

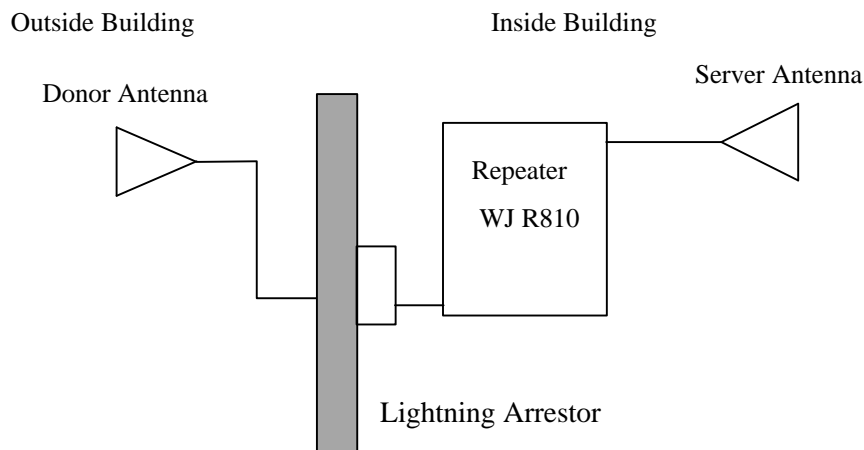
## Watkins-Johnson R810 Repeater Description

The WJR 810 Repeaters are used to enhance the coverage of a PCS basestation. For example, inside buildings that do not allow sufficient signal strength from the basestation, service holes may exist in the coverage for wireless service. The WJ R810 is designed to solve that problem.

Likewise, tall buildings in a metropolitan area, or mountains in a more rural area, can reduce basestation signal strength such that pockets of unusable areas develop. The WJ R810 is designed to solve that problem.

The repeater receives the basestation signal from the Forward path through a diplexer. The signal is amplified by a Low Noise Amplifier (LNA) and then mixed down to an IF frequency. A local oscillator (LO) is generated by a VCO, synthesizer chip and 10MHz oscillator. The LO is used by both mixers. At the IF frequency of 70MHz the signal is amplified, attenuated and filtered by a SAW filter. The signal is then uncovered back to the original frequency. The signal is filtered by a ceramic band pass filter to help eliminate the LO and then amplified. The amplified signal is passed through another diplexer to ensure that this signal does not affect the reverse path. The entire scheme is repeated for the reverse path that amplifies the handset signal.

In the normal configuration, the repeater is connected to antennas. One antenna is pointed at the basestation and the other is used to retransmit the basestation signal inside the building.



**Figure 1-3. WJ R810 Typical Usage**