unsupported</i>
:OUTPut [:STATE]:PON OFF UNCHanged	-	-	
:OUTPut1 [:STATE]:PON OFF UNCHanged	-	-	
:OUTPut:AFIXed RANGE LOWER?	-	-	
:OUTPut:AFIXed RANGE UPPer?	-	-	
:OUTPut:AMODE AUTO FIXed ELECTronic	-	-	
:OUTPut2:AMODE AUTO FIXed	-	-	
:OUTPut1 3:AMODE AUTO FIXed	-	-	<i>FIXed mode not available on Output 3.</i>
:OUTPut1:ATTenuation 0–110dB	-	-	<i>Output 2 and 3 unsupported.</i>
:OUTPut:BLANK:POLarity NORMAL INVerted	-	-	
:OUTPut:IMPedance?	-	-	
:OUTPut1 3:IMPedance?	-	-	<i>Always returns 50 ohms. Output 2 is not supported.</i>
:OUTPut:PROTection:CLEar	-	-	
:OUTPut:PROTection:TRIPPed?	-	-	
:OUTPut3:SCALE 0.5 1	-	-	<i>Output 1 and 2 unsupported.</i>
:OUTPut2:VOLTage	-	-	
*RCL	✓	✓	
[*:SOURce]:AM:BBAND [:STATE] ON OFF	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURCE] :AM:EXTernal:COUPling AC DC	✓	✓	
[ :SOURCE] :AM[:DEPTH]	✓	✓	
[ :SOURCE] :AM:EXTernal:COUPling AC DC	✓	✓	
[ :SOURCE] :AM:EXTernal1 2:COUPling AC DC	-	-	<i>The Agilent MXG accepts either suffix, 1 2, to change the coupling on its single external input.</i>
[ :SOURCE] :AM:EXTernal1 2:IMPedance 600 Ohm 100 kOhm	-	-	
[ :SOURCE] :AM:INTERNAL:FREquency	✓	✓	<i>Preset value is 1KHz.</i>
[ :SOURCE] :AM:SOURce EXTERNAL INTERNAL	✓	✓	<i>Supported but the following parameter is not supported: TTONE  EXT, INT</i>
[ :SOURCE] :AM:SOURce INTERNAL EXT2	-	-	
[ :SOURCE] :AM:STATE ON OFF	✓	✓	<i>In the N5182A, AM On does not turn off digital modulation formats .</i> <i>May need to turn on the LF Source in conjunction with this command.</i>
*SAV	✓	✓	<i>SMATE200A &amp; SMIQ: The Agilent MXG supports the parameters [1-1000].</i> <i>SMJ100A: The Agilent MXG supports the parameters [0-10], where 0 is the instrument preset state.</i> <i>SMV: The Agilent MXG supports the parameters [1-100].</i> <i>SML: The Agilent MXG supports the parameters [0-50].</i>
[ :SOURCE[1]] :AWGN...	-	-	
[ :SOURCE[1]] :BB:CFACtor?	-	-	
[ :SOURCE] [1]:BB:ARB:CLOCK <value> [ :SOURCE] [1]:BB:ARB:CLOCK?	-	✓	
[ :SOURCE:] [1]:BB:ARB:SEQUence AUTO RETRigger AAuto ARETrigger SINGLE [ :SOURCE:] [1]:BB:ARB:SEQUence	-	✓	<i>AUTO: CONTinuous + Free Run</i> <i>RETRigger: CONTinuous + Reset &amp; Run + implicit trigger</i> <i>AAuto: CONTinuous + Trigger &amp; Run</i> <i>ARETrigger: CONTinuous + Reset &amp; Run</i> <i>SINGLE: SINGLE + Restart on Trig</i>

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ <b>:SOURce</b> ] [1] :BB:ARB:STATe ON OFF [ <b>:SOURce</b> ] [1] :BB:ARB:STATe?	-	✓	
[ <b>:SOURce</b> ] [1] :BB:ARB:TRIGger:OUTPut [1]  2 3 4:MODE UNCHanged REStart PULSe PATtern RATio	-	✓	
[ <b>:SOURce</b> [1]] :BB:ARB:TRIGger[:EXTernal [1]  2]:DELay [ <b>:SOURce</b> [1]] :BB:ARB:TRIGger[:EXTernal [1]  2]:DELay?	-	✓	<i>Supported but applied at the current sample rate when the command is sent.</i>
[ <b>:SOURce</b> [1]  2] :BB:ARB:TRIGger:SOURce INTERNAL  EXTernal BEXTernal [ <b>:SOURce</b> [1]  2] :BB:ARB:TRIGger:SOURce?	-	✓	<i>Supported but the following parameters are not supported: OBASeband</i> <i>If parameters are used, they will generate a parameter error.</i>
[ <b>:SOURce</b> ] [1] :BB:ARB:WAVEform:CATAlog? [<path>]	-	✓	
[ <b>:SOURce</b> ] [1] :BB:ARB:WAVEform:DATA <"filename.wv">	-	✓	
[ <b>:SOURce</b> ] [1] :BB:ARB:WAVEform:DELETED <"filename.wv">	-	✓	
[ <b>:SOURce</b> ] [1] :BB:ARB:WAVEform:SELect <"filename.wv"> [ <b>:SOURce</b> ] [1] :BB:ARB:WAVEform:SELect?	-	✓	
[ <b>:SOURce</b> [1]] :BB:IQOutput:SOURce A [ <b>:SOURce</b> [1]] :BB:IQOutput:SOURce?	-	✓	<i>Supported but the following parameters are not supported:  B </i> <i>Supported, but query always returns A.</i>
[ <b>:SOURce</b> [1]] :BB:PATH:COUNT?	-	✓	<i>Supported, but query always returns 1.</i>
[ <b>:SOURce</b> [1]] :BB:PGain <value> -- does nothing [ <b>:SOURce</b> [1]] :BB:PGain?	-	✓	<i>Command is accepted but no action is taken in the Agilent MXG.</i> <i>Supported, but query always returns 0.</i>
[ <b>:SOURce</b> [1]] :BB:ROUTE A [ <b>:SOURce</b> [1]] :BB:ROUTE?	-	✓	<i>Supported but the following parameters are not supported:  B AB </i> <i>Supported, but query always returns A.</i>
[ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:BERT:TYPE ON OFF [ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:BERT:TYPE?	-	-	
[ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:DM:IQFilter ON OFF 1 0 - does nothing [ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:DM:IQFilter? - returns OFF	-	-	
[ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:DM:IQSswap ON OFF 1 0 - does nothing [ <b>:SOURce</b> [1]] [:BB]:ARB:ASET:DM:IQSswap? - returns OFF	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce[1] ] [:BB] :ARB:ASET:STATE ON {OFF} [:SOURce[1] ] [:BB] :ARB:ASET:STATE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:ASET:TRIGger:MODE ON OFF [:SOURce[1] ] [:BB] :ARB:ASET:TRIGger:MODE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:CLOCK:DELay 0.0 - 0.8 (sample) [:SOURce[1] ] [:BB] :ARB:CLOCK:DELay?	-	✓	<i>Supported but applied at the current sample rate when the command is sent.</i>
[ :SOURce[1] ] [:BB] :ARB:CLOCK:MODE SAMPLE MSAMPLE [:SOURce[1] ] [:BB] :ARB:CLOCK:MODE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:CLOCK:MULTiplier 1...64 [:SOURce[1] ] [:BB] :ARB:CLOCK:MULTiplier?	-	-	
[ :SOURce[1] ] [:BB] :ARB:CLOCK:SOURce INTERNAL [:SOURce[1] ] [:BB] :ARB:CLOCK:SOURce?	-	✓	<i>Supported but the following parameter is not supported: EXTERNAL</i>
[ :SOURce[1] ] [:BB] :ARB:IQ:LEVel -3dB to 6dB [:SOURce[1] ] [:BB] :ARB:IQ:LEVel?	-	-	
[ :SOURce[1] ] [:BB] :ARB:IQ:LEVel:MODE MANuell AUTO [:SOURce[1] ] [:BB] :ARB:IQ:LEVel:MODE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:IQ:SKEW <valueInSeconds> [:SOURce[1] ] [:BB] :ARB:IQ:SKEW?	-	✓	
[ :SOURce[1] ] [:BB] :ARB:MCARRIER...	-	-	
[ :SOURce[1] ] [:BB] :ARB:PRESet	-	✓	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:ARM:EXECute	-	✓	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:EXECute	-	✓	
[ :SOURce[1] ] [:BB] :ARB:TRIGger[:EXTernal[1] 2]: INHibit 0 - 2^32-1 samples [:SOURce[1] ] [:BB] :ARB:TRIGger[:EXTernal[1] 2]: INHibit?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:OBASEband:DELay 0... 2^32-1 samples [:SOURce[1] ] [:BB] :ARB:TRIGger:OBASEband:DELay?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:OBASEband:INHibit 0... 2^32-1 samples [:SOURce[1] ] [:BB] :ARB:TRIGger:OBASEband:INHibit?	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: DELay 0 - 2^20-1 Samples [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: DELay?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut:DELy:FIXed ON  OFF [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut:DELy:FIXed?	-	-	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4:DELay: MAX?	-	-	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4:DELay: MIN?		-	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2: MODE USER `mode_string` [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2:MODE?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2:MODE: CATalog?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: OFFTime 0-waveform_len-1 samples [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: OFFTime?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: ONTime 0-waveform_len-1 samples [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: ONTime?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: PATTern #B0,1 ... #B11...1,32 [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: PATTern?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4:PULSe: DIVider 2 - 2^10 [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4:PULSe: DIVider?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: POLarity POSitive NEGative [:SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4: POLarity?	-	✓	
[ :SOURce[1] ] [:BB]:ARB:TRIGger:OUTPut [1]  2 3 4:PULSe: FREQuency?	-	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce[1] ] [:BB] :ARB:TRIGger:RMODE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:SLENGth 1 [ :SOURce[1] ] [:BB] :ARB:TRIGger:SLENGth?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TRIGger:SLUnit SEQuence [ :SOURce[1] ] [:BB] :ARB:TRIGger:SLUnit?	-	✓	<i>Supported but the following parameters are not supported: SAMPLE</i>
[ :SOURce[1] ] [:BB] :ARB:TRIGger: SMODE SAME NEXT NSEam [ :SOURce[1] ] [:BB] :ARB:TRIGger:SMODE?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:FREQuency 100 Hz ... 25 MHz [ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:FREQuency?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:PHASe -180.00 Deg - + 180.00 Deg [ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:PHASe?	-	-	
[ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:SAMPles 3 - 1000 samples per period [ :SOURce[1] ] [:BB] :ARB:TSIGnal:SINE:SAMPles?	-	-	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:CATalog:LENGTH? [<"path">]	-	✓	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:FREE?	-	✓	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:POINTS? [<"filename.wv">]	-	✓	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:DATA? <"filename.wv">,<tag>	-	-	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:FREE?	-	✓	
[ :SOURce[1] ] [:BB] :ARB:WAVEform:TAG? "comment" "marker name" "poweroffset"	-	-	
[ :SOURce[1] ] [:BB] :ARB:WSEGment...	-	-	
[ :SOURce[1] ] :BB:FOFFset -50Mhz - +50Mhz [ :SOURce[1] ] :BB:FOFFset?	-	✓	
[ :SOURce[1] ] [:BB] :IQGain AUTO DBM3 DB0 DB3 DB6 [ :SOURce[1] ] [:BB] :IQGain?	-	-	
[ :SOURce] :CORRection[:STATE] ON OFF 1 0	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :CORRection:CSET[:SElect] <'table_name'>	-	-	
[ :SOURce] :CORRection:CSET:CATalog?	-	-	
[ :SOURce] :CORRection:CSET:DATA:FREQuency	-	-	
[ :SOURce] :CORRection:CSET:DATA:POWer	-	-	
[ :SOURce] :CORRection:CSET:DATA:POWers?	-	-	
[ :SOURce] :CORRection:CSET:DELetE <'table_name'>	-	-	
[ :SOURce] :CORRection:CSET:FREE?	-	-	
[ :SOURce] :DECT:CLOCK:DELay	-	-	
[ :SOURce] :DECT:CLOCK:SOURce INTERNAL EXTERNAL	-	-	
[ :SOURce] :DECT:DList:CATalog?	-	-	
[ :SOURce] :DECT:FILTER:PARameter	-	-	
[ :SOURce] :DECT:FILTER:SElect	-	-	
[ :SOURce] :DECT:FILTER:TYPE GAUSSs SCOSine COSine USER	-	-	
[ :SOURce] :DECT:FList:CATalog?	-	-	
[ :SOURce] :DECT:FList:DELetE <'name'>	-	-	
[ :SOURce] :DECT:FList:LOAD <'name'>	-	-	
[ :SOURce] :DECT:FList:PREDefined:CATalog?	-	-	
[ :SOURce] :DECT:FList:PREDefined:LOAD 'Framelisten-Name'	-	-	
[ :SOURce] :DECT:FList:STORe <'Framelisten-Name'>	-	-	
[ :SOURce] :DECT:FORMAT GFSK P4DQpsk	-	-	
[ :SOURce] :DECT:FSK:DEViation	-	-	
[ :SOURce] :DECT:PRAMP:FOFFset	-	-	
[ :SOURce] :DECT:PRAMP:PRESet	-	-	
[ :SOURce] :DECT:PRAMP:ROFFset	-	-	
[ :SOURce] :DECT:PRAMP:SHAPe LINear COSine	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :DECT:PRAMP:TIME	-	-	
[ :SOURce] :DECT:PREamble:TYPE NORMAL   PROLonged	-	-	
[ :SOURce] :DECT:SEQUence AUTO   RETRigger   AAUTO   ARETrigger	-	-	
[ :SOURce] :DECT:SIMulation:TADJustment	-	-	
[ :SOURce] :DECT:SIMulation:JITTER	-	-	
[ :SOURce] :DECT:SLOT:ATTenuation	-	-	
[ :SOURce] :DECT:SLOT<i>[:SOURce] :AFIeld PN9   PN11   PN15   PN16   PN20   PN21   PN23   DLIST   SDATA	-	-	
[ :SOURce] :DECT:SLOT<i>[:SOURce] :AFIeld:DLIST 'name'	-	-	
[ :SOURce] :DECT:SLOT<i>[:SOURce] :BFIeld PN9   PN11   PN15   PN16   PN20   PN21   PN23   DLIST   SDATA	-	-	
[ :SOURce] :DECT:SLOT<i>[:SOURce] :BFIeld:DLIST 'name'	-	-	
[ :SOURce] :DECT:SLOT<i>[:SOURce] :ZFIeld ON   OFF	-	-	
[ :SOURce] :DECT:SLOT<i>:LEVel OFF   ATT   FULL	-	-	
[ :SOURce] :DECT:SLOT<i>:PREamble:DATA	-	-	
[ :SOURce] :DECT:SLOT<i>:PREamble:PROLonged:DATA	-	-	
[ :SOURce] :DECT:SLOT<i>:PRESet	-	-	
[ :SOURce] :DECT:SLOT<i>:RAMP:CW ON   OFF	-	-	
[ :SOURce] :DECT:SLOT<i>:RAMP:DATA	-	-	
[ :SOURce] :DECT:SLOT<i>:STShift	-	-	
[ :SOURce] :DECT:SLOT<i>:SYNC	-	-	
[ :SOURce] :DECT:SLOT<i>:TYPE FULL   DOUBle   ADATa	-	-	
[ :SOURce] :DECT:SRATE	-	-	
[ :SOURce] :DECT:STANDARD	-	-	
[ :SOURce] :DECT:STATE ON   OFF	-	-	
[ :SOURce] :DECT:TRIGger:DELay	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ <b>:SOURce</b> ]:DECT:TRIGger:INHibit	-	-	
[ <b>:SOURce</b> ]:DECT:TRIGGER:OUTPut[1]   2:DELay	-	-	
[ <b>:SOURce</b> ]:DECT:TRIGGER:OUTPut[2]:PERiod	-	-	
[ <b>:SOURce</b> ]:DECT:TRIGGER:SOURce EXTERNAL   INTERNAL	-	-	
[ <b>:SOURce</b> ]:DISTortion[:STATE] ON   OFF	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:AM	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:AMBase	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:AM:FREE?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:AM:POINTS?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:CATalog?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:DELETE 'Name der Kennlinie'	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:DELETE:ALL	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:LEVEL:CORRection	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:PM	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:PMBase	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:PMBase:POINTS?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:PM:FREE?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:PM:POINTS?	-	-	
[ <b>:SOURce</b> ]:DISTortion:DATA:SELECT 'Name der Kennlinie'	-	-	
[ <b>:SOURce</b> ]:DISTortion:MODE POLYnomial   DATA	-	-	
[ <b>:SOURce</b> ]:DISTortion:POLYnomial:AMAM:K <i>i</i> >	-	-	
[ <b>:SOURce</b> ]:DISTortion:POLYnomial:AMPM:K <i>i</i> >	-	-	
[ <b>:SOURce</b> ]:DISTortion:POLYnomial:IFUNction ON   OFF	-	-	
[ <b>:SOURce</b> ]:DISTortion:POLYnomial:LEVel:CORRection	-	-	
[ <b>:SOURce</b> ]:DISTortion:RECalculate	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :DM:ASK:DEPTH	-	-	
[ :SOURce] :DM:CLIST:CATALOG?	-	-	
[ :SOURce] :DM:CLIST:CONTROL[:STATe] ON   OFF	-	-	
[ :SOURce] :DM:CLIST:COPY '<Datenlisten-Name>'	-	-	
[ :SOURce] :DM:CLIST:DATA <struc>{,<struc>}	-	-	
[ :SOURce] :DM:CLIST:DELETE '<name>'	-	-	
[ :SOURce] :DM:CLIST:POINTS?	-	-	
[ :SOURce] :DM:CLIST:SELECT '<name>'	-	-	
[ :SOURce] :DM:CLOCK:DELAY	-	-	
[ :SOURce] :DM:CLOCK:MODE BIT SYMBOL	-	-	
[ :SOURce] :DM:CLOCK:POLARITY NORMAL INVERTED	-	-	
[ :SOURce] :DM:CLOCK:SOURCE INTERNAL EXTERNAL COUPLED	-	-	
[ :SOURce] :DM:CODING OFF DIFF DPHS DGRAY GSM NADC PDC PHS TETRA TFTS INMARSAT APCO25 VDL	-	-	
[ :SOURce] :DM:DLIST:CATALOG?	-	-	
[ :SOURce] :DM:DLIST:COPY '<Datenlisten-Name>'	-	-	
[ :SOURce] :DM:DLIST:DATA 0 1{,0   1 }..	-	-	
[ :SOURce] :DM:DLIST:DATA? [<Start>[,<Länge>]]	-	-	
[ :SOURce] :DM:DLIST:DATA:APPEND 0 1{,0   1 }..	-	-	
[ :SOURce] :DM:DLIST:DELETE '<Datenlisten-Name>'	-	-	
[ :SOURce] :DM:DLIST:FREE?	-	-	
[ :SOURce] :DM:DLIST:POINTS <n>	-	-	
[ :SOURce] :DM:DLIST:SELECT '<Datenlisten-Name>'	-	-	
[ :SOURce] :DM:EXTERNAL:IMPEDANCE 600 Ohm 100 kOhm	-	-	
[ :SOURce] :DM:FILTER:MODE LACP LEVIM	-	-	
[ :SOURce] :DM:FILTER:PARAMETER	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :DM:FILT:TYPE SCOSine COSine GAUss BESS1 BESS2 IS95 EIS95 APCO TETRA WCDMa SPHase USER	-	-	
[ :SOURce] :DM:FLIST:CATalog?	-	-	
[ :SOURce] :DM:FLIST:DATA A,B,C,D,I1,Q1,I2,Q2.	-	-	
[ :SOURce] :DM:FLIST:DELeTe '<name>'	-	-	
[ :SOURce] :DM:FLIST:FREE?	-	-	
[ :SOURce] :DM:FLIST:POInts?	-	-	
[ :SOURce] :DM:FLIST:SElect '<name>'	-	-	
[ :SOURce] :DM:FORMAT BPSK   QPSK QIS95 QINMarsat QICO QWCdma OQPSk OIS95 P4Qpsk P4DQpsk PSK8 PSK8 GFSK  GMSK ASK FSK2 FSK4 AFSK4 QAM16 QAM32 QAM64 QAM256 USER	-	-	
[ :SOURce] :DM:FSK:DEViation	-	-	
[ :SOURce] :DM:FSK[:DEViation]	-	-	
[ :SOURce] :DM:FSK:POLarity NORMAL INVerted	-	-	
[ :SOURce] :DM:INPut:IMPedance G1K G50 ECL	-	-	
[ :SOURce] :DM:IQ:CRESTfactor	-	✓	
[ :SOURce] :DM:IQ:FILTer:FREQuency	-	-	
[ :SOURce] :DM:IQ:FILTer:STATE ON OFF	-	-	
[ :SOURce] :DM:IQ:IMPairement[:STATE] ON OFF [:SOURce] :DM:IQ:IMPairement[:STATE]?	-	✓	
[ :SOURce] :DM:IQ:LEAKage[:MAGNitude] [:SOURce] :DM:IQ:LEAKage[:MAGNitude]?	-	✓	
[ :SOURce] :DM:IQ:PRAMp OFF AEXTernal	-	-	
[ :SOURce] :DM:IQ:QUADrature:ANGLE [:SOURce] :DM:IQ:QUADrature:ANGLE?	-	✓	
[ :SOURce] :DM:IQRatio[:MAGNitude] [:SOURce] :DM:IQRatio[:MAGNitude]?	-	✓	
[ :SOURce] :DM:IQ:STATE ON OFF [:SOURce] :DM:IQ:STATE?	-	✓	
[ :SOURce] :DM:IQSswap[:STATE] ON OFF	-	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :DM:IQ:TRANSition ON OFF	-	-	
[ :SOURce] :DM:LEAKage [:MAGnitude]	-	✓	
[ :SOURce] :DM:L DISTortion [:STATe] ON OFF	-	-	
[ :SOURce] :DM:MDELay?	-	-	
[ :SOURce] :DM:MLIST:CATAlog?	-	-	
[ :SOURce] :DM:MLIST:DATA A,B,C,D,E,F,I1,Q1,I2,Q2...	-	-	
[ :SOURce] :DM:MLIST:DELetE '<name>'	-	-	
[ :SOURce] :DM:MLIST:FREE?	-	-	
[ :SOURce] :DM:MLIST:POINTS?	-	-	
[ :SOURce] :DM:MLIST:SELect '<name>'	-	-	
[ :SOURce] :DM:PATTern ZERO ONE ALternate	-	-	
[ :SOURce] :DM:PRAMp [:STATe] ON OFF	-	-	
[ :SOURce] :DM:PRAMp:SOURCE CLIST AEXTernal DEXTernal	-	-	
[ :SOURce] :DM:PRAMp:TIME	-	-	
[ :SOURce] :DM:PRAMp:DELay	-	-	
[ :SOURce] :DM:PRAMp:SHAPE LINear COSine	-	-	
[ :SOURce] :DM:PRAMp:ATTenuation	-	-	
[ :SOURce] :DM:PRBS [:LENGTH] 9 15 16 20 21 23	-	-	
[ :SOURce] :DM:SEQUence AUTO RETrigger AAUTO ARETrigger SINGLE	-	-	
[ :SOURce] :DM:SOURce PRBS PATTern DLIST SERial PARallel SDATA	-	-	
[ :SOURce] :DM:SRATE	-	-	
[ :SOURce] :DM:STANDARD APCFm APCOpsk ASK BLUetooth CDPD CT2 DECT GSM GSMEedge IRIDium FIS95 RIS95 NADC PDC PHS TETRa TFTS PWT ICOBpsk ICOGmsk ICOQpsk WORLDspace QWCDma AT55	-	-	
[ :SOURce] :DM:STATE ON OFF	-	-	
[ :SOURce] :DM:THreshold [:ALL]	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :DM:TRIGger:DELay	-	-	
[ :SOURce] :DM:TRIGger:INHibit	-	-	
[ :SOURce] :DM:TRIGger:SLOPe POSitive NEGative	-	-	
[ :SOURce] :DM:TRIGger:SOURce EXTERNAL INTERNAL	-	-	
[ :SOURce] :DM:TYPE ASK FSK	-	-	
[ :SOURce] :FM:EXTERNAL1 2:COUPLing AC DC	-	-	
[ :SOURce] :DM:EXTERNAL1 2:IMPedance 600 Ohm 100 kOhm	-	-	
[ :SOURce] :FM:INTERNAL:FRQUENCY	-	-	
[ :SOURce] :FM:SOURce INTERNAL EXTERNAL1	-	-	
[ :SOURce] :FM:STATe ON OFF	-	-	
[ :SOURce] :FM1[:DEVIation]	✓	✓	<i>On SMATE200A and SMIQ the preset value is 10 kHz..</i>
[ :SOURce] :FM1:EXTERNAL1:COUPLing AC DC	✓	✓	
[ :SOURce] :FM1:INTERNAL:FRQUENCY	✓	✓	
[ :SOURce] :FM1:PREemphasis 0 50us 75us	-	-	
[ :SOURce] :FM1:SOURce INTERNAL EXTERNAL1 EXTERNAL2	✓	✓	
[ :SOURce] :FM1:STATe ON OFF	✓	✓	
[ :SOURce] :FREQuency:CENTER <num>[<freq suffix>]	✓	✓	
[ :SOURce] :FREQuency[:CW]:FIXed]	✓	✓	
[ :SOURce] :FREQuency:RCL INCLude EXCLude	-	-	
[ :SOURce] :FREQuency[:CW]:FIXed]:RCL INCLude EXCLude	-	-	
[ :SOURce] :FREQuency:RCL INCLude EXCLude	-	-	
[ :SOURce] :FREQuency:MANual	-	-	
[ :SOURce] :FREQuency:MODE CW FIXed SWEep LIST	-	-	
[ :SOURce] :FREQuency:MULTiplier	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :FREQuency:OFFSet	-	-	
[ :SOURce] :FREQuency:SPAN <num>[<freq suffix>]	✓	✓	
[ :SOURce] :FREQuency:START	✓	✓	
[ :SOURce] :FREQuency:STEP [:INCRement]	✓	✓	
[ :SOURce] :FREQuency:STOP	✓	✓	
[ :SOURce] :FSIMulator...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :GPS...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :GSM...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :IQ:CREStfactor <val>dB	-	✓	
[ :SOURCE] :IQ:IMPAirment:IQRatio[:MAGNitude] <value><unit> [:SOURCE] :IQ:IMPAirment:IQRatio[:MAGNitude]?	-	✓	
[ :SOURCE] :IQ:IMPAirment:LEAKage:I <value><unit> [:SOURCE] :IQ:IMPAirment:LEAKage:I?	-	✓	
[ :SOURCE] :IQ:IMPAirment:LEAKage:Q <value><unit> [:SOURCE] :IQ:IMPAirment:LEAKage:Q?	-	✓	
[ :SOURCE] :IQ:IMPAirment:QUADrature[:ANGLE] <value><unit> [:SOURCE] :IQ:IMPAirment:QUADrature[:ANGLE]?	-	✓	
[ :SOURCE] :IQ:IMPAirment[:STATE] ON OFF [:SOURCE] :IQ:IMPAirment[:STATE]?	-	✓	
[SOURce] :IQ:OUTPut:OFFSet:I	-	✓	
[SOURce] :IQ:OUTPut:OFFSet:Q	-	✓	
[ :SOURce] :IQ:SOURce ANALog BASeband	-	✓	
[ :SOURce] :IQ:STATE ON OFF	-	✓	
[ :SOURCE] :IQ:SWAP[:STATE] ON OFF	-	✓	
[ :SOURce] :IS95...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :LFOoutput:FREQuency	✓	✓	
[ :SOURce] :LIST:CATalog?	✓	✓	
[ :SOURce] :LIST:DELete <'List_name'>	✓	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :LIST:DELeTe:ALL	-	-	
[ :SOURce] :LIST:DWell <value>{,<value>}	✓	✓	
[ :SOURce] :LIST:DWell:POINTs?	-	-	
[ :SOURce] :LIST:FREE?	-	-	
[ :SOURce] :LIST:FREQuency <value>{,<value>}	✓	✓	
[ :SOURce] :LIST:FREQuency <value>{,<value>} Bloc data	-	-	
[ :SOURce] :LIST:FREQuency:POINTs?	✓	✓	
[ :SOURce] :LIST:LEARn	✓	✓	
[ :SOURce] :LIST:MODE AUTO STEP	✓	✓	
[ :SOURce] :LIST:POWER <val>dBm block_data	-	-	
[ :SOURce] :LIST:POWER:POINTs?	✓	✓	
[ :SOURce] :LIST:SElect <'list_name'>	✓	✓	
[ :SOURce] [1]   2:LIST:TRIGger:EXECute	✓	✓	
[ :SOURce] [1]   2:LIST:RESET	✓	✓	
[ :SOURce] :LIST:TRIGger:SOURce AUTO IMM SINGLE BUS EXTernal	✓	✓	
[ :SOURce] :MARKer1 2 3 4[:FSWeep] [:STATe] ON OFF	-	-	
[ :SOURce] :MARKer1 2 3 4[:FSWeep] :AMPLitude ON OFF	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10[:FSWeep] :AMPLitude ON   OFF	-	-	
[ :SOURce] :MARKer1 2 3 4[:FSWeep] :AOFF	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10[:FSWeep] :AOFF			
[ :SOURce] :MARKer1 2 3 4[:FSWeep] :FREQuency	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10[:FSWeep]:FREQuency 1 GHz to Fmax	-	-	
[ :SOURce] :MARKer1 2 3 4:PSWeep [:STATe] ON OFF	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10[:FSWeep] [:STATe] ON OFF	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :MARKer1 2 3 4:PSWeep:AOFF	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10:PSWeep:AOFF	-	-	
[ :SOURce] :MARKer1 2 3 4:PSWeep:POWer	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10:PSWeep:POWer	-	-	
[ :SOURce] :MARKer1 2 3 4 5  8 9 10: PSWeep[:STATe] ON OFF	-	-	
[ :SOURce] :MARKer:POLarity NORMAL INVerted	-	-	
[ :SOURce] :MODulation[ALL]:STATe ON OFF	-	-	
[ :SOURce] :NADC...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :NOISE:SNRatio	-	-	
[ :SOURce] :NOISE[:STATe] ON OFF	-	-	
[ :SOURce] :PDC...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :PHASe[:ADJust]	-	-	
[ :SOURce] :PHASe:REFerence	-	-	
[ :SOURce] :PHS...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :PM1[:DEViation]	✓	✓	<i>On the SMATE200A, SMJ100A, and SMIQ the preset value is 1 radian.</i>
[ :SOURce] :PM1:EXTernal1:COUpling AC DC	✓	✓	
[ :SOURce] :PM1:INTernal:FREQuency	✓	✓	
[ :SOURce] :PM1:SOURce INTernal EXTernal1 EXTernal	✓	✓	<i>Supported but the following parameters are not supported: TTONE   EXT, INT   EXTernal2</i>
[ :SOURce] :PM1:STATe ON OFF	✓	✓	
[ :SOURce] :POWER:ALC OFF	✓	✓	<i>When ALC is OFF a power search will be triggered when the level changes.</i>
[ :SOURce] :POWER:ALC:OMODe SHOLD	✓	✓	
[ :SOURce] :POWER:ALC:REFerence	-	-	<i>Power meter leveling mode is unsupported.</i>
[ :SOURce] :POWER:ALC:SEARCh ON OFF ONCE	✓	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :POWer:ALC:SEARch?	-	-	
[ :SOURce] :POWer:ALC:SONCe	✓	✓	
[ :SOURce] :POWer:ALC:SOURce INTernal DIODE	-	-	PMETer <i>not supported</i>
[ :SOURce] :POWer:ALC[:STATE] ON OFF	✓	✓	<i>Supported but the following parameter is not supported:</i> AUTO
[ :SOURce] :POWer:ALC:TABLE[:MEASure]?	-	-	
[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude]	✓	✓	
[ :SOURce] :POWer[:LEVel] [:IMMediate]:OFFSet	-	-	
[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPL]:OFFSet	-	-	
[ :SOURce] :POWer:LIMit[:AMPLitude]	-	-	
[ :SOURce] :POWer:MANual	-	-	
[ :SOURce] :POWer:MODE FIXed SWEep LIST	✓	✓	
[ :SOURce] :POWer:MODE CW FIXed SWEep LIST	-	-	
[ :SOURce] :POWer:PEP?	-	-	
[ :SOURce] :POWer:START	✓	✓	
[ :SOURce] :POWer:STEP[:INCRement]	✓	✓	
[ :SOURce] :POWer:STOP	✓	✓	
[ :SOURce] :PULM:EXTernal:IMPedance 50 Ohm 10 kOhm	-	-	
[ :SOURce] :PULM:POLarity NORMAL INVerted	-	-	<i>Does not affect the polarity of the INTernal source selection.</i>
[ :SOURce] :PULM:SOURCE EXTernal INTernal	-	-	
[ :SOURce] [1]   2:PULM:SOURce INT EXT	✓	✓	
[ :SOURce] :PULM:STATE ON OFF	✓	✓	
[ :SOURce] :PULSe:DELay <delay>	-	-	
[ :SOURce] :PULSe:DOUBLE:DELay 60 ns to 1.3 s	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
[ :SOURce] :PULSe:DOUBle[:STATE] ON OFF	-	-	
[ :SOURce] :PULSe:PERiod <period>	✓	✓	<i>SMV &amp; SML preset value is 10 micro-seconds.</i>
[ :SOURce] :PULSe:WIDTh <width>	✓	✓	<i>SMV &amp; SML preset value is 1 micro-second.</i>
[ :SOURce] :ROSCillator:EXTernal:FREQuency	-	-	
[ :SOURce] :ROSCillator[:INTernal]:ADJust [:STATE] ON OFF	✓	✓	
[ :SOURce] :ROSCillator[:INTernal]:ADJust [:VALue]	✓	✓	
[ :SOURce] :ROSCillator:SOURce INTernal EXTernal	✓	✓	
[ :SOURce] :SWEEp:BTIMe NORMAL LONG	-	-	
[ :SOURce] :SWEEp[:FREQuency] :DWELL1	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :EXECute	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :MODE AUTO MANual STEP	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :POINTs	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :SPACing LINear LOGarithmic	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :STEP[:LINear]	✓	✓	
[ :SOURce] :SWEEp[:FREQuency] :STEP:LOGarithmic	-	-	
[ :SOURce] :SWEEp:POWer:DWELL	-	-	
[ :SOURce] :SWEEp:POWer:MODE AUTO MANual STEP	-	-	
[ :SOURce] :SWEEp:POWer:POINTs	-	-	
[ :SOURce] :SWEEp:POWer:SPACing LOGarithmic	-	-	
[ :SOURce] :SWEEp:POWer:STEP[:LOGarithmic]	-	-	
[ :SOURce] [1]   2:SWEEp:RESet [:ALL]	✓	✓	
[ :SOURce] :WCDMa...	-	-	<i>This subsystem is not supported.</i>
[ :SOURce] :W3GPP...	-	-	<i>This subsystem is not supported.</i>
:SOURce2:FREQuency[:CW] :FIXed]	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:SOURce2:FREQuency:MANual	-	-	
:SOURce2:FREQuency:MODE CW FIXed SWEep	-	-	
:SOURce2:FREQuency:START	-	-	
:SOURce2:FREQuency:STOP	-	-	
:SOURce2:MARKer1 2 3[:FSWeep]:AOFF	-	-	
:SOURce2:MARKer1 2 3[:FSWeep]:FREQuency	-	-	
:SOURce2:MARKer1 2 3[:FSWeep][:STATE] ON OFF	-	-	
:SOURce2:MARKer1 2 3:POLarity NORMAL INVerted	-	-	
:SOURce2:SWEep:BTIMe NORMAL LONG	-	-	
:SOURce2:SWEep[:FREQuency]:DWELL	-	-	
:SOURce2:SWEep[:FREQuency]:MODE AUTO MANual STEP	-	-	
:SOURce2:SWEep[:FREQuency]:POINTS	-	-	
:SOURce2:SWEep[:FREQuency]:SPACing LINear LOGarithmic	-	-	
:SOURce2:SWEep[:FREQuency]:STEP[:LINear]	-	-	
:SOURce2:SWEep[:FREQuency]:STEP:LOGarithmic	-	-	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:STATus:OPERation[:EVENT]?	✓	✓	
:STATus:OPERation:CONDITION?	✓	✓	
:STATus:OPERation:ENABLE <value> :STATus:OPERation:ENABLE?	✓	✓	
: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:QUE?	✓	✓	
:STATus:QUEue [:NEXT]?	✓	✓	Returns all errors and clears the error queue.
:SYSTem:BEEPer:STATE ON OFF	-	-	
:SYSTem:COMMUnicatE:GPIB:LTERminator EOI STANDARD	-	-	
:SYSTem:COMMUnicatE:GPIB[:SELF] :ADDReSS	✓	✓	
:SYSTem:COMMUnicatE:SDATa:BAUD 1200 2400 4800 9600 19200 38400 57600 115200	-	-	
:SYSTem:COMMUnicatE:SERIAL:BAUD 1200 2400 4800 9600 19200 38400 57600 115200	-	-	
:SYSTem:COMMUnicatE:SERIAL:CONTrol:RTS ON IEFull RFR	-	-	
:SYSTem:COMMUnicatE:SERIAL:PACE XON NONE	-	-	
:SYSTem:DISPlay:UPDate ON OFF	✓	✓	
:SYSTem:DISPlay:UPDate[:STATe] ON OFF	✓	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:SYSTem:ERRor?	✓	✓	<i>Supported but error codes will not match with R&amp;S codes.</i>
:SYSTem:ERRor:ALL?	✓	✓	
:SYSTem:ERRor:CODE:ALL?	✓	✓	
:SYSTem:ERRor:CODE[:NEXT]?	✓	✓	<i>Supported but error codes will not match with R&amp;S codes.</i>
:SYSTem:ERRor:COUNT?	✓	✓	
:SYSTem:ERRor[:NEXT]?	✓	✓	
:SYSTem:KLOCK ON   OFF	✓	✓	
:SYSTem:MODE FIXed   MSEQuence	-	-	
:SYSTem:MSEQuence:CATalog?	-	-	
:SYSTem:MSEQuence:DELeTe 'sequence_name'	-	-	
:SYSTem:MSEQuence:DELeTe:ALL	-	-	
:SYSTem:MSEQuence:DWELL	-	-	
:SYSTem:MSEQuence:FREE?	-	-	
:SYSTem:MSEQuence:MODE AUTO STEP	-	-	
:SYSTem:MSEQuence[:RCL]	-	-	
:SYSTem:MSEQuence[:RCL]:POInts?	-	-	
:SYSTem:MSEQuence:SElect	-	-	
:SYSTem:PRESet	✓	✓	<i>MXG's RST state is different.</i>
:SYSTem:PROTect[1 2 3][:STATE] ON OFF,<passwd>	-	-	<i>Command is accepted but no action is taken in the N5183A.</i>
:SYSTem:PROTect[1 2 3 4 5][:STATE] ON OFF 1 0,<passwd>	✓	✓	<i>Command is accepted but no action is taken in the MXG.</i>
:SYSTem:PROTect[:STATE] ON OFF "123456"	✓	✓	<i>Command is accepted but no action is taken in the MXG.</i>
:SYSTem:SECurity[:STATE] ON OFF	-	-	
:SYSTem:SERRor?	✓	✓	<i>Supported but error codes will not match with R&amp;S codes.</i>
:SYSTem:SREStore	✓	✓	

**Table 7-9 MXG to R&S SMATE/SMIQ/SML/SMU Product Command Comparison (Continued)**

R&S Commands	N5181A	N5182A	Remarks
:SYSTem:SSAVE	✓	✓	
:SYSTem:VERSION?	-	-	
:TEST...	-	-	<i>This subsystem is not supported.</i>
:TEST:RAM?	-	-	
:TEST:ROM?	-	-	
:TRIGger:BERT[:IMMEDIATE]	-	-	
:TRIGger:DM[:IMMEDIATE]	-	-	
:TRIGger:DM:SOURce AUTO SINGle EXTernal	-	-	
:TRIGger:FSWeep[:IMMEDIATE]	✓	✓	
:TRIGger:FSWeep:SOURce AUTO IMM SINGLE/BUS EXTernal	✓	✓	
:TRIGger:FSWeep:SOURce SINGLE BUS	✓	✓	
:TRIGger:LIST[:IMMEDIATE]	✓	✓	
:TRIGger:LIST:SOURce AUTO SINGle EXTernal	✓	✓	
:TRIGger:MSEQUence[:IMMEDIATE]	-	-	
:TRIGger:MSEQUence:SOURce SINGLE EXTernal AUTO	-	-	
:TRIGger:SLOPe POSitive NEGative EITHER	-	-	
:TRIGger[:SWEEP] [:IMMEDIATE]	✓	✓	
:TRIGger[:SWEEP]:SOURce AUTO SINGle EXTernal	✓	✓	
:TRIGger1[:SWEEP][:IMMEDIATE]	-	-	<i>Trigger 2 is unsupported.</i>
:TRIGger1[:SWEEP]:SOURce AUTO SINGle EXTernal	-	-	<i>Trigger 2 is unsupported.</i>
:TRIGger1 2:PULSE:SOURCE AUTO EXTernal EGATed	✓	✓	
:UNIT:ANGLE DEGRee DEGree RADian	-	-	
:UNIT:POWER DBM DBW DBMW DBUW DBV DBMV DBUV V	-	-	



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## **8 N5183A SCPI Command Compatibility**

This chapter provides a compatibility listing of SCPI commands. Many commands for other Agilent signal generator models are also supported by the N5183A Signal Generator.

This chapter contains the following major sections:

- “[Overview](#)” on page 414
- “[Changing the Signal Generator Identification String](#)” on page 415
- “[Changing the Signal Generator Option String](#)” on page 415
- “[Functional N5183A SCPI Commands While in a Compatible Language Mode](#)” on page 415
- “[E4428C/38C Compatible Commands](#)” on page 419
- “[E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Compatible Commands](#)” on page 447
- “[8340B/41B Compatible Commands](#)” on page 478
- “[836xxB/L Compatible SCPI Commands](#)” on page 491
- “[8373xB and 8371xB Compatible SCPI Commands](#)” on page 509
- “[8375xB Compatible SCPI Commands](#)” on page 519
- “[8662A/63A Compatible Commands](#)” on page 531

## Overview

The following list shows the supported models along with the language type for each:

N5183A	SCPI commands
C/38C	SCPI commands
E8257D/67D/E8663B	SCPI commands
E8247C/57C/67C	SCPI commands
E8241A/44A/51A/54A	SCPI commands
8360 series	SCPI commands
83711B/12B	SCPI commands
83731B/32B	SCPI commands
83751B/52B	SCPI commands
8340B/41B	programming codes
8662A/63A	programming codes

These commands and programming codes are separated into compatible and non-compatible sections. In many instances, the non-compatible section has the least number of commands/codes, thus providing a more time-efficient way of determining whether or not a command/code is supported by the Agilent MXG.

In some cases, SCPI commands are only partially supported. This usually occurs due to a variance in parameters between the Agilent MXG and other signal generator models. When this condition occurs, the SCPI command will appear in both the compatible and non-compatible sections showing the exact SCPI command syntax that is supported and unsupported.

In addition to providing the compatible command/code listing, this chapter also provides you with Agilent MXG SCPI commands that let you change the signal generator identification output (see “[:SYSTem:IDN](#)” on page 415), select a compatible programming language (see “[:LANGuage \(N5183A\)](#)” on page 415), and query the signal generator for errors (see “[:SYSTem:ERRor\[:NEXT\]](#)” on page 418).

## Changing the Signal Generator Identification String

### :SYSTem:IDN

**Supported** All

:SYSTem:IDN "<string>"

This Agilent MXG signal generator command modifies the identification string that the \*IDN? query returns. The maximum string length is 72 characters. Sending an empty string restores the \*IDN? query output to its factory defined setting.

Modification of the \*IDN? query output enables the Agilent MXG signal generator to identify itself as another signal generator when it is used as a backward compatible replacement. This modification of the identification string does not affect the diagnostic information displayed using the **Diagnostic Info** softkey.

## Changing the Signal Generator Option String

### :SYSTem:OPT

**Supported** All

:SYSTem:OPT "<string>"

This Agilent MXG signal generator command modifies the option string that the \*OPT? query returns. The maximum string length is 72 characters. Sending an empty string restores the \*OPT? query output to its factory shipped setting.

Modification of the \*OPT? query output enables the Agilent MXG signal generator with options to identify itself as another signal generator when it is used as a backward compatible replacement. This modification of the option string does not affect the diagnostic information displayed using the **Diagnostic Info** softkey.

## Functional N5183A SCPI Commands While in a Compatible Language Mode

The commands in this section are used for configuring the compatible programming language for the signal generator.

### :LANGage (N5183A)

**Supported** N5183A

"SCPI"|"8360"|"83712"|"83732"|"83752"|"8340"|"8662"|"8663"|"E4428C"|"E4438C"|"E8257D"|"E8267D"|"E8663B"|"E8247C"|"E8257C"|"E8267C"|"E8241A"|"E8244A"|"E8251A"|"E8254A"

:SYSTem:LANGage?

This command sets the remote language for the signal generator.

SCPI This choice provides compatibility for SCPI commands.

8360	This choice provides compatibility for the 8360 signal generator, which is supported through a GPIB, LAN, or USB interface.
83712	This choice provides compatibility for the 83711B or 83712B signal generators, which are supported through a GPIB, LAN, or USB interface.
83732	This choice provides compatibility for the 83731B or 83732B signal generators, which are supported through a GPIB, LAN, or USB interface.
83752	This choice provides compatibility for the 83751B or 83752B signal generators, which are supported through a GPIB, LAN, or USB interface.
8340	This choice provides compatibility for the 8340B or 8341B signal generators, which are supported only through a GPIB interface.
8662	
8663	This choice provides compatibility for the 8662A or 8663A signal generators, which are supported only through a GPIB interface.
E4428C or E4438C	This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.
E8241A or E8244A or E8251A or E8254A	This choice provides compatibility for the E8241A, E8244A, E8251A, or E8254A signal generators, which are supported through a GPIB, LAN, or USB interface.
E8247C, or E8257C, or E8267C	This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.
E8257D or E8267D or E8663B	This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators, which are supported through a GPIB, LAN, or USB interface.
Key Entry	SCPI      E4428C,E4438C      E8257D,E8267D,E8663B      E8247C,E8257C,E8267C      8360 Series      8663A 83711B,83712B      83731B,83732B      83751B,83752B      8340B,8341B      8662A

**Remarks** The setting enabled by this command is not affected by signal generator power-on, preset, or \*RST.

For more information on supported SCPI commands and programming codes, refer to the *Programming Compatibility Guide*.

## **:PRESet:LANGuage (N5183A)**

**Supported** N5183A

```
:SYSTem:PRESet:LANGuage
"SCPI"|"8360"|"83712"|"83732"|"83752"|"8340"|"8662"|"8663"|"E4428C"|"E4438C"|
|"E8257D"|"E8267D"|"E8663B"|"E8247C"|"E8257C"|"E8267C"|"E8241A"|"E8244A"|"E8251A"|
"E8254A"
:SYSTem:PRESet:LANGuage?
```

This command sets the remote language that is available when the signal generator is preset.

**SCPI** This choice provides compatibility for SCPI commands.

**8360** This choice provides compatibility for the 8360 signal generator, which is supported through a GPIB, LAN, or USB interface.

**83712** This choice provides compatibility for the 83711B or 83712B signal generators, which are supported through a GPIB, LAN, or USB interface.

**83732** This choice provides compatibility for the 83731B or 83732B signal generators, which are supported through a GPIB, LAN, or USB interface.

**83752** This choice provides compatibility for the 83751B or 83752B signal generators, which are supported through a GPIB, LAN, or USB interface.

**8340** This choice provides compatibility for the 8340B or 8341B signal generators, which are supported only through a GPIB interface.

**8662 or 8663** This choice provides compatibility for the 8662A or 8663A signal generators, which are supported only through a GPIB interface.

**E4428C or E4438C** This choice provides compatibility for the E4428C or E4438C signal generators, which are supported through a GPIB, LAN, or USB interface.

**E8257D or E8267D or E8663B** This choice provides compatibility for the E8257D, E8267D, or E8663B signal generators, which are supported through a GPIB, LAN, or USB interface.

**E8247C, or E8257C, or E8267C** This choice provides compatibility for the E8247C, E8257C, or E8267C signal generators, which are supported through a GPIB, LAN, or USB interface.

**E8241A or E8244A or E8251A or E8254A** This choice provides compatibility for the E8241A, E8244A, E8251A or E8254A signal generators, which are supported through a GPIB, LAN, or USB interface.

**\*RST** "SCPI"

<b>Key Entry</b>	<b>SCPI</b>	<b>E4428C,E4438C</b>	<b>E8257D,E8267D,E8663B</b>	<b>E8247C,E8257C,E8267C</b>	<b>8360 Series</b>	<b>8663A</b>
	<b>83711B,83712B</b>	<b>83731B,83732B</b>	<b>83751B,83752B</b>	<b>8340B,8341B</b>	<b>8662A</b>	

## **:SYSTem:ERRor[:NEXT]**

**Supported** All

:SYSTem:ERRor [:NEXT] ?

This query returns the most recent error message from the signal generator error queue. If there are no error messages, the query returns the following output:

+0, "No error"

When there is more than one error message, the query must be sent for each message. Each error message is erased after being queried.

**Key Entry** View Next Error Message

## E4428C/38C Compatible Commands

Commands are indicated as supported by the N5183A or not supported by the N5183A. Use the legend within the table to determine command compatibility.

<b>NOTE</b>	The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".
	The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].
	The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
System Function Commands		
<i>IEEE Common Commands</i>		
*CLS	✓	
*ESE <data> *ESE?	✓	
*ESR?	✓	
*IDN?	✓	
*OPC *OPC?	✓	
*OPT?	✓	
*PSC ON OFF 1 0 *PSC?	✓	
*RCL <reg_num>	✓	
*RST	✓	
*SAV <reg_num>[,<seq_num>]	✓	
*SRE <data> *SRE?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
*STB?	✓	
*TRG	✓	
*TST?	✓	
*WAI	✓	
<i>Calibration Subsystem</i>		
:CALibration:DCFM	✓	
:CALibration:IQ	-	
:CALibration:IQ:DC	-	
:CALibration:IQ:DEFAult	-	
:CALibration:IQ:FULL	-	
:CALibration:IQ:STARt <value><units>	-	
:CALibration:IQ:STARt?	-	
:CALibration:IQ:STOP <value><units>	-	
:CALibration:IQ:STOP?	-	
<i>Communication Subsystem</i>		
:SYSTem:COMMUnicATE:GPIB:ADDReSS <number>	✓	
:SYSTem:COMMUnicATE:GPIB:ADDReSS?	✓	
:SYSTem:COMMUnicATE:GTLocal	✓	
:SYSTem:COMMUnicATE:LAN:CONFig DHCP MANual	✓	
:SYSTem:COMMUnicATE:LAN:CONFig?	✓	
:SYSTem:COMMUnicATE:LAN:GATEway <ipstring>	✓	
:SYSTem:COMMUnicATE:LAN:GATEway?	✓	
:SYSTem:COMMUnicATE:LAN:HOSTname <string>	✓	
:SYSTem:COMMUnicATE:LAN:HOSTname?	✓	
:SYSTem:COMMUnicATE:LAN:IP <ipstring>	✓	
:SYSTem:COMMUnicATE:LAN:IP?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:SYSTem:COMMUnicatE:LAN:SUBNet <ipstring> :SYSTem:COMMUnicatE:LAN:SUBNet?	✓	
:SYSTem:COMMUnicatE:PMETer:ADDRESS <value> :SYSTem:COMMUnicatE:PMETer:ADDRESS?	-	
:SYSTem:COMMUnicatE:PMETer:CHANNEL A B :SYSTem:COMMUnicatE:PMETer:CHANNEL?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicatE:PMETer:IDN E4418B E4419B E4416A E4417A :SYSTem:COMMUnicatE:PMETer:IDN?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicatE:PMETer:TIMEout <num> [<time suffix>] :SYSTem:COMMUnicatE:PMETer:TIMEout?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicatE:SERial:BAUD <number> :SYSTem:COMMUnicatE:SERial:BAUD?	-	
:SYSTem:COMMUnicatE:SERial:ECHO ON OFF :SYSTem:COMMUnicatE:SERial:ECHO?	-	
:SYSTem:COMMUnicatE:SERial:RESet	-	
:SYSTem:COMMUnicatE:SERial:TOUT <value> :SYSTem:COMMUnicatE:SERial:TOUT?	-	
<i>Diagnostic Subsystem</i>		
:DIAGnostic[:CPU]:INFormatiOn:BOARdS?	-	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:ATTenuator?	✓	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:PON?	✓	
:DIAGnostic[:CPU]:INFormatiOn:CCoUnt:PROTection?	✓	
:DIAGnostic[:CPU]:INFormatiOn:DISPlay:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormatiOn:LICense:AUXiliary?	✓	
:DIAGnostic[:CPU]:INFormatiOn:LICense:WAVeform?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:DIAGnostic[:CPU]:INFormation:OPTions?	✓	
:DIAGnostic[:CPU]:INFormation:OPTions:DETail?	✓	
:DIAGnostic[:CPU]:INFormation:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormation:REVision?	✓	
:DIAGnostic[:CPU]:INFormation:SDATe?	✓	
:DIAGnostic[:CPU]:INFormation:WLICense[:VALue]?<waveformType>	-	
<i>Memory Subsystem</i>		
:MEMory:CATalog:BINary?	✓	
:MEMory:CATalog:BIT?	-	
:MEMory:CATalog:CDMA?	-	
:MEMory:CATalog:DMOD?	-	
:MEMory:CATalog:DWCdma?	-	
:MEMory:CATalog:FCDMa?	-	
:MEMory:CATalog:FIR?	-	
:MEMory:CATalog:FSK?	-	
:MEMory:CATalog:IQ?	-	
:MEMory:CATalog:LIST?	✓	
:MEMory:CATalog:MCDMa?	-	
:MEMory:CATalog:MDMod?	-	
:MEMory:CATalog:MDWCdma?	-	
:MEMory:CATalog:MFCdma?	-	
:MEMory:CATalog:MTONe?	-	
:MEMory:CATalog:RCDMa?	-	
:MEMory:CATalog:SEQ?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:MEMORY:CATalog:SHAPe?	-	
:MEMORY:CATalog:STATE?	✓	
:MEMORY:CATalog:UFLT?	✓	
:MEMORY:CATalog:UPC?	-	
:MEMORY:CATalog:UWCDma?	-	
:MEMORY:CATalog[:ALL]?	✓	
:MEMORY:COPY[:NAME] <"filename">,<"filename">	✓	
:MEMORY:DATA <"filename">,<datablock>	✓	
:MEMORY:DATA? <"filename">	✓	
:MEMORY:DATA:APPend <"filename">,<datablock>	✓	
:MEMORY:DATA:BIT <"filename">,<bit_count>,<datablock>	-	
:MEMORY:DATA:BIT? <"filename">		
:MEMORY:DATA:FIR <"filename">,osr,coefficient{,coefficient}	-	
:MEMORY:DATA:FIR? <"filename">		
:MEMORY:DATA:FSK <"filename">,num_states,f0,f0,...[,diff_state,num_diff_states,diff0,diff1,...]	-	
:MEMORY:DATA:FSK? <"filename">		
:MEMORY:DATA:IQ <"filename">,offsetQ,num_states,i0,q0,i1,q1,...[,diff_state,num_diff_states,diff0,diff1,...]	-	
:MEMORY:DATA:IQ? <"filename">		
:MEMORY:DATA:PRAM[1]   2   3   4 :FILE:BLOCK <"filename">,<datablock>	-	
:MEMORY:DATA:PRAM[1]   2   3   4 :FILE:LIST <"filename">,<uint8>[,<uint8>,<....>]	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:MEMORY:DATA:SHAPE <"filename">,num_rise_points,RP0,RP1,...num_fall_points,FP0,FP1,...	-	
:MEMORY:DATA:SHAPE? <"filename">	-	
:MEMORY:DATA:UNPROTECTED <"filename">,<.datablock>	-	
:MEMORY:DELETE:ALL	✓	
:MEMORY:DELETE:BINARY	✓	
:MEMORY:DELETE:BIT	-	
:MEMORY:DELETE:CDMA	-	
:MEMORY:DELETE:DMOD	-	
:MEMORY:DELETE:DWCdma	-	
:MEMORY:DELETE:FCDMA	-	
:MEMORY:DELETE:FIR	-	
:MEMORY:DELETE:FSK	-	
:MEMORY:DELETE:IQ	-	
:MEMORY:DELETE:LIST	✓	
:MEMORY:DELETE:MCDMA	-	
:MEMORY:DELETE:MDMod	-	
:MEMORY:DELETE:MDWCdma	-	
:MEMORY:DELETE:MFCdma	-	
:MEMORY:DELETE:MTONE	-	
:MEMORY:DELETE:RCDMA	-	
:MEMORY:DELETE:SEQ	-	
:MEMORY:DELETE:SHAPE	-	
:MEMORY:DELETE:STATE	✓	
:MEMORY:DELETE:UFLT	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:MEMORY:DELetE:UWCDma	-	
:MEMORY:DELetE[:NAME] <"filename">	✓	
:MEMORY:FREE[:ALL] ?	✓	
:MEMORY:LOAD:LIST <"filename">	✓	
:MEMORY:MOVE <src_file>,<dest_file>	✓	
:MEMORY:STATE:COMMENT <reg_num>,<seq_num>,<"comment">	✓	
:MEMORY:STATE:COMMENT? <reg_num>,<seq_num>	✓	
:MEMORY:STORe:LIST <"filename">	✓	
:MMEMORY:CATAlog? <"msus">	✓	
:MMEMORY:COPY <"filename">,<"filename">	✓	
:MMEMORY:DATA <"filename">,<datablock>	✓	
:MMEMORY:DATA? <"filename">	✓	
:MMEMORY:DELetE:NVWFm	-	
:MMEMORY:DELetE:WFM	-	
:MMEMORY:DELetE[:NAME] <"filename">,[<"msus">]	-	
:MMEMORY:HEADer:CLEar <filename>	-	
:MMEMORY:HEADer:DESCription <"filename">, <"description">	-	
:MMEMORY:HEADer:DESCription? <"filename">		
:MMEMORY:LOAD:LIST <"filename">	✓	
:MMEMORY:MOVE <src_file>,<dest_file>	✓	
:MMEMORY:STORe:LIST <"filename">	✓	
<i>Output Subsystem</i>		
:OUTPut:BLANKing:AUTO ON OFF 1 0	✓	
:OUTPut:BLANKing:AUTO?		

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:OUTPut:BLANking [:STATE] ON OFF 1 0 :OUTPut:BLANking [:STATE] ?	✓	
:OUTPut:MODulation [:STATE] ON OFF 1 0 :OUTPut:MODulation [:STATE] ?	✓	
:OUTPut:PROTection [:STATE] ON OFF 1 0 :OUTPut:PROTection [:STATE] ?	-	
:OUTPut [:STATE] ON OFF 1 0 :OUTPut [:STATE] ?	✓	
<i>Route Subsystem</i>		
:ROUTe:HARDware:DGENerator:...	-	<i>This subsystem is not supported.</i>
<i>Status Subsystem</i>		
:STATus:OPERation:BASEband:CONDITION?	-	
:STATus:OPERation:BASEband:ENABLE <value> :STATus:OPERation:BASEband:ENABLE?	-	
:STATus:OPERation:BASEband:NTRansition <value> :STATus:OPERation:BASEband:NTRansition?	-	
:STATus:OPERation:BASEband:PTRansition <value> :STATus:OPERation:BASEband:PTRansition?	-	
:STATus:OPERation:BASEband[:EVENT] ?	-	
:STATus:OPERation:CONDITION?	✓	
:STATus:OPERation:ENABLE <value> :STATus:OPERation:ENABLE?	✓	
:STATus:OPERation:NTRansition <value> :STATus:OPERation:NTRansition?	✓	
:STATus:OPERation:PTRansition <value> :STATus:OPERation:PTRansition?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:STATus:OPERation[:EVENT]?	✓	
:STATus:PRESet	✓	
:STATus:QUESTIONable:BERT:CONDITION?	-	
:STATus:QUESTIONable:BERT:ENABLE <value>	-	
:STATus:QUESTIONable:BERT:ENABLE?		
:STATus:QUESTIONable:BERT:NTRansition <value>	-	
:STATus:QUESTIONable:BERT:NTRansition?		
:STATus:QUESTIONable:BERT:PTRansition <value>	-	
:STATus:QUESTIONable:BERT:PTRansition?		
:STATus:QUESTIONable:BERT[:EVENT]?	-	
:STATus:QUESTIONable:CALibration:CONDITION?	✓	
:STATus:QUESTIONable:CALibration:ENABLE <value>	✓	
:STATus:QUESTIONable:CALibration:ENABLE?		
:STATus:QUESTIONable:CALibration:NTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:NTRansition?		
:STATus:QUESTIONable:CALibration:PTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:PTRansition?		
:STATus:QUESTIONable:CALibration[:EVENT]?	✓	
:STATus:QUESTIONable:CONDITION?	✓	
:STATus:QUESTIONable:ENABLE <value>	✓	
:STATus:QUESTIONable:ENABLE?		
:STATus:QUESTIONable:FREQuency:CONDITION?	✓	
:STATus:QUESTIONable:FREQuency:ENABLE <value>	✓	
:STATus:QUESTIONable:FREQuency:ENABLE?		

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
:STATus:QUESTIONable:FREQuency:NTRansition <value> :STATus:QUESTIONable:FREQuency:NTRansition?	✓	
:STATus:QUESTIONable:FREQuency:PTRansition <value> :STATus:QUESTIONable:FREQuency:PTRansition?	✓	
:STATus:QUESTIONable:FREQuency[:EVENT] ?	✓	
:STATus:QUESTIONable:MODulation:CONDITION?	-	
:STATus:QUESTIONable:MODulation:ENABLE <value> :STATus:QUESTIONable:MODulation:ENABLE?	-	
:STATus:QUESTIONable:MODulation:NTRansition <value> :STATus:QUESTIONable:MODulation:NTRansition?	-	
:STATus:QUESTIONable:MODulation:PTRansition <value> :STATus:QUESTIONable:MODulation:PTRansition?	-	
:STATus:QUESTIONable:MODulation[:EVENT] ?	-	
:STATus:QUESTIONable:NTRansition <value> :STATus:QUESTIONable:NTRansition?	✓	
:STATus:QUESTIONable:POWER:CONDITION?	✓	
:STATus:QUESTIONable:POWER:ENABLE <value> :STATus:QUESTIONable:POWER:ENABLE?	✓	
:STATus:QUESTIONable:POWER:NTRansition <value> :STATus:QUESTIONable:POWER:NTRansition?	✓	
:STATus:QUESTIONable:POWER:PTRansition <value> :STATus:QUESTIONable:POWER:PTRansition?	✓	
:STATus:QUESTIONable:POWER[:EVENT] ?	✓	
:STATus:QUESTIONable:PTRansition <value> :STATus:QUESTIONable:PTRansition?	✓	
:STATus:QUESTIONable[:EVENT] ?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
<i>System Subsystem</i>		
:SYSTem:CAPability?	✓	
:SYSTem:DATE <year>,<month>,<day>	✓	
:SYSTem:DATE?		
:SYSTem:ERRor:SCPI [:SYNTAX] ON OFF 1 0	✓	
:SYSTem:ERRor:SCPI [:SYNTAX] ?		
:SYSTem:ERRor[:NEXT] ?	✓	
:SYSTem:FILEsystem:SAFEmode ON OFF 1 0	-	
:SYSTem:FILEsystem:SAFEmode?		
:SYSTem:HELP:MODE SINGLE CONTinuous	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:HELP:MODE?		
:SYSTem:IDN "string"	✓	
:SYSTem:LANGUAGE "SCPI" "COMP" "8648" "8662" "8663" "8340" "8360" "83712" "83732" "83752" "8757"?	✓	<i>See “:LANGUAGE (N5183A)” on page 415.</i>
:SYSTem:OEMHead:FREQuency:BAND WR15 WR12 WR10 WR8 WR6 WR5 WR3	-	
:SYSTem:OEMHead:FREQuency:BAND?		
:SYSTem:OEMHead:FREQuency:MULTiplier <val>	-	
:SYSTem:OEMHead:FREQuency:MULTiplier?		
:SYSTem:OEMHead:FREQuency:STARt <val>	-	
:SYSTem:OEMHead:FREQuency:STARt?		
:SYSTem:OEMHead:FREQuency:STOP <val>	-	
:SYSTem:OEMHead:FREQuency:STOP?		
:SYSTem:OEMHead:SElect ON OFF NONE REAR FRONT	-	
:SYSTem:OEMHead:SElect?		
:SYSTem:OPT "string"	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
:SYSTem:PON:TYPE PRESet LAST :SYSTem:PON:TYPE?	✓	
:SYSTem:PRESet	✓	<i>Always performs the same action as the Preset hardkey.</i>  <i>For related Preset hardkey information, refer to “:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?” on page 430</i>
:SYSTem:PRESet:ALL	✓	
:SYSTem:PRESet:LANGuage "SCPI" "COMP" "8648" "8340" "8360" "83712" "83732" "83752" "8757" "8662" "8663" " :SYSTem:PRESet:LANGuage?	✓	<i>See “:PRESet:LANGuage (N5183A)” on page 417.</i>
:SYSTem:PRESet:PERSISTent	✓	
:SYSTem:PRESet:PN9 NORMAL QUICK :SYSTem:PRESet:PN9?	-	
:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?	✓	<i>This command toggles the Preset hardkey state between factory- and user-defined conditions.</i>  <i>The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.</i>
		<b>NOTE</b> If the Preset hardkey is not responding correctly, using the SCPI command: :SYSTem:PRESet:TYPE NORMAL will return the Preset hardkey to its default factory behavior.
:SYSTem:PRESet[:USER]:SAVE	✓	
:SYSTem:SECURITY:DISPLAY ON OFF {1} 0 :SYSTem:SECURITY:DISPLAY?	✓	
:SYSTem:SECURITY:DISPLAY:RESTRICTed ON OFF {1} 0 :SYSTem:SECURITY:DISPLAY:RESTRICTed?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:SYSTem:SECurity:ERASeall	✓	
:SYSTem:SECurity:LEVel {NONE}   ERASE   OVERwrite   SANitize :SYSTem:SECurity:LEVel?	✓	
:SYSTem:SECurity:LEVel:STATE ON OFF 1 0 :SYSTem:SECurity:LEVel:STATE?	✓	
:SYSTem:SECurity:OVERwrite	✓	
:SYSTem:SECurity:SANitize	✓	
:SYSTem:SSAVer:DELay <value> :SYSTem:SSAVer:DELay?	✓	
:SYSTem:SSAVer:MODE LIGHT   TEXT :SYSTem:SSAVer:MODE?	✓	
:SYSTem:SSAVer:STATE ON OFF :SYSTem:SSAVer:STATE?	✓	
:SYSTem:TIME <hour>, <minute>, <second> :SYSTem:TIME?	✓	
:SYSTem:VERSION?	✓	
<b>Trigger Subsystem</b>		
:ABORT	✓	
:INITiate:CONTinuous[:ALL] ON OFF 1 0 :INITiate:CONTinuous[:ALL]?	✓	
:INITiate[:IMMEDIATE] [:ALL]	✓	
:TRIGger:OUTPut:POLarity POSITIVE NEGATIVE :TRIGger:OUTPut:POLarity?	✓	
:TRIGger[:SEQUENCE]:SLOPe POSITIVE NEGATIVE :TRIGger[:SEQUENCE]:SLOPe?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
:TRIGger[:SEQUence] :SOURce BUS   IMMEDIATE   EXTERNAL   KEY	✓	
:TRIGger[:SEQUence] :SOURce?	✓	
:TRIGger[:SEQUence] [:IMMEDIATE]	✓	
[:SOURce] :TWSweep	✓	
<i>Unit Subsystem</i>		
:UNIT:POWER DBM DBUV DBUVEMF V VEMF DB :UNIT:POWER?	✓	
<i>Amplitude Modulation Subsystem</i>		
[:SOURce] :AM:INTERNAL:FREQUENCY:STEP [:INCREMENT] <num>	-	
[:SOURce] :AM:INTERNAL:FREQUENCY:STEP [:INCREMENT] ?	-	
[:SOURce] :AM:WIDEBAND:STATE ON OFF 1 0 [:SOURce] :AM:WIDEBAND:STATE?	-	
[:SOURce] :AM[1]   2:EXTERNAL[1]   2:COUPLING AC DC [:SOURce] :AM[1]   2:EXTERNAL[1]   2:COUPLING?	✓	
[:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY <val><unit>   UP DOWN [:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY?	✓	
[:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY:ALTERNATE <value><unit> [:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY:ALTERNATE?	-	
[:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY:ALTERNATE:A MPLITUDE:PERCENT <value><unit> [:SOURce] :AM[1]   2:INTERNAL[1] :FREQUENCY:ALTERNATE:A MPLITUDE:PERCENT?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE SINE TRIangle SQUARE RAMP NOISE DUALSine SWEPtsine [:SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE?	✓	<i>Supported but the following parameters are not supported:</i> "TRIangle"   "SQUARE"   "RAMP"   "NOISE"   "DUALSine"   "SWEPtsine"
[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TIME <value><unit> [:SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TIME?	-	
[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TRIGGER IMMEDIATE KEY EXTERNAL BUS [:SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TRIGGER?	-	
[ :SOURce] :AM[1]   2:SOURce INT[1]   EXT[1]   EXT2 [:SOURce] :AM[1]   2:SOURce?	✓	
[ :SOURce] :AM[1]   2:STATE ON OFF 1 0 [:SOURce] :AM[1]   2:STATE?	✓	
[ :SOURce] :AM[1]   2[:DEPTH] <val><unit> UP DOWN [:SOURce] :AM[1]   2[:DEPTH] ?	✓	
[ :SOURce] :AM[1]   2[:DEPTH] :TRACK ON OFF 1 0 [:SOURce] :AM[1]   2[:DEPTH] :TRACK?	-	
[ :SOURce] :AM[:DEPTH] :STEP[:INCREMENT] <value><unit> [:SOURce] :AM[:DEPTH] :STEP[:INCREMENT] ?	✓	
<i>Correction Subsystem</i>		
[ :SOURce] :CORRection:FLATness:LOAD <"filename">	✓	
[ :SOURce] :CORRection:FLATness:PAIR <freq>, <corr>	✓	
[ :SOURce] :CORRection:FLATness:POINTS?	✓	
[ :SOURce] :CORRection:FLATness:PRESet	✓	
[ :SOURce] :CORRection:FLATness:STORe <"filename">	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[ <b>:SOURce</b> ] :CORRection[:STATe] ON OFF 1 0 [ <b>:SOURce</b> ] :CORRection[:STATe] ?	✓	
<i>Frequency Subsystem</i>		
[ <b>:SOURce</b> ] :FREQuency:CENTER <num> [<freq suffix>]  MAXimum MINimum UP DOWN [ <b>:SOURce</b> ] :FREQuency:CENTER? [MAXimum MINimum]	✓	
[ <b>:SOURce</b> ] :FREQuency:CHANnels:BAND NBASe NMObile BPGSm MPGSm BEGSm MEGSm BRGSm MRGSm G M450 M480 M850 B450 B480 B850BDCS MDCS BPCS MPCS B8  M8 B15 M15 B390 B420 B460 B915 M380 M410 M450 M870  PHS DECT [ <b>:SOURce</b> ] :FREQuency:CHANnels:BAND?	-	
[ <b>:SOURce</b> ] :FREQuency:CHANnels:NUMBER <number> [ <b>:SOURce</b> ] :FREQuency:CHANnels:NUMBER?	-	
[ <b>:SOURce</b> ] :FREQuency:CHANnels[:STATe] ON OFF 1 0 [ <b>:SOURce</b> ] :FREQuency:CHANnels[:STATe] ?	-	
[ <b>:SOURce</b> ] :FREQuency:FIXed <value><unit>  UP DOWN [ <b>:SOURce</b> ] :FREQuency:FIXed?	✓	
[ <b>:SOURce</b> ] :FREQuency:MODE FIXed CW SWEEP LIST [ <b>:SOURce</b> ] :FREQuency:MODE?	✓	
[ <b>:SOURce</b> ] :FREQuency:MULTiplier <value> [ <b>:SOURce</b> ] :FREQuency:MULTiplier?	✓	
[ <b>:SOURce</b> ] :FREQuency:OFFSet <value><unit> [ <b>:SOURce</b> ] :FREQuency:OFFSet?	✓	
[ <b>:SOURce</b> ] :FREQuency:OFFSet:STATe ON OFF [ <b>:SOURce</b> ] :FREQuency:OFFSet:STATe?	✓	
[ <b>:SOURce</b> ] :FREQuency:REFerence <value><unit> [ <b>:SOURce</b> ] :FREQuency:REFerence?	✓	
[ <b>:SOURce</b> ] :FREQuency:REFerence:SET	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :FREQuency:REFerence:STATe ON OFF 1 0 [ :SOURce] :FREQuency:REFerence:STATe?	✓	
[ :SOURce] :FREQuency:SPAN <num> [<freq suffix>]  MAXimum MINimum UP DOWN [ :SOURce] :FREQuency:SPAN? [MAXimum MINimum]	✓	
[ :SOURce] :FREQuency:STARt <value><unit> [ :SOURce] :FREQuency:STARt?	✓	
[ :SOURce] :FREQuency:STOP <value><unit> [ :SOURce] :FREQuency:STOP?	✓	
[ :SOURce] :FREQuency:SYNTthesis <value> [ :SOURce] :FREQuency:SYNTthesis?	-	
[ :SOURce] :FREQuency[:CW] <value><unit>  UP DOWN [ :SOURce] :FREQuency[:CW]?	✓	
[ :SOURce] :FREQuency[:CW] :STEP [:INCrement] <value><unit> [ :SOURce] :FREQuency[:CW] :STEP [:INCrement]?	-	
[ :SOURce] :FREQuency[:FIXed] :STEP [:INCrement] <value><unit> [ :SOURce] :FREQuency[:FIXed] :STEP [:INCrement]?	-	
[ :SOURce] :PHASe:REFerence	✓	
[ :SOURce] :PHASe[:ADJust] <value><unit> [ :SOURce] :PHASe[:ADJust]?	✓	
[ :SOURce] :ROSCillator:SOURce?	✓	
[ :SOURce] :ROSCillator:SOURce:AUTO ON OFF 1 0 [ :SOURce] :ROSCillator:SOURce:AUTO?	✓	
<i>Frequency Modulation Subsystem</i>		

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[:SOURce] :FM:INTernal:FREQuency:STEP [:INCRement] <num>	✓	
[:SOURce] :FM:INTernal:FREQuency:STEP [:INCRement] ?	-	
[:SOURce] :FM[1]   2:EXTernal[1]   2:COUpling AC DC	✓	
[:SOURce] :FM[1]   2:EXTernal[1]   2:COUpling?	-	
[:SOURce] :FM[1]   2:INTernal[1]   2:FREQuency <value><unit>	✓	
[:SOURce] :FM[1]   2:INTernal[1]   2:FREQuency?	-	
[:SOURce] :FM[1]   2:INTernal[1]:FREQuency:ALTerNate <value><unit>	-	
[:SOURce] :FM[1]   2:INTernal[1]:FREQuency:ALTerNate?	-	
[:SOURce] :FM[1]   2:INTernal[1]:FREQuency:ALTerNate:A MPLitude:PERCent <value><unit>	-	
[:SOURce] :FM[1]   2:INTernal[1]:FREQuency:ALTerNate:A MPLitude:PERCent?	-	
[:SOURce] :FM[1]   2:INTernal[1]:FUNCTION:SHAPe SINE TRIangle SQUare RAMP NOISE DUALsine SWEptsine	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP  NOISE DUALsine SWEptsine
[:SOURce] :FM[1]   2:INTernal[1]:FUNCTION:SHAPe?	-	
[:SOURce] :FM[1]   2:INTernal[1]:SWEep:TIME <val><unit>	-	
[:SOURce] :FM[1]   2:INTernal[1]:SWEep:TIME?	-	
[:SOURce] :FM[1]   2:INTernal[1]:SWEep:TRIGger IMMEDIATE KEY EXTernal BUS	-	
[:SOURce] :FM[1]   2:INTernal[1]:SWEep:TRIGger?	-	
[:SOURce] :FM[1]   2:SOURce INT[1]   EXT[1]   EXT2	✓	
[:SOURce] :FM[1]   2:SOURce?	-	
[:SOURce] :FM[1]   2:STATE ON OFF 1 0	✓	
[:SOURce] :FM[1]   2:STATE?	-	
[:SOURce] :FM[1]   2[:DEViation] <value><unit>	✓	
[:SOURce] :FM[1]   2[:DEViation] ?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :FM[1]   2 [:DEViation] :TRACK ON OFF 1 0 [:SOURce] :FM[1]   2 [:DEViation] :TRACK?	-	
<i>List/Sweep Subsystem</i>		
[ :SOURce] :LIST:CPOint?	✓	
[ :SOURce] :LIST:DIRection UP DOWN [:SOURce] :LIST:DIRection?	✓	
[ :SOURce] :LIST:DWELL <value>{,<value>} [:SOURce] :LIST:DWELL?	✓	
[ :SOURce] :LIST:DWELL:POINTs?	✓	
[ :SOURce] :LIST:DWELL:TYPE LIST STEP [:SOURce] :LIST:DWELL:TYPE?	✓	
[ :SOURce] :LIST:FREQuency <value>{,<value>} [:SOURce] :LIST:FREQuency?	✓	
[ :SOURce] :LIST:FREQuency:POINTs?	✓	
[ :SOURce] :LIST:MANual <value> UP DOWN [:SOURce] :LIST:MANual?	✓	
[ :SOURce] :LIST:MODE AUTO MANual [:SOURce] :LIST:MODE?	✓	
[ :SOURce] :LIST:POWer <value>{,<value>} [:SOURce] :LIST:POWer?	✓	
[ :SOURce] :LIST:POWer:POINTs?	✓	
[ :SOURce] :LIST:RETRace ON OFF 0 1 [:SOURce] :LIST:RETRace?	✓	
[ :SOURce] :LIST:TRIGger:SOURce BUS IMMediate EXTernal KEY [:SOURce] :LIST:TRIGger:SOURce?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[ :SOURce] :LIST:TYPE LIST STEP	✓	
[ :SOURce] :LIST:TYPE?	-	
[ :SOURce] :LIST:TYPE:LIST:INITialize:FSTep	✓	
[ :SOURce] :LIST:TYPE:LIST:INITialize:PRESet	✓	
[ :SOURce] :SWEep:CPOint?	✓	
[ :SOURce] :SWEep:DWELL <value>	✓	
[ :SOURce] :SWEep:DWELL?	-	
[ :SOURce] :SWEep:POINTS <value>	✓	
[ :SOURce] :SWEep:POINTS?	-	
[ :SOURce] :SWEep:SPACing LINear LOGarithmic	✓	
[ :SOURce] :SWEep:SPACing?	-	
<i>Low Frequency Output Subsystem</i>		
[ :SOURce] :LFOoutput:...	-	<i>This subsystem is not supported.</i>
<i>Phase Modulation Subsystem</i>		
[ :SOURce] :PM[1]   2:BANDwidth BWIDth NORMAL HIGH	✓	
[ :SOURce] :PM[1]   2:BANDwidth BWIDth?	-	
[ :SOURce] :PM[1]   2:EXTernal[1]:COUpling AC DC	✓	
[ :SOURce] :PM[1]   2:EXTernal[1]:COUpling?	-	
[ :SOURce] :PM[1]   2:INTERNAL[1]   2:FREQuency <value><unit>	✓	
[ :SOURce] :PM[1]   2:INTERNAL[1]   2:FREQuency?	-	
[ :SOURce] :PM:INTERNAL:FREQuency:STEP[:INCrement]	✓	
[ :SOURce] :PM:INTERNAL:FREQuency:STEP[:INCrement]?	-	
[ :SOURce] :PM[1]   2:INTERNAL[1]:FREQuency:ALTerнатe <val><unit>	-	
[ :SOURce] :PM[1]   2:INTERNAL[1]:FREQuency:ALTerнатe?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :PM[1]   2:INTERNAL[1]:FREQuency:ALTernate:A MPLitude:PERCent <val><unit>  [ :SOURce] :PM[1]   2:INTERNAL[1]:FREQuency:ALTernate:A MPLitude:PERCent?	-	
[ :SOURce] :PM[1]   2:INTERNAL[1]:FUNCTION:SHAPe SINE TRIangle SQUare RAMP NOISE DUALsine SWEPtsine  [:SOURce] :PM[1]   2:INTERNAL[1]:FUNCTION:SHAPe?	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP NOISE DUALsine  SWEPtsine
[ :SOURce] :PM[1]   2:INTERNAL[1]:SWEep:TIME <value><unit>  [:SOURce] :PM[1]   2:INTERNAL[1]:SWEep:TIME?	-	
[ :SOURce] :PM[1]   2:INTERNAL[1]:SWEep:TRIGGER IMMEDIATE KEY EXTernal BUS  [:SOURce] :PM[1]   2:INTERNAL[1]:SWEep:TRIGGER?	-	
[ :SOURce] :PM[1]   2:SOURce INT[1] EXT[1] EXT2  [:SOURce] :PM[1]   2:SOURce?	✓	
[ :SOURce] :PM[1]   2:STATE ON OFF 1 0  [:SOURce] :PM[1]   2:STATE?	✓	
[ :SOURce] :PM[1]   2[:DEViation] <value><unit>  [:SOURce] :PM[1]   2[:DEViation]?	✓	
[ :SOURce] :PM[1]   2[:DEViation]:TRACK ON OFF 1 0  [:SOURce] :PM[1]   2[:DEViation]:TRACK?	-	
[ :SOURce] :PM[:DEViation]:STEP[:INCREMENT] <value><unit>  [:SOURce] :PM[:DEViation]:STEP[:INCREMENT]?	✓	
<i>Power Subsystem</i>		
[ :SOURce] :POWer:ALC:BANDwidth BWIDth <num>[freq suffix]  [:SOURce] :POWer:ALC:BANDwidth BWIDth?	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[ :SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO ON OFF 1 0	✓	<i>Command accepted without error but does nothing.</i>
[ :SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO?		
[ :SOURce] :POWeR:ALC:SEARch ON OFF 1 0 ONCE	✓	
[ :SOURce] :POWeR:ALC:SEARch?		
[ :SOURce] :POWeR:ALC:SEARch:REFerence RMS FIXed MANual MODulated	-	
[ :SOURce] :POWeR:ALC:SEARch:REFerence?		
[ :SOURce] :POWeR:ALC:SEARch:REFerence:LEVel <value>		
[ :SOURce] :POWeR:ALC:SEARch:REFerence:LEVel?		
[ :SOURce] :POWeR:ALC:SEARch:SPAN:POINTS <value>	-	
[ :SOURce] :POWeR:ALC:SEARch:SPAN:POINTS?		
[ :SOURce] :POWeR:ALC:SEARch:SPAN:START <value><units>	✓	
[ :SOURce] :POWeR:ALC:SEARch:SPAN:START?		
[ :SOURce] :POWeR:ALC:SEARch:SPAN:STOP <value><units>	✓	
[ :SOURce] :POWeR:ALC:SEARch:SPAN:STOP?		
[ :SOURce] :POWeR:ALC:SEARch:SPAN:TYPE FULL USER	✓	
[ :SOURce] :POWeR:ALC:SEARch:SPAN:TYPE?		
[ :SOURce] :POWeR:ALC:SEARch:SPAN[:STATE] ON OFF 1 0	✓	
[ :SOURce] :POWeR:ALC:SEARch:SPAN[:STATE]?		
[ :SOURce] :POWeR:ALCHold:EXternal [:STATE] ON OFF 1 0	-	
[ :SOURce] :POWeR:ALCHold:EXternal [:STATE]?		
[ :SOURce] :POWeR:ALCHold:INTERNAL [:STATE] ON OFF 1 0	-	
[ :SOURce] :POWeR:ALCHold:INTERNAL [:STATE]?		
[ :SOURce] :POWeR:ALC[:STATE] ON OFF 1 0	✓	
[ :SOURce] :POWeR:ALC[:STATE]?		

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :POWer:ALTerNate:AMPLitude <value>dB [ :SOURce] :POWer:ALTerNate:AMPLitude?	-	
[ :SOURce] :POWer:ALTerNate:MANual MAIN DELTa [ :SOURce] :POWer:ALTerNate:MANual?	-	
[ :SOURce] :POWer:ALTerNate:STATE ON OFF 1 0 [ :SOURce] :POWer:ALTerNate:STATE?	-	
[ :SOURce] :POWer:ALTerNate:TRIGger [:SOURce] INTernal EXTernal MANual [ :SOURce] :POWer:ALTerNate:TRIGger [:SOURce] ?	-	
[ :SOURce] :POWer:ATTenuation:AUTO ON OFF 1 0 [ :SOURce] :POWer:ATTenuation:AUTO?	✓	
[ :SOURce] :POWer:MODE FIXed LIST SWEEp [ :SOURce] :POWer:MODE?	✓	
[ :SOURce] :POWer:PROTection[:STATE] ON OFF 1 0 [ :SOURce] :POWer:PROTection[:STATE] ?	✓	
[ :SOURce] :POWer:REFerence <value><unit> [ :SOURce] :POWer:REFerence?	✓	
[ :SOURce] :POWer:REFerence:STATE ON OFF 1 0 [ :SOURce] :POWer:REFerence:STATE?	✓	
[ :SOURce] :POWer:START <value><unit> [ :SOURce] :POWer:START?	✓	
[ :SOURce] :POWer:STOP <value><unit> [ :SOURce] :POWer:STOP?	✓	
[ :SOURce] :POWer[:LEVel] [:IMMediate] :OFFSet <value><unit> [ :SOURce] :POWer[:LEVel] [:IMMediate] :OFFSet?	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
<pre>[::SOURce]::POWer[:LEVel] [:IMMEDIATE] [:AMPLitude] &lt;value&gt;&lt;unit&gt;  UP DOWN [::SOURce]::POWer[:LEVel] [:IMMEDIATE] [:AMPLitude]?</pre>	✓	
<pre>[::SOURce]::POWer[:LEVel] [:IMMEDIATE] [:AMPLitude]:STE P[:INCRement] &lt;value&gt; [::SOURce]::POWer[:LEVel] [:IMMEDIATE] [:AMPLitude]:STE P[:INCRement]?</pre>	-	
<i>Pulse Modulation Subsystem</i>		
<pre>[::SOURce]::PULM:EXTERNAL:POLArity NORMAL INVerted [::SOURce]::PULM:EXTERNAL:POLArity?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:FREQuency &lt;frequency&gt; UP DOWN [::SOURce]::PULM:INTERNAL[1]:FREQuency?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:FREQuency:STEP[:INCREmen t] &lt;freq&gt; [::SOURce]::PULM:INTERNAL[1]:FREQuency:STEP[:INCREmen t]?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:FUNCTION:SHAPe SQUARE PULSE [::SOURce]::PULM:INTERNAL[1]:FUNCTION:SHAPe?</pre>	-	
<pre>[::SOURce]::PULM:INTERNAL[1]:PERiod &lt;period&gt; MAXimum MINimum UP DOWN [::SOURce]::PULM:INTERNAL[1]:PERiod?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:PERiod:STEP[:INCREment] &lt;step&gt; UP DOWN [::SOURce]::PULM:INTERNAL[1]:PERiod:STEP[:INCREment]?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:PWIDth &lt;width&gt; [::SOURce]::PULM:INTERNAL[1]:PWIDth?</pre>	✓	
<pre>[::SOURce]::PULM:INTERNAL[1]:PWIDth:STEP &lt;step&gt; DEFault MAXimum MINimum [::SOURce]::PULM:INTERNAL[1]:PWIDth:STEP?</pre>	✓	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[ :SOURce] :PULM:SOURce INT EXT[1] EXT2 [ :SOURce] :PULM:SOURce?	✓	<i>Supported but the following parameters are not supported:  SCALar </i>
[ :SOURce] :PULM:STATE ON OFF 1 0 [ :SOURce] :PULM:STATE?	✓	
<b>Digital Function Commands</b>		
<i>All Subsystem</i>		
[ :SOURce] :RADIO:ALL...	-	<i>This subsystem is not supported.</i>
<i>AWGN Subsystem</i>		
[ :SOURce] :RADIO:AWGN...	-	<i>This subsystem is not supported.</i>
<i>Bluetooth Subsystem</i>		
[ :SOURce] :RADIO[1]:BLUETOOTH:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Calculate Subsystem</i>		
:CALCULATE:BERT:BTS:LOOPback:...	-	<i>This subsystem is not supported.</i>
<i>CDMA ARB Subsystem</i>		
[ :SOURce] :RADIO:CDMA:ARB:...	-	<i>This subsystem is not supported.</i>
<i>CDMA2000 ARB Subsystem</i>		
[ :SOURce] :RADIO:CDMA2000:ARB:...	-	<i>This subsystem is not supported.</i>
<i>CDMA2000 BBG Subsystem</i>		
[ :SOURce] :RADIO:CDMA2000[:BBG]:...	-	<i>This subsystem is not supported.</i>
<i>CDMAEVDV Subsystem</i>		
[ :SOURce] :RADIO:CDMAEVDV[:BBG]:...	-	<i>This subsystem is not supported.</i>
<i>Custom Subsystem</i>		
[ :SOURce] :RADIO:CUSTOM...	-	<i>This subsystem is not supported.</i>
<i>Data Subsystem</i>		
:DATA:BERT:...	-	<i>This subsystem is not supported.</i>

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
<i>DECT Subsystem</i>		
[:SOURce] :RADIO:DECT:...	-	<i>This subsystem is not supported.</i>
<i>Dmodulation Subsystem</i>		
[:SOURce] :RADIO:DModulation:ARB...	-	<i>This subsystem is not supported.</i>
<i>Digital Subsystem</i>		
:DIGItal...	-	<i>This subsystem is not supported.</i>
<i>Digital Modulation Subsystem</i>		
[:SOURce] :BURSt:...	-	<i>This subsystem is not supported.</i>
[:SOURce] :DM:	-	
<i>Display Subsystem</i>		
:DISPlay:ANNAnnotation:AMPLitude:UNIT DBM DBUV DBUVEMF V VEMF DB	✓	
:DISPlay:ANNAnnotation:AMPLitude:UNIT?	-	
:DISPlay:ANNAnnotation:CLOCK:DATE:FORMAT MDY DMY	✓	
:DISPlay:ANNAnnotation:CLOCK:DATE:FORMAT?	-	
:DISPlay:ANNAnnotation:CLOCK [:STATe] ON OFF 1 0	✓	
:DISPlay:ANNAnnotation:CLOCK [:STATe]?	-	
:DISPlay:BRIGHTness <value>	✓	
:DISPlay:BRIGHTness?	-	
:DISPlay:CAPTURE	✓	
:DISPlay:CONTRast <value>	✓	
:DISPlay:CONTRast?	-	
:DISPlay:INVerse ON OFF 1 0	-	
:DISPlay:INVerse?	-	
:DISPlay:MENU [:NAME] AM FMPP SWBep UTILITY PULSe LFOut FREQuency AMPLitude SAVE RECall IQ MUX MODE MODEsetup BERT BGSM BEDGe	-	

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:DISPlay:REMote ON OFF 1 0 :DISPlay:REMote?	✓	
:DISPlay[:WINDOW] [:STATe] ON OFF 1 0 :DISPlay[:WINDOW] [:STATe] ?	✓	
<i>Dual ARB Subsystem</i>		
[:SOURce] :RADIO:ARB...	-	<i>This subsystem is not supported.</i>
<i>Edge Subsystem</i>		
[:SOURce] :RADIO:EDGE:...	-	<i>This subsystem is not supported.</i>
<i>GSM Subsystem</i>		
[:SOURce] :RADio[1]:GSM:...	-	<i>This subsystem is not supported.</i>
<i>Input Subsystem</i>		
:INPut:BERT[:BASEband]:...	-	<i>This subsystem is not supported.</i>
<i>Measure Subsystem</i>		
:MEASure:[SCALar]:BERT:BTS:LOOPback:...	-	<i>This subsystem is not supported.</i>
<i>Multi-Tone Subsystem</i>		
[:SOURce] :RADIO:MTOnE:ARB...	-	<i>This subsystem is not supported.</i>
<i>GPS Subsystem</i>		
[:SOURce] :RADIO:GPS:...	-	<i>This subsystem is not supported.</i>
<i>NADC Subsystem</i>		
[:SOURce] :RADIO[:NADC]:...	-	<i>This subsystem is not supported.</i>
<i>PDC Subsystem</i>		
[:SOURce] :RADIO:PDC:...	-	<i>This subsystem is not supported.</i>
<i>PHS Subsystem</i>		
[:SOURce] :RADIO:PHS:...	-	<i>This subsystem is not supported.</i>
<i>Sense Subsystem</i>		

**Table 8-1 E4428C/38C Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
:SENSe:BERT:...	-	<i>This subsystem is not supported.</i>
<i>Tetra Subsystem</i>		
[:SOURce]:RADIO:TETRA:...	-	<i>This subsystem is not supported.</i>
<i>Wideband CDMA ARB Subsystem</i>		
[:SOURce]:RADIO:WCDMa:TGPP:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Wideband CDMA BBG Subsystem</i>		
[:SOURce]:RADIO:WCDMa:HSDPa[:BBG]:...	-	<i>This subsystem is not supported.</i>
[:SOURce]:RADIO:WCDMa:HSPA[:BBG]:...	-	
[:SOURce]:RADIO:WCDMa:TGPP[:BBG]:...	-	

## E8257D/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Compatible Commands

**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
System Function Commands		
<i>IEEE Common Commands</i>		
*CLS	✓	
*ESE <data> *ESE?	✓	
*ESR?	✓	
*IDN?	✓	
*OPC *OPC?	✓	
*OPT?	✓	
*PSC ON OFF 1 0 *PSC?	✓	
*RCL <reg_num>[,<seq_num>]	✓	
*RST	✓	
*SAV <reg_num>[,<seq_num>]	✓	
*SRE <data> *SRE?	✓	
*STB?	✓	
*TRG	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
*TST?	✓	
*WAI	✓	
<i>Calibration Subsystem</i>		
:CALibration:DCFm	✓	
:CALibration:IQ	-	
:CALibration:IQ:DC	-	
:CALibration:IQ:DEFault	-	
:CALibration:IQ:FULL	-	
:CALibration:IQ:STARt <value><units>	-	
:CALibration:IQ:STARt?	-	
:CALibration:IQ:STOP <value><units>	-	
:CALibration:IQ:STOP?	-	
:CALibration:WBIQ	-	
:CALibration:WBIQ:DC	-	
:CALibration:WBIQ:DEFault	-	
:CALibration:WBIQ:FULL	-	
:CALibration:WBIQ:STARt <value><units>	-	
:CALibration:WBIQ:STARt?	-	
:CALibration:WBIQ:STOP <value><units>	-	
:CALibration:WBIQ:STOP?	-	
<i>Communication Subsystem</i>		
:SYSTem:COMMUnicate:GPIB:ADDRess <number>	✓	
:SYSTem:COMMUnicate:GPIB:ADDRess?	-	
:SYSTem:COMMUnicate:GTLocal	✓	
:SYSTem:COMMUnicate:LAN:CONFig DHCP MANual	✓	
:SYSTem:COMMUnicate:LAN:CONFig?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:SYSTem:COMMUnicATE:LAN:GATEway <ipstring> :SYSTem:COMMUnicATE:LAN:GATEway?	✓	
:SYSTem:COMMUnicATE:LAN:HOSTname <string> :SYSTem:COMMUnicATE:LAN:HOSTname?	✓	
:SYSTem:COMMUnicATE:LAN:IP <ipstring> :SYSTem:COMMUnicATE:LAN:IP?	✓	
:SYSTem:COMMUnicATE:LAN:SUBNet <ipstring> :SYSTem:COMMUnicATE:LAN:SUBNet?	✓	
:SYSTem:COMMUnicATE:PMETer:ADDRESS <value> :SYSTem:COMMUnicATE:PMETer:ADDRESS?	-	
:SYSTem:COMMUnicATE:PMETer:CHANNEL A B :SYSTem:COMMUnicATE:PMETer:CHANNEL?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicATE:PMETer:IDN E4418B E4419B E4416A E4417A :SYSTem:COMMUnicATE:PMETer:IDN?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicATE:PMETer:TIMEout <num> [<time suffix>] :SYSTem:COMMUnicATE:PMETer:TIMEout?	✓	<i>Command accepted without error but does nothing.</i>
:SYSTem:COMMUnicATE:SERial:BAUD <number> :SYSTem:COMMUnicATE:SERial:BAUD?	-	
:SYSTem:COMMUnicATE:SERial:ECHO ON OFF :SYSTem:COMMUnicATE:SERial:ECHO?	-	
:SYSTem:COMMUnicATE:SERial:RESet	-	
:SYSTem:COMMUnicATE:SERial:TOUT <value> :SYSTem:COMMUnicATE:SERial:TOUT?	-	
<b>Diagnostic Subsystem</b>		
:DIAGnostic[:CPU] :INFormation:BOARDs?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent N5183A - = Not supported by Agilent N5183A	N5183A	Remarks
:DIAGnostic[:CPU]:INFormation:CCount:ATTenuator?	✓	
:DIAGnostic[:CPU]:INFormation:CCount:PON?	✓	
:DIAGnostic[:CPU]:INFormation:DISPlay:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormation:LICense:AUXiliary?	✓	
:DIAGnostic[:CPU]:INFormation:LICense:WAVEform?	✓	
:DIAGnostic[:CPU]:INFormation:OPTIONS?	✓	
:DIAGnostic[:CPU]:INFormation:OPTIONS:DETail?	✓	
:DIAGnostic[:CPU]:INFormation:OTIMe?	✓	
:DIAGnostic[:CPU]:INFormation:REVision?	✓	
:DIAGnostic[:CPU]:INFormation:SDATE?	✓	
:DIAGnostic[:CPU]:INFormation:WLICense[:VALue]? <waveformType>	✓	
<i>Memory Subsystem</i>		
:MEMory:CATAlog:BINary?	✓	
:MEMory:CATAlog:BIT?	-	
:MEMory:CATAlog:CDMA?	-	
:MEMory:CATAlog:DMOD?	-	
:MEMory:CATAlog:DWCdma?	-	
:MEMory:CATAlog:FCDma?	-	
:MEMory:CATAlog:FIR?	-	
:MEMory:CATAlog:FSK?	-	
:MEMory:CATAlog:IQ?	-	
:MEMory:CATAlog:LIST?	✓	
:MEMory:CATAlog:MCDMa?	-	
:MEMory:CATAlog:MDMod?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:MEMORY:CATALOG:MDWCDMA?	-	
:MEMORY:CATALOG:MFCDMA?	-	
:MEMORY:CATALOG:MTONE?	-	
:MEMORY:CATALOG:RCDMA?	-	
:MEMORY:CATALOG:SEQ?	-	
:MEMORY:CATALOG:SHAPE?	-	
:MEMORY:CATALOG:STATE?	✓	
:MEMORY:CATALOG:UFLT?	✓	
:MEMORY:CATALOG:UPC?	-	
:MEMORY:CATALOG:UWCDMA?	-	
:MEMORY:CATALOG[:ALL]?	✓	
:MEMORY:COPY[:NAME] <"filename">,<"filename">	✓	
:MEMORY:DATA <"filename">,<.datablock>	✓	
:MEMORY:DATA? <"filename">	-	
:MEMORY:DATA:APPEND <"filename">,<.datablock>	✓	
:MEMORY:DATA:BIT <"filename">,<bit_count>,<.datablock>	-	
:MEMORY:DATA:BIT? <"filename">	-	
:MEMORY:DATA:FIR <"filename">,osr,coefficient{,coefficient}	-	
:MEMORY:DATA:FIR? <"filename">	-	
:MEMORY:DATA:FSK <"filename">,num_states,f0,f0,...[,diff_state,num_difff_states,diff0,diff1,...]	-	
:MEMORY:DATA:FSK? <"filename">	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b> <b>V7.0</b>	Remarks
:MEMORY:DATA:IQ <"filename">,offsetQ,num_states,i0,q0,i1,q1,...[,diff_state,num_diff_states,diff0,diff1,...] :MEMORY:DATA:IQ? <"filename">	-	
:MEMORY:DATA:PRAM[1]   2   3   4:FILE:BLOCK <"filename">,<datablock>	-	
:MEMORY:DATA:PRAM[1]   2   3   4:FILE:LIST <"filename">,<uint8>[,<uint8>,<...>]	-	
:MEMORY:DATA:SHAPe <"filename">,num_rise_points,RP0,RP1,...num_fall_points,FP0,FP1,... :MEMORY:DATA:SHAPe? <"filename">	-	
:MEMORY:DATA:UNPROTECTED <"filename">,<datablock>	-	
:MEMORY:DELETED:ALL	✓	
:MEMORY:DELETED:BINARY	✓	
:MEMORY:DELETED:BIT	-	
:MEMORY:DELETED:CDMA	-	
:MEMORY:DELETED:DMOD	-	
:MEMORY:DELETED:DWCDMA	-	
:MEMORY:DELETED:FCDMA	-	
:MEMORY:DELETED:FIR	-	
:MEMORY:DELETED:FSK	-	
:MEMORY:DELETED:IQ	-	
:MEMORY:DELETED:LIST	✓	
:MEMORY:DELETED:MCDMA	-	
:MEMORY:DELETED:MDMod	-	
:MEMORY:DELETED:MDWCDMA	-	
:MEMORY:DELETED:MFCDMA	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:MEMORY:DELetE:MTOne	-	
:MEMORY:DELetE:RCDMa	-	
:MEMORY:DELetE:SEQ	-	
:MEMORY:DELetE:SHAPe	-	
:MEMORY:DELetE:STATE	✓	
:MEMORY:DELetE:UFLT	✓	
:MEMORY:DELetE:UPC	-	
:MEMORY:DELetE:UWCDma	-	
:MEMORY:DELetE[:NAME] <"filename">	✓	
:MEMORY:FREE[:ALL] ?	✓	
:MEMORY:LOAD:LIST <"filename">	✓	
:MEMORY:MOVE <src_file>,<dest_file>	✓	
:MEMORY:SIZE? <"filename">	✓	<i>Returns -1 if the file does not exist in a valid msus or directory</i>
:MEMORY:STATE:COMMENT <reg_num>,<seq_num>,<"comment">	✓	
:MEMORY:STATE:COMMENT? <reg_num>,<seq_num>	-	
:MEMORY:STORe:LIST <"filename">	✓	
:MMEMORY:CATAlog? <"msus">	✓	
:MMEMORY:COPY <"filename">,<"filename">	✓	
:MMEMORY:DATA <"filename">,<datablock>	✓	
:MMEMORY:DATA? <"filename">	✓	
:MMEMORY:DELetE:NVWFm	-	
:MMEMORY:DELetE:WFM	-	
:MMEMORY:DELetE[:NAME] <"filename">,[<"msus">]	-	
:MMEMORY:HEADer:CLEar <"filename">	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent N5183A - = Not supported by Agilent N5183A	N5183A	Remarks
:MMEMory:HEADer:DESCription <"filename">, <"description">	✓	
:MMEMory:HEADer:DESCription? <"filename">		
:MMEMory:LOAD:LIST <"filename">	✓	
:MMEMory:MOVE <src_file>,<dest_file>	✓	
:MMEMory:STORe:LIST <"filename">	✓	
<i>Output Subsystem</i>		
:OUTPut:BLANking:AUTO ON OFF 1 0	✓	
:OUTPut:BLANking:AUTO?		
:OUTPut:BLANking[:STATE] ON OFF 1 0	✓	
:OUTPut:BLANking[:STATE]?		
:OUTPut:MODulation[:STATE] ON OFF 1 0	✓	
:OUTPut:MODulation[:STATE]?		
:OUTPut:SETTled:POLarity NORMAL INVerted	-	
:OUTPut:SETTled:POLarity?		
:OUTPut:SETTled:RETRace NORMAL INVerted	-	
:OUTPut:SETTled:RETRace?		
:OUTPut:SETTled:RFOFF NORMAL INVerted	-	
:OUTPut:SETTled:RFOFF?		
:OUTPut[:STATE] ON OFF 1 0	✓	
:OUTPut[:STATE]?		
<i>Route Subsystem</i>		
:ROUTe:HARDware:DGEnerator:...	-	<i>This subsystem is not supported.</i>
<i>Status Subsystem</i>		
:STATus:OPERation:BASeband:CONDITION?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:STATus:OPERation:BASeband:ENABLE <value>	-	
:STATus:OPERation:BASeband:ENABLE?	-	
:STATus:OPERation:BASeband:NTRansition <value>	-	
:STATus:OPERation:BASeband:NTRansition?	-	
:STATus:OPERation:BASeband:PTRansition <value>	-	
:STATus:OPERation:BASeband:PTRansition?	-	
:STATus:OPERation:BASeband[:EVENT]?	-	
:STATus:OPERation:CONDition?	✓	
:STATus:OPERation:ENABLE <value>	✓	
:STATus:OPERation:ENABLE?	✓	
:STATus:OPERation:NTRansition <value>	✓	
:STATus:OPERation:NTRansition?	✓	
:STATus:OPERation:PTRansition <value>	✓	
:STATus:OPERation:PTRansition?	✓	
:STATus:OPERation[:EVENT]?	✓	
:STATus:PRESet	✓	
:STATus:QUESTIONable:CALibration:CONDition?	✓	
:STATus:QUESTIONable:CALibration:ENABLE <value>	✓	
:STATus:QUESTIONable:CALibration:ENABLE?	✓	
:STATus:QUESTIONable:CALibration:NTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:NTRansition?	✓	
:STATus:QUESTIONable:CALibration:PTRansition <value>	✓	
:STATus:QUESTIONable:CALibration:PTRansition?	✓	
:STATus:QUESTIONable:CALibration[:EVENT]?	✓	
:STATus:QUESTIONable:CONDition?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:STATus:QUESTIONable:ENABLE <value>	✓	
:STATus:QUESTIONable:ENABLE?	-	
:STATus:QUESTIONable:FREQuency:CONDITION?	✓	
:STATus:QUESTIONable:FREQuency:ENABLE <value>	✓	
:STATus:QUESTIONable:FREQuency:ENABLE?	-	
:STATus:QUESTIONable:FREQuency:NTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:NTRansition?	-	
:STATus:QUESTIONable:FREQuency:PTRansition <value>	✓	
:STATus:QUESTIONable:FREQuency:PTRansition?	-	
:STATus:QUESTIONable:FREQuency[:EVENT] ?	✓	
:STATus:QUESTIONable:MODulation:CONDITION?	-	
:STATus:QUESTIONable:MODulation:ENABLE <value>	-	
:STATus:QUESTIONable:MODulation:ENABLE?	-	
:STATus:QUESTIONable:MODulation:NTRansition <value>	-	
:STATus:QUESTIONable:MODulation:NTRansition?	-	
:STATus:QUESTIONable:MODulation:PTRansition <value>	-	
:STATus:QUESTIONable:MODulation:PTRansition?	-	
:STATus:QUESTIONable:MODulation[:EVENT] ?	-	
:STATus:QUESTIONable:NTRansition <value>	✓	
:STATus:QUESTIONable:NTRansition?	-	
:STATus:QUESTIONable:POWER:CONDITION?	✓	
:STATus:QUESTIONable:POWER:ENABLE <value>	✓	
:STATus:QUESTIONable:POWER:ENABLE?	-	
:STATus:QUESTIONable:POWER:NTRansition <value>	✓	
:STATus:QUESTIONable:POWER:NTRansition?	-	
:STATus:QUESTIONable:POWER:PTRansition <value>	✓	
:STATus:QUESTIONable:POWER:PTRansition?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent N5183A – = Not supported by Agilent N5183A	N5183A	Remarks
:STATus:QUESTIONable:POWer [:EVENT] ?	✓	
:STATus:QUESTIONable:PTRansition <value> :STATus:QUESTIONable:PTRansition?	✓	
:STATus:QUESTIONable[:EVENT] ?	✓	
<i>System Subsystem</i>		
:SYSTem:ALTernative <reg num>	–	
:SYSTem:ALTernative? [MAXimum MINimum]	–	
:SYSTem:ALTernative:STATE ON OFF 1 0	–	
:SYSTem:ALTernative:STATE?	–	
:SYSTem:CAPability?	✓	
:SYSTem:DATE <year>,<month>,<day> :SYSTem:DATE?	✓	
:SYSTem:ERRor:SCPI [:SYNTax] ON OFF 1 0	✓	
:SYSTem:ERRor:SCPI [:SYNTax] ?	✓	
:SYSTem:ERRor[:NEXT] ?	✓	
:SYSTem:FILEsystem:SAFEmode ON OFF 1 0	–	
:SYSTem:FILEsystem:SAFEmode?	–	
:SYSTem:HELP:MODE SINGLE CONTinuous :SYSTem:HELP:MODE?	–	
:SYSTem:IDN "string"	✓	
:SYSTem:LANGuage "8340" "8360" "83712" "83732" "83752" "8757" "8662" "8663" :SYSTem:LANGuage?	✓	See “:LANGuage (N5183A)” on page 415.
:SYSTem:OEMHead:FREQuency:BAND WR15 WR12 WR10 WR8 WR6 WR5 WR3 :SYSTem:OEMHead:FREQuency:BAND?	–	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b> <b>V532A</b>	Remarks
:SYSTem:OEMHead:FREQuency:MULTiplier <val>	-	
:SYSTem:OEMHead:FREQuency:MULTiplier?	-	
:SYSTem:OEMHead:FREQuency:STARt <val>	-	
:SYSTem:OEMHead:FREQuency:STARt?	-	
:SYSTem:OEMHead:FREQuency:STOP <val>	-	
:SYSTem:OEMHead:FREQuency:STOP?	-	
:SYSTem:OEMHead:SELECT ON OFF NONE REAR FRONT	-	
:SYSTem:OEMHead:SELECT?	-	
:SYSTem:OPT "string"	✓	
:SYSTem:PON:TYPE PRESet LAST	✓	
:SYSTem:PON:TYPE?	✓	
:SYSTem:PRESet	✓	<i>Always performs the same action as the Preset hardkey.</i> <i>For related Preset hardkey information, refer to “:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESet:TYPE?” on page 430</i>
:SYSTem:PRESet:ALL	✓	
:SYSTem:PRESet:LANGuage "8340" "8360" "83712" "83732" "83752" "8757" "8662" "8663"	✓	<i>See “:PRESet:LANGuage (N5183A)” on page 417.</i>
:SYSTem:PRESet:LANGuage?	✓	
:SYSTem:PRESet:PERsistent	✓	
:SYSTem:PRESet:PN9 NORMAl QUICK	-	
:SYSTem:PRESet:PN9?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
<pre>:SYSTem:PRESet:TYPE NORMAL USER :SYSTem:PRESET:TYPE?</pre>	<b>✓</b>	<p><i>This command toggles the <b>Preset</b> hardkey state between factory- and user-defined conditions.</i></p> <p><i>The setting enabled by this command is not affected by signal generator power-on, preset, or *RST.</i></p> <p><b>NOTE</b> If the <b>Preset</b> hardkey is not responding correctly, using the SCPI command:  <code>:SYSTem:PRESet:TYPE NORMAL</code> will return the Preset hardkey to its default factory behavior.</p>
<pre>:SYSTem:PRESet[:USER]:SAVE</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:DISPlay ON OFF {1} 0 :SYSTem:SECurity:DISPlay?</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:DISPlay:RESTRICTed ON OFF {1} 0 :SYSTem:SECurity:DISPlay:RESTRICTed?</pre>	<b>-</b>	
<pre>:SYSTem:SECurity:ERASEall</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:LEVel {NONE} ERASE OVERwrite SANitize :SYSTem:SECurity:LEVel?</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:LEVel:STATE ON OFF 1 0 :SYSTem:SECurity:LEVel:STATE?</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:OVERwrite</pre>	<b>✓</b>	
<pre>:SYSTem:SECurity:SANitize</pre>	<b>✓</b>	
<pre>:SYSTem:SSAVer:DELay &lt;value&gt; :SYSTem:SSAVer:DELay?</pre>	<b>✓</b>	
<pre>:SYSTem:SSAVer:MODE LIGHT TEXT :SYSTem:SSAVer:MODE?</pre>	<b>✓</b>	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:SYSTem:SSAVer:STATE ON OFF	✓	
:SYSTem:SSAVer:STATE?	✓	
:SYSTem:TIME <hour>,<minute>,<second>	✓	
:SYSTem:TIME?	✓	
:SYSTem:VERSION?	✓	
<i>Trigger Subsystem</i>		
:ABORT	✓	
:INITiate:CONTinuous[:ALL] ON OFF 1 0	✓	
:INITiate:CONTinuous[:ALL]?	✓	
:INITiate[:IMMediate] [:ALL]	✓	
:TRIGger:OUTPut:POLarity POSitive NEGative	✓	
:TRIGger:OUTPut:POLarity?	✓	
:TRIGger[:SEQUence]:SLOPe POSitive NEGative	✓	
:TRIGger[:SEQUence]:SLOPe?	✓	
:TRIGger[:SEQUence]:SOURce BUS IMMediate EXTernal KEY	✓	
:TRIGger[:SEQUence]:SOURce?	✓	
:TRIGger[:SEQUence]:IMMediate	✓	
[:SOURce]:TSWeep	✓	
<i>Unit Subsystem</i>		
:UNIT:POWer DBM DBUV DBUVEMF V VEMF DB	✓	
:UNIT:POWer?	✓	
<i>Amplitude Modulation Subsystem</i>		
[:SOURce]:AM:INTernal:FREQuency:STEP[:INCrement]<num>	✓	
[:SOURce]:AM:INTernal:FREQuency:STEP[:INCrement]?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
<code>[ :SOURce] :AM:MODE DEEP NORMAl</code> <code>[ :SOURce] :AM:MODE?</code>	-	
<code>[ :SOURce] :AM:WIDeband:SENSitivity &lt;val&gt;</code> <code>[ :SOURce] :AM:WIDeband:SENSitivity?</code>	-	
<code>[ :SOURce] :AM:WIDeband:STATe ON OFF 1 0</code> <code>[ :SOURce] :AM:WIDeband:STATe?</code>	-	
<code>[ :SOURce] :AM[1]   2:EXTernal[1]   2:COUpling AC DC</code> <code>[ :SOURce] :AM[1]   2:EXTernal[1]   2:COUpling?</code>	✓	
<code>[ :SOURce] :AM[1]   2:EXTernal[1]   2:IMPedance &lt;50 600&gt;</code> <code>[ :SOURce] :AM[1]   2:EXTernal[1]   2:IMPedance?</code>	-	<i>Command accepted without error but does nothing.</i>
<code>[ :SOURce] :AM[1]   2:INTERNAL2:FUNCTION:SHAPE SINE TRIangle SQuare RAMP NOISE</code>	✓	<i>Supported but the following parameters are not supported:</i> "TRIangle"   "SQuare"   "RAMP"   "NOISE"
<code>[ :SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALTerNate &lt;value&gt;&lt;unit&gt;</code> <code>[ :SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALTerNate?</code>	-	
<code>[ :SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALTerNate:A MPLitude:PERCent &lt;value&gt;&lt;unit&gt;</code> <code>[ :SOURce] :AM[1]   2:INTERNAL[1] :FREQuency:ALTerNate:A MPLitude:PERCent?</code>	-	
<code>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE SINE TRIangle SQuare RAMP NOISE DUALsine SWEPtsine </code> <code>[ :SOURce] :AM[1]   2:INTERNAL[1]   2:FUNCTION:SHAPE?</code>	✓	<i>Supported but the following parameters are not supported:</i> "TRIangle"   "SQuare"   "RAMP"   "NOISE"   "DUALsine"   "SWEPtsine"
<code>[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:RATE &lt;val&gt;&lt;unit&gt;</code> <code>[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:RATE?</code>	-	
<code>[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TRIGger IMMEDIATE KEY EXTernal BUS</code> <code>[ :SOURce] :AM[1]   2:INTERNAL[1] :SWEep:TRIGger?</code>	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[:SOURce] :AM[1]   2:INTernal[1]   2:FREQuency <val><unit> UP DOWN [:SOURce] :AM[1]   2:INTernal[1]   2:FREQuency?	✓	
[:SOURce] :AM[1]   2:INTernal[1]   2:FUNCTION:NOISE GAUSSian UNIFORM [:SOURce] :AM[1]   2:INTernal[1]   2:FUNCTION:NOISE?	-	
[:SOURce] :AM[1]   2:INTernal[1]   2:FUNCTION:RAMP POSitive NEGative [:SOURce] :AM[1]   2:INTernal[1]   2:FUNCTION:RAMP?	-	
[:SOURce] :AM[1]   2:POLarity NORMAL INVerted [:SOURce] :AM[1]   2:POLarity?	-	
[:SOURce] :AM[1]   2:SOURce INT[1]   INT2 EXT[1]   EXT2 [:SOURce] :AM[1]   2:SOURce?	✓	
[:SOURce] :AM[1]   2:STATE ON OFF 1 0 [:SOURce] :AM[1]   2:STATE?	✓	
[:SOURce] :AM[1]   2:TYPE LINear EXPonential [:SOURce] :AM[1]   2:TYPE?	✓	
[:SOURce] :AM[1]   2[:DEPTH]:EXPonential <val> [:SOURce] :AM[1]   2[:DEPTH]:EXPonential?	✓	
[:SOURce] :AM[1]   2[:DEPTH] [:LINear] <val><unit> UP DOWN [:SOURce] :AM[1]   2[:DEPTH] [:LINear]?	✓	
[:SOURce] :AM[1]   2[:DEPTH] [:LINear]:TRACK ON OFF 1 0 [:SOURce] :AM[1]   2[:DEPTH] [:LINear]:TRACK?	-	
[:SOURce] :AM[:DEPTH]:STEP[:INCREMENT] <value><unit> [:SOURce] :AM[:DEPTH]:STEP[:INCREMENT]?	✓	
Correction Subsystem		
[:SOURce] :CORRection:FLATness:LOAD <"filename">	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :CORRection:FLATness:PAIR <freq>,<corr>	✓	
[:SOURce] :CORRection:FLATness:POINTs?	✓	
[:SOURce] :CORRection:FLATness:PRESet	✓	
[:SOURce] :CORRection:FLATness:STORe <"filename">	✓	
[:SOURce] :CORRection:POWeR:LOAD <"filename">	-	
[:SOURce] :CORRection:POWeR:OFFSet:DEFault	-	
[:SOURce] :CORRection:POWeR:OFFSet:HI <value>	-	
[:SOURce] :CORRection:POWeR:OFFSet:HI?		
[:SOURce] :CORRection:POWeR:OFFSet:LO <value>	-	
[:SOURce] :CORRection:POWeR:OFFSet:LO?		
[:SOURce] :CORRection:POWeR:PAIR <level>,<corr>	-	
[:SOURce] :CORRection:POWeR:POINTs?	-	
[:SOURce] :CORRection:POWeR:PRESet	-	
[:SOURce] :CORRection:POWeR:STORe <"filename">	-	
[:SOURce] :CORRection[:STATE] ON OFF 1 0	✓	
[:SOURce] :CORRection[:STATE] ?		
<i>Frequency Subsystem</i>		
[:SOURce] :FREQuency:CENTER <num>[<freq suffix>]  MAXimum MINimum UP DOWN	✓	
[:SOURce] :FREQuency:CENTER? [MAXimum MINimum]		
[:SOURce] :FREQuency:CHANnels:BAND NBASe NMObile BPGSm MPGSm ...	-	
[:SOURce] :FREQuency:CHANnels:BAND?...		
[:SOURce] :FREQuency:CHANnels:NUMBER <number>	-	
[:SOURce] :FREQuency:CHANnels:NUMBER?		

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b> <b>V5.3</b>	Remarks
[:SOURce] :FREQuency:CHANnels [:STATE] ON OFF 1 0	-	
[:SOURce] :FREQuency:CHANnels [:STATE]?	-	
[:SOURce] :FREQuency:FIXed <value><unit>  UP DOWN	✓	
[:SOURce] :FREQuency:FIXed?	-	
[:SOURce] :FREQuency:MANual <value><unit>	-	
[:SOURce] :FREQuency:MANual?	-	
[:SOURce] :FREQuency:MODE FIXed CW SWEEP LIST	✓	
[:SOURce] :FREQuency:MODE?	-	
[:SOURce] :FREQuency:MULTiplier <value>	✓	
[:SOURce] :FREQuency:MULTiplier?	-	
[:SOURce] :FREQuency:OFFSet <value><unit>	✓	
[:SOURce] :FREQuency:OFFSet?	-	
[:SOURce] :FREQuency:OFFSet:STATE ON OFF	✓	
[:SOURce] :FREQuency:OFFSet:STATE?	-	
[:SOURce] :FREQuency:REFerence <value><unit>	✓	
[:SOURce] :FREQuency:REFerence?	-	
[:SOURce] :FREQuency:REFerence:SET	✓	
[:SOURce] :FREQuency:REFerence:STATE ON OFF 1 0	✓	
[:SOURce] :FREQuency:REFerence:STATE?	-	
[:SOURce] :FREQuency:SPAN <num>[<freq suffix>]  MAXimum MINimum UP DOWN	✓	
[:SOURce] :FREQuency:SPAN? [MAXimum MINimum]	-	
[:SOURce] :FREQuency:STARt <value><unit>	✓	
[:SOURce] :FREQuency:STARt?	-	
[:SOURce] :FREQuency:STOP <value><unit>	✓	
[:SOURce] :FREQuency:STOP?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :FREQuency [:CW] <value><unit> [:SOURce] :FREQuency [:CW] ?	✓	
[:SOURce] :FREQuency [:CW] :STEP [:INCrement] <value><unit> [:SOURce] :FREQuency [:CW] :STEP [:INCrement] ?	-	
[:SOURce] :FREQuency [:FIXed] :STEP [:INCrement] <value><unit> [:SOURce] :FREQuency [:FIXed] :STEP [:INCrement] ?	-	
[:SOURce] :PHASe:REFerence	✓	
[:SOURce] :PHASe[:ADJust] <value><unit> [:SOURce] :PHASe[:ADJust] ?	✓	
[:SOURce] :ROSCillator:BANDwidth:DEFaults	-	
[:SOURce] :ROSCillator:BANDwidth:EXTernal <value> [:SOURce] :ROSCillator:BANDwidth:EXTernal?	✓	
[:SOURce] :ROSCillator:BANDwidth:INTernal <value> [:SOURce] :ROSCillator:BANDwidth:INTernal?	-	
[:SOURce] :ROSCillator:SOURce?	✓	
[:SOURce] :ROSCillator:SOURce:AUTO ON OFF 1 0 [:SOURce] :ROSCillator:SOURce:AUTO?	✓	
<b>Frequency Modulation Subsystem</b>		
[:SOURce] :FM:INTERNAL:FREQuency:STEP [:INCrement] <num> [:SOURce] :FM:INTERNAL:FREQuency:STEP [:INCrement] ?	✓	
[:SOURce] :FM[1]   2:EXTernal[1]   2:COUpling AC DC [:SOURce] :FM[1]   2:EXTernal[1]   2:COUpling?	✓	
[:SOURce] :FM[1]   2:EXTernal[1]   2:IMPedance <50 600> [:SOURce] :FM[1]   2:EXTernal[1]   2:IMPedance?	-	<i>Command accepted without error but does nothing.</i>

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent N5183A - = Not supported by Agilent N5183A	N5183A	Remarks
[:SOURce]:FM[1] 2:INTernal2:FUNCTION:SHAPe SINE TRIangle SQUare RAMP NOISE	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP  NOISE
[:SOURce]:FM[1] 2:INTernal[1]:FREQuency:ALTerNate <value><unit> [:SOURce]:FM[1] 2:INTernal[1]:FREQuency:ALTerNate?	-	
[:SOURce]:FM[1] 2:INTernal[1]:FREQuency:ALTerNate:A MPLitude:PERCent <value><unit> [:SOURce]:FM[1] 2:INTernal[1]:FREQuency:ALTerNate:A MPLitude:PERCent?	-	
[:SOURce]:FM[1] 2:INTernal[1]:FUNCTION:SHAPe SINE TRIangle SQUare RAMP NOISE DUALsine SWEPtSine [:SOURce]:FM[1] 2:INTernal[1]:FUNCTION:SHAPe?	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP  NOISE DUALsine SWEPtSine
[:SOURce]:FM[1] 2:INTernal[1]:SWEep:RATE <value><unit> [:SOURce]:FM[1] 2:INTernal[1]:SWEep:RATE?	-	
[:SOURce]:FM[1] 2:INTernal[1]:SWEep:TRIGger IMMediate KEY EXTernal BUS [:SOURce]:FM[1] 2:INTernal[1]:SWEep:TRIGger?	-	
[:SOURce]:FM[1] 2:INTernal[1] 2:FREQuency <val><unit> [:SOURce]:FM[1] 2:INTernal[1] 2:FREQuency?	✓	
[:SOURce]:FM[1] 2:INTernal[1] 2:FUNCTION:NOISE GAUSSian UNIFORM [:SOURce]:FM[1] 2:INTernal[1] 2:FUNCTION:NOISE?	-	
[:SOURce]:FM[1] 2:INTernal[1] 2:FUNCTION:RAMP POSitive NEGative [:SOURce]:FM[1] 2:INTernal[1] 2:FUNCTION:RAMP?	-	
[:SOURce]:FM[1] 2:SOURce INT[1] INT2 EXT[1] EXT2 [:SOURce]:FM[1] 2:SOURce?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :FM[1]   2:STATE ON OFF 1 0 [:SOURce] :FM[1]   2:STATE?	✓	
[:SOURce] :FM[1]   2[:DEViation] <val><unit> [:SOURce] :FM[1]   2[:DEViation]?	✓	
[:SOURce] :FM[1]   2[:DEViation]:TRACK ON OFF 1 0 [:SOURce] :FM[1]   2[:DEViation]:TRACK?	-	
<i>List/Sweep Subsystem</i>		
[:SOURce] :LIST:CPOint?	✓	
[:SOURce] :LIST:DIRection UP DOWN [:SOURce] :LIST:DIRection?	✓	
[:SOURce] :LIST:DWELL <value>{,<value>} [:SOURce] :LIST:DWELL?	✓	
[:SOURce] :LIST:DWELL:POINTs?	✓	
[:SOURce] :LIST:DWELL:TYPE LIST STEP [:SOURce] :LIST:DWELL:TYPE?	✓	
[:SOURce] :LIST:FREQuency <value>{,<value>} [:SOURce] :LIST:FREQuency?	✓	
[:SOURce] :LIST:FREQuency:POINTs?	✓	
[:SOURce] :LIST:MANual <value> UP DOWN [:SOURce] :LIST:MANual?	✓	
[:SOURce] :LIST:MODE AUTO MANual [:SOURce] :LIST:MODE?	✓	
[:SOURce] :LIST:POWer <value>{,<value>} [:SOURce] :LIST:POWer?	✓	
[:SOURce] :LIST:POWer:POINTs?	✓	
[:SOURce] :LIST:RETRace ON OFF 0 1 [:SOURce] :LIST:RETRace?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	N5183A	Remarks
[:SOURce] :LIST:TRIGger:SOURCE BUS   IMMEDIATE   EXTERNAL   KEY	✓	
[:SOURce] :LIST:TRIGger:SOURCE?	✓	
[:SOURce] :LIST:TYPE LIST STEP	✓	
[:SOURce] :LIST:TYPE?	✓	
[:SOURce] :LIST:TYPE:LIST:INITialize:FSTep	✓	
[:SOURce] :LIST:TYPE:LIST:INITialize:PRESet	✓	
[:SOURce] :SWEep:CONTrol:STATE ON OFF 1 0	-	
[:SOURce] :SWEep:CONTrol:STATE?	-	
[:SOURce] :SWEep:CONTrol:TYPE MASTer SLAVE	-	
[:SOURce] :SWEep:CONTrol:TYPE?	-	
[:SOURce] :SWEep:CPOint?	✓	
[:SOURce] :SWEep:DWELL <value>	✓	
[:SOURce] :SWEep:DWELL?	✓	
[:SOURce] :SWEep:GENeration ANALog STEPped	✓	<i>Only the STEPped parameter is accepted without error.</i>
[:SOURce] :SWEep:GENeration?	-	
[:SOURce] :SWEep:MODE AUTO MANual	-	
[:SOURce] :SWEep:MODE?	-	
[:SOURce] :SWEep:POINTS <value>	✓	
[:SOURce] :SWEep:POINTS?	✓	
[:SOURce] :SWEep:SPACing LINear LOGarithmic	✓	
[:SOURce] :SWEep:SPACing?	✓	
[:SOURce] :SWEep:TIME 10mS - 99S	-	
[:SOURce] :SWEep:TIME?	-	
[:SOURce] :SWEep:TIME:AUTO ON OFF 0 1	-	
[:SOURce] :SWEep:TIME:AUTO?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :SWEep:TIME:COMP:AUTO ON OFF 0 1 [:SOURce] :SWEep:TIME:COMP:AUTO?	-	
<i>Low Frequency Output Subsystem</i>		
[:SOURce] :LFOoutput:...	-	<i>This subsystem is not supported.</i>
<i>Phase Modulation Subsystem</i>		
[:SOURce] :PM:INTERNAL:FREQuency:STEP [:INCRement] [:SOURce] :PM:INTERNAL:FREQuency:STEP [:INCRement]?	✓	
[:SOURce] :PM[1]   2:BANDwidth BWIDth NORMAL HIGH [:SOURce] :PM[1]   2:BANDwidth BWIDth?	✓	
[:SOURce] :PM[1]   2:EXTernal[1]   2:COUpling AC DC [:SOURce] :PM[1]   2:EXTernal[1]   2:COUpling?	✓	
[:SOURce] :PM[1]   2:EXTernal[1]   2:IMPedance <50 600> [:SOURce] :PM[1]   2:EXTernal[1]   2:IMPedance?	-	<i>Command accepted without error but does nothing.</i>
[:SOURce] :PM[1]   2:INTERNAL2:FUNCTION:SHAPE SINE TRIangle SQUare RAMP NOISE	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP NOISE
[:SOURce] :PM[1]   2:INTERNAL[1] :FREQuency:ALTerNate <value><unit> [:SOURce] :PM[1]   2:INTERNAL[1] :FREQuency:ALTerNate?	-	
[:SOURce] :PM[1]   2:INTERNAL[1] :FREQuency:ALTerNate:A MPLitude:PERCent <value><unit> [:SOURce] :PM[1]   2:INTERNAL[1] :FREQuency:ALTerNate:A MPLitude:PERCent?	-	
[:SOURce] :PM[1]   2:INTERNAL[1] :FUNCTION:SHAPE SINE TRIangle SQUare RAMP NOISE DUALsine SWEptsine [:SOURce] :PM[1]   2:INTERNAL[1] :FUNCTION:SHAPE?	✓	<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP NOISE DUALsine SWEptsine
[:SOURce] :PM[1]   2:INTERNAL[1] :SWEep:RATE <value><unit> [:SOURce] :PM[1]   2:INTERNAL[1] :SWEep:RATE?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce]:PM[1] 2:INTernal[1]:SWEep:TRIGger IMMEDIATE KEY EXTernal BUS	-	
[:SOURce]:PM[1] 2:INTernal[1]:SWEep:TRIGger?	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FREQuency <val><unit>	✓	
[:SOURce]:PM[1] 2:INTernal[1] 2:FREQuency?	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FUNCTION:NOISE GAUSSian UNIFORM	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FUNCTION:NOISE?	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FUNCTION:RAMP POSitive NEGative	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FUNCTION:RAMP?	-	
[:SOURce]:PM[1] 2:INTernal[1] 2:FUNCTION:SHAPe?	✓	
[:SOURce]:PM[1] 2:SOURce INT[1] INT2 EXT[1] EXT2	✓	
[:SOURce]:PM[1] 2:SOURce?	-	
[:SOURce]:PM[1] 2:STATE ON OFF 1 0	✓	
[:SOURce]:PM[1] 2:STATE?	-	
[:SOURce]:PM[1] 2[:DEViation] <val><unit>	✓	
[:SOURce]:PM[1] 2[:DEViation]?	-	
[:SOURce]:PM[1] 2[:DEViation]:TRACK ON OFF 1 0	-	
[:SOURce]:PM[1] 2[:DEViation]:TRACK?	-	
[:SOURce]:PM[:DEViation]:STEP[:INCREMENT] <value><unit>	✓	
[:SOURce]:PM[:DEViation]:STEP[:INCREMENT]?	-	
<b>Power Subsystem</b>		
[:SOURce]:POWER:ALC:BANDwidth BWIDth <num>[freq suffix]	-	
[:SOURce]:POWER:ALC:BANDwidth BWIDth?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO ON OFF 1 0 [:SOURce] :POWeR:ALC:BANDwidth BWIDth:AUTO?	✓	<i>Command accepted without error but does nothing.</i>
[:SOURce] :POWeR:ALC:LEVel <value>dB [:SOURce] :POWeR:ALC:LEVel?	✓	
[:SOURce] :POWeR:ALC:SEARch ON OFF 1 0 ONCE [:SOURce] :POWeR:ALC:SEARch?	✓	
[:SOURce] :POWeR:ALC:SEARch:REFerence RMS FIXed MANual MODulated [:SOURce] :POWeR:ALC:SEARch:REFerence?	-	
[:SOURce] :POWeR:ALC:SEARch:REFerence:LEVel <value> [:SOURce] :POWeR:ALC:SEARch:REFerence:LEVel?	-	
[:SOURce] :POWeR:ALC:SEARch:SPAN:POINTS <value> [:SOURce] :POWeR:ALC:SEARch:SPAN:POINTS?	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:START <value><units> [:SOURce] :POWeR:ALC:SEARch:SPAN:START?	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:STOP <value><units> [:SOURce] :POWeR:ALC:SEARch:SPAN:STOP?	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN:TYPE FULL USER [:SOURce] :POWeR:ALC:SEARch:SPAN:TYPE?	✓	
[:SOURce] :POWeR:ALC:SEARch:SPAN[:STATE] ON OFF 1 0 [:SOURce] :POWeR:ALC:SEARch:SPAN[:STATE]?	✓	
[:SOURce] :POWeR:ALC:SOURce INTERNAL DIODE MMHead [:SOURce] :POWeR:ALC:SOURce?	✓	<i>Supported on the N5183A. But the following parameter is not supported: MMHead.</i>
[:SOURce] :POWeR:ALC:SOURce:EXTernal:COUpling (0dB-32dB) [:SOURce] :POWeR:ALC:SOURce:EXTernal:COUpling?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	Remarks
[:SOURce] :POWeR:ALCHold:EXTerнал [:STATe] ON OFF 1 0 [:SOURce] :POWeR:ALCHold:EXTerernal [:STATe] ?	-	
[:SOURce] :POWeR:ALCHold:INTERNAL [:STATe] ON OFF 1 0 [:SOURce] :POWeR:ALCHold:INTERNAL [:STATe] ?	-	
[:SOURce] :POWeR:ALC [:STATe] ON OFF 1 0 [:SOURce] :POWeR:ALC [:STATe] ?	✓	
[:SOURce] :POWeR:ATTenuation <value><unit> [:SOURce] :POWeR:ATTenuation?	✓	
[:SOURce] :POWeR:ATTenuation:AUTO ON OFF 1 0 [:SOURce] :POWeR:ATTenuation:AUTO?	✓	
[:SOURce] :POWeR:MODE FIXed LIST SWEep [:SOURce] :POWeR:MODE?	✓	
[:SOURce] :POWeR:PROTection[:STATe] ON OFF 1 0 [:SOURce] :POWeR:PROTection[:STATe] ?	✓	
[:SOURce] :POWeR:REference <value><unit> [:SOURce] :POWeR:REference?	✓	
[:SOURce] :POWeR:REference:STATe ON OFF 1 0 [:SOURce] :POWeR:REference:STATe?	✓	
[:SOURce] :POWeR:START <value><unit> [:SOURce] :POWeR:START?	✓	
[:SOURce] :POWeR:STOP <value><unit> [:SOURce] :POWeR:STOP?	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] :OFFSet <value><unit> [:SOURce] :POWeR[:LEVel] [:IMMEDIATE] :OFFSet?	✓	
[:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude] <value><unit>  UP DOWN [:SOURce] :POWeR[:LEVel] [:IMMEDIATE] [:AMPLitude] ?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude] :STE P [:INCRement] <value> [:SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude] :STE P [:INCRement] ?	-	
<i>Pulse Modulation Subsystem</i>		
[:SOURce] :PULM:EXTernal:POLarity NORMAL INVerted [:SOURce] :PULM:EXTernal:POLarity?	✓	
[:SOURce] :PULM:INTernal[1]:DELay <delay> UP DOWN [:SOURce] :PULM:INTernal[1]:DELay? [UP DOWN]	✓	
[:SOURce] :PULM:INTernal[1]:DELay:STEP <step> [:SOURce] :PULM:INTernal[1]:DELay:STEP?	✓	
[:SOURce] :PULM:INTernal[1]:FREQuency <frequency> MAXimum MINimum UP DOWN [:SOURce] :PULM:INTernal[1]:FREQuency?	✓	
[:SOURce] :PULM:INTernal[1]:FREQuency:STEP [:INCRement] <freq> MAXimum MINimum DEFault [:SOURce] :PULM:INTernal[1]:FREQuency:STEP [:INCRement] ? [MIN MAX DEF]	✓	
[:SOURce] :PULM:INTernal[1]:PERiod <period> MAXimum MINimum UP DOWN [:SOURce] :PULM:INTernal[1]:PERiod?	✓	
[:SOURce] :PULM:INTernal[1]:PERiod:STEP [:INCRement] <step> UP DOWN [:SOURce] :PULM:INTernal[1]:PERiod:STEP [:INCRement] ?	✓	
[:SOURce] :PULM:INTernal[1]:PWIDth <width> [:SOURce] :PULM:INTernal[1]:PWIDth?	✓	
[:SOURce] :PULM:INTernal[1]:PWIDth:STEP <step> DEFault MAXimum MINimum [:SOURce] :PULM:INTernal[1]:PWIDth:STEP?	✓	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

✓ = Supported by Agilent N5183A - = Not supported by Agilent N5183A	N5183A	Remarks
[ :SOURce] :PULM:SOURce INTernal EXTernal [ :SOURce] :PULM:SOURce?	✓	
[ :SOURce] :PULM:SOURce:INTernal SQuare FRUN TRIGgered DOUBlet GATED [ :SOURce] :PULM:SOURce:INTernal?	✓	
[ :SOURce] :PULM:STATE ON OFF 1 0 [ :SOURce] :PULM:STATE?	✓	
Digital Function Commands		
<i>All Subsystem</i>		
[ :SOURce] :RADio[1]:ALL:OFF	-	<i>This subsystem is not supported.</i>
<i>AWGN ARB Subsystem</i>		
[ :SOURce] :RADio[1]:AWGN...	-	<i>This subsystem is not supported.</i>
<i>AWGN Real Time Subsystem</i>		
[ :SOURce] :RADio:AWGN:RT:...	-	<i>This subsystem is not supported.</i>
<i>Bluetooth Subsystem</i>		
[ :SOURce] :RADio[1]:BLUEtooth:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Calculate Subsystem</i>		
:CALCulate:BERT:BTS:LOOPback:...	-	<i>This subsystem is not supported.</i>
<i>CDMA ARB Subsystem</i>		
[ :SOURce] :RADio[1]:CDMA:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Custom Subsystem</i>		
[ :SOURce] :RADio[1]:CUSTOM:...	-	<i>This subsystem is not supported.</i>
<i>Data Subsystem</i>		
:DATA:BERT:...	-	<i>This subsystem is not supported.</i>
<i>DECT Subsystem</i>		
[ :SOURce] :RADio[1]:DECT:...	-	<i>This subsystem is not supported.</i>

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
<i>Dmodulation Subsystem</i>		
[:SOURce] :RADIO:DMODulation:ARB:...	-	<i>This subsystem is not supported.</i>
<i>Digital Subsystem</i>		
:DIGItal...	-	<i>This subsystem is not supported.</i>
<i>Digital Modulation Subsystem</i>		
[:SOURce] :BURSt:...	-	<i>This subsystem is not supported.</i>
[:SOURce] :DM:...	-	<i>This subsystem is not supported.</i>
<i>Display subsystem</i>		
:DISPlay:ANNotation:AMPLitude:UNIT DBM DBUV DBUVEMF V VEMF DB	✓	
:DISPlay:ANNotation:AMPLitude:UNIT?	✓	
:DISPlay:ANNotation:CLOCK:DATE:FORMat MDY DMY	✓	
:DISPlay:ANNotation:CLOCK:DATE:FORMat?	✓	
:DISPlay:ANNotation:CLOCK[:STATE] ON OFF 1 0	✓	
:DISPlay:ANNotation:CLOCK[:STATE]?	✓	
:DISPlay:BRIGHTness <value>	✓	
:DISPlay:BRIGHTness?	✓	
:DISPlay:CAPTURE	✓	
:DISPlay:CONTRast <value>	✓	
:DISPlay:CONTRast?	✓	
:DISPlay:INVERSE ON OFF 1 0	-	
:DISPlay:INVERSE?	-	
:DISPlay:MENU[:NAME] AM FMPM SWEep UTILITY PULSe LFOut FREQuency  AMPLitude SAVE RECall IQ MUX MODE MODesetup  BERT BGSM BEDGe	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
:DISPlay:REMote ON OFF 1 0	✓	
:DISPlay:REMote?	-	
:DISPlay[:WINDOW] [:STATE] ON OFF 1 0	✓	
:DISPlay[:WINDOW] [:STATE] ?	-	
<i>Dual ARB Subsystem</i>		
[:SOURce]:RADio[1]:...	-	<i>This subsystem is not supported.</i>
<i>Edge Subsystem</i>		
[:SOURce]:RADio[1]:EDGE:...	-	<i>This subsystem is not supported.</i>
<i>GSM Subsystem</i>		
[:SOURce]:RADio[1]:GSM:...	-	<i>This subsystem is not supported.</i>
<i>Input Subsystem</i>		
:INPut:BERT[:BASeband]:...	-	<i>This subsystem is not supported.</i>
<i>Lbfilter Subsystem</i>		
[:SOURce]:LBFILTER ON OFF 1 0	-	
[:SOURce]:LBFILTER?	-	
<i>Marker Subsystem</i>		
[:SOURce]:MARKer:AMPLitude:VALue <num>[DB]	✓	
[:SOURce]:MARKer:AMPLitude:VALue? [MAXimum MINimum]	-	
[:SOURce]:MARKer:AMPLitude[:STATE] ON OFF 1 0	✓	
[:SOURce]:MARKer:AMPLitude[:STATE] ?	-	
[:SOURce]:MARKer:AOff	✓	
[:SOURce]:MARKer:DELTa? <num>, <num>	✓	
[:SOURce]:MARKer:MODE FREQuency DELTa	✓	
[:SOURce]:MARKer:MODE?	-	
[:SOURce]:MARKer:REFerence <marker>	✓	
[:SOURce]:MARKer:REFerence?	-	

**Table 8-2 E8257/67D, E8247C/57C/67C, E8241A/44A, E8251A/54A, and E8663B Program Codes and Equivalent SCPI Sequences**

<b>✓ = Supported by Agilent N5183A</b> <b>-- = Not supported by Agilent N5183A</b>	<b>N5183A</b>	<b>Remarks</b>
[:SOURce] :MARKer [0]   1 2 3 4 5 6 7 8 9:FREQuency <frequency>	✓	
[:SOURce] :MARKer [0]   1 2 3 4 5 6 7 8 9:FREQuency? [MAXimum MINimum]	✓	
[:SOURce] :MARKer [0]   1 2 3 4 5 6 7 8 9: [STATE] ON OFF 1 0	✓	
[:SOURce] :MARKer [0]   1 2 3 4 5 6 7 8 9: [STATE]?	✓	
<i>Measure Subsystem</i>		
:MEASure: [SCALar] :BERT:BTS:LOOPback:EDGE:MCS5 [:SENSitivity]?	-	<i>This subsystem is not supported.</i>
<i>Multi-Tone Subsystem</i>		
[:SOURce] :RADIO:MTONE:ARB:...	-	<i>This subsystem is not supported.</i>
<i>NADC Subsystem</i>		
[:SOURce] :RADIO[1] [:NADC] :...	-	<i>This subsystem is not supported.</i>
<i>PDC Subsystem</i>		
[:SOURce] :RADIO[1] :PDC:...	-	<i>This subsystem is not supported.</i>
<i>PHS Subsystem</i>		
[:SOURce] :RADIO[1] :PHS:...	-	<i>This subsystem is not supported.</i>
<i>Sense Subsystem</i>		
:SENSe:BERT:...	-	<i>This subsystem is not supported.</i>
<i>Tetra Subsystem</i>		
[:SOURce] :RADIO[1] :TETRa:...	-	<i>This subsystem is not supported.</i>
<i>Two Tone Subsystem</i>		
[:SOURce] :RADIO:TTOne:ARB...	-	<i>This subsystem is not supported.</i>
<i>Wideband CDMA ARB Subsystem</i>		
[:SOURce] :RADIO[1] :WCDMa:TGPP:ARB:...	-	<i>This subsystem is not supported.</i>

## 8340B/41B Compatible Commands

The tables in this section provide the following:

**Table 8-3 on page 479:** a comprehensive list of 8340B/41B programming codes, listed in alphabetical order. The equivalent SCPI command sequence for each supported code is provided; codes that are *not* supported by the N5183A are indicated as such in the command column.

**Table 8-4 on page 489:** a list of the implemented 8340B/41B programming codes that set the active function. This table also indicates which codes are compatible with the RB command (knob), and lists the operation active (OA) query, the operation prior (OP) query, and the increment (up), and the decrement (down) SCPI commands.

---

**NOTE** Compatibility is provided for GPIB only; RS-232 and LAN are *not* supported.

---

When using the programming codes in this section, you can:

- set the N5183A system language to 8340 for the current session:

**Utility > I/O Config > Remote Language > 8340B**

or send the command:

:SYST:LANG "8340"

- set the N5183A system language to 8340 so that it does not reset with either preset, instrument power cycle or \*RST command:

**Utility > Power On/Preset > Preset Language > 8340B**

or send the command:

:SYST:PRESET:LANG "8340"

- set the \*IDN? response to any 8340-like response you prefer. Refer to the :SYSTem:IDN command on [page 415](#).

- NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".
- The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].
- The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences**

Cmd	Description	8340	Equivalent SCPI Command Sequence
A1	Internal leveling mode	Y	[ :SOURce] :POWER:ALC:SOURce INTernal
A2	External leveling mode with diode detector	Y	[ :SOURce] :POWER:ALC:SOURce DIODe [ :SOURce] :POWER:ALC:SOURce:EXTernal:COUpling <val> dB
A3	External leveling mode with power meter	Y	<i>supported, but has no effect on the Agilent MXG</i>
AK0	Amplitude markers off	Y	[ :SOURce] :MARKer:AMPLitude OFF 0
AK1	Amplitude markers on	Y	[ :SOURce] :MARKer:AMPLitude ON 1
AL0	Alternate sweep mode off	N	<i>The Agilent MXG does not support this feature.</i>
AL1	Alternate sweep mode on	N	<i>The Agilent MXG does not support this feature.</i>
AM0	Amplitude modulation off	Y	[ :SOURce] :AM:STATE OFF 0
AM1	Amplitude modulation on	Y	[ :SOURce] :AM:SOURCE EXT [ :SOURce] :AM:EXTERNAL:COUPLING DC [ :SOURce] :AM:DEPTH 90 [ :SOURce] :AM:EXTERNAL:IMPedance 600 [ :SOURce] :AM:STATE ON 1
AS0	Alternate state selection: select current front panel	N	<i>The Agilent MXG does not support this feature.</i>
AS1	Alternate state selection: select recalled state	N	<i>The Agilent MXG does not support this feature.</i>
AT	Set attenuator	Y	[ :SOURce] :POWER:ATTenuation <val><unit>
AU	Auto-coupled mode to obtain shortest possible sweep time	N	<i>The Agilent MXG does not support this feature.</i>
BC	Advance to next frequency bandcrossing	N	<i>The Agilent MXG does not support this feature.</i>
C1	1 MHz crystal marker frequency	N	<i>supported, but has no effect on the Agilent MXG</i>
C2	10 MHz crystal marker frequency	N	<i>supported, but has no effect on the Agilent MXG</i>
C3	50 MHz crystal marker frequency	N	<i>supported, but has no effect on the Agilent MXG</i>
C4	External crystal marker frequency	N	<i>supported, but has no effect on the Agilent MXG</i>
CA0	Amplitude crystal markers off	N	<i>supported, but has no effect on the Agilent MXG</i>

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
CA1	Amplitude crystal markers on	N	<i>supported, but has no effect on the Agilent MXG</i>
CF	Center frequency (step sweep)	Y	[ <b>:SOURce</b> ]:SWEEp:MODE AUTO [ <b>:SOURce</b> ]:FREQuency:MODE SWEEp [ <b>:SOURce</b> ]:FREQuency:CENTER <val><unit>
CL0	Intensity crystal markers off	N	<i>supported, but has no effect on the Agilent MXG</i>
CL1	Intensity crystal markers on	N	<i>supported, but has no effect on the Agilent MXG</i>
CS	Clear both status bytes	Y	*CLS
CW	Set CW frequency	Y	[ <b>:SOURce</b> ]:SWEEp:MODE AUTO [ <b>:SOURce</b> ]:FREQuency:MODE CW [ <b>:SOURce</b> ]:FREQuency[:CW] <val><unit>
DB	dB(m) terminator	Y	DB
DF	Delta frequency (step sweep)	Y	[ <b>:SOURce</b> ]:SWEEp:MODE AUTO [ <b>:SOURce</b> ]:FREQuency:MODE SWEEp [ <b>:SOURce</b> ]:FREQuency:SPAN <val> <unit>
DM	dB(m) terminator	Y	DB
DN	Step down (decrements active function by step value)	Y	<i>supported, see Table 8-4 on page 489</i>
DP0	Display blanking off	N	DISPlay[:WINDOW] [:STATe] ON 1
DP1	Display blanking on	N	DISPlay[:WINDOW] [:STATe] OFF 0
DU0	Display update off	Y	DISPlay[:WINDOW] [:STATe] OFF 0
DU1	Display update on	Y	DISPlay[:WINDOW] [:STATe] ON 1
EF	Entry display off	Y	DISPlay[:WINDOW] [:STATe] ON 1
EK	Enable knob	N	<i>The Agilent MXG does not support this feature.</i>
EM0	Extended marker mode off	N	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
EM1	Extended marker mode on	N	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
F1	20 MHz/V FM sensitivity	N	<i>The Agilent MXG does not support this feature.</i>
F2	6 MHz/V FM sensitivity	N	<i>The Agilent MXG does not support this feature.</i>
FA	Start frequency (step sweep)	Y	[ <b>:SOURce</b> ]:SWEEp:MODE AUTO [ <b>:SOURce</b> ]:FREQuency:MODE SWEEp [ <b>:SOURce</b> ]:FREQuency:START <val><unit>
FB	Stop frequency (step sweep)	Y	[ <b>:SOURce</b> ]:SWEEp:MODE AUTO [ <b>:SOURce</b> ]:FREQuency:MODE SWEEp [ <b>:SOURce</b> ]:FREQuency:STOP <val><unit>
FL0	CW filter off	N	<i>supported, but has no effect on the Agilent MXG</i>
FL1	CW filter on	N	<i>supported, but has no effect on the Agilent MXG</i>

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
FM0	Frequency modulation off	Y	[ <b>:SOURce</b> ] :FM:STATE OFF 0
FM1	Frequency modulation on	Y	[ <b>:SOURce</b> ] :FM:SOURCE EXT [ <b>:SOURce</b> ] :FM:EXTERNAL:COUPLING DC [ <b>:SOURce</b> ] :FM:EXTERNAL:IMPEDANCE 50 [ <b>:SOURce</b> ] :FM:STATE ON 1
FM1	Frequency modulation sensitivity	Y	[ <b>:SOURce</b> ] :FM[:DEVIATION] <val><unit>
FP	Fast phaselock	Y	<i>supported, but has no effect on the Agilent MXG</i>
GZ	GHz terminator	Y	GHZ
HZ	Hz terminator	Y	HZ
IF	Increment frequency	Y	TRIGger[:SEQUENCE] [:IMMEDIATE] or [ <b>:SOURce</b> ] :FREQUENCY[:CW] UP
IL	Input learn string	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
IP	Instrument preset	Y	SYSTem:PRESet [ <b>:SOURce</b> ] :FREQUENCY[:CW]:STEP [:INCREMENT] 1 GHZ  [ <b>:SOURce</b> ] :FREQUENCY:MULTIPLIER <saved multipliers>  [ <b>:SOURce</b> ] :SWEep:MODE AUTO [:SOURce] :FREQUENCY:MODE SWEep [:SOURce] :FREQUENCY:START 2 GHz or MIN [:SOURce] :FREQUENCY:STOP MAX [:SOURce] :POWER[:LEVEL] [:IMMEDIATE] [:AMPLITUDE] 0 dB  OUTput[:STATE] ON 1
IP	Instrument preset	N	SYSTem:PRESet SYSTem:LANGUAGE "8757" [:SOURce] :SWEep:MODE AUTO [:SOURce] :FREQUENCY:MODE SWEep [:SOURce] :FREQUENCY:START 2 GHz or MIN [:SOURce] :FREQUENCY:STOP MAX [:SOURce] :POWER[:LEVEL] [:IMMEDIATE] [:AMPLITUDE] 0 dB  OUTput[:STATE] ON 1
IX	Input micro learn string	N	<i>supported, but has no effect on the Agilent MXG</i>
KR	Key release	N	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
KZ	kHz terminator	Y	KHZ
M0	Frequency marker off	Y	[ <b>:SOURce</b> ] :MARKer[n] :[STATE] OFF 0
MO			
MA	Turn on and set frequency marker 0	Y	[ <b>:SOURce</b> ] :MARKer0:[STATE] ON 1 [:SOURce] :MARKer0:FREQUENCY <val><unit>

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
M1	Turn on and set frequency marker 1	Y	[ <b>:SOURce</b> ] :MARKer1:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer1:FREQuency <val><unit>
M2	Turn on and set frequency marker 2	Y	[ <b>:SOURce</b> ] :MARKer2:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer2:FREQuency <val><unit>
M3	Turn on and set frequency marker 3	Y	[ <b>:SOURce</b> ] :MARKer3:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer3:FREQuency <val><unit>
M4	Turn on and set frequency marker 4	Y	[ <b>:SOURce</b> ] :MARKer4:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer4:FREQuency <val><unit>
M5	Turn on and set frequency marker 5	Y	[ <b>:SOURce</b> ] :MARKer5:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer5:FREQuency <val><unit>
M6	Turn on and set frequency marker 6	Y	[ <b>:SOURce</b> ] :MARKer6:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer6:FREQuency <val><unit>
M7	Turn on and set frequency marker 7	Y	[ <b>:SOURce</b> ] :MARKer7:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer7:FREQuency <val><unit>
M8	Turn on and set frequency marker 8	Y	[ <b>:SOURce</b> ] :MARKer8:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer8:FREQuency <val><unit>
M9	Turn on and set frequency marker 9	Y	[ <b>:SOURce</b> ] :MARKer9:[STATE] ON 1 [ <b>:SOURce</b> ] :MARKer9:FREQuency <val><unit>
MC	Active marker to center frequency	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
MD	Marker delta	N	<i>The Agilent MXG does not support this feature.</i>
MP0	Marker 1-2 sweep off	N	<i>The Agilent MXG does not support this feature.</i>
MP1	Marker 1-2 sweep on	N	<i>The Agilent MXG does not support this feature.</i>
MS	Milliseconds terminator	Y	MS
MZ	MHz terminator	Y	MHZ
NA	Network analyzer mode	N	<i>The Agilent MXG does not support this feature.</i>
NT	Network analyzer trigger	N	<i>supported, but has no effect on the Agilent MXG</i>
OA	Output active parameter	Y	<i>supported, see Table 8-4 on page 489</i>
OB	Output next bandcross frequency	N	<i>The Agilent MXG does not support this feature.</i>
OC	Output coupled parameters (start frequency, center frequency, sweep time)	Y	[ <b>:SOURce</b> ] :FREQuency:START? [ <b>:SOURce</b> ] :FREQuency:CENTER? [ <b>:SOURce</b> ] :SWEEP:TIME?
OD	Output diagnostic values	N	<i>The Agilent MXG does not support this feature.</i>
OE	Output when executed	N	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
OF	Output fault	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
OI	Output identification	Y	*IDN?
OK	Output last lock frequency	N	<i>The Agilent MXG does not support this feature.</i>
OL	Output learn string	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
OM	Output mode string	N	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
OP	Output interrogated parameter	Y	<i>supported, see Table 8-4 on page 489</i>
OPA2	Output external detector coupling factor	Y	[ :SOURce] :POWer:ALC:SOURce:EXTernal :COUpling?
OPAT	Output attenuator	Y	[ :SOURce] :POWer:ATTenuation?
OPCF	Output center frequency	Y	[ :SOURce] :FREQuency:CENTER?
OPCW	Output CW frequency	Y	[ :SOURce] :FREQuency:CW?
OPDF	Output delta frequency	Y	[ :SOURce] :FREQuency:SPAN?
OPFA	Output start frequency	Y	[ :SOURce] :FREQuency:START?
OPFB	Output stop frequency	Y	[ :SOURce] :FREQuency:STOP?
OPFM1	Output FM sensitivity	Y	[ :SOURce] :FM[:DEVIation]?
OPMA	Output marker 0 frequency	Y	[ :SOURce] :MARKer0:FREQuency?
OPM1	Output marker 1 frequency	Y	[ :SOURce] :MARKer1:FREQuency?
OPM2	Output marker 2 frequency	Y	[ :SOURce] :MARKer2:FREQuency?
OPM3	Output marker 3 frequency	Y	[ :SOURce] :MARKer3:FREQuency?
OPM4	Output marker 4 frequency	Y	[ :SOURce] :MARKer4:FREQuency?
OPM5	Output marker 5 frequency	Y	[ :SOURce] :MARKer5:FREQuency?
OPM6	Output marker 6 frequency	Y	[ :SOURce] :MARKer6:FREQuency?
OPM7	Output marker 7 frequency	Y	[ :SOURce] :MARKer7:FREQuency?
OPM8	Output marker 8 frequency	Y	[ :SOURce] :MARKer8:FREQuency?
OPM9	Output marker 9 frequency	Y	[ :SOURce] :MARKer9:FREQuency?
OPPL	Output power level	Y	[ :SOURce] :POWer[:LEVel] [:IMMediate] [:AMPLitude]?
OPPS	Output power sweep span	Y	[ :SOURce] :POWer:SPAN?
OPSB	Output # of sweep buckets	N	<i>The Agilent MXG does not support this feature.</i>
OPSF	Output frequency step size	Y	[ :SOURce] :FREQuency[:CW]:STEP [:INCREMENT]?

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
OPSHA1	Output power level	Y	[ <b>:SOURce</b> ] :POWer[:LEVel][:IMMediate] [:AMPLitude]?
OPSHA2	Output ALC level	N	<i>The Agilent MXG does not support this feature.</i>
OPSHA3	Output ALC level	Y	[ <b>:SOURce</b> ] :POWer:ALC:LEVel?
OPSHAZ	Output ALC level	N	<i>The Agilent MXG does not support this feature.</i>
OPSHCF	Output frequency step size	Y	[ <b>:SOURce</b> ] :FREQuency[:CW]:STEP [:INCRement]?
OPSHCW	Output swept CW frequency	Y	[ <b>:SOURce</b> ] :FREQuency:START? or [ <b>:SOURce</b> ] :FREQuency:STOP?
OPSHFA	Output frequency multiplier	Y	[ <b>:SOURce</b> ] :FREQuency:MULTiplier?
OPSHFB	Output frequency offset	Y	[ <b>:SOURce</b> ] :FREQuency:OFFSet?
OPSHPL	Output power step size	Y	[ <b>:SOURce</b> ] :POWer[:LEVel][:IMMediate] [:AMPLitude]:STEP[:INCRement]?
OPSHPS	Output ALC level	Y	[ <b>:SOURce</b> ] :POWer:ALC:LEVel?
OPSHRF	Output power level	Y	[ <b>:SOURce</b> ] :POWer[:LEVel][:IMMediate] [:AMPLitude]?
OPSHSL	Output attenuator	Y	[ <b>:SOURce</b> ] :POWer:ATTenuation?
OPSHSN	Output sweep step points	N	[ <b>:SOURce</b> ] :SWEep:POINTs?
OPSL	Output power slope	Y	[ <b>:SOURce</b> ] :POWer:SLOPe?
OPSM	Output manual frequency	N	<i>The Agilent MXG does not support this feature.</i>
OPSN	Output sweep step points	Y	[ <b>:SOURce</b> ] :SWEep:POINTs?
OPSP	Output power step size	Y	[ <b>:SOURce</b> ] :POWer[:LEVel][:IMMediate] [:AMPLitude]:STEP[:INCRement]?
OPST	Output sweep time	N	<i>The Agilent MXG does not support this feature.</i>
OPTL	Output sweep time limit	N	<i>The Agilent MXG does not support this feature.</i>
OR	Output internally measured power level	N	<i>The Agilent MXG does not support this feature.</i>
OS	Output status bytes	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
OX	Output micro learn string	N	<i>supported, but has no effect on the Agilent MXG</i>
PL	Set power level	Y	[ <b>:SOURce</b> ] :POWer:ATTenuation:AUTO ON 1 [ <b>:SOURce</b> ] :POWer[:LEVel][:IMMediate] [:AMPLitude] <val><unit>
PM0	Pulse modulation off	Y	[ <b>:SOURce</b> ] :PULM:STATE OFF 0

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
PM1	Pulse modulation on	Y	[ <b>:SOURce</b> ] :PULM:SOURce EXternal [ <b>:SOURce</b> ] :PULM:STATE ON 1
PM1	27.8 kHz square wave pulse modulation on	N	<i>The Agilent MXG does not support this feature.</i>
PS0	Power sweep off	Y	[ <b>:SOURce</b> ] :POWer:MODE FIXed
PS1	Power sweep on	Y	[ <b>:SOURce</b> ] :POWer:MODE SWEep [ <b>:SOURce</b> ] :POWer:SPAN <val> dB
R2	Extended status byte #2 mask	N	<i>supported, but has no effect on the Agilent MXG</i>
RB	Control knob remotely	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
RC	Recall state	Y	*RCL <reg_num>[,<seq_num>]
RE	Extended status byte mask	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
RF0	RF output off	Y	OUTPut [:STATe] OFF 0
RF1	RF output on	Y	OUTPut [:STATe] ON 1
RM	Status byte mask	Y	*SRE <mask>
RP0	RF peaking off	Y	<i>supported, but has no effect on the Agilent MXG</i>
RP0	RF blanking off	N	<i>supported, but has no effect on the Agilent MXG</i>
RP1	RF peaking on	Y	<i>supported, but has no effect on the Agilent MXG</i>
RP1	RF blanking on	N	<i>supported, but has no effect on the Agilent MXG</i>
RS	Reset sweep	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
S1	Continuous sweep mode	Y	[ <b>:SOURce</b> ] :SWEep:MODE AUTO : <b>TRIGger</b> [ <b>:SEQUence</b> ] :SOURce IMMEDIATE : <b>INITiate</b> :CONTinuous[:ALL] ON
S2	Single sweep mode	Y	[ <b>:SOURce</b> ] :SWEep:MODE AUTO : <b>TRIGger</b> [ <b>:SEQUence</b> ] :SOURce IMMEDIATE : <b>INITiate</b> :CONTinuous[:ALL] OFF
S3	Manual frequency sweep mode	N	<i>The Agilent MXG does not support this feature.</i>
SB	Number of sweep buckets	N	<i>The Agilent MXG does not support this feature.</i>
SC	Seconds terminator	Y	S
SF	Frequency step size	Y	[ <b>:SOURce</b> ] :FREQuency[:CW]:STEP[:INCREment] <val><unit>
SG	Single sweep mode	Y	[ <b>:SOURce</b> ] :SWEep:MODE AUTO : <b>TRIGger</b> [ <b>:SEQUence</b> ] :SOURce IMMEDIATE : <b>INITiate</b> :CONTinuous[:ALL] OFF

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
SH	Shift prefix	Y	<i>supported, by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
SH01	Blank display	N	DISPlay[:WINDow] [:STATe] OFF 0
SHA1	Disable ALC and set power level	Y	[ :SOURce] :POWer:ALC[:STATe] OFF 0 [ :SOURce] :POWer[:LEVel] [:IMMEDIATE] [ :AMPLitude] <val><unit>
SHA2	External leveling mode with millimeter head module	N	<i>The Agilent MXG does not support this feature.</i>
SHA3	Directly control linear modulator circuit (bypassing ALC)	Y	[ :SOURce] :POWer:ATTenuation:AUTO OFF 0 [ :SOURce] :POWer:ALC[:STATe] OFF 0 [ :SOURce] :POWer:ALC:LEVel <val>dB
SHAK	Immediate YTF peak	Y	<i>supported, but has no effect on PSG</i>
SHAL	Retain multiplication factor on power on/off and preset	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
SHAM	Pulse modulation enhancement	Y	<i>supported, but has no effect on PSG</i>
SHAZ	External leveling mode with millimeter head module	N	<i>The Agilent MXG does not support this feature.</i>
SHCF	Frequency step size	Y	[ :SOURce] :FREQuency[:CW]:STEP[:INCREMENT] <val><unit>
SHCF	Coarse CW resolution	N	<i>supported, but has no effect on the Agilent MXG</i>
SHCW	Swept CW	N	[ :SOURce] :SWEep:MODE AUTO [ :SOURce] :FREQuency:MODE SWEep [ :SOURce] :FREQuency:START <val><unit> [ :SOURce] :FREQuency:STOP <val><unit>
SHDF	Fine CW resolution	N	<i>supported, but has no effect on the Agilent MXG</i>
SHEF	Restore cal. const. access function	N	<i>The Agilent MXG does not support this feature.</i>
SHFA	Frequency multiplier	Y	[ :SOURce] :FREQuency:MULTiplier <val>
SHFB	Frequency offset	Y	[ :SOURce] :FREQuency:OFFSET <val><unit>
SHIP	Reset multiplication factor to 1 and preset instrument	Y	<i>supported by the Agilent MXG, but there is no equivalent SCPI command sequence</i>
SHM0	All frequency markers off	Y	[ :SOURce] :MARKer:AOFF
SHM1	Turn on and set marker delta	N	[ :SOURce] :MARKer:MODE DELTA
SHM2	Enable counter interface	N	<i>supported, but has no effect on the Agilent MXG</i>
SHM3	Disable counter interface	N	<i>supported, but has no effect on the Agilent MXG</i>
SHM4	Diagnostics: test/display results	N	<i>The Agilent MXG does not support this feature.</i>
SHMO	All frequency markers off	N	[ :SOURce] :MARKer:AOFF

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
SHMP	Set start frequency to marker 1 and set stop frequency to marker 2	Y	[ <b>:SOURce</b> ] :SWEep:MARKer:XFER
SHPL	Power step size	Y	[ <b>:SOURce</b> ] :POWer[:LEVel] [:IMMEDIATE] [:AMPLitude] :STEP[:INCReement] <val>
SHPM	27.8 KHz square wave pulse modulation on	N	<i>The Agilent MXG does not support this feature.</i>
SHPS	Decouple attenuator and ALC (control ALC independently)	Y	[ <b>:SOURce</b> ] :POWer:ATTenuation:AUTO OFF 0 [ <b>:SOURce</b> ] :POWer:ALC[:STATe] ON 1 [ <b>:SOURce</b> ] :POWer:ALC:LEVel <val>dB
SHRC	Unlock save/recall	Y	<i>supported, but no equivalent SCPI command sequence</i>
SHRF	Disable ALC and set power level	Y	[ <b>:SOURce</b> ] :POWer:ALC[:STATe] OFF 0  [ <b>:SOURce</b> ] :POWer[:LEVel] [:IMMEDIATE] [:AMPLitude] <val><unit>
SHRP	Auto track	Y	<i>supported, but has no effect on PSG</i>
SHS10	Disable display update	Y	DISPlay[:WINDOW] [:STATe] OFF 0
SHS11	Re-enable display update	Y	DISPlay[:WINDOW] [:STATe] ON 1
SHS3	Display fault diagnostic	N	<i>The Agilent MXG does not support this feature.</i>
SHSL	Set attenuator from front panel	Y	[ <b>:SOURce</b> ] :POWer:ATTenuation <val><unit>
SHSN	Stepped sweep	N	[ <b>:SOURce</b> ] :SWEep:MODE AUTO [ <b>:SOURce</b> ] :SWEep:GENERation STEPped [ <b>:SOURce</b> ] :LIST:TYPE STEP  [ <b>:SOURce</b> ] :LIST:TRIGger:SOURce IMMEDIATE [:TRIGger]:SEQUence] :SOURce IMMEDIATE [:INITiate]:CONTinuous[:ALL] ON  [ <b>:SOURce</b> ] :SWEep:POINTs <val>
SHSS	Reset step sizes to default values	N	<i>supported, but has no effect on PSG</i>
SHST	Zoom function	N	<i>The Agilent MXG does not support this feature.</i>
SHSV	Lock save/recall	Y	<i>supported, but no equivalent SCPI command sequence</i>
SHT1	Test displays	N	<i>The Agilent MXG does not support this feature.</i>
SHT2	Bandcrossing penlift	N	<i>The Agilent MXG does not support this feature.</i>
SHT3	Display unlock indicators	N	<i>The Agilent MXG does not support this feature.</i>
SHGZ	IO Channel	N	<i>The Agilent MXG does not support this feature.</i>
SHMZ	IO Subchannel	N	<i>The Agilent MXG does not support this feature.</i>
SHKZ	Write to IO	N	<i>The Agilent MXG does not support this feature.</i>
SHHZ	Read from IO	N	<i>The Agilent MXG does not support this feature.</i>

**Table 8-3 8340B/41B Prog. Codes & Equivalent SCPI Sequences (Continued)**

Cmd	Description	8340	Equivalent SCPI Command Sequence
SHVR	Frequency offset	N	<i>The Agilent MXG does not support this feature.</i>
SL0	Power slope off	Y	[ <b>:SOURce</b> ]:POWeR:SLOPe:STATe OFF 0
SL1	Power slope on	Y	[ <b>:SOURce</b> ]:POWeR:SLOPe:STATe ON 1 [ <b>:SOURce</b> ]:POWeR:SLOPe <value> [DB/GHz]
SL1	Power slope on	N	[ <b>:SOURce</b> ]:POWeR:SLOPe:STATe ON 1 [ <b>:SOURce</b> ]:POWeR:SLOPe <value> [DB/Hz]
SM	Manual frequency sweep mode	N	<i>The Agilent MXG does not support this feature.</i>
SN	Number of points in a stepped sweep	Y	[ <b>:SOURce</b> ]:SWEep:MODE AUTO [ <b>:SOURce</b> ]:SWEep:GENeration STEPped [ <b>:SOURce</b> ]:LIST:TYPE STEP  [ <b>:SOURce</b> ]:LIST:TRIGger:SOURCE BUS :TRIGger[:SEQUence]:SOURCE IMMEDIATE:INITiate:CONTinuous[:ALL] ON  [ <b>:SOURce</b> ]:SWEep:POINTs <val>
SP	Power step size	Y	[ <b>:SOURce</b> ]:POWeR[:LEvel][:IMMEDIATE] [:AMPLitude]:STEP[:INCREMENT] <val>
ST	Sweep time	N	<i>The Agilent MXG does not support this feature.</i>
SV	Save state	Y	*SAV <reg_num>[,<seq_num>]
SW0	Swap network analyzer channels	N	<i>The Agilent MXG does not support this feature.</i>
SW1	Swap network analyzer channels	N	<i>The Agilent MXG does not support this feature.</i>
SX	External sweep type	N	<i>supported, but has no effect on the Agilent MXG</i>
T1	Free run sweep trigger mode	Y	:TRIGger[:SEQUence]:SOURCE IMMEDIATE :INITiate:CONTinuous[:ALL] ON
T2	Line sweep trigger mode	N	<i>The Agilent MXG does not support this feature.</i>
T3	External sweep trigger mode	Y	:TRIGger[:SEQUence]:SOURCE EXTERNAL :INITiate:CONTinuous[:ALL] ON
T4	Single sweep trigger mode	N	:INITiate[:IMMEDIATE][:ALL]
TL	Sweep time limit	N	<i>The Agilent MXG does not support this feature.</i>
TS	Take sweep	Y	:TSWeep
UP	Step up (increments active function by step value)	Y	<i>supported, see Table 8-4 on page 489</i>
US	Microseconds terminator	Y	US
VR	CW vernier	N	<i>supported, but has no effect on the Agilent MXG</i>

**Table 8-4 8340 Code Compatibility**

Code	Sets Active Function	Comp. with OA/OP	Comp. with UP/DN	Comp. with RB (Knob)	Equivalent SCPI Commands for OA/OP query and UP/DN command
A2	✓	✓	✓		[ :SOURCE] :POWER:ALC:SOURce:EXTernal:COUpling? [ :SOURCE] :POWER:ATTenuation UP [ :SOURCE] :POWER:ATTenuation DOWN
AT	✓	✓	✓		[ :SOURCE] :POWER:ATTenuation? [ :SOURCE] :POWER:ATTenuation UP [ :SOURCE] :POWER:ATTenuation DOWN
CF	✓	✓			[ :SOURCE] :FREQuency:CENTER?
CW	✓	✓	✓	✓	[ :SOURCE] :FREQuency[:CW]? [ :SOURCE] :FREQuency[:CW] UP [ :SOURCE] :FREQuency[:CW] DOWN
DF	✓	✓			[ :SOURCE] :FREQuency:SPAN?
FA	✓	✓			[ :SOURCE] :FREQuency:START?
FB	✓	✓			[ :SOURCE] :FREQuency:STOP?
FM1	✓	✓			[ :SOURCE] :FM[:DEViation]?
MA	✓	✓			[ :SOURCE] :MARKer0:FREQuency?
M1	✓	✓			[ :SOURCE] :MARKer1:FREQuency?
M2	✓	✓			[ :SOURCE] :MARKer2:FREQuency?
M3	✓	✓			[ :SOURCE] :MARKer3:FREQuency?
M4	✓	✓			[ :SOURCE] :MARKer4:FREQuency?
M5	✓	✓			[ :SOURCE] :MARKer5:FREQuency?
M6	✓	✓			[ :SOURCE] :MARKer6:FREQuency?
M7	✓	✓			[ :SOURCE] :MARKer7:FREQuency?
M8	✓	✓			[ :SOURCE] :MARKer8:FREQuency?
M9	✓	✓			[ :SOURCE] :MARKer9:FREQuency?
PL	✓	✓	✓	✓	[ :SOURCE] :POWER[:LEVel] [:IMMEDIATE] [:AMPLitude]? [ :SOURCE] :POWER[:LEVel] [:IMMEDIATE] [:AMPLitude] UP [ :SOURCE] :POWER[:LEVel] [:IMMEDIATE] [:AMPLitude] DOWN
PS	✓	✓			[ :SOURCE] :POWER:SPAN?
RC	✓				none

**Table 8-4 8340 Code Compatibility (Continued)**

Code	Sets Active Function	Comp. with OA/OP	Comp. with UP/DN	Comp. with RB (Knob)	Equivalent SCPI Commands for OA/OP query and UP/DN command
SB	✓	✓			<i>supported, but no equivalent SCPI command sequence</i>
SF	✓	✓		✓	[::SOURce]:FREQuency[:CW]:STEP[:INCRement]?
SHA1	✓	✓	✓	✓	[::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude]? [::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude] UP [::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude] DOWN
SHA2	✓	✓		✓	[::SOURce]:POWer:ALC:LEVel?
SHA3	✓	✓	✓	✓	[::SOURce]:POWer:ALC:LEVel? [::SOURce]:POWer:ATTenuation UP [::SOURce]:POWer:ATTenuation DOWN
SHAZ	✓	✓		✓	[::SOURce]:POWer:ALC:LEVel?
SHCF	✓	✓		✓	[::SOURce]:FREQuency[:CW]:STEP[:INCRement]?
SHCW	✓	✓			[::SOURce]:FREQuency:START? or [::SOURce]:FREQuency:STOP?
SHFA	✓	✓		✓	[::SOURce]:FREQuency:MULTiplier?
SHFB	✓	✓		✓	[::SOURce]:FREQuency:OFFSet?
SHPL	✓	✓	✓	✓	[::SOURce]:POWer[:LEVel][:IMMediate][:STEP[:INCRement]]? [::SOURce]:POWer:ATTenuation UP [::SOURce]:POWer:ATTenuation DOWN
SHPS	✓	✓	✓	✓	[::SOURce]:POWer:ALC:LEVel? [::SOURce]:POWer:ATTenuation UP [::SOURce]:POWer:ATTenuation DOWN
SHRF	✓	✓	✓	✓	[::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude]? [::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude] UP [::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude] DOWN
SHSL	✓	✓			[::SOURce]:POWer:ATTenuation?
SHSN	✓	✓		✓	[::SOURce]:SWEep:POINTS?
SL	✓	✓			[::SOURce]:POWer:SLOPe?
SM	✓	✓			<i>not supported</i>
SN	✓	✓		✓	[::SOURce]:SWEep:POINTS?
SP	✓	✓		✓	[::SOURce]:POWer[:LEVel][:IMMediate][:AMPLitude]:STEP[:INCRement]?

**Table 8-4 8340 Code Compatibility (Continued)**

Code	Sets Active Function	Comp. with OA/OP	Comp. with UP/DN	Comp. with RB (Knob)	Equivalent SCPI Commands for OA/OP query and UP/DN command
ST	✓	✓			<i>not supported</i>
SV	✓				<i>none</i>
TL	✓	✓			<i>not supported</i>

## 836xxB/L Compatible SCPI Commands

**Table 8-5** is a comprehensive list of 836xxB/L SCPI commands arranged by subsystem. Commands are indicated as supported by the N5183A or not supported by the N5183A. Use the legend within the table to determine command compatibility.

The preset state of the N5183A differs from that of the 836xxB/L. The RF output and sweep are turned off in the N5183A, while in the 836xxB/L these parameters are turned on. To optimize the benefit of using 836xxB/L compatible commands with a N5183A, set up a user-defined preset state that emulates the preset state of the 836xxB/L.

To use the commands, select **8360 Series** as the remote language. See “[:LANGage \(N5183A\)](#)” on [page 415](#) for information about selecting the language type.

When using the programming codes in this section, you can:

- set the N5183A system language to 8360 Series for the current session:

**Utility > I/O Config > Remote Language > 8360 Series**

or send the command:

:SYST:LANG "8360"

- set the N5183A system language to 8360 Series so that it does not reset with a preset, an instrument power cycle, or a \*RST command:

**Utility > Power On/Preset > Preset Language > 8360 Series**

or send the command:

:SYST:PRESET:LANG "8360"

- set the \*IDN? response to any 8360-like response you prefer. Refer to the [:SYSTem:IDN](#) command on [page 415](#).

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**NOTE** Some of the N5183A supported commands are a subset of the 836xxB/L commands. When this occurs, the syntax supported by the N5183A is shown in addition to the syntax that is not supported

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- NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header".
- The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].
- The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].
- 

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
<i>IEEE Common Commands</i>			
*CLS	Y	Y	
*ESE <data>	Y	Y	
*ESE?	Y	Y	
*ESR?	Y	Y	
*IDN? <sup>a</sup>	Y	Y	
*LRN?	N	N	
*OPC	Y	Y	
*OPC?	Y	Y	
*OPT?	Y	Y	
*RCL <reg_num>	Y	Y	
*RST	Y	Y	
*SAV <reg_num>	Y	Y	
*SRE <data>	Y	Y	
*SRE?	Y	Y	
*STB?	Y	Y	
*TRG	Y	Y	
*TST?	Y	Y	
*WAI	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
<i>Abort Subsystem</i>			
:ABORT	Y	Y	
<i>Amplitude Modulation Subsystem</i>			
:AM[:DEPTH] <num>[PCT]   MAXimum MINimum <num>DB	Y		
:AM[:DEPTH]? [MAXimum MINimum]	Y		
:AM:INTERNAL:FREQuency <num>[<freq suffix>]   MAXimum MINimum	Y		
:AM:INTERNAL:FREQuency? [MAXimum MINimum]	Y		
:AM:INTERNAL:FUNCTION SINusoid SQUare TRIangle RAMP NOISE	Y		<i>Supported but the following parameters are not supported: TRIangle SQUare RAMP NOISE</i>
:AM:INTERNAL:FUNCTION?	Y		
:AM:SOURce INTERNAL EXTERNAL	Y		
:AM:SOURce?	Y		
:AM:MODE DEEP NORMAL	N		
:AM:MODE?	N		
:AM:STATE ON OFF 1 0	Y		
:AM:STATE?	Y		
:AM:TYPE LINEar EXPonential	Y		
:AM:TYPE?	Y		
<i>Calibration Subsystem</i>			
:CALibration:AM:AUTO ON OFF 1 0	N		
:CALibration:AM:AUTO?	N		
:CALibration:AM[:EXECute]	N		
:CALibration:PEAKing:AUTO ON OFF 1 0	N	N	
:CALibration:PEAKing:AUTO?	N	N	

**Table 8-5 836xxB/L SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83620B & 83640B	83620L & 83640L	Remarks
:CALibration:PEAKing[:EXECute]	N	N	
:CALibration:PMETer:DETector:INITiate? IDETector DIODe	N	N	
:CALibration:PMETer:DETector:NEXT? <num>[<lvl suffix>]	N	N	
:CALibration:PMETer:FLATness:INITiate? USER DIODe PMETER MMHead	N	N	
:CALibration:PMETer:FLATness:NEXT? <value>[<lvl suffix>]	N	N	
:CALibration:SPAN:AUTO ON OFF 1 0	N	N	
:CALibration:SPAN:AUTO?	N	N	
:CALibration:SPAN[:EXECute]	N	N	
:CALibration:TRACK	N	N	
<i>Correction Subsystem</i>			
:CORRection:ARRay[i]{<value>[DB]}	N	N	
:CORRection:ARRay[i]?	N	N	
:CORRection:FLATness {<num>[freq suffix],<num>[DB]}2*801	Y	Y	
:CORRection:FLATness?	Y	Y	
:CORRection:SOURce[i] ARRray FLATness	N	N	
:CORRection:SOURce[i]?	N	N	
:CORRection:FLATness:POINTS? [MAXimum MINimum]	Y	Y	
:CORRection[:STATE] ON OFF 1 0	Y	Y	
:CORRection[:STATE]?	Y	Y	
<i>Diagnostics Subsystem</i>			
:DIAGnostics:ABUS? <value>	N	N	
:DIAGnostics:ABUS:AVERage <value>	N	N	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:DIAGnostics:ABUS:AVERage?	N	N	
:DIAGnostics:ABUS:STATus?	N	N	
:DIAGnostics:INSTRument:PMETER:ADDRess <value>	N	N	
:DIAGnostics:INSTRument:PMETER:ADDRess?	N	N	
:DIAGnostics:INSTRument:PRINTER:ADDRess <value>	N	N	
:DIAGnostics:INSTRument:PRINTER:ADDRess?	N	N	
:DIAGnostics:IORW <value>,<value>	N	N	
:DIAGnostics:IORW? <value>	N	N	
:DIAGnostics:OUTPut:FAULT?	N	N	
:DIAGnostics:RESult?	N	N	
:DIAGnostics:TEST:CONTinue	N	N	
:DIAGnostics:TEST:DATA:DESC?	N	N	
:DIAGnostics:TEST:DATA:MAXimum?	N	N	
:DIAGnostics:TEST:DATA:MINimum?	N	N	
:DIAGnostics:TEST:DATA:VALue?	N	N	
:DIAGnostics:TEST:DISable {<num>}1*? ALL	N	N	
:DIAGnostics:TEST:ENAble {<num>}1*? ALL	N	N	
:DIAGnostics:TEST[:EXECute] <value>	N	N	
:DIAGnostics:TEST:LOG:SOURce ALL FAIL	N	N	
:DIAGnostics:TEST:LOG:SOURce?	N	N	
:DIAGnostics:TEST:LOG[:STATE]?	N	N	
:DIAGnostics:TEST:LOG[:STATE] ON OFF 1 0	N	N	
:DIAGnostics:TEST:LOOP ON OFF 1 0	N	N	
:DIAGnostics:TEST:LOOP?	N	N	

**Table 8-5 836xxB/L SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83620B & 83640B	83620L & 83640L	Remarks
:DIAGnostics:TEST:NAME? [<value>]	N	N	
:DIAGnostics:TEST:POINTs?	N	N	
:DIAGnostics:TEST:RESUlt? [<value>]	N	N	
:DIAGnostics:TINT? <value>	N	N	
<i>Display Subsystem</i>			
:DISPlay[:STATE] ON OFF 1 0	Y	Y	
:DISPlay[:STATE]?	Y	Y	
<i>Frequency Modulation Subsystem</i>			
:FM:COUpling AC DC	Y		
:FM:COUpling?	Y		
:FM[:DEViation] <val><unit> MAXimum MINimum	Y		
:FM[:DEViation]? [MAXimum MINimum]	Y		
:FM:FILTer:HPASS <num> [<freq suffix>]  MAXimum MINimum	N		
:FM:FILTer:HPASS? [MAXimum MINimum]	N		
:FM:INTernal:FREQuency <num> [<freq suffix>]  MAXimum MINimum	Y		
:FM:INTernal:FREQuency? [MAXimum MINimum]	Y		
:FM:INTernal:FUNCTION SINusoid SQUare TRIangle RAMP NOISE	Y		<i>Supported but the following parameters are not supported: TRIangle SQUare RAMP NOISE</i>
:FM:INTernal:FUNCTION?	Y		
:FM:SOURce INTERNAL EXTERNAL	Y		
:FM:SOURce?	Y		
:FM:SENSitivity <val><freq suffix>/V> MAXimum MINimum	Y		
:FM:SENSitivity? [MAXimum MINimum]	Y		

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:FM:STATE ON OFF 1 0	Y		
:FM:STATE?	Y		
<i>Frequency Subsystem</i>			
:FREQuency:CENTER <num>[<freq suffix>]  MAXimum MINimum UP DOWN	Y	Y	
:FREQuency:CENTER? [MAXimum MINimum]	Y	Y	
:FREQuency[:CW]:FIXed] <num>[<freq suffix>]  MAXimum MINimum UP DOWN	Y	Y	
:FREQuency[:CW]? [MAXimum MINimum]	Y	Y	
:FREQuency[:FIXed]? [MAXimum MINimum]	Y	Y	
:FREQuency[:CW]:AUTO ON OFF 1 0	N	N	
:FREQuency[:CW]:AUTO?	N	N	
:FREQuency[:FIXed]:AUTO ON OFF 1 0	N	N	
:FREQuency[:FIXed]:AUTO?	N	N	
:FREQuency:MANual <num>[freq suffix]  MAXimum MINimum UP DOWN	N	N	
:FREQuency:MANual? [MAXimum MINimum]	N	N	
:FREQuency:MODE FIXed CW SWEep LIST	Y	Y	
:FREQuency:MODE?	Y	Y	
:FREQuency:MULTiplier <num> MAXimum MINimum <sup>b</sup>	Y	Y	
:FREQuency:MULTiplier? [MAXimum MINimum]	Y	Y	
:FREQuency:MULTiplier:STATE ON OFF 1 0	N	N	
:FREQuency:MULTiplier:STATE?	N	N	
:FREQuency:OFFSet <num> MAXimum MINimum	Y	Y	
:FREQuency:OFFSet? [MAXimum MINimum]	Y	Y	
:FREQuency:OFFSet:STATE ON OFF 1 0	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:FREQuency:OFFSet:STATE?	Y	Y	
:FREQuency:SPAN <num>[<freq suffix>]  MAXimum MINimum UP DOWN	Y	Y	
:FREQuency:SPAN? [MAXimum MINimum]	Y	Y	
:FREQuency:STARt <num>[<freq suffix>]  MAXimum MINimum UP DOWN	Y	Y	
:FREQuency:STARt? [MAXimum MINimum]	Y	Y	
:FREQuency:STEP:AUTO ON OFF 1 0	Y	Y	
:FREQuency:STEP:AUTO?	Y	Y	
:FREQuency:STEP[:INCRement] <num>[<freq suffix>]  MAXimum MINimum	Y	Y	
:FREQuency:STEP[:INCRement]?	Y	Y	
:FREQuency:STOP <num>[<freq suffix>]  MAXimum MINimum UP DOWN	Y	Y	
:FREQuency:STOP? [MAXimum MINimum]	Y	Y	
<i>Initiate Subsystem</i>			
:INITiate:CONTinuous ON OFF 1 0	Y	Y	
:INITiate:CONTinuous?	Y	Y	
:INITiate[:IMMEDIATE]	Y	Y	
<i>List Subsystem</i>			
:LIST:DWELL {<num>[<time suffix>]  MAXimum MINimum}	Y	Y	
:LIST:DWELL? [MAXimum MINimum]	Y	Y	
:LIST:DWELL:POINTs? [MAXimum MINimum]	Y	Y	
:LIST:FREQuency {<value>[<freq suffix>]  MAXimum MINimum}	Y	Y	
:LIST:FREQuency?	Y	Y	
:LIST:FREQuency:POINTs? [MAXimum MINimum]	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:LIST:MANual <num>	Y	Y	
:LIST:MANual?	Y	Y	
:LIST:MODE AUTO MANual	Y	Y	
:LIST:MODE?	Y	Y	
:LIST[:POWER] :CORRection {<value>[DB]  MAXimum MINimum}	N	N	
:LIST[:POWER] :CORRection?	N	N	
:LIST[:POWER] :CORRection:POINTS? [MAXimum MINimum]	N	N	
:LIST:TRIGger:SOURce IMMEDIATE BUS EXTernal	Y	Y	
:LIST:TRIGger:SOURce?	Y	Y	
<b>Marker Subsystem</b>			
:MARKer[n] :AMPLitude[:STATe] ON OFF 1 0	Y	Y	
:MARKer[n] :AMPLitude[:STATe]?	Y	Y	
:MARKer[n] :AMPLitude:VALue <value>[DB]  MAXimum MINimum	Y	Y	
:MARKer[n] :AMPLitude:VALue? [MAXimum MINimum]	Y	Y	
:MARKer[n] :AOFF	Y	Y	
:MARKer[n] :DELTa? <value>,<value>	Y	Y	
:MARKer[n] :FREQuency <value>[<freq suffix>]  MAXimum MINimum	Y	Y	
:MARKer[n] :FREQuency? [MAXimum MINimum]	Y	Y	
:MARKer[n] :MODE FREQuency DELTa	Y	Y	
:MARKer[n] :MODE?	Y	Y	
:MARKer[n] :REFerence <n>	Y	Y	
:MARKer[n] :REFerence?	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83620B & 83640B	83620L & 83640L	Remarks
:MARKer [n] [:STATe] ON OFF 1 0	Y	Y	
:MARKer [n] [:STATe] ?	Y	Y	
<i>Measure Subsystem</i>			
:MEASure:AM?	N		
:MEASure:FM?	N		
<i>Modulation Subsystem</i>			
:MODulation:OUTPut:SOURce AM FM	N		
:MODulation:OUTPut:SOURce?	N		
:MODulation:OUTPut:STATE ON OFF 1 0	N		
:MODulation:OUTPut:STATE?	N		
:MODulation:STATE?	Y		
<i>Power Subsystem</i>			
:POWer:ALC:BANDwidth :BWIDth <value>[<freq suffix>]  MAXimum MINimum	N	N	
:POWer:ALC:BANDwidth? :BWIDth? [MAXimum MINimum]	N	N	
:POWer:ALC:BANDwidth :BWIDth:AUTO ON OFF 1 0	Y	Y	
:POWer:ALC:BANDwidth :BWIDth:AUTO?	Y	Y	
:POWer:ALC:CFACTOR <value>[DB]  MAXimum MINimum UP DOWN	N	N	
:POWer:ALC:CFACTOR? [MINimum MAXimum]	N	N	
:POWer:ALC:SOURce PMETer INTERNAL DIODe MMHead	Y	Y	<i>Supported but the following parameters are not supported:</i> PMETer MMHead
:POWer:ALC:SOURce?	Y	Y	
:POWer:ALC[:STATe] ON OFF 1 0	Y	Y	
:POWer:ALC[:STATe] ?	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:POWer:AMPLifier:STATE ON OFF 1 0	N	N	
:POWer:AMPLifier:STATE?	N	N	
:POWer:AMPLifier:STATE:AUTO ON OFF 1 0	N	N	
:POWer:AMPLifier:STATE:AUTO?	N	N	
:POWer:ATTenuation <num> [DB]   MAXimum MINimum UP DOWN	Y	Y	
:POWer:ATTenuation? [MAXimum MINimum]	Y	Y	
:POWer:ATTenuation:AUTO ON OFF 1 0	Y	Y	
:POWer:ATTenuation:AUTO?	Y	Y	
:POWer:CENTer <num> [<lvl suffix>]   MAXimum MINimum UP DOWN	Y	Y	
:POWer:CENTer? [MAXimum MINimum]	Y	Y	
:POWer[:LEVel] <num> [<lvl suffix>]   MAXimum MINimum UP DOWN	Y	Y	
:POWer[:LEVel]? [MAXimum MINimum]	Y	Y	
:POWer:MODE FIXed SWEep	Y	Y	
:POWer:MODE?	Y	Y	
:POWer:OFFSet <num> [DB]   MAXimum MINimum UP DOWN	Y	Y	
:POWer:OFFSet? [MAXimum MINimum]	Y	Y	
:POWer:OFFSet:STATE ON 1 <sup>c</sup> :POWer:OFFSet:STATE OFF 0 <sup>d</sup>	N Y	N Y	
:POWer:OFFSet:STATE?	Y	Y	
:POWer:RANGE <value> [<lvl suffix>]   MAXimum MINimum UP DOWN	N	N	
:POWer:RANGE?	N	N	
:POWer:SEARCh ON OFF 1 0 ONCE	Y	Y	
:POWer:SEARCh?	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83620B & 83640B	83620L & 83640L	Remarks
:POWer:SLOPe <value>[DB/<freq suffix>]  MIN MAX UP DOWN	Y	Y	
:POWer:SLOPe? [MAXimum MINimum]	Y	Y	
:POWer:SLOPe:STATe ON OFF 1 0	Y	Y	
:POWer:SLOPe:STATe?	Y	Y	
:POWer:SPAN <value>[DB]  MAXimum MINimum UP DOWN	Y	Y	
:POWer:SPAN? [MAXimum MINimum]	Y	Y	
:POWer:STARt <val><unit> MAXimum MINimum UP DOWN	Y	Y	
:POWer:STARt? [MAXimum MINimum]	Y	Y	
:POWer:STATe ON OFF 1 0	Y	Y	
:POWer:STATe?	Y	Y	
:POWer:STEP:AUTO ON OFF 1 0	Y	Y	
:POWer:STEP:AUTO?	Y	Y	
:POWer:STEP[:INCRement] <num>[DB]  MAXimum MINimum	Y	Y	
:POWer:STEP[:INCRement]? [MAXimum MINimum]	Y	Y	
:POWer:STOP <val><unit> MAXimum MINimum UP DOWN	Y	Y	
:POWer:STOP? [MAXimum MINimum]	Y	Y	
<i>Pulse Modulation Subsystem</i>			
:PULM:EXTernal:DELay <value>[<time suffix>]  MAXimum MINimum	N		
:PULM:EXTernal:DELay? [MAXimum MINimum]	N		
:PULM:EXTernal:POLarity NORMAL INVerted	Y		
:PULM:EXTernal:POLarity?	Y		

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:PULM:INTernal:FREQuency <num> [<freq suffix>]  MAXimum MINimum	Y		
:PULM:INTernal:FREQuency? [MAXimum MINimum]	Y		
:PULM:INTernal:GATE ON OFF 1 0	N		
:PULM:INTernal:GATE?	N		
:PULM:INTernal:PERiod <num> [<time suffix>]  MAXimum MINimum	Y		
:PULM:INTernal:PERiod? [MAXimum MINimum]	Y		
:PULM:INTernal:TRIGger:SOURce INTERNAL EXTERNAL	Y		
:PULM:INTernal:TRIGger:SOURce? [INTERNAL EXTERNAL]	Y		
:PULM:INTernal:WIDTh <num> [<time suffix>]  MAXimum MINimum	Y		
:PULM:INTernal:WIDTh? [MAXimum MINimum]	Y		
:PULM:SLEW <value> [<time suffix>]  MAXimum MINimum	N		
:PULM:SLEW? [MAXimum MINimum]	N		
:PULM:SLEW:AUTO ON OFF 1 0	N		
:PULM:SLEW:AUTO?	N		
:PULM:SOURce SCALar :PULM:SOURce INTERNAL EXTERNAL	N Y		
:PULM:SOURce?	Y		
:PULM:STATE ON OFF 1 0	Y		
:PULM:STATE?	Y		
<i>Pulse Subsystem</i>			
:PULSe:FREQuency <num> [<freq suffix>]  MAXimum MINimum	Y		

**Table 8-5 836xxB/L SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83620B & 83640B	83620L & 83640L	Remarks
:PULSe:FREQuency? [MAXimum MINimum]	Y		
:PULSe:PERiod <num> [<time suffix>]  MAXimum MINimum	Y		
:PULSe:PERiod? [MAXimum MINimum]	Y		
:PULSe:WIDTh <num> [<time suffix>]  MAXimum MINimum	Y		
:PULSe:WIDTh? [MAXimum MINimum]	Y		
<i>Reference Oscillator Subsystem</i>			
:ROSCillator:SOURce INTERNAL EXTernal NONE	Y	Y	
:ROSCillator:SOURce?	Y	Y	
:ROSCillator:SOURce:AUTO ON OFF 1 0	Y	Y	
:ROSCillator:SOURce:AUTO?	Y	Y	
<i>Status Subsystem</i>			
:STATus:OPERation:CONDITION?	Y	Y	
:STATus:OPERation:ENABLE <value>	Y	Y	
:STATus:OPERation:ENABLE?	Y	Y	
:STATus:OPERation[:EVENT]?	Y	Y	
:STATus:OPERation:NTRansition <value>	Y	Y	
:STATus:OPERation:NTRansition?	Y	Y	
:STATus:OPERation:PTRansition <value>	Y	Y	
:STATus:OPERation:PTRansition?	Y	Y	
:STATus:PRESet	Y	Y	
:STATus:QUESTIONable:CONDITION?	Y	Y	
:STATus:QUESTIONable:ENABLE <value>	Y	Y	
:STATus:QUESTIONable:ENABLE?	Y	Y	
:STATus:QUESTIONable[:EVENT]?	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:STATus:QUEStionable:NTRansition <value>	Y	Y	
:STATus:QUEStionable:NTRansition?	Y	Y	
:STATus:QUEStionable:PTRansition <value>	Y	Y	
:STATus:QUEStionable:PTRansition?	Y	Y	
<i>Sweep Subsystem</i>			
:SWEep:CONTrol:STATE ON OFF 1 0	N	N	
:SWEep:CONTrol:STATE?	N	N	
:SWEep:CONTrol:TYPE MASTER SLAVE	N	N	
:SWEep:CONTrol:TYPE?	N	N	
:SWEep:DWELL <num>[<time suffix>]  MAXimum MINimum	Y	Y	
:SWEep:DWELL? [MAXimum MINimum]	Y	Y	
:SWEep:DWELL:AUTO ON OFF 1 0	N	N	
:SWEep:DWELL:AUTO?	N	N	
:SWEep:GENeration STEPped ANALog	Y	Y	<i>Supported but the following parameter is not supported: ANALog</i>
:SWEep:GENeration?	Y	Y	
:SWEep:MANual:POINT <num> MAXimum MINimum	Y	Y	
:SWEep:MANual:POINT? [MAXimum MINimum]	Y	Y	
:SWEep:MANual[:RELative] <value>	N	N	
:SWEep:MANual[:RELative]?	N	N	
:SWEep:MARKer:STATE ON OFF 1 0	N	N	
:SWEep:MARKer:STATE?	N	N	
:SWEep:MARKer:XFER	Y	Y	
:SWEep:MODE AUTO MANual	Y	Y	
:SWEep:MODE?	Y	Y	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:SWEep:POINTs <num> MAXimum MINimum	Y	Y	
:SWEep:POINTs? [MAXimum MINimum]	Y	Y	
:SWEep:STEP <value>[<freq suffix>]  MAXimum MINimum	Y	Y	
:SWEep:STEP? [MAXimum MINimum]	Y	Y	
:SWEep:TIME <value>[<time suffix>]  MAXimum MINimum	N	N	
:SWEep:TIME? [MAXimum MINimum]	N	N	
:SWEep:TIME:AUTO ON OFF 1 0	N	N	
:SWEep:TIME:AUTO?	N	N	
:SWEep:TIME:LLIMIT <value>[<time suffix>]  MAXimum MINimum	N	N	
:SWEep:TIME:LLIMIT? [MAXimum MINimum]	N	N	
:SWEep:TRIGger:SOURce IMMEDIATE BUS EXTERNAL	Y	Y	
:SWEep:TRIGger:SOURce?	Y	Y	
<i>System Subsystem</i>			
:SYSTem:ALTerNATE <value> MAXimum MINimum	N	N	
:SYSTem:ALTerNATE? [MAXimum MINimum]	N	N	
:SYSTem:ALTerNATE:STATe ON OFF 1 0	N	N	
:SYSTem:ALTerNATE:STATe?	N	N	
:SYSTem:COMMUnicate:GPIB:ADDReSS <number>	Y	Y	
:SYSTem:DUMP:PRINter?	N	N	
:SYSTem:ERRor?	Y	Y	
:SYSTem:LANGuage CIIL COMPAtible :SYSTem:LANGuage SCPI	N Y	N Y	
:SYSTem:MMHead:SElect:AUTO ON OFF 1 0	N	N	
:SYSTem:MMHead:SElect:AUTO?	N	N	

**Table 8-5 836xxB/L SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83620B &amp; 83640B</b>	<b>83620L &amp; 83640L</b>	<b>Remarks</b>
:SYSTem:MMHead:SElect FRONT REAR NONE <sup>e</sup>	N	N	
:SYSTem:MMHead:SElect?	N	N	
:SYSTem:PRESet[:EXECute]	Y	Y	
:SYSTem:PRESet:SAVE	Y	Y	
:SYSTem:PRESet:TYPE FACTory USER	Y	Y	
:SYSTem:PRESet:TYPE?	Y	Y	
:SYSTem:SECurity:COUNT <value> <sup>fg</sup>	Y	Y	
:SYSTem:SECurity:COUNT? [MINimum MAXimum]	Y	Y	
:SYSTem:SECurity[:STATE] ON OFF 1 0 <sup>e</sup>	Y	Y	
:SYSTem:SECurity[:STATE]?	Y	Y	
:SYSTem:VERSION?	Y	Y	
<i>Trigger Subsystem</i>			
:TRIGger[:IMMEDIATE]	Y	Y	
:TRIGger:ODELAY <value>[time suffix] MAXimum MINimum	N	N	
:TRIGger:ODELAY? [MAXimum MINimum]	N	N	
:TRIGger:SOURce IMMEDIATE BUS EXTernal	Y	Y	
:TRIGger:SOURce?	Y	Y	
<i>Tsweep Subsystem</i>			
:TSweep	Y	Y	
<i>Unit Subsystem</i>			
:UNIT:AM DB PCT	N		
:UNIT:AM?	N		
:UNIT:POWeR {<lvl suffix>}	Y	Y	
:UNIT:POWER?	Y	Y	

- a. The identification information can be modified for the N5183A to reflect the signal generator that is being replaced. Refer to “[:SYSTem:IDN” on page 415](#) and“[:SYSTem:OPT](#)” on page 415 for more information.
- b. A multiplier of zero is not allowed.
- c. The N5183A will accept this command, but it has no effect.
- d. This command resets the power offset level to 0dBm. It does not turn off or disable the power offset feature.
- e. Since the N5183A does not have a front panel millimeter head (source module) interface connector, the “FRONT” suffix defaults to the rear connector.
- f. Flash memory allows only a limited number of “writes and erasures”, excessive use of this command will reduce the memory lifetime.
- g. This command can take several hours to execute because the N5183A memory size is much larger than the HP 836xx memory.

## 8373xB and 8371xB Compatible SCPI Commands

**Table 8-6** is a comprehensive list of 8373xB and 8371xB SCPI commands arranged by subsystem. Commands are indicated as supported by the N5183A or not supported by the N5183A. Use the legend within the table to determine command compatibility.

To use the commands, select 8371xB or 8373xB as the remote language. See “[:LANGuage \(N5183A\)](#)” on page 415 for information about selecting the language type.

When using the programming codes in this section, you can:

- set the N5183A system language to 8371xB or 8373xB for the current session:

**Utility > I/O Config > Remote Language > 83711B,83712B or 83731B,83732B**

or send the command:

:SYST:LANG "83712" or "83732"

- set the N5183A system language to 8371xB or 8373xB so that it does not reset with a preset, a instrument power cycle, or a \*RST command:

**Utility > Power On/Preset > Preset Language > 83711B,83712B or 83731B,83732B**

or send the command:

:SYST:PRESET:LANG "83712" or "83732"

- set the \*IDN? response to any 8373xB or 8371xB response preferred. Refer to the :SYSTem:IDN and :SYSTem:OPT commands on [page 415](#).

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**NOTE** Some of the N5183A supported commands are subsets of the 8373xB and 8371xB commands. When this occurs, the syntax supported by the N5183A is shown in addition to the syntax that is not supported.

---

**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: “ERROR: -113, Undefined Header”.

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

---

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
<i>IEEE Common Commands</i>			
*CLS	Y	Y	
*DMC	N	N	
*EMC	N	N	

**Table 8-6 8373xB and 8371xB SCPI Commands**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83731B &amp; 83732B</b>	<b>83711B &amp; 83712B</b>	<b>Remarks</b>
*EMC?	N	N	
*ESE <data>	Y	Y	
*ESE?	Y	Y	
*ESR?	Y	Y	
*GMC?	N	N	
*IDN? <sup>a</sup>	Y	Y	
*LMC?	N	N	
*LRN?	N	N	
*OPC	Y	Y	
*OPC?	Y	Y	
*OPT? <sup>a</sup>	Y	Y	
*PMC	N	N	
*PSC	Y	Y	
*PSC?	Y	Y	
*RCL <reg_num>	Y	Y	
*RMC	N	N	
*RST	Y	Y	
*SAV <reg_num>	Y	Y	
*SRE <data>	Y	Y	
*SRE?	Y	Y	
*STB?	Y	Y	
*TST?	Y	Y	
*WAI	Y	Y	
<i>Abort Subsystem</i>			
:ABORT	Y		
<i>Amplitude Modulation Subsystem</i>			
[:SOURce] :AM [:DEPTH] <val><unit> <sup>b</sup>	Y		

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
[ :SOURce] :AM[ :DEPTh] <num>[<PCT>]   <num>DB	Y		
[ :SOURce] :AM[ :DEPTh] :STEP[ :INCRement] incr MINimum MAXimum DEFault	Y		
[ :SOURce] :AM:INTernal:FREQuency <num>[<freq suffix>] incr  MINimum MAXimum DEFault	Y		
[ :SOURce] :AM:INTernal:FREQuency:STEP[ :INCRement]	N		
[ :SOURce] :AM:INTernal:FUNCTION SINusoid SQUare TRIangle RAMP NOISE UNIFORM  GAUSSian	Y		<i>Supported but the following parameters are not supported:</i> TRIangle SQUare RAMP  NOISE UNIFORM GAUSSian
[ :SOURce] :AM:SENSitivity <val> MIN MAX DEF	N		
[ :SOURce] :AM:SOURce FEED INTernal EXTernal <sup>d</sup>	Y		
[ :SOURce] :AM:SOURce? <sup>d</sup>	Y		
[ :SOURce] :AM:STATe ON OFF	Y		
[ :SOURce] :AM:STATE?	Y		
[ :SOURce] :AM:TYPE LINear EXPonential	Y		
[ :SOURce] :AM:TYPE?	Y		
<i>Display Subsystem</i>			
:DISPlay[:WINDOW] [:STATe] ON OFF 1 0	Y	Y	
:DISPlay[:WINDOW] [:STATe] ?	Y	Y	
<i>Initiate Subsystem</i>			
:INITiate:CONTinuous ON OFF 1 0	Y		
:INITiate:CONTinuous?	Y		
<i>Correction Subsystem</i>			
[ :SOURce] :CORRection:FLATness[:DATA] <freq>,<corr.>,... <freq>,<corr.>	Y	Y	
[ :SOURce] :CORRection:FLATness:POINTs <points>	Y	Y	
[ :SOURce] :CORRection[:STATe] ON OFF	Y	Y	
[ :SOURce] :CORRection[:STATe] ?	Y	Y	

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
[ <b>:SOURce</b> ]:CORRection:CSET[:SElect] tableno	N	N	
[ <b>:SOURce</b> ]:CORRection:CSET[:SElect]?	N	N	
[ <b>:SOURce</b> ]:CORRection:CSET:STATe ON OFF 1 0	N	N	
[ <b>:SOURce</b> ]:CORRection:CSET:STATe?	N	N	
<i>Frequency Modulation Subsystem</i>			
[ <b>:SOURce</b> ]:FM:COUPLing AC DC	Y		
[ <b>:SOURce</b> ]:FM:COUPLing?	Y		
[ <b>:SOURce</b> ]:FM[:DEViation] <val><unit>	Y		
[ <b>:SOURce</b> ]:FM[:DEViation]:STEP[:INCRement] <val>[<freq suffix>]	N		
[ <b>:SOURce</b> ]:FM:INTernal:FREQuency <num>[<freq suffix>]	Y		
[ <b>:SOURce</b> ]:FM:INTernal:FREQuency:STEP[:INCREMENT] incr MINimum MAXimum DEFault	Y		
[ <b>:SOURce</b> ]:FM:INTernal:FUNCTION SINusoid SQUAre TRIAngle RAMP UNIForm GAUSSian	Y		<i>Supported but the following parameters are not supported: TRIangle SQUare RAMP NOISE UNIForm GAUSSian</i>
[ <b>:SOURce</b> ]:FM:SENSitivity?	Y		
[ <b>:SOURce</b> ]:FM:SOURce FEED INTernal External <sup>d</sup>	Y		
[ <b>:SOURce</b> ]:FM:SOURce? <sup>d</sup>	Y		
[ <b>:SOURce</b> ]:FM:STATe ON OFF 1 0	Y		
[ <b>:SOURce</b> ]:FM:STATe?	Y		
<i>Frequency Subsystem</i>			
[ <b>:SOURce</b> ]:FREQuency[:CW :FIXed] <num>[<freq suffix>] UP DOWN DEFault	Y	Y	
[ <b>:SOURce</b> ]:FREQuency[:CW :FIXed] MAXimum MINimum DEFault]	Y	Y	
[ <b>:SOURce</b> ]:FREQuency[:CW :FIXed]:STEP <val><unit>	Y	Y	
[ <b>:SOURce</b> ]:FREQuency[:CW :FIXed]:STEP?	Y	Y	
[ <b>:SOURce</b> ]:FREQuency:MULTiplier <val> UP DOWN DEFault <sup>c</sup>	Y	Y	

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
[ :SOURce] :FREQuency:MULTiplier?	Y	Y	
[ :SOURce] :FREQuency:MULTiplier:STEP[:INCrement] incr MINimum MAXimum DEFault	N	N	
[ :SOURce] :FREQuency:MULTiplier:STEP[:INCrement]?	N	N	
<i>Memory Subsystem</i>			
:MEMory:CATalog [:ALL] ?	Y	Y	
:MEMory:CATalog:TABLE?	N	N	
:MEMory:CATalog:MACRo	N	N	
:MEMORY:RAM:INITialize	N	N	
:MEMORY:TABLE:FREQuency freq,...freq MINimum MAXimum	N	N	
:MEMORY:TABLE:FREQuency? MINimum MAXimum	N	N	
:MEMORY:TABLE:FREQuency:POINTS?	N	N	
:MEMORY:TABLE:LOSS [:MAGNiitude] cf,...cf MINimum MAXimum	N	N	
:MEMORY:TABLE:LOSS [:MAGNiitude]?	N	N	
:MEMORY:TABLE:LOSS [:MAGNiitude]:POINTS?	N	N	
:MEMORY:TABLE:SElect tableno	N	N	
:MEMORY:TABLE:SElect?	N	N	
<i>Modulation Subsystem</i>			
[ :SOURce] :MODulation:AOFF	Y		
[ :SOURce] :MODulation:STATE ON OFF	N		
[ :SOURce] :MODulation:STATE?	Y		
<i>Output Subsystem</i>			
:OUTPut:IMPedance?	N	N	
:OUTPut:PROTection[:STATE] ON OFF	Y	Y	
:OUTPut:PROTection[:STATE]?	Y	Y	
:OUTPut[:STATE] ON OFF 1 0	Y	Y	
:OUTPut[:STATE]?	Y	Y	

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
<i>Phase Modulation Subsystem</i>			
[ :SOURce] :PM:COUPling AC DC	Y		
[ :SOURce] :PM[:DEViation] <val><unit>	Y		
[ :SOURce] :PM[:DEViation]:STEP[:INCrement]	Y		
[ :SOURce] :PM:INTernal:FREQuency <val><unit>	Y		
[ :SOURce] :PM:INTernal:FREQuency:STEP[:INCrement]	Y		
[ :SOURce] :PM:INTernal:FUNCTION SINusoid SQuare TRIAngle RAMP UNIForm GAUSSian	Y		<i>Supported but the following parameters are not supported:</i> TRIangle SQuare RAMP NOISE UNIForm GAUSSian
[ :SOURce] :PM:RANGE AUTO LOW HIGH	N		
[ :SOURce] :PM:SENSitivity sens MINimum MAXimum DEFault	N		
[ :SOURce] :PM:SOURce INTERNAL FEED EXTernald	Y		FEED and INTernal are synonymous.
[ :SOURce] :PM:STATE ON OFF 1 0	Y		
<i>Power Subsystem</i>			
[ :SOURce] :POWer:ALC:PMETer pmeter MINimum MAXimum DEFault	N	N	
[ :SOURce] :POWer:ALC:PMETer?	N	N	
[ :SOURce] :POWer:ALC:PMETer:STEP incr MINimum MAXimum  DEFault	N	N	
[ :SOURce] :POWer:ALC:PMETer:STEP?	N	N	
[ :SOURce] :POWer:ALC:SOURce PMETER [ :SOURce] :POWer:ALC:SOURce INTERNAL DIODE	N Y	N Y	
[ :SOURce] :POWer:ALC:SOURce?	Y	Y	
[ :SOURce] :POWer:ATTenuation:AUTO ONCE [ :SOURce] :POWer:ATTenuation:AUTO ON OFF	N Y	N Y	
[ :SOURce] :POWer:ATTenuation:AUTO?	Y	Y	
[ :SOURce] :POWer[:LEVel] ampl MINimum MAXimum UP DOWN DEFault	Y	Y	
[ :SOURce] :POWer[:LEVel]?	Y	Y	

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
[ :SOURCE] :POWER[:LEVEL]:STEP incr MINimum MAXimum DEFault	Y	Y	
[ :SOURCE] :POWER[:LEVEL]:STEP?	Y	Y	
[ :SOURCE] :POWER:PROTECTION:STATE ON OFF	Y	Y	
[ :SOURCE] :POWER:PROTECTION:STATE?	Y	Y	
<i>Pulse Modulation Subsystem</i>			
[ :SOURCE] :PULM:EXTernal:POLarity NORMAL INverted	Y		
[ :SOURCE] :PULM:EXTernal:POLarity?	Y		
[ :SOURCE] :PULM:SOURce INTERNAL EXTERNAL	Y		
[ :SOURCE] :PULM:SOURce?	Y		
[ :SOURCE] :PULM:STATE ON OFF 1 0	Y		
[ :SOURCE] :PULM:STATE?	Y		
<i>Pulse Subsystem</i>			
[ :SOURCE] :PULSE:DELay delay MINimum MAXimum UP DOWN DEFault	Y		
[ :SOURCE] :PULSE:DELay?	Y		
[ :SOURCE] :PULSE:DELay:STEP <num>[<time suffix>] [DEFault]	Y		
[ :SOURCE] :PULSE:DELay:STEP? [DEFault]	Y		
[ :SOURCE] :PULSE:DOUBLE[:STATE] ON OFF	Y		
[ :SOURCE] :PULSE:DOUBLE[:STATE]?	Y		
[ :SOURCE] :PULSE:FREQuency freq MINimum MAXimum UP DOWN DEFault	Y		
[ :SOURCE] :PULSE:FREQuency?	Y		
[ :SOURCE] :PULSE:FREQuency:STEP freq DEFault	Y		
[ :SOURCE] :PULSE:FREQuency:STEP? [MIN MAX DEF]	Y		
[ :SOURCE] :PULSE:PERiod <num>[<time suffix>] UP DOWN	Y		
[ :SOURCE] :PULSE:PERiod?	Y		
[ :SOURCE] :PULSE:PERiod:STEP <num>[<time suffix>]	Y		

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
[ :SOURce]:PULSe:PERiod:STEP?	Y		
[ :SOURce]:PULSe:TRANSition[:LEADing] SLOW MEDIUM FAST	N		
[ :SOURce]:PULSe:TRANSition[:LEADing]?	N		
[ :SOURce]:PULSe:TRANSition:STATE ON OFF	N		
[ :SOURce]:PULSe:TRANSition:STATE?	N		
[ :SOURce]:PULSe:WIDTH MAXimum MINimum UP DOWN DEFault	Y		
[ :SOURce]:PULSe:WIDTH? [MAXimum MINimum DEFault]	Y		
[ :SOURce]:PULSe:WIDTH:STEP <num>[<time suffix>] DEFault	Y		
[ :SOURce]:PULSe:WIDTH:STEP? [MINimum MAXimum DEFault]	Y		
<i>Reference Oscillator Subsystem</i>			
[ :SOURce]:ROSCillator:SOURce?	Y	Y	
<i>Status Subsystem</i>			
:STATus:OPERation:CONDITION?	Y	Y	
:STATus:OPERation:ENABLE <value>	Y	Y	
:STATus:OPERation:ENABLE?	Y	Y	
:STATus:OPERation[:EVENT]?	Y	Y	
:STATus:OPERation:NTRansition <value>	Y	Y	
:STATus:OPERation:NTRansition?	Y	Y	
:STATus:OPERation:PTRansition <value>	Y	Y	
:STATus:OPERation:PTRansition?	Y	Y	
:STATus:PRESet	Y	Y	
:STATus:QUESTIONable:CONDITION?	Y	Y	
:STATus:QUESTIONable:ENABLE <value>	Y	Y	
:STATus:QUESTIONable:ENABLE?	Y	Y	
:STATus:QUESTIONable[:EVENT]?	Y	Y	
:STATus:QUESTIONable:NTRansition <value>	Y	Y	
:STATus:QUESTIONable:NTRansition?	Y	Y	

**Table 8-6 8373xB and 8371xB SCPI Commands**

<b>Y= Supported by N5183A N= Not supported by N5183A</b>	<b>83731B &amp; 83732B</b>	<b>83711B &amp; 83712B</b>	<b>Remarks</b>
:STATus:QUEstionable:PTRansition <value>	Y	Y	
:STATUs:QUEstionable:PTRansition?	Y	Y	
<i>System Subsystem</i>			
:SYSTem:COMMunicate:GPIB:ADDress <number>	Y	Y	
:SYSTem:COMMunicate:GPIB:ADDress?	Y	Y	
:SYSTem:COMMunicate:PMETer:ADDress	N	N	
:SYSTem:COMMunicate:PMETer:ADDress?	N	N	
:SYSTem:ERRor?	Y	Y	
:SYSTem:KEY keycode MINimum MAXimum	N	N	
:SYSTem:KEY?	N	N	
:SYSTem:LANGuage "COMP=8673" "COMPaTibility=8673" :SYSTem:LANGuage "SCPI"	N Y	N Y	
:SYSTem:LANGuage?	Y	Y	
:SYSTem:PRESet	Y	Y	
:SYSTem:VERSion?	Y	Y	
<i>Trigger Subsystem</i>			
:TRIGger[:SEQUence :START]:SOURce IMMEDIATE EXTernal	Y		
:TRIGger[:SEQUence :START]:SOURce?	Y		
:TRIGger:SEQUence2:STOP:SOURce IMMEDIATE EXTernal	N		
:TRIGger:SEQUence2:STOP:SOURce?	N		
:TRIGger:SEQUence2:SLOPe	N		
<i>Unit Subsystem</i>			
:UNIT:FREQuency {<freq suffix>}	Y	Y	
:UNIT:FREQuency?	Y	Y	
:UNIT:POWer {<lvl suffix>}	Y	Y	
:UNIT:POWer?	Y	Y	
:UNIT:TIME	N	N	
:UNIT:TIME?	N	N	

**Table 8-6 8373xB and 8371xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83731B & 83732B	83711B & 83712B	Remarks
:UNIT:VOLTage {<lvl suffix>}	N	N	
:UNIT:VOLTage?	N	N	

- a. The identification information can be modified for the N5183A to reflect the signal generator that is being replaced. Refer to :SYSTem:IDN or :SYSTem:OPT on page 415 for more information.
- b. In linear mode, % cannot be used to select percent as the unit. Use PCT to specify percent as the unit.
- c. A multiplier of zero is not allowed.
- d. If FEED is selected, the query returns INT. FEED and INTernal are synonymous.

## 8375xB Compatible SCPI Commands

**Table 8-7** is a comprehensive list of 83751B and 83752B SCPI commands, arranged by subsystem. Commands are identified as supported by the N5183A or not supported by the N5183A. Use the legend within the table to determine command compatibility.

To use the commands, select 8375xB as the remote language. See “**:LanguagE (N5183A)**” on page 415 for information about selecting the language type.

When using the programming codes in this section, you can:

- set the PSG system language to 83751B,83752B for the current session:

**Utility > I/O Config > Remote Language > 83751B,83752B**

or send the command:

:SYST:LANG "83752"

- set the N5183A system language to 8375xB so that it does not reset with either preset, instrument power cycle or \*RST command:

**Utility > Power On/Preset > Preset Language > 83751B,83752B**

or send the command:

:SYST:PRESET:LANG "83752"

- set the \*IDN? response to any 8375xB-like response you prefer. Refer to the :SYSTem:IDN and :SYSTem:OPT commands on [page 415](#).

---

**NOTE** Some supported commands require the installation of hardware or firmware options.

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**NOTE** The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: “ERROR: -113, Undefined Header”.

The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1].

The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

---

**Table 8-7 8375xB SCPI Commands**

Y= Supported by N5183A N= Not supported by N5183A	83751B & 83752B	Remarks
<i>IEEE Common Commands</i>		
*CLS	Y	
*DMC	N	
*EMC	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
*EMC?	N	
*ESE <value>	Y	
*ESE?	Y	
*ESR?	Y	
*GMC? <label>	N	
*IDN?	Y	
*LMC?	N	
*LRN?	N	
*OPC	Y	
*OPC?	Y	
*OPT?	Y	
*PMC	N	
*PSC ON OFF 1 0	Y	
*PSC?	Y	
*RCL <reg_num>	Y	
*RMC <label>	N	
*RST	Y	
*SAV <reg_num>	Y	
*SRE <value>	Y	
*SRE?	Y	
*STB?	Y	
*TRG	Y	
*TST?	Y	
*WAI	Y	
<i>Abort Subsystem</i>		

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:ABORT	Y	
<i>Amplitude Modulation Subsystem</i>		
:AM:SOURce1 INTERNAL EXTERNAL	Y	
:AM:SOURce INTERNAL EXTERNAL	Y	
:AM:SOURce1?	Y	
:AM:SOURce?	Y	
:AM:STATE ON OFF 1 0	Y	
:AM:STATE?	Y	
<i>Calibration Subsystem</i>		
:CALibration:PEAKing[:EXECute]	N	
:CALibration:PEAKing[:EXECute]? <dac_va>	N	
:CALibration:PMETer:FLATness:INITiate? USER	N	
:CALibration:PMETer:FLATness:NEXT? <value>[<lvlsuffix>]	N	
:CALibration:SECurity:CODE <old> <new>	N	
:CALibration:SECurity:PASSWORD <passwd>	N	
:CALibration:TRACK	N	
<i>Correction Subsystem</i>		
:CORRection:FLATness:AMPL <value>[DB],<value>[DB]...	N	
:CORRection:FLATness:AMPL?	N	
:CORRection:FLATness:FREQ <value>[<freqsuffix>],<value>[<freqsuffix>]...	N	
:CORRection:FLATness:FREQ?	N	
:CORRection:FLATness:POINTs? MAXimum MINimum	Y	
:CORRection:VOLTs:OFFSET	N	
:CORRection:VOLTs:OFFSET?	N	
:CORRection:VOLTs:SCALE	N	
:CORRection:VOLTs:SCALE?	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:CORRection[:STATe] ON OFF 1 0	Y	
:CORRection[:STATe]?	Y	
<i>Diagnostics Subsystem</i>		
:DIAG:LRNS?	N	
:DIAGnostic:TEST:FULLtest:REPort?	N	
:DIAGnostic:TEST:FULLtest?	N	
<i>Display Subsystem</i>		
:DISPlay[:STATe] ON OFF 1 0	Y	
:DISPlay[:STATe]?	Y	
<i>Frequency Modulation Subsystem</i>		
:FM:COUpling AC DC	Y	
:FM:COUpling?	Y	
:FM:SENSitivity <value><freqsuffix/V>	Y	
:FM:SENSitivity?	Y	
:FM:SOURce1 EXTerinal	Y	
:FM:SOURCE EXTerinal	Y	
:FM:SOURce1?	Y	
:FM:SOURCE?	Y	
:FM:STATE ON OFF 1 0	Y	
:FM:STATE?	Y	
<i>Frequency Subsystem</i>		
:FREQuency:CENTER <value>[<freqsuffix>]  UP DOWN	Y	
:FREQuency:CENTER?	Y	
:FREQuency:MANual <value><unit> UP DOWN	N	
[{:SOURce[1]}]:FREQuency:MANual?	N	
[{:SOURce}]:FREQuency:MANual?	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:FREQuency:MODE FIXed CW SWEep SWCW	Y	<i>Supported but the following parameter is not supported: SWCW</i>
:FREQuency:MODE?	Y	
:FREQuency:MULTiplier <value>	Y	
:FREQuency:MULTiplier?	Y	
:FREQuency:MULTiplier:STATe ON OFF 1 0	N	
:FREQuency:MULTiplier:STATe?	N	
:FREQuency:OFFSet <value>	Y	
:FREQuency:OFFSet:STATe ON OFF 1 0	Y	
:FREQuency:OFFSet:STATe?	Y	
:FREQuency:OFFSet?	Y	
:FREQuency:SPAN <value>[<freqsuffix>]  UP DOWN	Y	
:FREQuency:SPAN?	Y	
:FREQuency:START <value>[<freqsuffix>]  UP DOWN	Y	
:FREQuency:START?	Y	
:FREQuency:STEP[:INCREMENT] <value>[<freqsuffix>]	Y	
:FREQuency:STEP[:INCREMENT] ?	Y	
:FREQuency:STOP <value>[<freqsuffix>]  UP DOWN	Y	
:FREQuency:STOP?	Y	
:FREQuency[:CW :FIXed] <value>[<freqsuffix>]  UP DOWN	Y	
:FREQuency[:CW :FIXed]:AUTO ON OFF 1 0	N	
:FREQuency[:CW :FIXed]:AUTO?	N	
:FREQuency[:CW :FIXed]?	Y	
<i>Initiate Subsystem</i>		
:INITiate:CONTinuous ON OFF 1 0	Y	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:INITiate:CONTinuous?	Y	
:INITiate[:IMMediate]	Y	
<i>Marker Subsystem</i>		
[:SOURce[1]] :MARKer[n] :AMPLitude[:STATe] ON OFF 1 0	Y	
[:SOURce] :MARKer[n] :AMPLitude[:STATe] ON OFF 1 0	Y	
[:SOURce[1]] :MARKer[n] :AMPLitude[:STATe]?	Y	
[:SOURce] :MARKer[n] :AMPLitude[:STATe]?	Y	
:MARKer[n] :AOFF	Y	
:MARKer[n] :FREQuency <value><unit>	Y	
:MARKer[n] :FREQuency?	Y	
:MARKer[n] :MODE FREQuency DELTa	Y	
:MARKer[n] :MODE?	Y	
:MARKer[n] :REFerence <n>	Y	
:MARKer[n] :REFerence?	Y	
:MARKer[n] [:STATe] ON OFF 1 0	Y	
:MARKer[n] [:STATe]?	Y	
<i>Memory Subsystem</i>		
:MEMory:RAM:INITialize[:ALL]	N	
<i>Output Subsystem</i>		
:OUTPut:IMPedance?	N	
:OUTPut[:STATe] ON OFF 1 0	Y	
:OUTPut[:STATe]?	Y	
<i>Power Subsystem</i>		
:POWER:ALC:CFACTOR <value>[DB]  UP DOWN	N	
:POWER:ALC:CFACTOR?	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:POWer:ALC:SOURce1 INTERNAL DIODE PMETer MMHead	Y	
:POWer:ALC:SOURce INTERNAL DIODE PMETer MMHead	Y	
:POWer:ALC:SOURce1?	Y	
:POWer:ALC:SOURce?	Y	
:POWer:ALC[:STATe] ON OFF 1 0	Y	
:POWer:ALC[:STATe]?	Y	
:POWer:ATTenuation <value>[DB] UP DOWN	Y	
:POWer:ATTenuation:AUTO ON OFF 1 0	Y	
:POWer:ATTenuation:AUTO?	Y	
:POWer:ATTenuation?	Y	
:POWer:CENTER <value>[<lvlsuffix>] UP DOWN	Y	
:POWer:CENTER?	Y	
:POWer:MODE FIXed SWEep	Y	
:POWer:MODE?	Y	
:POWer:OFFSet <value>[DB] UP DOWN	Y	
:POWer:OFFSet?	Y	
:POWer:OFFSet:STATe ON OFF 1 0	Y	
:POWer:OFFSet:STATe?	Y	
:POWer:SLOPe <value>[DB/freqsuffix] UP DOWN	Y	
:POWer:SLOPe:STATe ON OFF 1 0	Y	
:POWer:SLOPe:STATe?	Y	
:POWer:SLOPe?	Y	
:POWer:SPAN <value>[DB] UP DOWN	Y	
:POWer:SPAN?	Y	
:POWer:STARt <value>[<lvlsuffix>] UP DOWN	Y	
:POWer:STARt?	Y	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:POWER:STATE ON OFF 1 0	Y	
:POWER:STATE?	Y	
:POWER:STEP[:INCREMENT] <value>[DB]	Y	
:POWER:STEP[:INCREMENT]?	Y	
:POWER:STOP <value>[<lvlsuffix>]  UP DOWN	Y	
:POWER:STOP?	Y	
:POWER[:LEVEL] <value>[<lvlsuffix>]  UP DOWN	Y	
:POWER[:LEVEL]?	Y	
<i>Pulse Modulation Subsystem</i>		
:PULM:SOURcel INTernal EXTernal SCALar SQ1K	Y	<i>Supported but the following parameters are not supported: SCALer SQ1K</i>
:PULM:SOURce INTernal EXTernal SCALar SQ1K	Y	
:PULM:SOURcel?	Y	
:PULM:SOURce?	Y	
:PULM:STATE ON OFF 1 0	Y	
:PULM:STATE?	Y	
<i>Pulse Subsystem</i>		
:PULSe:FREQuency <value>[<freqsuffix>]	Y	
:PULSe:FREQuency?	Y	
:PULSe:PERiod <value>[<timesuffix>]	Y	
:PULSe:PERiod?	Y	
:PULSe:WIDTh <value>[<timesuffix>]	Y	
:PULSe:WIDTh?	Y	
<i>Reference Oscillator Subsystem</i>		
:ROSCillator:SOURcel INTernal EXTernal NONE	Y	
:ROSCillator:SOURce INTernal EXTernal NONE	Y	
:ROSCillator:SOURcel:AUTO ON OFF 1 0	Y	
:ROSCillator:SOURce:AUTO ON OFF 1 0	Y	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:ROSCillator:SOURce1:AUTO?	Y	
:ROSCillator:SOURce:AUTO?	Y	
:ROSCillator:SOURce1?	Y	
:ROSCillator:SOURce?	Y	
<i>Status Subsystem</i>		
:STATus:OPERation:CONDITION?	Y	
:STATus:OPERation:ENABLE <value>	Y	
:STATus:OPERation:ENABLE?	Y	
:STATus:OPERation:NTRansition <value>	Y	
:STATus:OPERation:NTRansition?	Y	
:STATus:OPERation:PTRansition <value>	Y	
:STATus:OPERation:PTRansition?	Y	
:STATus:OPERation[:EVENT]?	Y	
:STATus:PRESet	Y	
:STATus:QUESTIONable:CONDITION?	Y	
:STATus:QUESTIONable:ENABLE <value>	Y	
:STATus:QUESTIONable:ENABLE?	Y	
:STATus:QUESTIONable:NTRansition <value>	Y	
:STATus:QUESTIONable:NTRansition?	Y	
:STATus:QUESTIONable:PTRansition <value>	Y	
:STATus:QUESTIONable:PTRansition?	Y	
:STATus:QUESTIONable[:EVENT]?	Y	
<i>Sweep Subsystem</i>		
:SWEep:CONTrol:TYPE MASTer SLAVe	N	
:SWEep:CONTrol:TYPE?	N	
:SWEep:DWELL <value>[<timesuffix>]	Y	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:SWEep:DWELL?	Y	
:SWEep:DWELL:AUTO ON OFF 1 0	N	
:SWEep:DWELL:AUTO?	N	
:SWEep:GENERation ANALog STEPped	Y	<i>Supported but the following parameter is not supported: ANALog</i>
:SWEep:GENERation?	Y	
:SWEep:MANual:POINT <value>	Y	
:SWEep:MANual:POINT?	Y	
:SWEep:MANual[:RELative] <value>	N	
:SWEep:MANual[:RELative]?	N	
:SWEep:MARKer:STATE ON OFF 1 0	N	
:SWEep:MARKer:STATE?	N	
:SWEep:MARKer:XFER	Y	
:SWEep:MODE AUTO MANual	Y	
:SWEep:MODE?	Y	
:SWEep:POINTS <value>	Y	
:SWEep:POINTS?	Y	
:SWEep:POWER:STEP <value>[<lvlsuffix>]   UP DOWN	N	
:SWEep:POWER:STEP?	N	
:SWEep:TIME <value>[<timesuffix>]	N	
:SWEep:TIME?	N	
:SWEep:TIME:AUTO ON OFF 1 0	N	
:SWEep:TIME: AUTO?	N	
:SWEep:TIME:LLIMit <value>[<timesuffix>]	N	
:SWEep:TIME:LLIMIT?	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:SWEep [:FREQuency] :STEP <value>[<freqsuffix>]   UP DOWN	Y	
:SWEep [:FREQuency] :STEP?	Y	
:SWEep [:POINTS] :TRIGger:SOURce IMMEDIATE BUS EXTernal	Y	
:SWEep [:POINTS] :TRIGger:SOURce?	Y	
:SWEep [:POINTS] :TRIGger[:IMMEDIATE]	N	
<i>System Subsystem</i>		
:SYSTem:ALTerNATE <reg num>	N	
:SYSTem:ALTerNATE:STATE ON OFF 1 0	N	
:SYSTem:ALTerNATE:STATE?	N	
:SYSTem:ALTerNATE?	N	
:SYSTem:COMMUnicATE:GPIB:ADDReSS <value>	Y	
:SYSTem:COMMUnicATE:PMETer:ADDReSS <value>	N	
:SYSTem:COMMUnicATE:PMETer:ADDReSS?	N	
:SYSTem:COMMUnicATE:PMETer:TYPE	Y	<i>The following parameters are supported:</i> Sockets VXI11 USB (See “:PMETer:TYPE” on page 72).  <i>The following parameters are not supported:</i> SCPI 70100A 437B 438A
:SYSTem:COMMUnicATE:PMETer:TYPE?	Y	
:SYSTem:ERROr?	Y	
:SYSTem:KEY:DISable SAVE	N	
:SYSTem:KEY:DISable? SAVE	N	
:SYSTem:KEY:ENAble SAVE	N	
:SYSTem:KEY:ENABLE? SAVE	N	
:SYSTem:KEY[:CODE] <value>	N	
:SYSTem:KEY[:CODE] ?	N	

**Table 8-7 8375xB SCPI Commands (Continued)**

<b>Y= Supported by N5183A</b> <b>N= Not supported by N5183A</b>	<b>83751B &amp; 83752B</b>	<b>Remarks</b>
:SYSTem:LANGuage "SCPI"   "TMSL"   "COMP"	Y	<i>The following parameter is not supported: "TMSL"</i>
:SYSTem:LANGuage?	Y	
:SYSTem:PRESet:TYPE FACTory USER	Y	
:SYSTem:PRESet:TYPE?	Y	
:SYSTem:PRESet[:EXECute]	Y	
:SYSTem:PRESet[:USER]:SAVE	Y	
:SYSTem:SECurity:CLEar	N	
:SYSTem:SECurity:COUNt <value>	Y	
:SYSTem:SECurity:KLOCK ON OFF 0 1	N	
:SYSTem:SECurity:ZERO ON OFF 0 1	N	
:SYSTem:VERsion?	Y	
<i>Trigger Subsystem</i>		
:TRIGger:SOURce1 IMMEDIATE BUS EXTernal HOLD .TRIGger:SOURce IMMEDIATE BUS EXTernal HOLD	Y Y	
:TRIGger:SOURce1? .TRIGger:SOURce?	Y Y	
:TRIGger[:IMMEDIATE]	Y	
<i>Tsweep Subsystem</i>		
:TSWeep	Y	

## 8662A/63A Compatible Commands

The tables in this section provide the following:

**Table 8-8** on page 532: a comprehensive list of 8662A/63A programming commands, listed in alphabetical order. The equivalent SCPI command sequence for each supported code is provided. Codes that have no equivalent SCPI command sequence are indicated in the command column, as are codes that are *not* supported by the N5183A.

**Table 8-9** on page 538: a list of the implemented 8662A/63A programming commands that set the active function. This table also indicates which codes are compatible with the increment (up), and the decrement (down) SCPI commands.

To use the commands, select 866xA as the remote language. See “[:LANGuage \(N5183A\)](#)” on page 415 for information about selecting the language type.

When using the programming codes in this section, you can:

- set the N5183A system language to 866xA for the current session:

**Utility > I/O Config > Remote Language > 866xA**

or send the command:

:SYST:LANG "8662" or "8663"

- set the N5183A system language to 866xA so that it does not reset on a preset, an instrument power cycle, or a \*RST command:

**Utility > Power On/Preset > Preset Language > 866xA**

or send the command:

:SYST:PRESET:LANG "8662" or "8663"

- set the \*IDN? response to any 866xA-like response you prefer. Refer to the [:SYSTem:IDN](#) and [:SYSTem:OPT](#) commands on page 415.

<b>NOTE</b>	Compatibility is provided for GPIB only; RS-232 and LAN are <i>not</i> supported. Device Clear does not preset the instrument. To reproduce the sweep functionality, use the N5183A List Sweep features.
<b>NOTE</b>	The Agilent MXG has only one AM, FM, and PM path. Using AM2, FM2, or PM2 path commands will result in the following error: "ERROR: -113, Undefined Header". The Agilent MXG has only one internal source for AM, FM and PM, but the INT2 source selection is accepted by the signal generator and is equivalent to selecting INT[1]. The Agilent MXG has three dedicated external sources, one for AM, one for FM/PM and one for Pulse. The EXT2 source selection is accepted by the signal generator, but is equivalent to selecting EXT[1].

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
@1	Write require service mask	N	N	<i>not supported</i>
@2	Deferred execution mode	N	N	<i>not supported</i>
@3	Immediate execution mode	Y	Y	<i>no equivalent SCPI command sequence</i>
+D	+dBm	Y	Y	DBM
AM	AM modulation <i>See also:</i> <a href="#">Table 8-9 on page 538</a>	Y		AM:DEPTH <val> <units> AM:TRAC ON FM:STAT OFF AM:STAT ON OUTPut:MOD ON
			Y	AM:DEPTH <val> <units> AM:TRAC ON AM:STAT O OUTPut:MOD ON
AO	Amplitude off	Y	Y	OUTPut:STATE OFF
AP	Amplitude	Y	Y	POW:REF:STATE OFF POWER:AMPL <val> <units> OUTPut:STATE ON <i>See also:</i> <a href="#">Table 8-9 on page 538</a>
AS BLSQ	Auto sequence	N	N	<i>not supported</i>
BP	BPSK modulation		N	<i>not supported</i>
CT	Configure trigger	Y	Y	<i>no equivalent SCPI command sequence</i>
-D	-dBm Negates the power value.	Y	Y	DBM
DB	dB	Y	Y	DB
DG	Degree	Y		DEG
DM	dBm	Y	Y	DBM

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
DN	Decrement Passes DOWN as parameter of active function command.	Y	Y	<i>See Table 8-9 on page 538</i>
FA	Start frequency	Y	Y	<i>See W2, W3, W4, and Table 8-9 on page 538</i>
FB	Stop frequency	Y	Y	<i>See W2, W3, W4, and Table 8-9 on page 538</i>
FM	FM modulation <i>See also: Table 8-9 on page 538</i>	Y		FM:DEV <val> <units> AM:STAT OFF FM:STAT ON OUTPut:MOD ON
			Y	FM:DEV <val> <units> FM:STAT ON OUTPut:MOD ON
FR	Center frequency	Y	Y	FREQuency:CW <val> <units> <i>See also: W2, W3, and W4, and Table 8-9 on page 538</i>
FS	Span frequency	Y	Y	<i>See W2, W3, W4, and Table 8-9 on page 538</i>
GZ	GHz	Y	Y	GHZ
HZ	Hz	Y	Y	HZ
IS	Set increment Adds STEP:INCR to active function command.	Y	Y	<i>no equivalent SCPI command sequence</i>
KZ	kHz	Y	Y	KHZ
L1	Learn front panel	N	N	<i>not supported</i>
L2	Fast learn	N	N	<i>not supported</i>
MO M0	Modulation off	Y	Y	AM:STATe OFF FM:STATe OFF PULM:STATe OFF PM:STATe OFF OUTPut:MOD OFF
M1	<b>For 8662A:</b> <mod> = FM or AM, depending on which is on.  <b>For 8663A:</b> Modulation source internal 400 Hz  <b>For 8663A:</b> Executes MF with <freq> = 400 Hz	Y		<mod>:SOURCE INT1 <mod>:INT1:FREQ 400 Hz
			Y	AM:INT1:FREQ 400 MHz FM:INT1:FREQ 400 MHz PM:INT1:FREQ 400 MHz PULM:INT:FREQ 400 MHz
M2	<b>For 8662A:</b> <mod> = FM or AM, depending on which is on.  <b>For 8663A:</b> Modulation source internal 1 kHz  <b>For 8663A:</b> Executes MF with <freq> = 1 kHz	Y		<mod>:SOURCE INT1 <mod>:INT1:FREQ 1 kHz
			Y	AM:INT1:FREQ 1 kHz FM:INT1:FREQ 1 kHz PM:INT1:FREQ 1 kHz PULM:INT:FREQ 1 kHz
M3	<b>For 8662A:</b> <mod> = FM or AM, depending on which is on.  Modulation source external AC	Y		<mod>:SOURCE EXT <mod>:EXT:COUPLING AC <mod>:EXT:IMP 600

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
	<b>For 8663A:</b> <mod> = AM, FM, or PM, depending on which is on. <b>NOTE:</b> For PM, the impedance value is set using the SP71/SP70 commands		Y	<mod>:SOURCE EXT <mod>:EXT:COUPLING AC <mod>:EXT:IMP 600
M4	<b>For 8662A:</b> <mod> = FM or AM, depending on which is on. Modulation source external DC	Y		<mod>:SOURCE EXT <mod>:EXT:COUPLING DC <mod>:EXT:IMP 600
	<b>For 8663A:</b> <mod> = AM, FM, or PM, depending on which is on. <b>NOTE:</b> For PM, the impedance value is set using the SP71/SP70 commands		Y	<mod>:SOURCE EXT <mod>:EXT:COUPLING DC <mod>:EXT:IMP 600
MF	Modulation frequency  <mod> = FM, or PM, depending on which is on.  <i>Also see: M1, M2, and Table 8-9 on page 538</i>		Y	<b>AM:</b> AM:SOUR INT1 AM:SOUR:INT1:FREQ <freq> <b>FM or PM:</b> <mod>:SOUR INT1 <mod>:SOUR:INT1:FREQ <freq> <b>Pulse:</b> PULM:SOUR INT PULM:INT:FREQ <freq> PULM:SOUR:INT SQUARE
MS	Read status key message Returns status string.	Y	Y	<i>no equivalent SCPI command sequence</i>
MV	mV	Y	Y	MV
MZ	MHz	Y	Y	MHZ
N1	Linear 100 steps	Y	Y	<i>See W2, W3, and W4</i>
N2	Linear 1000 steps	Y	Y	<i>See W2, W3, and W4</i>
N3	Step size	Y	Y	<i>See W2, W3,W4, and Table 8-9 on page 538</i>
N4	Log 10% steps	Y	Y	<i>See W2, W3, and W4</i>
N5	Log 1% steps	Y	Y	<i>See W2, W3, and W4</i>
PC	%	Y	Y	PCT
PL	Pulse modulation Must have an instrument with pulse capability.		Y	PULM:STAT ON OUTPut:MOD ON
PM	Phase modulation Not compatible with any FM modulation.		Y	PM:STAT ON OUTPut:MOD ON <i>See also: Table 8-9 on page 538</i>
R1	Knob resolution x10	N	N	<i>not supported</i>
R2	Knob resolution /10	N	N	<i>not supported</i>
R3	Knob off	N	N	<i>not supported</i>
R4 BLR1	Knob hold	N	N	<i>not supported</i>
R5 BLR2	Knob increment	N	N	<i>not supported</i>
RC	Recall	Y	Y	*RCL

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
RD	Knob down Only for manual sweep	Y	Y	LIST:MANual DOWN
RM	Read require service mask	N	N	<i>not supported</i>
RU	Knob up Only for manual sweep	Y	Y	LIST:MANual UP
SP00	System preset Presets the instrument, including the compatibility language.	Y	Y	SYSTem:PRESet
SP10	Frequency offset off	Y	Y	FREQ:OFFS:STAT OFF
SP11	Positive frequency offset  The 8662 modifies the output, but does not change the displayed frequency; the PSG modifies the displayed frequency, but does <i>not</i> change the output. Because of this, you must first set the offset, then reapply the frequency to change the output.	Y	Y	FREQ:OFFS <value> FREQ:OFFS:STAT ON FREQ:CW <displayed value>
SP12	Negative frequency offset  The 8662 modifies the output, but does not change the displayed frequency; the PSG modifies the displayed frequency, but does <i>not</i> change the output. Because of this, you must first set the offset, then reapply the frequency to change the output.	Y	Y	FREQ:OFFS <value> FREQ:OFFS:STAT ON FREQ:CW <displayed value>
SP20	ALC bandwidth normal		Y	POWeR:ALC:BANDwidth:AUTO ON
SP21	ALC bandwidth < 1 kHz		Y	POWeR:ALC:BANDwidth:AUTO OFFPPoWeR:ALC:BANDwidth 200 HZ
SP30	Amplitude reference off	Y	Y	POW:REF:STATe OFF
SP31	Amplitude reference	Y	Y	POW:REF <val> <val> = current amplitude setting POW:REF:STATe ON
SP32	Amplitude reference relative to 1 $\mu$ V		Y	POW:REF 106.99DBM POW:REF:STATe ON POW 1UV
SP40	External AM off	Y		AM:STAT OFF
	Modulation frequency sweep mode off		N	<i>not supported</i>
SP41	Internal FM + external AM (AC)	Y		FM:SOUR INT1 FM:INT1:FREQ 400 HZ FM:STAT ON AM:SOUR EXT1 AM:EXT1:IMP 600 AM:DEPTH 95 PCT AM:EXT1:COUP AC AM:STAT ON
	Modulation frequency sweep mode on		N	<i>not supported</i>
SP42	Internal FM + external AM (DC)	Y		FM:SOUR INT1 FM:INT1:FREQ 400 HZ FM:STAT ON AM:SOUR EXT1 AM:EXT1:IMP 600 AM:DEPTH 95 PCT AM:EXT1:COUP DC AM:STAT ON

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description		8662	8663	Equivalent SCPI Command Sequence
SP50	AUX FM off		N	N	<i>not supported</i>
SP51	AUX FM on				
	<b>RF (MHz)</b>	<b>FM Deviation (kHz)</b>			
0.01–120	25	<dev> is dependant on output frequency, and mimics the 8662 hardware settings.			
120–160	6.25		N	N	<i>not supported</i>
160–320	12.5	NOTE: The deviation for this command cannot be greater than the deviation of the FM1 path.			
320–640	25				
640–1280	50				
1280–2560	100				
SP60	Parameter shift keying off		N	N	<i>not supported</i>
SP61	Parameter shift keying up/down (two-key)		N	N	<i>not supported</i>
SP62	Parameter shift keying up/down (one-key)		N	N	<i>not supported</i>
SP70	External PM input impedance 50Ω Effects the behavior of M3 and M4.			Y	<i>no equivalent SCPI command sequence</i>
SP71	External PM input impedance 600Ω Effects the behavior of M3 and M4.			Y	<i>no equivalent SCPI command sequence</i>
SP80	Special functions 10-62 off		Y	Y	AM:STAT OFF FREQ:OFFS:STAT OFF
SP81	Amplitude conversion (V-dBm)		N	N	<i>not supported</i>
SP82	Display GPIB address		N	N	<i>not supported</i>
SP83	ROM test		N	N	<i>not supported</i>
SP84	RAM test		N	N	<i>not supported</i>
SP85	Amplitude correction off		Y	Y	POWer:ALC:STATE OFF
SP86	Amplitude correction on PSG ALC ON always works with sweep.		Y	Y	POWer:ALC:STATE ON
SP87	Amplitude correction on (includes Sweep)			Y	POWer:ALC:STATE ON
SP87	GPIB operator request response		N		<i>not supported</i>
SP88	Auto sequence		N	N	<i>not supported</i>
SP89	GPIB operator request response			N	<i>not supported</i>
SP90	Set auto sequence step delay			N	<i>not supported</i>
SP91	Enable frequency hopping mode			N	<i>not supported</i>
SP92	Knob (restore normal operation)			N	<i>not supported</i>
SP93	Manual amplitude level control			N	<i>not supported</i>
SP94	Knob, 120 increments per revolution			N	<i>not supported</i>

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
SP95	Knob, 120 increments per revolution, reconfigure AUX con.		N	<i>not supported</i>
SP96	Modulation oscillator off when modulation is off		N	<i>not supported</i>
SP97	Modulation oscillator on		N	<i>not supported</i>
SP98	Turn display on		Y	DISP ON
SP99	Turn display off		Y	DISP OFF
SP2.0	Power up preset off		N	<i>not supported</i>
SP2.1	Power up preset on		N	<i>not supported</i>
SQ	Sequence	N	N	<i>not supported</i>
SS BLST	Set sequence	N	N	<i>not supported</i>
ST	Store Saves/recalls register to sequence 0.	Y	Y	*SAV
T1	0.5 ms per step	Y	Y	SWEEP:DWELL 0.5ms <i>Beyond PSG range limit; is set to 1ms.</i>
T2	1 ms per step	Y	Y	SWEEP:DWELL 1ms
T3	2 ms per step	Y	Y	SWEEP:DWELL 2ms
T4	10 ms per step	Y	Y	SWEEP:DWELL 10ms
T5	100 ms per step	Y	Y	SWEEP:DWELL 100ms
TR	Trigger Performs command code setup with CT command.	Y	Y	<i>no equivalent SCPI command sequence</i>
UP	Increment Passes UP as a parameter of the active function command.	Y	Y	<i>See Table 8-9 on page 538</i>
UV	mV	Y	Y	UV
W1	Sweep off	Y	Y	FREQ:MODE CW LIST:TRIG:SOUR IMM
W2	Auto sweep mode on  Generates a sweep list based on stored parameters from FA, FB, FR, FS, N1, N2, N3, N4, and N5 <b>Default values:</b> FR = 100 MHz, FS = 10 MHz, N1, T2 FA = 1 MHz, FB = 1279 MHz	Y	Y	INIT:CONT ON SWEEP:MODE AUTO LIST:TRIG:SOUR IMM LIST:DWELL:TYPE STEP LIST:TYPE LIST FREQ:MODE LIST
W3	Manual sweep mode on  Generates a sweep list based on stored parameters from FA, FB, FR, FS, N1, N2, N3, N4, and N5 <b>Default values:</b> FR = 100 MHz, FS = 10 MHz, N1, T2 FA = 1 MHz, FB = 1279 MHz	Y	Y	INIT:CONT ON SWEEP:MODE MANual LIST:TRIG:SOUR IMM LIST:DWELL:TYPE STEP LIST:TYPE LIST FREQ:MODE LIST

**Table 8-8 8662A/63A Commands & Equivalent SCPI Sequences (Continued)**

Command	Description	8662	8663	Equivalent SCPI Command Sequence
W4	Single sweep mode on  Generates a sweep list based on stored parameters from FA, FB, FR, FS, N1, N2, N3, N4, and N5  <b>Default values:</b> FR = 100 MHz, FS = 10 MHz, N1, T2 FA = 1 MHz, FB = 1279 MHz	Y	Y	INIT:CONT OFF SWEEP:MODE AUTO LIST:TRIG:SOUR IMM LIST:DWELL:TYPE STEP LIST:TYPE LIST FREQ:MODE LIST INIT
X1	Marker 1	N	N	<i>not supported</i>
X2	Marker 2	N	N	<i>not supported</i>
X3	Marker 3	N	N	<i>not supported</i>
X4	Marker 4	N	N	<i>not supported</i>
X5	Marker 5	N	N	<i>not supported</i>
X6	Marker off	Y	Y	<i>no equivalent SCPI command sequence</i>
X7 BLX6	All markers off	N	N	<i>not supported</i>
Y0	Remote stepped sweep off	Y	Y	FREQ:MODE CW LIST:TRIG:SOUR IMM
Y1 Y2	Remote stepped sweep on	Y	Y	INIT:CONT ON SWEEP:MODE AUTO LIST:DWELL:TYPE STEP LIST:TYPE LIST FREQ:MODE LIST LIST:TRIG:SOUR BUS
Y3	Execute remote stepped sweep	Y	Y	*TRG

**Table 8-9 8662/63B Command Compatibility**

Command	Description	Sets Active Function	Compatible with UP/DN	8662	8663	Equivalent SCPI Commands for UP/DN and Increment
AM	AM modulation	Y	Y	Y	Y	AM:DEPTH UP AM:DEPTH DOWN AM:DEPTH:STEP:INCR
AP	Amplitude	Y	Y	Y	Y	POW:AMPL UP POW:AMPL DOWN POW:AMPL:STEP:INCR
FA	Start frequency	Y	Y	Y	Y	FREQ:CW:STEP:INCR
FB	Stop frequency	Y	Y	Y	Y	FREQ:CW:STEP:INCR
FM	FM modulation	Y	Y	Y	Y	FM:DEV UP FM:DEV DOWN FM:DEV:STEP:INCR
FR	Center frequency	Y	Y	Y	Y	FREQ:CW UP FREQ:CW DOWN FREQ:CW:STEP:INCR

**Table 8-9 8662/63B Command Compatibility (Continued)**

<b>Command</b>	<b>Description</b>	<b>Sets Active Function</b>	<b>Compatible with UP/DN</b>	<b>8662</b>	<b>8663</b>	<b>Equivalent SCPI Commands for UP/DN and Increment</b>
FS	Span frequency	Y	Y	Y	Y	FREQ:CW:STEP:INCR
MF	Modulation frequency	Y	Y		Y	<mod>;INT:FREQ UP <mod>;INT:FREQ DOWN <mod>;INT:FREQ:STEP:INCR <mod> = AM FM PM PULM
N3	Step size	Y	Y	Y	Y	<i>no equivalent SCPI commands</i>
PM	Phase modulation Not compatible with any FM modulation.	Y	Y		Y	PM:DEV UP PM:DEV DOWN PM:DEV:STEP:INCR



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