

EM MICROELECTRONIC



1cm

# EM9201 and EM6819 Based Reference Design for 2.45 ISM Band Low Power Wireless Network

This reference design utilizes the fully integrated, low power 2.45GHz transceiver EM9201 and the low power microcontroller EM6819 to create a low cost wireless network optimized for prolonged battery lifetime of the peripheral nodes. The network has a star topology, with the central node represented by a PC with a USB dongle, and up to 6 peripheral nodes powered by a CR2032 battery. The design comes with a purpose developed communication stack that was optimized to minimize the current consumption on the peripheral nodes. The communication protocol features frequency hopping, and connection oriented and connectionless data transfer. The parameters of individual connections can be optimized with great variability to achieve the optimal tradeoff between the data rate and current The reference design also consumption. comes with a demonstration application that illustrates basic network operations, and provides tools for visualization of measured data.

#### **Parameters:**

Parameter	Value	Note
Range	>100m	free space
Battery	up to 5	minimal data
lifetime	years	rate
Number of		may be
peripheral	6	increased in
nodes		near future
Maximal	60kbps	
data rate		

### **Typical applications:**

- Remote sensing in general
- Wireless mouse, keyboard etc.
- Wireless sensors in watches
- Wireless sports equipment
- Alarm and security systems

### Peripheral Node



## **Demonstration** Application

EM6819

EM9201

Illustrates basic network operations and provides data visualization tools.

