

Agilent Technologies
E6393A CDMA MS Test Set
Programmer's Guide

Serial Numbers

This manual applies directly to instruments with serial number prefix JP1MJ, or firmware revision A.01.00 and above.



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Direct current.



On (Supply).



Off (Supply).



In position of push-button switch.



Out position of push-button switch.

WARNING:

This WARNING notice denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury or death to personnel.

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This CAUTION notice denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

NOTE:

NOTE denotes important information. It calls attention to a procedure, practice, condition or the like, which is essential to highlight.

In this Book

This guide describes how to program the Agilent E6393A CDMA MS Test Set. If you need operational information, refer to the User's Guide.

Throughout this manual the term "Test Set" is used to denote the Agilent E6393A.

This guide contains the following information:

Chapter 1, "Preparing for Use"

This chapter describes how to set up an automated test system.

Chapter 2, "Programming Command Guidelines"

This chapter describes the rules and guidelines for using the remote programming commands via the RS-232C serial port interface.

Chapter 3, "Programming Command Reference"

This chapter provides a brief description of the syntax for each programming command.

Chapter 4, "Programming Command Cross Reference"

This chapter provides cross reference tables for the softkeys, test parameters, test items, and their corresponding syntax.

Chapter 5, "Example Programs"

This chapter includes basic test programs for using the Test Set to test mobile phones.

Appendix A, "Syntax Diagrams"

This appendix shows a syntax diagram for each subsystem or command group.

Appendix B, "Radio System Combinations"

This appendix describes allowable settings of the sequences for the Automatic Test and the hard handoff settings for the Manual Test.

Appendix C, "Test Run/Skip Combinations"

This appendix describes allowable settings of the test flows for the Automatic Test.

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1 Preparing for Use

This chapter is a quick overview of how to set up an automated test system with the Agilent E6393A CDMA MS Test Set.

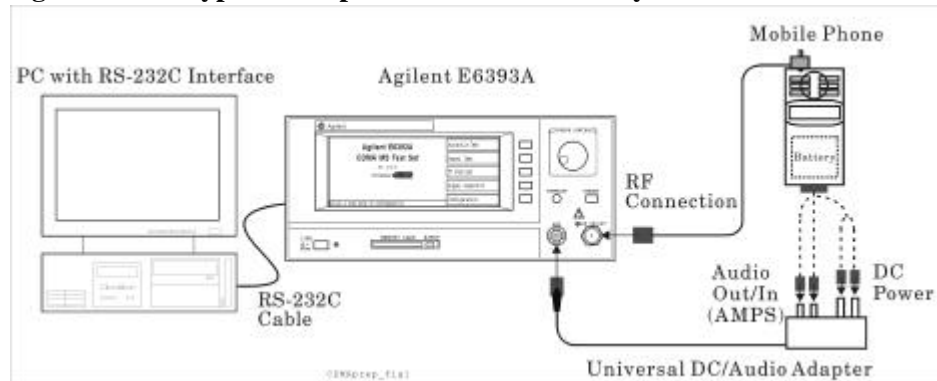
Equipment for Automated Test System

The following equipment is required to construct an automated test system:

- The Agilent E6393A CDMA MS Test Set (called the Test Set hereafter)
- System controller with the RS-232C interface
- RS-232C cable
- RF cable, or Antenna Coupler to connect RF signal to the mobile phone
- Universal DC/Audio Adapter with appropriate cable to connect the AUX connector of the Test Set to the mobile phone to supply the dc power to the mobile phone from the Test Set and to make audio tests for the AMPS mobile phone (optional)
- Printer (optional)

Figure 1-1 illustrates a typical setup for an automated test system.

Figure 1-1 Typical Setup for Automated Test System



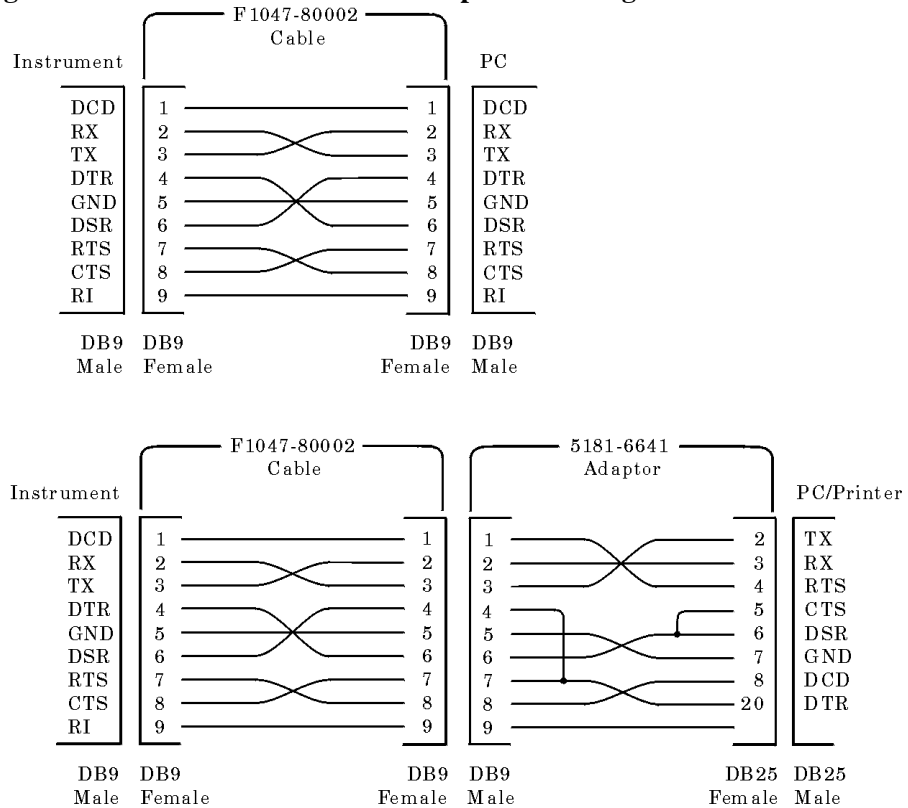
Connecting to Controller

A DB-9 male connector is provided with the Test Set as the serial interface to a controller.

- If your PC controller has a DB-9 male connector, use the 9-pin female to 9-pin female RS-232C cable between the PC and the Test Set. This cable must have the pin assignments shown in the upper illustration of [Figure 1-2](#).
- If your PC controller has a DB-25 male connector, insert the 9-pin male to 25-pin female Adapter between the RS-232C cable and the 25-pin male connector. This adapter must have the pin assignments shown in the lower diagram of [Figure 1-2](#).

Agilent Technologies 34398A RS-232 Cable Kit contains a 9-pin female to 9-pin female cable and 9-pin male to 25-pin female adapter.

Figure 1-2 RS-232C Cable and Adapter Pin Assignments



2 Programming Command Guidelines

This chapter contains a brief overview of the programming commands.

Getting Started with Programming Commands

Understanding Common Terms

The following terms are used throughout this chapter.

Controller	A controller is any computer used to communicate with an instrument. A controller can be a personal computer (PC), a minicomputer, or a plug-in card in a card cage. Some intelligent instruments can also function as controllers.
Program Message	A program message is a combination of one or more properly formatted commands. Program messages always go from a controller to an instrument. Program messages tell the instrument how to make measurements and output signals.
Response Message	A response message is a collection of data in specific formats. Response messages always go from an instrument to a controller. Response messages tell the controller about the internal state of the instrument and about measured values.
Command	A command is an instruction. Combinations of commands form messages that control instruments. In general, a command consists of mnemonics (keywords), parameters, and punctuation.
Query	A query is a special type of command. Queries instruct the instrument to make response data available to the controller. Queries always end with a question mark, (?). They do not influence the status of the Test Set.

Data Format for Correspondence

All the correspondence between the Test Set and the controller is done using ASCII code only.

This means that sending any command from the controller to the Test Set is done in characters, for example:

```
OUTPUT Serial_port;"DISP:AUTO:STBY"
```

In this example,

```
OUTPUT
```

is an HP Basic command of the controller, and

```
OUTPUT: Serial_port;"DISP:AUTO:STBY"
```


are two arguments of the OUTPUT command. "Serial_port" is the numerical variable of representing the port number previously assigned to determine the RS232C port of the controller. The ASCII codes of "DISP:AUTO:STBY" are sent to the Test Set.

The expressions used in Chapter 3, "Programming Command Reference" are similar to those introduced above, except for the "IEEE Common Commands."

Standard Notation

This section uses several forms of notation that have specific meaning:

Command

Mnemonics

Many commands have both a long and a short form. You can use either form, but not a combination of the two.

Consider the :FREQUency command. The short form is :FREQ and the long form is :FREQUENCY.

Programming commands are not case sensitive, so :fREquEnCy means the same as :FREQUENCY. :FREQ and :FREQUENCY are valid forms of the :FREQUency command, however :FREQuis not.

Angle Brackets

Angle brackets indicate that the word or words enclosed represent something other than themselves.

For example, <string>, <int> might represent the ASCII characters "CELLR-IS95A,3".

Words in angle brackets have more rigidly defined meaning than words shown in ordinary text. For example, this section uses the word "message" to talk about messages, generally. But, the bracketed words <program message> indicates a precisely defined element of the commands. Refer to Appendix A for exact definitions of the command elements.

Query and Event Commands

You can query any value that you can send to the test set. For example, if you find the command

```
CONFigure:BEEPer <bool>,
```

you can expect the query:

```
CONFigure:BEEPer?
```

Any command ending with a question mark in a command group, is a query-only command. Some commands are for triggering events and have no query command. For example, an event, which causes something to happen inside the instrument at a particular instant, has no corresponding query setting. The following examples correspond to these cases:

```
TESTs:AUTO:RESUltS:MSINformation:ESN?  
TESTs:MANual:CDMA:SHOFF
```

Command Syntax

An entry following the heading for a programming command is a syntax statement. For example,:

```
CONFigure:PRINter <string>
```

Syntax statements read from left to right. In this example, the :PRINter portion of the statement immediately follows the :CONFigure portion of the statement with no separating space. A separating space is legal only between the command and its argument. In this example, <string> is the argument. In this case, <string> corresponds to HPPCL | ESCP and either HPPCL or ESCP should be substituted for <string>. Additional conventions used in the syntax statements are defined as follows:

- | (vertical bar) indicates a choice of one element from a list. For example, A | B indicates that either A or B can be chosen, but not both.
- <> (angle brackets) enclose a variable item that represents a user choice (parameter) to be entered.

```
SYSTEM:KLOCK <bool>,
```

a boolean value 0 or 1 is substituted for <bool>. For another example:

```
TESTs:AUTO:DCPower:MODE <string>,
```

OFF or ON is substituted for <string>.

- Upper-case portion of the command indicates that it is the minimum required for the command. For example, in the command :FREQuency, :FREQ is the minimum requirement.
- Lower-case portion of the command indicates that it is optional; it can be either included with the upper-case portion of the command or omitted as a whole. For example, in the command :FREQuency, either :FREQ or :FREQUENCY is correct, but :FREQu is incorrect.
- Question mark (?) after a subsystem command indicates that the command is a query. Most commands accept this command when it is entered immediately after the command name. Some query commands require additional argument(s) after the question mark. The format of the response for the query depends on the type of the query. The format is shown after each syntax statement.

Units of Measure

- Units for settings:

It is allowed to send numeric data with or without its multiplier and unit as follows. (The units may be omitted if they are the default settings.)

A (A; default), MA (mA)

DB (dB; default)

DBM (dBm; default)

DBV (dBV; default)

HZ (Hz; default setting), KHZ (kHz), MHZ and MAHZ (MHz)

PCT (%; default)

PPM (ppm; default)

S (sec; default setting), MS (msec), US (μ sec)

V (V; default)

NOTE An expression of power type such as 896.2E6 (representing 896.2×10^6) is acceptable.

The multiplier M is usually used as “milli” except when used with Hz, for “mega.”

For example, the following commands can set the same value:

```
RFG:RFFR 896200000
```

```
RFG:RFFR 896.2E6
```

```
RFG:RFFR 896.2MHZ
```

- Units for measurements:

The query responses for any parameters have either numerical or alphanumeric data depending on the default unit. For example,

```
RFG:RFFR?
```

returns “896200000”.

Overview of the RS-232C Serial Interface

Serial interface programming techniques are similar with most general RS-232C I/O applications. Refer to the programming language documentation for more information on how to initiate the card and verify the status.

Due to the asynchronous nature of serial I/O operations, special care must be exercised to make sure that data is not lost by sending commands before the device is ready to receive. Modem line handshaking can be used to help solve this problem. Refer to Modem Line Handshaking, pg. 23.

Settings for the Serial Interface

Refer to the documentation that came with your computer, programming language, and I/O card to configure the serial bus.

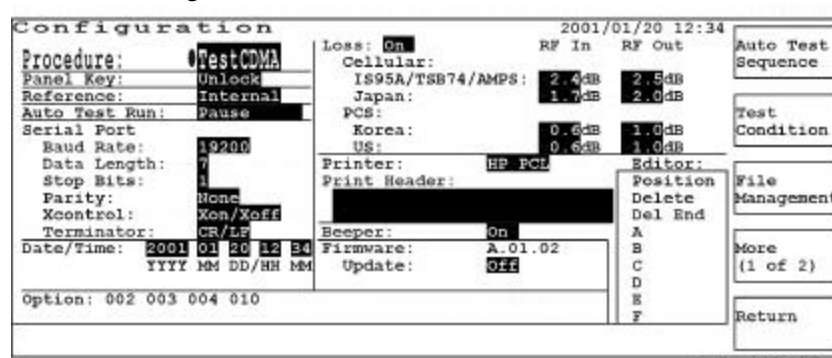
The serial port can only be manually set. The default settings are as follows:

Table 2-1 Serial Port Configuration

Item	Default	Other Choices
Baud Rate:	9600	19200
Data Length:	8	7
Stop Bits:	1	2
Parity:	None	Odd, Even
Xcontrol:	None	Xon/Xoff
Terminator:	CR+LF	CR, LF

Use the following procedure to set the serial port configuration.

Step 1. Press the Configuration softkey in the Initial screen to obtain the Configuration screen:



Step 2. Confirm that the Serial Port is correctly set.

Character Format Parameters

To define the character format, you must know the requirements of the peripheral device for the following parameters:

- **Data Length:** Eight data bits are used for each character, excluding start, stop, and parity bits.
- **Stop Bits:** One stop bit is included with each character.
- **Parity:** Parity is disabled (absent) for each character.

Modem Line Handshaking

To use modem line handshaking for data transfer, set the Request-to-Send (RTS) and Clear-to-Send (CTS) modem lines as active states on your controller.

Setting Xcontrol to Xon/Xoff allows the Test Set to stop data transmission from the controller when the buffer of the Test Set is full and then start it when the Test Set is ready.

Data Transfer Errors

The serial interface can generate several types of errors when certain conditions are encountered while receiving data from the peripheral device. Errors can be generated by any of the following conditions:

- **Parity error.** The parity bit on an incoming character does not match the parity expected by the receiver. This condition is most commonly caused by line noise.
- **Framing error.** Start and stop bits do not match the timing expectations of the receiver. This can occur when line noise causes the receiver to miss the start bit or obscures the stop bits.
- **Overrun error.** Incoming data buffer overrun caused a loss of one or more data characters. This is usually caused when data is received by the interface, but no ENTER statement has been activated to input the information.
- **Break received.** A BREAK was sent to the interface by the peripheral device. The computer program must be able to properly interpret the meaning of a break and take appropriate action.

Programming Guidelines

To make a test program, follow these guidelines.

- The program flow should follow the flow of the front panel operation of the Test Set. That is, display the corresponding screen using the DISPLAY subsystem commands before setting parameters, performing tests, or querying the test results.

For example, when you want to execute the BS Call with MANUAL TEST using this command:

```
TESTs:MANual:PAGE
```

first send this command:

```
DISPlay:MANual:STBY
```

to display the MANUAL TEST: Stand-by screen before sending that command.

- The number of query commands and the number of corresponding enter commands should be the same. To avoid mismatching, enter the value just after the query commands have been sent.

For example, when you want to enter the RFCH channel and frequency values for Manual Test using HP BASIC, make a test program as follows:

```
OUTPUT Serial_port;
```

```
OUTPUT Serial_port;"DISP:CONF:SEQ"
```

```
OUTPUT Serial_port;"CONF:SEQ:CDMA:RFCH  
1,1199,801,799"
```

```
ENTER Serial_port;a
```

```
OUTPUT Serial_port;"CONF:SEQ:CDMA:RFCH? 1"
```

```
ENTER Serial_port;b
```

- To receive the measurement results, wait until the measurement ends. To view the measurement status, monitor the Measurement Data Ready Bit (bit 0), and the Measuring Status Bit (bit 1) using the *STB? command.
- To perform measurements using Automatic Test or Manual Test modes, wait until the test flow proceeds to the step where the measurement can be performed. To monitor the test flow steps executed, use the following query for Automatic Test of the CDMA radio system:

```
TESTs:AUTO:CDMA:SIGNaling:STATE?
```

Using the Status Registers

The status system is comprised of multiple registers which are arranged in a hierarchical order. The lower-priority status registers propagate their data to the higher-priority registers in the data structures by means of summary bits. The status byte register is at the top of the hierarchy and contains the general status information for the instrument's events and conditions. All other individual registers are used to determine the specific events or conditions.

You can determine the state of certain instrument hardware and firmware events and conditions by programming the status register system.

Individual status registers can be set and queried using the commands in the IEEE common commands reference. A status register is actually composed of five physical registers:

- 1 condition register
- 2 transition registers
- 1 event enable register
- 1 event register

A “standard event status register” is composed of an event enable register and an event register.

Why Would You Use the Status Registers?

Your program often needs to detect and manage error conditions or changes in instrument status. To detect a change using the polling method, the program must repeatedly read the registers to monitor a condition as follows:

1. Determine which register contains the bit that reports the condition.
2. Send the unique query that reads that register.
3. Examine the bit to see if the condition has changed.

Using the Status Registers

Most monitoring of the instrument conditions is done at the highest level using the IEEE common commands indicated below for the Test Set. Refer to [“IEEE Common Command Reference” on page 72](#) for more information about common commands.

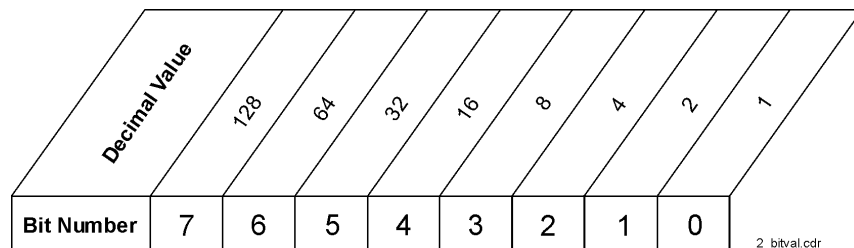
- *CLS (clear status):
Clears the status byte by emptying the error queue and clearing all the event registers.
- *ESE, *ESE? (event status enable):
Sets and queries the bits in the enable register. This is part of the standard event status register.

- *ESR? (event status register):
Queries and clears the event register part of the standard event status register.
- *OPC, *OPC? (operation complete):
Sets or queries the standard event status register to monitor the completion of all commands. The query stops any new commands from being processed until the current processing is complete.
*OPC command sets the OPC bit (bit 0) of the standard event status register (SESR). *OPC? query command returns ASCII code 1 to the output queue.
- *STB? (status byte):
Queries the value of the status byte register without erasing its contents.

Setting and Querying the Registers

Each bit in a register is represented by a numerical value based on its location. These eight bits are summed up to a numerical value referring to the locations and forming a byte. Refer to [Figure 2-1](#). The value can be sent with the command to enable (set) or disable (reset) a particular bit. To enable or disable more than one bit, send the sum of all the bits as a numerical value.

Figure 2-1 Status Register Bit Values



For example, to enable bit 0 and bit 6 (1 + 64) of the standard event status register, you would send the command:

*ESE 65 (= 1 + 64)

The results of a query are evaluated in a similar way. If you receive a decimal value of 140 (= 128 + 8 + 4) as the response of issuing the command:

*STB?,

it means that the bits 7, 3 and 2 are true (set).

Under this condition, you can also set and reset some bits, for example, sending this command:

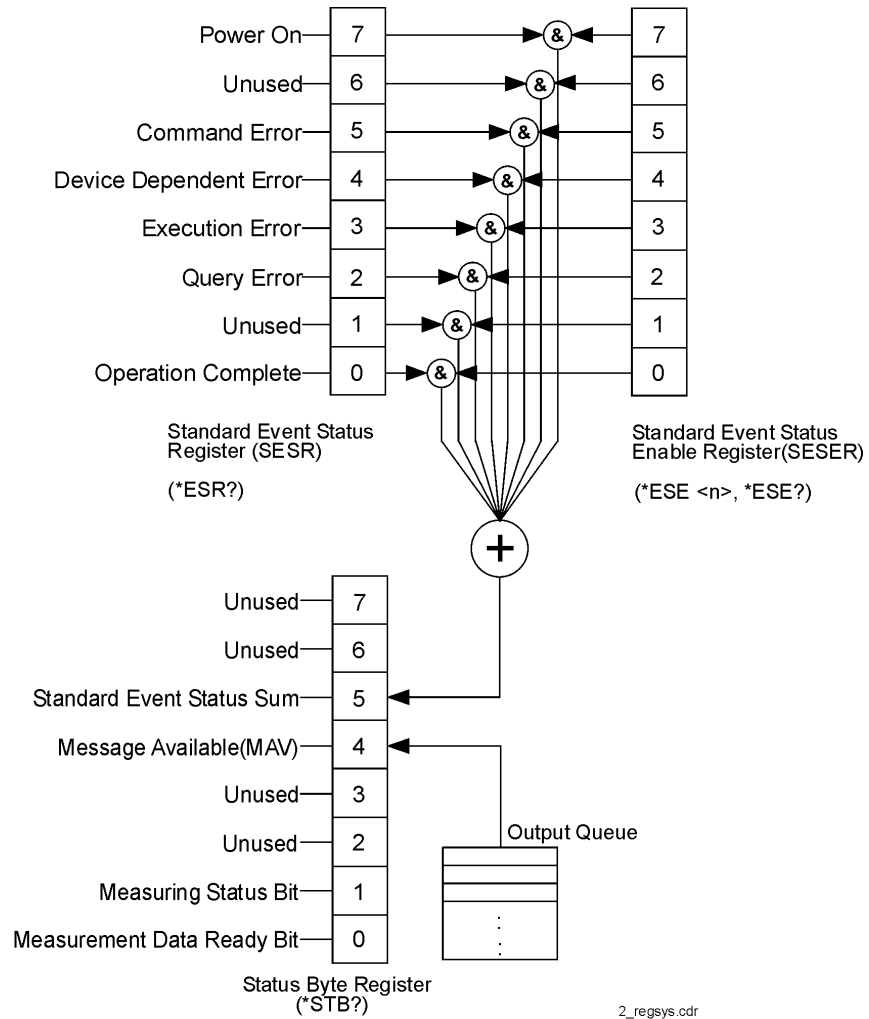
*ESE 76 (= 64 + 8 + 4)

set bit 6 and reset bit 7 (64 + 8 + 4).

Status Register System

Figure 2-2 shows all of the instrument status registers and their hierarchy incorporated with the Test Set.

Figure 2-2 Overall Status Byte Register System

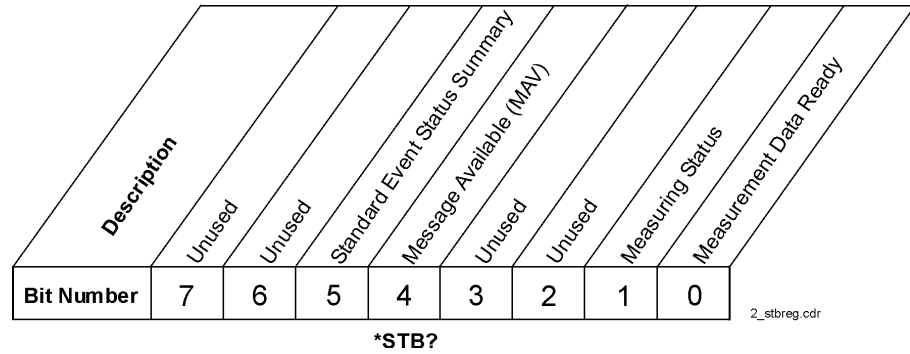


Each of these status registers are explained in detail in the following sections.

Status Byte Register (STBR)

The status byte register of the Test Set uses the bit 0, 1, 4 and 5 as shown in [Figure 2-3](#).

Figure 2-3 Status Byte Register



The STBR contains the following bits:

Table 2-2 Bits in the Status Byte Register

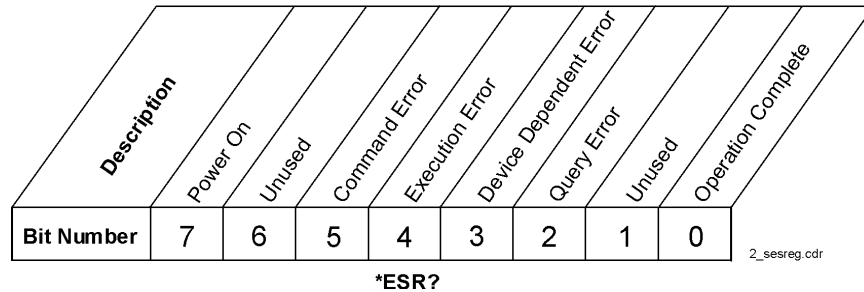
Bit	Name	Description
0	Measurement Data Ready	If the instrument has data ready in the output queue, this bit is set to 1. After responding to a query this bit becomes 0.
1	Measuring Status	While the instrument is in the measuring state, this bit is set to 1. At the completion of one measurement, this bit is set to 0.
2, 3		These bits are always set to 0.
4	Message Available	If the instrument has message data ready in the output queue, this bit is set to 1. There are no lower status groups that provide input to this bit.
5	Standard Event Status Summary	If the standard event summary bit has been set, this bit is set to 1. The standard event status register can then be read to determine the specific event that caused this bit to be set.
6, 7		These bits are always set to 0.

To query the status byte register, send the command `*STB?` The response will be the decimal sum of the bits which are set to 1. For example, if the bit 5 and bit 4 are set to 1, the decimal sum of these two bits is 48 (32+16) (see [Figure 2-1 on page 25](#)).

Standard Event Status Register (SESR)

The standard event status register for the Test Set is used to determine the specific events that set bit 5 in the status byte register.

Figure 2-4 Standard Event Status Register



The standard event status register contains the following bits:

Table 2-3 Bits in the Standard Event Status Register

Bit	Name	Description
0	Operation Complete	This bit is set to 1 if all pending operations were completed following execution of the *OPC command.
1		This bit is always set to 0.
2	Query Error	This bit is set to 1 if a query error or a device-dependent error due to the overflow of output queue has occurred.
3	Device Dependent Error	This bit is set to 1 when an error other than a command error, execution error or query error has occurred.
4	Execution Error	This bit is set to 1 if an execution error due to receiving an unexecutable command has occurred. Error number is -200.
5	Command Error	This bit is set to 1 if a command error has occurred. For error numbers other than -200.
6		This bit is always set to 0.
7	Power On	This bit is set to 1 when the instrument has been turned on.

To query the standard event status register, send the command *ESR?. The response will be the decimal sum of the bits which are set to 1. For example, if the bit 7 and bit 3 are set to 1, the decimal sum of these two bits is 136 (128 + 8) (see [Figure 2-1 on page 25](#)).

Error Messages

The following table shows the error messages for the Test Set.

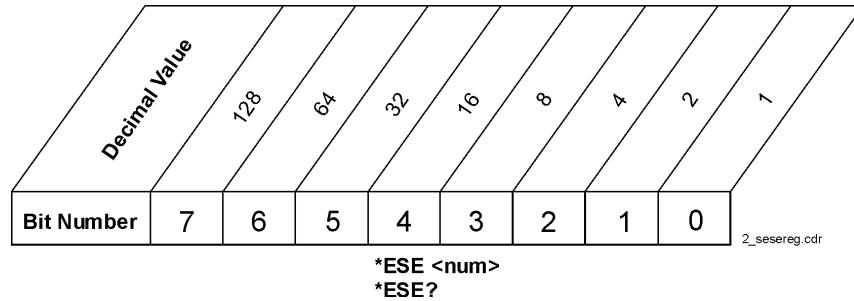
Table 2-4 Error Messages

Error No.	Error Message	Description
0	No error	No error exists.
-100	Command error	Other command error than defined has occurred
-103	Invalid separator	Syntax analyzer expected a separator and encountered an illegal character
-112	Program mnemonic too long	Command error due to a program mnemonic that is too long
-113	Undefined header	Command error due to an undefined header
-120	Numeric data error	Error due to non-numeric type or non-decimal numeric type data
-123	Exponent too large	Error due to the magnitude of the exponent being too large
-124	Too many digits	Numeric data element contains too many digits
-131	Invalid suffix	The suffix does not follow the syntax or is inappropriate
-141	Invalid character data	Either the character data element contains an invalid character or the particular element received is not valid for the header
-144	Character data too long	Character data element contains more data than specified
-200	Execution error	Execution error due to an invalid command
-222	Data out of range	Execution error due to data that is out of range
-350	Queue overflow	Device dependent error due to a queue overflow

Standard Event Status Enable Register (SESER)

In addition to the SESR, the standard event status group also contains an SESER as follows:

Figure 2-5 Standard Event Status Enable Register



This register lets you choose which bits in the standard event status register will set the summary bit (bit 5 of the STBR) to 1. Send the *ESE <num> command where <num> is the sum of the decimal values corresponding to the bits you want to enable.

For example, to enable bit 5 (Standard Event Status Sum) of STBR whenever at least one of bits 5 and 7 of SESR is set, set the bits 5 and 7 (32 + 128) of SESER by sending the command:

```
*ESE 160
```

Refer to [Figure 2-1 on page 25](#). The command *ESE? returns the decimal value of the sum of the SESER bits previously enabled with the *ESE <num> command.

3 Programming Command Reference

This chapter lists all of the SCPI subsystem commands and subcommands in alphabetical order. The descriptions include syntax requirements, ranges, restrictions, query responses, and status at instrument preset.

CONFigure Subsystem

This subsystem sets or queries the controls and parameters on the Configuration screen.

Send the "DISPlay:CONFigure" command to display the Configuration screen before sending the following commands.

CONFigure Subsystem Command Reference

10 MHz Reference Oscillator

```
CONFigure:ROSCillator <string>  
CONFigure:ROSCillator?
```

Defines which reference signal is to be used.

Parameter	Range/Selection	*RST	Resolution
<string>	INTernal, EXTernal	INT	—

When EXT is selected, an appropriate signal needs to be supplied to the 10 MHz reference port on the rear panel of the Test Set.

Automatic Run Mode

```
CONFigure:ATMode <string>  
CONFigure:ATMode?
```

Sets the execution mode to “continuous” or “pause-on-failure” if a fail result occurs at a test item in the Automatic Test mode.

Parameter	Range/Selection	*RST	Resolution
<string>	CONTinuous, or POFailure for pause-on-failure	CONT	—

Beeper Control

```
CONFigure:BEEPer <bool>  
CONFigure:BEEPer?
```

Defines the beeper function. The choice are ON (1) and OFF (0). If set to ON (1), it beeps at every press of the softkeys and the knob. If set to OFF (0), the beeping sound is suppressed except for some errors and warnings.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1), OFF (0)	1	—

Calendar Date

CONFigure:DATE <int y>,<int m>,<int d>
 CONFigure:DATE?

Sets the test date to be displayed in the upper right screen of the Test Set.

Parameter	Range/Selection	*RST	Resolution
<int y>	Year: 1990 to 2089	(disabled)	1
<int m>	Month: 1 to 12	(disabled)	1
<int d>	Day: 1 to 31	(disabled)	1

Enabling Option

CONFigure:OPTion:INSTall <string>

Enables the option designated by the option number. To enable the option of the Test Set, a codeword is specifically assigned to each option installed in each Test Set.

Parameter	Range/Selection	*RST	Resolution
<string>	Codeword up to 16 characters	—	—

Panel Key Lock

CONFigure:PKEY <string>
 CONFigure:PKEY?

Defines the lock state of the panel key control. The lock state disables all functions other than Automatic Test and Configuration.

Parameter	Range/Selection	*RST	Resolution
<string>	UNLOCK, LOCK	UNLOCK	—

Print Header

```
CONFigure:PRINter:HEADing <string 1>,<string 2>
CONFigure:PRINter:HEADing?
```

Defines the header lines for print out. These strings must be in double quotation marks.

Parameter	Range/Selection	*RST	Resolution
<string 1>	First line up to 28 alphanumeric characters	(blank)	—
<string 2>	Second line up to 28 alphanumeric characters	(blank)	—

Printer Protocol

```
CONFigure:PRINter <string>
CONFigure:PRINter?
```

Defines the protocol type of the applicable printer to HP PCL or ESC/P.

Parameter	Range/Selection	*RST	Resolution
<string>	HPPCL, ESCP	HPPCL	—

Real Time Clock

```
CONFigure:TIME <int h>,<int m>
CONFigure:TIME?
```

Sets the time to be displayed in the upper right screen of the Test Set.

Parameter	Range/Selection	*RST	Resolution
<int h>	Hour: 0 to 23	(disabled)	1
<int m>	Minute: 0 to 59	(disabled)	1

RF In/Out Losses for Cellular:IS95A/TSB74/AMPS

```
CONFigure:LOSS:CELLular:US <real in>,<real out>
CONFigure:LOSS:CELLular:US?
```

Sets the loss values caused by RF input (in) and output (out) paths for the IS95A, TSB74 and AMPS bands. Losses for RF In and RF Out are set to <real in> and <real out>, respectively.

Parameter	Range/Selection	*RST	Resolution
<real in>	RF In: 0.0 to 99.9 (dB)	0.0	0.1
<real out>	RF Out: 0.0 to 99.9 (dB)	0.0	0.1

RF In/Out Losses for Cellular:T53

```
CONFigure:LOSS:CELLular:JAPan <real in>,<real out>
CONFigure:LOSS:CELLular:JAPan?
```

Sets the loss values caused by RF input (in) and output (out) paths for the T53 bands. Losses for RF In and RF Out are set to <real in> and <real out>, respectively.

Parameter	Range/Selection	*RST	Resolution
<real in>	RF In: 0.0 to 99.9 (dB)	0.0	0.1
<real out>	RF Out: 0.0 to 99.9 (dB)	0.0	0.1

RF In/Out Losses for PCS Korea

```
CONFigure:LOSS:PCS:KORea <real in>,<real out>
CONFigure:LOSS:PCS:KORea?
```

Sets the loss values caused by RF input (in) and output (out) paths for the PCS Korea P0 and P1 bands. Losses for RF In and RF Out are set to <real in> and <real out>, respectively.

Parameter	Range/Selection	*RST	Resolution
<real in>	RF In: 0.0 to 99.9 (dB)	0.0	0.1
<real out>	RF Out: 0.0 to 99.9 (dB)	0.0	0.1

RF In/Out Losses for PCS US

```
CONFigure:LOSS:PCS:US <real in>,<real out>
CONFigure:LOSS:PCS:US?
```

Sets the loss values caused by RF input (in) and output (out) paths for the PCS US bands. Losses for RF In and RF Out are set to <real in> and <real out>, respectively.

Parameter	Range/Selection	*RST	Resolution
<real in>	RF In: 0.0 to 99.9 (dB)	0.0	0.1
<real out>	RF Out: 0.0 to 99.9 (dB)	0.0	0.1

RF Loss Function

```
CONFigure:LOSS <bool>
CONFigure:LOSS?
```

Sets whether the loss function is enabled or disabled.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1), OFF (0)	0	—

Auto Test Sequence Command Reference

The Auto Test Sequence commands are used to control the test flow and test sequences, and also to define whether or not to execute Pass/Fail tests for three-channel measurements. The query commands return the settings of those controls and parameters.

Send the “DISPlay:CONFigure:SEquence” command to display the Test Setup: Test Sequence screen for Automatic Test before sending the following commands.

Radio System

```
CONFigure:SEquence:RSYSem
<string 1>,<string 2>,<string 3>
CONFigure:SEquence:RSYSem?
```

Defines a set of three radio systems in three sequence numbers, respectively. The first sequence should have a radio system but the other two can be set to OFF. The valid radio systems are dependent on the options installed with the Test Set.

Parameter	Range/Selection	*RST	Resolution
<string 1>	For Test Sets without option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, OFF	CELLR- IS95A	—
<string 2>			
<string 3>			
	For Test Sets with option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS, OFF		

For AMPS Tests (Option 003)

NOTE This section is applicable only for Test Sets with Option 003.

1st Call Setup

```
CONFigure:SEquence:AMPS:SIGNaling:CALL1
<int seq>,<bool>
CONFigure:SEquence:AMPS:SIGNaling:CALL1? <int seq>
```

Defines whether or not to make first call setup tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

1st Call Type

```
CONFigure:SEquence:AMPS:SIGNaling:CALL1:TYPE
<int seq>,<string>
CONFigure:SEquence:AMPS:SIGNaling:CALL1:TYPE? <int seq>
```

Defines a type of the first call setup from either Paging or MS Origination for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	1	—
<string>	PAGE for Paging, ORIGination for MS origination	ORIG	—

Amplitude for Other Tests (except sensitivity tests)

```
CONFigure:SEquence:AMPS:AMPLitude:OTEST
<int seq>,<real>
CONFigure:SEquence:AMPS:AMPLitude:OTEST? <int seq>
```

Sets the amplitude level for test items other than sensitivity for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<real>	-120.0 to -40.0 (dBm)	-75.0	0.1

Amplitude for Sensitivity Tests

```
CONFigure:SEquence:AMPS:AMPLitude:SENSitivity
<int seq>,<real>
CONFigure:SEquence:AMPS:AMPLitude:SENSitivity?
<int seq>
```

Sets the amplitude level to make sensitivity tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<real>	-120.0 to -40.0 (dBm)	-104.0	0.1

Audio Output Adjust Mode

```
CONFigure:SEquence:AMPS:AOUT:MODE <int seq>,<string>
CONFigure:SEquence:AMPS:AOUT:MODE? <int seq>
```

Sets the audio signal output mode to make audio signal measurements for the sequence number specified by <int seq>. If set to AUTO, the audio signal level is automatically adjusted to have 8 kHz FM deviation for making TX distortion measurements.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<string>	AUTO, MANUAL	AUTO	—

Audio Output Level

CONFigure:SEquence:AMPS:AOUT:LEVel <int seq>,<int lev>
 CONFigure:SEquence:AMPS:AOUT:LEVel? <int seq>

Sets the audio signal output level to make audio signal measurements for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int lev>	-60 to 0 (dBV)	-60	1

DC Current at Idle

CONFigure:SEquence:AMPS:CURRent:IDLE <int seq>,<int>
 CONFigure:SEquence:AMPS:CURRent:IDLE? <int seq>

Defines whether or not to make idle dc current tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 (skip) or 1 (run)	1	—

DC Current at Talk

CONFigure:SEquence:AMPS:CURRent:TALK <int seq>,<int>
 CONFigure:SEquence:AMPS:CURRent:TALK? <int seq>

Defines whether or not to make talk dc current tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	—

FM Deviation Limiting

CONFigure:SEquence:AMPS:FMDLimit <int seq>,<int>
 CONFigure:SEquence:AMPS:FMDLimit? <int seq>

Defines whether or not to make FM deviation limiting performance tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	—

Frequency Error

CONFigure:SEquence:AMPS:FERRor <int seq>,<int>
 CONFigure:SEquence:AMPS:FERRor? <int seq>

Defines whether or not to make frequency error tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	—

Instruction Message

```
CONFIgure:SEQuence:AMPS:SIGNaling:MESSAge
<int seq>,<int step>,<string>
CONFIgure:SEQuence:AMPS:SIGNaling:MESSAge?
<int seq>,<int step>
```

Defines the instruction message of <string> for the step number in <int step> for the sequence number specified by <int seq>. These strings must be in double quotation marks.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int step>	Message for Step No.: 1 to 6	—	—
<string>	Message up to 69 characters		—

Registration

```
CONFIgure:SEQuence:AMPS:SIGNaling:REGister
<int seq>,<bool>
CONFIgure:SEQuence:AMPS:SIGNaling:REGister? <int seq>
```

Defines whether or not to make registration tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

RF Channel Setting

```
CONFIgure:SEQuence:AMPS:RFCHannel
<int seq>,<int ch1>,<int ch2>,<int ch3>
CONFIgure:SEQuence:AMPS:RFCHannel? <int seq>
```

Specifies the three RF channel numbers to be tested for the sequence number specified by <int seq>. Enter 9999 using <int ch2> and/or <int ch3> to skip tests on RFCH2 and/or RFCH3, respectively. "----" is displayed on the screen.

The Test Set returns 9999 for the channel(s) set to skip tests when queried.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch1>	RFCH1: 991 to 1023, or 1 to 799	991	1
<int ch2>	RFCH2: 991 to 1023, 1 to 799, or 9999	384	1
<int ch3>	RFCH3: 991 to 1023, 1 to 799, or 9999	799	1

RF/AF Test

CONFigure:SEquence:AMPS:SIGNaling:RFAF <int seq>,<bool>
CONFigure:SEquence:AMPS:SIGNaling:RFAF? <int seq>

Defines whether or not to make RF/AF tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

RX Distortion

CONFigure:SEquence:AMPS:RXDistortion <int seq>,<int>
CONFigure:SEquence:AMPS:RXDistortion? <int seq>

Defines whether or not to make RX distortion tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

RX SINAD

CONFigure:SEquence:AMPS:RXSinad <int seq>,<int>
CONFigure:SEquence:AMPS:RXSinad? <int seq>

Defines whether or not to make RX SINAD tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

SAT Deviation

CONFIgure:SEQuence:AMPS:SATone:DEVIATION

<int seq>,<int>

CONFIgure:SEQuence:AMPS:SATone:DEVIATION? <int seq>

Defines whether or not to make frequency deviation tests of the supervisory audio tone (SAT) signal for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

SAT Frequency Error

CONFIgure:SEQuence:AMPS:SATone:FERRor <int seq>,<int>

CONFIgure:SEQuence:AMPS:SATone:FERRor? <int seq>

Defines whether or not to make frequency error tests of the supervisory audio tone (SAT) signal for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

ST Deviation

CONFIgure:SEQuence:AMPS:ST:DEVIATION <int seq>,<int>

CONFIgure:SEQuence:AMPS:ST:DEVIATION? <int seq>

Defines whether or not to make frequency deviation tests of the signaling tone (ST) for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

ST Frequency

CONFigure:SEquence:AMPS:ST:FREquency <int seq>,<int>
 CONFigure:SEquence:AMPS:ST:FREquency? <int seq>

Defines whether or not to make frequency tests of the signaling tone (ST) signal for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

TX Distortion

CONFigure:SEquence:AMPS:TXDistortion <int seq>,<int>
 CONFigure:SEquence:AMPS:TXDistortion? <int seq>

Defines whether or not to make TX distortion tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

TX Power

CONFIgure:SEquence:AMPS:TXPower <int seq>,<int>
 CONFIgure:SEquence:AMPS:TXPower? <int seq>

Defines whether or not to make TX power tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

For CDMA Tests

1st Call Setup

CONFIgure:SEquence:CDMA:SIGNaling:CALL1
 <int seq>,<bool>
 CONFIgure:SEquence:CDMA:SIGNaling:CALL1? <int seq>

Defines whether or not to make first call setup tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

1st Call Type

CONFIgure:SEquence:CDMA:SIGNaling:CALL1:TYPE
 <int seq>,<string>
 CONFIgure:SEquence:CDMA:SIGNaling:CALL1:TYPE? <int seq>

Defines a type of the first call setup from either Paging or MS Origination for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<string>	PAGE for Paging, ORIGination for MS origination	ORIG	—

Amplitude for Other Tests (excepting sensitivity tests)

```
CONFigure:SEquence:CDMA:AMPLitude:OTEST
<int seq>,<real>
CONFigure:SEquence:CDMA:AMPLitude:OTEST? <int seq>
```

Sets the amplitude level for test items other than sensitivity for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<real>	-110.0 to -40.0 (dBm), or -110.0 to -20.0 (dBm) with Option 010	-75.0	0.1

Amplitude for Sensitivity Tests

```
CONFigure:SEquence:CDMA:AMPLitude:SENSitivity
<int seq>,<real>
CONFigure:SEquence:CDMA:AMPLitude:SENSitivity?
<int seq>
```

Sets the amplitude level to make sensitivity tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int>	Sequence No.: 1, 2, 3	—	—
<real>	-110.0 to -40.0 (dBm), or -110.0 to -20.0 (dBm) with Option 010	-104.0	0.1

DC Current at Idle

```
CONFigure:SEquence:CDMA:CURRent:IDLE <int seq>,<int>
CONFigure:SEquence:CDMA:CURRent:IDLE? <int seq>
```

Defines whether or not to make idle dc current tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 (skip) or 1 (run)	1	—

DC Current at Talk

```
CONFIgure:SEQuence:CDMA:CURRent:TALK <int seq>,<int>
CONFIgure:SEQuence:CDMA:CURRent:TALK? <int seq>
```

Defines whether or not to make talk dc current tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Frequency Error

```
CONFIgure:SEQuence:CDMA:FERRor <int seq>,<int>
CONFIgure:SEQuence:CDMA:FERRor? <int seq>
```

Defines whether or not to make frequency error tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Hard Handoff

```
CONFIgure:SEQuence:CDMA:SIGNaling:HHOFF
<int seq>,<bool>
CONFIgure:SEQuence:CDMA:SIGNaling:HHOFF? <int seq>
```

Defines whether or not to make hard handoff tests from one radio system to another radio system, for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

Instruction Message

```
CONFigure:SEquence:CDMA:SIGNaling:MESSage
<int seq>,<int step>,<string>
CONFigure:SEquence:CDMA:SIGNaling:MESSage?
<int seq>,<int step>
```

Defines the instruction message of <string> for the step number in <int step> for the sequence number specified by <int seq>. These strings must be in the double quotation marks.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int step>	Message for Step No.: 1 to 6	—	—
<string>	Message up to 69 characters		—

Maximum TX Power

```
CONFigure:SEquence:CDMA:MAXPower <int seq>,<int>
CONFigure:SEquence:CDMA:MAXPower? <int seq>
```

Defines whether or not to make maximum TX power tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Minimum TX Power

```
CONFigure:SEquence:CDMA:MINPower <int seq>,<int>
CONFigure:SEquence:CDMA:MINPower? <int seq>
```


Defines whether or not to make minimum TX power tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Registration

```
CONFigure:SEquence:CDMA:SIGNaling:REGister
<int seq>,<bool>
CONFigure:SEquence:CDMA:SIGNaling:REGister? <int seq>
```

Defines whether or not to make registration tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

RF Channel Setting

```
CONFigure:SEquence:RFCHannel
<int seq>,<int ch1>,<int ch2>,<int ch3>
CONFigure:SEquence:CDMA:RFCHannel? <int seq>
```

Specifies the three RF channel numbers to be tested for the sequence number specified by <int seq>. Enter 9999 using <int ch2> and/or <int ch3> to skip tests on RFCH2 and/or RFCH3, respectively. "----" is displayed on the screen.

The Test Set returns 9999 when queried, for the channel(s) set to skip tests.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—

Parameter	Range/Selection	*RST	Resolution
<int ch1>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799	991	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041	1
	For PCS-US: 0 to 1199	0	1
	For PCS-KOREA-P0: 0 to 1300	0	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601	1
<int ch2>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799, 9999	384	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799, 9999	1039	1
	For PCS-US: 0 to 1199, 9999	600	1
	For PCS-KOREA-P0: 0 to 1300, 9999	650	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600, 9999	1250	1
<int ch3>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799, 9999	799	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799, 9999	799	1
	For PCS-US: 0 to 1199, 9999	1199	1
	For PCS-KOREA-P0: 0 to 1300, 9999	1300	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600, 9999	600	1

RF Test

CONFigure:SEquence:CDMA:SIGNaling:RFTest

<int seq>, <bool>

CONFigure:SEquence:CDMA:SIGNaling:RFTest? <int seq>

Defines whether or not to make RF/AF tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

Rho Setting

CONFIgure:SEQuence:CDMA:RHO <int seq>,<int>
 CONFIgure:SEQuence:CDMA:RHO? <int seq>

Defines whether or not to make rho (waveform quality) tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Sensitivity/FER

CONFIgure:SEQuence:CDMA:SENSItivity <int seq>,<int>
 CONFIgure:SEQuence:CDMA:SENSItivity? <int seq>

Defines whether or not to make sensitivity/FER (frame error rate) tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Service Option for Other Tests (excepting voice echo tests)

CONFIgure:SEQuence:CDMA:SOPTion:OTEST <int seq>,<int>
 CONFIgure:SEQuence:CDMA:SOPTion:OTEST? <int seq>

Specifies one service option for tests other than voice echo for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	2 for data loopback at 9600 bps, or 9 for data loopback at 14.4 kbps	2	—

Service Option fro Voice Echo Test

CONFigure:SEquence:CDMA:SOPTion:VEcho <int seq>,<int>

CONFigure:SEquence:CDMA:SOPTion:VEcho? <int seq>

Specifies one service option for voice echo tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	1 for normal voice loopback, 3 for voice loopback using EVRC (enhanced variable rate coder) at 9600 bps, or 32768 for voice loopback at 14.4 kbps	1	—

Softer Handoff

CONFigure:SEquence:CDMA:SIGNaling:SHOFF

<int seq>,<bool>

CONFigure:SEquence:CDMA:SIGNaling:SHOFF? <int seq>

Defines whether or not to make softer handoff tests from one RF channel to another channel, for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

Time Offset

CONFigure:SEquence:CDMA:TOFFset <int seq>,<int>

CONFigure:SEquence:CDMA:TOFFset? <int seq>

Defines whether or not to make time offset tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int>	0 to 7 (bit-weighted decimal) RFCH1: bit 0 (1) to 0 (skip) or 1 (run), RFCH2: bit 1 (2) to 0 (skip) or 1 (run), RFCH3: bit 3 (4) to 0 (skip) or 1 (run)	7	1

Voice Echo

```
CONFigure:SEquence:CDMA:SIGNaling:VECHO
<int seq>, <bool>
CONFigure:SEquence:CDMA:SIGNaling:VECHO? <int seq>
```

Defines whether or not to make voice echo tests for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<bool>	ON (1) for run, OFF (0) for skip	1	—

File Management Command Reference

The FILE commands are used to manage the test setup files on an SRAM memory card.

Send the “DISPlay:CONFigure:FILE” command to display the File Management screen before sending the following commands.

Delete File

```
CONFigure:FILE:DELeTe <string>
```

Deletes the test setup file specified by <string> (file name) from an SRAM memory card. This string must be in double quotation marks. There is no query form of this command.

Parameter	Range/Selection	*RST	Resolution
<string>	Filename: Up to 8 characters	—	—

Format Card

```
CONFigure:FILE:FORMat
```

Initializes an SRAM memory card. This command will *not* initialize the firmware update card. There is no query form of this command.

List Files

CONFigure:FILE:LIST?

Returns a list of all information on the setup files in an SRAM memory card. This information includes the total number of files, file number, file name, date & time, and comment for each file.

Recall File

CONFigure:FILE:RECall <string>

Loads the test setup file specified by <string> (file name) from an SRAM memory card. This string must be in double quotation marks. There is no query form of this command.

Parameter	Range/Selection	*RST	Resolution
<string>	Filename: Up to 8 characters	—	—

Save File

CONFigure:FILE:SAVE <string 1>,<string 2>

Saves the current setting of the Test Set into an SRAM memory card. These strings must be in double quotation marks. Date and time are automatically given by the Test Set. There is no query form of this command.

Parameter	Range/Selection	*RST	Resolution
<string 1>	Filename: Up to 8 characters	—	—
<string 2>	Comment: Up to 23 characters	—	—

Test Condition Command Reference

The Condition commands are used to set the controls and parameters associated with the test condition and Pass/Fail test limits for Automatic Test, Manual Test, and TX Analyzer. The query commands return the settings of those controls and parameters.

Send the “DISPlay:CONFigure:CONDition” command to display the Test Setup: Test Condition screen before sending the following commands.

Radio System

CONFigure:CONDition:RSYSem <string>
 CONFigure:CONDition:RSYSem?

Defines the radio system to be tested. The valid radio systems depend on the options installed with the Test Set.

Parameter	Range/Selection	*RST	Resolution
<string>	For Test Sets without Option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, For Test Sets with Option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS	—	—

For AMPS Tests (Option 003)

NOTE This section is applicable only for Test Sets with Option 003.

Control Channel

CONFigure:CONDition:AMPS:CCHannel <int>
 CONFigure:CONDition:AMPS:CCHannel?

Specifies one control channel number.

Parameter	Range/Selection	*RST	Resolution
<int>	313 to 333, or 334 to 354	321	1

DC Current Limit at Talk

CONFigure:CONDition:AMPS:LIMit:CURRent:TALK
 <real low>, <real hi>
 CONFigure:CONDition:AMPS:LIMit:CURRent:TALK?

Specifies the lower and upper limits of talk dc current tests.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 0.000 to 1.000 (A)	0.000	0.001
<real hi>	Upper limit: 0.000 to 1.000 (A)	1.000	

DC Current Limit at Idle

```
CONFigure:CONDition:AMPS:LIMit:CURRent:IDLE
<real low>,<real hi>
CONFigure:CONDition:AMPS:LIMit:CURRent:IDLE?
```

Specifies the lower and upper limits of idle dc current tests.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 0.000 to 1.000 (A)	0.000	0.001
<real hi>	Upper limit: 0.000 to 1.000 (A)	1.000	

FM Deviation Limiting Performance Limit

```
CONFigure:CONDition:AMPS:LIMit:FMDLimit
<real low>,<real hi>
CONFigure:CONDition:AMPS:LIMit:FMDLimit?
```

Specifies the lower and upper limits of FM deviation limiting performance tests.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 1000 to 25000 (Hz)	1000	10
<real hi>	Upper limit: 1000 to 25000 (Hz)	12000	

Frequency Error Limit

```
CONFigure:CONDition:AMPS:LIMit:FERRor
<real low>,<real hi>
CONFigure:CONDition:AMPS:LIMit:FERRor?
```

Specifies the lower and upper limits of RF frequency error tests.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: -12.50 to +12.50 (ppm)	-2.50	0.01
<real hi>	Upper limit: -12.50 to +12.50 (ppm)	+2.50	

Power Level

CONFIgure:CONDition:AMPS:PLEVel <int>
 CONFIgure:CONDition:AMPS:PLEVel?

Specifies the transmission power level between 0 (+36 dBm) and 7 (+8 dBm) for Class I AMPS radio systems.

Parameter	Range/Selection	*RST	Resolution
<int>	0 (+36 dBm) to 7 (+8 dBm)	0	7

RX Distortion Limit

CONFIgure:CONDition:AMPS:LIMit:RXDistortion <real>
 CONFIgure:CONDition:AMPS:LIMit:RXDistortion?

Specifies the upper limit of receiver distortion tests.

Parameter	Range/Selection	*RST	Resolution
<real>	Upper limit: 0.0 to 100.0(%)	5.0	0.1

RX SINAD Limit

CONFIgure:CONDition:AMPS:LIMit:RXSinad <real>
 CONFIgure:CONDition:AMPS:LIMit:RXSinad?

Specifies the upper limit of receiver SINAD tests.

Parameter	Range/Selection	*RST	Resolution
<real>	Lower limit: 0.0 to 40.0 (dB)	12.0	0.1

SAT Deviation Limit

CONFIgure:CONDition:AMPS:LIMit:SATone:DEVIATION
 <real low>, <real hi>
 CONFIgure:CONDition:AMPS:LIMit:SATone:DEVIATION?

Specifies the lower and upper limits of frequency deviation tests for the supervisory audio tone (SAT) signal.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 1000 to 25000 (Hz)	1800	10
<real hi>	Upper limit: 1000 to 25000 (Hz)	2200	

SAT Frequency

CONFigure:CONDition:AMPS:SATone <string>
 CONFigure:CONDition:AMPS:SATone?

Specifies one of the supervisory audio tone (SAT) frequencies defined for AMPS.

Parameter	Range/Selection	*RST	Resolution
<string>	5970, 6000, or 6030 (Hz)	5970	—

SAT Frequency Error Limit

CONFigure:CONDition:AMPS:LIMit:SATone:FERRor
 <real low>, <real hi>
 CONFigure:CONDition:AMPS:LIMit:SATone:FERRor?

Specifies the lower and upper limits of frequency error tests for the supervisory audio tone (SAT) signal.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: -600.0 to +600.0 (Hz)	-1.0	0.1
<real hi>	Upper limit: -600.0 to +600.0 (Hz)	+1.0	

ST Deviation Limit

CONFigure:CONDition:AMPS:LIMit:ST:DEVIATION
 <real low>, <real hi>
 CONFigure:CONDition:AMPS:LIMit:ST:DEVIATION?

Specifies the lower and upper limits of frequency deviation tests for the signaling tone (ST).

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 1000 to 25000 (Hz)	7200	10
<real hi>	Upper limit: 1000 to 25000 (Hz)	8800	

ST Frequency Limit

```
CONFigure:CONDition:AMPS:LIMit:ST:FREQuency
<real low>,<real hi>
CONFigure:CONDition:AMPS:LIMit:ST:FREQuency?
```

Specifies the lower and upper limits of frequency tests for the signaling tone (ST).

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: 9000.0 to 11000.0 (Hz)	9999.0	0.1
<real hi>	Upper limit: 9000.0 to 11000.0 (Hz)	10001.0	

System ID

```
CONFigure:CONDition:AMPS:SIDentify <int>
CONFigure:CONDition:AMPS:SIDentify?
```

Specifies the system identification (SID) number (15 bits) of the mobile phone.

Parameter	Range/Selection	*RST	Resolution
<int>	0 to 32767	231	1

TX Distortion Limit

```
CONFigure:CONDition:AMPS:LIMit:TXDistortion <real>
CONFigure:CONDition:AMPS:LIMit:TXDistortion?
```

Specifies the upper limit of transmission distortion tests.

Parameter	Range/Selection	*RST	Resolution
<real >	Upper limit: 0.0 to 100.0(%)	5.0	0.1

TX Power Limit

```
CONFigure:CONDition:AMPS:LIMit:TXPower
<real low>,<real hi>
CONFigure:CONDition:AMPS:LIMit:TXPower?
```

Specifies the lower and upper limits of transmission power level tests.

Parameter	Range/Selection	*RST	Resolution
<real low>	Lower limit: -99.9 to +99.9 (dBm)	+24.0	0.1
<real hi>	Upper limit: -99.9 to +99.9 (dBm)	+30.0	

For CDMA Tests

Averaging Number for Frequency Error Tests

```
CONFigure:CONDition:CDMA:FAVerage <int>
```

Sets the averaging number for the frequency error tests.

Parameter	Range/Selection	*RST	Resolution
<int>	1 to 100	4	1

Averaging Time for DC Current Test at Idle

```
CONFigure:CONDition:CDMA:CAVerage <string>
CONFigure:CONDition:CDMA:CAVerage?
```

Sets the averaging number for the idle dc current measurements.

Parameter	Range/Selection	*RST	Resolution
<string>	1.28, 2.56, 5.12, 10.24 (sec)	1.28	—

Confidence Level

```
CONFigure:CONDition:CDMA:CONFidence <string>
CONFigure:CONDition:CDMA:CONFidence?
```

Specifies the confidence level for sensitivity/FER (frame error rate) tests.

Parameter	Range/Selection	*RST	Resolution
<string>	95 for 95%, OFF	95	—

DC Current Limit at Idle

CONFIgure:CONDition:CDMA:LIMit:CURRent:IDLE
 <string>,<real low>,<real hi>
 CONFIgure:CONDition:CDMA:LIMit:CURRent:IDLE? <string>

Specifies the lower and upper limits of idle dc current tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: 0.000 to 1.000 (A)	0.000	0.001
<real hi>	Upper limit: 0.000 to 1.000 (A)	1.000	

DC Current Limit at Talk

CONFIgure:CONDition:CDMA:LIMit:CURRent:TALK
 <string>,<real low>,<real hi>
 CONFIgure:CONDition:CDMA:LIMit:CURRent:TALK? <string>

Specifies the lower and upper limits of talk dc current tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: 0.000 to 1.000 (A)	0.000	0.001
<real hi>	Upper limit: 0.000 to 1.000 (A)	1.000	

Frequency Error Limit

CONFIgure:CONDition:CDMA:LIMit:FERRor
 <string>,<real low>,<real hi>
 CONFIgure:CONDition:CDMA:LIMit:FERRor? <string>

Specifies the lower and upper limits of frequency error tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: -10000 to +10000 (Hz)	-300	1
<real hi>	Upper limit: -10000 to +10000 (Hz)	+300	

Initial Power

CONFigure:CONDition:CDMA:PINitial <string>,<int>
 CONFigure:CONDition:CDMA:PINitial? <string>

Sets the initial power offset of the access probe signal for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	-16 to 15 (dB)	0	1

Maximum Frames

CONFigure:CONDition:CDMA:MAXFrames <int>
 CONFigure:CONDition:CDMA:MAXFrames?

Specifies the maximum number of frames to be tested for sensitivity/FER (frame error rate) tests.

Parameter	Range/Selection	*RST	Resolution
<int>	25 to 10000000 (frames)	10000	1

Maximum Power Limit

CONFigure:CONDition:CDMA:LIMit:MAXPower
 <string>,<real low>,<real hi>
 CONFigure:CONDition:CDMA:LIMit:MAXPower? <string>

Specifies the lower and upper limits of maximum transmission power tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: -99.9 to 99.9 (dBm)	+23.0	0.1
<real hi>	Upper limit: -99.9 to 99.9 (dBm)	+30.0	

Maximum Request & Response Sequences

CONFigure:CONDition:CDMA:MRSequence <string>, <int>
 CONFigure:CONDition:CDMA:MRSequence? <string>

Sets the maximum numbers of both the request sequence and the response sequence of the access probe power for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	Sequence number: 1 to 15	1	1

Maximum Slot Cycle Index

CONFigure:CONDition:CDMA:MSCindex <string>, <int>
 CONFigure:CONDition:CDMA:MSCindex? <string>

Sets the maximum slot cycle index, which is a part of the variable-length message format for a registration message, for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	Index: 0 to 7	0	1

Minimum Power Limit

```
CONFigure:CONDition:CDMA:LIMit:MINPower
<string>,<real low>,<real hi>
CONFigure:CONDition:CDMA:LIMit:MINPower? <string>
```

Specifies the lower and upper limits of minimum transmission power tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: -99.9 to 99.9 (dBm)	-99.9	0.1
<real hi>	Upper limit: -99.9 to 99.9 (dBm)	-50.0	

Network ID

```
CONFigure:CONDition:CDMA:NID <string>,<int>
CONFigure:CONDition:CDMA:NID? <string>
```

Sets the network identification (NID) number (16 bits) of the base station for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 65535	1	1

Nominal Power

```
CONFigure:CONDition:CDMA:PNOMinal <string>,<int>
CONFigure:CONDition:CDMA:PNOMinal? <string>
```

Sets the nominal transmission power offset of the access probe signal for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	–8 to 7 (dB)	0	1

Number of Steps

CONFIgure:CONDition:CDMA:NSTep <string>,<int>
 CONFIgure:CONDition:CDMA:NSTep? <string>

Sets the number of steps to increase the transmission power level for the access probe signal for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 15 (steps)	4	1

Power Increase Step

CONFIgure:CONDition:CDMA:PSTep <string>,<int>
 CONFIgure:CONDition:CDMA:PSTep? <string>

Sets the power increase step of the access probe power for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 7 (dB)	3	1

Registration Network ID

CONFIgure:CONDition:CDMA:RNID <string>,<int>
 CONFIgure:CONDition:CDMA:RNID? <string>

Specifies the network identification (NID) number (16 bits) for zone-based registration with the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 65535	12	1

Registration System ID

CONFigure:CONDition:CDMA:RSID <string>,<int>
 CONFigure:CONDition:CDMA:RSID? <string>

Specifies the system identification (SID) number (15 bits) of the mobile phone for zone-based registration with the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 32767	12	1

Rho Limit

CONFigure:CONDition:CDMA:LIMit:RHO
 <string>,<real low>,<real hi>
 CONFigure:CONDition:CDMA:LIMit:RHO? <string>

Specifies the lower and upper limits of rho (waveform quality) tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: 0.900 to 1.000	0.944	0.001
<real hi>	Upper limit: 0.900 to 1.000	1.000	

Sector B Power Level

CONFigure:CONDition:CDMA:BSEctor <string>,<real>
 CONFigure:CONDition:CDMA:BSEctor? <string>

Defines the sector B power level for softer handoff tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real>	-15 to -3 (dB)	-5	1

Sector B Power State

CONFIgure:CONDition:CDMA:BSEctor:STATE <string>, <bool>
 CONFIgure:CONDition:CDMA:BSEctor:STATE? <string>

Defines whether or not to activate the sector B power for softer handoff tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<bool>	ON (1), OFF (0)	0	—

Sensitivity/FER Limit

CONFIgure:CONDition:CDMA:LIMit:SENSItivity <string>, <real>
 CONFIgure:CONDition:CDMA:LIMit:SENSItivity? <string>

Specifies the upper limit of sensitivity/FER (frame error rate) tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real>	0.0 to 5.0(%)	0.5	0.5

System ID

CONFIgure:CONDition:CDMA:SID <string>, <int>
 CONFIgure:CONDition:CDMA:SID? <string>

Specifies the system identification (SID) number (15 bits) of the mobile phone for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<int>	0 to 32767	7	1

Time Offset Limit

```
CONFigure:CONDition:CDMA:LIMit:TOffset
<string>, <real low>, <real hi>
CONFigure:CONDition:CDMA:LIMit:TOffset? <string>
```

Specifies the lower and upper limits of time offset tests for the radio system specified by <string>.

Parameter	Range/Selection	*RST	Resolution
<string>	CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1	—	—
<real low>	Lower limit: -0.00000100 to +0.00000100 (sec)	-0.00000100	0.00000001
<real hi>	Upper limit: -0.00000100 to +0.00000100(sec)	+0.00000100	

DISPlay Subsystem

The DISPlay subsystem commands are used to select which of the Test Set's screens is being programmed. No query form is available for these commands.

Initial Screen Command Reference

Initial Screen

DISPlay:INIT

Displays the initial screen to activate one of the function modes. A test procedure from an SRAM memory card can be selected on this screen.

Automatic Test Screen Command Reference

Automatic Test: Stand-By Screen

DISPlay:AUTO:STBY

Displays the Automatic Test: Stand-by screen.

Configuration Screen Command Reference

Auto Test Sequence Screen

DISPlay:CONFigure:SEQuence

Displays the Test Setup: Test Sequence screen.

File Management Screen

DISPlay:CONFigure:FILE

Displays the File Management screen.

System Configuration Screen

DISPlay:CONFigure

Displays the Configuration screen for defining the system parameters.

Test Condition Screen

DISPlay:CONFigure:CONDition

Displays the Test Setup: Test Condition screen.

Manual Test Screen Command Reference

Measuring Screen

DISPlay:MANual:MEASure

Displays the Manual Test: Measuring screen.

MS Info Screen during Measurement

DISPlay:MANual:MEASure:MSID

Displays the Manual Test: Measuring screen for Mobile Station Information.

MS Info Screen during Stand-by

DISPlay:MANual:STBY:MSID

Displays the Manual Test: Stand-by screen for Mobile Station Information.

Stand-by Screen

DISPlay:MANual:STBY

Displays the Manual Test: Stand-by screen.

Signal Generator Screen Command Reference

Signal Generator Screen

DISPlay:RFGenerator

Displays the Signal Generator screen.

NOTE This command is applicable for Test Sets with Option 002.

TX Analyzer Screen Command Reference

TX ANalyzer Screen

DISPlay:TXANalyzer

Displays the TX Analyzer screen.

NOTE This command is applicable for Test Sets with Option 002.

HCOPY Subsystem

The HCOpy commands are used to control the printing function. No query form is available for these commands.

HCOPY Subsystem Command Reference

Abort Printing

HCOpy:ABORT

Stops printing immediately.

Print All

HCOpy:ITEM:ALL

Prints all test results, the list of test setup files on the SRAM card, and the contents of the Configuration, Test Sequence, and Test Condition screens for all radio systems, depending on the system configuration.

Print Screen

HCOpy:SDUMp

Prints the current screen.

IEEE Common Commands

The following IEEE common commands are used to set and monitor the status registers and to reset the Test Set.

IEEE Common Command Reference

Clear Status

*CLS

Initializes the status byte register (STBR) and standard event status register (SESR). Also clears the content of the error queue.

Event Status Register Query

*ESR?

Returns a value of the standard event status register (SESR).

Parameter	Range/Selection	*RST	Resolution
<int>	0 to 255	0	1

Identification Query

*IDN?

Returns identification information on the manufacturing origin, model number, serial number and the revision number of the firmware.

Instrument Option Query

*OPT?

Returns information on the option numbers installed with the Test Set.

Number	Option
000	None
002	TX Analyzer and Signal Generator capabilities
003	AMPS test capability
004	PCS test capability (furnished)
010	Low power measurement and high level RF output capabilities

Operation Complete

*OPC

Sets the OPC bit of the standard event status register (SESR) to 1 when operation is complete.

*OPC?

Returns the ASCII code '1' in the output queue when operation is complete.

Reset

*RST

Resets to the initialized state (PRESET operation). However, it does not influence the state of the serial interface, output queue, standard event status register (SESR), and standard event status enable register (SESER).

Standard Event Status Enable

*ESE <int>

*ESE

Sets a value of the standard event status enable register (SESER). The query command returns the value of SESER.

Parameter	Range/Selection	*RST	Resolution
<int>	0 to 255	0	1

Status Byte Register Query

*STB?

Returns a value of the status byte register (STBR).

Parameter	Range/Selection	*RST	Resolution
<int>	0 to 255	0	1

RFGenerator Subsystem (Option 002)

The RFGenerator subsystem commands are used to set and read the controls and parameters of the Signal Generator functions. Send the “DISPlay:RFGenerator” command to display the Signal Generator screen before sending the following commands.

NOTE This section is applicable only for Test Sets with Option 002.

RFGenerator Subsystem Command Reference

DC Power Mode

```
RFGenerator:DCPower:MODE <bool>  
RFGenerator:DCPower:MODE?
```

Defines the dc power supply mode. If the Test Set is turned off, this mode returns to the preset state.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1), OFF (0)	0	—

DC Power Voltage

```
RFGenerator:DCPower:VOLT <real>  
RFGenerator:DCPower:VOLT?
```

Specifies the dc power voltage to be supplied to the mobile.

Parameter	Range/Selection	*RST	Resolution
<real>	3.0 to 12.0 (V)	3.0	0.1

Modulation Type

```
RFGenerator:MODulation <string>  
RFGenerator:MODulation?
```

Defines one of the modulation types.

Parameter	Range/Selection	*RST	Resolution
<string>	For CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1: OFF, NORM for Normal, or PILOT for Pilot only	OFF	—
	For AMPS: OFF, or NORM for Normal	OFF	—

Radio System

RFGenerator:RSYstem <string>

RFGenerator:RSYstem?

Defines one of the radio systems valid for the Test Set depending on the options installed.

Parameter	Range/Selection	*RST	Resolution
<string>	For Test Sets without Option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1 For Test Sets with Option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS	CELLR-IS95A	—

RF Amplitude

RFGenerator:AMPLitude <real>

RFGenerator:AMPLitude?

Specifies the output amplitude level from the RF IN/OUT port.

Parameter	Range/Selection	*RST	Resolution
<real>	-110.0 to -40.0 (dBm), or -110.0 to -20.0 (dBm) with Option 010	-40.0	0.1

RF Channel

RFGenerator:RFCHannel <int>

RFGenerator:RFCHannel?

Specifies one of the RF channels according to the radio system specified.

Parameter	Range/Selection	*RST	Resolution
<int>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799	991	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041	1
	For PCS-US: 0 to 1199	0	1
	For PCS-KOREA-P0: 0 to 1300	0	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601	1

RF Channel Frequency

RFGenerator:RFFrequency <real>
 RFGenerator:RFFrequency?

Specifies one of the RF channel frequencies according to the radio system specified.

Parameter	Range/Selection	*RST	Resolution
<int>	For CELLR-IS95A & CELLR-TSB74, AMPS: 869040000 to 870000000, 870030000 to 893970000 (Hz)	869040000	30000
	For CELLR-T53: 832012500 to 833987500, 843012500 to 845987500, 860012500 to 869987500 (Hz)	832012500	12500
	For PCS-US: 1930000000 to 1989950000 (Hz)	1930000000	50000
	For PCS-KOREA-P0: 1805000000 to 1870000000 (Hz)	1805000000	50000
	For PCS-KOREA-P1: 1805050000 to 1840000000, 1840050000 to 1870000000 (Hz)	1805050000	50000

RF Signal Output

RFGenerator:RFOutput <bool>
 RFGenerator:RFOutput?

Defines whether or not (On = 1, Off = 0) to output the RF signal power.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1), OFF (0)	0	—

SYSTEM Subsystem

The SYSTEM commands are used to control the overall system function.

SYSTEM Subsystem Command Reference

Error Query

SYSTEM:ERRor?

Returns a set of values for the system error number and the error message. The error messages are character strings in double quotation marks.

Global Setup

SYSTEM:SETup <string>,.....,<string>

SYSTEM:SETup?

The query returns all the values currently set in the Test Set to the external controller as comma-delimited parameter strings.

The first command sets the Test Set to the values specified in <strings>. This command inputs all the values from the external controller to the Test Set as comma-delimited parameter strings, which are retrieved by the query.

NOTE The data is valid only within the same firmware version. Because of this, it is preferred to transmit a set of data in the text file form, and is also strongly recommended to use the “SYSTEM:SETup?” command on the retrieved file, and it is strongly recommended to use the file retrieved using the command “SYSTEM:SETup?”.

The usage of these commands can be found in [“SETUP Sample Programs” on page 165](#).

Lock System Panel

SYSTEM:KLOCK <bool>

SYSTEM:KLOCK?

Sets the option to lock the system panel for protection. This locks all the panel keys except the Local softkey. This command is different from identical to the panel key lock in the Configuration mode. This command is different from the panel key lock in the Configuration mode. Refer to [“Panel Key Lock” on page 33](#).

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1), OFF (0)	0	—

Softkey Memory for Amplitude

```
SYSTEM:MEMory:AMPLitude <real 1>,<real 2>
SYSTEM:MEMory:AMPLitude?
```

Stores two amplitude values into the memory 1 and 2 softkeys. To clear the stored values, enter -999.9.

Parameter	Range/Selection	*RST	Resolution
<real 1>	For CDMA: -110.0 to -40.0 (dBm), or -110.0 to -20.0 (dBm) with Option 010 For AMPS: -120.0 to -20.0 (dBm)	-999.9	0.1
<real 2>			

Softkey Memory for RF Channel

```
SYSTEM:MEMory:CHANnel <int 1>,<int 2>
SYSTEM:MEMory:CHANnel?
```

Stores two RF channel values into the memory 1 and 2 softkeys. To clear the stored values, enter 9999.

Parameter	Range/Selection	*RST	Resolution
<int 1>	0 to 1300 depending on the radio systems	9999	1
<int 2>			

TESTs Subsystem for Automatic Test

The TESTs subsystem commands allow you to execute overall measurements and Pass/Fail tests using the Automatic Test Mode. Test sequences and conditions are configurable with the CONFIGure:SEquence commands and CONFIGure:CONDition commands. Send the “DISPlay:AUTO:STBY” command to display the Automatic Test screen before sending the following commands.

Measurements are made for up to three RF channels of a radio system according to the configuration in the test sequence screen. Pass/Fail tests are also measured against the limits specified in the test condition screen. The query commands return the settings of those controls and parameters in addition to the test results.

TESTs Subsystem for AUTOMATIC Test Command Reference

DC Power Mode

TESTs:AUTO:DCPower:MODE <string>

TESTs:AUTO:DCPower:MODE?

Defines the dc power supply mode.

Parameter	Range/Selection	*RST	Resolution
<string>	AUTO: DC Power is supplied during a measurement cycle. OFF: DC Power is not supplied. ON: DC Power is always supplied.	OFF	—

DC Power Voltage

TESTs:AUTO:DCPower:VOLT <real>

TESTs:AUTO:DCPower:VOLT?

Specifies the dc power voltage value.

Parameter	Range/Selection	*RST	Resolution
<real>	3.0 to 12.0 (V)	3.0	0.1

Dialed Number

TESTs:AUTO:RESults:MSINformation:DIALed?

Returns the dialed number string, up to 32 digits.

ESN

TESTs:AUTO:RESults:MSINformation:ESN?

Returns the Electronic Serial Number (ESN) string of eight-digit hexadecimal numbers.

Phone Number

TESTs:AUTO:RESults:MSINformation:PNUMBER?

Returns phone number string, up to 24 digits.

Screen Mode

TESTs:AUTO:SCReen <string>

TESTs:AUTO:SCReen?

Selects the screen mode.

Parameter	Range/Selection	*RST	Resolution
<string>	SIMPlified, DETailed, VALue	SIMP	—

For AMPS tests, the test flow steps and test items are different from other CDMA radio systems. The following sections are divided into the AMPS and CDMA tests.

For AMPS Tests (Option 003)

NOTE This section is applicable only for Test Sets with Option 003.

All Test Results

TESTs:AUTO:AMPS:RESults:ALL? <int seq>

Returns a set of all test result values, <string 1> and <string 2>, for both test flow steps and test items for the sequence number specified by <int seq>.

The returned values as <string 1> and <string 2> are 127 and 8191 respectively when no test result exists (no test result = no judgment). This means that all the bits becomes “1.”

Parameter	Range/Selection	*RST	Resolution
<int>	Sequence No.: 1, 2, 3	1	—
<String 1> Bit (Weight)	Pass (0)/Fail (1) Result for Test Flow Step		
Bit 0 (1)	0/1 for Registration		
Bit 1 (2)	0/1 for 1st Call		
Bit 2 (4)	0/1 for 1st Release		
Bit 3 (8)	0/1 for 2nd Call		
Bit 4 (16)	0/1 for RF/AF Test		
Bit 5 (32)	0/1 for 2nd Release		
Bit 6 (64)	1 if the test aborted		
<String 2> Bit (Weight)	Pass (0)/Fail (1) Result for RF / AF Test Item		
Bit 0 (1)	0/1 for TX Power		
Bit 1 (2)	0/1 for Frequency Error		
Bit 2 (4)	0/1 for FM Deviation Limiting		
Bit 3 (8)	0/1 for TX Distortion		
Bit 4 (16)	0/1 for RX Distortion		
Bit 5 (32)	0/1 for RX SINAD		
Bit 6 (64)	0/1 for SAT Deviation		
Bit 7 (128)	0/1 for SAT Frequency Error		
Bit 8 (256)	0/1 for ST Deviation		
Bit 9 (512)	0/1 for ST Frequency		
Bit 10 (1024)	0/1 for DC Current (Idle)		
Bit 11 (2048)	0/1 for DC Current (Talk)		
Bit 12 (4096)	1 if the test aborted		

DC Current Result at Idle

TESTs:AUTO:AMPS:RESults:CURRent:IDLE? <int seq>

Returns a set of idle dc current test results, <string 1>, <string 2>, and <string 3>, tests for the sequence number specified by <int seq>. The first RF channel is tested.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	1	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.999 for impossible measurement or overflow/underflow		

DC Current Result at Talk

TESTs:AUTO:AMPS:RESults:CURRent:TALK?
 <int seq>,<int ch>

Returns a set of talk dc current test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.999 for impossible measurement or overflow/underflow		

FM Deviation Limiting Result

TESTs:AUTO:AMPS:RESults:FMDLimit? <int seq>,<int ch>

Returns a set of FM deviation limiting performance test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow		

Frequency Error Result

TESTs:AUTO:AMPS:RESults:FERRor? <int seq>,<int ch>

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from -12.50 to +12.50 (ppm), or 999.99 for impossible measurement or overflow/underflow		

Pause On Failure Action

TESTs:AUTO:AMPS:SIGNaling:POFailure <string>

Specifies the action at the pause-on-failure state.

Parameter	Range/Selection	*RST	Resolution
<string>	CONTInue for restarting the test beyond the paused step. MANual for activating the Manual Test.	—	—

RF Channel Setting

```
TESTs:AUTO:AMPS:RFChannel
<int seq>,<int ch1>,<int ch2>,<int ch3>
TESTs:AUTO:AMPS:RFChannel? <int seq>
```

Sets the three RF channel numbers to be tested for the sequence number specified by <int seq>. To skip tests on RFCH2 and/or RFCH3, enter 9999 for <int ch2> and/or <int ch3> respectively. RFCH1 cannot be skipped.

For the channel(s) set to skip tests, the Test Set returns 9999 when queried.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch1>	RFCH1: 991 to 1023, or 1 to 799	991	1
<int ch2>	RFCH2: 991 to 1023, 1 to 799, or 9999	384	1
<int ch3>	RFCH3: 991 to 1023, 1 to 799, or 9999	799	1

RX Distortion Test Result

```
TESTs:AUTO:AMPS:RESults:RXDistortion?
<int seq>,<int ch>
```

Returns a set of RX distortion test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—

Parameter	Range/Selection	*RST	Resolution
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0 to 100.0(%), or 999.9 for impossible measurement or overflow/underflow		

SAT Deviation Test Result

TESTs:AUTO:AMPS:RESults:SATone:DEVIATION?
 <int seq>,<int ch>

Returns a set of supervisory audio tone (SAT) deviation test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	1	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow		

SAT Frequency Error Test Result

TESTs:AUTO:AMPS:RESults:SATone:FERRor?
 <int seq>,<int ch>

Returns a set of supervisory audio tone (SAT) frequency error test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from –600.0 to 600.0 (Hz), or 99999.9 for impossible measurement or overflow/underflow		

Signaling State

TESTs:AUTO:AMPS:SIGNaling:STATE?

Returns a bit-weighted-decimal value corresponding to the test flow steps executed for a test cycle, as follows:

Bit (Weight)	Meaning
Bit 0 (1)	Registration
Bit 1 (2)	1st Call
Bit 2 (4)	1st Release
Bit 3 (8)	2nd Call
Bit 4 (16)	RF/AF Test
Bit 5 (32)	2nd Release
Bit 6 (64)	Measurement end with test result
Bit 7 (128)	Measurement end without test result (Aborted or Time out error occurred)
Bit 8 (256)	Paused at a failure. To specify the following action, send the TESTs:AUTO:AMPS:SIGNaling:POFailure command.

SINAD Test Result

TESTs:AUTO:AMPS:RESults:RXSinad? <int seq>,<int ch>

Returns a set of RX SINAD test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.0 to 40.0 (dB), or 99.9 for impossible measurement or overflow/underflow		

ST Deviation Test Result

TESTs:AUTO:AMPS:RESults:ST:DEVIATION?

<int seq>,<int ch>

Returns a set of signaling tone (ST) deviation test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow		

ST Frequency Test Result

TESTs:AUTO:AMPS:RESults:ST:FREQuency?

<int seq>,<int ch>

Returns a set of signaling tone (ST) frequency test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 9000.0 to 11000.0 (Hz), or 99999 for impossible measurement or overflow/underflow		

TX Distortion Test Result

TESTs:AUTO:AMPS:RESults:TXDistortion?
 <int seq>,<int ch>

Returns a set of TX distortion test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.9 for impossible measurement or overflow/underflow		

TX Power Test Result

TESTs:AUTO:AMPS:RESults:TXPower? <int seq>,<int ch>

Returns a set of TX power test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.9 for impossible measurement or overflow/underflow		

For CDMA Tests

All Test Results

TESTs:AUTO:CDMA:RESults:ALL? <int seq>

Returns a set of all test result values, <string 1> and <string 2>, for both the test flow steps and test items for the sequence number specified by <int seq>.

When no test result exists (no test result = no judgment), <string 1> and <string 2> become 1023 and 511 regardless respectively.

Parameter	Range/Selection	*RST	Resolution
<int>	Sequence No.: 1, 2, 3	—	—
<String 1> Bit (Weight)	Pass (0)/Fail (1) Result for Test Flow Step		
Bit 0 (1)	0/1 for Registration		
Bit 1 (2)	0/1 for 1st Call		
Bit 2 (4)	0/1 for 1st Release		
Bit 3 (8)	0/1 for 2nd Call		
Bit 4 (16)	0/1 for Voice Echo Test		
Bit 5 (32)	0/1 for Softer Handoff Test		
Bit 6 (64)	0/1 for RF Test		
Bit 7 (128)	0/1 for 2nd Release		
Bit 8 (256)	0/1 for Hard Handoff		
Bit 9 (512)	1 if the test aborted		

Parameter	Range/Selection	*RST	Resolution
<String 2> Bit (Weight)	Pass (0)/Fail (1) Result for Test Item		
Bit 0 (1)	0/1 for Max TX Power		
Bit 1 (2)	0/1 for Min TX Power		
Bit 2 (4)	0/1 for Frequency Error		
Bit 3 (8)	0/1 for Rho		
Bit 4 (16)	0/1 for Time Offset		
Bit 5 (32)	0/1 for Sensitivity/FER		
Bit 6 (64)	0/1 for DC Current (Idle)		
Bit 7 (128)	0/1 for DC Current (Talk)		
Bit 8 (256)	1 if the test aborted		

DC Current Result at Idle

TESTs:AUTO:CDMA:RESults:CURRENT:IDLE? <int seq>

Returns a set of idle dc current test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.999 for impossible measurement or overflow/underflow		

DC Current Result at Talk

TESTs:AUTO:CDMA:RESults:CURRENT:TALK?

<int seq>,<int ch>

Returns a set of talk dc current test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.000 to 1.0000 (A), or 9.999 for impossible measurement or overflow/underflow		

Frequency Error Test Result

TESTs:AUTO:CDMA:RESults:FERRor? <int seq>,<int ch>

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel number specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from -10000 to 10000 (Hz), or 9.999 for impossible measurement or overflow/underflow		

Max TX Power Test Result

TESTs:AUTO:CDMA:RESults:MAXPower? <int seq>,<int ch>

Returns a set of maximum TX power test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow		

Min TX Power Test Result

TESTs:AUTO:CDMA:RESults:MINPower? <int seq>, <int ch>

Returns a set of minimum TX power test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow		

Pause On Failure Action

TESTs:AUTO:CDMA:SIGNaling:POFailure <string>

Specifies the action at the pause-on-failure state.

Parameter	Range/Selection	*RST	Resolution
<string>	CONTInue for restarting the test beyond the paused step. MANual for activating the Manual Test.	—	—

RF channel Setting

```
TESTs:AUTO:CDMA:RFCHannel
<int seq>,<int ch1>,<int ch2>,<int ch3>
TESTs:AUTO:CDMA:RFCHannel? <int seq>
```

Sets the three RF channel numbers to be tested for the sequence number specified by <int seq>. To skip tests on RFCH2 and/or RFCH3, enter 9999 for <int ch2> and/or <int ch3> respectively. RFCH1 cannot be skipped.

For the channel(s) set to skip tests, the Test Set returns 9999 when queried.

Parameter	Range/Selection	*RST	Resolution
<int SEQ>	Sequence No.: 1, 2, 3	—	—
<int ch1>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799	991	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041	1
	For PCS-US: 0 to 1199	0	1
	For PCS-KOREA-P0: 0 to 1300	0	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601	1
<int ch2>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799, 9999	384	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799, 9999	1039	1
	For PCS-US: 0 to 1199, 9999	600	1
	For PCS-KOREA-P0: 0 to 1300, 9999	650	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600, 9999	1250	1

Parameter	Range/Selection	*RST	Resolution
<int ch3>	For CELLR-IS95A & CELLR-TSB74, AMPS: 991 to 1023, 1 to 799, 9999	799	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799, 9999	799	1
	For PCS-US: 0 to 1199, 9999	1199	1
	For PCS-KOREA-P0: 0 to 1300, 9999	1300	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600, 9999	600	1

Rho Test Result

TESTs:AUTO:CDMA:RESults:RHO? <int seq>,<int ch>

Returns a set of rho (waveform quality) test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.900 to 1.000, or 9.999 for impossible measurement or overflow/underflow		

Sensitivity/FER Test Result

TESTs:AUTO:CDMA:RESults:FER? <int seq>,<int ch>

Returns a set of sensitivity/FER (frame error rate) test results, <string 1>, <string2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.00000 to 100.00000(%), or 999.99999 for impossible measurement or overflow/underflow		

Signaling State

TESTs : AUTO : CDMA : SIGNaling : STATE?

Returns a bit-weighted-decimal value corresponding to the test flow steps executed for a test cycle as follows:

Bit (Weight)	Meaning
Bit 0 (1)	Registration
Bit 1 (2)	1st Call
Bit 2 (4)	1st Release
Bit 3 (8)	2nd Call
Bit 4 (16)	Voice Echo
Bit 5 (32)	Softer Handoff
Bit 6 (64)	RF Test
Bit 7 (128)	2nd Release
Bit 8 (256)	Hard Handoff
Bit 9 (512)	Measurement end with test result
Bit 10 (1024)	Measurement end without test result (Aborted or Time out error occurred)
Bit 11 (2048)	Paused at a failure. To specify the following action, send the TESTs : AUTO : CDMA : SIGNaling : POfailure command.

Time Offset Test Result

TESTs:AUTO:CDMA:RESults:TOFFset? <int seq>,<int ch>

Parameter	Range/Selection	*RST	Resolution
<int seq>	Sequence No.: 1, 2, 3	—	—
<int ch>	RFCH: 1, 2, 3	—	—
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow		
<string 2>	0 for Pass, or 1 for Fail		
<string 3>	Measured value ranging from 0.00000325 to 0.00000325 (sec) or 9.999999 for impossible measurement or overflow/underflow		

Returns a set of timing offset test results, <string 1>, <string 2>, and <string 3>, for the sequence number specified by <int seq> and the RF channel specified by <int ch>.

Voice Echo Test Result

TESTs:AUTO:CDMA:TALK:STATe <string>

Verifies whether the test result of the voice echo step passes or fails.

Parameter	Range/Selection	*RST	Resolution
<string>	PASS, FAIL	—	—

TESTs Subsystem for Manual Test

The TESTs subsystem commands allows you to execute real time measurements. Test conditions are configurable with the CONFigure:CONDition commands. Send the “DISPlay:MANual:STBY” command to display the Automatic Test screen before sending the following commands.

TESTs Subsystem for Manual Tests Command Reference

BS Release

TESTs:MANual:RELease

Releases the mobile phone from the Test Set.

Clear Status

TESTs:MANual:SCLeAr

Clears the Pass/Fail results from the test flow.

DC Power Mode

TESTs:MANual:DCPower:MODE <bool>

TESTs:MANual:DCPower:MODE?

Defines the dc power supply mode.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	0	—

DC Power Voltage

TESTs:MANual:DCPower:VOLT <real>

TESTs:MANual:DCPower:VOLT?

Specifies the dc power voltage value.

Parameter	Range/Selection	*RST	Resolution
<real>	3.0 to 12.0 (V)	3.0	0.1

Dialed Number

TESTs:MANual:RESults:MSINformation:DIALed?

Returns the dialed number string, up to 32 digits.

ESN

TESTs:MANual:RESults:MSINformation:ESN?

Returns the Electronic Serial Number (ESN) string of eight-digit hexadecimal numbers.

Paging

TESTs:MANual:PAGE

Executes the paging process from the Test Set.

Phone Number

TESTs:MANual:RESults:MSINformation:PNUMBER?

Returns phone number string, up to 24 digits.

Previous System Screen

TESTs:MANual:PRSYstem

Returns to the screen for the previous radio system tests before making the hard handoff.

Radio System

TESTs:MANual:RSYstem <string>

TESTs:MANual:RSYstem?

Sets the radio system as follows.

Parameter	Range/Selection	*RST	Resolution
<string>	For Test Sets without option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1 For Test Sets with option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS	CELLR-IS95A	—

Registration

TESTs:MANual:REGister

Executes the registration process.

RF Channel

TESTs:MANual:RFCHannel <int>

TESTs:MANual:RFCHannel?

Sets RF channel of the radio system.

Parameter	Range	*RST	Resolution
<int>	For CELLR-IS95A, CELLR-TSB74: 991 to 1023, 1 to 799	991	1
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041	1
	For PCS-US: 0 to 1199	0	1
	For PCS-KOREA-P0: 0 to 1300	0	1
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601	1
	For AMPS: 991 to 1023, 1 to 799	991	1

RF Frequency

TESTs:MANual:RFFrequency <real>

TESTs:MANual:RFFrequency?

Sets RF frequency of the radio system.

Parameter	Range	*RST	Resolution
<real>	For CELLR-IS95A, CELLR-TSB74: 824040000 to 825000000, 825030000 to 848970000 (Hz)	824040000	30000
	For CELLR-T53: 887012500 to 888987500, 898012500 to 900987500, 915012500 to 924987500 (Hz)	887012500	12500
	For PCS-US: 1850000000 to 1909950000 (Hz)	1850000000	50000
	For PCS-KOREA-P0: 1715000000 to 1780000000 (Hz)	1715000000	50000
	For PCS-KOREA-P1: 1715050000 to 1750000000, 1750050000 to 1780000000 (Hz)	1715050000	50000
	For AMPS: 824040000 to 825000000, 825030000 to 848970000 (Hz)	824040000	30000

For AMPS Tests (Option 003)

NOTE This section is applicable only for Test Sets with Option 003.

Amplitude

TESTs:MANual:AMPS:AMPLitude <real>

TESTs:MANual:AMPS:AMPLitude?

Sets the amplitude level.

Parameter	Range/Selection	*RST	Resolution
<real>	-120.0 to -40.0 (dBm), or -120.0 to -20.0 (dBm) with Option 010	-40.0	0.1

Audio Frequency Test Result

TESTs:MANual:AMPS:RESults:AFRequency?

Returns a set of audio frequency test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 20.0 to 20000.0 (Hz), or 999.99 for impossible measurement or overflow/underflow

Audio Frequency Test Status

TESTs:MANual:AMPS:RESults:AFRequency:STATe <bool>
 TESTs:MANual:AMPS:RESults:AFRequency:STATe?

Defines whether or not (Run = 1, Skip = 0) to run the audio frequency test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Audio Test Item

TESTs:MANual:AMPS:RESults:AANalyzer:SElect <string>
 TESTs:MANual:AMPS:RESults:AANalyzer:SElect?

Selects the audio test item to be tested.

Parameter	Range/Selection	*RST	Resolution
<string>	TX-DIST for TX distortion RX-DIST for RX distortion RX-SINAD for RX SINAD	TX-DIST	—

Audio Test Status

TESTs:MANual:AMPS:RESults:AANalyzer:STATe <bool>
 TESTs:MANual:AMPS:RESults:AANalyzer:STATe?

Defines whether or not to run the audio test specified by the
 TESTs:MANual:AMPS:RESults:AANalyzer:SElect command.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Audio Out

TESTs:MANual:AMPS:AOUT <int>
 TESTs:MANual:AMPS:AOUT?

Sets the audio output level.

Parameter	Range/Selection	*RST	Resolution
<int>	-60 to 0 (dBV)	-60	1

Audio Out Adjustment

TESTs:MANual:AMPS:AOADjust

Adjusts the audio signal output level.

DC Current Test Result

TESTs:MANual:AMPS:RESults:CURRent?

Returns a set of dc current test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.999 for impossible measurement or overflow/underflow

DC Current Test Status

TESTs:MANual:AMPS:RESults:CURRent:STATe <bool>
 TESTs:MANual:AMPS:RESults:CURRent:STATe?

Defines whether or not to run the dc current test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Deviation Test Item

TESTs:MANual:AMPS:RESults:DEVIATION:SElect <string>
 TESTs:MANual:AMPS:RESults:DEVIATION:SElect?

Selects the deviation test item to be tested.

Parameter	Range/Selection	*RST	Resolution
<string>	FM for FM deviation SAT for supervisory audio tone (SAT) deviation ST for signaling tone (ST) deviation	FM	—

Deviation Test Status

TESTs:MANual:AMPS:RESults:DEVIATION:STATE <bool>
 TESTs:MANual:AMPS:RESults:DEVIATION:STATE?

Defines whether or not to make the deviation test specified by the
 TESTs:MANual:AMPS:RESults:DEVIATION:SElect command.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

FM Deviation Test Result

TESTs:MANual:AMPS:RESults:FM?

Returns a set of FM deviation limiting test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

Frequency Error Test Result

TESTs:MANual:AMPS:RESults:FERRor?

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -12.50 to 12.50 (ppm), or 999.99 for impossible measurement or overflow/underflow

Frequency Error Test Status

TESTs:MANual:AMPS:RESults:FERRor:STATe <bool>

TESTs:MANual:AMPS:RESults:FERRor:STATe?

Defines whether or not to run the frequency error test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Power Level

TESTs:MANual:AMPS:PLEVel <int>

TESTs:MANual:AMPS:PLEVel?

Sets the TX output power level.

Parameter	Range/Selection	*RST	Resolution
<int>	0 (+36 dBm) to 7 (+8 dBm)	0	—

RX Distortion Test Result

TESTs:MANual:AMPS:RESults:RXDistortion?

Returns a set of RX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.99 for impossible measurement or overflow/underflow

RX SINAD Test Result

TESTs:MANual:AMPS:RESults:RXSinad?

Returns a set of RX SINAD test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 40.0 (dB), or 99.9 for impossible measurement or overflow/underflow

SAT Deviation Tests Result

TESTs:MANual:AMPS:RESults:SATone?

Returns a set of supervisory audio tone (SAT) DEVIATION test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

SAT Frequency

TESTs:MANual:AMPS:SATone <string>

TESTs:MANual:AMPS:SATone?

Sets the supervisory audio tone (SAT) frequency.

Parameter	Range/Selection	*RST	Resolution
<string>	5970, 6000, 6030 (Hz)	5970	—

Signaling State

TESTs:MANual:AMPS:SIGNaling:STATE?

Returns a bit-weighted-decimal value corresponding to the test flow steps executed for a test cycle as follows:

Bit (Weight)	Meaning
Bit 0 (1)	Registration
Bit 1 (2)	Paging or MS Origination
Bit 2 (4)	RF/AF Test
Bit 3 (8)	MS Release or BS Release
Bit 4 (16)	Time Out Error
Bit 5 (32)	Measurement End

ST Deviation Test Result

TESTs:MANual:AMPS:RESults:ST?

Returns a set of signaling tone (ST) deviation test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 10 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

TX Distortion Test Result

TESTs:MANual:AMPS:RESults:TXDistortion?

Returns a set of TX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.9 for impossible measurement or overflow/underflow

TX Power Test Result

TESTs:MANual:AMPS:RESults:TXPower?

Returns a set of TX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

TX Power Test Status

TESTs:MANual:AMPS:RESults:TXPower:STATE <bool>

TESTs:MANual:AMPS:RESults:TXPower:STATE?

Defines whether or not to run the TX power test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

For CDMA Tests

Amplitude

TESTs:MANual:CDMA:AMPLitude <real>

TESTs:MANual:CDMA:AMPLitude?

Sets the amplitude level.

Parameter	Range/Selection	*RST	Resolution
<real>	-110.0 to -40.0 (dBm), or -110.0 to -20.0 (dBm) with Option 010	-75.0	0.1

Confidence Level

TESTs:MANual:CDMA:CONFidence <string>

TESTs:MANual:CDMA:CONFidence?

Sets the confidence level for sensitivity/FER (frame error rate) tests.

Parameter	Range/Selection	*RST	Resolution
<string>	95 for 95%, OFF	95	—

DC Current Test Result

TESTs:MANual:CDMA:RESults:CURRent?

Returns a set of dc current test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.9999 for impossible measurement or overflow/underflow

DC Current Test Status

TESTs:MANual:CDMA:RESults:CURRent:STATE <bool>
 TESTs:MANual:CDMA:RESults:CURRent:STATE?

Defines whether or not to run the dc current test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Frequency Error Test Result

TESTs:MANual:CDMA:RESults:FERRor?

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -10000 to 10000 (Hz), or 99999 for impossible measurement or overflow/underflow

Frequency Error Test Status

TESTs:MANual:CDMA:RESults:FERRor:STATE <bool>
 TESTs:MANual:CDMA:RESults:FERRor:STATE?

Defines whether or not to run the frequency error test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Handoff Radio System

TESTs:MANual:CDMA:HORSystem <string>

TESTs:MANual:CDMA:HORSystem?

Sets the handoff radio system. Refer to [“Hard Handoff Between Radio Systems under Manual Test Mode” on page 179](#) for the restrictions between the current radio system and the handoff radio system.

Parameter	Range/Selection	*RST	Resolution
<string>	For Test Sets without option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1 For Test Sets with option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS	CELLR- TSB74	—

Hard Handoff

TESTs:MANual:CDMA:HHOFF

Executes the hard handoff to another radio system.

Maximum and Minimum TX Power Test

TESTs:MANual:CDMA:MMPower

Measures the maximum and minimum TX power levels.

Maximum Frame

TESTs:MANual:CDMA:MAXFrames <int>

TESTs:MANual:CDMA:MAXFrames?

Sets the maximum number of frames to be tested for the sensitivity/FER (frame error rate) test.

Parameter	Range/Selection	*RST	Resolution
<int>	25 to 10000000	10000	1

Max TX Power Test Result

TESTs:MANual:CDMA:RESults:MAXPower?

Returns a set of maximum TX power test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

Min TX Power Test Result

TESTs:MANual:CDMA:RESults:MINPower?

Returns a set of minimum TX power test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

Power Control Bit

TESTs:MANual:CDMA:PCBit <string>

TESTs:MANual:CDMA:PCBit?

Sets the power control bit pattern.

Parameter	Range/Selection	*RST	Resolution
<string>	ALWAYS-UP, ALWAYS-DOWN, OPEN-LOOP	OPEN-LOOP	—

RF Channel for Hard Handoff

TESTs:MANual:CDMA:HOChannel <int>
 TESTs:MANual:CDMA:HOChannel?

Sets the RF channel of the radio system to be handed off.

Parameter	Range/Selection	*RST
<int>	For CELLR-IS95A, CELLR-TSB74, AMPS: 991 to 1023, 1 to 799	991
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041
	For PCS-US: 0 to 1199	0
	For PCS-KOREA-P0: 0 to 1300	0
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601

RF Frequency for Hard Handoff

TESTs:MANual:CDMA:HOFrequency <real>
 TESTs:MANual:CDMA:HOFrequency?

Sets the RF frequency of the handoff radio system.

Parameter	Range/Selection	*RST	Resolution
<real>	For CELLR-IS95A, CELLR-TSB74, AMPS: 824040000 to 825000000 Hz, 825030000 to 848970000 Hz	824040000	30000
	For CELLR-T53: 887012500 to 888987500Hz, 898012500 to 900987500Hz, 915012500 to 924987500Hz	887012500	12500
	For PCS-US: 1850000000 to 1909950000 Hz	1850000000	50000
	For PCS-KOREA-P0: 1715000000 to 1780000000 Hz	1715000000	50000
	PCS-KOREA-P1: 1715050000 to 1750000000 Hz, 1750050000 to 1780000000 Hz	1715050000	50000

Rho Test Result

TESTs:MANual:CDMA:RESults:RHO?

Returns a set of rho (waveform quality) test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.900 to 1.000, or 9.999 for impossible measurement or overflow/underflow

Rho Test Status

TESTs:MANual:CDMA:RESults:RHO:STATe <bool>

TESTs:MANual:CDMA:RESults:RHO:STATe?

Defines whether or not to run the rho (waveform quality) test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Sensitivity/FER Test Result

TESTs:MANual:CDMA:RESults:FER?

Returns a set of sensitivity/FER (frame error rate) test results, <string 1>, <string2>, <string 3>, <string 4>, and <string 5>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.00000 to 100.00000, or 999.99999 for impossible measurement or overflow/underflow
<string4>	Number of frame errors actually counted ranging from 0 to 10000000.
<string5>	Number of frame actually counted ranging from 0 to 10000000

Sensitivity/FER Test Status

TESTs:MANual:CDMA:RESults:FER:STATE <bool>

TESTs:MANual:CDMA:RESults:FER:STATE?

Defines whether or not to run the sensitivity/FER test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Service Option

TESTs:MANual:CDMA:SOPTion <string>

TESTs:MANual:CDMA:SOPTion?

Sets the service option.

Parameter	Range/Selection	*RST	Resolution
<string>	1 for normal voice loopback, 2 for data loopback at 9600 bps, 3 for voice loopback using EVRC (enhanced variable rate coder) at 9600bps, 9 for data loopback at 14.4 kbps, or 32768 for voice loopback at 14.4 kbps	2	—

Signaling State

TESTs:MANual:CDMA:SIGNaling:STATE?

Returns a bit-weighted-decimal value corresponding to the test flow steps executed for a test cycle as follows:

Bit (Weight)	Meaning
Bit 0 (1)	Registration
Bit 1 (2)	Paging or MS Origination
Bit 2 (4)	RF Test or Voice Echo Test
Bit 3 (8)	MS Release or BS Release
Bit 4 (16)	Time Out Error
Bit 5 (32)	Measurement End

Softer Handoff

TESTs:MANual:CDMA:SHOFF

Executes the softer handoff test.

Time Offset Test Result

TESTs:MANual:CDMA:RESults:TOffset?

Returns a set of timing offset test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.00000325 to 0.00000325 (sec), or 9.99999999 for impossible measurement or overflow/underflow

Time Offset Test Status

TESTs:MANual:CDMA:RESults:TOffset:STATE <bool>

TESTs:MANual:CDMA:RESults:TOffset:STATE?

Defines whether or not to make the timing offset test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

TX Power Test Result

TESTs:MANual:CDMA:RESults:TXPower?

Returns a set of TX power test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

TX Power Test Status

TESTs:MANual:CDMA:RESults:TXPower:STATe <bool>

TESTs:MANual:CDMA:RESults:TXPower:STATe?

Defines whether or not to run the TX power test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

TRIGger Subsystem

The Trigger commands are used to control the measurement cycle.

TRIGger Subsystem Command reference

Abort

TRIGger:ABORT

Stops and resets the trigger system, and makes the trigger sequence state idle.

Immediate Trigger

TRIGger:IMMEDIATE

Starts a measurement cycle immediately.

Trigger Mode

TRIGger:MODE <string>

TRIGger:MODE?

Sets the trigger mode (SINGLE or CONTInuous) of the measurement.

Parameter	Range/Selection	*RST	Resolution
<string>	SINGLE, CONTInuous	CONT	—

TXANalyzer Subsystem (Option 002)

The TXANalyzer subsystem commands are used to set and read the controls and parameters of the TX Analyzer functions. Send the “DISPlay:TXANalyzer” command to display the TX Analyzer screen before sending the following commands.

NOTE This section is applicable for Test Sets with Option 002.

TXANalyzer Subsystem Command Reference

DC Power Mode

TXANalyzer:DCPower:MODE <bool>
TXANalyzer:DCPower:MODE?

Defines whether or not to run the TX power test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

DC Power Voltage

TXANalyzer:DCPower:VOLT <real>
TXANalyzer:DCPower:VOLT?

Specifies the dc power voltage value.

Parameter	Range/Selection	*RST	Resolution
<real>	3.0 to 12.0 (V)	3.0	0.1

Radio System

TXANalyzer:RSYStem <string>
TXANalyzer:RSYStem?

Sets the radio system.

Parameter	Range	*RST
<string>	For Test Sets without option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1 For Test Sets with option 003: CELLR-IS95A, CELLR-TSB74, CELLR-T53, PCS-US, PCS-KOREA-P0, PCS-KOREA-P1, AMPS	CELLR-IS95A

RF Channel

TXANalyzer:RFChannel <int>
TXANalyzer:RFChannel?

Sets the RF channel of the radio system.

Parameter	Range	*RST
<int>	For CELLR-IS95A, CELLR-TSB74: 991 to 1023, 1 to 799	991
	For CELLR-T53: 1041 to 1199, 801 to 1039, 1 to 799	1041
	For PCS-US: 0 to 1199	0
	For PCS-KOREA-P0: 0 to 1300	0
	For PCS-KOREA-P1: 601 to 1300, 1 to 600	601
	For AMPS: 991 to 1023, 1 to 799	991

RF Frequency

TXANalyzer:RFFrequency <real>
TXANalyzer:RFFrequency?

Sets the RF frequency of the radio system.

Parameter	Range	*RST	Resolution
<real>	For CELLR-IS95A, CELLR-TSB74: 824040000 to 825000000, 825030000 to 848970000 (Hz)	824040000	30000
	For CELLR-T53: 887012500 to 888987500, 898012500 to 900987500, 915012500 to 924987500(Hz)	887012500	12500
	For PCS-US: 1850000000 to 1909950000 (Hz)	1850000000	50000
	For PCS-KOREA-P0: 1715000000 to 1780000000 (Hz)	1715000000	50000
	For PCS-KOREA-P1: 1715050000 to 1750000000, 1750050000 to 1780000000 (Hz)	1715050000	50000
	For AMPS: 824040000 to 825000000, 825030000 to 848970000 (Hz)	824040000	30000

For AMPS Tests (Option 003)

NOTE This section is applicable only for Test Sets with Option 003.

Audio Frequency Test Result

TXAnalyzer:AMPS:RESults:AFrequency?

Returns a set of audio frequency test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 20.0 to 20000.0 (Hz), or 99999.9 for impossible measurement or overflow/underflow

Audio Frequency Test Status

TXAnalyzer:AMPS:RESults:AFrequency:STATE <bool>

TXAnalyzer:AMPS:RESults:AFrequency:STATE?

Defines whether or not to run the audio frequency tests.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Audio Out

TXANalyzer:AMPS:RESults:AOUT <int>
 TXANalyzer:AMPS:RESults:AOUT?

Sets the audio output level.

Parameter	Range/Selection	*RST	Resolution
<int>	-60 to 0 (dBV)	-60	1

Audio Test Item

TXANalyzer:AMPS:RESults:AANalyzer:SElect <string>
 TXANalyzer:AMPS:RESults:AANalyzer:SElect?

Selects the audio test item to be tested.

Parameter	Range/Selection	*RST	Resolution
<string>	TX-DIST for TX distortion RX-DIST for RX distortion RX-SINAD for RX SINAD	TX-DIST	—

Audio Test Status

TXANalyzer:AMPS:RESults:AANalyzer:STATE <bool>
 TXANalyzer:AMPS:RESults:AANalyzer:STATE?

Defines whether or not to run the audio test specified by the
 TXANalyzer:AMPS:RESults:AANalyzer:SElect command.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

DC Current Test Result

TXAnalyzer:AMPS:RESults:CURRent?

Returns a set of dc current test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.999 for impossible measurement or overflow/underflow

DC Current Test Status

TXAnalyzer:AMPS:RESults:CURRent:STATe <bool>

TXAnalyzer:AMPS:RESults:CURRent:STATe?

Defines whether or not to run the dc current test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Deviation Test Item

TXAnalyzer:AMPS:RESults:DEVIATION:SELEct <string>

TXAnalyzer:AMPS:RESults:DEVIATION:SELEct?

Selects the deviation test item to be tested.

Parameter	Range/Selection	*RST	Resolution
<string>	FM for FM deviation SAT for supervisory audio tone (SAT) deviation ST for signaling tone (ST) deviation	FM	—

Deviation Test Status

TXAnalyzer:AMPS:RESults:DEVIATION:STATe <bool>

TXAnalyzer:AMPS:RESults:DEVIATION:STATe?

Defines whether or not to run the deviation test specified by the
 TESTs:MANual:AMPS:RESults:DEVIATION:SElect command.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

FM Deviation Test Result

TXANalyzer:AMPS:RESults:FM?

Returns a set of FM deviation limiting test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

Frequency Error Test Result

TXANalyzer:AMPS:RESults:FERRor?

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -12.50 to 12.50 (ppm), or 999.99 for impossible measurement or overflow/underflow

Frequency Error Test Status

TXANalyzer:AMPS:RESults:FERRor:STATe <bool>

TXANalyzer:AMPS:RESults:FERRor:STATe?

Defines whether or not to run the frequency error test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

RX Distortion Test Result

TXAnalyzer:AMPS:RESults:RXDistortion?

Returns a set of RX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.99 for impossible measurement or overflow/underflow

RX SINAD Test Result

TXAnalyzer:AMPS:RESults:RXSinad?

Returns a set of RX SINAD test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 40.0 (dB), or 99.9 for impossible measurement or overflow/underflow

SAT Deviation Test Result

TXAnalyzer:AMPS:RESults:SATone?

Returns a set of supervisory audio tone (SAT) Deviation test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 1000 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

ST Deviation Test Result

TXANalyzer:AMPS:RESults:ST?

Returns a set of signaling tone (ST) deviation test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 10 to 25000 (Hz), or 99999 for impossible measurement or overflow/underflow

TX Distortion Test Result

TXANalyzer:AMPS:RESults:TXDistortion?

Returns a set of TX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.0 to 100.0(%), or 999.9 for impossible measurement or overflow/underflow

TX Power Test Result

TXAnalyzer:AMPS:RESults:TXPower?

Returns a set of TX distortion test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

TX Power Test Status

TXAnalyzer:AMPS:RESults:TXPower:STATe <bool>

TXAnalyzer:AMPS:RESults:TXPower:STATe?

Defines whether or not to run the TX power test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

For CDMA Tests

DC Current Test Result

TXAnalyzer:CDMA:RESults:CURREnt?

Returns a set of dc current test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.9999 for impossible measurement or overflow/underflow

DC Current Test Status

TXAnalyzer:CDMA:RESults:CURRent:STATe <bool>
 TXAnalyzer:CDMA:RESults:CURRent:STATe?

Defines whether or not to run the dc current test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Frequency Error Test Result

TXAnalyzer:CDMA:RESults:FERRor?

Returns a set of frequency error test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.000 to 1.000 (A), or 9.9999 for impossible measurement or overflow/underflow

Frequency Error Test Status

TXAnalyzer:CDMA:RESults:FERRor:STATe <bool>
 TXAnalyzer:CDMA:RESults:FERRor:STATe?

Defines whether or not to run the frequency error test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Rho Test Result

TXAnalyzer:CDMA:RESults:RHO?

Returns a set of rho (waveform quality) test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from 0.900 to 1.000, or 9.999 for impossible measurement or overflow/underflow

Rho Test Status

TXAnalyzer:CDMA:RESults:RHO:STATE <bool>
TXAnalyzer:CDMA:RESults:RHO:STATE?

Defines whether or not to run the rho (waveform quality) test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

Time Offset Test Result

TXAnalyzer:CDMA:RESults:TOFFset?

Returns a set of timing offset test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -0.0000032 to 0.0000032 (sec), or 9.9999999 for impossible measurement or overflow/underflow

Time Offset Test Status

TXAnalyzer:CDMA:RESults:TOFFset:STATE <bool>
TXAnalyzer:CDMA:RESults:TOFFset:STATE?

Defines whether or not to run the timing offset test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

TX Power Test Result

TXAnalyzer:CDMA:REsults:TXPower?

Returns a set of TX power test results, <string 1>, <string 2>, and <string 3>.

Parameter	Description
<string 1>	0 for normal measurement, or 1 for impossible measurement or overflow/underflow
<string 2>	0 for Pass, or 1 for Fail
<string 3>	Measured value ranging from -99.9 to 99.9 (dBm), or 99.9 for impossible measurement or overflow/underflow

TX Power Test Status

TXAnalyzer:CDMA:REsults:TXPower:STATe <bool>

TXAnalyzer:CDMA:REsults:TXPower:STATe?

Defines whether or not to run the TX power test.

Parameter	Range/Selection	*RST	Resolution
<bool>	ON (1) for run, OFF (0) for skip	1	—

4 Programming Command Cross Reference

This chapter contains tables that correlate the screens, softkeys, test parameters and test items with their corresponding syntax for programming the Agilent E6393A CDMA MS Test Set.

Initial Screen

Softkey or Field	Command
Automatic Test	DISPlay:AUTO:STBY
Configuration	DISPlay:CONFigure
(Initial Screen)	DISPlay:INIT
Manual Test	DISPlay:MANual:STBY
Procedure	CONFigure:FILE:RECall <string fname>
Signal Generator	DISPlay:RFGenerator
TX ANalyzer	DISPlay:TXANalyzer

Automatic Test Screens

Softkey or Field	Command
Abort (Measurement)	TRIGger:ABORt
Abort (Printing)	HCOPy:ABORt
Continue	TESTs:AUTO:AMPS:SIGNaling:POFailure CONTInue
DC Current (Idle) (AMPS)	TESTs:AUTO:AMPS:RESuLts:CURRent:IDLE? <int seq>
DC Current (Idle) (CDMA)	TESTs:AUTO:CDMA:RESuLts:CURRent:IDLE? <int seq>
DC Current (Talk) (AMPS)	TESTs:AUTO:AMPS:RESuLts:CURRent:TALK? <int seq>,<int ch>
DC Current (Talk) (CDMA)	TESTs:AUTO:CDMA:RESuLts:CURRent:TALK? <int seq>,<int ch>
DC Power	TESTs:AUTO:DCPower:MODE <string> TESTs:AUTO:DCPower:MODE? TESTs:AUTO:DCPower:VOLT <real> TESTs:AUTO:DCPower:VOLT?
Detail	TESTs:AUTO:SCREen DETailed TESTs:AUTO:SCREen?
Dialed Number:	TESTs:AUTO:RESuLts:MSINformation:DIALed?
ESN:	TESTs:AUTO:RESuLts:MSINformation:ESN?
Fail	TESTs:AUTO:CDMA:TALK:STATe FAIL
FM Dev Limit	TESTs:AUTO:AMPS:RESuLts:FMDLimit? <int seq>,<int ch>
Frequency Error (AMPS)	TESTs:AUTO:AMPS:RESuLts:FERRor? <int seq>,<int ch>
Frequency Error (CDMA)	TESTs:AUTO:CDMA:RESuLts:FERRor? <int seq>,<int ch>
Manual Test	TESTs:AUTO:AMPS:SIGNaling:POFailure MANual
Memory1 (Amplitude)	SYSTem:MEMory:AMPLitude 1,<real> SYSTem:MEMory:AMPLitude?
Memory1 (Channel)	SYSTem:MEMory:CHANnel 1,<int> SYSTem:MEMory:CHANnel?
Memory2 (Amplitude)	SYSTem:MEMory:AMPLitude 2,<real> SYSTem:MEMory:AMPLitude?

Programming Command Cross Reference
Automatic Test Screens

Softkey or Field	Command
Memory2 (Channel)	SYSTem:MEMory:CHANnel 2,<int> SYSTem:MEMory:CHANnel?
Max TX Power	TESTs:MANual:CDMA:RESults:MAXPower?
Min TX Power	TESTs:AUTO:CDMA:RESults:MINPower? <int seq>,<int ch>
Pass	TESTs:AUTO:CDMA:TALK:STATe PASS
Phone Number:	TESTs:AUTO:RESults:MSINformation:PNUMBER?
Print All	HCOPY:ITEM:ALL
Print Screen	HCOPY:SDUMP
Procedure	CONFigure:FILE:RECall <string fname>
RFCH (AMPS)	TESTs:AUTO:AMPS:RFCHannel <int seq>,<int ch1>,<int ch2>,<int ch3> TESTs:AUTO:AMPS:RFCHannel? <int seq>
RFCH (CDMA)	TESTs:AUTO:CDMA:RFCHannel <int seq>,<int ch1>,<int ch2>,<int ch3> TESTs:AUTO:CDMA:RFCHannel? <int seq>
Rho	TESTs:AUTO:CDMA:RESults:RHO? <int seq>,<int ch>
RX Distortion	TESTs:AUTO:AMPS:RESults:RXDistortion? <int seq>,<int ch>
RX SINAD	TESTs:AUTO:AMPS:RESults:RXSinad? <int seq>,<int ch>
SAT Deviation	TESTs:AUTO:AMPS:RESults:SATone:Deviation? <int seq>,<int ch>
SAT Freq Error	TESTs:AUTO:AMPS:RESults:SATone:FERRor? <int seq>,<int ch>
Screen	TESTs:AUTO:SCReen <string> TESTs:AUTO:SCReen?
Sensitivity/FER	TESTs:AUTO:CDMA:RESults:FER? <int seq>,<int ch>
Simple	TESTs:AUTO:SCReen SIMPlified TESTs:AUTO:SCReen?
ST Frequency	TESTs:AUTO:AMPS:RESults:ST:FREQuency? <int seq>,<int ch>
ST Deviation	TESTs:AUTO:AMPS:RESults:ST:Deviation? <int seq>,<int ch>
Start	TRIGger:IMMediate

Softkey or Field	Command
Time Offset	TESTs:AUTO:CDMA:RESuLts:TOFFset? <int seq>,<int ch>
TX Distortion	TESTs:AUTO:AMPS:RESuLts:TXDistortion? <int seq>,<int ch>
TX Power	TESTs:AUTO:AMPS:RESuLts:TXPower? <int seq>,<int ch>
Value	TESTs:AUTO:SCReen VALue TESTs:AUTO:SCReen?

Manual Test Screens

Softkey or Field	Command
Amplitude	TESTs:MANual:CDMA:ASEctor <real> TESTs:MANual:CDMA:ASEctor?
Audio Frequency	TESTs:MANual:AMPS:RESults:AFrequency:STATE <bool> TESTs:MANual:AMPS:RESults:AFrequency:STATE? TESTs:MANual:AMPS:RESults:AFrequency?
Clear Status	TESTs:MANual:SClear
Confidence	TESTs:MANual:CDMA:CONFidence <string> TESTs:MANual:CDMA:CONFidence?
DC Current (AMPS)	TESTs:MANual:AMPS:RESults:CURRENT:STATE <bool> TESTs:MANual:AMPS:RESults:CURRENT:STATE? TESTs:MANual:AMPS:RESults:CURRENT?
DC Current (CDMA)	TESTs:MANual:CDMA:RESults:CURRENT:STATE <bool> TESTs:MANual:CDMA:RESults:CURRENT:STATE? TESTs:MANual:CDMA:RESults:CURRENT?
DC Power	TESTs:MANual:DCPower:MODE <bool>TESTs:MANual:DCPower:MODE?
	TESTs:MANual:DCPower:VOLT <real> TESTs:MANual:DCPower:VOLT?
Dialed Number	TESTs:MANual:RESults:MSINformation:DIAled?
ESN	TESTs:MANual:RESults:MSINformation:ESN?
FER	TESTs:MANual:CDMA:RESults:FER:STATE <bool> TESTs:MANual:CDMA:RESults:FER:STATE? TESTs:MANual:CDMA:RESults:FER?
FM Deviation	TESTs:MANual:AMPS:RESults:DEVIation:SElect FM TESTs:MANual:AMPS:RESults:DEVIation:SElect? TESTs:MANual:AMPS:RESults:DEVIation:STATE <bool> TESTs:MANual:AMPS:RESults:DEVIation:STATE? TESTs:MANual:AMPS:RESults:FM?
Frequency Error (AMPS)	TESTs:MANual:AMPS:RESults:FERRor:STATE <bool> TESTs:MANual:AMPS:RESults:FERRor:STATE? TESTs:MANual:AMPS:RESults:FERRor?
Frequency Error (CDMA)	TESTs:MANual:CDMA:RESults:FERRor:STATE <bool> TESTs:MANual:CDMA:RESults:FERRor:STATE? TESTs:MANual:CDMA:RESults:FERRor?

Softkey or Field	Command
Handoff	TESTs:MANual:CDMA:HORSystem <string> TESTs:MANual:CDMA:HORSystem?
Hard Handoff	TESTs:MANual:CDMA:HHOFF
Max & Min Power	TESTs:MANual:CDMA:MMPower
Max Frames	TESTs:MANual:CDMA:MAXFrames <int> TESTs:MANual:CDMA:MAXFrames?
Max TX Power	TESTs:MANual:CDMA:REsults:MAXPower?
Memory1 (Amplitude)	SYSTem:MEMory:AMPLitude 1,<real> SYSTem:MEMory:AMPLitude?
Memory1 (Channel)	SYSTem:MEMory:CHANnel 1,<int> SYSTem:MEMory:CHANnel?
Memory2 (Amplitude)	SYSTem:MEMory:AMPLitude 2,<real> SYSTem:MEMory:AMPLitude?
Memory2 (Channel)	SYSTem:MEMory:CHANnel 2,<int> SYSTem:MEMory:CHANnel?
Min TX Power	TESTs:MANual:CDMA:REsults:MINPower?
MS Info	DISPlay:MANual:MEASure:MSID
	DISPlay:MANual:STBY:MSID
Paging	TESTs:MANual:PAGE
Phone Number	TESTs:MANual:REsults:MSINformation:PNUMber?
Print Screen	HCOpy:SDUMp
Procedure	CONFigure:FILE:RECall <string fname>
Pwr Cntl Bit	TESTs:MANual:CDMA:PCBit <string> TESTs:MANual:CDMA:PCBit?
Radio System	TESTs:MANual:RSYStem <string> TESTs:MANual:RSYStem?
Registration	TESTs:MANual:REGister
Release	TESTs:MANual:RELease
RFCH (Handoff)	TESTs:MANual:CDMA:HOCHannel <int> TESTs:MANual:CDMA:HOCHannel?
	TESTs:MANual:CDMA:HOFRequency <real> TESTs:MANual:CDMA:HOFRequency?

Programming Command Cross Reference
Manual Test Screens

Softkey or Field	Command
RFCH (Radio System)	TESTs:MANual:RFCHannel <int> TESTs:MANual:RFCHannel?
	TESTs:MANual:RFFrequency <real> TESTs:MANual:RFFrequency?
Rho	TESTs:MANual:CDMA:RESults:RHO:STATe <bool> TESTs:MANual:CDMA:RESults:RHO? TESTs:MANual:CDMA:RESults:RHO:STATe?
RX Distortion	TESTs:MANual:AMPS:RESults:AANalyzer:SElect <String=RX-DIST> TESTs:MANual:AMPS:RESults:AANalyzer:SElect? TESTs:MANual:AMPS:RESults:AANalyzer:STATe <bool> TESTs:MANual:AMPS:RESults:AANalyzer:STATe? TESTs:MANual:AMPS:RESults:RXDistortion?
RX SINAD	TESTs:MANual:AMPS:RESults:AANalyzer:SElect <String=RX-SINAD> TESTs:MANual:AMPS:RESults:AANalyzer:SElect? TESTs:MANual:AMPS:RESults:AANalyzer:STATe <bool> TESTs:MANual:AMPS:RESults:AANalyzer:STATe? TESTs:MANual:AMPS:RESults:RXSinad?
SAT Deviation	TESTs:MANual:AMPS:RESults:DEVIation:SElect <String=SAT> TESTs:MANual:AMPS:RESults:DEVIation:SElect? TESTs:MANual:AMPS:RESults:DEVIation:STATe <bool> TESTs:MANual:AMPS:RESults:DEVIation:STATe? TESTs:MANual:AMPS:RESults:SATone?
Service Option	TESTs:MANual:CDMA:SOPTion <string> TESTs:MANual:CDMA:SOPTion?
Softer Handoff	TESTs:MANual:CDMA:SHOFF
ST Deviation	TESTs:MANual:AMPS:RESults:DEVIation:SElect ST TESTs:MANual:AMPS:RESults:DEVIation:SElect? TESTs:MANual:AMPS:RESults:DEVIation:STATe <bool> TESTs:MANual:AMPS:RESults:DEVIation:STATe? TESTs:MANual:AMPS:RESults:ST?
Time Offset	TESTs:MANual:CDMA:RESults:TOFFset:STATe <bool> TESTs:MANual:CDMA:RESults:TOFFset:STATe? TESTs:MANual:CDMA:RESults:TOFFset?
Trigger	TRIGger:IMMediate
Trigger Sing/Cont	TRIGger:MODE <string> TRIGger:MODE?

Softkey or Field	Command
TX Distortion	TESTs:MANual:AMPS:RESuLts:AAAnalyzer:SElect TX-DIST TESTs:MANual:AMPS:RESuLts:AAAnalyzer:SElect? TESTs:MANual:AMPS:RESuLts:AAAnalyzer:STate <bool> TESTs:MANual:AMPS:RESuLts:AAAnalyzer:STate? TESTs:MANual:AMPS:RESuLts:TXDistortion?
TX Power (AMPS)	TESTs:MANual:AMPS:RESuLts:TXPower:STate <bool> TESTs:MANual:AMPS:RESuLts:TXPower:STate? TESTs:MANual:AMPS:RESuLts:TXPower?
TX Power (CDMA)	TESTs:MANual:CDMA:RESuLts:TXPower:STate <bool> TESTs:MANual:CDMA:RESuLts:TXPower:STate? TESTs:MANual:CDMA:RESuLts:TXPower?

TX Analyzer Screens

Softkey or Field	Command
Audio Frequency	TXANalyzer:AMPS:RESuLts:AFRequency:STATe <bool> TXANalyzer:AMPS:RESuLts:AFRequency:STATe? TXANalyzer:AMPS:RESuLts:AFRequency?
Audio Out	TXANalyzer:AMPS:RESuLts:AOUT <int> TXANalyzer:AMPS:RESuLts:AOUT?
DC Current (AMPS)	TXANalyzer:AMPS:RESuLts:CURRent:STATe <bool> TXANalyzer:AMPS:RESuLts:CURRent:STATe? TXANalyzer:AMPS:RESuLts:CURRent?
DC Current (CDMA)	TXANalyzer:CDMA:RESuLts:CURRent:STATe <bool> TXANalyzer:CDMA:RESuLts:CURRent:STATe? TXANalyzer:CDMA:RESuLts:CURRent?
DC Power	TXANalyzer:DCPower:MODE <bool> TXANalyzer:DCPower:MODE? TXANalyzer:DCPower:VOLT <real> TXANalyzer:DCPower:VOLT?
FM Deviation	TXANalyzer:AMPS:RESuLts:DEVIation:SElect FM TXANalyzer:AMPS:RESuLts:DEVIation:SElect? TXANalyzer:AMPS:RESuLts:DEVIation:STATe <bool> TXANalyzer:AMPS:RESuLts:DEVIation:STATe? TXANalyzer:AMPS:RESuLts:FM?
Frequency Error (AMPS)	TXANalyzer:AMPS:RESuLts:FERRor:STATe <bool> TXANalyzer:AMPS:RESuLts:FERRor:STATe? TXANalyzer:AMPS:RESuLts:FERRor?
Frequency Error (CDMA)	TXANalyzer:CDMA:RESuLts:FERRor:STATe <bool> TXANalyzer:CDMA:RESuLts:FERRor:STATe? TXANalyzer:CDMA:RESuLts:FERRor?
Memory1 (Amplitude)	SYSTem:MEMory:AMPLitude 1,<real> SYSTem:MEMory:AMPLitude?
Memory1 (Channel)	SYSTem:MEMory:CHANnel 1,<int> SYSTem:MEMory:CHANnel?
Memory2 (Amplitude)	SYSTem:MEMory:AMPLitude 2,<real> SYSTem:MEMory:AMPLitude?
Memory2 (Channel)	SYSTem:MEMory:CHANnel 2,<int> SYSTem:MEMory:CHANnel?
Print Screen	HCOPy:SDUMp

Softkey or Field	Command
Procedure	CONFigure:FILE:RECall <string fname>
Radio System	TXANalyzer:RSYStem <string> TXANalyzer:RSYStem?
RFCH	TXANalyzer:RFCHannel <int> TXANalyzer:RFCHannel? TXANalyzer:RFFRequency <real> TXANalyzer:RFFRequency?
Rho	TXANalyzer:CDMA:RESults:RHO:STATe <bool> TXANalyzer:CDMA:RESults:RHO:STATe? TXANalyzer:CDMA:RESults:RHO?
RX Distortion	TXANalyzer:AMPS:RESults:AANalyzer:SElect RX-DIST TXANalyzer:AMPS:RESults:AANalyzer:SElect? TXANalyzer:AMPS:RESults:AANalyzer:STATe <bool> TXANalyzer:AMPS:RESults:AANalyzer:STATe? TXANalyzer:AMPS:RESults:RXDistortion?
RX SINAD	TXANalyzer:AMPS:RESults:AANalyzer:SElect RX-SINAD TXANalyzer:AMPS:RESults:AANalyzer:SElect? TXANalyzer:AMPS:RESults:AANalyzer:STATe <bool> TXANalyzer:AMPS:RESults:AANalyzer:STATe? TXANalyzer:AMPS:RESults:RXSinad?
SAT Deviation	TXANalyzer:AMPS:RESults:DEViation:SElect SAT TXANalyzer:AMPS:RESults:DEViation:SElect? TXANalyzer:AMPS:RESults:DEViation:STATe <bool> TXANalyzer:AMPS:RESults:DEViation:STATe? TXANalyzer:AMPS:RESults:SATone?
ST Deviation	TXANalyzer:AMPS:RESults:DEViation:SElect ST TXANalyzer:AMPS:RESults:DEViation:SElect? TXANalyzer:AMPS:RESults:DEViation:STATe <bool> TXANalyzer:AMPS:RESults:DEViation:STATe? TXANalyzer:AMPS:RESults:ST?
Time Offset	TXANalyzer:CDMA:RESults:TOFFset:STATe <bool> TXANalyzer:CDMA:RESults:TOFFset:STATe? TXANalyzer:CDMA:RESults:TOFFset?
Trigger	TRIGger:IMMediate
Trigger Sing/Cont	TRIGger:MODE <string> TRIGger:MODE?

Programming Command Cross Reference
TX Analyzer Screens

Softkey or Field	Command
TX Distortion	TXANalyzer:AMPS:RESults:AANalyzer:SElect TX-DIST TXANalyzer:AMPS:RESults:AANalyzer:SElect? TXANalyzer:AMPS:RESults:AANalyzer:STATe <bool> TXANalyzer:AMPS:RESults:AANalyzer:STATe TXANalyzer:AMPS:RESults:TXDistortion?
TX Power (AMPS)	TXANalyzer:AMPS:RESults:TXPower:STATe <bool> TXANalyzer:AMPS:RESults:TXPower:STATe? TXANalyzer:AMPS:RESults:TXPower?
TX Power (CDMA)	TXANalyzer:CDMA:RESults:TXPower:STATe <bool> TXANalyzer:CDMA:RESults:TXPower:STATe? TXANalyzer:CDMA:RESults:TXPower?

Signal Generator Screen

Softkey or Field	Command
Amplitude	RFGenerator:AMPLitude <real> RFGenerator:AMPLitude?
DC Power	RFGenerator:DCPower:MODE <bool> RFGenerator:DCPower:MODE? RFGenerator:DCPower:VOLT <real> RFGenerator:DCPower:VOLT?
Memory1 (Amplitude)	SYSTEM:MEMory:AMPLitude 1,<real> SYSTEM:MEMory:AMPLitude?
Memory1 (Channel)	SYSTEM:MEMory:CHANnel 1,<int> SYSTEM:MEMory:CHANnel?
Memory2 (Amplitude)	SYSTEM:MEMory:AMPLitude 2,<real> SYSTEM:MEMory:AMPLitude?
Memory2 (Channel)	SYSTEM:MEMory:CHANnel 2,<int> SYSTEM:MEMory:CHANnel?
Modulation	RFGenerator:MODulation <string> RFGenerator:MODulation?
Print Screen	HCOPY:SDUMp
Procedure	CONFigure:FILE:RECall <string fname>
Radio System	RFGenerator:RSYStem <string> RFGenerator:RSYStem?
RF Output On/Off	RFGenerator:RFOUTput <bool> RFGenerator:RFOUTput?
RFCH	RFGenerator:RFCHannel <int> RFGenerator:RFCHannel? RFGenerator:RFFRequency <real> RFGenerator:RFFRequency?

Configuration Screen

Softkey or Field	Command
Auto Test Run	CONFigure:ATMode <string> CONFigure:ATMode?
Auto Test Sequence	DISPlay:CONFigure:SEquence
Beeper	CONFigure:BEEPer <bool> CONFigure:BEEPer?
Date/Time	CONFigure:DATE <int y>,<int m>,<int d> CONFigure:DATE? CONFigure:TIME <int h>,<int m> CONFigure:TIME?
Cellular:IS95A/TSB74/ AMPS	CONFigure:LOSS:CELLular:US <real in>,<real out> CONFigure:LOSS:CELLular:US?
Cellular:Japan	CONFigure:LOSS:CELLular:JAPan <real in>,<real out> CONFigure:LOSS:CELLular:JAPan?
File Management	DISPlay:CONFigure:FILE
Firmware	*IDN?
Loss	CONFigure:LOSS <bool> CONFigure:LOSS?
Option	*OPC?
Panel Key	CONFigure:PKEY <string> CONFigure:PKEY?
PCS:Korea	CONFigure:LOSS:PCS:KORea <real in>,<real out> CONFigure:LOSS:PCS:KORea?
PCS:US	CONFigure:LOSS:PCS:US <real in>,<real out> CONFigure:LOSS:PCS:US?
Procedure	CONFigure:FILE:RECall <string fname>
Print All	HCOpy:ITEM:ALL
Print Screen	HCOpy:SDUMp
Printer	CONFigure:PRINter <string> CONFigure:PRINter?

Softkey or Field	Command
Printer Header	CONFigure:PRINter:HEADing <string 1>,<string 2> CONFigure:PRINter:HEADing?
Reference	CONFigure:ROSCillator <string> CONFigure:ROSCillator?
Test Condition	DISPlay:CONFigure:CONDition

Auto Test Sequence Screen

Softkey or Field	Command
1 Registration: (AMPS)	CONFigure:SEQuence:AMPS:SIGNaling:REGister <int seq>,<bool> CONFigure:SEQuence:AMPS:SIGNaling:REGister? <int seq>
1 Registration: (CDMA)	CONFigure:SEQuence:CDMA:SIGNaling:REGister <int seq>,<bool> CONFigure:SEQuence:CDMA:SIGNaling:REGister? <int seq>
2 MS Origination: (AMPS)	CONFigure:SEQuence:AMPS:SIGNaling:CALL1:TYPE <int seq>,<TYPE=ORIG> CONFigure:SEQuence:AMPS:SIGNaling:CALL1:TYPE? <int seq> CONFigure:SEQuence:AMPS:SIGNaling:CALL1 <int seq>,<bool> CONFigure:SEQuence:AMPS:SIGNaling:CALL1? <int seq>
2 MS Origination: (CDMA)	CONFigure:SEQuence:CDMA:SIGNaling:CALL1:TYPE <int seq>,<TYPE=ORIG> CONFigure:SEQuence:CDMA:SIGNaling:CALL1:TYPE? <int seq> CONFigure:SEQuence:CDMA:SIGNaling:CALL1 <int seq>,<bool> CONFigure:SEQuence:CDMA:SIGNaling:CALL1? <int seq>
2 Paging: (AMPS)	CONFigure:SEQuence:AMPS:SIGNaling:CALL1:TYPE <int seq>,<TYPE=PAGE> CONFigure:SEQuence:AMPS:SIGNaling:CALL1:TYPE? <int seq> CONFigure:SEQuence:AMPS:SIGNaling:CALL1 <int seq>,<bool> CONFigure:SEQuence:AMPS:SIGNaling:CALL1? <int seq>

Programming Command Cross Reference
Configuration Screen

Softkey or Field	Command
2 Paging: (CDMA)	CONFigure:SEquence:CDMA:SIGNaling:CALL1:TYPE <int seq>,<TYPE=PAGE> CONFigure:SEquence:CDMA:SIGNaling:CALL1:TYPE? <int seq> CONFigure:SEquence:CDMA:SIGNaling:CALL1:TYPE <int seq>,<string> CONFigure:SEquence:CDMA:SIGNaling:CALL1:TYPE? <int seq>
3 (or 5) RF/AF Test	CONFigure:SEquence:AMPS:SIGNaling:RFAF <int seq>,<bool> CONFigure:SEquence:AMPS:SIGNaling:RFAF? <int seq>
3 (or 6) RF Test	CONFigure:SEquence:CDMA:SIGNaling:RFTest <int seq>,<bool> CONFigure:SEquence:CDMA:SIGNaling:RFTest? <int seq>
3 (or 6) Voice Echo	CONFigure:SEquence:CDMA:SIGNaling:VECho <int seq>,<bool> CONFigure:SEquence:CDMA:SIGNaling:VECho? <int seq>
7 Softer Handoff	CONFigure:SEquence:CDMA:SIGNaling:SHOff <int seq>,<bool> CONFigure:SEquence:CDMA:SIGNaling:SHOff? <int seq>
8 Hard Handoff	CONFigure:SEquence:CDMA:SIGNaling:HHOff <int seq>,<bool> CONFigure:SEquence:CDMA:SIGNaling:HHOff? <int seq>
Amplitude: Other Tests: (AMPS)	CONFigure:SEquence:AMPS:AMPLitude:OTest <int seq>,<real> CONFigure:SEquence:AMPS:AMPLitude:OTest? <int seq>
Amplitude: Other Tests: (CDMA)	CONFigure:SEquence:CDMA:ASEctor:OTest <int seq>,<real> CONFigure:SEquence:CDMA:ASEctor:OTest? <int seq>
Amplitude: Sensitivity: (AMPS)	CONFigure:SEquence:AMPS:AMPLitude:SENSitivity <int seq>,<real> CONFigure:SEquence:AMPS:AMPLitude:SENSitivity? <int seq>
Amplitude: Sensitivity: (CDMA)	CONFigure:SEquence:CDMA:ASEctor:SENSitivity <int seq>,<real> CONFigure:SEquence:CDMA:ASEctor:SENSitivity? <int seq>
Audio Out: Level	CONFigure:SEquence:AMPS:AOUT:LEVel <int seq>,<int> CONFigure:SEquence:AMPS:AOUT:LEVel? <int seq>
Audio Out: Mode	CONFigure:SEquence:AMPS:AOUT:MODE <int seq>,<string> CONFigure:SEquence:AMPS:AOUT:MODE? <int seq>

Softkey or Field	Command
DC Current (Idle) (AMPS)	CONFigure:SEquence:AMPS:CURRent:IDLE <int seq>,<int> CONFigure:SEquence:AMPS:CURRent:IDLE? <int seq>
DC Current (Idle) (CDMA)	CONFigure:SEquence:CDMA:CURRent:IDLE <int seq>,<int> CONFigure:SEquence:CDMA:CURRent:IDLE? <int seq>
DC Current (Talk) (AMPS)	CONFigure:SEquence:AMPS:CURRent:TALK <int seq>,<int> CONFigure:SEquence:AMPS:CURRent:TALK? <int seq>
DC Current (Talk) (CDMA)	CONFigure:SEquence:CDMA:CURRent:TALK <int seq>,<int> CONFigure:SEquence:CDMA:CURRent:TALK? <int seq>
FM Dev Limit	CONFigure:SEquence:AMPS:FMDLimit <int seq>,<int> CONFigure:SEquence:AMPS:FMDLimit? <int seq>
Frequency Error (AMPS)	CONFigure:SEquence:AMPS:FERRor <int seq>,<int> CONFigure:SEquence:AMPS:FERRor? <int seq>
Frequency Error (CDMA)	CONFigure:SEquence:CDMA:FERRor <int seq>,<int> CONFigure:SEquence:CDMA:FERRor? <int seq>
Max TX Power	CONFigure:SEquence:CDMA:MAXPower <int seq>,<int> CONFigure:SEquence:CDMA:MAXPower? <int seq>
Message for Step No. (AMPS)	CONFigure:SEquence:AMPS:SIGNaling:MESSAge <int seq>,<int msg>,<string> CONFigure:SEquence:AMPS:SIGNaling:MESSAge? <int seq>,<int msg>
Message for Step No. (CDMA)	CONFigure:SEquence:CDMA:SIGNaling:MESSAge <int seq>,<int msg>,<string> CONFigure:SEquence:CDMA:SIGNaling:MESSAge? <int seq>,<int msg>
Min TX Power	CONFigure:SEquence:CDMA:MINPower <int seq>,<int> CONFigure:SEquence:CDMA:MINPower? <int seq>
Print All	HCOpy:ITEM:ALL
Print Screen	HCOpy:SDUMp
RFCH (AMPS)	CONFigure:SEquence:AMPS:RFCHannel <int seq>,<int ch1>,<int ch2>,<int ch3> CONFigure:SEquence:AMPS:RFCHannel? <int seq>
RFCH (CDMA)	CONFigure:SEquence:CDMA:RFCHannel <int seq>,<int ch1>,<int ch2>,<int ch3> CONFigure:SEquence:CDMA:RFCHannel? <int seq>
Rho	CONFigure:SEquence:CDMA:RHO <int seq>,<int> CONFigure:SEquence:CDMA:RHO? <int seq>
RX Distortion	CONFigure:SEquence:AMPS:RXDistortion <int seq>,<int> CONFigure:SEquence:AMPS:RXDistortion? <int seq>

Programming Command Cross Reference
Configuration Screen

Softkey or Field	Command
RX SINAD	CONFigure:SEQuence:AMPS:RXSinad <int seq>,<int> CONFigure:SEQuence:AMPS:RXSinad? <int seq>
SAT Deviation	CONFigure:SEQuence:AMPS:SATone:Deviation <int seq>,<int> CONFigure:SEQuence:AMPS:SATone:Deviation? <int seq>
SAT Freq Error	CONFigure:SEQuence:AMPS:SATone:FERRor <int seq>,<int> CONFigure:SEQuence:AMPS:SATone:FERRor? <int seq>
Sequence No.	CONFigure:SEQuence:RSYSstem <string 1>,<string 2>,<string 3> CONFigure:SEQuence:RSYSstem?
Sensitivity/FER	CONFigure:SEQuence:CDMA:SENSitivity <int seq>,<int> CONFigure:SEQuence:CDMA:SENSitivity? <int seq>
Service Option Other Tests	CONFigure:SEQuence:CDMA:SOPTion:OTEST <int seq>,<string> CONFigure:SEQuence:CDMA:SOPTion:OTEST? <int seq>
Service Option Voice Echo	CONFigure:SEQuence:CDMA:SOPTion:VECho <int seq>,<string> CONFigure:SEQuence:CDMA:SOPTion:VECho? <int seq>
ST Deviation	CONFigure:SEQuence:AMPS:ST:Deviation <int seq>,<int> CONFigure:SEQuence:AMPS:ST:Deviation? <int seq>
ST Frequency	CONFigure:SEQuence:AMPS:ST:FREQuency <int seq>,<int> CONFigure:SEQuence:AMPS:ST:FREQuency? <int seq>
Time Offset	CONFigure:SEQuence:CDMA:TOFFset <int seq>,<int> CONFigure:SEQuence:CDMA:TOFFset? <int seq>
TX Distortion	CONFigure:SEQuence:AMPS:TXDistortion <int seq>,<int> CONFigure:SEQuence:AMPS:TXDistortion? <int seq>
TX Power	CONFigure:SEQuence:AMPS:TXPower <int seq>,<int> CONFigure:SEQuence:AMPS:TXPower? <int seq>

Test Condition Screens

Softkey or Field	Command
Access Probe Init Pwr	CONFigure:CONDition:CDMA:PINitial <string>,<int> CONFigure:CONDition:CDMA:PINitial? <string>
Access Probe Max Req Seq, Max Rsp Seq	CONFigure:CONDition:CDMA:MRSequence <string>,<int> CONFigure:CONDition:CDMA:MRSequence? <string>
Access Probe Nom Pwr	CONFigure:CONDition:CDMA:PNOMinal <string>,<int> CONFigure:CONDition:CDMA:PNOMinal? <string>
Access Probe Num Step	CONFigure:CONDition:CDMA:NSTep <string>,<int> CONFigure:CONDition:CDMA:NSTep? <string>
Access Probe Pwr Step	CONFigure:CONDition:CDMA:PSTep <string>,<int> CONFigure:CONDition:CDMA:PSTep? <string>
Base Station Max Slot Cycle Index	CONFigure:CONDition:CDMA:MSCindex <string>,<int> CONFigure:CONDition:CDMA:MSCindex? <string>
Base Station NID	CONFigure:CONDition:CDMA:NID <string>,<int> CONFigure:CONDition:CDMA:NID? <string>
Base Station Power Up Registr	CONFigure:CONDition:CDMA:PURegister <string>,<bool> CONFigure:CONDition:CDMA:PURegister? <string>
Base Station Rgstr NID	CONFigure:CONDition:CDMA:RNID <string>,<int> CONFigure:CONDition:CDMA:RNID? <string>
Base Station Rgstr SID	CONFigure:CONDition:CDMA:RSID <string>,<int> CONFigure:CONDition:CDMA:RSID? <string>
Base Station SID	CONFigure:CONDition:CDMA:SID <string>,<int> CONFigure:CONDition:CDMA:SID? <string>
Control Channel	CONFigure:CONDition:AMPS:CCHannel <int> CONFigure:CONDition:AMPS:CCHannel?
DC Current Avg Time Idle:	CONFigure:CONDition:CDMA:CAVerge <string>,<string> CONFigure:CONDition:CDMA:CAVerge? <string>
DC Curr(Idle) (AMPS)	CONFigure:CONDition:AMPS:LIMit:CURRent:IDLE <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:CURRent:IDLE?
DC Curr(Idle) (CDMA)	CONFigure:CONDition:CDMA:LIMit:CURRent:IDLE <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:CURRent:IDLE? <string>

Programming Command Cross Reference
Configuration Screen

Softkey or Field	Command
DC Curr(Talk) (AMPS)	CONFigure:CONDition:AMPS:LIMit:CURRent:TALK <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:CURRent:TALK?
DC Curr(Talk) (CDMA)	CONFigure:CONDition:CDMA:LIMit:CURRent:TALK <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:CURRent:TALK? <string>
FER Confidence	CONFigure:CONDition:CDMA:CONFidence <string>,<string> CONFigure:CONDition:CDMA:CONFidence? <string>
FER Max Frames	CONFigure:CONDition:CDMA:MAXFrames <string>,<int> CONFigure:CONDition:CDMA:MAXFrames? <string>
FM Dev Limit	CONFigure:CONDition:AMPS:LIMit:FMDLimit <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:FMDLimit?
Freq Error (AMPS)	CONFigure:CONDition:AMPS:LIMit:FERRor <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:FERRor?
Freq Error (CDMA)	CONFigure:CONDition:CDMA:LIMit:FERRor <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:FERRor? <string>
Max TX Power	CONFigure:CONDition:CDMA:LIMit:MAXPower <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:MAXPower? <string>
Min TX Power	CONFigure:CONDition:CDMA:LIMit:MINPower <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:MINPower? <string>
Power Level	CONFigure:CONDition:AMPS:PLEVel <int> CONFigure:CONDition:AMPS:PLEVel?
Print Screen	HCOPY:SDUMp
Rho	CONFigure:CONDition:CDMA:LIMit:RHO <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:RHO? <string>
RX Distortion	CONFigure:CONDition:AMPS:LIMit:RXDistortion <real hi> CONFigure:CONDition:AMPS:LIMit:RXDistortion?
RX SINAD	CONFigure:CONDition:AMPS:LIMit:RXSinad <real lo> CONFigure:CONDition:AMPS:LIMit:RXSinad?
SAT	CONFigure:CONDition:AMPS:SATone <string> CONFigure:CONDition:AMPS:SATone?

Softkey or Field	Command
SAT Deviation	CONFigure:CONDition:AMPS:LIMit:SATone:Deviation <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:SATone:Deviation?
SAT Freq Err	CONFigure:CONDition:AMPS:LIMit:SATone:FERRor <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:SATone:FERRor?
Sector B Pwr	CONFigure:CONDition:CDMA:BSEctor <string>,<real> CONFigure:CONDition:CDMA:BSEctor? <string> CONFigure:CONDition:CDMA:BSEctor:STATE <string>,<bool> CONFigure:CONDition:CDMA:BSEctor:STATE? <string>
Sens/FER	CONFigure:CONDition:CDMA:LIMit:SENSitivity <string>,<real hi> CONFigure:CONDition:CDMA:LIMit:SENSitivity? <string>
SID	CONFigure:CONDition:AMPS:SIDentify <int> CONFigure:CONDition:AMPS:SIDentify?
ST Deviation	CONFigure:CONDition:AMPS:LIMit:ST:Deviation <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:ST:Deviation?
ST Frequency	CONFigure:CONDition:AMPS:LIMit:ST:FREQuency <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:ST:FREQuency?
Time Offset	CONFigure:CONDition:CDMA:LIMit:TOFFset <string>,<real lo>,<real hi> CONFigure:CONDition:CDMA:LIMit:TOFFset? <string>
TX Distortion	CONFigure:CONDition:AMPS:LIMit:TXDistortion <real hi> CONFigure:CONDition:AMPS:LIMit:TXDistortion?
TX Power	CONFigure:CONDition:AMPS:LIMit:TXPower <real lo>,<real hi> CONFigure:CONDition:AMPS:LIMit:TXPower?

File Management

Softkey or Field	Command
Delete	CONFigure:FILE:DELeTe <fname>
Format SRAM Card	CONFigure:FILE:FORMat
Print All	CONFigure:FILE:LIST?

Programming Command Cross Reference
Configuration Screen

Softkey or Field	Command
Print Screen	HCOpy:SDUMp
Recall	CONFigure:FILE:RECall <fname>
Save	CONFigure:FILE:SAVE <fname>,<comment>

5 Example Programs

This chapter contains several example programs that you can use to test CDMA/AMPS mobile phones with the Test Set.

MANUAL TEST Sample Program

The following HP BASIC sample program measures Peak TX Power and Frame Error Rate using the Manual Test mode for a IS-95A mobile phone.

CLEAR and RESET the controller, and execute the following program:

```
1000! RE-SAVE "A:\ManSmp1.pgm"
1010 Serial_port=9
1020 OUTPUT Serial_port;"*RST"
1030!
1040!**** Loss value set ****
1050!
1060 OUTPUT Serial_port;"DISP:CONF"
1070 OUTPUT Serial_port;"CONF:LOSS ON"
1080 OUTPUT Serial_port;"CONF:LOSS:CELL:US 10.0,10.0"
1090!
1100!**** Test Condition ****
1110!
1120 OUTPUT Serial_port;"CONF:COND:CDMA:SID CELLR-IS95A,4119"
1130 OUTPUT Serial_port;"CONF:COND:CDMA:RSID CELLR-IS95A,4119"
1140!
1150!**** Radio Standard and RF Channel set ****
1160!
1170 OUTPUT Serial_port;"DISP:MAN:STBY"
1180 OUTPUT Serial_port;"TEST:MAN:RSYS CELLR-IS95A"
1190 OUTPUT Serial_port;"TEST:MAN:RFCH 384"
1200 OUTPUT Serial_port;"TEST:MAN:CDMA:AMPL -70"
1210!
1220!**** Max Frame, Confidence, Power control bit, Service option set ****
1230!
1240 OUTPUT Serial_port;"TEST:MAN:CDMA:MAXF 10000"
1250 OUTPUT Serial_port;"TEST:MAN:CDMA:CONF 95"
1260 OUTPUT Serial_port;"TEST:MAN:CDMA:PCB OPEN-LOOP"
1270 OUTPUT Serial_port;"TEST:MAN:CDMA:SOPT 2"
1280!
1290!**** Measurement item set ****
1300!
1310 OUTPUT Serial_port;"TRIG:MODE SING"
1320 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:TXP:STAT ON"
```

```

1330 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:FERR:STAT OFF"
1340 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:RHO:STAT OFF"
1350 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:FER:STAT ON"
1360 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:TOFF:STAT OFF"
1370!
1380!**** Registration ****
1390!
1400 DISP "Executing Registration..."
1410 OUTPUT Serial_port;"TEST:MAN:REG"
1420 REPEAT
1430  OUTPUT Serial_port;"TEST:MAN:CDMA:SIGN:STAT?"
1440  ENTER Serial_port;F
1450  UNTIL BIT(F,5)=1
1460!
1470!**** Paging ****
1480!
1490 DISP "Executing Paging..."
1500 OUTPUT Serial_port;"TEST:MAN:PAGE"
1510 REPEAT
1520  OUTPUT Serial_port;"TEST:MAN:CDMA:SIGN:STAT?"
1530  ENTER Serial_port;F
1540  UNTIL BIT(F,2)=1
1550!
1560!**** Trigger ****
1570!
1580 DISP "Executing RF Test..."
1590 OUTPUT Serial_port;"TRIG:IMM"
1600 REPEAT
1610  OUTPUT Serial_port;"*STB?"
1620  ENTER Serial_port;G
1630  UNTIL BIT(G,1)=0
1640!
1650!**** TX power measurement ****
1660!
1670 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:TXP?"
1680 ENTER Serial_port;Txp1,Txp2,Txp3
1690 IF Txp1=1 THEN
1700  PRINT "TX power : Measurement invalid."
1710 ELSE

```

Example Programs
MANUAL TEST Sample Program

```

1720 IF Txp2=0 THEN
1730   Result$="PASS"
1740 ELSE
1750   Result$="FAIL"
1760 END IF
1770 PRINT "TX power : ",Txp3;"dBm",Result$
1780 END IF
1790!
1800!**** FER measurement ****
1810!
1820 OUTPUT Serial_port;"TEST:MAN:CDMA:RES:FER?"
1830 ENTER Serial_port;Fer1,Fer2,Fer3
1840 IF Fer1=1 THEN
1850 PRINT "FER : Measurement invalid."
1860 ELSE
1870 IF Rho2=0 THEN
1880   Result$="PASS"
1890 ELSE
1900   Result$="FAIL"
1910 END IF
1920 PRINT "FER : ",Fer3;"%",Result$
1930 END IF
1940!
1950!**** BS Release ****
1960!
1970 OUTPUT Serial_port;"TEST:MAN:REL"
1980 REPEAT
1990 OUTPUT Serial_port;"TEST:MAN:CDMA:SIGN:STAT?"
2000 ENTER Serial_port;H
2010 UNTIL BIT(H,5)=1
2020 DISP "Measurement End."
2030 END

```

Table 5-1 Program Comments

1020	Resets the Test Set to the default settings for programming.
1060	Displays the CONFIGURATION screen.
1070	Activates the Attenuation function.
1080	Sets the Attenuation values for the IS-95A band.

1120	Sets the System ID for the mobile phone.
1130	Sets the system ID for the zone based registration for the mobile phone.
1170	Displays the Stand-by screen of the Manual Test mode.
1180	Sets the Radio Standard to IS-95A.
1190	Sets the RF Channel.
1200	Sets the RF Amplitude.
1240	Sets the maximum number of frames for the FER measurement.
1250	Sets the confidence level for the FER measurement.
1260	Sets the power control bit pattern.
1270	Sets the service option.
1310	Sets the Trigger Mode to Single.
1320	Sets whether or not to execute the TX Power measurement.
1330	Sets whether or not to execute the Frequency Error measurement.
1340	Sets whether or not to execute the Rho (waveform quality) measurement.
1350	Sets whether or not to execute the Frame Error Rate measurement.
1360	Sets whether or not to execute the Timing Offset measurement.
1410	Starts registration.
1420 to 1450	Waits until the mobile phone camps on as instructed.
1500	Executes paging.
1510 to 1540	Waits until the mobile phone camps on as instructed.
1590	Sends a trigger to measure.
1600 to 1630	Waits until the measurements end.
1670	Queries the TX Power results.
1680	Retrieves the status and measurement data.
1690 to 1780	Prints the test result data.
1820	Queries the Frame Error Rate results.
1830	Retrieves the status and measurement data.
1840 to 1930	Prints the test result data.
1970	Executes the BS Release.

Example Programs

MANUAL TEST Sample Program

1980 to 2010	Waits until the release is complete.
2020	Displays “Measurement End”.
2030	Ends this program.

AUTOMATIC TEST Sample Program

The following HP BASIC sample program executes an Automatic Test on an IS-95A mobile phone.

CLEAR and RESET the controller, and execute the following program:

```

1000! RE-SAVE "A:\AutSmpl.pgm"
1010 Serial_port=9
1020 OUTPUT Serial_port;"*RST"
1030!
1040!**** Loss value, Autotest mode set ****
1050!
1060 OUTPUT Serial_port;"DISP:CONF"
1070 OUTPUT Serial_port;"CONF:LOSS ON"
1080 OUTPUT Serial_port;"CONF:LOSS:CELL:US 15.0,15.0"
1090 OUTPUT Serial_port;"CONF:ATM CONT"
1100!
1110!**** Auto Test Sequence screen ****
1120!
1130 OUTPUT Serial_port;"DISP:CONF:SEQ"
1140 OUTPUT Serial_port;"CONF:SEQ:RSYS CELLR-IS95A,OFF,OFF"
1150 OUTPUT Serial_port;"CONF:SEQ:CDMA:SIGN:CALL1:TYPE 1,ORIG"
1160 OUTPUT Serial_port;"CONF:SEQ:CDMA:SIGN:CALL1 1,OFF"
1170 OUTPUT Serial_port;"CONF:SEQ:CDMA:SIGN:SHOF 1,OFF"
1180 OUTPUT Serial_port;"CONF:SEQ:CDMA:SIGN:HHOF 1,OFF"
1190 OUTPUT Serial_port;"CONF:SEQ:CDMA:RFCH 1,384,9999,9999"
1200 OUTPUT Serial_port;"CONF:SEQ:CDMA:AMPL:SENS 1,-90.0"
1210 OUTPUT Serial_port;"CONF:SEQ:CDMA:AMPL:OTES 1,-65.0"
1220 OUTPUT Serial_port;"CONF:SEQ:CDMA:SOPT:VEC 1,1"
1230 OUTPUT Serial_port;"CONF:SEQ:CDMA:SOPT:OTES 1,2"
1240!
1250!**** Test Condition screen ****
1260!
1270 OUTPUT Serial_port;"DISP:CONF:COND"
1280 OUTPUT Serial_port;"CONF:COND:CDMA:SID CELLR-IS95A,4119"
1290 OUTPUT Serial_port;"CONF:COND:CDMA:RSID CELLR-IS95A,4119"
1300!
1310!**** AutomaticTest Stand-by screen ****
1320!

```

```
1330 OUTPUT Serial_port;"DISP:AUTO:STBY"  
1340 OUTPUT Serial_port;"TEST:AUTO:SCR VAL"  
1350!  
1360 DISP "Turn on the mobile and wait for the mobile to find service. Press Continue."  
1370 PAUSE  
1380 DISP  
1390!  
1400!**** Trigger ****  
1410!  
1420 OUTPUT Serial_port;"TRIG:IMM"  
1430!  
1440!**** Registration ****  
1450!  
1460 DISP "Executing Registration..."  
1470 REPEAT  
1480 OUTPUT Serial_port;"TEST:AUTO:CDMA:SIGN:STAT?"  
1490 ENTER Serial_port;G  
1500 UNTIL BIT(G,3)=1  
1510!  
1520!**** Paging ****  
1530!  
1540 DISP "Executing Paging..."  
1550 REPEAT  
1560 OUTPUT Serial_port;"TEST:AUTO:CDMA:SIGN:STAT?"  
1570 ENTER Serial_port;G  
1580 UNTIL BIT(G,6)=1  
1590!  
1600!**** RF Test ****  
1610!  
1620 DISP "Executing RF Test..."  
1630 REPEAT  
1640 OUTPUT Serial_port;"TEST:AUTO:CDMA:SIGN:STAT?"  
1650 ENTER Serial_port;G  
1660 UNTIL BIT(G,7)=1  
1670!  
1680!**** BS Release ****  
1690!  
1700 DISP "Executing RF Test..."  
1710 REPEAT
```



```

1720 OUTPUT Serial_port;"TEST:AUTO:CDMA:SIGN:STAT?"
1730 ENTER Serial_port;G
1740 UNTIL BIT(G,9)=1 OR BIT(G,10)=1
1750!
1760!**** Max Power measurement ****
1770!
1780 OUTPUT Serial_port;"TEST:AUTO:CDMA:RES:MAXP? 1,1"
1790 ENTER Serial_port;Mp1,Mp2,Mp3
1800 IF Mp1=1 THEN
1810 PRINT "Max power : Measurement invalid."
1820 ELSE
1830 IF Mp2=0 THEN
1840 Result$="PASS"
1850 ELSE
1860 Result$="FAIL"
1870 END IF
1880 PRINT "Max power : ",Mp3;"dBm",Result$
1890 END IF
1900!
1910!**** Frequency Error measurement ****
1920!
1930 OUTPUT Serial_port;"TEST:AUTO:CDMA:RES:FERR? 1,1"
1940 ENTER Serial_port;Ferr1,Ferr2,Ferr3
1950 IF Ferr1=1 THEN
1960 PRINT "Frequency Error : Measurement invalid."
1970 ELSE
1980 IF Ferr2=0 THEN
1990 Result$="PASS"
2000 ELSE
2010 Result$="FAIL"
2020 END IF
2030 PRINT "Frequency Error : ",Ferr3;"Hz",Result$
2040 END IF
2050!
2060!**** All Items ****
2070!
2080 OUTPUT Serial_port;"TEST:AUTO:CDMA:RES:ALL? 1"
2090 ENTER Serial_port;All1,All2
2100 IF All1=1023 THEN

```

Example Programs
AUTOMATIC TEST Sample Program

```

2110 PRINT "Automatic Test : Measurement invalid."
2120 ELSE
2130 IF All1=0 THEN PRINT "Automatic Test : PASS"
2140 IF BIT(All1,0)=1 THEN PRINT "Registration : FAIL"
2150 IF BIT(All1,1)=1 THEN PRINT "1st Call : FAIL"
2160 IF BIT(All1,2)=1 THEN PRINT "1st Release : FAIL"
2170 IF BIT(All1,3)=1 THEN PRINT "2nd Call : FAIL"
2180 IF BIT(All1,4)=1 THEN PRINT "Voice Echo : FAIL"
2190 IF BIT(All1,5)=1 THEN PRINT "Softer Handoff : FAIL"
2200 IF BIT(All1,6)=1 THEN PRINT "RF Test : FAIL"
2210 IF BIT(All1,7)=1 THEN PRINT "2nd Release : FAIL"
2220 IF BIT(All1,8)=1 THEN PRINT "Hard Handoff : FAIL"
2230 IF All2<>511 THEN
2240 IF BIT(All2,0)=1 THEN PRINT "Max TX Power : FAIL"
2250 IF BIT(All2,1)=1 THEN PRINT "Min TX Power : FAIL"
2260 IF BIT(All2,2)=1 THEN PRINT "Frequency Error : FAIL"
2270 IF BIT(All2,3)=1 THEN PRINT "Rho : FAIL"
2280 IF BIT(All2,4)=1 THEN PRINT "Time Offset : FAIL"
2290 IF BIT(All2,5)=1 THEN PRINT "Sensitivity/FER : FAIL"
2300 IF BIT(All2,6)=1 THEN PRINT "DC Current (Idle) : FAIL"
2310 IF BIT(All2,7)=1 THEN PRINT "DC Current (Talk) : FAIL"
2320 END IF
2330 END IF
2340!
2350 DISP "Measurement End."
2360 END

```

Table 5-2 Program Comments

1020	Resets the Test Set to the default settings for programming.
1060	Displays the Configuration screen.
1070	Activates the Attenuation function.
1080	Sets the Attenuation values for the IS-95A band.
1090	Select whether to continue the test or not on failure.
1130	Displays the Auto Test Sequence screen.
1140	Sets the radio systems to the sequence number 1, 2, and 3.
1150	Sets the 1st call setting for the sequence number 1.
1160	Defines whether or not to make the 1st call.

1170	Defines whether or not to test the softer handoff.
1180	Defines whether or not to make the hard handoff.
1190	Sets the three RF channels for the sequence number 1.
1200	Sets the amplitude for the sensitivity test for the sequence number 1.
1210	Sets the amplitude for other than the sensitivity test of the sequence number 1.
1220	Sets the service option for the voice echo test for the sequence number 1.
1230	Sets the service option for the tests other than the voice echo test for the sequence number 1.
1270	Displays the Test Condition screen.
1280	Sets the system ID for IS-95A.
1290	Sets the system ID for the zone based registration for IS-95A.
1330	Displays the Automatic Test: Stand-by screen.
1340	Selects the Value screen.
1360 to 1380	Waits until the mobile phone camps on as instructed.
1420	Starts the Automatic Test.
1460 to 1500	Executes registration and waits for its end.
1540 to 1580	Executes paging and waits for its end.
1620 to 1660	Executes the RF tests and waits for their ends.
1700 and 1740	Executes the BS Release and waits for its end.
1780	Queries the maximum transmission power results of the 1st RF channel of the sequence number 1.
1790	Enter the status and measurement data.
1800 to 1890	Prints the test results of the maximum transmission power of the 1st channel of the sequence number 1.
1930	Queries the frequency error results of the 1st RF channel of the sequence number 1.
1940	Retrieves the status and measurement data.
1950 to 2040	Prints the test results of the frequency error of the 1st channel of the sequence number 1.
2080	Queries the all of the test results.
2090	Retrieves the all of the test results.

Example Programs

AUTOMATIC TEST Sample Program

2100 to 2330	Prints the test results of the signaling test flow.
2350	Displays “Measurement Ends.”
2360	Ends this program.

SETUP Sample Programs

The first HP BASIC sample SETUP program is used to retrieve all of the setting parameter values from the Test Set to your computer. The second program loads the parameter values from your computer to the Test Set.

CLEAR and RESET the controller, and execute the following program to get the parameter values:

```

1000! re-save "a:\saveset.pgm"
1010 DIM Sdata$(20000)
1020 Serial_port=9
1030 !
1040 DISP "Getting the parameter values from the Test Set..."
1050 OUTPUT Serial_port;"SYST:SET?"
1060 ENTER Serial_port;Sdata$
1070 !
1080 INPUT "Enter file name.",Fname$
1090 CREATE "A:"&Fname$,0
1100 ASSIGN @Io TO "A:"&Fname$
1110 OUTPUT @Io;Sdata$
1120 ASSIGN @Io TO *
1130 END

```

Table 5-3 Program Comments

1010	Declares the string array.
1050	Sends a query for all the setting parameter values.
1060	Retrieves the values to the string array.
1080	Requests the Test Set operator to input the file name.
1090	Creates the file on the A: drive.
1100	Sets up the I/O path to the file.
1110	Outputs the data from the string array to the file.
1120	Closes the I/O path.
1130	Ends this program.

Example Programs
SETUP Sample Programs

CLEAR and RESET the controller, and execute the following program to load the parameter values to the Test Set:

```
1000! re-save "a:\getset.pgm"  
1010 DIM Sdata$[20000]  
1020 Serial_port=9  
1030 !  
1040 INPUT "Enter file name.",Fname$  
1050 ASSIGN @Io TO "A:"&Fname$  
1060 ENTER @Io;Sdata$  
1070 ASSIGN @Io TO *  
1080 !  
1090 DISP "Loading the parameter values to the Test Set..."  
1100 OUTPUT Serial_port;"SYST:SET "&Sdata$  
1110 DISP "Loading complete."  
1120 END
```





Table 5-4 Program Comments

1010	Declares the string array.
1040	Inputs the file name.
1050	Sets up the I/O path to the file.
1060	Enters the data from the file to the string array.
1070	Closes the I/O path.
1110	Sets the all of the setting parameter values.
1120	Ends this program.

A Syntax Diagrams

This appendix, contains syntax diagrams for each subsystem command. These diagrams illustrate the hierarchical structure of each system.

The following describes the graphical conventions used in the syntax diagrams.

-  : Represents a command (a question mark indicates a query).
-  : Indicates that a colon must be used between two commands in the line.
-  : Indicates that a space must be used as part of the command line.
-  : Represents one or multiple parameters for integer, string, or real.

<sample vsd>

Figure A-1 CONFigure Subsystem (1 of 3)

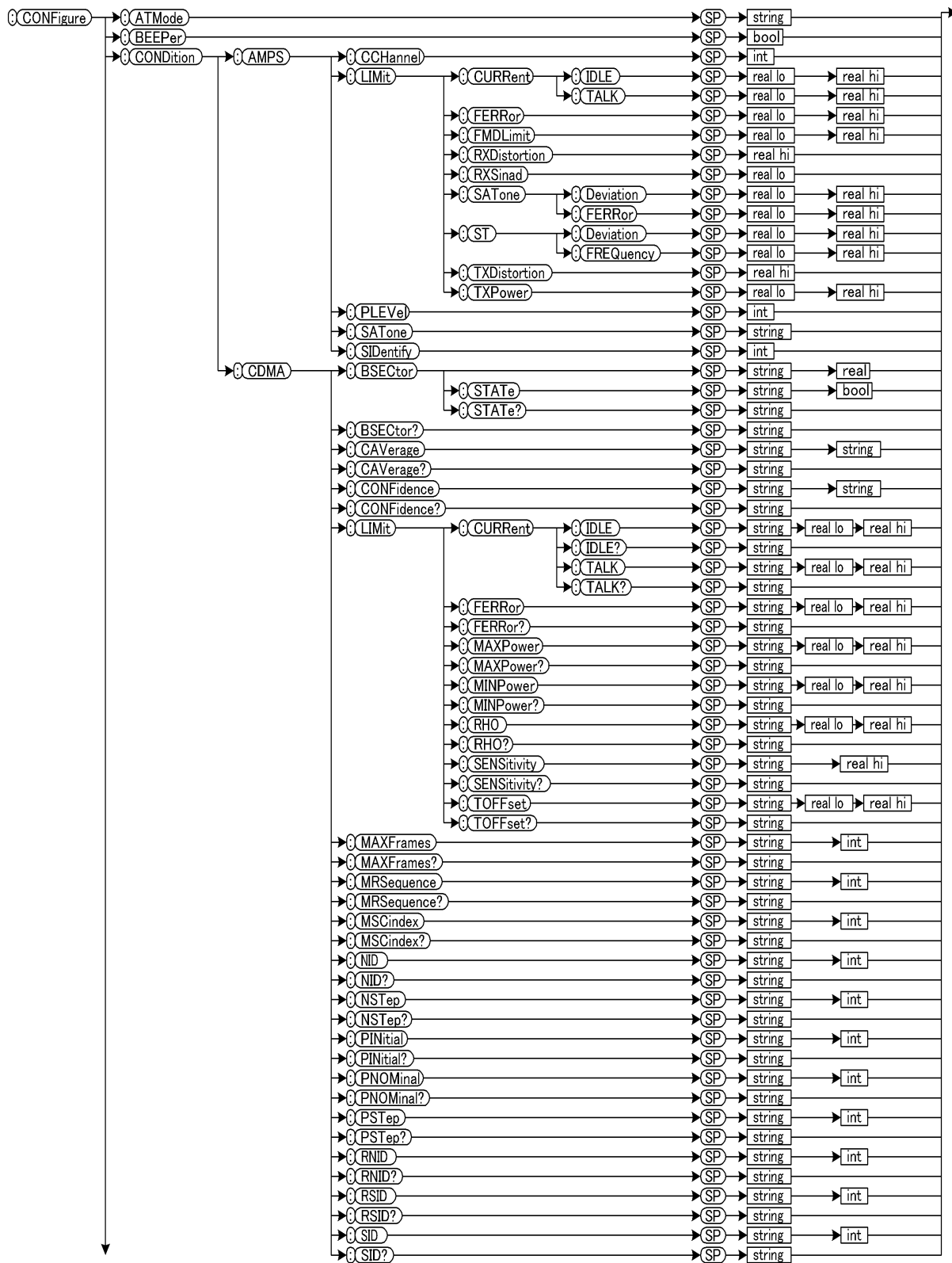
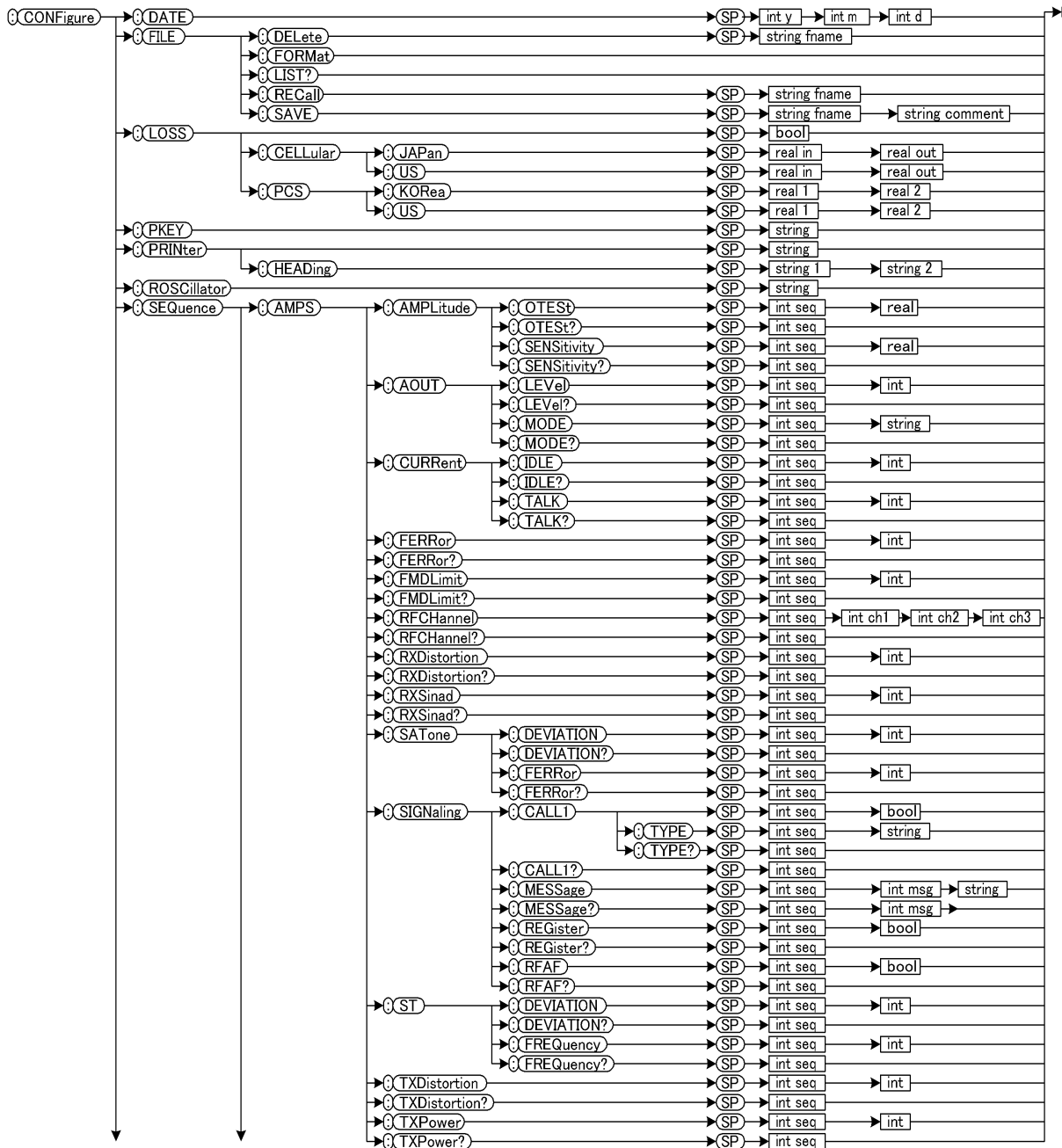


Figure A-2 CONFigure Subsystem (2 of 3)



A. Syntax Diagrams

Figure A-3 CONFigure Subsystem (3 of 3)

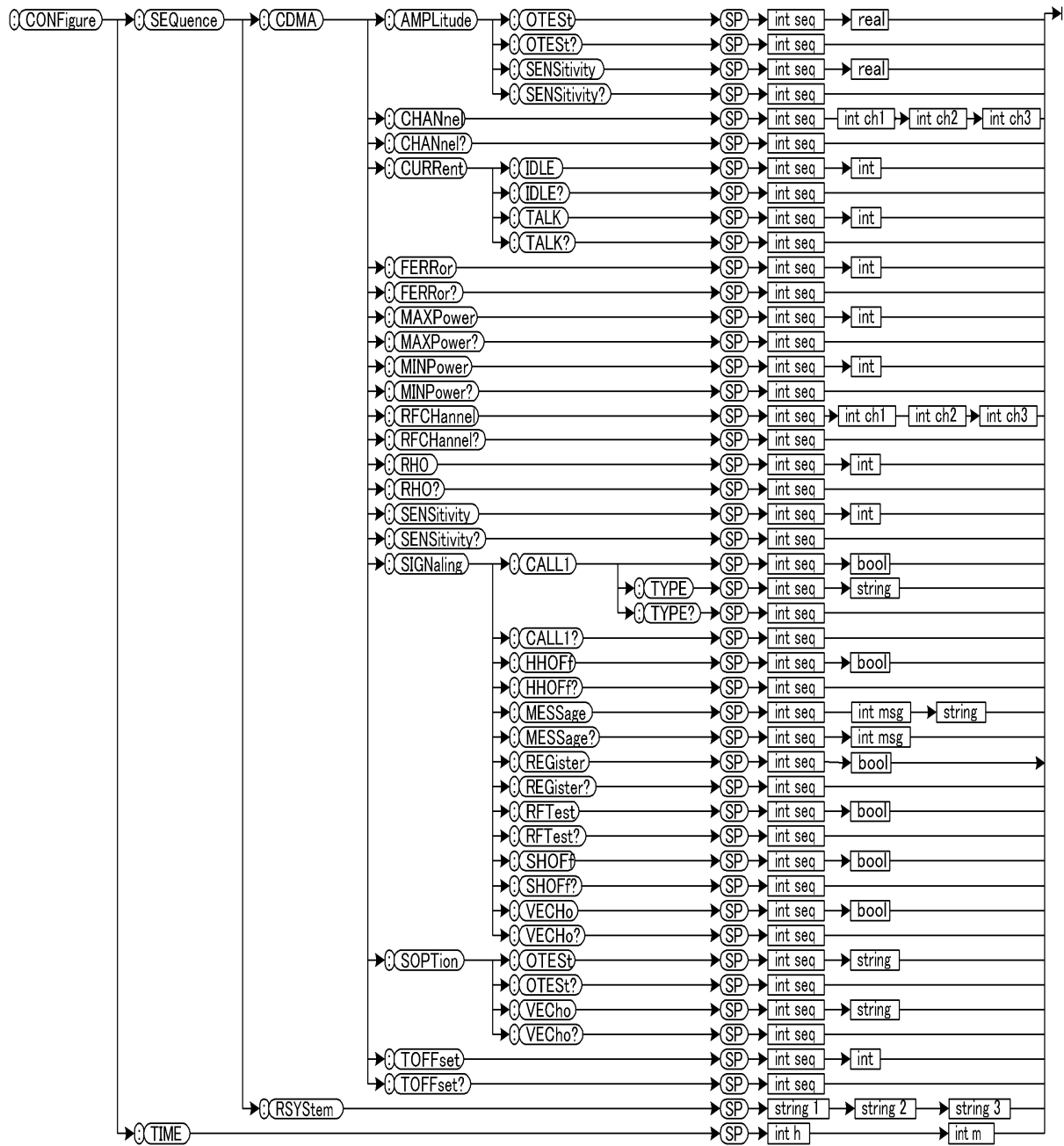


Figure A-4 DISPlay Subsystem

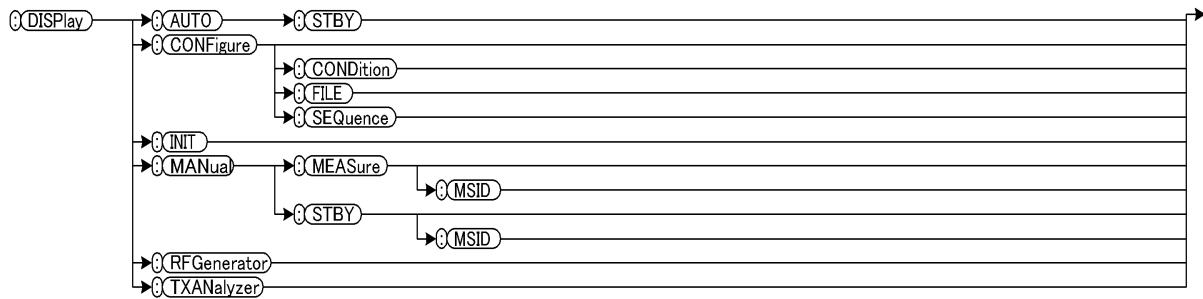


Figure A-5 HCOPy Subsystem

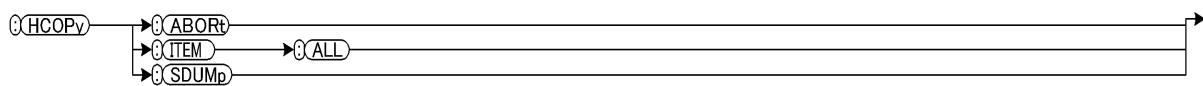


Figure A-6 RFGenerator Subsystem

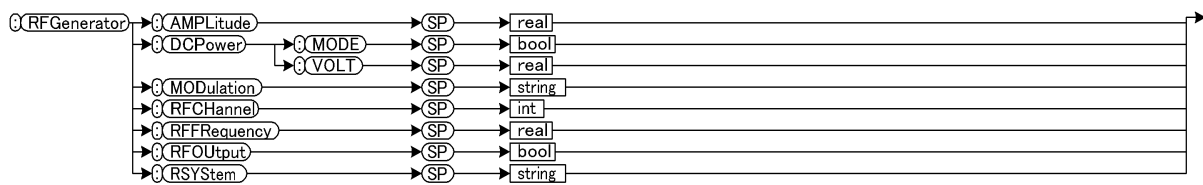
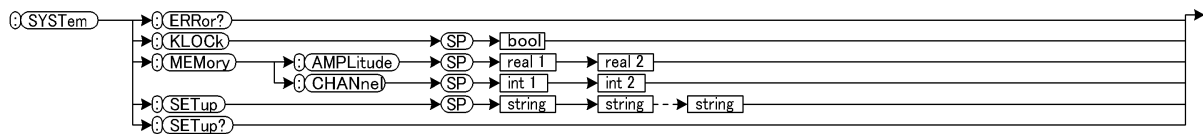
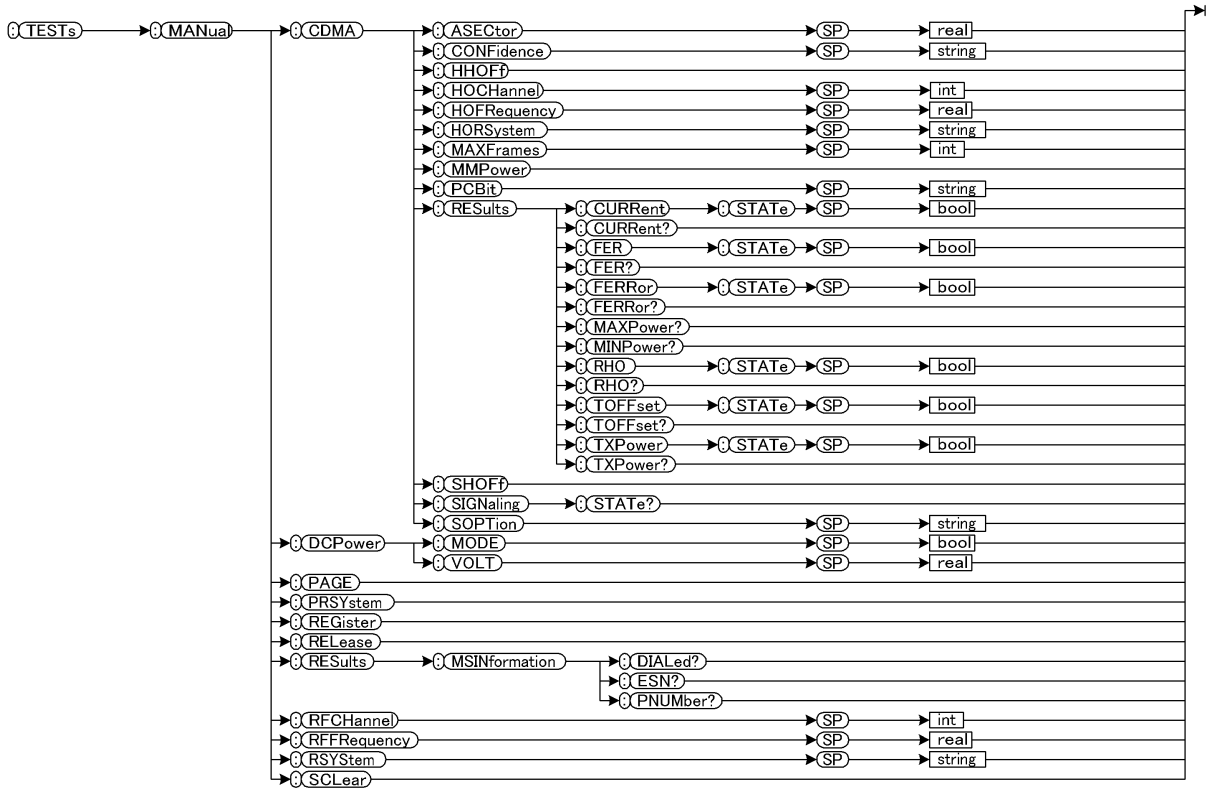


Figure A-7 SYSTem Subsystem



A. Syntax Diagrams

TESTs Subsystem for AUTOMATIC TEST (2 of 2)



A. Syntax Diagrams

Figure A-9 TRIGger Subsystem

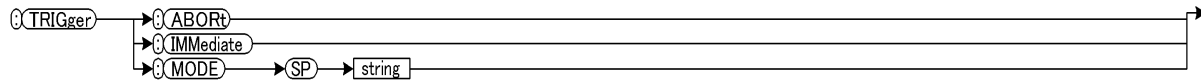
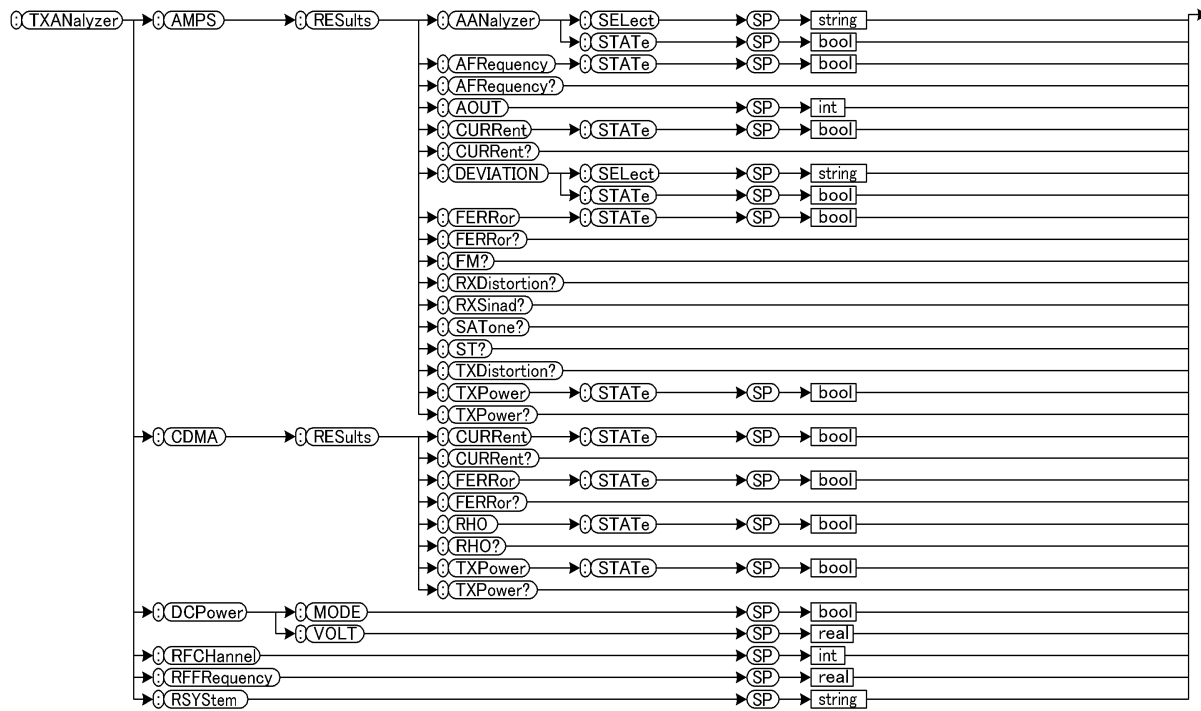


Figure A-10 TXANalyzer Subsystem



B **Radio System Combinations**

This appendix illustrates the allowable radio system combinations for the Automatic Test Sequence and the Manual Test hard handoff.

Transfer Between Radio Systems under Automatic Test Mode

In the Automatic Test mode, you can select up to three radio systems to be handed off or transferred using the `CONFigure:SEQUence:RSYSem <string 1>,<string 2>,<string 3>` command.

The radio system combinations have some restrictions, as shown in [Table B-1](#) below. In the Automatic Test mode, radio system transfer is executed in the order of `<string 1>,<string 2>,<string 3>`. The current and next (transferred) radio systems are shown in “From” and “To” fields respectively.

- “Y” Combination is allowed.
- “X” Combinations that test more than three frequencies within a radio system.
- “N” Combination is not allowed.

Table B-1 Radio System Transfer Capability between Radio Systems under Automatic Test Mode

From	To	Cellr/IS95A	Cellr/TSB74	Cellr/T53	PCS US	PCS Korea P0	PCS Korea P1	AMPS
Cellr/IS95A		X	Y	N	Y	Y	Y	Y
Cellr/TSB74		Y	X	N	Y	Y	Y	Y
Cellr/T53		N	N	X	N	N	N	N
PCS US		Y	Y	N	X	Y	Y	Y
PCS Korea P0		Y	Y	N	Y	X	Y	N
PCS Korea P1		Y	Y	N	Y	Y	X	N
AMPS		N	N	N	N	N	N	X

Hard Handoff Between Radio Systems under Manual Test Mode

In the Manual Test mode, you can set the current radio system and the radio system to be handed off using the following commands:

```
Current Radio System           TESTs:MANual:RSYstem <string1>
Radio System to be handed off  TESTs:MANual:HORSYstem
                               <string2>
```

The radio system combinations have some restrictions for manual hard handoff, as shown in [Table B-2](#) below. In this test mode, the radio system is handed off from “From” specified by <string1> to “To” specified by <string2>.

- “Y” Allowed.
- “N” Not allowed.

Table B-2 Hard Handoff Capability between Radio Systems

From	To						
	Cellr/IS95A	Cellr/TSB74	Cellr/T53	PCS US	PCS Korea P0	PCS Korea P1	AMPS
Cellr/IS95A	N	Y	N	Y	Y	Y	Y
Cellr/TSB74	Y	N	N	Y	Y	Y	Y
Cellr/T53	N	N	N	N	N	N	N
PCS US	Y	Y	N	N	Y	Y	Y
PCS Korea P0	Y	Y	N	Y	N	Y	N
PCS Korea P1	Y	Y	N	Y	Y	N	N
AMPS	N	N	N	N	N	N	N

A. Input Fields and Allowable Ranges

C **Test Run/Skip Combinations**

This appendix describes the Run/Skip combination restrictions for test flows.

Test Run/Skip Combinations

For each radio system test, two different test flows (depending on second step by either Paging or first and MS Origination) can be configured with the combinations of Run/Skip.

In the following combination tables, values 0 and 1 have the meanings:

1: Run the test flow step.

0: Skip the flow step.

Note that one combination in a test flow is shown in one column of the tables as 1 or 0 (Run or Skip).

When the value shown in a column is 1 (Run) or 0 (Skip), it means that you must specify 1 or 0, as the argument `<bool>` in the command shown left, to run or to skip the step. Otherwise, if only (Run) or (Skip) is shown, it means that the Test Set decides to execute that step or not.

CDMA Test

Setup the First Call to MS Origination

To specify the second step to origination (called as the “first call”), send the command,

```
CONF:SEQ:CDMA:SIGN:CALL1:TYPE
<int seq>,ORIG.
```

Table C-1 Run/Skip Combination for First Call Setup by MS Origination

Test Flow	Command	<bool>					
1 Registration:	CONF:SEQ:CDMA:SIGN:REG <int seq>,<bool>	1 (Run)	1 (Run)	1 (Run)	1 (Run)	0 (Skip)	0 (Skip)
2 MS Origination:	CONF:SEQ:CDMA:SIGN: CALL1 <int seq>,<bool>	1 (Run)	1 (Run)	0 (Skip)	0 (Skip)	1 (Run)	1 (Run)
3 Voice Echo:	CONF:SEQ:CDMA:SIGN:VECH <int seq>,<bool>	1/0 (Run/ Skip)	1/0 (Run/ Skip)	(Skip)	(Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)
4 MS Release:	(The Test Set sets to the same as step 2)	(Run)	(Run)	(Skip)	(Skip)	(Run)	(Run)
5 Paging:	(Always executed.)	(Run)	(Run)	(Run)	(Run)	(Run)	(Run)
6 RF Test:	CONF:SEQ:CDMA:SIGN: RFT <int seq>,<bool>	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)
7 Softer Handoff:	CONF:SEQ:CDMA:SIGN:SHOF <int seq>,<bool>	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)	1/0 (Run/ Skip)
8 Hard Handoff:	CONF:SEQ:CDMA:SIGN:HHOF <int seq>,<bool>	1 (Run)	0 (Skip)	1 (Run)	0 (Skip)	1 (Run)	0 (Skip)
9 BS Release:	(The Test Set sets another than step 8.)	(Skip)	(Run)	(Skip)	(Run)	(Skip)	(Run)

Setup the First Call to Paging

To specify which test flow is selected, you can use the
 CONF:SEQ:CDMA:SIGN:CALL1:TYPE
 <int seq>, PAGE command to select the second step (called to be “first call”)
 of the test flow to be Paging.

Table C-2 Run/Skip Combination for First Call Setup by Paging

Test Flow	Command	<bool>					
1 Registration:	CONF:SEQ:CDMA:SIGN:REG <int seq>, <bool>	1 (Run)	1 (Run)	1 (Run)	1 (Run)	0 (Skip)	0 (Skip)
2 Paging:	CONF:SEQ:CDMA:SIGN: CALL1 <int seq>, <bool>	1 (Run)	1 (Run)	0 (Skip)	0 (Skip)	0 (Skip)	0 (Skip)
3 RF Test:	CONF:SEQ:CDMA:SIGN:RFT <int seq>, <bool>	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	(Skip)	(Skip)	(Skip)	(Skip)
4 BS Release:	(The Test Set sets to the same as step 2)	1 (Run)	1 (Run)	0 (Skip)	0 (Skip)	0 (Skip)	0 (Skip)
5 MS Origination:	(Always executed.)	(Run)	(Run)	(Run)	(Run)	(Run)	(Run)
6 Voice Echo:	CONF:SEQ:CDMA:SIGN:VECH <int seq>, <bool>	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)
7 Softer Handoff:	CONF:SEQ:CDMA:SIGN:SHOF <int seq>, <bool>	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)
8 Hard Handoff:	CONF:SEQ:CDMA:SIGN:HHOF <int seq>, <bool>	1 (Run)	0 (Skip)	1 (Run)	0 (Skip)	1 (Run)	0 (Skip)
9 MS Release:	(The Test Set sets another than step 8.)	(Skip)	(Run)	(Skip)	(Run)	(Skip)	(Run)

AMPS Test

Setup the First Call to MS Origination

To specify which test flow is selected, you can use the
 CONF:SEQ:AMPS:SIGN:CALL1:TYPE
 <int seq>, ORIG command to select the second step (called to be “first call”)
 of the test flow to be MS Origination.

Table C-3 Run/Skip Combination for First Call Setup by MS Origination

Test Flow	Command	<bool>		
1 Registration:	CONF:SEQ:AMPS:SIGN:REG <int seq>, <bool>	1 (Run)	1 (Run)	0 (Skip)
2 MS Origination:	CONF:SEQ:AMPS:SIGN:CALL1 <int seq>, <bool>	1 (Run)	0 (Skip)	1 (Run)
3 MS Release:	(The Test Set sets to the same as step 2)	(Run)	(Skip)	(Run)
4 Paging:	(Always executed.)	(Run)	(Run)	(Run)
5 RF/AF Test:	CONF:SEQ:AMPS:SIGN:RFAF <int seq>, <bool>	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)	1 / 0 (Run/ Skip)
6 BS Release:	(Always executed.)	(Run)	(Run)	(Run)

Setup the First Call to Paging

To specify which test flow is selected, you can use the
 CONF:SEQ:AMPS:SIGN:CALL1:TYPE
 <int seq>,PAGE command to select the second step (called to be “first call”)
 of the test flow to be Paging.

Table C-4 Run/Skip Combination for First Call Setup by Paging

Test Flow	Command	<bool>		
1 Registration:	CONF:SEQ:AMPS:SIGN:REG <int seq>,<bool>	1 (Run)	1 (Run)	0 (Skip)
2 Paging:	CONF:SEQ:AMPS:SIGN:CALL1 <int seq>,<bool>	1 (Run)	0 (Skip)	0 (Skip)
3 RF/AF Test:	CONF:SEQ:AMPS:SIGN:RFAF <int seq>,<bool>	1 / 0 (Run/ Skip)	(Skip)	(Skip)
4 BS Release:	(The Test Set sets to the same as step 2)	(Run)	(Skip)	(Skip)
5 MS Origination:	(Always executed.)	(Run)	(Run)	(Run)
6 MS Release:	(Always executed.)	(Run)	(Run)	(Run)

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