

## Radio Frequency Local Area Networks (RF LANs)

### Communicating with WMS

Wireless LANs make it possible for wearable computers or hand-held terminals to communicate wirelessly, at high speed, and in real time with remote information systems. A Wireless LAN (WLAN) is the wireless equivalent of an Ethernet wired computer network.

WLANs operate like miniature cellular telephone systems. In a large facility, multiple “access points” (analogous to cell phone towers) are mounted in the ceiling, and as a mobile computer equipped with a WLAN network card moves around the facility, it is automatically “handed off” from one access point to another, just as a cell phone in a moving automobile is transparently “handed off” from one cell tower to the next.

For many years there were multiple competing WLAN technologies, and devices from different manufacturers could not communicate with one another. Today the industry has standardized on wireless LANs established by the IEEE 802.11 standards body and tested for interoperability by the WiFi Alliance. The predominant WLANs are shown in the following table. Note that due to cost and compatibility issues, not all are widely used in industrial environments.

Wireless Standard	Frequency Band	Signalling Rate	Typical Throughput	Industrial Use?
802.11b	2.4 GHz	11 Mbps	6 Mbps	Widespread
802.11g	2.4 GHz	54 Mbps	22 Mbps	Minimal
802.11a	5 GHz	54 Mbps	30 Mbps	Minimal