

## LocAir

### Active RFID over WLAN

Powered by Arada Wireless Software Solution



LocAir™ is an Active RFID over WLAN implementation using low-power wireless Atheros chipsets. It is a simple, fast, and cost-effective RFID implementation for a wide range of applications.

LocAir implements a RFID transaction over the WLAN spectrum and interacts with Access Points (AP) with RFID support, giving reliable, error-free communication. With an internal power source, LocAir transmits at higher power levels than passive tags, allowing it to be more robust in difficult environments and transmit at longer distances.

### Advanced Power Management

The main requirement of Active RFID devices is power management. LocAir works without an external power source, i.e. solely on battery. The product provides the longest battery life by using a patent-pending technique of controlling power to the wireless LAN.

Easy to deploy—with a life of up to 3 years from a 480mAh Li-Ion cell—LocAir is one of the lowest cost RFID solutions around. LocAir leverages commercial off-the-shelf wireless Access Points instead of forcing you to use proprietary RFID readers—further pushing down deployment costs.

Today, active RFID tags have diverse applications including E-Tolling, asset management, product tracking, transportation and logistics, inventory systems, etc.

### Key Benefits

- Active RFID over 802.11
- Dual mode operation: 2.4 GHz and 5GHz
- Supports 5.9GHz (802.11p)
- Leverages existing infrastructure like Access Points to work with tags, thus saving on cost

- Uses standard Atheros hardware, with little customization, making it cheaper for mass production. Long life of LocAir tags—making them ideal for any domain that requires long-term performance with low power consumption eg., space, motion sensor devices, and remote control devices.
- Compact size
- Simplicity in deploying and setting parameters making it easy to use and develop applications for LocAir
- User selectable RFID/WLAN operation mode
- Simple Configuration Protocol (SCP) support
- Very low power consumption in RFID mode

<b>Specifications &amp; Supported Features</b>		
Multi-core Architecture		
Atheros low power WLAN chipset for supporting WLAN.		
Supports both 2.4Ghz and 5GHz operation		
Low Power micro (LPM) controller for controlling power to WLAN.		
150 MHz MIPS R4KEm CPU		
802.11a/b/g MAC/BB/RF		
Ultra low power and energy profile		
Compact form factor		
Multiple expansion interfaces (memory, serial, I <sup>2</sup> S)		
Extendable to operate on 5.9GHz.		
Support for Active Tag programming.		
On time of 60ms (per RFID activity) for transmitting a RFID Packet encapsulated using WLAN protocol		
Support for co-existence of RFID and WLAN with external flash configuration.		
Firmware upgrade option		
Support for embedded LWIP stack in WLAN mode		
Support for simple configuration for devices without input/output mode		
Range & Sensitivity	<b>Data Range (11g)</b>	<b>Sensitivity</b>
	1Mbps	97dBm
	6Mbps	93dBm
	11Mbps	89dBm
	54Mbps	76dBm

Physical Characteristics	
Small Ergonomics	
Fiber Chassis	
Dimensions	3.8 cm by 5 cm by 0.5 cm
Weight	300g
Button Controls	Power button
	Programming button
	Mode selection button

Power Characteristics				
Power	Passive drain - 0.1micro amps. Active drain - 100 milli amps.			
Power Consumption	<b>Operating Mode</b>	<b>Test Result</b>		
	Sleep	0.3mA		
	Listening (Rx)	278mA		
	Tx with PA @15dBm	340mA		
	Optimized Full Operation	260mA		
	Full Operation with APSD	100mA		
Current Usage	<b>Current</b>	<b>400mAH</b>	<b>600mAH</b>	<b>900mAH</b>
	340mA	1.1hr	1.7hr	2.6hr
	278mA	1.4hr	2.2hr	3.2hr
	100mA	4.0hr	6.0hr	9.0hr

Software Features	
Board support package for eCos operating system	
Optimized version of eCos OS kernel	
Flash database manager appropriate for small embedded systems	
Flash write driver for the flash device	
Wireless LAN driver	
Dual mode operation (with and without association)	
Over the air firmware upgrade	
Optional Lightweight IP stack	