Agilent Technologies: <u>E8285A CDMA Mobile Station Test Set</u>
Doc Rev: <u>June 30, 2000</u>

New Firmware Revision: <u>A.05.05</u>   **Release Date: <u>July 10, 2000</u>**
Previous Firmware Revision: <u>A.04.54</u>   **Release Date: <u>March, 2000</u>**

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FIRMWARE DETAIL SECTION

New Feature Detail

- Swept Power

The Swept Power measurement provides a method to capture a graphical trace of mobile phone power versus time for various applications. This new feature has a flexible amplitude trigger and a variable dynamic range.

Field	GP-IB Commands	Description
Swept Power	TRIGger[:IMMediate]	This command arms the measurement. Important: It is necessary to send the following command "TRIGger:MODE:RETRigger SINGle" once before arming.
N/A (Screen)	DISP CSWPower	This command switches the screen to the CDMA Swept Power Measurement screen.
Controls	CDMA:SWEPtpower:CONTrol CDMA:SWEPtpower:CONTrol?	This command gives the user the ability to query/change the Controls field.
Grid	CDMA:SWEPtpower:GRID 'on | off' CDMA:SWEPtpower:GRID?	This command gives the user the ability to query/change the Grid field.
Amplitude	CDMA:SWEPtpower:TRIGger:AMPLitude CDMA:SWEPtpower:TRIGger:AMPLitude?	This command gives the user the ability to query/change the amplitude at which the measurement will trigger.
Slope	CDMA:SWEPtpower:TRIGger:SLOPe CDMA:SWEPtpower:TRIGger:SLOPe?	This command gives the user the ability to query/change the edge (rising or falling) at which the measurement will trigger.
Marker Time	CDMA:SWEPtpower:MARKer:TIME CDMA:SWEPtpower:MARKer:TIME?	These commands give the user access to the marker time on a trace between 0 and 100 ms.
Lvl	MEAS:SWEPtpower:MARKer:LEVel? MEAS:SWEPtpower:MARKer:LEVel:STATe MEAS:SWEPtpower:MARKer:LEVel:STATe?	These commands provide access to the level at the current marker position.
N/A (Trace Array)	MEAS:SWEPtpower:TRACe[:LEVel]?	Returns an array of 417 real numbers. The first element zero represents the trace's level at the left side of the display (0 ms) and element 416 represents the trace's level at the right side of the display (100 ms). Note: If the measurement has not yet been triggered, then the bus will hang if the array is queried.
Trace Clear	MEAS:SWEPtpower:TRACe:CLEar	This command allows the user to clear the trace on the screen.
Ref Level	CDMA:SWEPtpower:RLEVel CDMA:SWEPtpower:RLEVel(?)	This command gives the user the ability to query/change the level which will be used to determine what range of values (+35 to -25 dB) will be displayed on the y-axis of the screen. (This field value is also used to set the input path gain on the "Input Atten" field.)

A new status register, called MEASuring has implemented. Bit 3 being set to 1 (TRUE), indicates that the Swept Power Measurement is Armed and waiting for an appropriate trigger. Bit 3 being set to 0 (FALSE), indicates the measurement is Idle and ready to be armed.

- Additional Protocol Messages

The following additional protocol message support allows customers to more fully perform certain TIA/EIA-98-B/C, ANSI J-STD-018 and CDG Stage 2 tests:

          * The ability to send a PMRO (Pilot Measurement Request Order) when desired.
          * The ability to send an Audit Order at the beginning of each valid paging slot.
          * The ability to send an EHDM (Extended Handoff Direction Message) when desired.
          * The ability to send a custom neighbor list entry with frequency included.
          * The ability to perform power down registration.

Field	GP-IB Commands	Description
Send Msg	:CDMA:MOB:SNDM 'Null' | 'PltMeasReqO' | 'ExtHoDP1' | 'ExtHoDP1P2' :CDMA:MOB:SNDM? <return_string>	This field allows the user to send a PMRO (Pilot Measurement Request Order) on the forward traffic channel when desired, or to send an EHDM (Extended Handoff Direction Message) with either one or two Pilot records when desired. All messages require an active call to be up.
Pwr Dwn Reg	:CDMA:CELL:CONF:PDRegister 'On' | 'Off' :CDMA:CELL:CONF:PDRegister? <return_string>	This field allows the user to enable/disable Power Down Registration (by setting the POWER_DOWN_REG in the Systems Parameter Message to 0 or 1)
Ext NGHB	:CDMA:CELL:CONF:EXNB 'On' | 'Off' :CDMA:CELL:CONF:EXNB? <return_string>	This afield allows the user to enable/disable the sending of the custom neighbor list.
Sc Priority	:CDMA:CELL:CONF:SCPR 'Low' | 'Medium' | 'High' | 'Very High' :CDMA:CELL:CONF:SCPR? <return_string>	This allows the user to set "Search Priority" in the custom neighbor list.
NGHB Fq(Ch)	:CDMA:CELL:CONF:NBFR <integer> :CDMA:CELL:CONF:NBFR? <return_integer>	This allows the user to set "Neighbor Frequency (channel number) in the custom neighbor list.
Page Send	:CDMA:CELL:CONF:PAGE:SNDMode 'None' | 'AO-AK' | 'AO-NA' | 'GP' | 'AO-AK/GP' | 'AO-NA/GP' | :CDMA:CELL:CONF:PAGE:SNDMode? <return_string>	This allows the user to specify which of the following message(s) will be sent on the Paging channel: • 'None' (no additional messages) • 'AO-AK' (Audit Order Message with ACK_REQ set to 1) • 'AO-NA' (Audit Order Message with ACK_REQ set to 0) • 'GP' (General Page Message) • 'AO-AK/GP' (Audit Order Message with ACK_REQ set to 1, as well as General Page Message) • 'AO-NA/GP' (Audit Order Message with ACK_REQ set to 0)

- Interband Handoff

Interband handoffs between TSB-74 (cellular band CDMA protocol) and J-STD-008 (PCS band CDMA protocol) are supported. This feature saves test time for customers manufacturing dual band (tri-mode) CDMA digital phones by allowing them to test both bands with only one phone call.

Field	GP-IB Commands	Description
System Type	CDMA:CALL:AHANdoff:CSTAndard 'J-STD-008' |'TSB-74' CDMA:CALL:AHANdoff:STYPe 'J-STD-008' |'TSB-74'	This field is normally used to set the type of cellular system to which the handoff will occur. Now, J-STD-008 is an option when TSB-74 is selected as the Protocol, and vice-versa.

Product Improvements Detail

- Analog Registration Confirmation Message

After the E8285A receives the AMPS registration message from the mobile phone, it now responds with a Registration Confirmation Message as a FOCC message with the following parameters.

    * Order: 1101

    * OrderQ: 1

This message is only sent if the Reg Conf field on the CALL CONFIGURE screen is set to "On." This field only appears when "AMPS" is selected as the System Type. The default setting for the Reg Conf field is "Off."

Field	GP-IB Commands	Description
Reg Conf	CALLP:REGConf(?) Or CPRocess:REGConf(?)	Either one of these commands allows the user to set the Reg Conf field to either on or off.

- In-Traffic System Parameters Message

If the SID field is changed on the CDMA CELL SITE CONFIGURATION screen on the E8285A while a phone call is up (on the traffic channel), then the E8285A now sends the In-Traffic System Parameters Message.

- Open Loop Time Response Corner Cases

Firmware anomalies were found in previous firmware versions of the E8285A that could occasionally cause the instrument to return erroneous Open Loop Time Response results, given a unique chain of events. These firmware anomalies found in A.04.53 or A.04.54 have been fixed in A.05.03 or higher.

- Renaming of analog RF Chan Std field choices

Among others, MS JTACS and MS NTACS are choices under the RF Chan Std field in analog mode. MS JTACS and MS NTACS are essentially the same channel/frequency conversions, as Japan CDMA except that Japan CDMA covers a wider channel range. Thus, the MS JTACS and MS NTACS choices have been removed and replaced with JAPAN CDMA.

Also, the MSM NAMPS choice has been replaced with MS AMPS (again because functionality is the same).

The new labels are consistent with the choices available under the RF Chan Std field in CDMA mode.

- Status Query no longer sent to DSP

Previously, a status query was sent every 20 seconds from the host to the DSP. If the DSP did not respond, an error message would be posted. The error message indicated that the DSP was not responding, and asked the user to cycle the E8285A power. This status query is no longer sent.

- Analog Hard Handoff

In analog mode, the E8285A performs a connectivity check at regular intervals to determine if the analog call is still active. Occasionally, during analog hard handoffs, this check would occur during the time the phone had turned its transmitter off, and was in the process of going from one analog channel to another, and the call would be dropped. This connectivity check no longer causes calls to be dropped during analog handoff.

- Swept Power defect

On June 22, 2000, A.05.03 firmware was released, with all the new features and product improvements shown above. However, the Swept Power feature had a defect in it, where some of its fields would not appear on the screen unless a spectrum analyzer option was installed. This issue has been resolved in the current release, A.05.05.

- Minimum Power Measurement

Previously, after executing the Min/Max Pwr measurement, 4 dashes would be returned for minimum power if the Sctr A Pwr field was initially set at or below -83 dBm. This no longer occurs.

Known Limitations Detail

- **ACTION REQUIRED when upgrading existing units from firmware revision A.02.04 or older**

The calibration files' diagnostic limits have been altered. Thus, it is required to do the following after a firmware upgrade to A.04.53 or higher, in order to ensure that diagnostics (self-tests) work properly.
1. Power up the instrument and go to the TESTS screen.
2. Under Select Procedure Location, select ROM.
3. Under Select Procedure Filename, select DIAGLIM7. This is a program on ROM disk in instruments loaded with the new firmware.
4. Press Run Test and wait several minutes for the new data to download.

Note: If the DIAGLIM7 program is not run, the following error message will be displayed on the message screen, and will reappear every time the test set's power is cycled: "Cal File check sum error: csa_fs_gain." Furthermore, diagnostics will not run properly.

Caution: If users install older firmware revisions (lower than A.04.53) after the DIAGLIM7 program is run, diagnostics will not run properly.

- **CDMA RF Chan Std field Changes after coming back from Analog screens**

When going back and forth between CDMA and analog screens, it is important to note that the CDMA RF Chan Std is affected by the analog System Type field setting. Thus, regardless of the what the RF Chan Std is set to before going to the analog screen, it will change as follows after going to the analog screens and returning to the CDMA screens:

If the analog System Type is:	After returning to CDMA, RF Chan Std will change to:
MS AMPS	AMPS
MS AMPS	NAMPS
MS ETACS	TACS
JAPAN CDMA	JTACS
JAPAN CDMA	NTACS

INSTRUMENT COMPATIBILITY SECTION

Host firmware and associated codeware compatibility
DSP revision: 20000522
Protocol revision: 20000510
Cellsite 1 revision: 20000510
Cellsite 2 revision: 20000510

To check an instrument's codeware revisions, do the following:
- Go to the CONFIGURE screen.
- Go to the SERVICE screen.
- Highlight the Module field.
- Select Instrument, from the list.
- Highlight the Latch field.
- Select each of the digital assemblies to view the revision in the Value field.