

## Operational Description

BelAir20EO is a WIFI router of dual-radio design which supports both 2.4GHz and 5GHz operation simultaneously with 2x2 MIMO and 2 spatial streams per band. Each stream supports a peak rate of 150 Mbps, thereby providing 300 Mbps per radio and 600 Mbps per access point.

Both radios are compliant to IEEE 802.11n-2009 standards. The 2.4 GHz radio also provides full backwards compatibility for IEEE 802.11b and IEEE 802.11g clients. The 5 GHz radio is compatible with IEEE 802.11a clients.

The device including transmitter is powered by 48VDC supplied externally via PoE (Power over Ethernet). The radio utilizes the following antenna configurations for the 2.4GHz and 5GHz radios:

- **2.4 GHz internal omni + 5 GHz internal omni.** This configuration employs four internal omni antennas—two at 2.4 GHz (4.4dBi) and two at 5 GHz (6.7dBi).
- **2.4 GHz internal omni + 5 GHz internal directional.** This configuration employs two 2.4 GHz 4.4dBi internal omni antennas, and two 5 GHz 11.5 dBi internal directional antennas.
- **2.4 GHz internal directional + 5 GHz external directional.** This configuration employs two 2.4 GHz 8dBi internal cross polarized directional antennas, and two 5 GHz 11.5dBi external cross polarized directional antennas accessible through the two bulkhead N-connectors.
- **2.4 GHz external directional + 5 GHz internal directional.** This configuration employs two 2.4 GHz 8dBi external cross polarized directional antennas, and two 5 GHz 11.5dBi internal cross polarized directional antennas accessible through the two bulkhead N-connectors.
- **2.4 GHz internal directional + 5 GHz internal directional.** This configuration employs two 2.4 GHz 12dBi internal cross polarized directional antennas, and two 5 GHz 12dBi internal cross polarized directional antennas.

Please see user's manual for additional information.

Data transmission is always initiated by software, passed down through the MAC, then to the digital and analog baseband and finally to the RF chips. Several special packets (ACK, CTS, PSPoll, etc.) are initiated by the MAC. These are the only ways the digital baseband circuitry will turn on the RF transmitter, which then turns off at the end of the packet. Therefore the transmitter will only be on while one of the aforementioned packets is being transmitted.