Corning

MobileAccess

MobileAccess AWS1200 Add-On

Operational Description

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Introduction

The MobileAccess 1200 Add-on module is a high power module, supporting a single frequency band (low or high). It is designed to be integrated with a host RHU 1000 module. The RHU 1000 module provides the following functionality for both units:

Optical interface (to the BU) and conversion

RF interface (to antennas) and conversion

Control signals

Note: The units are integrated through simple external cable connections between corresponding ports.

AWS1200 AO Interfaces

Front Panel

The AWS1200 AO front panel includes the power connection and status LEDs. (The RS¬232 connector is reserved for MA service personnel).

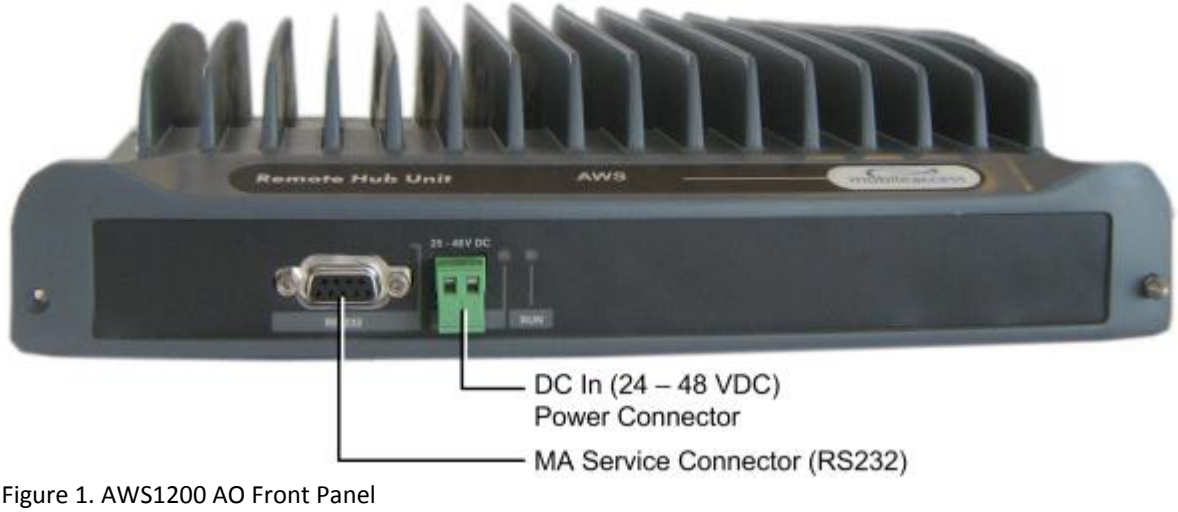

Figure 1. AWS1200 AO Front Panel

Table 1 MobileAccess 1200 Front Panel Indicators

LED	Description
RUN	Blinking Green - indicates that the RHU is in normal operating mode.
PWR	Steady Green - Power ON

Rear Panel

The RHU 1200 rear panel contains the connections to the RHU 1000 and MA 850.

Figure 2. AWS1200 AO Rear Panel

Table 2. RHU 1200 Rear Panel Connectors

Connector	Description
Add-on Control	DB-9 connectors used for transmitting the control signals between the MA 1200 module and the MA 850 and RHU 1000 modules: **From** – receives control signals from the RHU 1000. Connected to the RHU 1000 Add-on Control connector. **To** – for configurations that include MA 850. Transmits control signals to MA 850. Connected to the MA 850 Add-on Control connector.
DL, UL	Transmit the RF signals to- and from- the MA 1200 add-on module. These ports are connected to the corresponding ports on the MA 1000 rear panel: DL to DL, UL to UL.
High	RF service output port connected to the RHU 1000 rear-panel High port.

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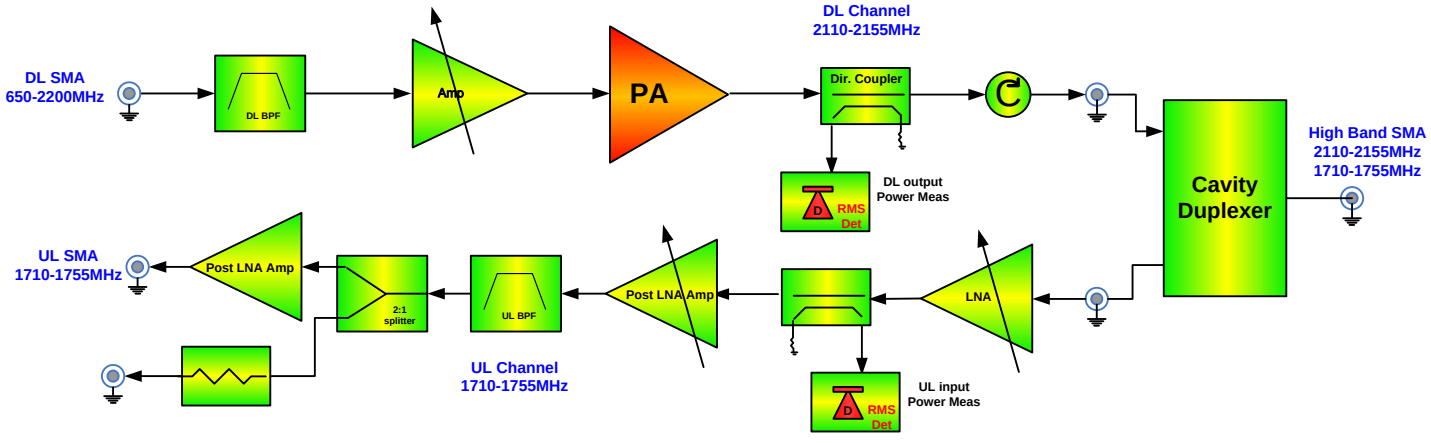
AWS Add On Operation Description and Power Protection Mechanisms

Simplified block Diagram



Operation Description

The AWS AO is connected to RHU (Remote Unit) thru 2 coaxial cables one to DL SMA and other to UL SMA.
The other side, High Band SMA, is the Antenna Port which is connected to the SCU.

The DL path is filtered by DL BPF, then gain is adjusted at the adjustable gain Amp, then amplified by Power Amplifier. At this stage the signal is passed thru coupler and isolator to the Antenna port thru Cavity Multiplexer.
The sampled and detected signal is used for output power adjustment.

The UL path starts at the right side, High Band SMA port (Antenna port that comes from SCU). It is amplified by adjustable gain LNA then post LNA amplifier, to the UL Band Pass filter, then it passes to the RHU thru a splitter and an Amplifier. The signal going thru UL SMA port to RHU where it is added to the signals that pass thru optics to head end.
UL path has a coupler and a detector immediately after LNA, where the detected signal is used for UL limiter to protect the input from strong interferences.

In addition to this, the unit consists of Power Supply section that feeds all the parts and digital control area that manages all indications and alarms, communications etc.

Over Power Protection Mechanism

Since there are signal paths, the system has two different protection paths as well.

1. UL Input signal protection.
2. DL Output signal protection

UL Input signal protection – UL Limiter

UL Path can face a strong input signal that comes from passing by mobile phone users. If this mobile phone, from some reason is located too close to antenna, there might be need of protection. This protection is implemented by Input limiter.
The UL detector is calibrated, during production phase to measure the UL input signal. This calibration is stored into the unit. When a signal appears at the antenna port, and this signal is stronger than the threshold of -40dBm, the LNA gain is reduced to protect the input stages of the Add On. When the strong interfering signal is reduced, or disappeared, the Limiter is released.

DL Output signal protection – DL Limiter

DL Path detector is also calibrated during the production phase, so it could read the output power level. During the life of the system, the output power is measured and compared to the required output power. When, from some reason, the output signal trying to rise above the required output signal level, the gain is reduced by adjustable gain amplifier that is located before the PA stage, in order to keep the output power that was defined at the commissioning stage.
When the strong signal is reduced back, the Limiter is released, and the output power returns to the required level.