

**HP 8662A Specifications**

**Frequency**

**Range:** 10 kHz to 1280 MHz (1279.9999998 MHz).

**Resolution:** 0.1 Hz (0.2 Hz above 640 MHz).

**Accuracy and stability:** same as reference oscillator.

**Internal reference oscillator:** 10 MHz quartz oscillator. Aging rate < 5 x 10<sup>-10</sup>/day after 10 day warm-up (typically 24 hrs in normal operating environment).

**Spectral Purity**

**Residual SSB Phase Noise in 1 Hz BW (320 ≤ f<sub>c</sub> < 640 MHz)**

Offset from Carrier				
10 Hz	100 Hz	1 kHz	10 kHz	100 kHz
-100 dBc	-112 dBc	-121 dBc	-131 dBc	-132 dBc

**SSB broadband noise floor in 1 Hz BW at 3 MHz offset from carrier:** < -146 dBc for f<sub>c</sub> between 120 and 640 MHz at output levels above +10 dBm.

**Spurious Signals**

	Frequency Range (MHz)				
	0.01 to 120	120 to 160	160 to 320	320 to 640	640 to 1280
Spurious non-harmonically related <sup>1,2</sup>	-90 dBc	-100 dBc	-96 dBc	-90 dBc	-84 dBc
Sub-harmonically related (1/2, 3/2, etc.)	none	none	none	none	-75 <sup>3</sup> dBc
Power line (60Hz) related or microphonically generated (within 300 Hz) <sup>4</sup> .	-90 dBc	-85 dBc	-80 dBc	-75 dBc	-70 dBc
Harmonics	<-30 dBc				

**Output**

**Level range:** +13 to -139.9 dBm (1V to 0.023 μV<sub>rms</sub> into 50Ω).

**Resolution:** 0.1 dB.

**Absolute level accuracy (+15° to +45°C):** ±1 dB between +13 and -120 dBm, ±3 dB between -120 and -130 dBm.

**SWR:** typically from 1.5 to 1.8 depending on output level and frequency.

**Reverse power protection:** typically up to 30W or ±8 Vdc.

**Amplitude Modulation**

**Depth:** 0 to 95% at output levels of +8 dBm and below (+10 dBm in uncorrected mode). AM available above these output levels but not specified.

**Resolution:** 1%, 10 to 95% AM; 0.1%, 0 to 9.9% AM.

**Incidental PM (at 30% AM):** 0.15-640 MHz, < 0.12 radian peak; 640-1280 MHz, <0.09 radian peak.

**Incidental FM (at 30% AM):** 0.15-640 MHz, <0.12 x f<sub>mod</sub>; 640-1280 MHz, <0.09 x f<sub>mod</sub>.

**Indicated accuracy:** ±5% of reading ±1% AM. Applies for rates given in table below, internal or external mode, for depths ≤ 90%.

**Rates and Distortion with Internal or External Modulating Signal**

Frequency range	AM Distortion			
	AM rate	0-30% AM	30-70% AM	70-90% AM
0.15-1 MHz	dc-1.5 kHz	2%	4%	5.75%
1-10 MHz	dc-5 kHz	2%	4%	5.75%
10-1280 MHz	dc-10 kHz	2%	4%	5.75%

**Frequency Modulation**

**FM rates (1 dB bandwidth):** external ac, 20 Hz to 100 kHz; external dc, dc to 100 kHz.

**FM deviation:** from 25 to 200 kHz depending on carrier frequency.

**Indicated FM accuracy:** ±8% of reading plus 10 Hz (50 Hz to 20 kHz).

**FM resolution:** 100 Hz for deviations < 10 kHz, 1 kHz for deviations ≥ 10 kHz.

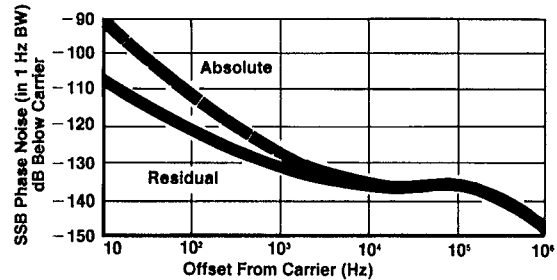
**Incidental AM (AM sidebands at 1 kHz rate and 20 kHz deviation):** < -72 dBc, f<sub>c</sub> < 640 MHz; <- 65 dBc, f<sub>c</sub> ≥ 640 MHz.

**FM distortion:** < 1.7% for rates < 20 kHz, < 1% for rates < 1 kHz.

**Center frequency accuracy and long term stability in AC mode:** same as CW mode.

**Supplemental Characteristics**

**Typical Absolute and Residual SSB Phase Noise, 639 MHz Carrier.**



**Frequency switching speed:**<sup>5</sup> From 420 μsec to 12.5 msec, depending on the programming mode.

**HP 8663A Specifications**

The HP 8663A signal generator is related to the HP 8662A in both concept and structure. The HP 8662A concept of an extremely low phase noise signal source incorporating signal generator modulation capabilities and output characteristics is carried even further by the HP 8663A. While maintaining high spectral purity, the HP 8663A offers increased frequency range to 2560 MHz, increased output level to +16 dBm, and the addition of phase and pulse modulation. The result is a highly flexible and powerful signal generator that utilizes and extends the proven circuitry of the HP 8662A. Thus, the HP 8662A and HP 8663A share many of the same specifications as shown below:

**Frequency**

**Range:** 100 kHz to 2560 MHz (2559.9999996 MHz)

**Resolution:** 0.1 Hz (f<sub>c</sub> < 640 MHz)

0.2 Hz (640 MHz ≤ f<sub>c</sub> < 1280 MHz)

0.4 Hz (f<sub>c</sub> ≥ 1280 MHz)

**Accuracy, stability, and internal reference oscillator:** identical to HP 8662A.

<sup>1</sup>In the remote mode it is possible to have microprocessor clock related spurious signals spaced 3 MHz apart at an absolute level of typically less than -145 dBm.

<sup>2</sup>Spurious signals can be up to 3 dB higher in the dc FM mode.

<sup>3</sup>1/2 spurs not specified for carrier frequencies above 850 MHz.

<sup>4</sup>At a 50 Hz line frequency, power line or microphonically related spurious signals may be up to 3 dB higher and appear at offsets as high as 1 kHz from the carrier.

<sup>5</sup>Due to automatic leveling loop bandwidth changes, brief (30 msec) level inaccuracies may occur when switching through 150 kHz and 1 MHz RF output frequencies.