

**IEEE 802.11  
Wireless LANs**

**Market Driven Functional Requirements**

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Below are a brief set of market driven functional requirements for Wireless Networking as seen by Apple, Sun, and Toshiba. The requirements below are not in any particular order, they are presented at this early stage to stimulate discussion. The last requirement for radiated power control is agreed upon by Apple and Sun, but not by Toshiba.

**1. No end user licence required**

The end user need not obtain a license to operate his wireless equipment. Licensing is inconsistent with unrestricted portability.

**2. Supports collocated, uncoordinated network operation**

The standard shall support two or more networks in geographical proximity to operate independently, and without the need for coordination. For example, two companies who share an office building should be able to operate their wireless networks independently without the need for coordination. This does not mean that one or more of the networks has to change to a different channel. It may mean that the performance may degrade. The degradation needs to be graceful.

**3. No distribution system required**

The standard shall allow two or more stations to communicate wirelessly without the need for a distribution system.

**4. Same station works in a system with and without a distribution system**

We strongly agree with this existing requirement of the PAR.

**5. Station mobility up to pedestrian speed**

The standard shall support moving stations. The supported velocity required is "pedestrian speeds". The standard shall not be burdened with the requirements of supporting stations at speeds above pedestrian speeds.

## **6. Optimized for local area data**

We perceive today's primary need to be wireless LAN data networks. The need is significant and there are no standard bodies addressing this specific requirement except for 802.11. While we understand that the longer term attractiveness of isochronous services, our markets will not withstand additional complexity in the standard for isochronous services, nor delay of the standard to obtain such services.

## **7. Low power drain**

Battery operation is a requirement, the standard must be designed to minimize power consumption.

## **8. Small size**

The size of portable computers continues to decrease. The standard must be designed such that wireless LAN adaptors within portables can be implemented in very small sizes. A future goal is the support of credit card size devices.

## **9. Low cost**

The standard shall allow the production of low cost components for providing wireless networking.

## **10. Self contained, implementable standard**

The standard defined by 802.11 shall be complete and self contained. It must be possible to implement the 802.11 MAC and PHY and utilize all functionality contained in the standard. The 802.11 standard shall not be dependent on parts from other committees or organizations that are not completed or already in existence.

## **11. Time is of the essence**

There is a clear immediate need for wireless LANs. We must aim for the simplest standard that meets the requirements above in the shortest possible time.

## **12. Radiated power control**

It is assumed that there will be a specification on the maximum allowed radiated power. In addition, the standard should support an optional capability for reducing radiated power to the minimum required to achieve satisfactory communications. This reduction in radiated power increases potential capacity of the medium. Moreover, it has the potential of providing a simple way of scaling the capacity of the system automatically by reducing cell sizes.