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Model 3600D

TDMA

The TDMA option provides comprehensive modulation tests, BER, mobile-reported BER, MAHO RSSI, complete call processing, and voice tests using the Vocoder.

IS-136

The IS-136 option allows generation of Forward and Reverse Digital Control channels or custom Digital Control channels for increased flexibility.

PCS

PCS capability can be achieved with the FEX option, combined with the TDMA or CDMA option, providing a complete dual band test set. The options provide IS-95A and J-STD-008 signaling and measurements, and IS-136A Digital Control Channel testing.

CDMA

CDMA testing provides call processing including softer and hard hand-offs, power control, waveform quality, OCNS and AWGN sources, and optional Voice Codec.

Versatile Design Allows Upgrade And Evolution

Wavetek's 3600D combines previous experience and future vision in proven features and expandable platform. All TIA formats are covered, including AMPS, NAMPS, TDMA (IS-54B and IS-136), and extensive test coverage of CDMA (IS-95A/98). All these digital formats are available at PCS frequencies using a self-contained frequency extension module (FEX). Japanese and Korean frequency band specifications are also covered.



Up to four optional modules can be simply installed. Using flash memory and the on-board floppy disk drive, straightforward field upgrades can be made. Modules can be purchased as technology develops and customers' needs change, as the 3600D's easy upgrade path preserves your investment in equipment, programs, and training.

Quick, Repeatable Testing With AUTORUNs

The 3600D's comprehensive MS-DOS based programming capability means that any test which can be

performed manually can be included in an AUTORUN. AUTORUNs can be helpful for specific phones which may require unique tests and for carriers who require specific tests for phones within the system.

Custom AUTORUNs are supplied by the carrier or phone manufacturer, or written to user specification. Each 3600D comes with five AUTORUNs in memory and additional examples on a 3.5" diskette. The 3600D stores five AUTORUN tests internally and accepts 3.5" diskettes for more.

Large Comprehensive Display

The 3600D's large LCD screen can be viewed at up to 45° angle, allowing key parameters to be viewed without squinting or constant adjustment — ideal for a busy service bench. Comprehensive displays of parameters are included on the summary screens.

Channel, base power level, mobile power level, and system parameter set-up readings are always displayed at the bottom of the screen.

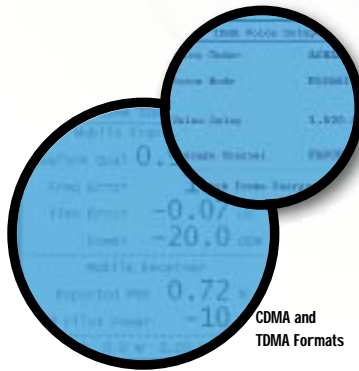
Easy-To-Read Display



CDMA Capabilities for Cellular and PCS

Upgrading the 3600D is easy. With the new CDMA module, technicians can perform call processing, transmitter tests, and receiver tests. Built-in AMPS and NAMPS protocols are standard, while PCS coverage is provided with an optional FEX module. Based upon requirements of IS-95A and J-STD-008, the 3600D's extensive call processing capabilities include registration, authentication, and softer and hard handoffs.

In the critical area of power control, closed loop and open loop power control are supported. Speech coding can use pre-recorded, loop-back, or an optional 8K/13K Vocoder to check voice quality.



The 3600D's signal generator provides pilot, sync, paging, and selectable traffic channels. An Additive White Gaussian Noise source with 30 dB troubleshooting range allows real world receiver testing. The constellation display shows the symmetry of the modulator and checks for skew and origin offset. Residual ρ is better than 0.97 for confidence in receiver testing.

Highly accurate, the transmitter analyzer provides power measurements of ± 0.65 dB ± 0.003 dB/dB (below +40 dBm) over temperature. The high ρ accuracy is ± 0.003 is ideal for phone troubleshooting non-linearity or amplifier defects.

TDMA Testing, IS-136, and Voice Codecs

Testing digital phones is simple and effective with the 3600D. Authentication, Call Waiting, SMS, and Calling Number ID test capabilities allow phone features to be thoroughly checked. The standard VSELP Codec allows technicians to check voice quality end-to-end, while the new ACELP Voice Codec option





Simple Operation

tests voice quality for IS-136 PCS phones and preserves loopback voice tests for VSELP or ACELP.

The 3600D's large display with limit lines allows technicians to check burst envelope to look at specification compliance, overshoot, and timing problems. Extensive receiver analysis with BER, mobile-reported BER, and MAHO RSSI checks phone performance.

For comprehensive transmitter testing, power and frequency measurements, RMS Vector Error, and Peak Vector Error are provided. Magnitude and Phase Error, Origin Offsets, and Burst Amplitude droop allow accurate characterization of the mobile. The constellation display helps technicians check in-phase and quadrature signals for misalignment and permits modulator troubleshooting.

Productivity Enhancing Features

Accurate and repeatable measurement performance provides confidence in phone testing. A 'C' message filter, together with 50 Hz to 300 Hz highpass and 3, 15, and 30 kHz lowpass filters, provides flexibility in evaluating new phones.

Remote Control Options

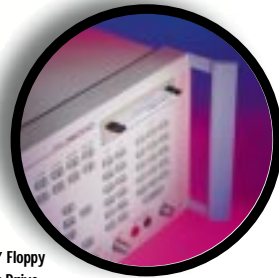
Fast operation using the optional GPIB remote control ensures rapid assessment of phones in factory installed, fully automatic test systems. Comprehensive capabilities allow factory QC systems to be used at repair depots to check performance. RS-232 control is also provided for PC control in service shops.

Cable Loss Calibrator

Power accuracy via cable connection is enhanced using the built-in cable calibrator. With this feature, cables used for automobile installation can be calibrated and intermittent or faulty RF cables located.

Soft Keys Give Easy Access

All manual screens have soft keys to help technicians maneuver through comprehensive test screens. Operating an extensive test or improving response time is enhanced using the soft keys.



3.5" Floppy Disk Drive

Automatically Exit And Return To Manual Operation

During an AUTORUN, the technician can pause on a failure, use manual mode to adjust a particular parameter, and easily return to the AUTORUN.

Affordable, Easy Custom Programming

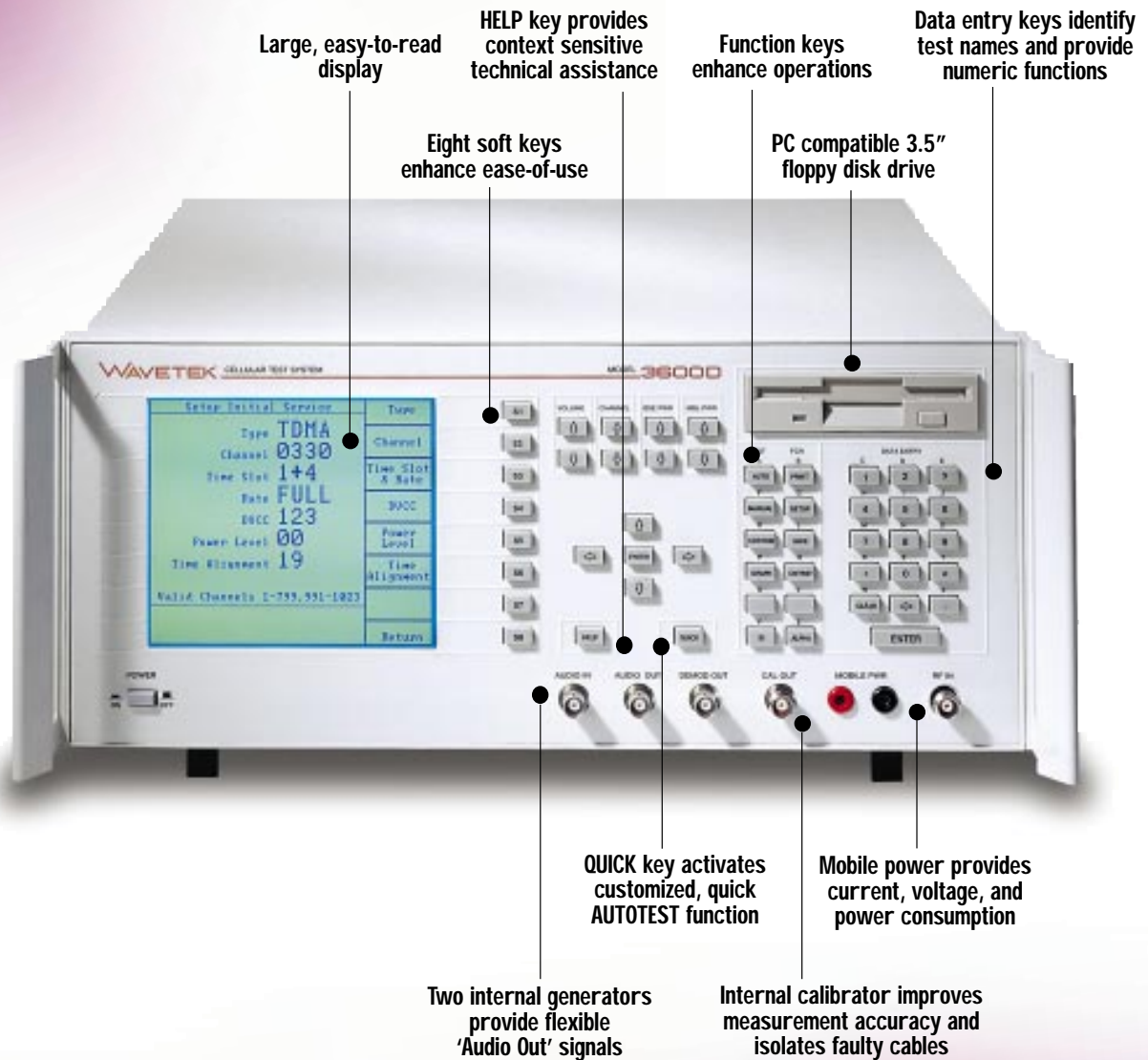
To avoid expensive programming costs, test routines can be simply customized using a standard MS-DOS based text editor and PC. Up to five AUTORUN routines can be internally stored, while a 3.5" diskette holds additional programs. For example, AUTORUNs can simplify:

- 30-second inspection tests for verifying general operation
- Custom tests for phone repair
- Intermittent fault finding tests

One Button Access Simplifies Operation

One push of the ID button provides ESN, MIN and SCM data to verify correct phone programming.

Logical Ease of Use



Model 3600D

WAVETEK®

General Specifications

Physical Specifications

Height x Width x Depth: 7" x 19.5" x 16.5"
Weight: 37 lbs.

Temperature Range

Operating: 10° to 40°C
Storage: -20° to 70°C

Power Requirements

Voltage: 85 to 264 VAC
Current: 5A maximum
Frequency: 47 to 440 Hz

External Interfaces

Printer: Centronix, Parallel
Control: RS-232
GPIO: IEEE Standard 488

Standard Modes

AMPS
NAMPS

Optional Modes

TDMA IS-54B
TDMA IS-136 Basic
TDMA IS-136 Custom
CDMA IS-95, IS-95A
CDMA J-STD-008 (PCS CDMA)
J-CDMA Japan Cellular (832-870 MHz)

Voice Codec

VSELP (standard for TDMA mode)
ACELP (optional for TDMA mode)
QCELP (optional for CDMA mode)

Frequency Extension (FEX)

US PCS Base TX 1930-1989.96 MHz
Base RX 1850.04-1909.98 MHz
Korean PCS Base TX 1805-1870 MHz
Base RX 1715-1780 MHz
Bypass Mode Base TX 869.04-893.97 MHz
Base RX 824.04-848.97 MHz

Ordering Information

Basic Unit

3600D Cellular Test Set 1010-00-0315
Includes: AMPS/NAMPS
TNC to TNC Cable
TNC to Mini-UHF and SMA Adapters
Parallel Printer Cable
RS-232 Cable
DB9 to DB25 Cable
Operator's Manual

Test Options

CDMA Option 1019-00-0563
Frequency Extension Option 1019-00-0562
TDMA Option 1019-00-0421
ACELP Option 1019-00-0582
IS-136 Basic Option 1019-00-0535
IS-136 Custom Option 1019-00-0534

Accessories

OSC1 Oven Controlled Oscillator 1019-00-0436
GPIO Communication Port 1019-00-0434
PRN-1 Portable Printer 1010-00-0329
External 10 MHz Reference 1019-00-0459

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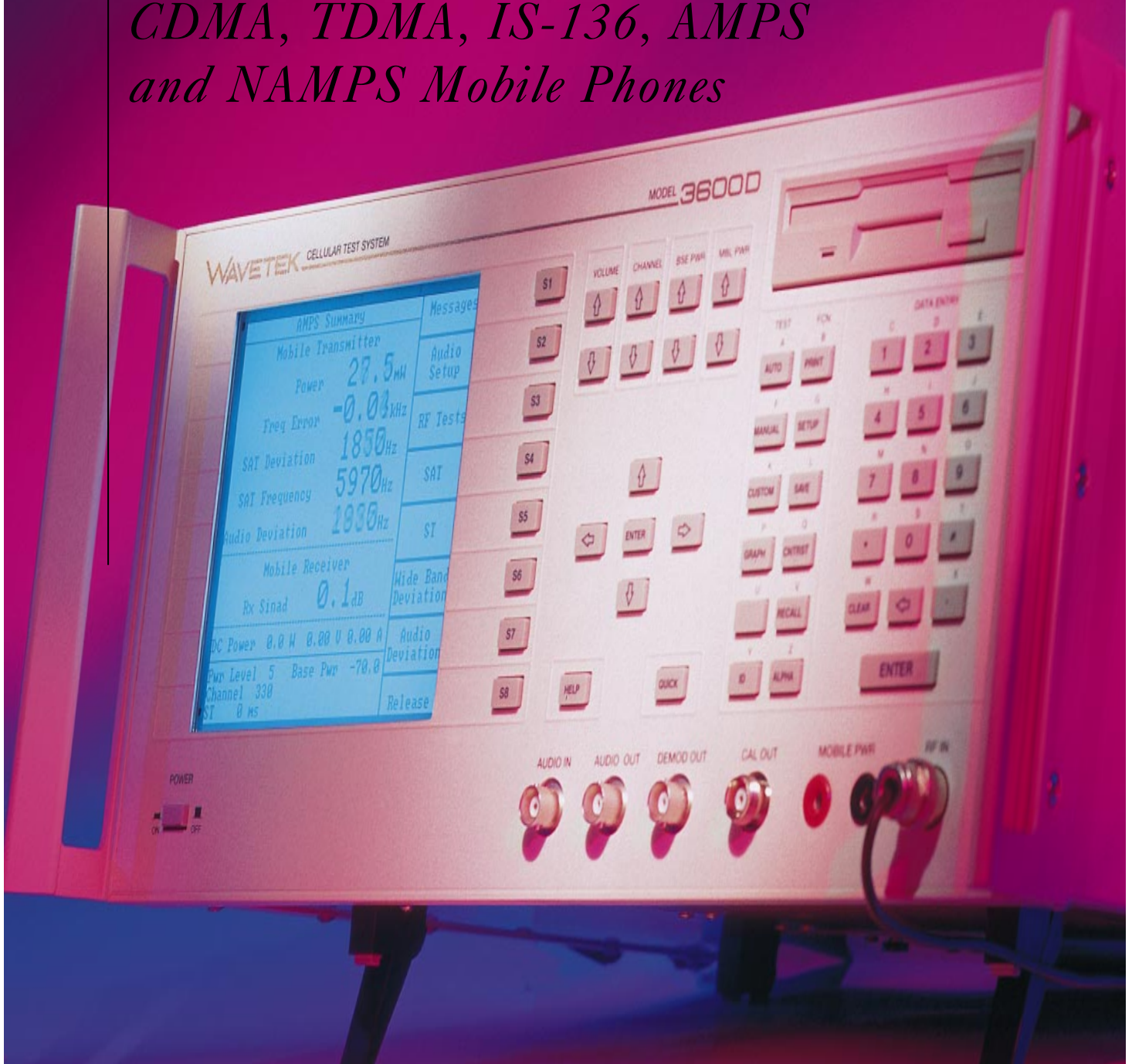
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Model 3600D

WAVETEK

Versatility in Cellular and PCS Testing

*Comprehensive Testing for
CDMA, TDMA, IS-136, AMPS
and NAMPS Mobile Phones*





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