

SIGNAL GENERATORS

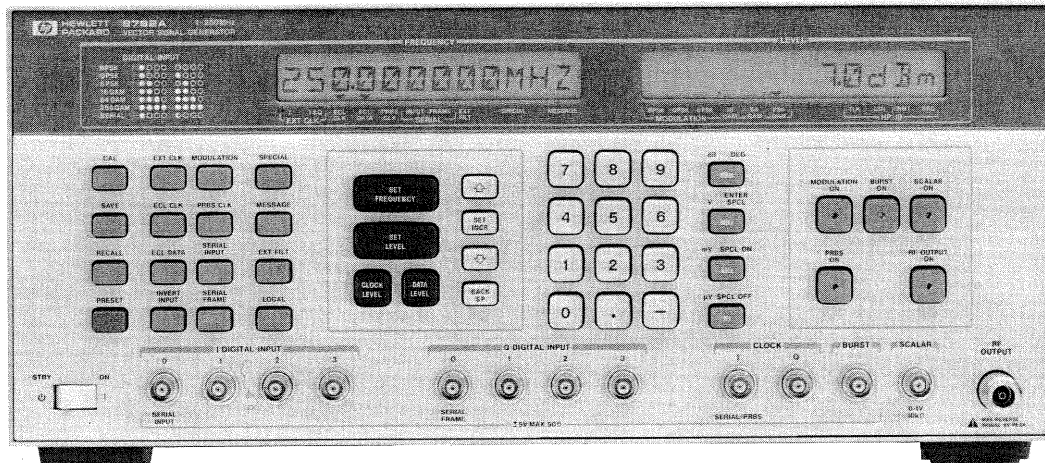
Frequency Agile/Complex Signal Simulation

405

HP 8782A

1MHz to 250MHz covers 70 and 140MHz IFs
BPSK QPSK 8PSK 16QAM 256QAM digital modulation
and burst

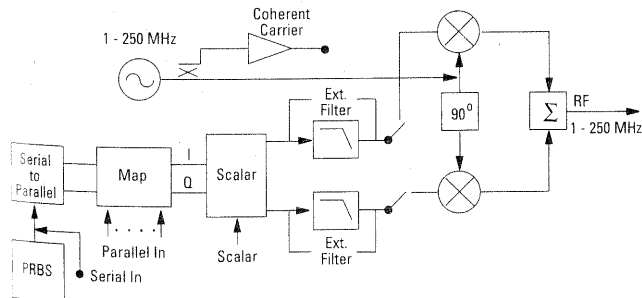
- Internal Pseudo Random Binary Sequence generator
- AM/SCALAR modulation to simulate flat fading
- Coherent carrier output



HP 8782A

HP 8782A Vector Signal Generator

The HP 8782A vector signal generator is a second-generation synthesized generator. It supports a wide range of built-in digital modulation from BPSK to 256QAM for microwave terrestrial communications and satellite communications applications. It has a 1MHz to 250MHz frequency range, which covers most of the IF frequencies in commercial receivers. An internal pseudo-random bit sequence (PRBS) generator makes all digital modulation possible without using external digital data sources. It also provides an unmodulated coherent carrier output for testing receivers and subsystems before carrier recovery circuits are working. The cost is substantially lower than the HP 8780A Vector Signal Generator, providing IF signal generation for R&D and manufacturing.



HP 8782A Block Diagram

The HP 8782A offers a wide variety of digital modulation using either the internal PRBS generator or user data source. It generates calibrated test signals as well as specified modulation impairments such as quadrature errors, I/Q imbalance, carrier leakage, and flat fading.

Applications

Using the HP 8782A to align digital radios in manufacturing can improve radio quality. Instead of relying on a golden standard modulator from R&D, the HP 8782A can provide calibrated constellations with extremely low quadrature error and amplitude imbalance. Customers can also simulate transmitter impairments by using the HP 8782A to test receiver performance margins.

HP 8782A Specifications

Frequency

Range: 1MHz to 250MHz

Resolution: 1Hz

RF output level: +7 to -100 dBm for all formats.

Coherent Carrier Output

Typically +10dBm up to 140 MHz

Typically +8.5dBm at >150MHz

Digital Modulation

Modulation types: BPSK, QPSK, 8PSK, 16 QAM, 64QAM, 256QAM, 9PRS, 25PRS, 49PRS, 81PRS

Parallel data rates: 0 to 100MHz clocked,

0 to 50 MHz asynchronous.

Serial data rates: 0 to 200MHz clock and data lines for drive signal rise times <1.0 μ s.

Data input threshold: ECL: -1.3V fixed threshold level.

TTL: -2.5V to +2.5V adjustable.

C/N Degradation from theoretical: for 256QAM @ BER = 10E-6, 40MHz BW, 70MHz IF, 0.5 excess BW Nyquist Filter, the Total HP8782A Degradation is typically ≤ 1.25 dB.

Burst Modulation

Burst rates: 0 to 50MHz

Burst dc on/off ratio: >50 dB at 70MHz carrier typical >50 dB from 1 to 250MHz

Burst rise/fall time: <2.2ns

PRBS: internal Pseudo Random Binary sequence generator with $2^{23}-1$ sequence length

AM/SCALAR Modulation

Sensitivity: 0 to +1V for 0 to full scale output power.

Frequency response: dc to 50KHz at 70MHz carrier frequency

General

Operating temperature range: 0C to +55C

Power: 100, 120, 220, or 240 Vac, 48 to 66Hz; 100 or 120 Vac 360 to 440 Hz; 360 VA typical.

Ordering Information

HP 8782A Vector Signal Generator

TELECOMMUNICATIONS TEST EQUIPMENT

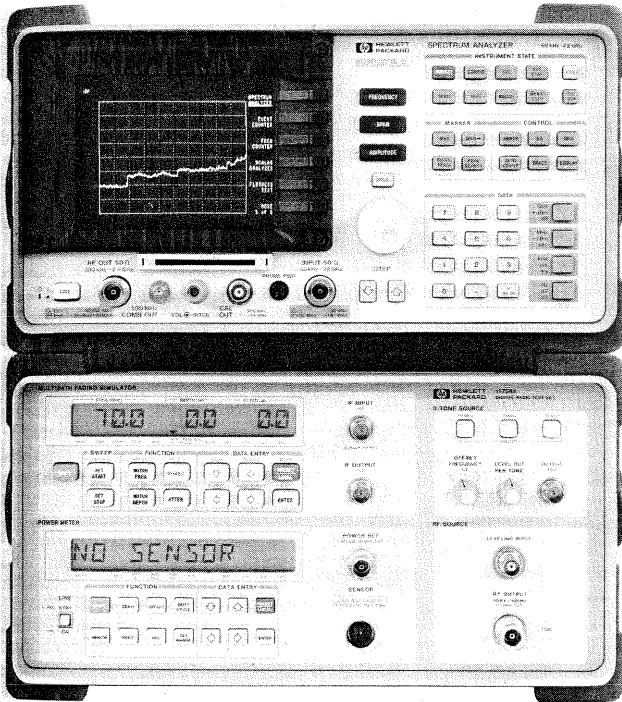
Digital Radio System, Vector Modulation Signal Generator

HP 11758T, 8782A

557

- Performs 8 different measurements
- Easy to use
- Portable

- BPSK, QPSK, 8PSK, 16QAM, 256QAM, digital modulation and burst
- Internal pseudo random binary sequence (PRBS) generator
- AM/SCALAR modulation to simulate flat fading
- Coherent carrier output



HP 11758T



HP 11758T Digital Radio Test System

The HP 11758T Digital Radio Test System performs the functions that are most commonly used in testing radios in production, installation, and maintenance. The result is a portable, general-purpose radio testing system that performs all of the following measurements:

- Spectral occupancy and purity
- Nonlinear distortion and intermodulation
- Power measurements
- Frequency
- IF-IF, IF-RF, RF-RF, and RF-IF amplitude flatness
- Sensitivity to multipath fading
- Antenna return loss
- Signal monitoring and logging

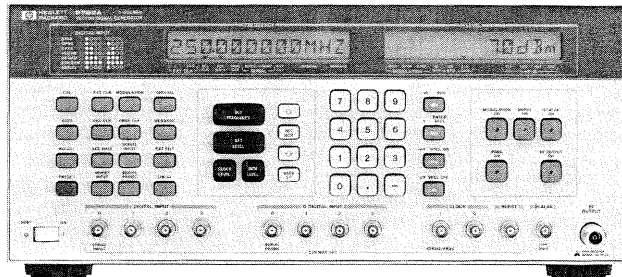
Test Functions

- Spectrum analysis:** 50 kHz to 22 GHz
 - Frequency counter:** 10 MHz to 22 GHz,
 - IF tracking generator:** 300 kHz to 3 GHz
 - Event/interval counters:** dc to 1.6 MHz
 - Power meter and sensor:** 10 MHz to 12 GHz
 - Multipath fading simulator:** 40 MHz to 170 MHz
 - Three tone IF source:** both 70 and 140 MHz bands available
 - RF source:** 3.5 to 6.5 GHz, 10.7 to 11.7 GHz available
- Special RF source options available up to 23 GHz

Ordering Information

HP 11758T Digital Radio Test System

Contact your HP sales representative for more information about the wide range of options available.



HP 8782A

HP 8782A Low-Cost Vector Generator

The HP 8782A low-cost vector signal generator offers a wide range of built-in digital modulation from BPSK to 256QAM for microwave terrestrial and satellite communication applications. The 1MHz to 250MHz range covers most of the IF frequencies in commercial receivers. An internal pseudo-random bit sequence (PRBS) generator allows digital modulation without external digital data. The HP 8782A provides economical IF signal generation for R&D and manufacturing. The cost is substantially lower than the cost of the HP 8780A Vector Signal Generator.

Applications

Use the HP 8782A to align digital radios in manufacturing. The HP 8782A can be used to provide calibrated digital modulations with extremely low quadrature error and amplitude imbalance. It can be used to simulate transmitter impairments, and to test receiver performance margins.

For more information about the HP 8782A, refer to the Signal Generator section of this catalog, page 405.

Ordering Information

HP 8782A Vector Signal Generator