

## Operational Description - 82251

The OPAF-1923-P07C01 is an AC powered, linear, feed-forward multicarrier power amplifier system that operates in the 60 MHz frequency band from 1930 MHz to 1990 MHz with an instantaneous bandwidth of 25 MHz. It consists of:

- One outdoor enclosure assembly.
- Up to six model G3S-1900-125 amplifiers (two per sector, each mounted in an MCR21929-1-2 two-way subrack).
- Six Duplexer Low Noise Amplifier modules
- Four 930-00018-005, 148-amp rectifiers.
- One Low Voltage Disconnect system.
- Four 12 Vdc 105 AH Batteries.
- System Interface Module

Designed for outdoor use, the IP54 rated enclosure is a sturdy aluminum cabinet with front and rear locking ventilating doors. Access to the RF, and alarm cabling is located at the lower sides and rear of the enclosure. Access to the AC power cabling is located at the left side AC panel of the enclosure

The enclosure protects the Powerwave equipment from the outdoor elements as well as housing the System Interface Module (SIM) and the electrical interface for the 148-amp rectifiers and G3S-1900-125 MCPAs (Multicarrier Power Amplifiers).

The all solid-state G3S-1900-125 plug-in amplifier module MCPAs are designed to produce high-peak power output. The modular construction and unique and highly effective Light Emitting Diode (LED)-based operation and fault indicators always display the current operating status of the amplifiers. The turn-on and turn-off sequence of voltages are fully automatic, as is overload protection and recycling. A nominal 52-Amps of current is required for the G3S-1900-125 amplifier at rated output power.

Each of the three MCR21929-1-2 subracks, contain up to two MCPAs. The MCPA outputs are combined to provide one composite output per subrack. Each subrack is equipped with an Automatic Power Control (APC) circuit and an RF GAIN ADJUST potentiometer. The APC indicator and GAIN ADJUST potentiometer are located on the upper-right front of the subrack. Each subrack provides two RS-485 alarm interface ports, a preamp alarm interface port, a Form-C alarm interface port and an RS-232 maintenance port, as well as, RF IN, RF OUT and a –50dB RF sample port.

The 148-amp rectifiers and associated subracks require primary input power between 176 to 264 Vac. The rectifier converts the AC input power to the +27 VDC for use by the system. The system design provides 12 minutes of battery backup time with P/N 920-00337-003 batteries under a full operational load (3 hrs 30 mins. under a light load). A Low Voltage Disconnect (LVD) monitors the output voltage of the battery system and disconnects the batteries from the circuit when the battery voltage drops below 21 VDC. The LVD also provides the trickle charge path for the batteries during recovery and normal operation.

The System Interface Module (SIM) monitors the performance and alarm state of the rectifiers, amplifier subracks, and Duplexer Low Noise Amplifier (DLNA) modules.