Agilent 772D, 773D

Directional Couplers 2 to 18 GHz

Technical Overview

New Performance Standards in Microwave Couplers

The Agilent Technologies 772D dual directional coaxial coupler and 773D directional coupler are high directivity couplers designed for broadband swept reflectometer measurements and leveling applications in the 2 to 18 GHz frequency range. With their wide frequency coverage, one of these couplers can replace several couplers without performance degradation, thus adding convenience and economy by reducing setup and calibration time. The high directivity and low main line SWR make it possible to achieve excellent source match. The smaller size and light weight of the 773D directional coupler make it much easier to use on the bench. The addition of threaded mounting holes makes it an ideal candidate for use inside equipment in leveling loop applications. Low SWR and flat coupling variation from 2 to 18 GHz and high power capability make these couplers ideal for your most demanding measurement needs.

		Agilent 772D	Agilent 773D
Description		Dual directional coupler	Directional coupler
Frequency range		2 to 18 GHz	2 to 18 GHz
Minimum directivity		39 dB (0.1 – 2 GHz) typical 30 dB (2 – 12.4 GHz) 27 dB (12.4 – 18 GHz) 20 dB (18 – 20 GHz) typical	39 dB (0.1 – 2 GHz) typical 30 dB (2 – 12.4 GHz) 27 dB (12.4 – 18 GHz) 21 dB (18 – 20 GHz) typical
Maximum main line SWR		1.05 (0.1 – 2 GHz) typical 1.28 (2 – 12.4 GHz) 1.40 (12.4 – 18 GHz) 1.29 (18 – 20 GHz) typical	1.04 (0.1 – 2 GHz) typical 1.21 (2 – 12.4 GHz) 1.27 (12.4 – 18 GHz) 1.16 (18 – 20 GHz) typical
Maximum coupled line SWR		1.08 (0.1 – 2 GHz) typical 1.30 (2 – 12.4 GHz) 1.40 (12.4 – 18 GHz) 1.17 (18 – 20 GHz) typical	1.07 (0.1 – 2 GHz) typical 1.30 (2 – 12.4 GHz) 1.40 (12.4 – 18 GHz) 1.17 (18 – 20 GHz) typical
Nominal coupling (dB)[4]		20 ± 1 dB (2 – 18 GHz)	20 ± 1 dB (2 – 18 GHz)
Max. coupling variation with Freq. [4]		<±1.0 dB or 2 dB peak-to-peak (2 – 18 GHz)	<±1.0 dB or 2 dB peak-to-peak (2 – 18 GHz)
Tracking between auxiliary arms		<±0.7 dB[1,2]	N/A[2]
Maximum main line residual loss		<0.26 dB (0.1 – 2GHz) typical <1.5 dB (2 – 18 GHz)	< 0.15 dB (0.1 – 2 GHz) typical <0.9 dB (2 – 18 GHz) <0.9 dB (18 – 20 GHz) typical
Main line power handling capability	0.1–2 GHz	100 W (50 dBm) average typical	100 W (50 dBm) average typical
	2–18 GHz	250 W (54 dBm) peak[3] typical 50 W (47 dBm) average	250 W (54 dBm) peak[3] typical
	18–20 GHz	50 W (47 dBm) average 250 W (54 dBm) peak[3] N/A	250 W (54 dBm) peak[3]
		50 W (47 dBm) average typical N/A	250 W (54 dBm) peak[3] typical
Net weight		2.6 kg	0.8 kg
Dimensions (cm)		39.1 (L) x 13.34 (W) x 4.13 (H)	18.4 (L) x 10.5 (W) x 3.0 (H)

1. With test port shorted and not including source match ripple.
2. Typical relative tracking between 772D and 773D is <±0.7 dB.
3. Peak power duration of 10 µs
4. Nominal coupling = (Max. coupling + Min. coupling)/2

Connectors

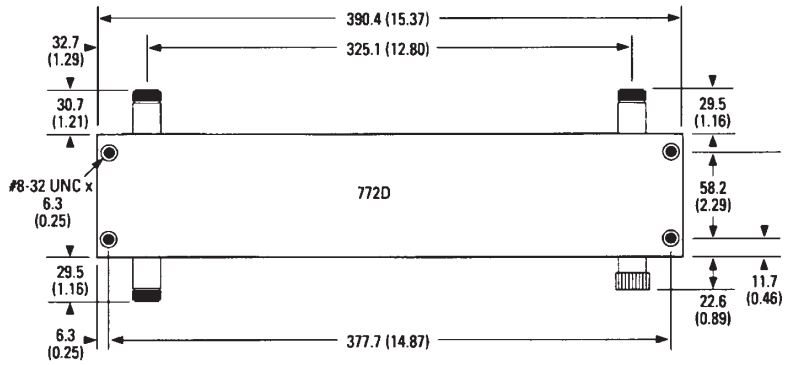
Agilent 772D
Test port APC-7; input, incident, and reflected ports Type-N (F)

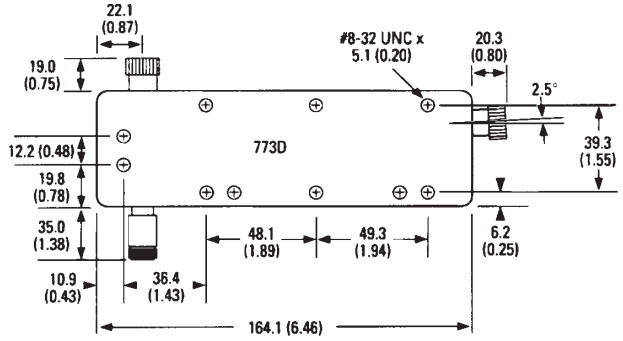
Agilent 773D
Input and output ports APC-7; coupled port Type-N (F)

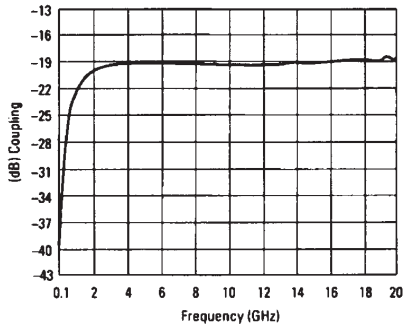
Agilent 772D, 773D Option 001
All connectors Type-N (F)

Outline Drawings

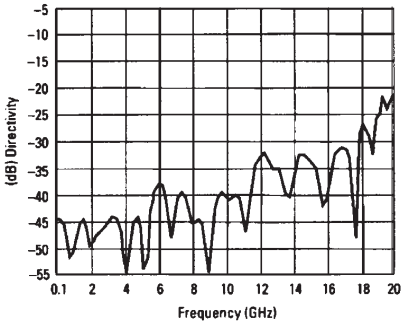
Dimensions in millimeters (inches)







Typical coupling



Typical directivity

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Published in USA, August 19, 2013
5959-8753

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