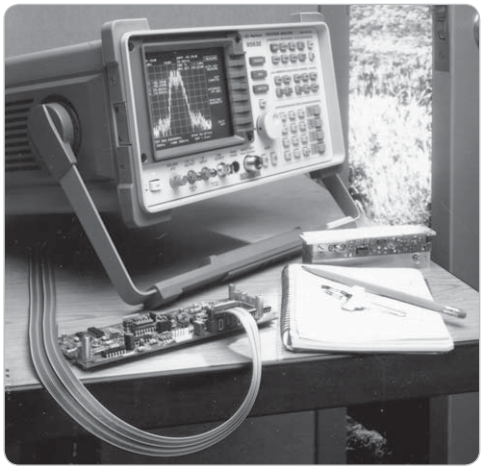
Agilent 85671A
Phase Noise Measurements Utility

Technical Overview



Enhance your 8560 series spectrum analyzer

For the Agilent 8560 series spectrum analyzers

Phase noise measurements made easy

The Agilent Technologies 85671A phase noise measurement utility is a downloadable program that transforms your Agilent 8560 series spectrum analyzer into a phase noise tester. The 85671A removes much of the work of performing phase noise measurements.

The 85671A utility eliminates the time-consuming task of hand-drawing phase noise plots. For many oscillator phase noise measurements, you no longer need to spend time manually tuning your spectrum analyzer to multiple frequency offsets. You can quickly and easily generate graphs of phase noise (dBc/Hz) versus log offset frequency.

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PHASE NOISE CONFIGURATION

        CARRIER FREQUENCY:  26.00 GHz
            SPOT FREQUENCY:  10.0 kHz
MINIMUM OFFSET FREQUENCY:  10 Hz
MAXIMUM OFFSET FREQUENCY:  1 MHz
LOG PLOT REFERENCE LEVEL:  -40 dBc/Hz

                 FILTERING:  A LOT
                 SMOOTHING:  NONE
           SIGNAL TRACKING:  OFF
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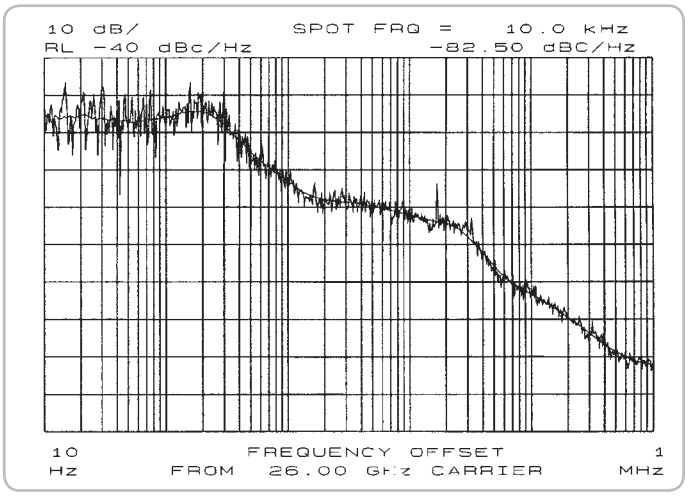

85671A generated graph of phase noise

Easy, guided measurements

When you activate the 85671A, a configuration menu is displayed. All measurement parameters are in view on one screen, as shown below. Just use the softkeys to make any changes you need, and start the measurement.

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Additional productivity features

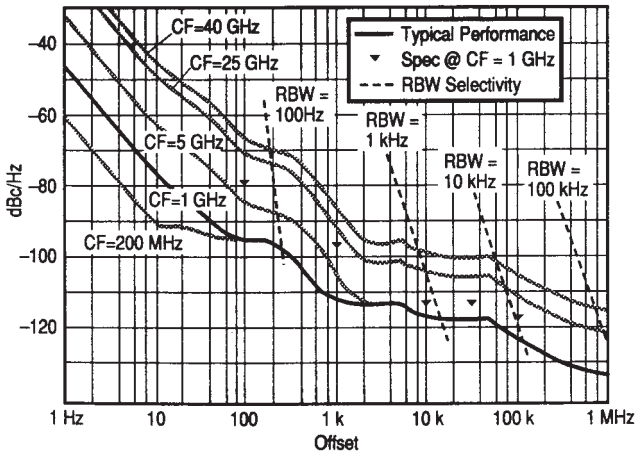
To help make you even more productive at your bench, the 85671A also offers:

- Direct phase noise readout
  Just position the spot frequency cursor at any offset frequency after you make a measurement, and the phase noise is numerically displayed.
- Variable filtering
  Now you can control trade-offs between measurement repeatability and measurement speed.
- Calculation of RMS noise
  RMS phase noise is integrated over a user-specified range under the phase noise curve and displayed in radians and degrees.
- Spot frequency measurements
  Quickly measure phase noise at a single frequency offset.
- Digitized hardcopy and storage
  Data can be printed and plotted, and traces can be stored in internal memory for future use.

Specifications

Specifications shown are based on the operation of an 8560 E-Series spectrum analyzer.

Measurement modes	Log Plot, Spot Frequency, RMS Noise
Carrier frequency range	
8560E/EC	30 Hz to 2.9 GHz
8561E/EC	30 Hz to 6.5 GHz
8562E/EC	30 Hz to 13.2 GHz
8563E/EC	30 Hz [2] to 26.5 GHz
8564E/EC	30 Hz [2] to 40 GHz
8565E/EC	30 Hz [2] to 50 GHz
Offset frequency range	10 Hz [1] to ≤ 100 MHz
Maximum number of decades	5 (whole decades only)
Maximum input signal level	+17 dBm (Ref Level = -50 dBc/Hz)
Minimum input signal level (for optimum dyn. range)	-17 dBm (offests ≤ 100 MHz, 10 dB input attenuation)
Measurement accuracy (nominal)	
Amplitude accuracy	±2.5 dB (≥ 10 dB above system noise floor)
Amplitude repeatability	±1.5 dB (Maximum filtering and 12 point smoothing)
Log graph frequency accuracy	±5%
Filtering	4 levels available
Smoothing	12 pt (2%), 24 pt (4%) 48 pt (8%), 96 pt (16%)
RMS Noise Calculation	
RMS phase noise is calculated over a user specified integration range.	
Number of data points used	All, ½, ¼, ⅛
System phase noise	



Data Storage	5 internal trace memory registers
Log Graph Hardcopy	Outputs are compatible with PCL and HP-GL printers and plotters

1. *Minimum offset frequency is 10 times the minimum resolution bandwidth of the spectrum analyzer.*
2. *Requires option 006 for operation below 9 kHz.*

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Ordering Information

System requirements:

Phase Noise Measurement Utility	Mass Memory Module	Agilent Spectrum Analyzer
85671A	85620A (Rev. C) (Revision B of the 85620A can be upgraded to Revision C with the 85620-60015 upgrade kit, available for an additional charge.)	8560 A/E /EC (firmware 890720 and later) 8561A/B/E/EC (firmware 890720 and later) 8562A/B/E /EC (firmware 870728 and later) 8563A/E/EC 8564E/EC 8565E/EC

System recommendations: Precision frequency reference (standard on 8560 E-series and 8563A). The 8560 E/EC-series spectrum analyzers are strongly recommended for this application. They provide the best system phase noise performance, measurement accuracy, and measurement speed.

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