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## Congratulations!

Thank you for purchasing one of the finest FM broadcast antennas on the market today. The Shively Labs Model 6812B is widely recognized as the top-of-the-line in its class for its superior performance and durability.

Your purchase is backed by the best technical support in the industry. Shively is a leading manufacturer in the broadcast industry, providing an extensive range of antennas, filters, transmission line and components. Our technical staff has a wealth of experience in the broadcast industry and is standing by to serve you in any way.

This manual is intended to give you a basic understanding of your antenna: its proper and safe installation, startup, and operation, and troubleshooting and maintenance information to keep it working satisfactorily for years to come. *Please have everyone involved with the antenna read this manual carefully, and keep it handy for future reference.*

Meanwhile, please feel free to contact your sales representative at Shively Labs at any time if you need information or help. Call or write:

**Shively Labs®**  
a division of **Howell Laboratories, Inc.**

Bridgton, Maine 04009 USA

(207) 647-3327

1-888-SHIVELY

sales@shively.com

www.shively.com

*An Employee-Owned Company*

24-hour (207) 329-5118

FAX (207) 647-8273

*ISO 9001-Certified*

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**IMPORTANT**

Please read this manual in its entirety before beginning installation of your antenna!

Failure to follow the installation and operation instructions in this manual could lead to failure of your equipment and might even void your warranty!



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# 1 Precautions and Preparation

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## Precautions

### **WARNING**

Don't expose personnel to the medical hazards of intense radio frequency (RF) radiation. Whenever working on the tower in the area of the antenna, turn off all transmitters and lock them out so that they cannot be turned on accidentally.

For reference on RF safety, see CFR 29, Section 1910.97, the OSHA standard for exposure to non-ionizing radiation.

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## Before beginning installation

### Storage prior to installation

Keep the antenna system dry. Never store it outdoors. If the antenna gets wet, you will need to dry it before applying transmitter power.

### Check the System

### **CAUTION**

*It is YOUR responsibility to ensure that your installation meets all applicable codes and the centerline-of-radiation requirements of your FCC construction permit.*

Check the parts to be sure that they will fit the support pipe. Have a reliable tower person, familiar with antennas and coaxial line, inspect the tower and review the installation drawings before the full rigging crew arrives. If design problems are found, contact Shively Labs immediately.

Pay particular attention to:

- Frequency of the antenna.
- Freedom from interference by gussets, leg flanges, guy wires and their attachment points, tower face members, obstruction lights, and other components.
- Compatibility of coax connectors and antenna input terminals.
- Use of non-metallic guy sections on the tower in the region to be occupied by the FM antenna. Ensure that there are no metal guy wires within ten feet (three meters) of any radiator.
- Proper electrical service for antenna deicers, if applicable.
- The adequacy of the tower structure and guy wires to carry the windload placed upon them by the antenna, particularly if radomes are used.

## 2 Antenna Installation

### Precautions

#### WARNING

Don't expose personnel to the medical hazards of intense radio frequency (RF) radiation. Whenever working on the tower in the area of the antenna, turn off all transmitters and lock them out so that they cannot be turned on accidentally.

### Installing the support pipe

The 6812B antenna is designed to mount on a customer-supplied vertical pipe, which in turn is mounted on the tower. Mounting is a little different for side-mounted poles and top-mounted poles.

The pipe must be between 2-3/8" and 3-1/2" (60 and 89 mm) nominal outside diameter. It must extend at least five feet (1500 mm) above the top bay and five feet below the bottom bay.

#### NOTE

Shively can accommodate other pipe sizes if necessary by special order.

### Side-mounted support pipe

Mount your support pipe securely as shown in [Figure 1](#). It must stand off from the tower as described in Table 1.

**Important**  
Improper antenna mounting is a leading cause of poor performance in 6812B antennas. It is very important to install the antenna as indicated and to position it away from other metallic structures.

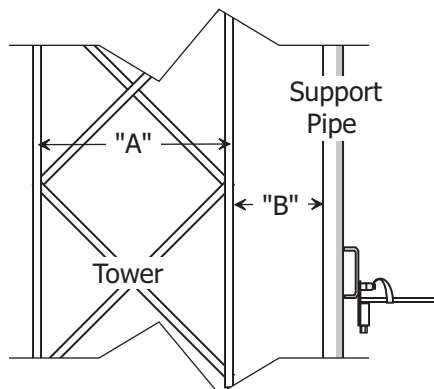


Figure 1. Support pipe installation

**CAUTION**  
If you don't get good electrical contact between the mounts, the support pipe, and the tower, the antenna may not perform as designed and may produce stray signals that will interfere with other services on the tower.

Table 1. Side-mounted support pipe standoff from tower

Tower Face "A"	Standoff "B"
less than 24" (610 mm)	12" (305 mm)
24" - 60" (610 - 1500 mm)	24" (610 mm)
over 60" (1500 mm)	36" (915 mm)

Follow these guidelines:

- a. To ensure good electrical contact between the support pipe and the tower, remove the tower paint and any rust at the support pipe mount locations before installing the mounts. After installing the mounts, be sure to touch up the paint where you removed it.
- b. Starting at the top of the support pipe, mark the location of each bay in accordance with the installation drawing.

- c. Also, mark the specified location of any accessory mounts (eg: de-icer box mounts), to make sure they will fit as planned.

### Top-mounted support pipe

If your support pipe is mounted on top of a tower or building, locate the antenna with at least ten feet (3.1 m) of vertical clearance between the bottom antenna bay and the top of the tower or building. Then mount the pipe in accordance with the guidelines above.

### Installing the radiators

Radiators are mounted to the support pipe by means of formed mount channels (Figure 2). One formed mount channel is required for each bay without radomes (Figure 3 on page 4); two channels for a bay with radomes (Figure 4 on page 4).

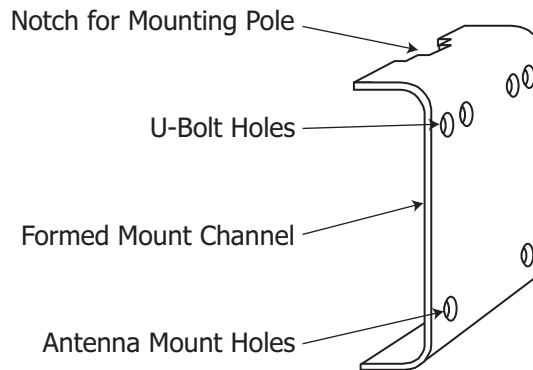


Figure 2. Formed mount channel

#### Important!

Feedstrap orientation is critical to performance. In general, all the feedstraps in a full-wave-spaced antenna will be oriented the same, while those in a half-wave-spaced antenna will alternate. *Install each radiator in accordance with its stenciled bay numbers and its "up-arrow" sticker.*

Also, be very careful not to disturb or damage the feed strap when handling the radiator.

#### CAUTION

Radiators are stenciled with their respective bay numbers (bay #1 is the topmost bay). Install the radiators in accordance with their match-markings. If you don't, the antenna may not perform as expected.

#### NOTE

Radomes are pre-installed and need not be removed for installation.

### Installation procedure

- a. Remove any paint or corrosion on the support pipe where the formed mount channel will be located, to ensure good electrical contact.
- b. Locate radiator #1 at the topmost mark you made on the support pipe. Using the U-bolt, nuts, and washers, clamp the formed mount channel and the radiator assembly to the support pipe, as shown in Figure 3 on page 4 or Figure 4 on page 4.
- c. Mount the radiators to the support pipe by means of formed mount channels (Figure 4 on page 4). Two formed channels are required for each bay.
- d. Repeat for the remaining radiators, ensuring they are in the proper sequence and oriented correctly per the installation drawing.

























