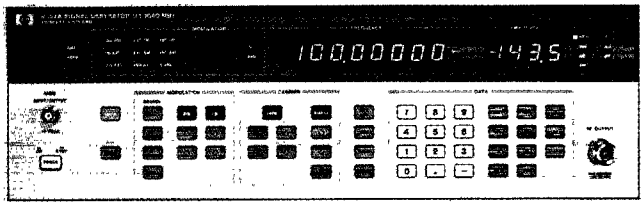
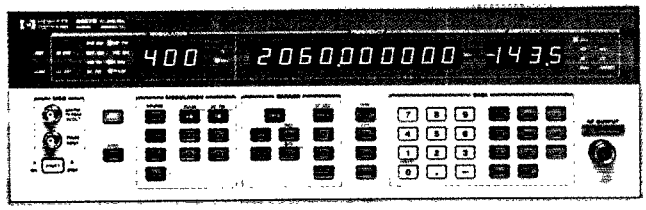
- 100 kHz up to 2060 MHz
- Electronic attenuator on HP 8657A
- ±1.0 dB level accuracy (typically ±0.5 dB on HP 8657A)
- 50W reverse power protection
- AM, FM, and optional pulse modulation



HP 8657A



HP 8657B

HP 8656B Synthesized Signal Generator

The HP 8656B is a programmable synthesized signal generator that combines performance, quality, and economy, covering the 0.1 to 990 MHz frequency range.

Precise Output Control

The HP 8656B provides ±1.0 dB absolute level accuracy and 0.1 dB resolution with calibrated power levels over +13 to −127 dBm. The output level can be offset to compensate for losses external to the generator. RF leakage is well-shielded at <1.0 μV and 25 W reverse power protection guards against accidental damage.

Versatile Modulation

The HP 8565B is capable of simultaneous AM and FM modulation. The instrument provides internal 1 kHz and 400 Hz sources and also accepts external sources. AM is ac-coupled, while FM can be either ac- or dc-coupled. The dc-coupling is exceptionally stable (<10 Hz/hour drift) and accurate (±500 Hz center frequency accuracy).

HP 8657A/B Synthesized Signal Generators

The HP 8657A and 8657B offer excellent performance at an affordable price. The HP 8657A covers a 100 kHz to 1040 MHz frequency range while the L-Band HP 8657B covers 100 kHz to 2060 MHz.

High-Performance Spectral Purity and Output Power

The low residual FM (<4 Hz at frequencies 1040 MHz) and the excellent phase noise performance of these signal generators make them ideal for almost all measurements requiring test signals at adjacent or out-of-channel offsets. Features such as carrier phase adjust allow you to characterize phase-sensitive devices such as phase detectors or phase interferometers, using precise 1-degree phase offsets with respect to another signal source. Display blanking and nonvolatile memory-clear are also available for operation in secure environments.

These signal generators offer wide dynamic output range, from +13 to −143.5 dBm, with unparalleled accuracy of ±1.0 dB. The solid-state electronic attenuator in the HP 8657A is so reliable, it is backed with a five-year warranty against failure. The HP 8657A/B also have extremely low radiated emissions for making sensitivity measurements on your receiver or for design work on extremely sensitive circuitry. Reverse power protection is provided standard for protection up to 50 W.

High-Performance Versatile Modulation

The HP 8657A and 8657B can combine modulation modes for AM/AM, FM/FM, and AM/FM from both internal and external modulation sources. AM is ac-coupled, while FM can be either ac- or dc-coupled. The patented dc-coupling technique provides excellent long term stability (<10 Hz/hour drift) as well as center frequency accuracy (±500 Hz worst case). When dc FM is enabled, SSB phase noise and residual FM performance are not degraded as with other generators.

Pulse modulation is available with the HP 8657B Option 003. This option offers fast rise time and high isolation. Rise times are 35 to 50 ns (typically 10 to 18 ns) and on/off ratios are 70 to 95 dB. For pulse modulation coverage to 1040 MHz only, order the HP 8657B Option H60.

Ease of Operation for Improved Productivity

Up to 100 complete front-panel setups can be stored in the signal generator's memory for recall during testing. These setups can be accessed sequentially by pushing one front-panel key or by using the rear-panel SEQ port. The SEQ port can be connected to a foot switch or other operator-controlled device.

HP 8656B, 8657A/B Specification Summary

Specifications	HP 8656B	HP 8657A	HP 8657B
Frequency			
Range:	100 kHz to 990 MHz	100 kHz to 1040 MHz	100 kHz to 2060 MHz
Resolution:	10 Hz	10 Hz	1 Hz
Timebase aging rate:	±2 ppm/year (typ)	±2 ppm/year (typ)	±2 ppm/year (typ)
Option 001:	1.5×10^{-8} parts/day after 10 days (typ)	1.5×10^{-8} parts/day after 10 days (typ)	1×10^{-9} parts/day after 45 days (typ)
Switching speed (w/i 100 Hz):	<35 ms (25 ms typ. at 25° C)	<35 ms (30 ms typ. at 25° C)	<35 ms (30 ms typ. at 25° C)
Spectral Purity			
SSB phase noise (f_c = 500 MHz, 20 kHz offset):	< −114 dBc/Hz	< −130 dBc/Hz	< −130 dBc/Hz
Nonharmonics (>5 kHz offset, CW):	< −60 dBc	< −60 dBc	< −60 dBc, <1030 MHz, < −54 dBc, ≥1030 MHz
Harmonics (at levels ≤ +7 dBm):	< −30 dBc	< −30 dBc	< −30 dBc, <1030 MHz < −25 dBc, ≥1030 MHz
Subharmonics	None	None	None, 100 kHz to 1030 MHz < −35 dBc, 1030 to 2060 MHz
Residual FM (0.3 to 3 kHz, CW)	<7 Hz rms	<4 Hz rms	<3 Hz rms (<6 Hz >1040 MHz)