

Circuit Description

Central Distribution Unit (CDU)

The CDU is connected to a Repeater, BDA, or BTS via coaxial cable. The Downlink (Base-to-Mobile) transmit path is distributed to Remote Antenna Units (RAU).

PDU card - The rf input signal is distributed to individual CDU cards (up to six per unit) via the Power Distribution (PDU) Board, which consists of simple passive power dividers. Also located on the PDU card is a pilot oscillator that simply generates a pilot tone that is filtered in the Remote Antenna Unit (RAU) and used to verify the rf link. This pilot tone is never transmitted wirelessly.

CDU card - In the Downlink direction the CDU card consists of a SAW filter and rf to laser conversion module. Once the rf signal has been converted to light, it is distributed to a Remote Antenna Unit (RAU) via fiber cable. In the Uplink direction, the CDU card simply performs the opposite function. The optic signal fed from the RAU uplink output is converted to rf, amplified, filtered, and finally passed to the PDU card where it will be sent to the external repeater, BDA, or BTS equipment via coaxial cable.

Remote Antenna Unit (RAU)

In the Downlink direction, the RAU receives the optic signal from the CDU and converts it to rf. At this stage a Low Pass filter sends the pilot tone to a Pilot Detection Circuit, The intended transmit signal is sent through a two-stage amplifier/filter circuit. The resulting signal is fed through a passive duplexer and finally sent to an external antenna via coaxial cable. The external antenna gain is typically 12 dB maximum.

In the Uplink direction, the RAU receives an rf signal from the mobile via the external antenna. The rf signal is processed through a filter/gain control circuit through to a rf-to-optic conversion circuit. The optic signal is the sent to the CDU via fiber optic cable.