

DIRECTIONAL COUPLERS

PRECISION HIGH DIRECTIVITY

- Features
- High Directivity
- Broadband Operation
- Precision Connectors
- Low VSWR
- High Tracking Accuracy

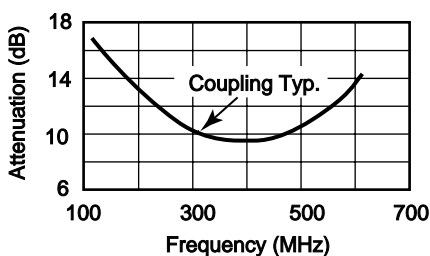
Description

The 4030 and 4090 series of precision directional couplers are designed to provide high directivity and an accurate sample of forward or reflected power over octave bandwidths or greater. They are primarily intended for laboratory type applications where an extremely stable and rugged device is required.

The couplers, when used singly or in pairs, are ideally suited for high accuracy swept frequency measurements or reflection coefficient and insertion loss. The use of precision couplers has numerous advantages and applications such as when used with network analyzer systems and in power level measurements.

Units are available with either 7mm [1] or 14mm (MPC14) [2] connectors on the mainline with a precision stainless steel type N female connector on the secondary line input.

Figure A. Coupling Curve for 0.1 to 0.6 GHz Couplers



Units are provided calibrated at five frequencies.

- [1] Precision 7mm connector per Maury data sheet 5E-060.
- [2] Precision 14mm connector, mating compatible with GR900.
- [3] Typical > 45 dB.
- [4] Typical > 43 dB.
- [5] Typical > 38 dB.



Specifications

Frequency Range Octave bands or greater, see chart
 Coupling 10 dB nominal
 Tracking (unit to unit when paired) 0.03 dB
 Directivity Generally >40 dB, see chart
 VSWR See chart
 Nominal Impedance 50 ohm
 Power Handling 30 watts

Connectors:

Main Line 7mm (model 4030 series)
 14mm (model 4090 series)
 Coupled Line Type N female

Frequency Range (GHz)	Model	Directivity dB	Coupling Frequency Sensitivity dB	VSWR		Overall Length (inches)
				Main	Sec	
0.25 — 0.5	4036	40 [3]	±1.0	1.10 [6]	1.15 [7]	10.70
0.50 — 1.0	4037	40 [3]	±1.0	1.10 [6]	1.15 [7]	6.69
0.95 — 2.2	4031	40 [3]	±1.0	1.10	1.15	4.59
1.7 — 4.2	4032	40 [4]	±1.2	1.15	1.20	3.70
3.7 — 8.3	4033	35 [5]	±1.2	1.20	1.25	6.35

Frequency Range (GHz)	Model	Directivity dB	Coupling Frequency Sensitivity dB	VSWR		Overall Length (inches)
				Main	Sec	
0.10 — 0.6	4096A	46 [8]	[9]	1.05	1.08	13.15
0.50 — 1.0	4097	46 [8]	±1.0	1.05	1.10	9.14
0.75 — 1.5	4094	45	±1.0	1.05	1.10	7.88
0.95 — 2.2	4091	45	±1.2	1.05	1.10	7.04
1.50 — 3.0	4095	42	±1.0	1.07	1.10	6.51

- [6] 1.05 typical.
- [7] Directivity from 8.3 to 8.5 GHz is 34 dB minimum.
- [8] Typical > 50 dB.
- [9] See Figure A.

DIRECTIONAL COUPLERS

EIA RIGID LINE – HIGH DIRECTIVITY

Description

These precision directional couplers are designed utilizing EIA rigid coaxial transmission line connectors in 7/8 and 1-5/8 line sizes on the mainline with a type N female secondary line output. They provide the ability to perform precision swept frequency measurements in the larger coaxial line sizes. These units offer high directivity and an accurate sample of forward or reflected power for use in variety of measurement applications.

For optimum accuracy, Maury precision bullets (inner conductor connectors) noted in the chart are recommended for use with these couplers. Individual support stands are available, also as noted in the chart, for convenient bench mounting.



2049M

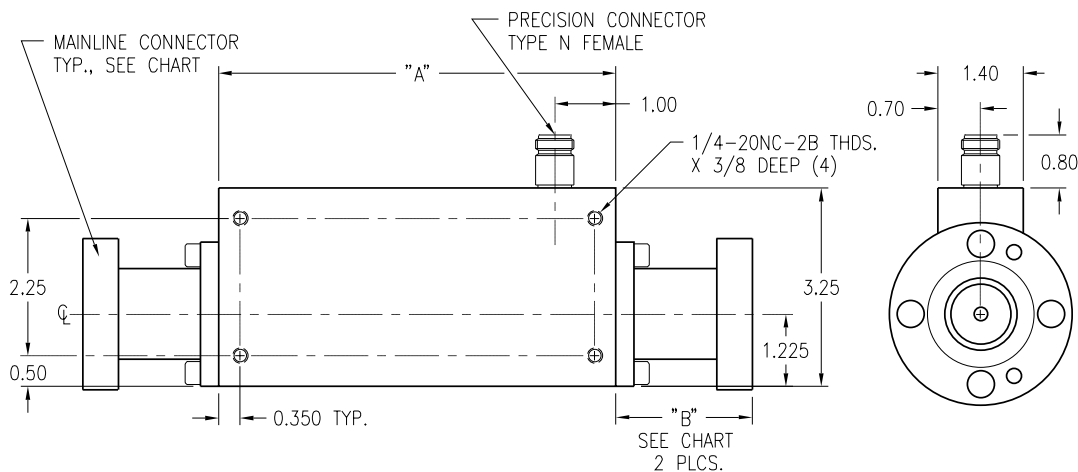
Frequency Range (GHz)	Model		"A" Dim.
	7/8 EIA	1-5/8 EIA	
0.75 — 1.5	2049C	2149C	7.88
1.0 — 2.0	2049D	2149D	7.04
1.5 — 3.0	2049E	2149E	6.51
1.7 — 2.3	2049M	2149M	6.51
Support Stand	2149G	2149G	—
Bullet	2002A	2102A	—
"B" Dimension	2.31	3.42	—

Specifications

Frequency Range See chart
 Coupling 10 dB nominal
 Frequency Sensitivity ± 1.0 dB [1]
 Tracking (unit to unit when paired) 0.3 dB
 Directivity 40 dB minimum [2]

VSWR (maximum) 1.10 primary,
 1.15 secondary [3]
 Nominal Impedance 50 ohm
 Power Handling 30 watts [4]
 Connectors Primary line – see chart;
 secondary line – type N female

Dimensions



[1] See Figure A, page 159 for coupling curve; frequency sensitivity spec does not apply.

[2] 46 dB minimum, >50 dB typical for models 2049M and 2149M.

[3] Maximum VSWR for models 2049E and M, 2149 E and M is 1.15 primary, 1.20 secondary.

[4] Conservatively rated, consult us on higher power applications.