PRODUCT DESCRIPTION and DESCRIPTION OF THE CIRCUIT FUNCTIONS AND BLOCK DIAGRAM.

FOR ModuLite™

The following is a copy of description of the circuit functions and block diagram of ModuLite™.

ModuLite™ general description

The ModuLite™ is a new system for the provision of In-Building multiple wireless services. Its high performance yet cost effective structure efficiently enables the addition of new wireless services.

The ModuLite™ is a hybrid fiber coax modular solution designed to serve multiple wireless services using a single common cabling infrastructure. The cabling infrastructure includes a fiber optic cable, a single coax cable, and a single antenna.

Benefits and Features

The ModuLite™ has the following benefits and features:

- Single cabling and antenna system for all services
  - enables fast deployment for WSP's of new services
  - reduces tenant disruption
  - simplifies maintenance
- Upgradeable to include more than ten services per Modular Remote Unit (MRU), including 3G technologies
- Eliminates RF interferences occurring in parallel infrastructures due to cross antenna coupling

The ModuLite™ (see Figure) has two main Modules, the MBU (Modular Base Unit including Litenna Dual Band Base Units and Interface Box – passive components) and the MRU. (Modular Remote Unit including Litenna Dual Band Remote Units and passive components) Both components are designed such that they can be located in easily accessible area, such as the communication room, the communication closet, or in the riser.

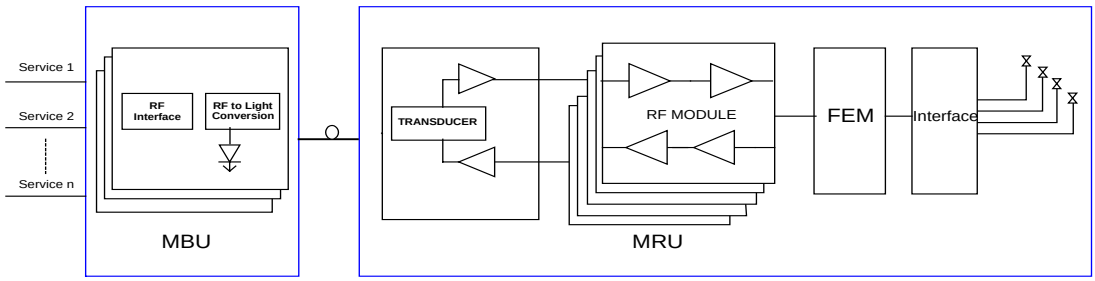


Figure: ModuLite™ Block Diagram

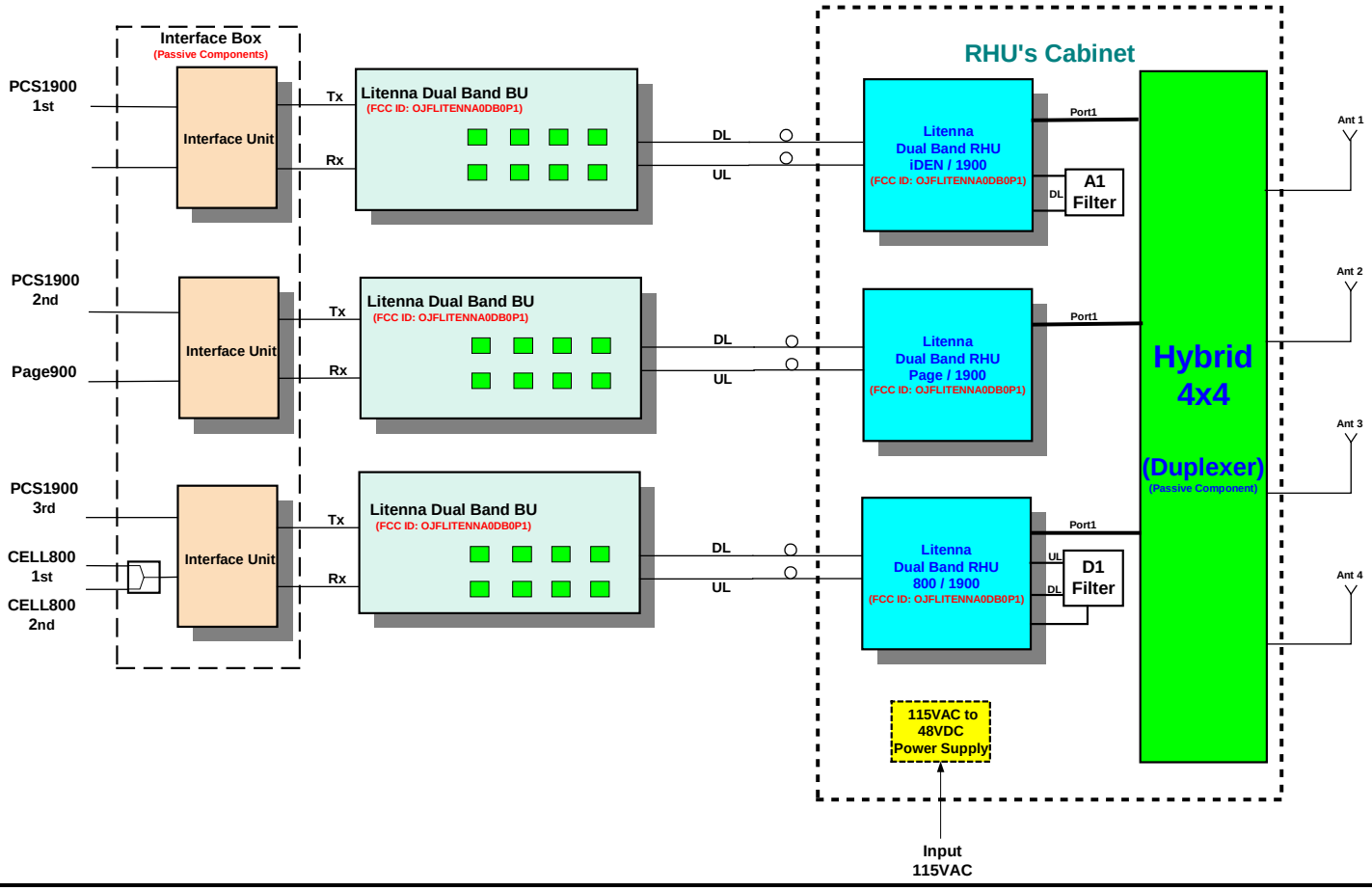
The MBU converts RF signals from the RF source (Base Stations/off- air repeater) to an optical signal using direct modulation technology. Each BU module can support two to four services, depending on the application. The MBU is connected via a SM fiber optic cable to the MRU.

The MRU is comprised of RF modules, each supporting two to four services, yet each RF module has sub RF channels in order to maximize the performance of each specific service in terms of IMD suppression and dynamic range. Each MRU can contain five RF modules, hence at least ten services. The RF modules can be added as required to support the required services. The MRU converts the optical signal to RF, performs filtering and enhanced signaling via its Filtering and Enhanced Signal Module (FEM), and connects to a single antenna via a single coax cable.

869-894 MHz down, 824-849 MHz up →for CDMA/TDMA/AMPS.
851-869 MHz down, 806-824 MHz up →for LMR/iDEN.
935-941 MHz down, 869-902 MHz up →for SMR.
928-941 MHz down, 899-902 MHz up →for Paging .
1930-1990 MHz down, 1850-1910 up. →for CDMA/GSM/TDMA.

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

ModuLite™ System Architecture



ModuLite Functional Description.

The ModuLite system is a combination of parallel dual band Litenna systems, combined to a single set of wide band antennas. It can integrate up to 4 parallel dual band Litenna systems. Signal flow for each frequency band is as with a "conventional" dual band Litenna with the addition of filtering, where necessary, to avoid potential interferences coming from downlink to the uplink.

Each service is fed separately to the interface box where the signal is split and fed to the related base units. The downlink signal is converted at the base unit to light and fed to the RHU via a fiber optic connection. At the RHU, the downlink signal is converted back to RF, amplified and fed to the antenna system .

The uplink signal is received at the antenna and fed to the RHU. The Uplink signal is converted at the RHU to light and fed to the base unit via a fiber optic connection. The base unit converts the uplink signal back to RF and feed it via the interface box to the related cellular base station. As mentioned earlier, external filters may be added at the uplink and downlink paths, at some service combinations, close to the antenna combiner, to avoid downlink energy from blocking the uplink.