

## ONE™ Distributed Antenna System

### Remote Antenna Unit

### Operational Description

#### General description

The RAU distributes up to four RF services via internal antennas (external antennas are optional). The RF services are received over optic cables and converted for distribution over internal (or optionally external) antennas.

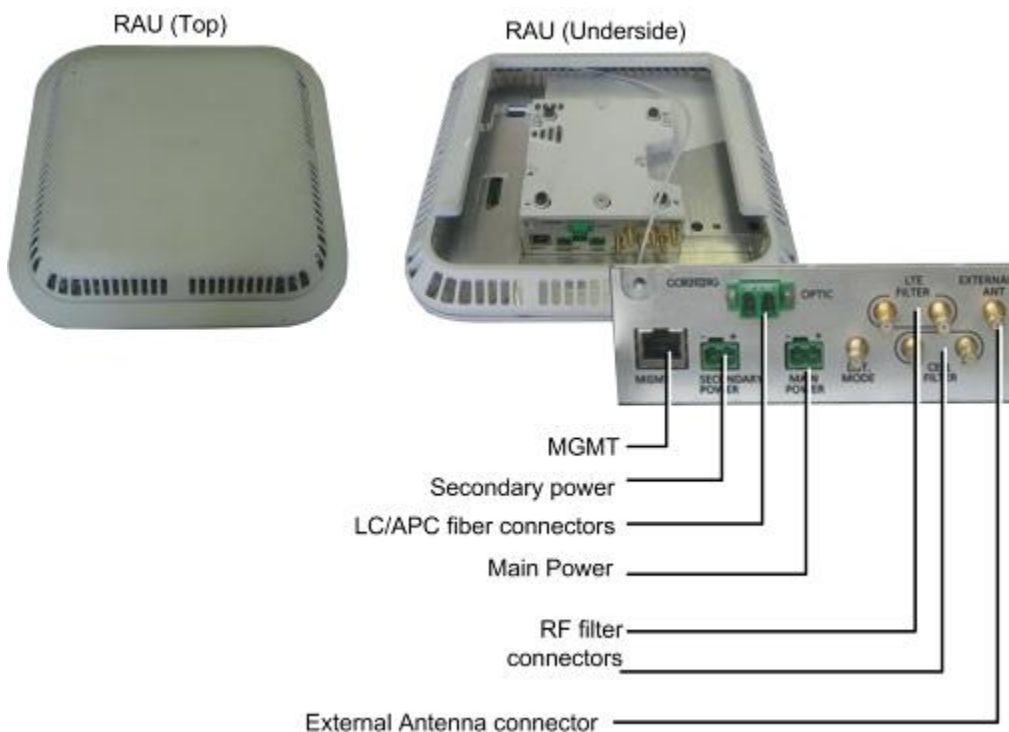


Figure 1. RAU Module

The RAU may include an additional module RXU to support two additional frequency bands (Figure 2). RXU is connected to main RAU module through RF splitter. As result, two additional frequency bands - LTE and AWS – are filtered and transmitted through additional antenna port.

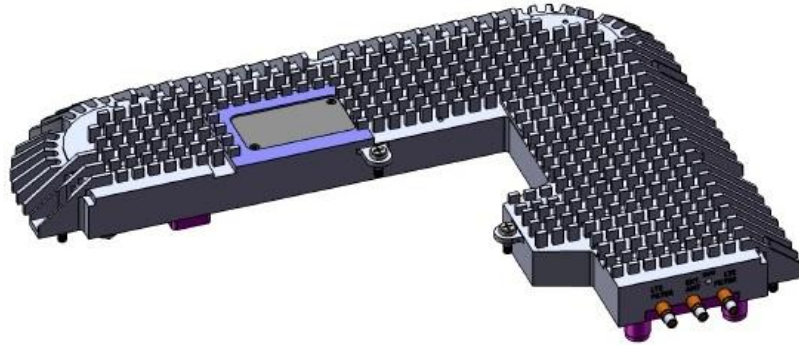


Figure 2. RXU Module

The signal flow in UL direction is as vice versa: the RF signal from mobile is received by antenna, filtered / amplified and combined back to the RAU broadband section.

Interface	Description
MGMT	RJ45 local management connection
PWR	DC power inputs Main - connect to DC (from composite cable) Secondary – in case of PoE clients. Used when GEM modules are installed (in addition to Main)
F/O	LC/APC SM connectors for UL and DL optic connections
Listening Mode	N/A
RF Filter (e.g. LTE, CELL)	QMA RF ports for external cavity filter use (In/Out). For CELL and LTE filters.
External Antenna	Optional connection to broadband external antennas. Requires GUI configuration (internal antenna is enabled by default).

### **RAU downlink path**

Optical broadband signal is injected to photodiode and split into two combined signals – Low Band and High Band - by diplexer. After that each one is further split into two

services: Low band signal is split to LTE700 and CELL850, whilst the High band signal is split to AWS2100 and PCS1900.

In case RXU is installed, two additional signals are transmitted over extra antenna port. Each signal passes through combiner where all 4 signals (or 6 in case of RXU installed) are combined and go to the antenna port of the RAU

#### **RAU uplink path**

RF signals from antenna port pass through the multiplexer. Multiplexer splits the signals onto 2 groups: Low band and High band. Then all the low band signals (2 LTE - band 12 and band 13 – and CELL) combined together. In case of RXU installed, additional two bands are received from extra antenna and combined into RAU broadband section. All the high band signals – AWS and PCS – are combined together as well.

In case of RXU installed, additional two bands are received from extra antenna and combined into RAU broadband section.

Then grouped signals pass through diplexer and go to the laser diode.