

**GPIB Command Syntax
for
Fast Switching**

E1987A Fast Switching Test Application Rev. A.05

**E6785C/D GSM/GPRS_W-CDMA Lab Application (Fast Switching)
Rev. C.04/D.01**

**E6785T Special High Data Rate GSM/GPRS_W-CDMA Lab Application
Rev. T.01**

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www.agilent.com/find/E1987A

www.agilent.com/find/E6785C

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GPIB Syntax for E1987A, E6785C/D/T

GPIB Commands that Switch Formats

For a detailed description of GPIB commands that are used for format switching, see:

SYSTem:APPLication:FORMat[:NAME]

GPIB Commands for the Formats in Fast Switching Applications

GPIB command syntax for the fast switching applications is identical to the syntax for the test and lab applications. For details on a specific format's syntax, tab to the GPIB commands section for that format.

For example, to locate the GPIB commands for the 1xEV-DO test application that is included in the E1987A fast switching application, tab to the 1xEV-DO (E1966A) technology.

GPIB Commands with Format Mnemonics

Some GPIB commands are common to more than one technology in a fast switching application. To specify a technology when using these commands the test set accepts a format mnemonic at the end of the command (:SElected, :GSM, :GPRS, :TA136, :DIGital136, :DIGital95, :DIGital2000, :TA2000, :DIGital856, :TA856, :FDD and :WCDMA).

For a listing of the GPIB commands that are common to multiple technologies, see:

“GPIB Commands with Format Mnemonics” on page 13

If you do not add a format mnemonic to a common command, the command is applied to the currently active technology.

Diagram Conventions

Description

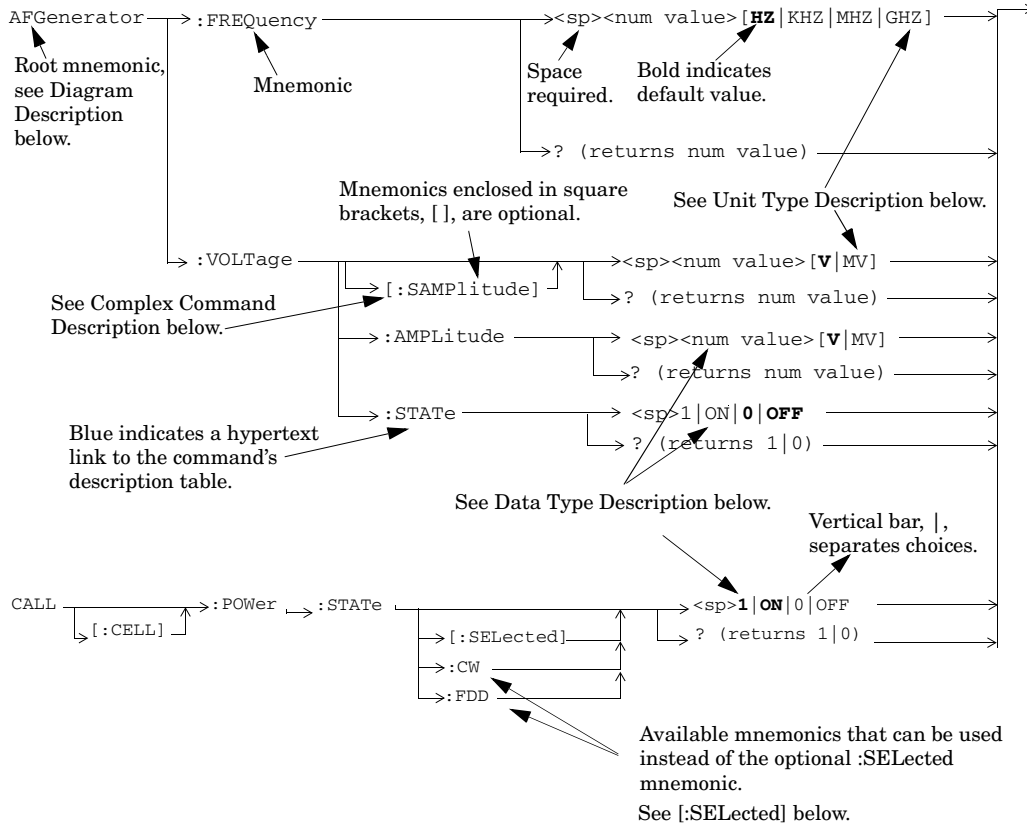


Diagram Description Mnemonics are connected by lines. Each line can be followed in only one direction, as indicated by the arrow at the end of the line. Any combination of mnemonics that can be generated by starting at the root mnemonic and following the line in the direction of the arrow is syntactically correct.

The uppercase letters of a mnemonic represent the short form of the mnemonic, whereas the long form of a mnemonic is the short form followed by the lowercase letters. The test set accepts either the long form or the short form of the mnemonic. The mnemonics that are inside square brackets are optional. That is, a command operates the same whether or not the mnemonic in square brackets is used in the command.

The drawings show the proper use of spaces. Where spaces are required they are indicated by <sp>, otherwise no spaces are allowed between mnemonics.

GPIB Syntax for E1987A, E6785C/D/T

Complex Command Description Complex commands are valuable because they set the state of the parameter and a value for that parameter. For example, the command in the above figure that contains the mnemonic [:SAMPlitude] is a complex command because sets the state to ON as well as the amplitude. You can use parameters such as amplitude, frequency, gain, number, time, and value as a complex command. Refer to the specific command for the parameter that applies.

Data Type Description

num value	Integer, float or scientific values. For example, CALL:POWer -55.5 CALL:POWer -5.55E+001 CALL:CHANnel 525
string	Characters. The string will often need to be enclosed in single or double quotes, depending upon your programming environment. For example, CALL:UPLink:PRACHannel:ASUBchannels '111111111111' The string returned by the test set is enclosed by double quotes.
choice1 choice2 choice3	Specific character choices. For example, CALL:OPERating:MODE D2KTest SYSTem:COMMunicate:GPIB:DEBug ON

Unit Type Description Some commands have optional units of measurement. These are displayed in square brackets. If no units are specified in the command then the default unit in bold font is used. The test set accepts the specified unit either with or without a space inserted between the <num value> and the unit (for example, both 10S and 10 S are valid). The following table summarizes the units available.

Description	Optional Units	Example
Amplitude (linear)	V MV	To set the spectrum monitor's timeout interval to 20 seconds, use any of the following formats: SETup:SMONitor:TIMEout:TIME 20 SETup:SMONitor:TIMEout:TIME 20S SETup:SMONitor:TIMEout:TIME 20 S
Power (logarithmic)	DBM DBW	
Level (relative)	DB	
Frequency	HZ KHZ MHZ GHZ	
Time	S MS US NS	
Percentage	PCT	

[[:SElected] Mnemonic] The [[:SElected] Mnemonic] is an optional mnemonic that implies a current selection on the test set. Often there are other mnemonics that can be used in place of the [[:SElected] mnemonic] to configure a setting that is not the currently selected configuration on the test set. The mnemonics that can replace the [[:SElected] mnemonic] are listed in parentheses separated by vertical bars (|) in the description table title. An example of a command that contains the [[:SElected] mnemonic] is shown in the following table.

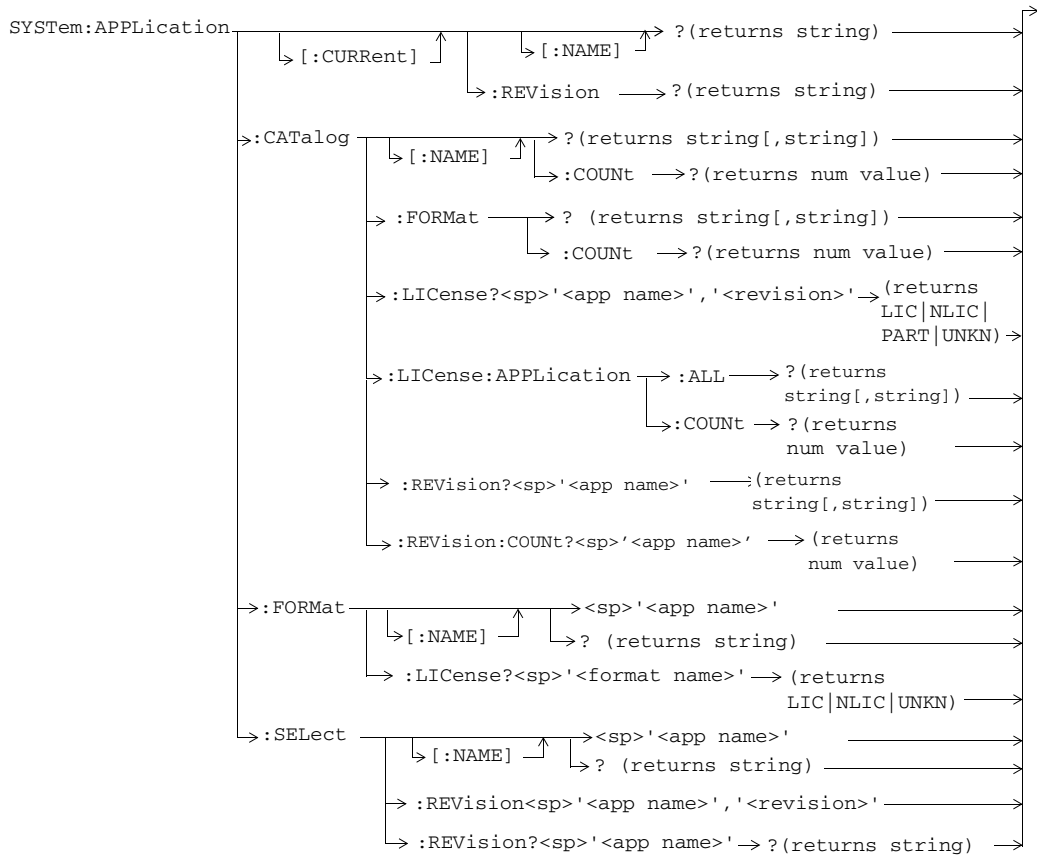
CALL[:CELL]:POWer:AMPLitude[:SElected] Available mnemonics that can be used instead of the optional [[:SElected] mnemonic].

CALL[:CELL]:POWer:AMPLitude:(CWIFDD) ←

Function	Sets/queries the desired cell power level. (See “Cell Pow information about desired versus current power levels.) The optional [[:SElected] keyword in this command spec queried applies to the current system type (see “CALL[:C settings for the CW operating mode are independent of operating modes.
Setting	Range: (This is the range of settings accepted, see “Cell I Ranges” for the actual hardware range of the source) <ul style="list-style-type: none"> FDD: -165 dBm/3.84MHz to +37 dBm/3.84MHz CW: -177 dBm to +40 dBm

GPiB Syntax for E1987A, E6785C/D/T

SYSTem:APPLication



GPIB Commands with Format Mnemonics

Some of the GPIB commands are common to multiple technologies in a fast switching application. To send a command that specifies a particular technology an extension is added to the command. It is called a format mnemonic.

Using format mnemonics is optional unless you want to send a command that is directed to a technology that is not currently active.

If you do not use a format mnemonic, or if you append the optional [:SElected] format mnemonic, the command is applied to the technology that is currently active.

The following format mnemonics can be appended to the commands listed in the table below.

- [:SElected] (the format that is currently active).
- :GSM, this selects the GSM/GPRS/EGPRS format.
- :TA136, this selects the AMPS/136 format.
- :DIGital136 (AMPS/136), this selects the IS-136 system in the cdma2000/IS-95/AMPS format, whether the format is active or not.
- :WCDMa, this selects the W-CDMA format.
- :FDD, this selects the Frequency Division Duplex system in the W-CDMA format, whether the format is active or not.
- :CW, this selects the CW system within the active format.
- :DIGital856, this selects the IS-856 system in the IS-856 1xEV-DO format, whether the format is active or not.
- :TA856, this selects the IS-856 1xEV-DO format.
- :AMPS, this selects the AMPS system in the cdma2000/IS-95/AMPS format, whether the format is active or not.
- :TA2000, this selects the cdma2000/IS-95/AMPS format.
- :DIGital95, this selects the IS-95 system in the cdma2000/IS-95/AMPS format, whether the format is active or not.
- :DIGital2000, this selects the cdma2000 system in the cdma2000/IS-95/AMPS format.

NOTE If you use the [:SElected] mnemonics in a format that does not support that particular command then you will receive an undefined header message.

GPiB Syntax for E1987A, E6785C/D/T

Format Mnemonics

The table shown below, “GPiB Commands using Format Mnemonics” , lists the GPiB commands with format mnemonics. If you are running the 1987A, which includes all technologies, any of these commands could apply to your needs. If you are running any of the other fast switching applications, use the following key to determine which commands apply to your application:

- **B** = E1985B GSM/GPRS_AMPS/136_W-CDMA Mobile Test Fast Switching
- **C** = E1985C GSM/GPRS_cdma2000/IS-95/AMPS Mobile Test Fast Switching
- **E** = E1985E cdma2000/IS-95/AMPS_1xEV-DO Mobile Test Fast Switching
- **L** = E6785B/C/D GSM/GPRS_W-CDMA Lab Application Fast Switching

GPiB Commands using Format Mnemonics

Command	[: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G t a l 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 1 8 5 6	: T A 2 0 0 0	: D I G i t a l 2 9 5	: D I G i t a l 9 5
ABORt:DPOWer	B	B		B									
ABORt:IQTuning	B	B		B									
CALL:AWGNoise:POWer: AMPLitude	E									E		E	E
CALL:AWGNoise:POWer[: SAMPLitude]	E									E		E	E
CALL:AWGNoise:POWer: STATe	E									E		E	E
CALL[:CELL]:BAND	C, E	C								E		C, E	C, E
CALL[:CELL]:CLPControl :REVerse:MODE (See Note 1)	E							E		E			
CALL[:CELL]:LACode	B, L	B, L			B, L								

GPIB Commands using Format Mnemonics

Command	: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G i t a l 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 8 5 6	: T A 2 0 0 0	: D I G i t a l 2 0 0 0	: D I G i t a l 9 5
CALL[:CELL]:MCCode	B, C, E, L	B, C, L		B	B, L				E		C, E		
CALL[:CELL]:MNCCode	C	C									C		
CALL[:CELL]:POWer:AM PLitude	B, C, E, L	B, C, L	B			B, L	B, C, E, L	C, E		E		C, E	C, E
CALL[:CELL]:POWer:SA MPLitude]	B, C, E, L	B, C, L	B		L	B, L	B, C, E, L	C, E		E		C, E	C, E
CALL[:CELL]:POWer:ST ATe	B, C, E, L	B, C, L	B		L	B, L	B, C, E, L	C, E		E		C, E	C, E
CALL[:CELL]:RACode	B, L	B, L			B, L								
CALL[:CELL]:RFGenerat or:FREQuency	B	B	B										
CALL:CHANnel	E			E								E	E
CALL:CONNected:DROP: TIMer[:STATe]	E								E		E		
CALL:CONNected:LIMit[: STATe] (See Note 2)	E				B, L				E		E		
CALL:MS:REPorted:IMEI	B, L	B, L			B, L								

GPiB Syntax for E1987A, E6785C/D/T

GPiB Commands using Format Mnemonics

Command	: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G i t a l 1 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 1 8 5 6	: T A 2 0 0 0	: D I G i t a l 1 2 0 0 0	: D I G i t a l 1 9 5
CALL:MS:REPorted:IMSI	B, L	B, L			B, L								
CALL:MS:REPorted:ONU Mber	B	B	B										
CALL:MS:REPorted:PCLa ss	B, L	B, L	B		B, L								
CALL:MS:REPorted:REVi sion[:DIGital]	B	B	B										
CALL:MS:REPorted:MCC ode	C	C									C		
CALL:MS:REPorted:MNC ode	C	C									C		
CALL:MS:REPorted:PCLa ss	C	C									C		
CALL:PAGing:IMSI	B, L	B, L	B		B, L								
CALL:PAGing:REPeat[:S TATe]	B, L	B, L	B		B, L								
CALL:SETup:BAND	E									E		E	E
CALL:SETup:CHANnel	E									E		E	E
CALL:STATus:AWGNoise :POWer[:AMPLitude]	E									E		E	E
CALL:STATus:AWGNoise :POWer:STATe	E									E		E	E
CALL:STATus:CELL:PO Wer[:AMPLitude]	E									E		E	E
CALL:STATus:CELL:PO Wer:STATe	E						E	E	E	E	E	E	E

GPIB Commands using Format Mnemonics

Command	[: S E L e c t e d]	[: G S M]	[: T A 1 3 6]	[: D I G i t a l 1 1 3 6]	[: W C D M a]	[: F D D]	[: C W]	[: A M P S]	[: T A 8 5 6]	[: D I G i t a l 1 8 5 6]	[: T A 2 0 0 0]	[: D I G i t a l 1 2 0 0 0]	[: D I G i t a l 1 9 5]
CALL:STATus:TOTal:POWer[:AMPLitude]	E									E		E	E
CALL:STATus:TOTal:POWer:STATe	E									E		E	E
CALL:TOTal:POWer[:AMPLitude]	E						E	E	E	E	E	E	E
CALL:TOTal:POWer:STATe	E						E	E	E	E	E	E	E
CALL:TRIGger[:OUTPut]:TYPE	E		E								E		
FETCh:DPOWer:ICount?	B	B		B									
FETCh:DPOWer:INTEGRity[:RANGE1]?	B	B		B									
FETCh:DPOWer:NUMBER[:RANGE1]?	B	B		B									
FETCh:DPOWer:POWer[:RANGE1]?	B	B		B									
FETCh:DPOWer[:ALL][:RANGE1]?	B	B		B									
FETCh:IQTuning:ICount?	B	B		B									
FETCh:IQTuning:INTEGRity?	B	B		B									
FETCh:IQTuning:POWer[:ALL]?	B	B		B									
FETCh:IQTuning:REFerence:FREQuency?													
FETCh:IQTuning:SPUR:POWer?	B	B		B									

GPIB Syntax for E1987A, E6785C/D/T

GPIB Commands using Format Mnemonics

Command	[: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G i t a l 1 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 1 8 5 6	: T A 2 0 0 0	: D I G i t a l 1 2 0 0 0	: D I G i t a l 1 9 5
FETCh:IQTuning[:ALL]?	B	B		B									
INITiate:DONE:FLAG:DP OWer	B	B		B									
INITiate:DONE:FLAG:IQ Tuning	B	B		B									
INITiate:DPOWer:OFF	B	B		B									
INITiate:DPOWer[:ON]	B	B		B									
INITiate:IQTuning:OFF	B	B		B									
INITiate:IQTuning[:ON]	B	B		B									
READ:DPOWer[:ALL]	B	B		B									
READ:IQTuning[:ALL]	B	B		B									
RFANalyzer:AUTO:POWe r	E									E		E	E
RFANalyzer:MANual:PO Wer	B, C, E, L					B, L				E		E, C	E, C
SETup:DPOWer:CONTin uous	B	B		B									
SETup:DPOWer:COUNt: NUMBer	B	B		B									
SETup:DPOWer:EMDiffer ence	B	B		B									
SETup:DPOWer:TIMEout[:STIME]	B	B		B									
SETup:DPOWer:TIMEout: STATe	B	B		B									

GPIB Commands using Format Mnemonics

Command	[: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G i t a l 1 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 1 8 5 6	: T A 2 0 0 0	: D I G i t a l 1 2 0 0 0 0	: D I G i t a l 1 9 5
SETup:DPOWer:TIMEout:TIME	B	B		B									
SETup:IQTuning:CONTinuous	B	B		B									
SETup:IQTuning:COUNT[:SNUMber]	B	B		B									
SETup:IQTuning:COUNT:NUMBer	B	B		B									
SETup:IQTuning:COUNT:STATe	B	B		B									
SETup:IQTuning:OFFSet:FREQuency	B			B									
SETup:IQTuning:OFFSet:POINts	B			B									
SETup:IQTuning:REFerence[:MANual][:FREQuency]	B	B		B									
SETup:IQTuning:SPUR[:SFREQuency]	B	B		B									
SETup:IQTuning:SPUR:FREQuency	B	B		B									
SETup:IQTuning:SPUR:STATe	B	B		B									
SETup:IQTuning:TIMEout[:STime]	B	B		B									
SETup:IQTuning:TIMEout:STATe	B	B		B									
SETup:IQTuning:TIMEout:TIME	B	B		B									

GPIO Syntax for E1987A, E6785C/D/T

GPIO Commands using Format Mnemonics

Command	[: S E L e c t e d]	: G S M	: T A 1 3 6	: D I G i t a l 1 3 6	: W C D M a	: F D D	: C W	: A M P S	: T A 8 5 6	: D I G i t a l 1 8 5 6	: T A 2 0 0 0	: D I G i t a l 2 0 0 0	: D I G i t a l 9 5
SETup:IQTuning:TRIGger:DELAy	B	B		B									
SETup:IQTuning:TRIGger:SOURce	B	B		B									
SYSTem:FTRigger:STATe	B	B		B									
SYSTem:FTRigger:TSLot	B	B		B									

NOTE:

1. The :SElect, :TA856 and :TA2000 format mnemonics access the same shared setting value. It is recommended that you use the command CALL:CLPControl:REVerse:MODE (without any format mnemonic) to set the reverse closed loop power control mode.
2. The :TA856 and :TA2000 format mnemonics access the same shared setting value while the :WCDMA format mnemonic accesses a separate setting value. If you do not add a format mnemonic to the CALL:CONNected:LIMit command, the command is sent to the active format.

