

Watkins-Johnson R1910 Repeater Description

The WJ R1910 Repeater is used to extend the coverage of a PCS basestation. Inside buildings that do not allow sufficient signal strength from the basestation there exists a hole in the coverage for wireless service. The WJ1910 is designed to solve that problem.

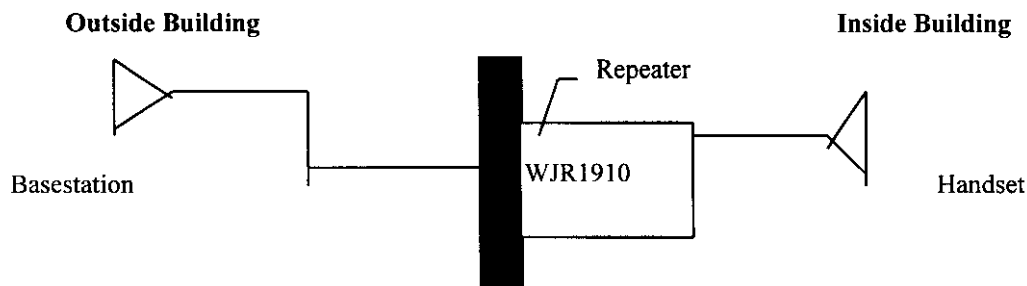
The repeater receives the basestation signal via an external antenna. This signal is amplified and filtered by the repeater and ultimately retransmitted via a second antenna. The entire process is duplicated for the reverse path where the handset signal is amplified and filtered and retransmitted to the basestation. The technique provides PCS coverage inside buildings that previously did not have sufficient signal strength.

The family of WJ repeaters all are designed with the same architecture. For example 3 models exist to cover the 6 PCS bands (A through F).

Model	Frequency Band
R1910 A/D	A & D (1930-1950 MHz Forward, 1850-1870 MHz Reverse)
R1910 B/E	B & E (1950-1970 MHz Forward, 1970-1890 MHz Reverse)
R1910 C/F	C & F (1970-1990 MHz Forward, 1890-1910 MHz Reverse)

Description

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



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 160mhz the signal is amplified, attenuated and filtered by a SAW filter. The signal is then unconverted 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.