



**R&D Group**

## **WLP-1100F Theory of Operation**

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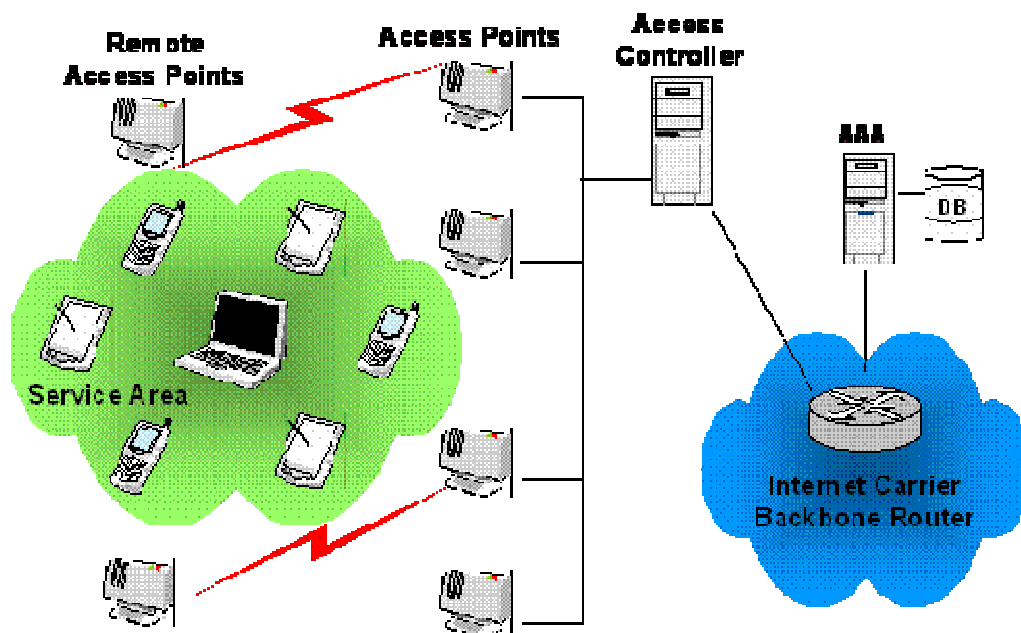
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## **WLP-1100F Theory of Operation**

### **1. General description**

The WLP is designed to be an outdoor Wireless LAN Access Point (AP) to be installed in public wireless LAN hot spots / hot zones. A user in the vicinity of the AP, that has a laptop / PDA or cell phone with a wireless LAN NIC (Network Interface Card) can associate with the AP and be connected to the Internet.



In a public WLAN (wireless LAN) installation, the WLPs will be installed by large service providers or cellular operators in areas where there will be a demand for this service, such as train stations, airports, convention centers and business areas. Another option is that the WLP will be installed in a campus (such as a university or hospital) by the "owner" of the campus.

### **1.1 Typical Installations**

The WLP-1100F will typically be installed either outdoors to provide outdoor coverage of Campuses or city neighborhoods, or in large indoor locations such as train stations, airports etc. In outdoor installations the WLP-1100F will typically be mounted either on a



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pole or on an outside wall of a building. In indoor installation, the WLP-1100F will typically be mounted on wall.

The 5GHz interface (or interfaces) allows some of the WLS's to be installed without cable connection to the Internet. The units that are installed in vicinity form link between each other and can transfer data to the nearest Internet connection.

The (optional) 4.9GHz interface allows an overlay of a public safety network using the WLP infrastructure.

### **2. WLP-1100F Architecture**

The WLP's access channel employs a multi element (4) antenna with a beam steering algorithm to steer a directional beam in the direction of the STA from which it is receiving information / to which it is transmitting information.

The beam steering is performed digitally on the Base Band (BB) signal. In transmission the BB signal is duplicated 4 times. Each "copy" of the signals is modified digitally and transmitted to a separate RF chain. Each of the 4 RF chains performs up – conversion and amplification separately and drives one of the 4 antenna elements. A similar performance happens in reception.

### **3. 5GHz interface**

The 5GHz interface (or interfaces) is constructed using an “off the shelf” module, installed into the unit's miniPCI connector.

### **4. 4.9GHz interface**

The 4.9GHz interface (if assembled) is constructed using an “off the shelf” module, installed into the unit's miniPCI connector.