Model 510 $_{SMR}$ Functional Description

The Model 510 In-Building Amplifier is intended for use in enclosed structures where sufficient signal from local cell sites to operate cell phones is unavailable within the building. The amplifier is connected to an external antenna, usually on the roof, and to one or more internal antennas placed strategically throughout the area where phone service is desired.

The external antenna is usually a directional type such as a “Yagi” however; an Omni-directional antenna may be used when the building is located in close proximity to one or more cell sites. Internal antennas are usually Omni-directional although various other types may be used for certain installations. The IBA amplifies both the “uplink” and “downlink” signals thus facilitating communications to and from the local cell site

There are four amplification stages on the downlink and four on the uplink for a total +62 dB gain for each link. Both links have manual gain control settings accessed through DIP switches on the top panel plus an AGC control for both the uplink and downlink. There are LED indicators on the top panel for power on, transmitter on, uplink overload and downlink overload.

An automatic amplifier safety shutdown circuit is also present, which will disable the transmitters for ten seconds should the uplink and downlink overloads be reached, to prevent excessive intermodulation and oscillation.