IEEE P802.11 WPAN SG

Wireless Personal Area Network Guidelines

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- December 2, 1997 Cleveland, OH
- January 15, 1998 Memphis, TN
- March 10, 1998 Irvine, CA
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- "Current" - May 19, 1998 Irving, TX

Summary

- The following slides are a compilation of the Wearables Ad Hoc Committee and IEEE 802.11 WPAN Study Group discussing the Functional Requirements for WPANs.

- This document is a work in process and as such refer to the slides marked "Current" to determine the latest Guidelines.

Submission   Slide 3   Ian Gifford, M/A-COM

Cleveland, OH 12/2/97
Application Matrix

APPLICATION	DATA RATE	RANGE	POWER	UNIT ASP	TOPOLOGY	COMMENTS
CAN	19.2-100K	0-5M	20mW 10/90%	$40	P-P Bus	Courier Area Network
SRVC	.2-10Mb	0-5M	1W 20/80%	$500	P-P Bus	Short range Video Comm.
PMF	1-8Kb	0-3M	600mW 15/85%	$5	P-P	Physiological Medical F.
Inv. Cntl	1-19.2Kb	0-15M	20mW	$50	P-P	Inventory Control
Co-Maint.	1-250Kb	0-15M	250mW 20/80%	$500	P-P/MP	Collaborative Maintenanc
Ent. Audio	10Kb	0-15M	20mW 10/90%	$50	P-P	Entertainment Audio
Target	1-500Kb	0-10M	20mW 10/90%	$50-100	P-P	Gateway Appl. Pot.

Submission   Slide 4   Ian Gifford, M/A-COM

Memphis, TN 1/15/98
Functional Requirements

- Power Management: Low current consumption
- Range: 0-10 meters
- Speed: 19.2 - 100Kbps (actual)
- Small Size e.g., ~.5 cubic inches no antenna
- Low Cost: i.e., relative to target device
- Should allow overlap of multiple networks in the same area
- Networking support for a minimum of sixteen devices

Irvine, CA 3/9/98
Functional Requirements

- Mobility: 0-10mph
- Power Management: Very Low current consumption
- Range: 0-10 meters
- Speed: 19.2 - 100Kbps (actual)
- Small Size e.g., ~.5 cubic inches no antenna
- Low Cost: i.e., relative to target device
- Should allow overlap of multiple networks in the same area
- Networking support for a minimum of sixteen devices

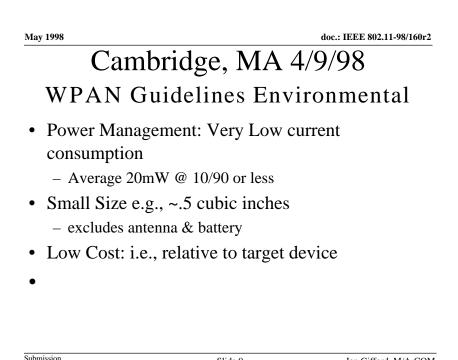# Irvine, CA 3/10/98
Environmental Requirements

- Power Management: Very Low current consumption
  - Average 20mW @ 10/90 or less
- Small Size e.g., ~.5 cubic inches w/o antenna
- Low Cost: i.e., relative to target device
-

Irvine, CA 3/10/98
Functional Requirements WPAN

- Range: 0-10 meters
- Mobility: 0-10mph (no roaming to another PAN)
- Effective Data Rate at the MAC SAP: (19.2 - 100) kbit/s (actual 1 device to 1 device)
- Should allow coexistence of multiple Wireless PAN's in the same area (20 within 400 square feet)
- Should allow coexistence of multiple Wireless Systems i.e. P802.11 in the same area
- Networking support for a minimum of 16 devices
- Bridge or Gateway connectivity to other data networks

Cambridge, MA 4/9/98
WPAN Guidelines Environmental

- Power Management: Very Low current consumption
  - Average 20mW @ 10/90 or less
- Small Size e.g., ~.5 cubic inches
  - excludes antenna & battery
- Low Cost: i.e., relative to target device
-

Cambridge, MA 4/9/98 WPAN Guidelines Technical

- Range: 0-10 meters
- Mobility: 0-10mph (hand-off not required to another PAN)
- Effective Data Rate at the MAC SAP: (19.2 - 100) kbit/s (actual 1 device to 1 device)
- Should allow coexistence of multiple Wireless PAN's in the same area (20 within 400 square feet)
- Should allow coexistence of multiple Wireless Systems i.e. P802.11 in the same area
- Networking support for a minimum of 16 devices
- Bridge or Gateway connectivity to other data networks

Current WPAN Guidelines
Sorted ABC's

- A
  – WPANs will seek worldwide spectrum allocations for unlicensed bands e.g., 2.4GHz
  – Low Cost: i.e., relative to target device
  – Small Size e.g., ~.5 cubic inches
    - excludes antenna & battery
  – Power Management: Very Low current consumption
    - Average 20mW @ 10/90 or less
  – Data
  – Should allow coexistence of multiple Wireless PAN's in the same area (20 within 400 square feet)
  – Should allow coexistence of multiple Wireless Systems i.e. P802.11 in the same area
  – WPAN Network Access Control

Current WPAN Guidelines
Sorted ABC's

- B
  – Delivered Data Throughput at the MAC SAP: (19.2 - 100) kbit/s (actual 1 device to 1 device)
  – All devices within a WPAN must be able to communicate with each other
  – Networking support for a minimum of 16 devices
  – Voice
  – Range: 0-10 meters
  – Attach: within one (1) second, once within range
  – Bridge or Gateway connectivity to other data networks

Current WPAN Guidelines
Sorted ABC's

- C
  - No single element of failure
  - Video
  - Roaming: hand-off to another PAN

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New Guidelines

- WPAN Density: 1 WPAN in 2 square meters, average density at acceptable [TBD] performance levels
- Power Consumption: Each WPAN Device will consume <20 mW long term average [TBD] given a 10% TxRx load in the WPAN

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