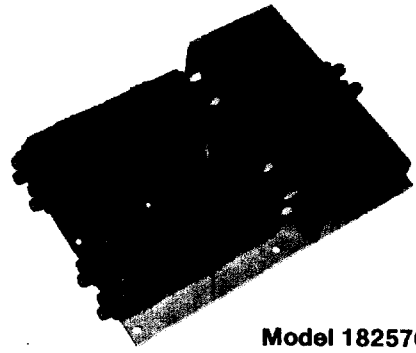
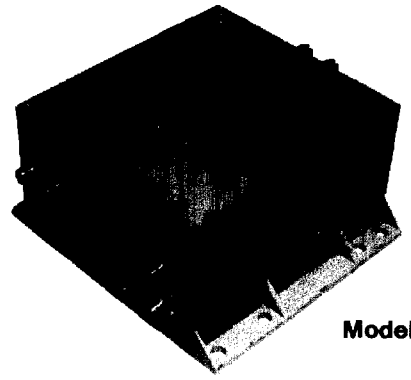
Anaren

Antenna Feed Networks (Butler Matrices—90° Type) Models 182570, 182580



Model 182570



Model 182580

Description

Butler matrices are used as antenna feed networks for instantaneous direction finding and multi-beam jamming[1] of microwave signals.

Model Numbers 182570 and 182580 have 8 antenna ports and 8 receive/transmit ports. Eight beams all in the same plane (e.g., azimuth or elevation) are available simultaneously for transmission. Each receive/transmit port has one beam with beam crossovers nominally at the 3dB point.

In the receive mode, the relative amplitude of signals at the output ports provide instantaneous bearing information. Simultaneous azimuth and elevation information is provided by using two matrics.

1. J.P. Shelton and K.S. Kelleher, "Multiple Beams from Linear Arrays," IRE Transactions on Antennas and Properties, March 1961.

Electrical Specifications

Model No.	Frequency (GHz)	Phase Balance* Max/Typ (deg)	Amplitude Balance* Max/Typ (dB)	Insertion Loss Max/Typ (dB)	VSWR Max/Typ	Isolation Min/Typ (dB)
182570	7-16	12/7.0	1.5/0.7	4.5/3.5	3:1/1.6:1	8/13
182580	12-18	8/5.5	0.8/0.6	4.5/3.0	3:1/1.6:1	8/13

*overall standard deviation

Nominal Phase Relationships

Receive/Transmit Ports	Antenna Ports							
	J1	J2	J3	J4	J5	J6	J7	J8
4L	0	157.5	315	112.5	270	67.5	225	22.5
3L	0	112.5	225	337.5	90	202.5	315	67.5
2L	0	67.5	135	202.5	270	337.5	45	112.5
1L	0	22.5	45	67.5	90	112.5	135	157.5
1R	0	−22.5	−45	−67.5	−90	−112.5	−135	−157.5
2R	0	−67.5	−135	−202.5	−270	−337.5	−45	−112.5
3R	0	−112.5	−225	−337.5	−90	−202.5	−315	−67.5
4R	0	−157.5	−315	−112.5	−270	−67.5	−225	−22.5

Mechanical Specifications

Model No.	Dimensions (excluding connectors)	Weight	
		oz	gm
182570	6.3 x 4.5 x 1.3 (160 x 114 x 33)	2	.9
182580	4.3 x 3.9 x 2.2 (109 x 99 x 56)	2	.9

Contact Anaren for latest outline details.

All dimensions in inches and (mm)
Weight in lbs (kg)
Connectors: SMA. Female, per MIL-C-39012

Specifications subject to change without notice.