BDA TEST AND INSTALLATION PROCEDURE

1. INSPECTION

CAUTION

Use caution working with the bi-directional amplifier. Disconnect the 115 VAC from the amplifier prior to inspection.

Open the enclosure of the bi-directional amplifier (BDA) and carefully inspect the inside assembly of the unit.
Verify that all components are properly secured to the base of the enclosure, there are no loose parts, and all interconnections are reliable. Carefully close the enclosure.
Unpack the outdoor and indoor antennas and inspect the content. Verify that there are no loose parts or rattling in the antennas. Make sure that antennas are not deformed.

2. SITE INSTALLATION

2.1 "Donor" (outdoor) Antenna Installation
On the roof of the building choose the location of the "donor" Yagi antenna. Point the antenna towards the "donor" site. Connect the mobile phone or spectrum analyzer to the antenna using a short cable with type "N" connector on the antenna side and a proper adapter on the test equipment side. Adjust the position of the antenna for maximum reading. The average power level should not be below -90 dBm. Record the measured data. Install the antenna following instructions from the antenna manufacturer.

CAUTION: Maximum Antenna gain shall be 15dBi. A minimum separation distance of 65 centimeters between the transmit antenna and nearby persons must be maintained. If this separation distance is not maintained, the device may not be in compliance with FCC RF Exposure rules.

2.2 Surge Protector Installation
Connect the cable run to the antenna and pass it through the roof manifold. Inside of the building find a location for the surge protector near the construction ground where it can be reliably grounded.
Install the surge protector and connect the cables to both sides. Bring the cable run to the BDA location. Using a spectrum analyzer or mobile phone, measure the signal from the "donor" site. It is typically from 1 dB to 3 dB below the antenna output level. Exact loss depends on the cable type and length of the cable.

2.3 Indoor Antenna (s) Installation.

From preliminary evaluation of the blueprints of the service area, the approximate locations of the indoor antennas must be established. The level of the signal at the boundary of the service area can be a guideline for the location of the antennas. Several parameters must be considered:

a) The gain of the Omni antenna is 0 dBd.
b) The free space propagation loss is approximately -60 dB per 100 ft.
c) The acceptable level at the lowest signal position for the mobile is -80 dBm.

Following the installation instructions mount antennas on the ceiling tiles or any other appropriate location. Run the cables from antennas to the BDA location. Use a power combiner, if needed, to interconnect the antenna cables.

CAUTION: Maximum Antenna gain shall be 15dBi. A minimum separation distance of 65 centimeters between the transmit antenna and nearby persons must be maintained. If this separation distance is not maintained, the device may not be in compliance with FCC RF Exposure rules.

2.4 BDA Installation

The bi-directional amplifier can be installed as a freestanding unit lying on the shelf of a cabinet or any other adequately strong support. It can also be secured by screws to the wall or rack using four holes in the tabs located at the back plate of the enclosure. AC power must be available in the vicinity of the BDA. It is recommended that the environmental temperature will not exceed 50 C and the area will be adequately ventilated.

Once amplifier is installed in place, open the front door and verify that all internal parts are securely mounted. Connect the ground wire to the ground stud on the enclosure. Plug in the AC cable into the AC socket. The green light on the enclosure must be lit on.

a) Downlink Gain Setting.

Connect the cable from the lightning protector and “DONOR” antenna to the “DONOR” port of the BDA.

Connect a power meter or spectrum analyzer to the "SERVICE" port (Uplink input connector) of the BDA. Measure the power of the signal at the “SERVICE” port of the BDA.

The Power level should not exceed the maximum FCC power rating of the BDA for the type of signal being amplified.

These power levels will guarantee the intermodulation products below -13 dBm, which is in compliance with FCC regulation. After the output power level is set correctly, connect the donor antenna cable to the "DONOR" port of the BDA.

b) Uplink Gain Setting.

Connect the indoor (service area) antenna cable to the "SERVICE" port of the BDA. Initiate the call from the closest position of the mobile to the service area antenna. Observe the yellow "Uplink AGC ON" light on BDA enclosure. The threshold of the

AGC in the uplink amplifier is factory preset at the gain that corresponds to the intermodulation products level of -13 dBm. If the signal level is low and AGC light is not "ON", slowly increase the gain of the downlink amplifier until the light will be lit. Back off the potentiometer just below the level when the light is off.

Check the security of the installation and presence of the AC power. Amplifier is ready for operation.

3. REMOVE BI-DIRECTIONAL AMPLIFIER

3.1 Unplug the AC cord from the socket. AC light on the amplifier must be off. Disconnect all coaxial cables.

3.2 Dismount amplifier from the wall or remove it from the shelf.

4. SHIPMENT AND STORAGE OF THE BDA

4.1 Use common technical shop practices to ensure equipment protection during shipment or storage.

5. TROUBLESHOOTING AND FAULT DETECTION

WARNING!
110 VAC CAN BE LETHAL!
ALWAYS UNPLUG THE AMPLIFIER
BEFORE SERVICING THE INTERIOR.

5.1 Check the presence of the AC power. The AC light must be on.

5.2 Check the continuity of all connecting cables.

5.3 If the fault was not located, remove the amplifier and send it to the manufacturer for repair.

5.4 RF testing of the amplifier is possible in the specially equipped laboratory.

6. INFORMATION TO USER

This equipment complies with part 15 of the FCC rules. Any changes or modifications to this product as well as usage outside of specified electrical parameters, which are not expressly approved by manufacturer, could void the user's authority to operate the equipment.