

Four Reasons to Migrate Now from E5052B SSA to E505xA SSA-X Signal Source Analyzer



- Reason #1: Precise and accurate phase noise measurements
- Reason #2: High-speed measurements
- Reason #3: All-in-one: Versatile and comprehensive capabilities
- Reason #4: Easy to use User Interface

Comprehensive Phase Noise and Signal Source Analysis

Keysight's E5055A/56A/57A/58A (E505xA hereafter) SSA-X Signal Source Analyzer is a next generation bench-top phase noise and signal source analysis solution for wireless communications, high-speed digital, aerospace and defense applications, and T&M metrology. Comprehensive and versatile, this solution evaluates the phase noise and other relevant parameters for RF signals up to 54 GHz. Flexible measurement settings and a modern user interface improve measurement efficiency, while application support through software expands measurement coverage to meet new requirements. Building on 35 years of phase noise experience, Keysight solutions provide excellent performance and are economically tailored to fit your needs.

Who Needs an SSA-X?

Wireless communications (5G, 6G components (i.e. synthesizers) and modules)

- Mid and high performance are required
- Improve the evaluation quality and efficiency with modern multi-window display
- Easy to use is required for automation in manufacturing

Highspeed Data Communications (Phase noise (“Jitter”) of High-speed SerDes, ADCs, DACs and Clocks (i.e. PCIe RefClk))

- “Jitter” measurements
- RefClock with SSC (Spread Spectrum Clocking)
- Correlation to the results by the oscilloscopes

Aerospace and Defense (Phase noise of transceivers used in radar/EW)

- Highest measurement performance
- Versatility on top of the phase noise measurements

T&M Metrology (Calibration Lab, R&D or Mfr.)

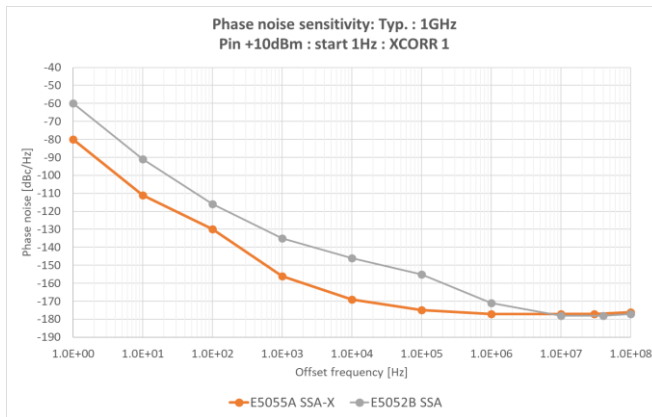
- Mid to high performance required
- Easy-to-use is required for automation in the system rack

Reason #1: Precise and Accurate Phase Noise Measurements

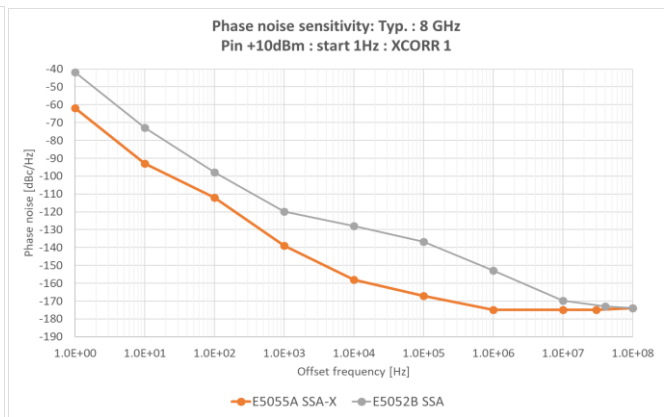
The E505xA has best-in-class noise sensitivity in a one box solution available on the market today and extremely better than the E5052B in wide offset ranges, which contributes to detect and measure very small phase noise easily and quickly than the conventional phase noise analysis instruments, such as the E5052B SSA.

Noise sensitivity (absolute phase noise): typical

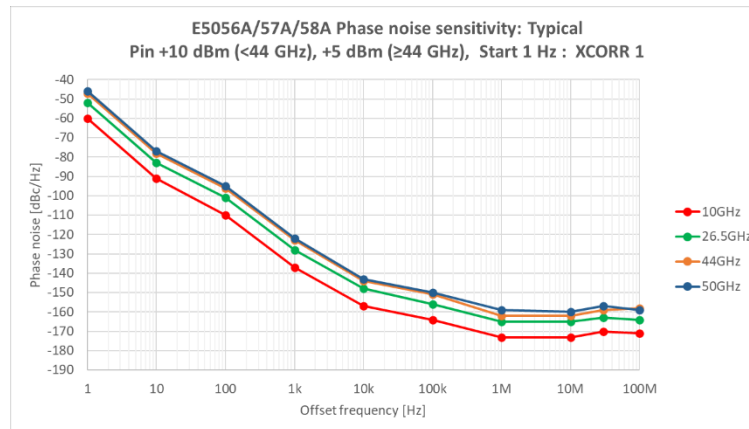
1 GHz RF Signal



8 GHz RF Signal



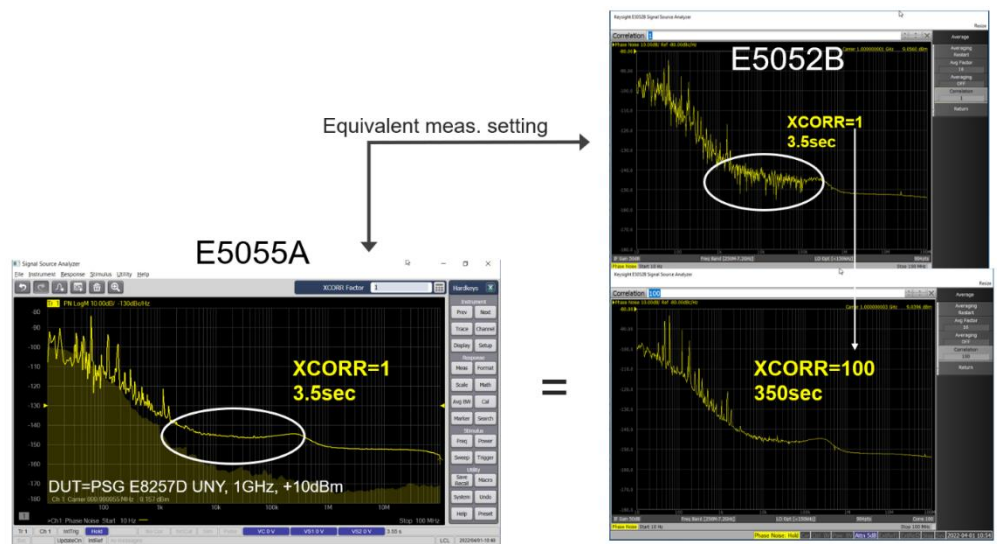
10 / 26.5 / 44 / 50 GHz RF Signal



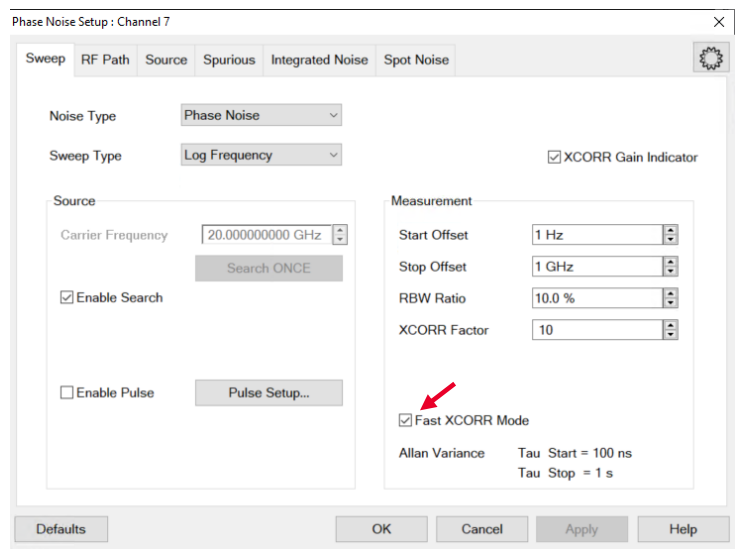
Reason #2: Highspeed Measurements

Better sensitivity is not only for measuring lower phase noise easily, but also provides you with faster throughput than the conventional signal source analyzer.

When you measure a very clean low phase noise signal, shown below, you will see a noisy phase noise trace on the E5052B due to E5052B's inferior noise sensitivity. Of course, you can improve this on the E5052B by applying many cross-correlations to minimize the system internal noises. However, it takes a lot of time to get the same level of smoothness on the traces on the E5052B. Better sensitivity also helps you to increase measurement throughput.



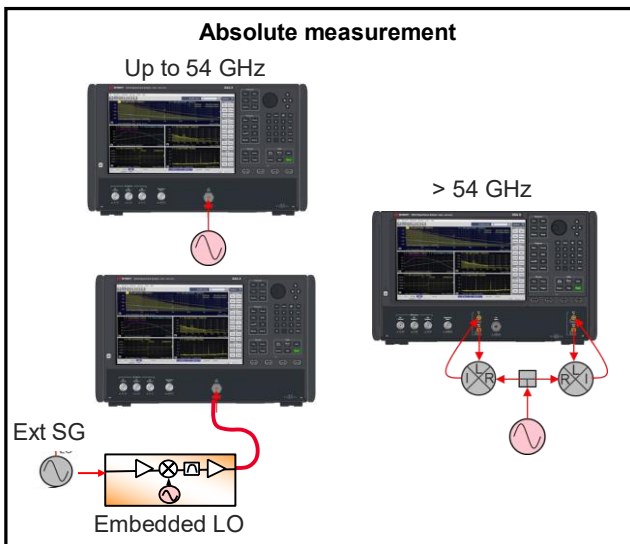
Fast Cross Correlation mode: The high sensitivity of the SSA-X enables to speed up the measurements. The SSA-X has the fast cross correlation mode used for higher test efficiency. The fast cross correlation mode takes a fewer number of cross correlations in some offset frequency ranges compared with the standard mode to speed up the measurements with only a small degradation of the measurement sensitivity.



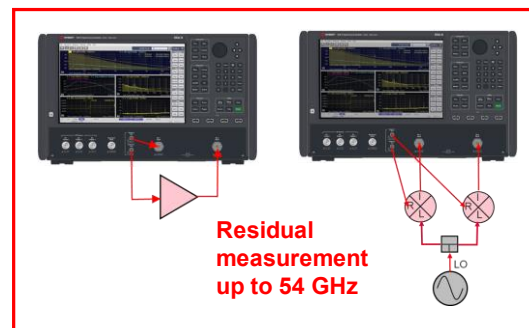
Reason #3: All-in-one Phase Noise Analyzer: Versatile and Comprehensive Capabilities

The E505xA 8 GHz/26.5 GHz/44 GHz/54 GHz SSA-X Signal Source Analyzers are a comprehensive signal source analysis solution for various applications including VCO, DRO, OCXO, reference clock signal, frequency converter embedded-LO, radar, high-speed digital communication, and 5G/6G communications. In addition to the 1-port absolute phase noise measurement, the E505xA SSA-X is also the optimal solution for residual phase noise measurements of active devices. The 2-port configuration for the SSA-X provides two channels and a low phase noise signal source up to 54 GHz to enable residual noise measurements with very high measurement sensitivity. An optional 2-port VNA can be added to the SSA-X to enable S-parameter measurement of 1 or 2-port devices. The SSA-X all-in-one architecture simplifies complex test setups while enabling comprehensive signal source and device characterization.

Wide variety of measurements



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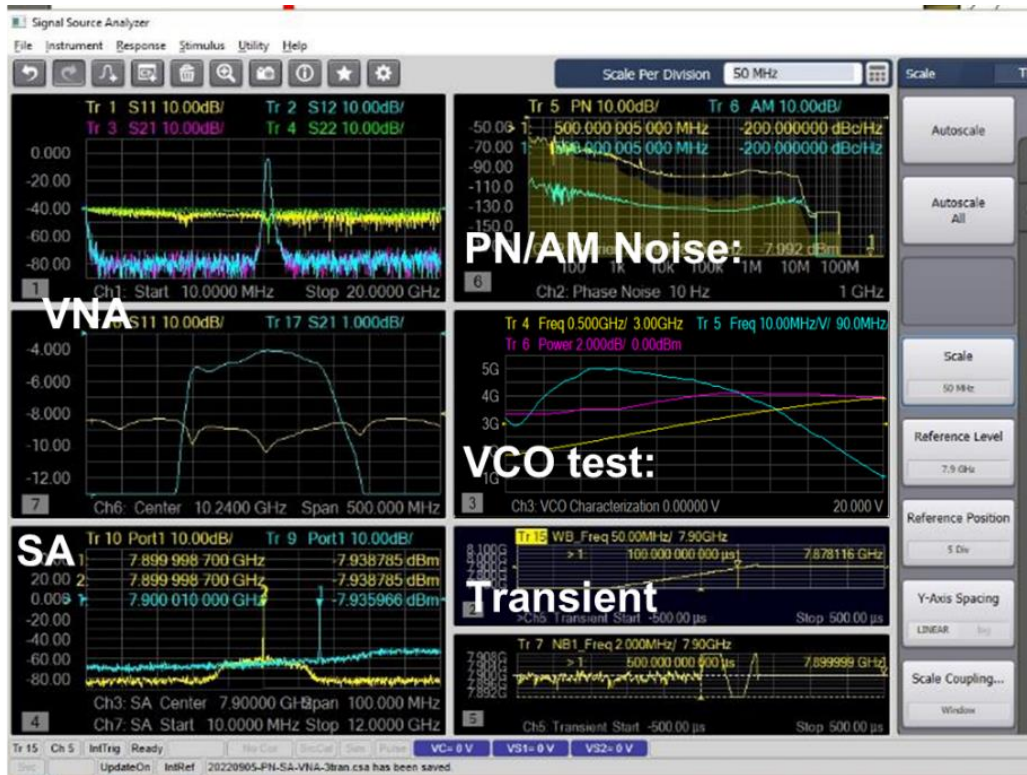
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On the E505xA SSA-X, various application software are available to meet with your various and new measurement needs.

Measurement Personality

S963015B/16B/17B/18B Advanced Features	<ul style="list-style-type: none"> • Cross Correlation PN measurements (2 ~ 100,000 cycles) • Transient measurements (frequency, power, phase) • VCO characterization (frequency vs. V, output power vs. V, frequency sensitivity, etc.) • Spectrum monitor (15 MHz span)
S963905B/06B/07B/08B Spectrum Analysis	<ul style="list-style-type: none"> • Spectrum analyzer with analyzer's full span (8/26.5/44/54 GHz), (equivalent to the SA capabilities on the E5080B VNA)
S96325B Pulsed-RF Measurements	<ul style="list-style-type: none"> • Pulsed AM/PM noise measurements
S96302B Precision clock jitter analysis	<ul style="list-style-type: none"> • Realtime jitter spectrum analysis on both Random Jitter (RJ) and Periodic Jitter (PJ). Statistical analysis: Jitter trend, histogram, etc. • 20% higher sensitivity than E5001A SW on E5052B (2 fs at 10 GHz)
Future Releases	<ul style="list-style-type: none"> • More capabilities planned in future releases

S96302B Precision Clock Jitter Analysis Software



Reason #4: Easy-to-use User Interface

- Easy to know measurement quality
- Easy to add new measurements
- Easy to allocate multiple traces and channels
- Easy to see overview of measurement results

New Ease-of-Use User Interface on E505xA SSA-X

The screenshot shows the SSA-X interface with several callouts:

- one click to add trace/channel**: Points to a button in the top toolbar.
- Easy to add new measurements**: Points to the measurement configuration area.
- Easy to allocate multiple traces/channels**: Points to the multi-trace display area.
- Easy to know measurement quality**: Points to the 'System noise floor estimate' label on the plot.
- Easy to overview measurement results**: Points to the summary tables at the bottom.

The plot displays multiple traces: **multi-trace** including **Phase Noise (with smoothing)** and **AM Noise (with smoothing)**. A **System noise floor estimate** is also shown.

The summary tables include:

- spurious table**: A table with columns for Trace, Spur, Offset, Power, and Jitter.
- noise level table**: A table with columns for Trace, Start Offset, Stop Offset, Weighting, Integ Noise, and Jitter.
- integrated noise table**: A table with columns for Trace, Start Offset, Stop Offset, Weighting, Integ Noise, and Jitter.
- multi-table**: A reference to the overall summary data.

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Conclusion

Last but not least, trade in your legacy E5052B and get big credits towards your new equipment purchase!

[E505xA SSA-X Signal Source Analyzer - Trade-in](#)

[E505xA SSA-X Signal Source Analyzer – Deal in Brief](#)

[E505xA SSA-X Signal Source Analyzer – Data Sheet](#)

[E505xA SSA-X Signal Source Analyzer – Configuration Guide](#)

[E505xA SSA-X Signal Source Analyzer – Technical Overview](#)

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