FLUKE®

9600FLT

1-GHz Wide Offset Phase Noise Filter

Instruction Sheet

Introduction

The 9600FLT 1 GHz Wide Offset Phase Noise Filter accessory (the Filter) is for high-performance spectrum analyzer wide-offset phase noise tests. The Filter connects easily to 96xx Reference Source models in bench top or rack-mounted installations. It supports the established practice of using filters to reduce noise levels at wide (high) offsets for improving test margins.

Filter Use

Use the Filter only at 1 GHz. It rejects phase noise at offsets greater than 1 MHz from the 1 GHz carrier (both sidebands are rejected). Use the Filter only when the phase noise specification of the 96xx RF Reference Source is not considered sufficient for the target workload. Only the highest performance spectrum analyzers are likely to require the Filter. The Filter connects in series with the umbilical lead of the 9640A-50 or 9640A-75 Leveling Head.

Use the supplied mounting kit to conveniently attach the Filter to the front left handle of the Reference Source. See Figure 1. This mount is fully compatible with the Y9600 Rack Mount accessory.

Filter Installation

1. Use the three screws to attach the mounting plate to the rear face of the Filter.
2. Use the key-holed plate to attach the Filter to the instrument handle. See Figure 1.
3. For wide offset phase noise tests, use the supplied short coax cable to connect the Filter input to the 96xxA RF output.
4. Connect the leveling head umbilical RF feed to the Filter output. See Figure 1.

Notes

- *When the 1 GHz phase noise test is complete, the normal direct connection of the leveling head to the instrument must be restored for all other signal functions and frequencies.*
- *Insertion of this filter may cause the instrument output signal to become unleveled, indicated by the virtual LED in the instrument status bar at the top of the screen (leveling LED flashing red). A small reduction in signal level (less than the 2 dB filter insertion loss) will result, but there will be no degradation of phase noise. Alternatively, a slight reduction in the demanded output level will restore leveling operation and the output level will then be accurately known.*

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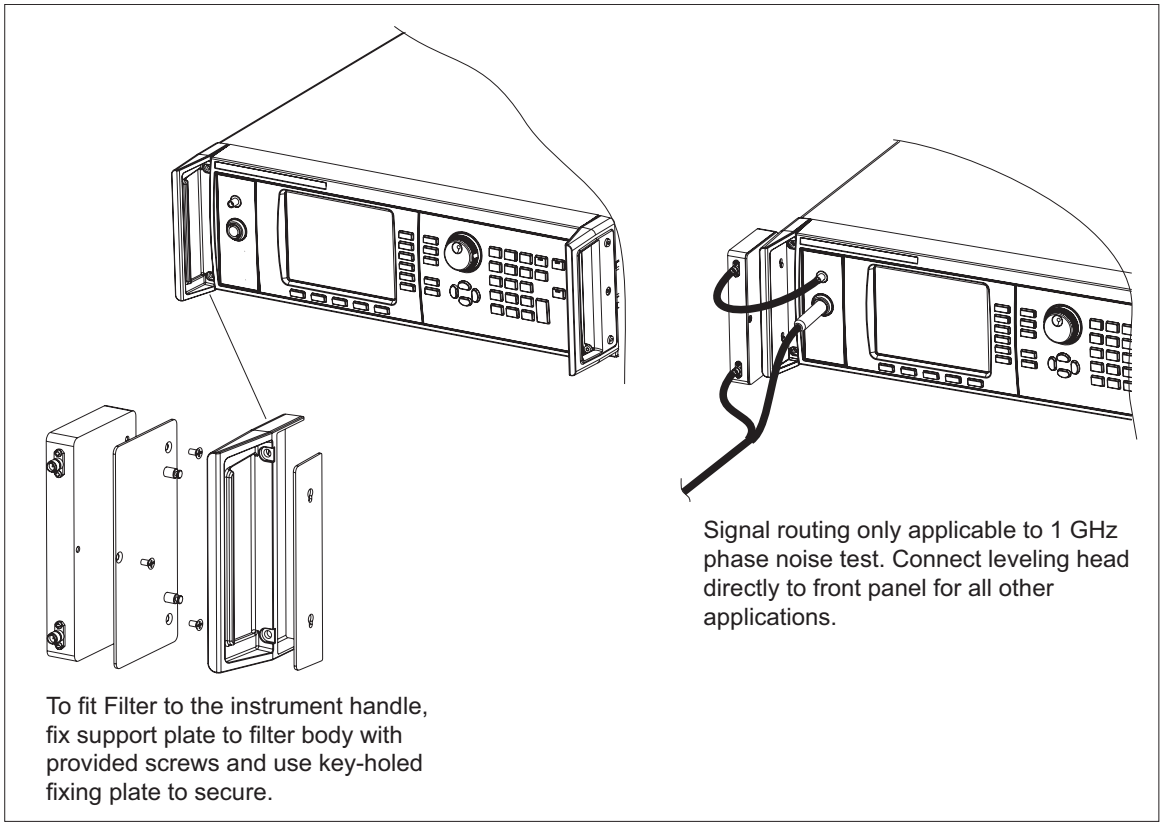


Figure 1. Installing the 9600FLT Phase Noise Filter

Specifications

General Specifications

Dimensions	130 mm (5.1 in) wide, 84 mm (3.3 in) high and 18 mm (0.7 in) deep.
Weight	0.25 kg (0.6 lbs)
Connectors	Input and Output: SMA female
Mounting [1]	Suitable for self-supporting use or optional mounting to the model 9640A RF Reference Source left-side handle in bench top or rack mounted applications.

[1] The Filter is inserted between the 9640A front panel RF output and leveling head cable connectors, only when required for phase noise tests at 1 GHz output frequency. The leveling head cable connects directly to the front panel for all other applications.

Performance Specifications

Filter Type	Band-pass, narrow bandwidth			
Frequency	1 GHz			
Impedance	50 Ω			
Offset Frequency (from 1 GHz)	≤300 kHz[2]	1 MHz	3 MHz	10 MHz
Insertion Loss	2 dB	2.5 dB	5 dB	17 dB
Rejection [1]	0 dB	0.5 dB	3 dB	15 dB

[1] Attenuation of phase noise sidebands relative to the carrier level when used to reduce wide offset phase noise of a 1 GHz signal source.