AEROFLEX

3920

The Aeroflex 3920 is a high-performance radio test set designed for professional engineering, production, and field service applications. This comprehensive platform supports analog PMR (AM, FM, SSB) measurements and advanced digital testing for modern PMR standards including P25, TETRA, DMR, dPMR, NXDN, and HPD. It features high-accuracy RF and audio baseband generators, a 5 MHz channel spectrum analyzer, and a 4 MHz dual-channel oscilloscope.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2), LAN (Ethernet), USB Host, USB Device, RS-232, VGA Monitor Output
Display	6.4-inch Color TFT LCD, VGA resolution (640 x 480)

Physical

Power Supply	100 to 240 VAC, 50 to 60 Hz / 400 Hz, 150 W maximum
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	356 mm × 197 mm × 520 mm mm
Weight	16.5 kg kg

RF Signal Generator

RF Generator Frequency Range	10 MHz to 2.7 GHz
RF Generator Frequency Resolution	1 Hz
RF Generator Frequency Accuracy	Same as internal reference
RF Generator Output Level Range (T/R Port)	-130 dBm to -40 dBm
RF Generator Output Level Range (Duplex Port)	-130 dBm to -10 dBm
RF Generator Output Level Resolution	0.1 dB
RF Generator Output Level Accuracy	±1.5 dB (typically < ±1.0 dB)
RF Generator Harmonics	<-30 dBc
RF Generator Non-Harmonics	<-50 dBc (for offsets > 10 kHz)
RF Generator Phase Noise	<-95 dBc/Hz (at 20 kHz offset, 1 GHz carrier)
FM Deviation Range	0 to 150 kHz
FM Deviation Resolution	1 Hz
FM Deviation Accuracy	±3% (plus residual FM)
AM Modulation Depth Range	0% to 90%
AM Modulation Resolution	0.1%
AM Modulation Accuracy	±5% of setting (plus residual AM)

RF Receiver

RF Receiver Frequency Range	10 MHz to 2.7 GHz
RF Receiver Input Impedance	50 Ω nominal
RF Receiver Input VSWR (T/R Port)	<1.25:1 (up to 1 GHz)
RF Receiver Input VSWR (Antenna Port)	<1.5:1
Maximum Input Power (T/R Port, Continuous)	50 W
Maximum Input Power (T/R Port, Short-term)	125 W (with duty cycle, 30 seconds max)
RF Power Measurement Range (T/R Port)	100 mW to 125 W
RF Power Measurement Accuracy	±10% (±0.4 dB)
RF Power Measurement Resolution	0.01 dB or 3 digits
FM Deviation Measurement Range	0 to 150 kHz
FM Deviation Measurement Accuracy	±3% (plus residual)
AM Depth Measurement Range	0% to 90%
AM Depth Measurement Accuracy	±5% (plus residual)
Demodulation Types	AM, FM, SSB (USB, LSB)

Audio Generator & Analyzer

Audio Generator Count	3 independent audio modulators/generators
Audio Generator Frequency Range	1 Hz to 20 kHz
Audio Generator Frequency Resolution	0.1 Hz
Audio Generator Output Level Range	0.1 mV to 5 V RMS (into 600 Ω)
Audio Generator Output Distortion (THD)	<0.5% (at 1 kHz, 1 V RMS)
Audio Analyzer Frequency Range	10 Hz to 20 kHz
Audio Analyzer Level Range	10 mV to 30 V RMS
Distortion Measurement Range (THD)	0% to 100%
Distortion Measurement Accuracy	±0.5% distortion (±10% of reading)
SINAD Measurement Range	0 to 40 dB
SINAD Resolution	0.1 dB
Audio Filters	300 Hz LP, 300 Hz HP, 3 kHz LP, 15 kHz LP, C-message, CCITT psophometric
DTMF Generator/Decoder	Supported
DCS Generator/Decoder	Supported

Digital Radio Test Capabilities

Supported Digital Radio Technologies	P25, TETRA, DMR, dPMR, NXDN, HPD (option dependent)
TETRA Test Option	Supported (including MS and BS test modes)
APCO P25 Test Option	Supported (Phase 1 Conventional/Trunked and Phase 2)
DMR Test Option	Supported (TIER II & TIER III)
NXDN / dPMR Test Option	Supported

Spectrum Analyzer & Oscilloscope

Spectrum Analyzer Frequency Range	10 MHz to 2.7 GHz
Spectrum Analyzer Resolution Bandwidth (RBW)	100 Hz to 1 MHz (in 1-3-10 sequence)
Spectrum Analyzer Video Bandwidth (VBW)	10 Hz to 1 MHz
Oscilloscope Channels	1
Oscilloscope Bandwidth	DC to 50 kHz

Reference Frequency

Internal Reference Frequency	10 MHz
Standard Reference Temperature Stability	±0.1 ppm
Standard Reference Aging Rate	±0.1 ppm per year
External Reference Input Frequency	10 MHz (nominal)

Environmental & General

Storage Temperature Range	-40 °C to +71 °C
Remote Control Language	SCPI compliant command set

Power Requirements

AC Input Voltage	100 to 240 VAC
AC Input Frequency	50 to 60 Hz
Power Consumption	150 W (typical)

Environmental

Environmental Compliance	MIL-PRF-28800F Class 3
Operating Humidity	Up to 95% RH (non-condensing)
Operating Altitude	Up to 3,048 m (10,000 ft)
Shock & Vibration Compliance	Meets MIL-PRF-28800F Class 3

Internal Reference

Warm-up Time	15 minutes (standard reference)

Audio Analyzer

Audio Frequency Counter Resolution	0.1 Hz

Reference Timebase Options

High Stability OCXO Temperature Stability	±0.01 ppm (0 °C to 50 °C, Option 10)
High Stability OCXO Aging Rate	±0.1 ppm/year (±0.005 ppm/day after 30 days of continuous operation, Option 10)

RF Generator - Phase Modulation

Phase Modulation (PM) Generator Deviation Range	0 to 10 rad
Phase Modulation (PM) Generator Deviation Resolution	0.001 rad
Phase Modulation (PM) Generator Deviation Accuracy	±5% (at 1 kHz)

RF Receiver - Phase Modulation Analyzer

Phase Modulation (PM) Analyzer Deviation Range	0 to 10 rad
Phase Modulation (PM) Analyzer Deviation Accuracy	±5% of reading ±0.05 rad (at 1 kHz)

Audio Generator

Audio Generator Output Impedance	<2 Ω

Oscilloscope

Oscilloscope Vertical Sensitivity Range	10 mV/div to 10 V/div (in 1-2-5 sequence)
Oscilloscope Timebase Range	50 µs/div to 100 ms/div (in 1-2-5 sequence)
Oscilloscope Maximum Input Voltage	30 V RMS

RF Generator

RF Generator Output VSWR (Duplex Port)	<1.25:1 (<1 GHz), <1.30:1 (<2.7 GHz)

TECHNOLOGY

RF and PMR (Private Mobile Radio) Testing

APPLICATIONS

Parametric testing of analog and digital radio systems (TETRA, P25, DMR, dPMR, NXDN)