

1.1 Physical Configuration

Figure 1 is an illustration of the 18" PCS Side to Side Repeater (SSR) indicating important features; Figure 2 is an illustration of the 12" SSR. As shown in the illustrations both SSRs have a square shape with rounded corners; both units have the same physical thickness (approximately 2"). The 18" unit weighs approximately 14.5 pounds; the 12" unit approximately 8 pounds. The 2" wide edge of both units contain 4 deep grooves separated by fins; this structure is an important electrical feature and must be kept free of extraneous material. Likewise, the central 8" square area on each face is electrically active and must be kept free of contaminating materials. Take special note that each face of the SSR has a unique electrical function and must be properly oriented in operation (see section 2.0). The illustrations show the SSR without the radomes normally attached to each face. When attached the radome with the Andrew flash indicates which side should be facing the handset (mobile unit).

1.2 Electronic Description & Block Diagram

The 1900 series PCS repeaters operate in the 1900 MHz PCS band. They were developed to provide more reliable coverage and/or range extension of PCS systems within sheltered structures. Specific models for each of the major US PCS sub-bands (A, B, C, D, E & F) are offered. Pre-aligned antennas on each side of the repeaters make them easy to install and simple to operate. Designed for indoor environments, they only require a standard US 110VAC outlet for operating power. All three popular PCS systems (TDMA, CDMA & GSM) are supported.

Figure 3 is an electronic block diagram of SSR internal and external circuitry. Separate antennas provide receive and transmit functions for the complementary uplink and downlink bands. In operation, the appropriate receive antenna feeds its' signal to a band pass filter that functions to reject undesired signals and isolate the complementary band's signal. The signal from the band pass filter feeds an amplifier with an AGC loop that limits maximum output power to approximately 100 milliwatts. The amplifier output feeds a second band pass filter functioning to limit spurious amplifier output signals and further isolate the complementary band's signal. The complementary band's signal path is identical to that previously described, except in the reverse direction. Both amplifiers include crude RSSI circuitry and over-current protection circuitry.

1.3 Operational Environment

The SSR has been designed to operate properly in a temperature and humidity controlled indoor environment. Operation in environments where the ambient temperature is outside the 50°-85° F range or the relative humidity is greater than 50% may result in unsatisfactory performance. Exposure to temperatures outside the 10°-120° F range or relative humidity greater than 80% may result in permanent damage to the unit.