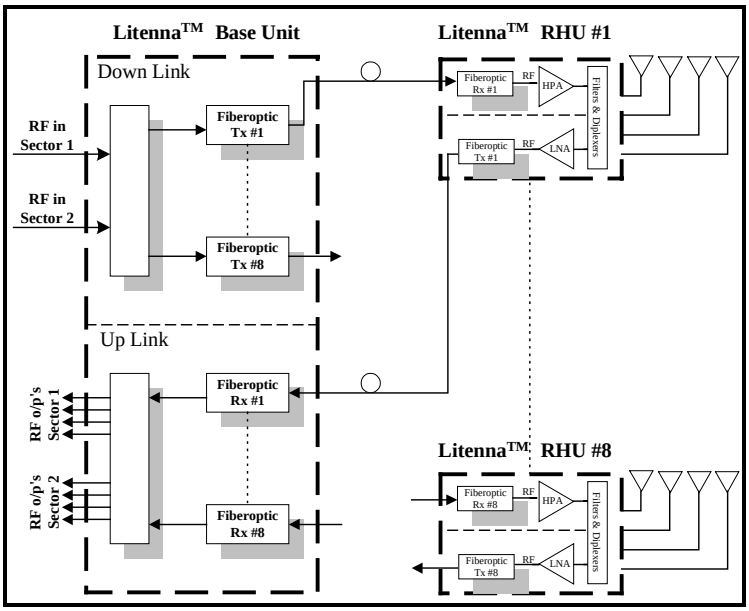
PRODUCT DESCRIPTION and

DESCRIPTION OF THE CIRCUIT FUNCTIONS AND BLOCK DIAGRAM.

The following is a copy of description of the circuit functions and block diagram of Litenna™ Model 9A240.



Litenna general description

The Litenna system is intended to provide the user with a network for the placement of distributed antennas to provide in-building coverage and capacity for cellular telephone services.

The system includes two major components, a base unit which interfaces typically with microcell equipment and remote units which are distributed throughout the building and are hubs for antennas. The signals in the forward direction (downlink) from the microcell to the mobile stations (cellular telephones) are carried via optical fiber from the base unit to the remote units. The signals in the reverse direction (uplink) from the mobile to the microcell are similarly carried along a different fiber to the base unit.

Functionally, the system behaves as a repeater, with gain/attenuation as appropriate. No signal processing/modification, or RF modulation takes place in the system.

The base unit is connected via coaxial cable (and attenuators, splitters…) to the microcell equipment, or an off-air repeater. The remote unit ports connect via coaxial cables to indoor antennae, which we do not supply.

The components in the RF system (aside from discrete passives) are amplifiers, splitters/combiners, filters, lasers and photodiodes. There are no oscillators used in the system.

The amplifiers are class A bias, except for the output power amplifiers for the downlink, which are class AB bias.

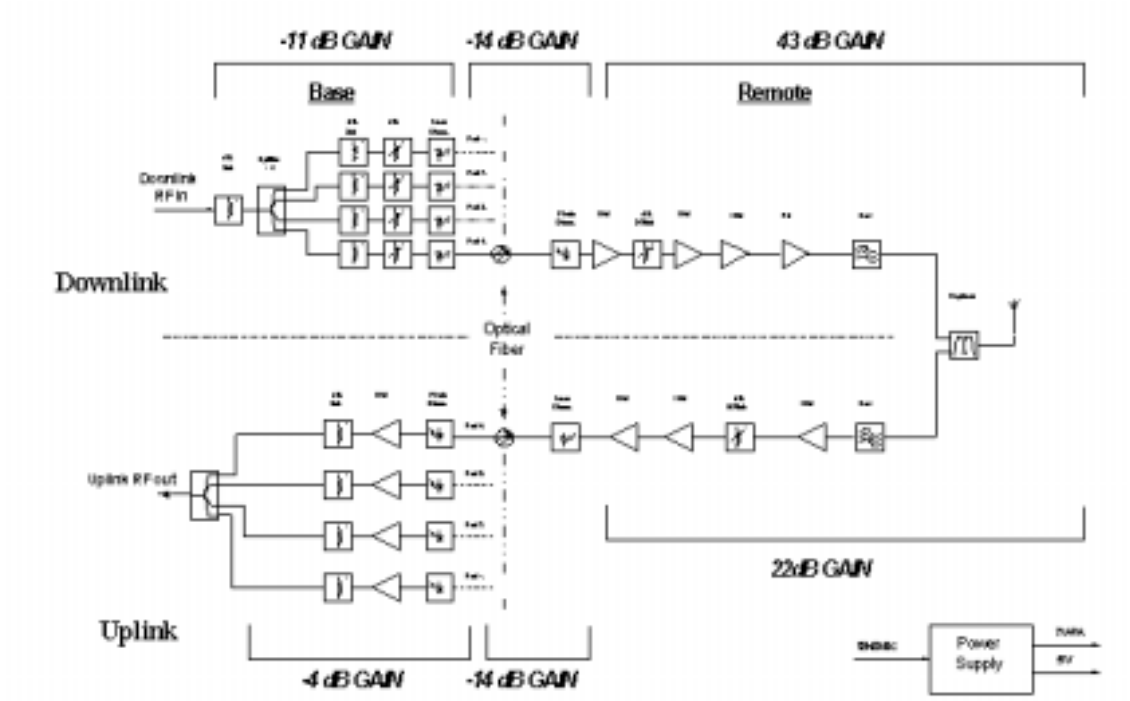
The system is designed for the Paging services (929-942 MHz down, 896-902 MHz up), SMR (935-941 down,896-902 up), cellular CDMA – TDMA-AMPS services (869-894 MHz down, 824-849 MHz up), iden services (851-869 MHz down, 806-824 MHz up). For the downlink, the nominal total output power from the antenna ports is 24 dBm per port.

The system is designed for indoor use in public buildings such as offices, shopping malls, etc.

Litenna explanation Block Diagram

Litenna-in building coverage system

The litenna system consist of two part: the base unit that connects to the microcell in one side and in the other it is connected to the remote unit that transmit the signals to the antennas and receive the signal from them.



Left side shows the inputs/outputs of the system parts

shows the internal structure of the BASE unit. The BASE unit can be consist of two equal boards (for 8 channels).

Every board has four courses with optical output, optical input, RF input and common RF in.

shows the splitting of the RF input to the BASE unit to every course of the laser circuits that converts the RF signal to a light signal and exits it through the optical fiber to the remote unit.

Remark: we can combine uplink signals to one port, inside or outside the base unit.

Right side shows the basic structure of the receiver course. A photodiode receive the optic signal and converts it to RF. Then the signal pass trough an Amplifier and exits the unit.

shows the basic structure of the REMOTE unit:

The photodiode receives the light and converts it back to RF signal.

The signal pass trough an amplifier, through a vca (voltage Controlled attenuation) and two others low power amplifiers.

The signals passes an power amplifiers and duplexer (for separating- between the transmitted signals and the received signals.

Then each one of the signals connects the antenna.

In the receive course, we sum the signals from the antenna , pass the signal to the receive course, filtering the needed frequencies, controlling the level of the signal through a vca (voltage- controlled attenuator, amplify the signal and convert it to light that passes through the optical fibers to the BASE unit.