

## Model 6822 FM Antenna

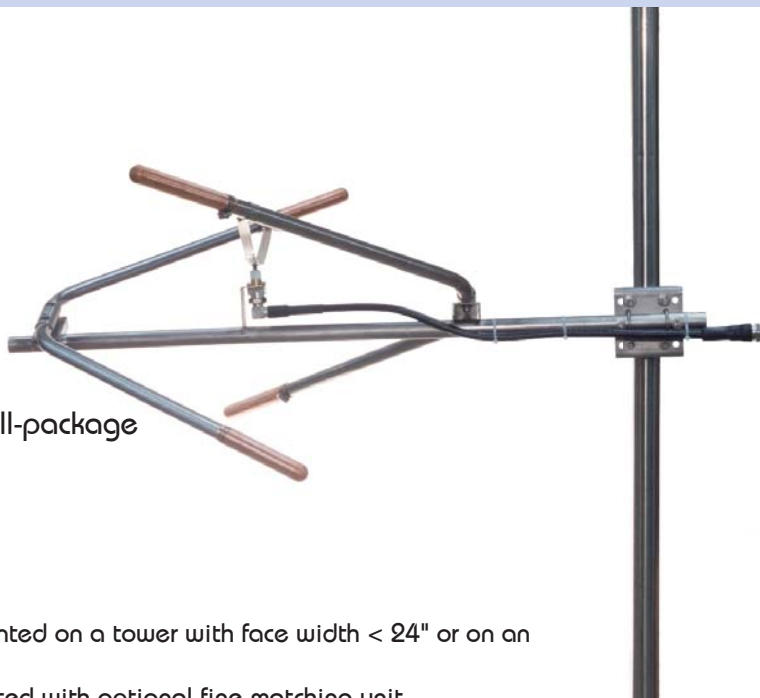
Circularly polarized

Tunable from 87.5 to 108 MHz

Up to 2.5 kW rating per bay

### Features:

- Tuned to frequency; fully retunable
- Non-pressurized connectors
- Easy to install - minimum maintenance
- Easily disassembled for shipment by small-package carrier



### Performance specifications:

Polarization: Circular.

VSWR: Under 1.4 : 1 ± 1 MHz  
 Under 1.2 : 1 ± 400 kHz leg-mounted on a tower with face width < 24" or on an outrigged pole  
 Under 1.1 : 1 tuned on-site or fitted with optional fine matching unit

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

Input connection: 1 bay: 7/16 DIN female  
 2-3 bays: 7/8 EIA 50 Ω  
 4-8 bays: 1-5/8" EIA, 50 Ω (smaller power dividers available)

Bay spacing: 118" (298 cm)

Mounts to fit: 1-1/4" OD to 3-1/2" OD (38-89 mm) tower leg or outrigged pole (supplied by customer).  
 Optional 3-1/2" to 6-5/8" OD leg or pole: contact the factory.

### Electrical specifications:

No. of Bays	Gain		Power Rating kW	No. of Bays	Gain		Power Rating kW
	Power	dB			Power	dB	
1	0.45	-3.421	2.5	5	2.76	4.405	12.5
2	0.997	-0.014	5	6	3.36	5.266	15
3	1.57	1.959	7.5	8	4.58	6.61	15*
4	2.16	3.343	10				

\* Higher-power arrays available. Contact factory for power divider requirements.

### Notes:

1. Our gain figures are calculated by factoring the directivity to allow for losses in the radiating system. Due to this conservative approach, you are assured of radiating maximum ERP by using Shively's published gain figures.  
 Gain is provided for one polarization and is equal in circularly polarized antennas for both horizontal and vertical components.  
 Gain is computed for 98 MHz and will vary across the band.
2. Shively Labs recommends that you attach this antenna to an out rigged pole or pipe, 1-1/4" – 3-1/2" in diameter, mounted 15" from the tower face or leg. The pipe length recommended is defined in the table on page 2.

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## Antenna size and weight (full-wave-spaced)

No. of Bays	Vertical Tower Space						Weight			
	Antenna Radiation Aperture		Pipe Length Required		Total Tower Space Recommended		No Ice		1/2" Radial Ice	
	ft	m	ft	m	ft	m	lb	N	lb	N
1	0.0	0.0	10.0	3.0	20.0	6.1	26	116	51	227
2	9.9	3.0	19.9	6.1	29.9	9.1	62	276	120	534
3	19.7	6.0	29.7	9.1	39.7	12.1	101	449	189	840
4	29.6	9.0	39.6	12.1	49.6	15.1	130	578	249	1107
5	39.4	12.0	49.4	15.1	59.4	18.1	159	707	309	1374
6	49.3	15.0	59.3	18.1	70.2	21.4	188	836	369	1641
8	69.0	21.0	79.0	24.1	89.0	27.1	277	1232	519	2307

## Antenna windload, Rev. G (full-wave-spaced)

No. of Bays	90 mph (145 kph)				50 mph (80 kph) with 1/2" (1.27 cm) radial ice			
	EPA <sub>N</sub>		EPA <sub>T</sub>		EPA <sub>N</sub>		EPA <sub>T</sub>	
	ft <sup>2</sup>	m <sup>2</sup>	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	2.5	0.2	1.2	0.1	3.9	0.4	2.0	0.2
2	5.7	0.5	3.3	0.3	10.0	0.9	6.2	0.6
3	8.8	0.8	5.1	0.5	15.4	1.4	9.8	0.9
4	11.9	1.1	7.0	0.7	21.0	2.0	13.4	1.2
5	15.0	1.4	8.8	0.8	26.4	2.5	17.0	1.6
6	18.1	1.7	10.7	1.0	31.9	3.0	20.6	1.9
8	24.2	2.2	14.4	1.3	42.8	4.0	27.7	2.6

### Notes:

- Antenna radiation aperture is the distance from the center of the top bay to the center of the bottom bay. Five feet (1.5 m) of pipe is required above the top of the top bay and below the bottom bay. Total tower space recommended allows ten ft (3 m) of clear tower space above the center line of the top bay and below the center line of the bottom bay, to protect from pattern interference by other antennas.
- Windload and weight tabulations are estimates and assume 98 MHz. They include the bay, mounts, interbay feed-lines and power divider.
- Antenna areas and weights are calculated in accordance with TIA-222-G.  
 EPA<sub>N</sub> - Effective projected area associated with the windward face normal to the azimuth of the antenna:  

$$EPA_N = \sum(C_o A_r)_N$$
  
 EPA<sub>T</sub> - Effective projected area associated with the windward face at the side of the antenna:  $EPA_T = \sum(C_o A_r)_T$   
 Assumptions: Structure Class II; Exposure category C; Topographic category 1; Maximum basic wind speed 90 mph; with 1/2 inch design ice 50 mph. Maximum height above ground 500 ft.
- 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