

J. RANDALL COMPANY

eAMP

INSTALLATION MANUAL

FOR SIGNAL BOOSTER

Model BDA800

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1.0 INTRODUCTION

The eAMP provides amplification of signals in both the Uplink and Downlink direction. The purpose of the eAMP is to improve the signal quality inside buildings where the signal is weak. The eAMP is designed to be used only in confined or indoor areas such as buildings, tunnels, underground areas, etc., or remote areas, i.e., areas where there is little or no risk of interference to other users.

The unit is permanently installed in a location that aids in producing the maximum benefit for the user while transmitting less power than a mobile.

2.0 INSTALLATION MANUAL FOR THE eAMP (Model BDA800)

Proper fixed installation of the eAMP system is important to the operation of the system. Make sure you follow all the instructions provided. Also, follow the instructions provided by the manufacturers of the ancillary equipment such as the antennas, cables, etc.

There are four steps to permanently installing the eAMP product. They are:

- 1) Locating and permanently installing the Inside Antenna
- 2) Locating and permanently installing the Outside Antenna
- 3) Cable it up and walk the area
- 4) Secure and protect Equipment

You must follow these instructions to properly use the eAMP in a wireless system. Make sure you are qualified in the installation of equipment of this type. If not make sure you secure the services of a qualified expert.

Potential RF Hazard Warning :

While operating this device, radio frequency radiation exposure limits (47 CFR 1.1310) may be exceeded at distances closer than 20 centimeters (8 inches) from the device antenna (s).

1) Locating and Permanently installing the Inside Antenna

With your phone in test mode walk the area that is suffering from poor coverage.

Note whether the entire area needs to be improved or if there is an isolated area that suffers. You may only need to improve the room or area with poor coverage. This could make the installation much easier. Using this information make a note of the best location for placing the inside antenna.

In addition to the safety issue the basic rule for placing the inside antenna is that walls are extremely bad for radio waves. An average wall can reduce the signal level by a factor of 10. Therefore two walls could reduce the radio signal to 1/100 of the original level. Make sure to locate the inside antenna in an effort to minimize the number of walls between the inside antenna and the desired coverage area. If it is necessary to use more than one inside antenna to properly cover the problem area then refer to the alternate installation diagrams.

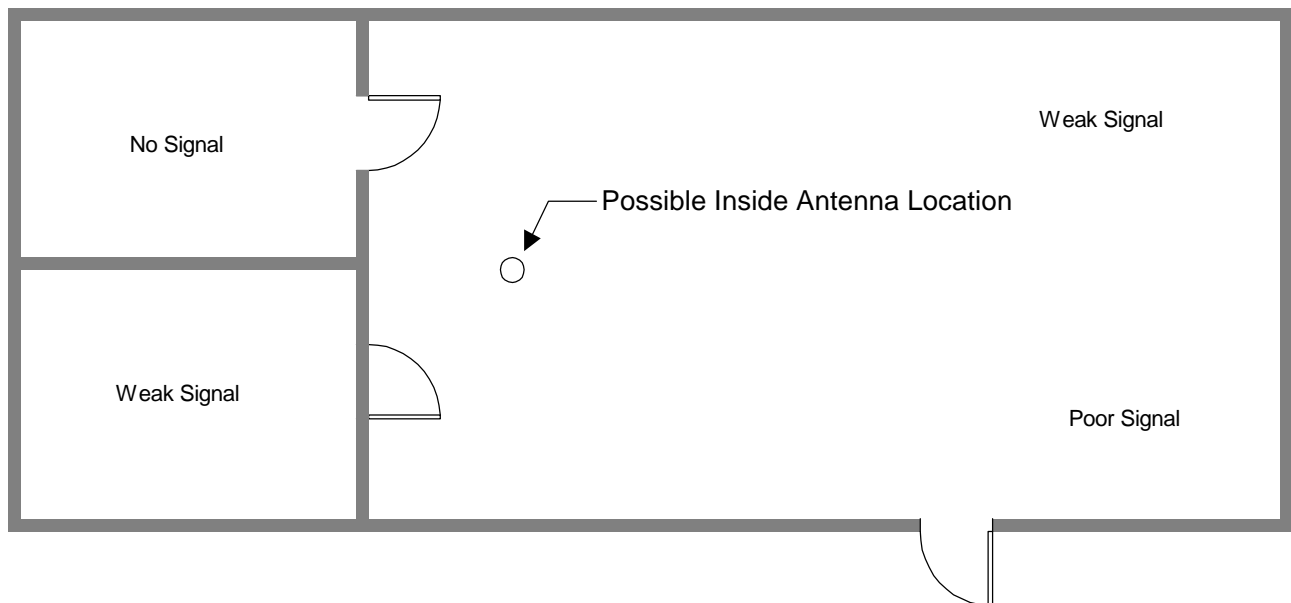


Figure 1 - Building with poor coverage

2) Locating and Permanently installing the Outside Antenna

With your phone in test mode measure the received signal strength (RSS) on the roof. Make sure you have a clear view of the basestation. Do not position the antenna in a location where obstructions block the signal path to the basestation. If you cannot receive a good signal on the roof it is unlikely that you will be able to improve the coverage inside the building.

The outside antenna should point in the direction of the basestation and should be vertically polarized. The location of the outside antenna is based on several factors. Choose the location with:

- A) The greatest signal strength (biggest RSS). Use a mast as tall as allowed by the building owner and local codes. In most cases the higher the antenna is the stronger the signal will be.
- B) Easy access for the cable to enter the building. There are common areas that typically run cables inside and outside the building. Use this existing cable entry if possible. Venting ducts on the side of buildings are also good options. Try at not to add any holes in the roof. If you must make any structural modifications make sure you use a professional contractor.
- C) Try to minimize the length of the cable run. You have already determined where the inside antenna will go so you should have a good idea how long the cable will need to be.

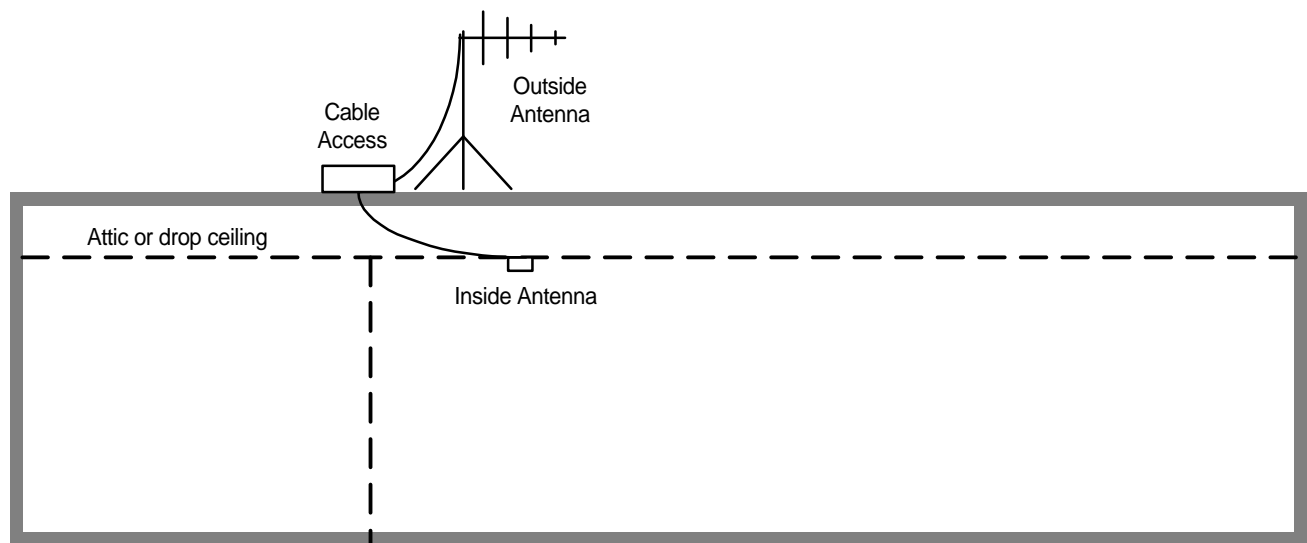


Figure 2 – Permanent Antenna Installation

3) Cable it up and walk the area

Pull the RF cable from the outside antenna to the eAMP. Connect the eAMP to the inside antenna. Plug the eAMP into a standard electrical outlet.

With your phone in test mode walk the area that was suffering from poor coverage and note the difference in coverage. If everything is satisfactory then proceed to the last step. If you are not satisfied go to the trouble shooting section.

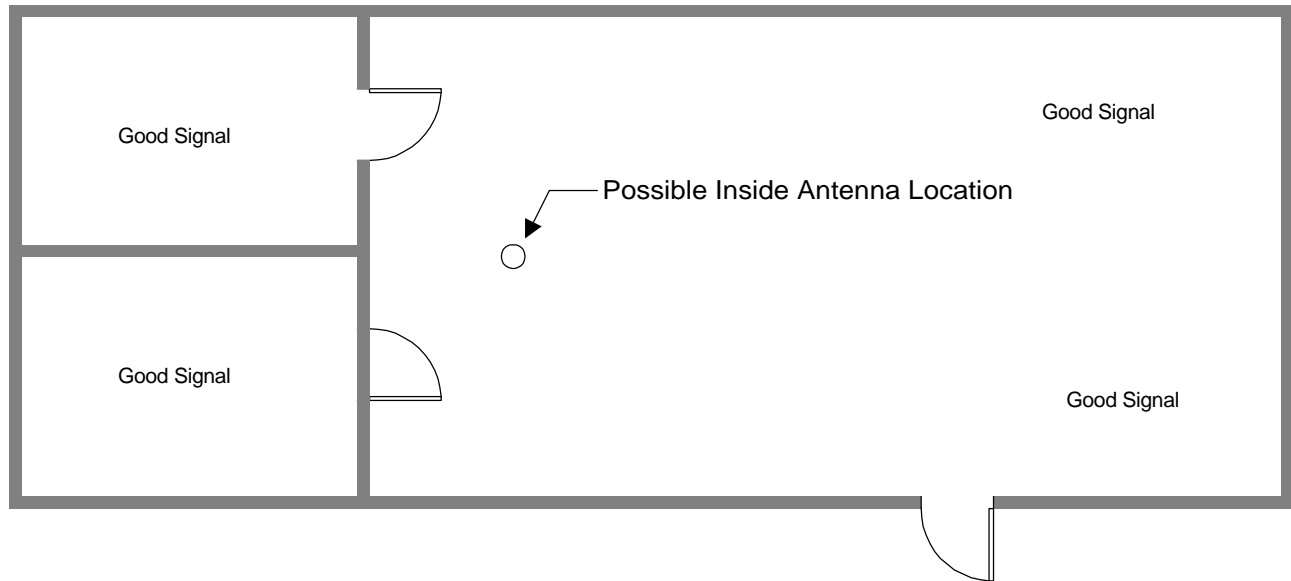


Figure 3 - Building with good coverage after eAMP installation

4) Permanently Secure and Protect all of the Equipment

Follow all of the equipment manufacturers instructions for permanent installation.

A) Install a lightning suppressor on the cable to the outside antenna if desired. The eAMP is not protected or warranted against lightning strikes. If the area is known for stormy weather it is advisable to protect the eAMP. This includes using proper grounding of the outside antenna and mast.

B) Waterproof all connections that are exposed to the elements.

C) Permanently secure all the eAMP, antennas, mast and cables. Use guide wires to secure the mast if necessary.

Other considerations

1) Standard Installation

It is usually best to install the eAMP close to the inside antenna. See the illustration below

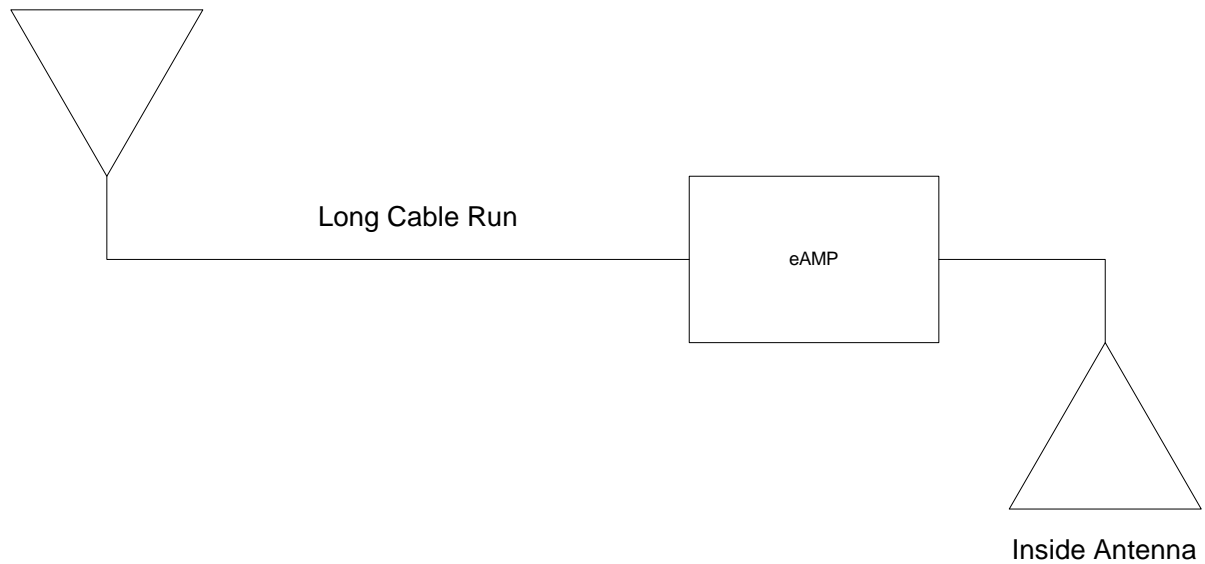


Figure 4 Standard eAMP Installation

3.0 Trouble Shooting

Problem 1 - No difference in quality after system is installed

- S1 Check to see if unit is plugged in. Make sure the unit is not plugged into outlet that is switched off.
- S2 Check all RF connections
- S3 Are both antennas installed
- S4 The RF cable is not rated for 900MHz frequency or is damaged
- S5 The antennas are connected to the wrong eAMP connector

Problem 2 - Little difference in quality after system is installed

- S1 Outside antenna is pointing in the wrong direction or is not high enough above the roof.
- S2 Use higher quality (lower loss) cable.
- S3 Improve location of inside antenna.
- S4 Call a professional installer