



INNOVATIVE COMMUNICATION SOLUTIONS



## BDA-SMR/N-37/37-90-R -TUNE UP PROCEDURE

**DO NOT APPLY A.C. POWER TO THE BDA UNTIL CABLES ARE CONNECTED TO BOTH PORTS OF THE BDA AND THE ANTENNAS.**

1. Place the BDA in the cabinet. Using appropriate screws and anchors or attach the BDA to the wall at the four mounting holes on the side flanges (special version not shown in this manual).
2. Ensure that the isolation between the base station antenna and the mobile antenna should be at least 12 dB higher than the BDA gain (Use the higher of the Uplink and Downlink gains reported on the BDA test data sheet).  
Isolation less than this value can cause gain ripple across the band. Isolation equal to or less than the BDA gain will give rise to oscillations which will saturate the amplifiers and possibly cause damage to the BDA.
3. Connect the cable from the donor antenna to the BDA connector labeled "BASE" and the cable from the service antennas to the BDA connector labeled "MOBILE".
4. See main Panel of the BDA and verify that both of the Uplink and Downlink attenuation is set to 30 dB via dial Attenuator.
5. Connect the AC power cord to the BDA and then to the power source. Verify that the "Power ON" lamp is illuminated.

Installation of the BDA is now complete. To adjust the gain controls to suit the specific signal environment, refer to the next section of the manual.

**Note: For repeat installations of existing equipment, make sure the attenuation is positioned to its maximum setting (30 dB). After verification attenuation, follow the above steps starting with step 1.**



**WARNING.** This is **NOT** a CONSUMER device. It is designed for installation by **FCC LICENSEES** and **QUALIFIED INSTALLERS**. You **MUST** have an **FCC LICENSE** or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.



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Refer to Figure 1 for adjustment access location, connectors and labels.

### Variable Step Attenuator

BDA gain that indicated in the spec can be reduced by up to 30 dB in 2 dB steps using the variable step attenuator. Gain adjustment is made with rotary switches located on the front panel of the BDA enclosure. Arrows on the shafts of these switches point to the value of attenuation selected. BDA gain can be determined by subtracting the attenuation value from the gain reported on the BDA Test Data Sheet for that side of the unit. The attenuators are labeled for Uplink and Downlink.

### ALC (Automatic Level Control)

To minimize intermodulation products, each amplifier in the BDA contains an ALC feedback loop. The ALC circuit senses the output power and limits it to the factory preset level, as indicated in the specification.

ALC function is located in each power amplifier. A red LED indicator located on the Front main panel (see figure 1) illuminates when output power meets or exceeds the ALC preset point.

To establish proper operating gain on the Uplink and Downlink sides, start with the Downlink. Observe the red LED indicator on the Downlink amplifier. Units are shipping with maximum attenuation. Decrease attenuation one step at a time until the red LED is lit. Then, using the Downlink step attenuator, increase the attenuation until the red LED goes off. Repeat the process for the Uplink, and then repeat the process for the second band. This setup should be done under RF signal transmit for either path the level indicator is accurate to +/- 0.4 dB of the ALC set point.

Verify the downlink in-building signal strength and the uplink signal strength at donor antenna meets requirements. Reduce the gain if needed.



**Note: Operation of BDA at maximum gain with greater than -30 dBm average power incidents on the MOBILE or BASE ports could cause damage.**

**WARNING:**  
Input Signal Level  
above - 30 dBm may cause  
damage to system

**Figure 1:**  
**Variable Gain Adjustment and Visual Alarms**

