

HP 85132E/F Return Cables

GENERAL INFORMATION

To obtain optimum performance from this cable set, observe these simple precautions:

- Make connections carefully to avoid misalignment, connector damage, and inaccurate measurements.
- Keep the connectors free of dirt and any particles.
- When you clean the connectors, try clean compressed air first. Do not use abrasives. Apply Freon TF to a clean foam swab. Hold the connector to be cleaned pointing down while wiping the connector so the Freon TF does not seep into the connector. Never spray the Freon TF into the connectors.
- For more information, refer to the Microwave Connector Care manual.

DESCRIPTION

The HP 85132E and HP 85132F differ from one another mainly in length and **insertion loss** specifications. Both are test port return cables designed specifically for use with 7 mm calibration and verification kits and test sets with NMD-3.5 mm ports as part of the HP 8510 network analyzer system. The HP 85132E consists of a single, 97.2 cm (38.25 inches) long cable with a 7 mm connector on the DUT end and a NMD-3.5 mm (f) connector on the test set end. The HP 85132E is used primarily with Reflection/Transmission test sets. The HP 85132F consists of two identical cables that are each 62.9 cm (24.75 inches) long and is used primarily with full S-parameter test sets. The cables in the HP 85132F cable set are also available individually as HP Part Number 85132-60004. Any of the two individual cables can be used to make a set.

SPECIFICATIONS

Hewlett-Packard guarantees that the performance of your cables will equal or exceed the following specifications, at frequencies <18 GHz:

SWR	≤ 1.3 (17.7 dB return loss)	where f is in GHz
Insertion Loss _(in dB)	$\leq [0.35\sqrt{f} + 0.3]$ HP 85132E	
	$\leq [0.25\sqrt{f} + 0.2]$ HP 85132F	

Recession of center conductor shoulder behind outer conductor mating plane.

NMD-3.5 mm (f) connector	0.005 to 0.056 mm (0.0002 to 0.0022 inch)
7 mm connector with collet removed	0.005 to 0.021 mm (0.0002 to 0.0008 inch)
Protrusion of 7 mm center pin with collet in place	0.05 to 0.25 mm (0.002 to 0.010 inch)

SUPPLEMENTAL PERFORMANCE DATA

The following data gives further information about the typical performance of HP 85132E/F cables.

Magnitude stability (dB) and Phase stability (degrees) with a 90 degree 3 inch bend radius	≤ 0.22 dB change, HP 85132E ≤ 0.12 dB change, HP 85132F $\leq 0.16 (f) + 0.8$, HP 85132E $\leq 0.13 (f) + 0.5$, HP 85132F	where f is in GHz
---	--	-------------------

Electrical length of the HP 85132E cable is approximately 1.150m and it is approximately 0.74m for the HP 85132F.

PERFORMANCE TESTS

Using an HP 8510 Network Analyzer, perform the following tests upon your cables as soon as you receive them, and periodically repeat the tests to determine if their performance is still satisfactory or if the cables need to be replaced.

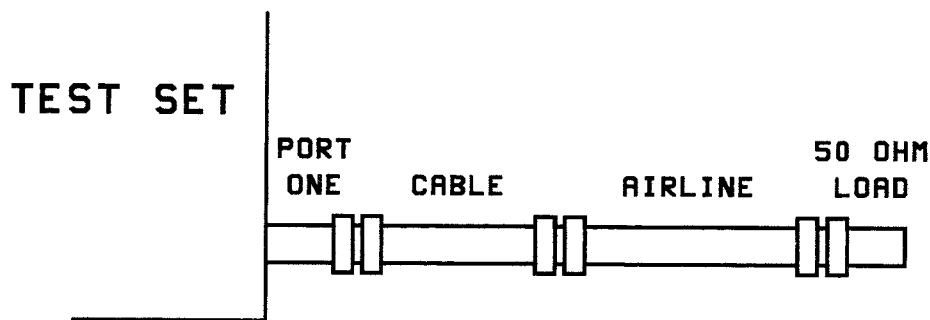


Figure 1. Return Loss Set-up

Return loss is measured by connecting a 50-ohm fixed load termination through a 10cm airline to the test cable, then attaching the cable to port one of the test set (see Figure 1).

The effects of an imperfect load are gated out using HP 8510 time domain as follows:

1. Press **[INSTR PRESET]**, the HP 8510 will be set to a predetermined state.
2. Under STIMULUS, press **[START] [4] [5] [M/μ]**, this sets the start frequency to 45 MHz.
3. Under STIMULUS, press **[STOP] [1] [8] [G/n]**, this sets the stop frequency to 18 GHz.
4. Perform a 3.5 mm one port S11 calibration with 32 averaging at port one of your test set, as described in the Operating and Programming manual. Save the calibration.