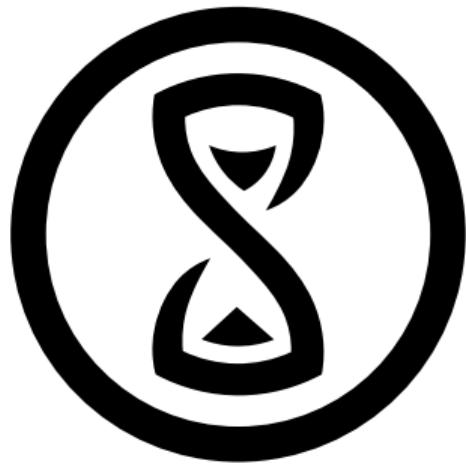# WTF is IEEE802.15.4?

<Emantor>
14. Mai 2017

Stratum 0

ieee802.15.4, why?

- ieee standard, ratified in 2003
- low-power
- low-communication
- wlan not suitable

ieee802.15.4, why?

- WPAN (Wireless Personal Area Networks)
- Up to 10 meters
- maximum transmission speeds: 250 kBit/s
- 30 KByte/s w/o overhead
- Maximum frame size 127 Bytes

Definitions

- Wireless
- Physical Layer (PHY)
- Media Access Control (MAC)
- Frame types
    - Data
    - Acknowledge
    - Beacon
    - MAC command

Frequencies

- Standard "free", no cost frequencies
- Europe: 868-868.6Mhz, 1 Channel
- North America: 902-928Mhz, ten, then thirteen channels (2006)
- Worldwire: 2400–2483.5 MHz, sixteen channels

Access

- Carrier-Sense Multiple Access (CSMA)
- CA (Collision Avoidance)
- Synchronization:
    - Beacon Synchronization
    - or Exponential Backoff

Implementations

- Zigbee
- 6LowPAN (IPv6 over IEEE802.15.4)
- WirelessHART

Cost

- CC2530 board w/o power supply $ 10
- use DooM to get it cheaper!

Sources

- https://en.wikipedia.org/wiki/IEEE_802.15.4
- https://www.sonoma.edu/users/f/farahman/sonoma/courses/cet543/
  resources/802_intro_01655947.pdf