

ABSTRACT

RADIO COVERAGE IN CLOSED ENVIRONMENTS

A repeater system in a communication system including a base station and a mobile unit provides a communications link between the base station and the mobile unit when the mobile unit is located in an environment that is substantially closed off to high radio frequency communication between the base station and the mobile unit. The repeater system has a first linear two-way frequency converter including a high frequency port for two-way coupling to the base station and a low frequency port for two-way coupling to a low frequency signal that is capable of distributing radio frequency power through the closed environment. The low frequency port is connected to a cable which propagates and receives low radio frequency power within the closed environment. The repeater system also includes a first antenna for wireless coupling to the cable, and a second linear two-way frequency converter having a low frequency port connected to the first antenna for two-way coupling to a low frequency signal and a high frequency port for two-way coupling to a signal that is compatible with the high radio frequency signal used by the communications system. A second antenna is connected to the high frequency port of the second linear two-way frequency converter for wireless coupling of the second linear two-way frequency converter to a nearby mobile unit.

(Figure 1)