

5 Things the E5080B Can Do (That the E5071C Can't)

Introduction

Much has changed since Keysight introduced the E5071C in 2006. E5071C owners chose their platform because they needed the absolute best tool for the job. But today's devices are becoming highly integrated, requiring more than just S-parameter characterization. As devices become highly integrated, complete characterization requires a more complete RF and microwave measurement solution. The Keysight E5080B vector network analyzer provides a more comprehensive solution for R&D and manufacturing test, with performance up to 53 GHz plus new advanced test flexibility.

This document covers five workflow benefits E5080B offers over the E5071C.



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1. Simplify your Measurement Setup with Flexible Hardware

Traditional test setups require DC power supplies, pulse generators, spectrum analyzers, and more. The E5080B eliminates the cost and complexity of multiple instruments. Integrated hardware capabilities for a wide range of tests turn the E5080B into a more complete measurement solution than the E5071C.

The E5080B has options to cover:

- DC sources
- Pulse generators and modulators
- Spectrum analysis
- Noise figure measurements

The E5080B's integrated functionality enables you to do more tests with less equipment. Simplifying also lets you spend more time on test, and less time on test setup. Integrated capabilities help simplify your test setup so you can more rapidly complete device characterization.

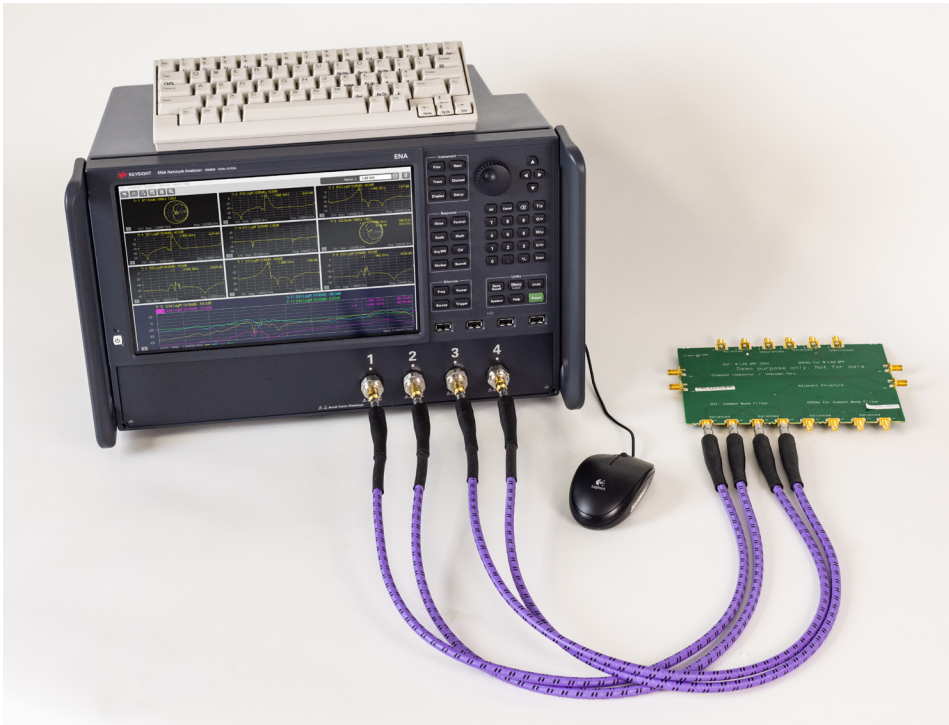
Hardware feature comparison

Feature	E5071C	E5080B
Display	10.4 inch touchscreen	12.1 inch touchscreen
Internal bias tees	100 kHz to 8.5 GHz 300 kHz to 20 GHz	9 kHz to 20 GHz 100 kHz to 53 GHz
Receiver attenuators		√
Internal pulse generators		√
Internal pulse modulators		√
Internal DC sources		√
Internal second source		√
Spectrum analysis		√

2. Gain Deeper Insights with the Widest Application Coverage

Software applications provide fast, simple, and repeatable setup and analysis for complex measurements. The E5080B adds many additional capabilities to the E5071C's software repertoire. In addition to the E5071C's abilities in enhanced time domain analysis and scalar mixer measurements, the E5080B supports applications for:

- Automatic fixture removal
- Pulsed-RF measurements
- Noise figure measurements
- Embedded local oscillator (LO) capability
- Gain compression application
- Spectrum analysis
- Impedance analysis



Work smarter and let the E5080B's software applications perform setup and analysis steps for you. Measurement wizards guide you through complex setups and get you the exact results you need.

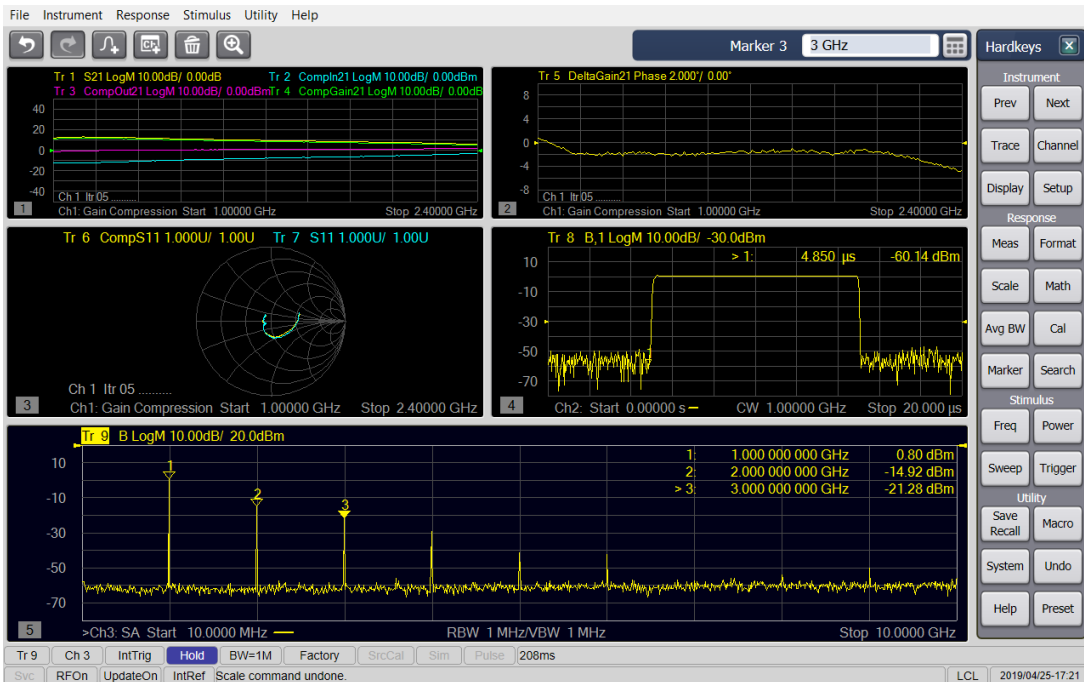
Software features comparison

Feature	E5071C	E5080B
Automatic fixture removal		√
Time domain analysis	√	√
Enhanced time domain analysis with TDR	√	√
Basic pulsed-RF measurements		√
Noise figure measurements		√
Impedance analysis		√
Scalar mixer calibrated measurements	√	√
Embedded LO capability		√
Gain compression application		√
Source phase control		√
Differential and I/Q devices measurements		√
True-mode stimulus		√
Spectrum analysis		√
Automated Measurement Expert (AMX)		√
Transportable license		√



3. Seamlessly Integrate with Keysight's Common VNA Interface

Training your operators on a new interface and commands takes time, and it's difficult for operators to optimize measurements on an unfamiliar platform. The E5080B features Keysight's common network analyzer interface, providing a seamless transition for operators familiar with the Keysight PNA, PXI VNA, or Streamline Series VNA interface. Thanks to this commonality, S94050B/S94051B VNA simulator provides simulated operations of Keysight's latest VNAs including the E5080B ENA on your PC. The software eliminates the need for VNA hardware for your test program development and post data processing.



The E5080B's Windows 10-based platform feels familiar to E5071C users, but provides improvements over the E5071C's platform. The E5080B can run the same SCPI commands as PNA network analyzers, meaning you can perform the exact same tests across your entire workflow from R&D to verification. The E5080B's 12.1 inch touch screen also gives you more space to work than the E5071C's 10.4 inch screen.

The E5080B's firmware includes an E5071C code emulation tool. The tool accepts E5071C SCPI commands and runs them on the E5080B, ensuring your legacy code can be moved seamlessly to the new platform.

4. Measure with Best-in-Class Performance

High-end measurement performance removes uncertainty from your measurements and provides repeatable results. The E5080B offers exceptional specifications to meet modern test requirements:

- Wide dynamic range of 140 dB fully captures the response of devices like high-rejection filters
- Flexibility to set a wide IF bandwidth for faster measurements
- Fast cycle time of only 2 ms (1 MHz IFBW) reduces your test time and moves your products to market faster
- Excellent trace noise of 0.0015 dBrms (at 3 GHz) removes uncertainty from your measurements and improves your yield
- Complete frequency coverage from 9 kHz to 20 GHz or 100 kHz to 53 GHz fully captures wideband device response

Measurement performance on par with R&D instruments provides consistent verification across your entire workflow.

Feature		E5071C	E5080B
Frequency range		9 kHz to 8.5 GHz	9 kHz to 20 GHz
		300 kHz to 20 GHz	100 kHz to 53 GHz
Built-in ports		2 or 4 ports	2 or 4 ports
Dynamic range at 10 Hz IFBW	4 GHz	123 dB	140 dB
	20 GHz	96 dB	126 dB
	53 GHz		71 dB
Trace noise (dB rms)	4 GHz	0.003 (70 kHz IFBW)	0.0015 (10 kHz IFBW)
Power sweep range	4 GHz	-55 to 10 dBm	-60 to 13 dBm (typ)
	20 GHz	-25 to 0 dBm	-60 to 7 dBm (typ)
	53 GHz		-50 to -12 dBm (typ)
Temperature stability (typical)	4 GHz	0.005 dB/deg. C	0.005 dB/deg. C
Cycle time (2-p Cal, narrow span, 201 pts, typical)		5 ms (100 kHz IFBW)	2.2 ms (1 MHz IFBW)
IF bandwidth		10 Hz to 1.5 MHz	1 Hz to 15 MHz

5. Increase your Throughput

Higher throughput directly helps you reduce your cost of test, giving you a competitive edge. The E5080B's flexibility and performance highlighted in previous sections accelerate your throughput and reduce your equipment and operating costs.

The E5080B's wide range of integrated hardware and software capabilities replace additional equipment like DC sources, oscilloscopes, and spectrum analyzers. You also save development time and money by only needing to configure one instrument, and you reduce configuration and cabling changes related to each test, further accelerating your overall test process.

Best-in-class performance leads to reduced operating costs. Wide dynamic range and low trace noise enable you to use a wide IF bandwidth without compromising on accuracy. The faster measurements from the wide IF bandwidth improve your throughput. For comparison, the E5080B can complete the same measurement four times faster than the E5071C.

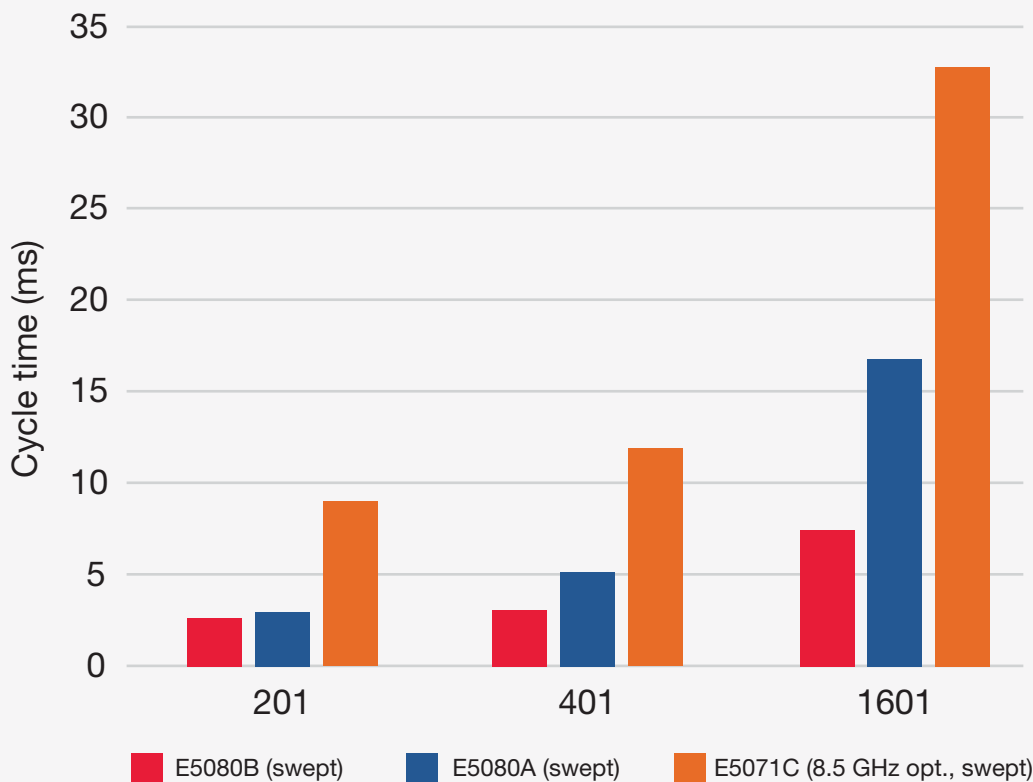


Figure 1. Cycle time comparison of the ENA series with swept (fast sweep) mode. Full 2-port calibrated measurement from 0.8 to 1 GHz with 201, 401, and 1,601 points.

Conclusion

The E5080B provides key improvements in performance and delivers advanced software applications to address new industry challenges. Flexible hardware, best-in-class performance, and a wide range of software applications make the E5080B more than just a network analyzer upgrade over the E5071C — it's a workflow upgrade.

Related Information

- E5080B Network Analyzer: keysight.com/find/e5080b
- E5080B ENA Series Vector Network Analyzer - Configuration Guide [5992-3842EN](#)
- E5080B ENA Series Vector Network Analyzer - Data Sheet [5992-3843EN](#)

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