

# Keysight Technologies

## 87405C

100 MHz to 18 GHz Preamplifier

### Key Features

- Compact, portable design for ease of use in the field
- Probe-power bias connection eliminates the need for an additional power supply
- Low noise figure of 4.5 dB and high gain of 25 dB helps improve the dynamic range and sensitivity of your test equipment
- High 15 dBm P1dB increases the available power from network and spectrum analyzers



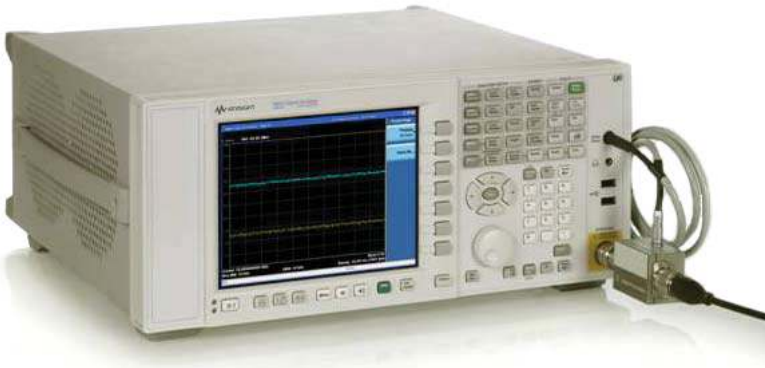


Figure 1. Preamplifier with spectrum analyzer test setup

## Description

The Keysight Technologies, Inc. 87405C preamplifier improves overall system performance and helps reduce system errors with reliable gain and low noise figure.

Compact and portable, this preamplifier can be powered directly from the instrument's probe-port which eliminates the need for a separate power supply and makes it an excellent choice for use in the field. The 87405C is designed for use with a variety of Keysight instruments such as the PSA, ESA and MXA spectrum analyzers. The rugged Type-N connectors stand up to the multiple connects and disconnects needed in field applications for reliable, repeatable measurements.

Cable options are provided for stand-alone operation, allowing this instrument to be powered up by any triple output DC source. The compact and inexpensive 87422A power supply is a suitable source of DC bias in this and other amplification applications.

## Specification

Specifications describe the product's warranted performance. Supplemental and typical characteristics are intended to provide typical but non-warranted performance parameters. These are denoted as "typical", "nominal" or "approximate".

## 87405C Product Specifications

Specification	87405C
Frequency range	0.1 - 18 GHz
Gain, $S_{21}$	25 dB
Flatness (+/-)	1.5 dB
Noise figure	6 dB (0.1 - 4 GHz) 4.5 dB (4 - 18 GHz)
Return loss, $S_{11}$	15 dB (0.1 - 4 GHz) 10 dB (4 - 18 GHz)
Return loss, $S_{22}$	15 dB (0.1 - 4 GHz) 10 dB (4 - 18 GHz)
$P_{1dB}$	15 dBm (0.1 - 4 GHz) 14 dBm (4 - 18 GHz)
Harmonics (@ +4 dBm output power)	-30 dBc (typical)
Impedance	50 Ohms (typical)
Survival input power (max)	+15 dBm
Reverse isolation	-50 dB (typical)
Power dissipation	2.1 W (typical)

## Related Literature

*Preamplifiers and System Noise*  
*Figure Application Note*,  
 November 6, 2006, literature number  
 5989-5742EN

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