

## **DESCRIPTION OF THE SYSTEM**

The AIM2 system is an automated vehicle fueling system. It consists of a fixed unit (FMU 3500) mounted near the fuel dispenser, and a vehicle unit (941B0400) mounted in a vehicle. 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 for authorization to fuel.

There are two units to be tested. One is a Fixed mounted unit (FMU Radio Board (FRB; 941B0404)) that plugs into a PCB mounted inside the FMU 3500. This fixed unit 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 mobile unit to be tested (Vehicle Main Board; VMB; 941B0402) is mounted in the vehicle. It has one radio on it. It has a custom printed circuit antenna. There are 25 channels the radios use, starting at 902.6666 MHz and ending at 927.6666 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.

This application is for only the mobile transmitter.