

### True Circular Polarization

Power Rating: 3 kW per Bay

### Shively Standard Features:

- Ring Stub Design
- Low Weight and Windload
- Consistently Predictable Patterns
- Digital Ready
- Pattern Studies Available
- No Factory Personnel Needed to Install
- Adjustable Fine-Matching Transformer
- Radomes and Deicers Available
- Rugged Corrosion-Resistant Mounts
- Works with Regular Towers; No Need for Special Frequency-Sensitive Tower Sections
- Pressure Relief Valve for Easy Purging of the System
- Special Spacing, H/V Ratios, Null Fill and Beam Tilt Available

### Performance Specifications:

Polarization: Right circular  
 VSWR: 1.08 : 1 ± 100 kHz  
 1.16 : 1 ± 200 kHz (optional 1.10 : 1; see factory for details)  
 Azimuth Pattern Circularity: Horizontal component ± 1.5 dB on pole.  
 Input Connection: 1-5/8 in EIA Female

### Electrical Specifications:

No. of Bays	Gain		Power Rating kW	No. of Bays	Gain		Power Rating kW
	Power	dB			Power	dB	
1	0.46	-3.40	3	7	3.87	5.88	12
2	0.99	-0.04	6	8	4.46	6.50	15
3	1.55	1.90	9	10	5.65	7.52	15
4	2.12	3.26	10	12	6.85	8.36	15
5	2.70	4.31	12	14	8.05	9.06	15
6	3.28	5.16	12	16	9.25	9.66	15

### Notes:

1. Our gain figures are derived from the computed directivity and include the losses in the antenna feed system. Gain is provided for one polarization and is equal in circularly polarized antennas for both horizontal and vertical components. Gain will be reduced if null fill, beam tilt, special H/V ratio, or special wavelength spacing is provided. Gain will increase in a directional array by the directivity of the azimuth pattern.

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 Certified to ISO-9001:2000



## Model 6813 Size and Weight (Full-Wave-Spaced):

No. of Bays	Vertical Tower Space						Weight					
	Antenna Radiation Aperture		Physical Space Used		Total Tower Space Recommended		Without radomes		With radomes		With radomes & 1/2" (1.2 cm) radial ice	
	ft	m	ft	m	ft	m	lb	N	lb	N	lb	N
1	2	0.7	9	3.0	20	6.6	62	277	97	433	195	870
2	10	3.3	19	6.2	30	9.8	105	468	175	781	380	1695
3	20	6.6	29	9.5	40	13.1	147	656	252	1124	565	2520
4	30	9.8	39	12.8	50	16.4	190	847	330	1472	749	3341
5	40	13.1	49	16.1	60	19.7	259	1155	407	1815	934	4166
6	50	16.4	59	19.4	70	23.0	275	1227	485	2163	1119	4991
7	60	19.7	69	22.6	80	26.2	317	1414	562	2507	1303	5811
8	70	23.0	73	23.9	90	29.5	338	1507	618	2756	1444	6440
10	90	29.5	93	30.5	110	36.1	423	1887	773	3448	1814	8090
12	110	36.1	113	37.1	130	42.6	508	2266	928	4139	2183	9736
14	130	42.6	133	43.6	150	49.2	593	2645	1083	4830	2552	11382
16	150	49.2	153	50.2	170	55.8	676	3015	1239	5526	2922	13032

## Windload (Full-Wave-Spaced):

No. of Bays	Revision 'C'						Revision 'F'					
	Without radomes		With radomes		With radomes & 1/2" (1.2 cm) radial ice		Without radomes		With radomes		With radomes & 1/2" (1.2 cm) radial ice	
	lb	N	lb	N	lb	N	(ft <sup>2</sup> )	m <sup>2</sup>	(ft <sup>2</sup> )	m <sup>2</sup>	(ft <sup>2</sup> )	m <sup>2</sup>
1	76	339	180	803	222	990	2.4	0.2	4.9	0.5	6.0	0.6
2	152	678	360	1606	442	1971	5.1	0.5	10.1	0.9	12.5	1.2
3	228	1017	540	2408	662	2953	7.7	0.7	15.3	1.4	18.9	1.8
4	304	1356	719	3207	881	3929	10.4	1.0	20.4	1.9	25.4	2.4
5	380	1695	899	4010	1101	4910	13.1	1.2	25.6	2.4	31.9	3.0
6	456	2034	1079	4812	1321	5892	15.8	1.5	30.8	2.9	38.4	3.6
7	532	2373	1258	5611	1540	6868	18.4	1.7	36.0	3.3	44.9	4.2
8	581	2591	1411	6293	1713	7640	20.2	1.9	40.2	3.7	49.9	4.6
10	732	3265	1771	7899	2153	9602	25.5	2.4	50.5	4.7	62.8	5.8
12	884	3943	2130	9500	2593	11565	30.9	2.9	60.9	5.7	75.8	7.0
14	1036	4621	2490	11105	3032	13523	36.2	3.4	71.2	6.6	88.8	8.2
16	1188	5298	2849	12707	3472	15485	41.5	3.9	81.6	7.6	101.7	9.4

### Notes:

- The mounting structure must not flex more than  $\pm 1/2$  in (1.2 cm) in any ten-foot (3-meter) section. Five feet (1.5 m) of mounting structure is required above and below the antenna bays for proper pattern formation.
- Antenna radiation aperture is the distance from the center of the top bay to the center of the bottom bay. Physical space used is from the top of the top bay to the input flange at the bottom of the array, or the bottom of the bottom bay in a center-fed array. Total tower space recommended allows ten feet (3 m) of clear tower space above and below the antenna to protect from pattern interference by other antennas. At frequencies lower than 98 MHz, each of these dimensions will increase by up to 1 ft (0.3 m) per bay.
- Seven bays or less are normally end-fed. All antennas supplied with beam tilt will be center-fed. Antennas with an odd number of bays are normally not available with center feed.
- Windload and weight tabulations are estimates and assume 98 MHz. They include the bay, interbay feedline, input connection, and a fine-matching transformer. No values have been included in these tabulations for mounts. Actual values vary with the specific installation. Contact us with details of your installation if more precise values are needed.
- Antenna windloads are calculated for 112 mph (180 kph), using 50 psf (2400 N/m<sup>2</sup>) for flats and 33 psf (1600 N/m<sup>2</sup>) for rounds] per EIA standard RS-222-C and CSA standard S37-94. The surface area is calculated per EIA standard RS-222-F (C<sub>g</sub>A<sub>c</sub>).
- Deicers add approximately 1 lb (4.4 N) per bay in weight and 2 lb (8.9 N) or 0.05 ft<sup>2</sup> (0.005 m<sup>2</sup>) per bay in windload.
- Ask for technical assistance at Shively if you are planning to mount antennas on AM towers or install them at altitudes over 3,000 ft (915 m) above mean sea level.