

Wireless

3550R Touch-Screen Radio Test System

AEROFLEX
A passion for performance.



Now Available with Positive
Train Control Test Option!

The Complete Portable, On Site Radio Communication Test System for Analog and Digital
Communication Systems

The 3550R. The first truly portable touch-screen radio communication test system. The 3550R takes radio and repeater site testing to the next level with a quantum leap in an easy to use, integrated test system for complete radio receiver and transmitter performance testing, cable fault and antenna system analysis. With its ultra-responsive resistive touch-screen, the 3550R brings a whole new experience to RF testing.

- Next Generation Touch-Screen Operation!
- Define your own test screens and then save for future use!
- Internal Battery Provides 4.5 Hours of True Portability on One Charge!
- Super Light Magnesium Alloy – 8.3 lbs/3.75 kg Weight! Almost half the weight of competitive units!
- 0° to 50° C Operating Range!
- 0.15 ppm Timebase with Exclusive “Freq-Flex” External Flexible Frequency Reference!

Complete Support for Today's Analog and Digital Technology

- AM
- FM
- DMR (MOTOTRBO™)
- P25
- NXDN™
- dPMR
- ARIB T98

Full Feature RF Test Functions

-140 dBm DANL Spectrum Analyzer

Multi-Function Oscilloscope

Tracking Generator for sweeping filters, antennas and cables. Can also be used for measuring VSWR or return loss of antennas as well as finding the location of faults in cables.

Precision RF Power measurements using external USB wideband thru-line power sensor

Analog demod measurements for modulation, distortion and SINAD

Digital demod measurements for modulation fidelity and symbol deviation

RF Generator for determining receiver performance of both digital and analog radios

Multi-Language Support

Simplified Chinese

Traditional Chinese

Spanish

Portuguese

Malay/Indonesian

Korean

Arabic

Polish

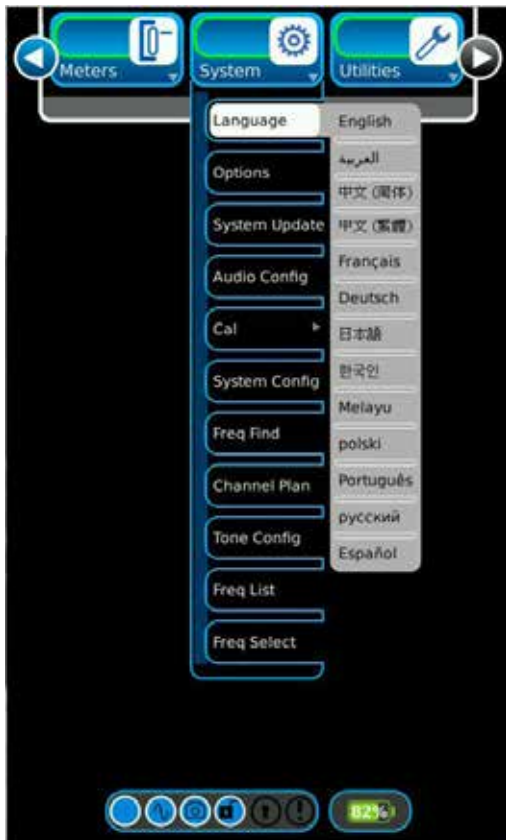
Russian

Japanese

German

French

For the very latest specifications visit www.aeroflex.com



The 3550R System Language Selection

A Complete Radio Test System

Aeroflex's expertise in developing radio communications test sets with exclusive features and excellent return on investment put the 3550R at the front of affordable, high performance RF analysis. Designed for speed, the 3550R features a complete radio test system with an advanced touch-screen that simplifies cable and antenna testing.

Next Generation Touch-Screen Operation

The 3550R, with its resistive touch-screen, will meet the needs of users that require the test set to operate under all conditions, whether on the bench or in the field. Perfect for cold or wet weather applications, the 3550R also features a wider operating range of -20° C to +55° C and MILPRF28800F Class 2 specification for toughness required for extreme conditions.

Complete RF Transmitter Testing

With integrated RF power, RSSI, frequency error and modulation meters, the 3550R provides complete analysis of AM, FM, P25, DMR (MOTOTRBO), dPMR, NXDN and ARIB T98 radio systems.

Aeroflex's exclusive "Freq-Flex" external frequency reference allows you to use any external reference from 2 MHz to 1 GHz to calibrate the 3550R's time base. Simply connect a known good RF source to the 3550R antenna or T/R port and the 3550R time base is frequency corrected to the reference signal for super-accurate RF frequency measurements. Once calibrated, the 3550R can then be taken out and used for hours "un-tethered" to the reference oscillator.

With typical power accuracy of 0.5 dB, and with external cable path loss correction, the 3550R provides superior power measurements for results you can count on.

FM deviation analysis with accuracies of 4% (typical) and 0.0 dB flatness provides deviation measurements you can trust for FM and digital

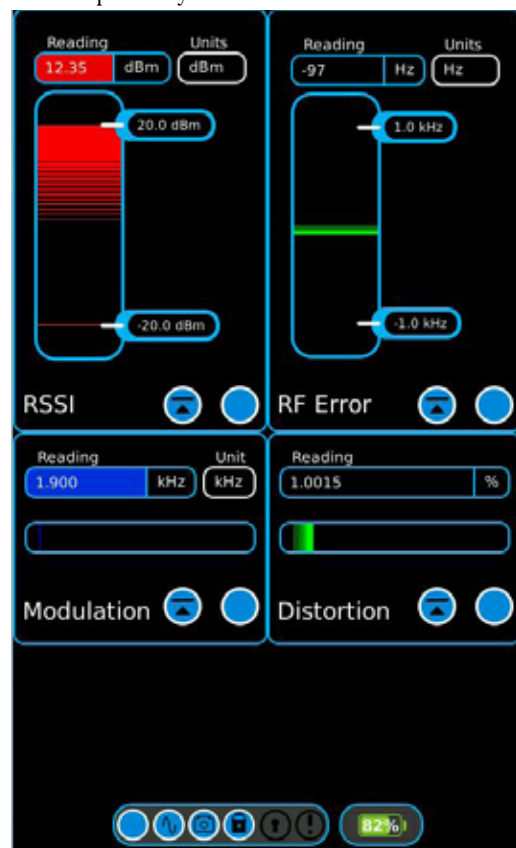
technologies using FSK modulations. Flatness of the deviation meter is important when aligning radios to ensure proper digital operation.

Complete RF Receiver Testing

With a fully integrated, multifunction RF generator and SINAD, Distortion and BER meters, the 3550R allows for simplified and accurate receiver sensitivity testing. Full function audio routing allows the 3550R to perform proven Analog SINAD and DISTORTION testing down to -125 dBm. Plus, digital bit pattern sequences provide the digital RF generator needed to perform digital BER sensitivity testing for DMR (MOTOTRBO), dPMR, P25 and NXDN systems.

Meters Any Way You Want It

Exclusive, easy to read color coded meters allow for fast "Go, No-Go" testing at a glance. Plus, adjustable size at the touch of the screen provides more or less data as you require. It's so simple to set up and use! After you have the screen defined in a matter of seconds, you can easily save the screen settings and set up parameters for use at a later time. You have 100's of set ups for future use, plus if you need more than that, the easy access front USB drive port allows you to quickly recall stored set ups from your USB drive.



Meter tiles showing color coded pass/fail

Complete analog test system

The 3550R includes the capability to perform direct connect type testing on a radio. All radio parameters including power, frequency error, modulation accuracy, receiver sensitivity and audio performance are easily accessed and tested.

To test receivers, the 3550R provides a signal generator, enabling the testing of the receiver portion of the radio. Audio SINAD, distortion and frequency are among the tests that the 3550R can perform on the radio's receiver. With two internal generators that can be used as modulation sources, the 3550R can modulate the carrier with both a test tone and a squelch tone.

Alternatively, the internal generators can generate both a test tone and DCS, enabling the testing of mobiles requiring a digitally coded

squelch.

Direct Connect Testing

- RF power and frequency error
- AM modulation/FM deviation
- Audio frequency counter
- Receive Signal Strength Indicator (RSSI)
- CTCSS/DCS encode/decode
- DTMF encode/decode
- Tone Remote
- Two Tone Sequential
- Distortion meter
- SINAD/sensitivity
- Spectrum analyzer
- Audio frequency oscilloscope
- Frequency find
- Audio level meter
- Pass/Fail limits

Snapshot and Clone Me!

The 3550R snapshot features allows you to capture the perfect picture of the system's performance before and after you're done! Spectrum shots, Distance to Fault, SWR and any other combination of meters and displays can be captured into digital picture for future reference.

If you've ever had to manage multiple instruments, you'll really appreciate our "Clone Me" function! If you have a fleet of test equipment that needs to do the exact same thing, and you have your 3550R defined exactly the way you want with screens and setups, the clone function allows you to transfer the same configuration to multiple 3550Rs through a simple internet connection.

Remote Operation and Remote File Access

Intermittent problems? The 3550R has the perfect solution for you to remotely monitor tough to find system anomalies through your smartphone, tablet, or PC anywhere on the planet. All you need is internet access and a VNC connection. This allows users to access a remote 3550R and view the live display as well as control the 3550R with the click of a mouse or a touch of your smartphone or tablet!

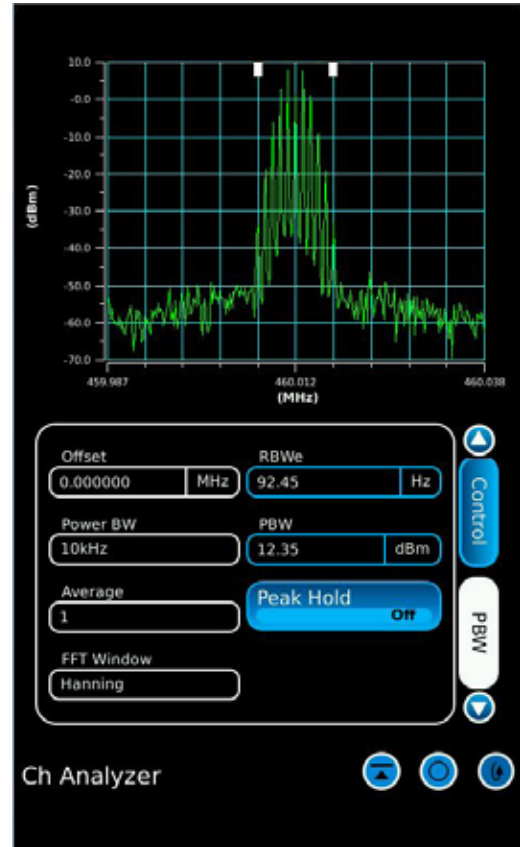
WinSCP or other FTP/SFTP clients can be used to easily transfer stored files, such as screen shots and memory setups, between the 3550R and a PC. This feature requires the following user name and password to access the 3550R:

Username: user

Password: user

Channel Analyzer

RF signals can be graphically analyzed with the Channel Analyzer option of the 3550R. The channel analyzer allows the user to analyze up to a 5 MHz spectrum of signals from a repeater, a mobile radio, or a hand-held, while at the time demodulating the signal and taking modulation measurements. The 3550R Channel Analyzer includes the capability of measuring the amount of power within a bandwidth or the level of the signal at a marker position. The user can also store and recall traces for comparison with live traces.



The 3550R Channel Analyzer

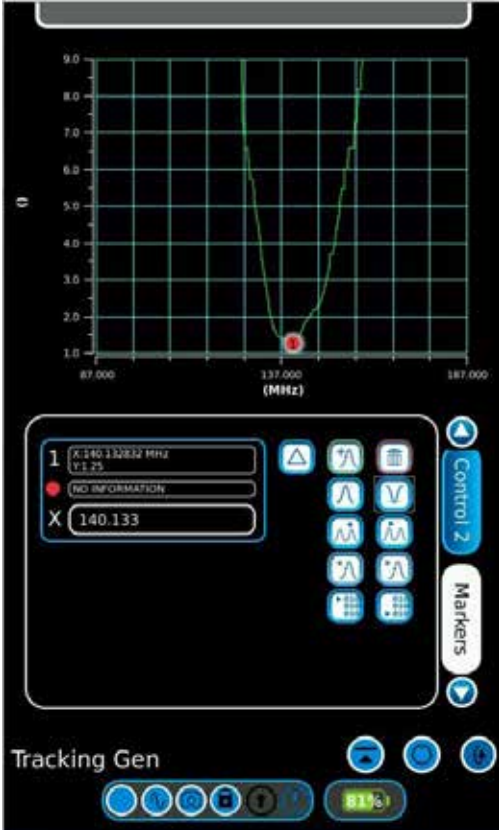
Oscilloscope

The 3550R Oscilloscope option is an important tool that is useful for viewing the demodulated audio of the transmitter under test, or to look at the audio from the receiver of a mobile or hand-held radio. The oscilloscope includes two markers for measuring timing and levels of the audio or demodulated signals.

Simplified Repeater Site Analysis and RF Installation Testing

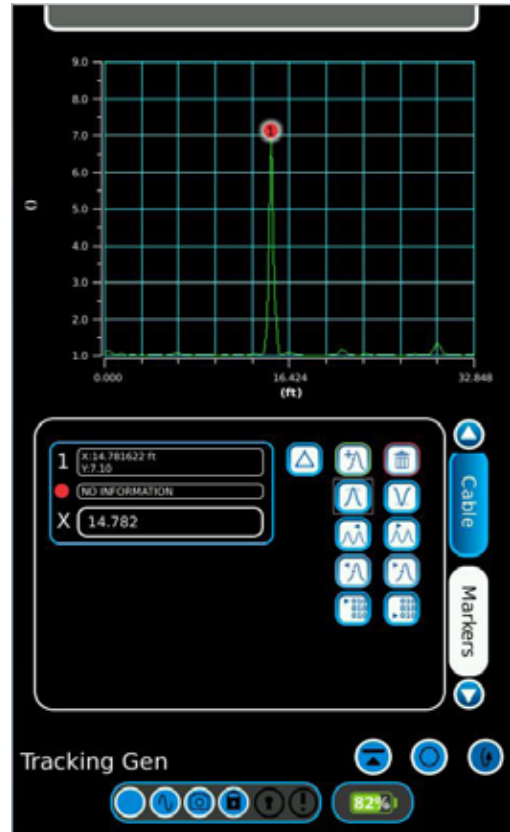
In addition to radio tests, test professionals must also isolate RF problems with cable and antenna systems as well as tune duplexers for maximizing RF system performance. Now these critical tests can be supported with a lightweight, portable 3550R Radio Test System with the optional full span tracking generator and precision DTF/VSWR accessory kit (kit items listed on page 13). Touch-screen menus provide easy setup and selection of VSWR, Return Loss, and Distance to Fault (DTF) measurements. Sweep results are displayed graphically and two color markers, which have manual and touch-screen controls, are available for identifying system anomalies. Numeric values for VSWR, Return Loss, and DTF (in feet or meters) are automatically calculated and displayed in the marker table.

VSWR and Return Loss:



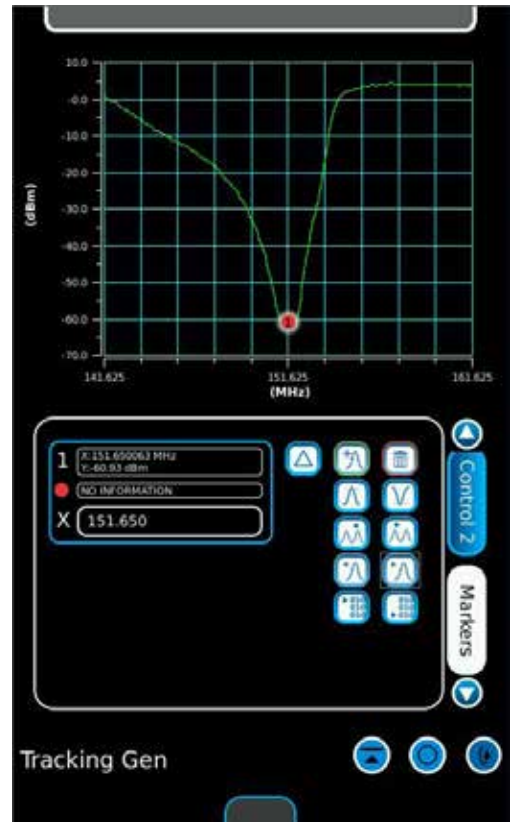
Tracking Generator Showing VSWR graph

Distance to Fault (DTF):



Tracking Generator Showing DTF

Duplexer Tuning:



Tracking Generator Tuning a Duplexer

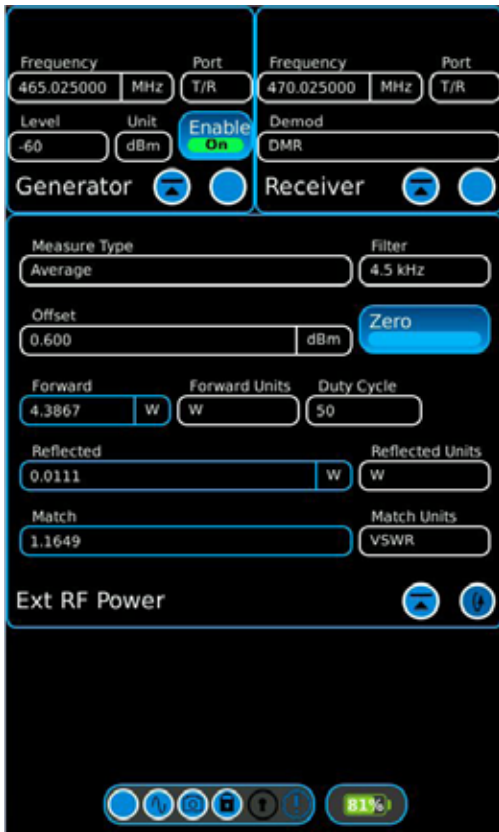
AAR Channel Plan Option

AAR stands for Association of American Railroads and is an association of US and Canadian railroads. The AAR Channel plan consists of frequencies from 160.1775 to 161.5725. This option controls the RF frequency of both the generator and receiver of the 3550R based on the channel number. The channel number also automatically controls the modulation type with channel numbers 5 through 197 selecting FM modulation and channels 302 through 488 selecting NXDN modulation.

External RF Power Meter Option

The 3550R now includes support for the Bird 5017B Wideband Power Sensor. The 3550R connects to the 5017B through the USB port.

- This power sensor is a thru-line power meter that can measure power levels from 500 mW to 500 W.
- Covers a frequency range of 25 MHz to 1000 MHz.
- Measures Peak Power and True Average Power
- Calculates and displays VSWR, Return Loss, Reflection Coefficient, Crest Factor and CCDF.



Bird External Power Sensor Option

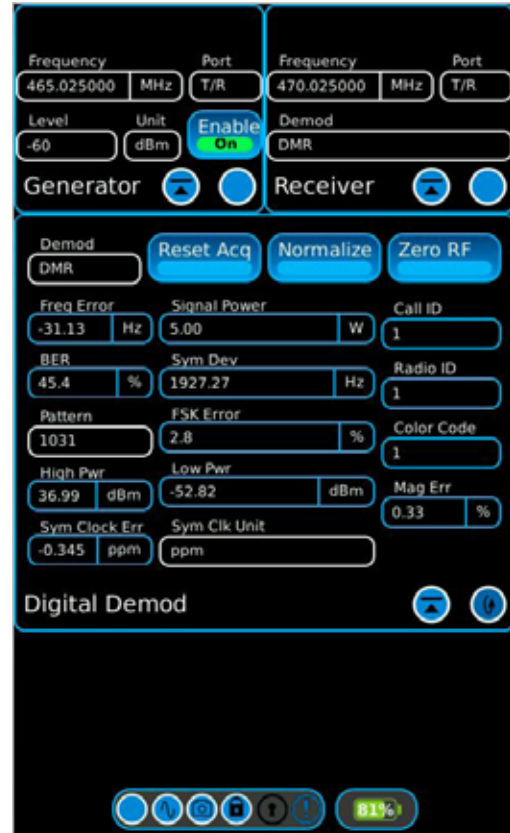
DIGITAL RADIO TEST OPTIONS

DMR Test

- Burst Power Meter
- Frequency Error Meter
- FSK Error Meter
- Symbol Deviation Meter
- Magnitude Error Meter
- Transmit BER Meter
- Color Code, Call ID, and Radio ID decode

- Transmit 1031 Hz, O.153, and calibration patterns
- Base Repeater pattern for duplex radio testing
- User programmable Color Code and Call ID

With the DMR option, the 3550R can now perform a complete test on the transmitter and receiver of a DMR radio. This testing includes the measurement of the key modulation fidelity parameters, FSK error, magnitude error, symbol deviation and frequency error. The 3550R can also measure the power during the burst and the power level between the bursts. In order to enable the testing of radios, without requiring them to be put into a special test mode, the 3550R also has a programmable color code and call ID. A key feature of the 3550R is the base repeater (BR) pattern. A radio in duplex mode must synchronize with this BR pattern before it can transmit. It would not be possible to test a duplex radio without this feature.



The 3550R Digital Analysis Panel

P25 Test

- Inband and Broadband Power Meters
- Frequency Error Meters
- Modulation Fidelity Meter
- Transmit BER Meter
- NAC Decode
- Transmit 1011 Hz, O.153, and CAL test patterns
- User programmable NAC for transmit

The 3550R P25 option gives you the capability to test P25 mobiles, hand-helds, repeaters and base stations. With this option, you can measure modulation fidelity, symbol deviation and frequency error and transmit standard patterns as specified by TIA-102.CAAA-C. This function becomes part of the Generator or Receive testing functions when this option is installed.

NXDN Test

- 4800 and 9600 Selectable Baud Rates
- Signal Power Meter
- Frequency Error Meter
- FSK Error Meter
- Symbol Deviation Meter
- Transmit BER Meter
- RAN Decode
- Transmit 1031 Hz, O.153, and CAL test patterns
- User programmable RAN for transmit

With the NXDN test option, you will be able to measure the key NXDN RF parameters with the 3550R. These measurements verify the correct operation of both the transmitter and receiver of a NXDN radio. The 1031 Hz pattern along with the selectable RAN enables a test of the audio of a NXDN radio without requiring it to be in test mode. With the O.153 random data pattern, you can perform BER testing of the receiver to verify that it meets its sensitivity requirements.

dPMR Test

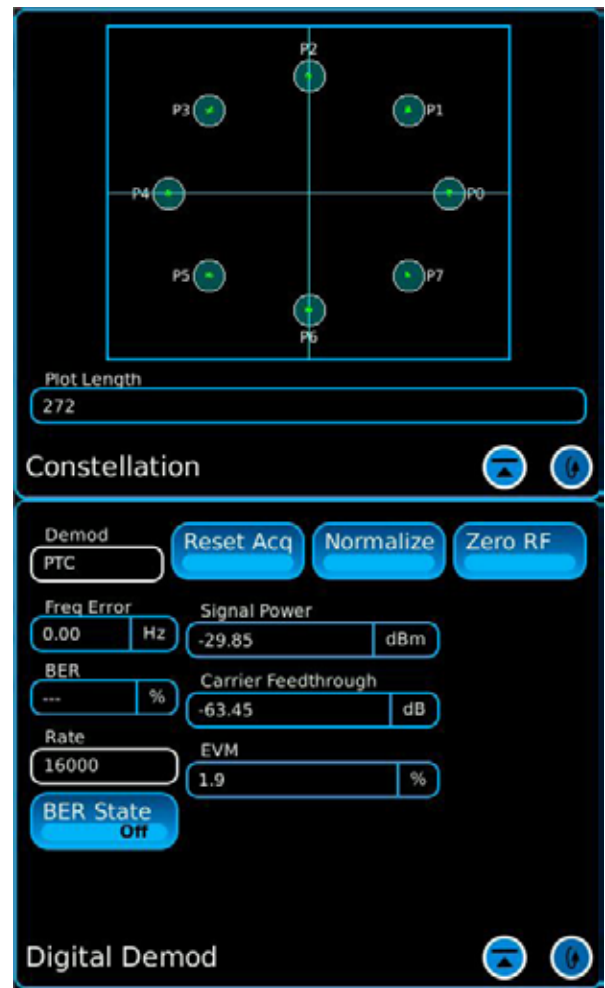
- Signal Power Meter
- Frequency Error Meter
- FSK Error Meter
- Symbol Deviation Meter
- Transmit BER Meter
- Transmit O.153 patterns

With the dPMR test option, you will be able to measure the key dPMR RF parameters with the 3550R. These measurements verify the correct operation of both the transmitter and receiver of a dPMR radio. With the O.153 random data pattern, you can perform BER testing of the receiver to verify that it meets its sensitivity requirements.

Positive Train Control (PTC) Test

The 3550R PTC Option provides advanced transmitter and receiver test capabilities that are similar to vector signal analyzers and generators. This option enables the user to perform testing to verify the transmitter and receiver operation of PTC base stations, wayside and locomotive radios. Test capabilities of the 3550R for PTC include:

- EVM (Error Vector Magnitude)
- Carrier Feedthrough
- Signal Power
- Frequency Error
- BER (Bit Error Rate)
- Modulation Constellation display
- Transmitter and Receiver data rates of 8000 and 16000
- Receiver testing



PTC Option Showing Digital Demod and Constellation

SPECIFICATION

RF SIGNAL GENERATOR

FREQUENCY

Range

2 MHz to 1 GHz (Useable from 500 kHz)

Resolution

1 Hz

OUTPUT LEVEL

Range

T/R port: -50 to -125 dBm/707.107 μ V to 0.126 μ V

ANT port: -30 to -90 dBm/7071.068 μ V to 7.071 μ V

SWR port: -5 to -65 dBm/125743.344 μ V to 125.743 μ V

Resolution

Step size 0.1 dB

Accuracy

± 2 dB; ± 1.5 dB Typical

± 3 dB (<-100 dBm); ± 1.5 dB Typical

SSB PHASE NOISE

-80 dBc/Hz @ 20 kHz offset

-95 dBc/Hz at 1 GHz Typical @ 20 kHz offset

SPURIOUS

Harmonics

-30 dBc, -42 dBc Typical

Non-Harmonics

-40 dBc, -50 dBc Typical

RESIDUAL FM

<40 Hz in 300 Hz to 3 kHz BW; 16 Hz Typical

RESIDUAL AM

<5% in 300 Hz to 3 kHz BW; 0.65% Typical

PORT INPUT PROTECTION

ANT port: +20 dBm Typical

SWR port: +20 dBm Typical

T/R port: +44 dBm Typical

PORT VSWR

ANT port: <1.5:1

SWR port: <1.5:1

T/R port: <1.25:1

FM MODULATION (GEN 1 AND GEN 2)

Modulation Frequency Rate

Range

0 Hz to 20 kHz

Resolution

0.1 Hz

Accuracy

Timebase ± 2 Hz

FM Modulation

Range

Off, 0 Hz to 100 kHz

Resolution

1 Hz

Accuracy

$\pm 10\%$ (2 kHz to 50 kHz deviation, 150 Hz to 3 kHz rate)

Typically <4% (5.6 kHz deviation, 1 kHz rate)

Total Harmonic Distortion

3%, 1% typical (1 kHz rate, >2 kHz deviation, 300 Hz - 3 kHz BP filter)

EXTERNAL FM MODULATION

MICROPHONE IN

Input Range

Range 1: 2-15 mVrms (8 mVrms nominal) MIC E-OPEN, F-GND

Range 2: 35-350 mVrms (100 mVrms nominal) MIC E-GND, F-OPEN

Range 3: 2-32 mVrms (20 mVrms nominal) MIC E-OPEN, F-OPEN

Frequency Range

300 Hz to 3 KHz

Deviation Range

Off, 0 Hz to 80 kHz

Modulation Accuracy

$\pm 20\%$ (300 Hz to 1.2 kHz)

$\pm 30\%$ (>1.2 kHz)

Slope

Positive voltage yields positive deviation

AUDIO IN

Switchable Loads

150 ohms, 600 ohms, 1 K ohms, High Z

DIV 10 (1 K ohm, 30 Vrms maximum input)

Input Levels

0.05 to 3 Vrms

Frequency Range

300 Hz to 5 kHz

Level Sensitivity

1 kHz/35 mVrms

Slope

Positive voltage yields positive deviation

AM MODULATION (GEN 1 AND GEN 2)

Modulation Frequency Rate

Range

0 Hz to 20 kHz

Resolution

0.1 Hz

Accuracy

Timebase ± 2 Hz

AM Modulation

Range

OFF, 0 to 100%

Resolution

0.1%

Modulation Accuracy

10% off setting, 150 Hz to 5 kHz rate, 10% to 90% modulation (based on \pm peak/2 measurement)

Total Harmonic Distortion

3% (20% to 90% mod, 1 kHz rate, 300 Hz to 3 kHz BP filter)

EXTERNAL AM MODULATION

MICROPHONE IN

Input Range

Range 1: 2-15 mVrms (8 mVrms nominal) MIC E-OPEN, F-GND

Range 2: 35-350 mVrms (100 mVrms nominal) MIC E-GND, F-OPEN

Range 3: 2-32 mVrms (20 mVrms nominal) MIC E-OPEN, F-OPEN

Frequency Range

300 Hz to 3 KHz

Modulation Range

0% to 80%

AUDIO IN

Switchable Loads

150 ohm, 600 ohms, 1 K ohms, High Z

DIV 10 (1 K ohm, 30 Vrms maximum input)

Input Levels

0.05 to 3 Vrms

Frequency Range

300 Hz to 5 kHz

Level Sensitivity

1%/35 mVrms nominal

AFGEN 1 AND AFGEN 2

FREQUENCY

Range

30 Hz to 5 kHz (spec)

0.0 Hz to 20.0 kHz (usable)

Resolution

0.1 Hz

Accuracy

Timebase ± 2 Hz

OUTPUT LEVEL

Range

0 to 1.57 Vrms (into 600 Ω)

Resolution

0.01 Vrms

Accuracy

$\pm 10\%$; Typical 3%

Distortion

3% (1 kHz rate, sine, 300 Hz to 3 kHz); 1% Typical

RF RECEIVER

FREQUENCY

Range

2 MHz to 1 GHz (useable from 750 kHz)

Resolution

1 Hz

Accuracy

Same as timebase

INPUT AMPLITUDE

Minimum Input Level, Audio Sensitivity

ANT: -80 dBm (22.4 μ V), typical 10 dB SINAD (-110 dBm with preamp)

T/R: -40 dBm (2236 μ V), typical, 10 dB SINAD

Usable Input Level Range

ANT: -60 dBm (-80 dBm with RF Amp On) to -10 dBm (RF Error, Distortion, Modulation, AF Counter and AF Level)

ANT: -90 dBm (-110 dBm with RF Amp On) to -10 dBm (RSSI)

T/R: -20 dBm (RF error, Distortion, Modulation, AF Counter and AF Level)

T/R: -50 dBm to maximum input level (RSSI)

Maximum Input Level

ANT: +20 dBm/0.1 W for 10 seconds

T/R: +43 dBm/20 W (FM) and +37 dBm (AM)

+47 dBm/50 W (FM) and +41 dBm (AM) with 50 W attenuator

+51.76 dBm/150 W (FM) and 45.76 dBm (AM) with 150 W attenuator

AM/FM DEMODULATION

IF Bandwidth

FM: 5 kHz, 6.25 kHz, 8.33 kHz, 10 kHz, 12.5 kHz, 25 kHz, 30 kHz, 100 kHz, 300 kHz

AM: 5 kHz, 6.25 kHz, 8.33 kHz, 10 kHz, 12.5 kHz, 25 kHz, 30 kHz

Audio Filters Bandwidth

0.3-20 k BP, 0.3-5 kBP, 0.3-3 kBP, 0.3 kHP, CCITT BP, C-Wt BP, 15 K LP, 5 K, LP, 3 K LP, 0.3 K LP

Audio Output Level Sensitivity

FM: (3 Vrms/kHz Dev)/IF BW (kHz) $\pm 15\%$

AM: 7 mVrms/% AM $\pm 15\%$

SPEAKER OUTPUT

75 dBA min. at 0.5 m, 600 - 1800 Hz, max volume

VOLUME CONTROL

Range

0 to 100

LO EMISSIONS

> -50 dBc

RF FREQUENCY ERROR METER

Range

± 200 kHz

Resolution

1 Hz

Accuracy

Timebase ± 2 Hz

RSSI INDICATOR (RF POWER WITHIN RECEIVER IF BANDWIDTH)

Display Range

dBm: -120 dBm to +43 dBm (+53 dBm with Ext Attn dB set to 20 dB)

Watts: 10 pW to 20 W (200 W with Ext Attn dB set to 20 dB)

Usable Meter Reading RF Level Range

T/R port: -50 dBm to +43 dBm

ANT port (without RF amp on): -90 dBm to -10 dBm

ANT port (with RF amp on): -110 dBm to -10 dBm

Resolution

0.01 dBm

Accuracy

± 3 dB; 1.5dB Typical (>-50 dBm into T/R, >-90 dBm into ANT or >-110 dBm into ANT with RF Amp On)

RF POWER METER (BROADBAND RF POWER INTO T/R PORT)

Display Range

0 to 43 dBm (0 to 20 W)

Minimum Input Level

0.10 W/+20 dBm

Maximum Input Level

20 W/43 dBm for 10 minutes at +25° C or until thermal alarm sounds

Resolution

0.01 W/0.1 dBm

Accuracy

±1 dB; 0.5 dB Typical

FM DEVIATION METER

Range

500 Hz to ±100 kHz

Modes

Peak+, Peak-, (Peak+ - Peak-)/2

Resolution

0.1 Hz

Accuracy

±10%, 6% Typical; of reading 500 Hz to 100 kHz Deviation
±5%, 4% Typical 1 kHz to 10 kHz Deviation, 150 Hz and 1 kHz rate

AM PERCENT METER

Range

5% to 100%

Modes

Peak+, Peak-, (Peak+ - Peak-)/2

Resolution

1%

Accuracy

±5% of reading, 1 kHz rate, 30% to 90% modulation, 3 kHz LPF;
2% Typical

ANT-CABLE TEST

Frequency Range

2.0 MHz to 1000.0 MHz

Span Range

10.0 MHz to 998 MHz

Start Range

2.0 MHz to 990.0 MHz

Stop Range

12.0 MHz to 1000.0 MHz

Frequency Resolution

0.1 MHz

Markers

2

Immunity to Interfering Signal

Typically -30 dBm

SWR MEASUREMENT

VSWR Range

1.00 to 20.00

Resolution

0.01

VSWR Accuracy

±20% of SWR readings (calibrated) <300 MHz: Typical
±30% of SWR readings (calibrated) ≥300 MHz: Typical

RETURN LOSS (RL) MEASUREMENT

Range

0.0 to -50.0 dB

Resolution

0.01 dB

CABLE LOSS MEASUREMENT

Range

0.0 to -50.0 dB

Resolution

0.01 dB

DTF MEASUREMENT

Measurement Range

3 ft to 328 ft

1 m to 100 m

Return Loss Range

0.0 to -50.0 dB

Cable types

USER, RG-8x, RG-8, RG-8foam, RG-8A, RG-55, RG-55A, RG-55B,
RG-58, RG-58foam, RG-58A, RG-58B, RG-58C, RG-174, RG-213,
RG-214, RG-223, RG-400

Velocity

0.00 to 1.00, automatically selected by cable type

Loss

0.00 to 100.00 dB per 100 ft, automatically selected by cable type

Est. Length

40, 80, 200 or 400 ft

12.2, 24.4, 61 or 121.9 m

AUDIO METERS

AUDIO INPUT (AUDIO IN)

Source

BNC Input on front panel

Frequency Range

300 Hz to 10 kHz

Level Range

0.2 V_{p-p} to 5 V_{p-p}

SINAD METER (WITH 1 KHZ AUDIO)

Measurement Sources

Audio in, demod

Audio Frequency

1 kHz

Display Range

0 to 40 dB

Resolution

0.1 dB

Accuracy

±1.5 dB from 8 to 40 dB; ±1.0 dB Typical

DISTORTION METER

Measurement Sources

Audio in, demod

Audio Frequency

1 kHz

Reading Range

0% to 100%

Resolution

0.1%

Accuracy

±10% from 1% to 20%; ±1 count

AUDIO FREQUENCY COUNTER

Input Demodulation Range

FM: 15 Hz to 20 kHz (IF BW set appropriately for received modulation BW)

AM: 100 Hz to 10 kHz (IF BW set appropriately for received modulation BW)

Audio Input Level: 10 mV_{p-p} to 5V_{p-p}

Audio Input Range

15 Hz to 20 kHz

Ext Audio Input

10 mV_{p-p} to 5 V_{p-p}

Resolution

0.1 Hz

Accuracy

± 1 Hz

AUDIO FREQUENCY LEVEL METER

Measurement Sources

Audio in, DVM

Frequency Range

200 Hz to <5 kHz

Input Level

Audio in 10 mV rms to 3 V rms (x1)

1 V rms to 30 V rms (±10)

DVM 10 mV rms to 3 V rms (x1)

1 V rms to 30 V rms (±20)

Display Unit Resolution

Volts 0.001 V

mV 0.001 mV

dBuV 0.001 dBuV

dBm 0.001 dBm

Watts 0.001 W

Accuracy

±5%; ±2% Typical; Audio In

CHANNEL ANALYZER (OPTIONAL)

FREQUENCY

Range

2 MHz to 1 GHz (Usable from 250 kHz)

Resolution

1 Hz

Accuracy

Same as timebase

Span

10 kHz to 5 MHz in 1, 2, 5 sequence

EFFECTIVE RBW

Range

19 Hz to 25 kHz (Effective RBW calculated based on FFT window type and Span)

POWER BANDWIDTH

Offset Range

0 to ±2.495 MHz

Bandwidth Range

1 kHz to 5 MHz in a 1, 2, 5 sequence (maximum bandwidth is the selected span)

Power Bandwidth Display Range

-137 dBm to +43 dBm

Power Bandwidth Display Resolution

0.001 dBm

Power Bandwidth Accuracy

±3 dB (>-50 dBm into T/R, > -90 dBm into ANT or > -110 dBm into ANT with RF Amp On)

Displayed Average Noise Level (DANL)

-120 dBm (Typical, 10 kHz span) -140 dBm with pre-amp enabled

OSCILLOSCOPE (OPTIONAL)

Source

DVM, Audio In, Demod

Traces

One

Markers

Two

Maximum Input Level

+30 Vrms

Trigger**Type**

Auto, Norm

Edge

Rising, Falling

Trigger Level Range

-30 to +30 Vrms

Horizontal Range

0.5 ms/div to 0.1 sec/div

Accuracy

3% of full scale

Vertical Range**FM demod**

0.1 kHz to 50 kHz/div in a 1, 2, 5 sequence

AM demod

5, 10, 20, 50%/div

DVM and Audio in

10 mV to 10 V/div in a 1, 2, 5 sequence

Accuracy

10% of full scale

Coupling

DVM Input: AC, DC and GND

Audio in: AC

Input Impedance

DVM Input: 1 MΩ

Audio in: 150 Ω, 600 Ω, 1 KΩ, High Z, Div by 10

Bandwidth

5 kHz

OCCUPIED BANDWIDTH (OPTIONAL)**FREQUENCY****Range**

2 MHz to 1 GHz (Usable from 250 kHz)

BANDWIDTH MEASUREMENT RANGE**Percentile**

1.0% - 100%; selectable in 0.1% steps

OBW DISPLAY**Span Range**

10 kHz, 20 kHz, 50 kHz, 100 kHz, 200 kHz, 500 kHz, 1 MHz, 2 MHz, and 5 MHz; selectable

OBW Power Resolution

0.01 dB

OBW Frequency Resolution

1 Hz (step size = span range/128)

ACCURACY**OBW Power**

± 3 dB (±1.5 dB typical)

OBW Frequency

±1% of span range (Hanning window selected)

MODES

Live

TIMEBASE**Temperature Stability**

±0.15 ppm at -20°C to 70°C

Aging

0.5 ppm/First Year

0.3 ppm/After First Year

Warm-up time

3 min.

ENVIRONMENTAL/PHYSICAL**Overall Dimensions**

231 mm x 285 mm x 70 mm (W x L x D)

9.1 in. x 11.2 in. x 2.8 in.

Weight

8.3 lbs. (3.75 kg); 12 lbs. (5.4 kg) with accessories

Temperature

Storage: -51°C to +71°C storage

Note: Battery must not be subjected to temperatures below -20° C, nor above +60° C

Operation:

3550R - DC only Operation: -20°C to +55°C (battery removed, contingent upon applied RF power over time²).

3550R Battery Operation: -20°C to +40°C (typical based on internal temperature rise and usage of the instrument²)

Note: Battery to be charged at temperatures between 0°C and +45°C

Altitude

4600 M - MIL-PRF-28800F Class 2

Humidity

95% Maximum (Non-condensing) MIL-PRF-28800F Class 2

Shock, Functional

30 G - MIL-PRF-28800F Class 2

Bench Handling

MIL-PRF-28800F Class 2

Vibration

MIL-PRF-28800F Class 2

COMPLIANCE**EMC****Emissions**

MIL-PRF 28800F

EN61326: 1998 class A

EN61000-3-2

EN61000-3-3

Immunity

MIL-PRF-28800F

EN61326: 1998

SAFETY

Standard

UL 61010-1; CSA

ENVIRONMENTAL

Acoustic Noise

MIL-PRF-28800F Class 2

Explosive Atmosphere

MIL-PRF-28800F Class 2

Dust Resistance

MIL-PRF-28800F Class 2

Drip Proof

MIL-PRF-28800F Class 2

Blowing Rain

MIL-PRF-28800F Class 2

Solar Radiation

MIL-PRF-28800F Class 2

AC INPUT POWER (AC TO DC CONVERTER/CHARGER UNIT)

AC Input Voltage Range

100 to 240 VAC, 1.5 A max., 47 Hz - 63 Hz

Operating Temperature

0°C to +40°C

Storage Temperature

-20°C to + 85°C

EMI

EN55022 class B, EN61000-3-2 Class D

Safety

UL 1950, CSA 22.2 No. 234 and No.950, IEC 950/EN 60950

DC INPUT POWER

DC Input Voltage Range (DC INPUT CONNECTOR)

11 VDC to 32 VDC

DC Power Input, Max. (DC INPUT CONNECTOR)

55 W

DC Power Input, Nominal (DC INPUT CONNECTOR)

25 W

DC Fuse Requirement (DC INPUT CONNECTOR)

5A, 32VDC, Type F

BATTERY

Battery Type

Lithium Ion (Li Ion) battery pack

Note: Battery must not be subjected to temperatures below -20°C, nor above +60°C

Battery Operation Time

100% Backlight: 3 1/2 hours typical

40% Backlight: 4 hours typical

Minimum backlight: 4 1/2 hours typical

Battery Charge Time

4 hours

Note: Battery to be charged at temperatures between +0°C and +45°C only

VERSIONS AND ACCESSORIES

Versions

90849 3550R Touch-Screen Radio Test System
Ruggedized

3550R STANDARD ACCESSORIES

External DC Power Supply

Getting Started Manual (Paper)

Operation/ICW Manual (CD)

REGIONAL KITS FOR 3550R (WITH HARD PELICAN CASE)

90603 US

90890 China

90889 International

REGIONAL KITS FOR 3550R (WITH SOFT-SIDED CASE)

92777 US

92775 China

92776 International

REGIONAL KIT ACCESSORIES

Hard, Pelican Transit Case or Soft-Sided Carrying Case

Power Cable (AC)

Handset

Short-Open-Load VSWR Calibrator

Cable (TNC) (M-M) (48 in)

2 X Cable (BNC) (M-M) (48 in)

5 X Adapter (BNC-F to TNC-M)

2 X Fuse, Spare (5 A, 32 VDC, Type F)

Accessory Case

Power Cable (DC supply - cigarette lighter)

Getting Started Manual (Paper)

Operation/ICW Manual (CD)

Antenna (BNC) (50 MHz)

Antenna (BNC) (150 MHz)

Antenna (BNC) (450 MHz)

Antenna (BNC) (800 MHz)

Aeroflex Combo Stand and Cover

OPTIONS

91819 3550OPT01 Spectrum Analyzer

91818 3550OPT02 Oscilloscope

83346 35XXOPT07 P25 Test

83347 35XXOPT08 Tracking Generator

89509 35XXOPT09 dPMR Test

89510 35XXOPT10 ARIB T98 Test

92468 3550OPT13 AAR Channel Plan

92803

112401

114327

89261

89262

91820

91821

91822

91823

91824

91825

91826

91827

91828

91829

91830

91832

92240

OPTIONAL ACCESSORIES

63927

89908

91600

91679

91706

10192

92723

92793

82559

82560

67076

90520

90523

90521

3550OPT14 Precision Thru-line Power Meter
(Use with Bird Wideband Power Sensor; 5017B)

3550OPT15 Occupied Bandwidth

3550OPT16 Positive Train Control

35XXOPT33 NXDN Test

35XXOPT34 DMR Test

German

Japanese

Korean

Malay/Indonesian

Polish

Portuguese

Russian

Simplified Chinese

Traditional Chinese

Spanish

Arabic

CALFB3550 Calibration Certificate - 3550R

French

AC25081 Site Survey Software

Mounting Bracket for AC27003 150W Attenuator

Yellow Hard Transit Case

Aeroflex Combo Stand and Cover

Black Hard Transit Case

AC27004 Case, Soft-Sided Carrying

Accessory Kit, Precision DTF/VSWR.

This kit contains:

12 inch coax cable (TNC-M to N-M)

7.5 inch coax cable (TNC-M to N-M)

Return Loss Bridge, 5-3000 MHz

Termination, 50 Ohm, Precision

Power Divider, DC - 3.0 GHz

Conn, Adapter, (TNC-M to N-M)

Accessory Case

5017B Wideband Power Sensor (Use with
3550OPT0014)

AC27002 Attenuator (20 dB/50 W), Adapter
(N-F to BNC-F), Adapter (N-M to TNC-M)

AC27003 Attenuator (20 dB/150 W), Adapter
(N-F to BNC-F), Adapter (N-M to BNC-F)

AC27005 Battery, Spare

3550 Series Op/ICW Manual (CD Only) (One
Supplied Standard)

3550 Series Maintenance Manual (CD Only)

3550 Series Getting Started Manual (Paper Only)

(One Supplied Standard)

67474 AC0826 Tripod
82553 AC24006 Tripod, Dolly, Stand

Extended Standard Warranties for 3550R

84341 W3500/203 Extended Standard Warranty
36 Months
84343 W3500/205 Extended Standard Warranty
60 Months

Extended Standard Warranties with Calibration for 3550R

84342 W3500/203C Extended Standard Warranty
36 Months with Scheduled Calibration
84344 W3500/205C Extended Standard Warranty
60 Months with Scheduled Calibration

¹ – “Specifications” describe product performance over the specified operating temperature range and frequency range are covered by the product warranty. “Typical” numbers are specified at ambient room temperature (23°C) and describes a characteristic that 95% of product exhibit (± 2 standard deviations) with a 95% confidence level at room temperature (23°C). Typical characteristics are not covered by product warranty.

² – Use reason when working with RF test instruments. All thermal ratings are dependent upon applied RF power. The 3550R will alarm once the internal temperature of the 3550R exceeds predetermined limits. Applying power continuously in high ambient temperature conditions will result in a heat build-up within any instrument. The 3550R is rated for 20 W (43 dBm) for 10 minutes at +25° C or until thermal alarm sounds. Exceeding these conditions will result in thermal shutdown.

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.