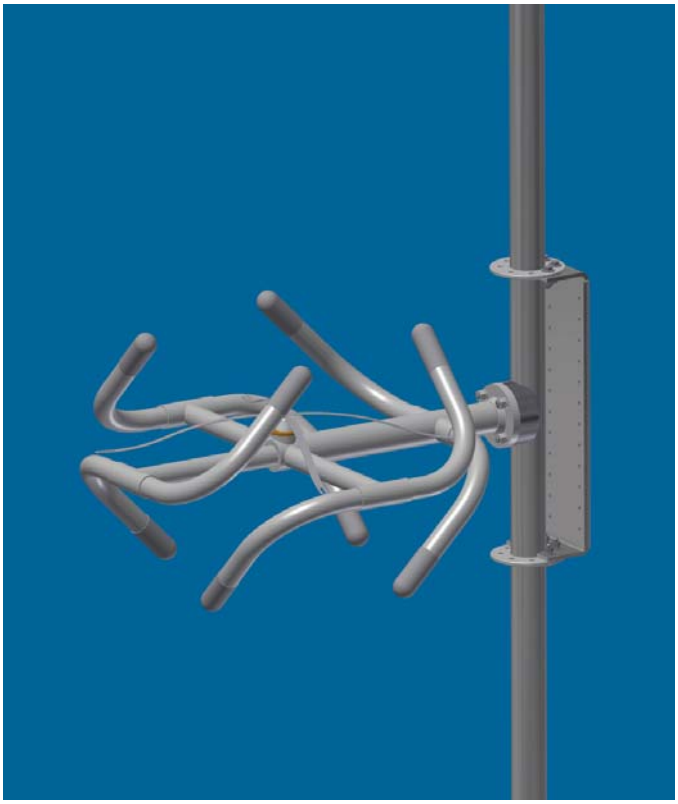
Shively Labs®

Model 6828 FM Antenna

True circular polarization

Handles up to 20 kW per bay [2]

Multiplexes over 10 MHz bandwidth



Shively standard features:

- Consistently predictable patterns
- HD Radio™ -ready
- Pattern studies available
- No factory personnel needed to install
- Radomes and deicers available
- Rugged corrosion-resistant mounts
- Null fill, beam tilt, and special bay spacing available - contact the factory

Performance Specifications:

Polarization: Right circular.

VSWR: < 1.2 : 1 over 10 MHz;
< 1.1 : 1 over 7 MHz.

Azimuth pattern circularity: Horizontal component ± 1.5 dB on pole.

Input connection: Optional - contact the factory.

Electrical Specifications:

No. of bays	Gain		Maximum power rating	Typical power rating, 3-1/8" input [3]	Typical power rating, 6-1/8" input [3]
	Power	dB	kW	kW @ 98 MHz	kW @ 98 MHz
1	0.46	-3.40	20	12	—
2	1.01	-0.044	40	24	—
3	1.58	1.995	60	36	—
4	2.16	3.335	80	45	—
5	2.72	4.349	100	45	—
6	3.28	5.163	100	45	—
8	4.40	6.433	100	—	90
10	5.52	7.416	100	—	90
12	6.64	8.221	100	—	90

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 is provided. Gain will increase in a directional array by the directivity of the azimuth pattern.
2. With specially-designed rigid feed systems.
3. With high-power flexible feed system and specified input connector size.

Document No. ds-6828 (170323)

A Division of Howell Laboratories, Inc., P. O. Box 389, Bridgton, Maine 04009 USA
(207) 647-3327 1-888-SHIVELY Fax: (207)647-8273 www.shively.com
An Employee-Owned Company sales@shively.com
Certified to ISO-9001

Size and weight:

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 (kg)	lb (kg)	lb (kg)
1	2.0 (0.7)	7.5 (2.29)	27.5 (8.38)	120 (54.5)	225 (103)	346 (157)
2	9.0 (2.74)	16.5 (5.03)	36.5 (11.03)	240 (109)	450 (205)	692 (315)
3	18.0 (5.48)	25.5 (7.76)	45.5 (13.85)	360 164)	675 (307)	1038 (472)
4	27.0 (8.23)	34.5 (10.52)	54.5 (16.52)	480 (218)	900 (409)	1385 (630)
5	36.0 (10.96)	43.5 (13.24)	63.5 (19.33)	600 (273)	1125 (511)	1731 (787)
6	45.0 (13.72)	52.5 (16.00)	72.5 (22.00)	720 (327)	1350 (614)	2077 944)
8	63.0 (19.20)	70.5 (21.49)	90.5 (27.49)	960 (436)	1800 (818)	2769 (1259)
10	81.0 (24.69)	88.5 (26.97)	108.5 (32.97)	1200 (545)	2250 (1023)	3461 (1573)
12	99.0 (30.17)	106.5 (32.46)	126.5 (38.46)	1440 (655)	2700 (1227)	4154 (1888)

Revision 'G' effective projected area:

No. of Bays	Without radomes		With radomes		With radomes & 1/2" (1.2 cm) radial ice		With radomes & 1" (2.5 cm) radial ice		With radomes & 2" (5.1 cm) radial ice	
	ft^2		ft^2		ft^2		ft^2		ft^2	
	EPA_N	EPA_T	EPA_N	EPA_T	EPA_N	EPA_T	EPA_N	EPA_T	EPA_N	EPA_T
1	6.2	5.8	10.9	10.9	13.0	13.0	13.7	13.7	14.9	14.9
2	12.5	11.7	21.7	21.7	26.0	26.0	27.4	27.4	29.9	29.9
3	18.7	17.5	32.6	32.6	34.1	34.1	41.0	41.0	44.8	44.8
4	25.0	23.4	43.4	43.4	52.1	52.1	54.6	54.6	59.7	59.7
5	31.2	29.2	54.3	54.3	65.1	65.1	68.3	68.3	74.7	74.7
6	37.5	35.0	65.1	65.1	78.1	78.1	82.0	82.0	89.6	89.6
8	50.0	46.7	86.8	86.8	104.2	104.2	109.3	109.3	119.5	119.5
10	62.5	58.4	108.5	108.5	130.2	130.2	136.6	136.6	149.4	149.4
12	75.0	70.1	130.2	130.2	156.3	156.3	163.9	163.9	209.9	209.9

Notes:

4. The mounting structure must not flex more than ± 1/2 in (± 1.2 cm) in any 10-ft (3-meter) section. 5 feet (1.5 m) of mounting structure is required above and below the antenna bays for proper pattern formation.
5. 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.
6. Windload and weight tabulations are estimates. They include the bay and input connection. 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.
7. The effective projected area (EPA) is calculated per TIA standard ANSI/TIA-222-G.
   EPA_N - Effective projected area associated with the windward face normal to the azimuth of the antenna: $EPA_N = \Sigma(C_a A_c)_N$
   EPA_T - Effective projected area associated with the windward face at the side of the antenna: $EPA_T = \Sigma(C_a A_c)_T$
8. Deicers add approximately 1 lb (0.45 kg) per bay in weight and 2 lb (0.9 kg) or 0.05 ft^2 per bay in windload.
9. 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.