**CDMA Receiver Tests**

The key performance parameter for CDMA mobile station receivers is Frame Error Rate with and without the presence of AWGN. The built-in high accuracy AWGN generator in the HP E8285A guarantees the FER tests provide the true picture of a CDMA mobile ability to correctly demodulate a signal in the presence of high interfering noise. The HP E8285A fully supports service Options 002 and 009 (RF loopback mode) to test receiver FER performance. The HP E8285A optimizes FER measurement time by employing confidence limit technology. With confidence limits, FER measurements are made in the fastest possible time.

**Hand-off Verification**

To speed testing, the HP E8285A supports hard hand-offs between RF channels. CDMA to analog hand-offs from both cellular and PCS bands are also supported. With two configurable CDMA sectors, the HP E8285A can verify the ability of a CDMA mobile to support softer hand-offs. Two HP E8285A test sets can be synchronized for more complete idle and soft hand-off testing.

**Short Message Service Testing**

The HP E8285A supports mobile terminated SMS on both paging and traffic channels. Messages can be sent in both ASCII and HEX formats to support international character sets.

**CDMA and AMPS Authentication Testing**

The HP E8285A includes authentication tests which support both CDMA (US and Korean) and AMPS. The HP E8285A displays expected mobile phone values and actual values returned. SSD update, A-key entry, RANDC and other authentication procedures are supported.

**Analog Capabilities**

In addition to powerful CDMA test capabilities, the HP E8285A retains full analog cellular test capability. Based on the HP 8924C CDMA Mobile Station Test Set, the HP E8285A is backwards compatible with most HP 8924C GPIB commands. The HP E8285A includes as standard equipment a high stability timebase, a C-message filter, and a 6 kHz bandpass filter. In addition the HP E8285A supports easy CDMA to analog handoffs from both cellular and PCS channels. It also offers one button analog cellular call processing for AMPS, NAMPS, TACS, NTACS, and JTACS phones. These analog features not only allow the HP E8285A to test dual mode CDMA phones, but also provide an effective suite of measurement tools for radio troubleshooting.

**HP 83217A Dual-mode Mobile Station Test Software**

Besides its many measurement functions, the HP E8285A includes a programmable IBASIC controller. The HP 83217A Option 004 automates CDMA dual-mode mobile measurements using the HP E8285A. Automated testing improves consistency and reduces operator error resulting in lower operation costs and improved product quality. This software package provides a comprehensive suite of analog and digital tests that can be easily arranged to fit specific testing requirements. Test points, test limits, and test sequences can be stored for future retrieval.

**HP E8290A Point of Service Test Software**

The new HP E8290A PoST (Point of Service Test) Software makes the HP E8285A an easy to use automated CDMA test solution. The HP E8290A quickly provides accurate phone performance and quality data at the point of sale. This PC-based solution is very easy to use, reduces churn, reduces NTF (No Trouble Found), and improves customer care. Test results can also be stored in databases for further analysis.
Wireless Mobile & Base Station Test Sets

HP E8285A CDMA Mobile Station Test Set (cont’d)

HP E8285A Analog Mode Specifications

Signal Generator

Range
100 MHz to 1000 MHz,
1700 MHz to 2000 MHz.

RF IN/OUT Connector

Level Range: –120 dBm to –18 dBm into 50 ohms
Level Accuracy:
±1.0 dB (100 MHz to 1000 MHz), typically ±0.7 dB.
±1.25 dB (1.7 to 2.0 GHz), typically ±1.0 dB.
Reverse Power: 2.5 watts

DUPLEX OUT Connector

Level Range: –120 dBm to –8 dBm into 50 ohms
Level Accuracy: ±1.0 dB

FM Deviation
(rates >25 Hz):
100 kHz; 501 MHz to 1000 MHz,
100 kHz; 1700 MHz to 2000 MHz.

Audio Source

Range: dc to 25 kHz
Accuracy: 0.025% of setting

RF Analyzer

RF Frequency Measurement
Measurement Range: 100 MHz to 1000 MHz,
1700 MHz to 2000 MHz.

RF Power Measurement

Accuracy: ±7.5% (–10 dBm to +30 dBm)
Measurement Range: –10 dBm to +34 dBm (0.1 mV to 2.5 W)

FM Measurement

Frequency Range
5 MHz to 1000 MHz,
1700 MHz to 2000 MHz.
Deviation Range: 20 Hz to 75 kHz

Spectrum Analyzer (Option 102)

Frequency Range
0.4 MHz to 1000 MHz,
1700 MHz to 2000 MHz.
Resolution Bandwidth (coupled): 300 Hz to 300 kHz
Display Range: 80 dB

Audio Analyzer

Frequency Measurement
Measurement Range: 20 Hz to 400 kHz
Accuracy: ±0.02% plus resolution plus reference oscillator accuracy

SINAD Measurement

Fundamental Frequency Range: 300 Hz to 10 kHz ±5%
Input Level Range: 30 mV to 30 Vrms
Accuracy: ±1 dB for frequencies from 300 to 1500 Hz, measured with the 15 kHz LPF (0 to 46 dB SINAD).

Oscilloscope

Frequency Range (–3 dB BW): 2 Hz to 50 kHz
Scale/Division: 10 mV to 10 V

CDMA Signal Generator

CDMA Channels:

Additive White Gaussian Noise
Sector A with Selectable PN Offset:
  Pilot Channel at Walsh Code 0
  Sync Channel at Walsh Code 32
  Paging Channel at Walsh Code 1
  Traffic Channel with selectable Walsh Code
  QCNS Channel with selectable Walsh Code
Sector B with selectable PN offset:
  Pilot Channel at Walsh Code 0
  Traffic Channel with Selectable Walsh Code
  QCNS Channel with Selectable Walsh Code

Frequency

Frequency Range
501 MHz to 1000 MHz,
1700 MHz to 2000 MHz

Amplitude

Composite Signal Output Level Range:

RF IN/OUT
–120 dBm/1.23 MHz to –20 dBm/
1.23 MHz, useable to -15 dBm.
DUPLEX OUT
–120 dBm/1.23 MHz to –10 dBm/
1.23 MHz, useable to -10 dBm.

Composite Signal Output Level Accuracy

AWGN Off
±1.25 dB 501 MHz to 1000 MHz,
±1.35 dB 1700 MHz to 2000 MHz

Relative CDMA Channel Level Accuracy: <0.2 dB

CDMA Analyzer

CDMA Average Power Measurement
Input Frequency Range
100 MHz to 1000 MHz,
1700 MHz to 2000 MHz.
Measurement Range: –10 dBm to +34 dBm
Accuracy: –10 dBm to +30 dBm
±7.5% ±1 µW (100 MHz to 1000 MHz)
±8% ±1 µW (1.7 GHz to 2.0 GHz) Typically ±5%

CDMA Tuned Channel and Access Probe

Power Measurements

Measurement Range
RF IN/OUT: –50 dBm to +30 dBm
ANT IN: –70 dBm to +15 dBm

CDMA Modulation Measurement

Measurement Input Level Range: –20 dBm to +34 dBm
Measurement Accuracy: ±0.003

Frequency Error Measurement Accuracy: ±30 Hz ± timebase accuracy

CDMA Frame Error Rate Measurement

FER Measurement Method: Data loopback per Service Option 002 or Service Option 009 supporting Confidence limits as outlined in TIA/EIA-98-B
FER Reported Parameters: Measured FER, Number of Errors, Number of Frames tested, and one of the following: Passed Confidence limit, Failed Confidence limit, or Max. Frames (test indeterminate)

General Specifications

Dimensions (H x W x D): 22.2 cm x 42.5 cm x 59.0 cm
Weight: 22 kg, 48 lbs
Operating Temperature: 0˚ C to +55˚ C
Power: 100 V to 240 V, 50/60 Hz, nominally 250 VA
Calibration Interval: Two years

Ordering Information

E8285A CDMA PCS mobile station test set
Opt 002 Add HP E8290A PoST automated PC software
Opt 011 Add CCITT filter for TACS/ETACS
Opt 102 Add spectrum analyzer with tracking generator
Opt 080 Delete manual set.
Opt 081 Add one additional manual set.
Opt 0BW Printed service documentation, assembly-level.
Opt AX4 Rack flange kit.
Opt UK6 Commercial calibration certificate with test data.

Internet URL: www.hp.com/go/tmc00

Product & Order Info See page 607