

DESCRIPTION OF THE SYSTEM

The AIM2 system is an automated vehicle fueling system mostly used in fleets. It consists of a fixed unit mounted (FMU 3500) near the fuel dispenser, and a vehicle unit (941B0402) mounted in vehicles. Instead of the user using a key or access number at the fixed unit to get fuel, the vehicle-mounted module uses 2-way communication with the fixed unit to authorize the fueling.

There are two radios in the system. One is an FMU Radio Board (FRB; 941B0404) that plugs into a PCB mounted inside the FMU 3500. The FRB has 2 radios on it for diversity. The radios are connected to two Maxrad MUF9000 antennas mounted on the outside of the FMU 3500. The other unit to be tested (Vehicle Main Board; VMB; 941B0402) is mounted in the vehicle. It has one radio on it. It has a custom PCB antenna. There are 25 channels the radios use, starting at 902.6666 MHz and ending at 926.6666 MHz. The channels are in 1 MHz increments.

During normal operation, the FRB upon bootup will choose a channel based on the lowest noise level. Once that channel is selected, it transmits RF messages to any potential VMB's in the area. It almost continuously transmits serving as a beacon to any VMB's so they can pick up on the signal quickly. Meanwhile, the VMB is continuously sampling each channel looking for any messages from an FRB. The VMB does not transmit until it finds an FRB. Once the VMB finds an FRB, it locks the channel and continues 2-way communication with the FRB until the VMB leaves the area or times out.