Keysight 772D, 773D Directional Couplers
2 to 18 GHz

Technical Overview
New Performance Standards in Microwave Couplers

The Keysight Technologies, Inc. 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.

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

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

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

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

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

Outline Drawings

Dimensions in millimeters (inches)
Evolving Since 1939
Our unique combination of hardware, software, services, and people can help you reach your next breakthrough. We are unlocking the future of technology.
From Hewlett-Packard to Agilent to Keysight.

myKeysight
www.keysight.com/find/mykeysight
A personalized view into the information most relevant to you.

www.keysight.com/find/emt_product_registration
Register your products to get up-to-date product information and find warranty information.

Keysight Services
www.keysight.com/find/service
Keysight Services can help from acquisition to renewal across your instrument’s lifecycle. Our comprehensive service offerings—one-stop calibration, repair, asset management, technology refresh, consulting, training and more—helps you improve product quality and lower costs.

Keysight Assurance Plans
www.keysight.com/find/AssurancePlans
Up to ten years of protection and no budgetary surprises to ensure your instruments are operating to specification, so you can rely on accurate measurements.

Keysight Channel Partners
www.keysight.com/find/channelpartners
Get the best of both worlds: Keysight’s measurement expertise and product breadth, combined with channel partner convenience.

www.keysight.com/find/mta

For more information on Keysight Technologies’ products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

Americas
Canada (877) 894 4414
Brazil 55 11 3351 7010
Mexico 001 800 254 2440
United States (800) 829 4444

Asia Pacific
Australia 1 800 629 485
China 800 810 0189
Hong Kong 800 938 693
India 1 800 11 2626
Japan 0120 (421) 345
Korea 080 769 0800
Malaysia 1 800 888 848
Singapore 1 800 375 8100
Taiwan 0800 047 866
Other AP Countries (65) 6375 8100

Europe & Middle East
Austria 0800 001122
Belgium 0800 58580
Finland 0800 523252
France 0805 980333
Germany 0800 6270999
Ireland 1800 832700
Israel 1 809 343051
Italy 800 599100
Luxembourg +32 800 58580
Netherlands 0800 0233200
Russia 8800 5093286
Spain 800 000154
Sweden 0200 892255
Switzerland 0800 805363
Opt. 1 (DE)
Opt. 2 (FR)
Opt. 3 (IT)
United Kingdom 0800 0260637

For other unlisted countries:
www.keysight.com/find/contactus
(BP-9-7-17)

DEKRA Certified
ISO 9001:2015 Quality Management System

www.keysight.com/go/quality
Keysight Technologies, Inc.
DEKRA Certified ISO 9001:2015
Quality Management System

This information is subject to change without notice.
© Keysight Technologies, 2013 – 2017
Published in USA, December 1, 2017
5959-8753
www.keysight.com