

HomeRF

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HomeRF

- **IEEE 802.11b** sponsored by Wireless Ethernet Compatibility Alliance (**WECA**)
- **HomeRF** sponsored by **HomeRF working group**
- Wireless Home Networking

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Goal

- Home (small office) networking applications
- Range 150 ft (45m)
- Support both voice and data
 - Cordless phone
- Easy to use
- Security

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Technologies

- Based on HomeRF working group's Shared Wireless Access Protocol (**SWAP**)
- SWAP was derived from **IEEE 802.11** and **DECT** (Digitally Enhanced Cordless Telephony)

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Technologies

- 2.4 GHz ISM band
- FHSS with 50 hops per sec (dwell time = 20 ms)
- Tx Power = 100mW
- HomeRF 1.0 (1.6 Mbps) uses 4-FSK
- HomeRF 2.0 (10 Mbps) uses ?
- Support up to 127 devices

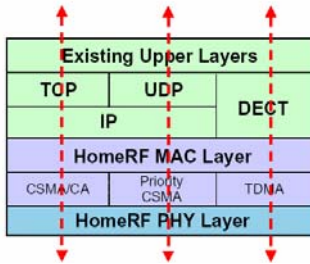
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Technologies

- Relax IEEE 802.11 spec. (eliminate the use of RTS/CTS frames)
- More complex frame structure
 - Employs a hybrid TDMA/CSMA frame
- **TDMA** → isochronous tx (up to 6 full-duplex conversation)
- **CSMA** → asynchronous tx (similar to 802.11)

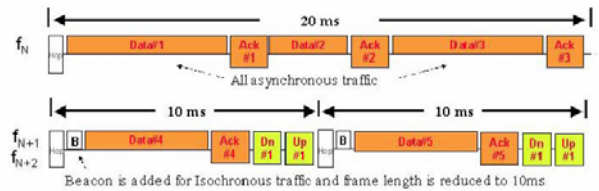
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HomeRF Network Layers



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HomeRF Frame Structure



Dn#1 / Up#1 → Full duplex TDMA
Data#4 → contention-based

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Security

- 128-bit key encryption
- 32-bit IV (802.11 → 24-bit IV)
- Shared secret network ID (NWID)

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Comparison

Categories	HomeRF	IEEE 802.11b
Speed	10 Mbps	11 Mbps
High Security	Yes	Yes
User Installable	Yes	No-Yes
Voice support	Yes	No
Enhanced Telephone Features	Yes	No
Low Power Consumption	Yes	No

Source: www.homerf.org

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References

- <http://www.homerf.org>
- *Data Over Wireless Networks, Bluetooth, WAP, and Wireless LANs*, Gilbert Held, McGraw-Hill, 2001

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